

297-5111-501

DMS-100 Family

# **DMS SuperNode DataSPAN Frame Relay Service Maintenance Guide**

BCS36 and up Standard 05.03 August 1995

---





---

DMS-100 Family

# DMS SuperNode DataSPAN Frame Relay Service Maintenance Guide

---

Publication number: 297-5111-501  
Product release: BCS36 and up  
Document release: Standard 05.03  
Date: August 1995

---

© 1991, 1992, 1993, 1994, 1995 Northern Telecom  
All rights reserved.

Printed in the United States of America

**NORTHERN TELECOM CONFIDENTIAL:** The information contained in this document is the property of Northern Telecom. Except as specifically authorized in writing by Northern Telecom, the holder of this document shall keep the information contained herein confidential and shall protect same in whole or in part from disclosure and dissemination to third parties and use same for evaluation, operation, and maintenance purposes only.

Information is subject to change without notice. Northern Telecom reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two rules:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This device complies with Class "A" limits for radio interference as specified by the Canadian Department of Communications Radio Interference Regulations.

DataSPAN, DMS, DMS SuperNode, MAP, and NT are trademarks of Northern Telecom. Datapath is a trademark used by Northern Telecom under licence. Ethernet is a trademark of Xerox Corporation. SEAS is a trademark of Bellcore.

---



---

# Publication history

---

## August 1995

BCS36 and up Standard 05.03

- included technical changes to resolve PRS BX39898

## February 1994

BCS36 and up Standard 05.02

- included technical and editorial changes from the review of the preliminary release

## December 1993

BCS36 and up Preliminary 05.01

- added new procedure for obtaining summary information rate (SIR) statistics in support of committed information rate (CIR)
- added new procedure for obtaining CIR statistics in support of CIR
- added new information for the QUERYCH command in support of CIR
- added new information for the QPLLC command in support of CIR, and congestion control and buffer enhancement
- added alarm clearing procedures for frame relay interface units (FRIU) installed in the single-shelf link peripheral processor (SSLPP)
- removed the chapter “DataSPAN FRS command reference” to eliminate duplication between this document and the *Menu Commands Reference Manual*, 297-1001-821
- removed alarm clearing procedures to eliminate duplication between this document and *Lines, Trunks, and Peripherals Peripheral Modules Alarm Clearing and Performance Monitoring Procedures*, 297-1001-582
- removed card replacement procedures to eliminate duplication between this document and *Lines, Trunks, and Peripherals Card Replacement Procedures*, 297-1001-589

## March 1993

BCS35 and up Standard 04.01

- made further corrections and upgraded the document
- added information supporting Frame Capture tool and ISDN access

**March 1993**

BCS34 and up Standard 03.04

- made additional corrections and upgraded the document
- corrected routine and FRIU alarm-clearing procedures
- revised LIM and LIMF alarm-clearing procedures
- added Command Reference section

**July 1992**

BCS34 and up Standard 03.03

- made corrections and upgraded the document
- added fractional T1 access information
- added automatic logical link connection (ALLC) information
- added extended superframe format (ESF) information

---

# Contents

---

<b>About this document</b>	<b>ix</b>
When to use this document	ix
How to identify the software in your office	ix
How DMS SuperNode DataSPAN FRS documentation is organized	x
References in this document	xi
What precautionary messages mean	xii
How commands, parameters, and responses are represented	xiii
<b>Introduction to DataSPAN FRS maintenance</b>	<b>1-1</b>
Alarm clearing	1-2
Trouble locating	1-3
Recovery	1-3
Routine maintenance	1-3
Card replacement	1-4
Logs	1-4
<b>DataSPAN FRS alarm clearing procedures</b>	<b>2-1</b>
Task list	2-1
DMS SuperNode alarms	2-3
PM alarms	2-5
DataSPAN FRS alarms	2-5
Identifying DataSPAN FRS alarms	2-6
PM FRIU	
critical (on an LPP)	2-7
critical (on an SSLPP)	2-23
PM FRIU	
major (on an LPP)	2-37
major (on an SSLPP)	2-51
PM FRIU	
minor (on an LPP)	2-63
minor (on an SSLPP)	2-85
<b>DataSPAN FRS trouble locating and clearing procedures</b>	<b>3-1</b>
Task list	3-1
Troubleshooting a customer-reported failure	
No FRIU alarms	3-3
No PM alarms	3-9

---

**DataSPAN FRS routine maintenance procedures 4-1**

- Task list 4-1
  - Conducting a carrier loopback test 4-3
  - Determining PVC status 4-11
  - Obtaining CIR statistics 4-17
  - Obtaining SIR statistics 4-23
  - Removing a loop after a carrier remote loopback test 4-27
  - Removing a loop after a channel remote loopback test 4-33
  - Setting up a loop for a carrier remote loopback test 4-39
  - Setting up a loop for a channel remote loopback test 4-45
  - Using the frame relay capture tool 4-51
- 

**DataSPAN FRS card replacement procedures 5-1**

- Task list 5-1
  - NTEX22
    - for an FRIU in an LPP link interface shelf 5-3
    - for an FRIU in an SSLPP 5-15
  - NTEX30
    - for an FRIU in an LPP link interface shelf 5-27
    - for an FRIU in an SSLPP 5-39
  - NTEX31
    - for an FRIU in an LPP link interface shelf 5-51
    - for an FRIU in an SSLPP 5-63
- 

**Interpreting and responding to log reports 6-1**

- Index of DMS log reports 6-2
  - OM to log report associations 6-5
  - AMAB120 6-6
  - DDM100 6-7
  - DDM101 6-8
  - DDM102 6-9
  - DDM103 6-10
  - DDM104 6-11
  - DDM105 6-12
  - DDM106 6-13
  - DDM107 6-14
  - FRS101 6-15
  - FRS110 6-16
  - FRS111 6-17
  - FRS121 6-18
  - FRS181 6-19
  - FRS201 6-20
  - FRS301 6-21
  - PM102 6-23
  - PM103 6-24
  - PM104 6-25
  - PM105 6-26
  - PM106 6-27
  - PM109 6-28
  - PM110 6-29
-

---

PM111	6-30
PM128	6-31
PM181	6-32
PM182	6-33
PM183	6-34
PM184	6-35

---

**List of terms**

**7-1**

---

**List of figures**

Figure 2-1	General layout of the maintenance level of the MAP	2-4
------------	--	-----

---

**List of tables**

Table 6-1	Index of DataSPAN associated AMAB log reports	6-2
Table 6-2	Index of DataSPAN associated DDM log reports	6-2
Table 6-3	Index of DataSPAN associated FRS log reports	6-3
Table 6-4	Index of DataSPAN associated PM log reports	6-4

---



---

## About this document

---

This document describes DataSPAN frame relay service (FRS) maintenance. The maintenance procedures consist of maintaining the quality of the associated T1 carriers, identifying and clearing DMS-100 Family system alarms that are associated with the DataSPAN FRS product, identifying and responding to log reports. The information in this document is designed for maintenance personnel in an operating company.

### When to use this document

Northern Telecom (NT) software releases are referred to as batch change supplements (BCS) and are identified by a number, for example, BCS29. This document is written for DMS-100 Family offices that have BCS36 and up.

More than one version of this document may exist. The version and issue are indicated throughout the document, for example, 01.01. The first two digits increase by one each time the document content is changed to support new BCS-related developments. For example, the first release of a document is 01.01, and the next release of the document in a subsequent BCS is 02.01. The second two digits increase by one each time a document is revised and rereleased for the same BCS.

To determine which version of this document applies to the BCS in your office, check the release information in *DMS-100 Family Guide to Northern Telecom Publications*, 297-1001-001.

### How to identify the software in your office

The *Office Feature Record (D190)* identifies the current BCS level and the NT feature packages in your switch. You can list a specific feature package or patch on the MAP (maintenance and administration position) terminal by typing

```
>PATCHER;INFORM LIST identifier
```

and pressing the Enter key.

where

identifier is the number of the feature package or patch ID

You can identify your current BCS level and print a list of all the feature packages and patches in your switch by performing the following steps. First, direct the terminal response to the desired printer by typing

**>SEND printer\_id**

and pressing the Enter key.

*where*

printer\_id is the number of the printer where you want to print the data

Then, print the desired information by typing

**>PATCHER;INFORM LIST;LEAVE**

and pressing the Enter key.

Finally, redirect the display back to the terminal by typing

**>SEND PREVIOUS**

and pressing the Enter key.

## **How DMS SuperNode DataSPAN FRS documentation is organized**

This document is part of DMS SuperNode DataSPAN FRS documentation that supports the Northern Telecom line of DMS SuperNode DataSPAN FRS products. DMS SuperNode DataSPAN FRS documentation is a subset of the DMS-100 Family library.

The DMS-100 Family library is structured in numbered layers, and each layer is associated with an NT product. To understand DMS SuperNode DataSPAN FRS products, you need documents from the following layers:

- DMS-100 Family basic documents in the 297-1001 layer
- DMS SuperNode documents in the 297-5001 layer
- DMS SuperNode DataSPAN FRS documents in the 297-5111 layer

DMS SuperNode DataSPAN FRS documents and other documents that contain related information are listed in “Finding DMS SuperNode DataSPAN FRS information” in *DMS SuperNode DataSPAN FRS Product Guide*, 297-5111-010.

## References in this document

The following documents are referred to in this document.

<b>Number</b>	<b>Title</b>
297-1001-001	<i>DMS-100 Family Guide to Northern Telecom Publications</i>
297-1001-450	<i>DMS-100 Family Provisioning</i>
297-1001-455	<i>DMS-100 Family Office Parameters Reference Manual</i>
297-1001-531	<i>Common Channel Signaling 7 Maintenance Reference Manual</i>
297-1001-580	<i>Lines, Trunks, and Peripherals IOD Alarm and Performance Monitoring Procedures</i>
297-1001-581	<i>Lines, Trunks, and Peripherals ENET and Net Alarm and Performance Monitoring Procedures</i>
297-1001-582	<i>Lines, Trunks, and Peripherals Peripheral Modules Alarm and Performance Monitoring Procedures</i>
297-1001-583	<i>Lines, Trunks, and Peripherals External Subsystems Alarm and Performance Monitoring Procedures</i>
297-1001-585	<i>Lines, Trunks, and Peripherals Trunks Alarm and Performance Monitoring Procedures</i>
297-1001-586	<i>Lines, Trunks, and Peripherals Trouble Locating and Clearing Procedures</i>
297-1001-587	<i>Lines, Trunks, and Peripherals Recovery Procedures</i>
297-1001-588	<i>Lines, Trunks, and Peripherals Routine Maintenance Procedures</i>
297-1001-589	<i>Lines, Trunks, and Peripherals Card Replacement Procedures</i>
297-1001-820	<i>DMS-100 Family Non-menu Commands Reference Manual</i>
297-1001-821	<i>DMS-100 Family Menu Commands Reference Manual</i>
297-1001-840	<i>Log Report Reference Manual</i>
297-5001-543	<i>DMS SuperNode Alarm and Performance Monitoring Procedures</i>
298-5101-543	<i>DMS SuperNode Signalling Transfer Point Alarm and Performance Monitoring Procedures</i>
297-5111-010	<i>DataSPAN Frame Relay Service Product Guide</i>
297-5111-101	<i>DataSPAN Frame Relay Service Planning And Engineering Guide</i>
297-5111-301	<i>DataSPAN Frame Relay Service Administration Guide</i>

## What precautionary messages mean

Danger, warning, and caution messages in this document indicate potential risks. These messages and their meanings are listed in the following chart.

Message	Significance
DANGER	Possibility of personal injury
WARNING	Possibility of equipment damage
CAUTION	Possibility of service interruption or degradation

Examples of the precautionary messages follow.



### **DANGER**

#### **Risk of electrocution**

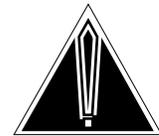
The inverter contains high voltage lines. Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed first. Until these fuses are removed, the high voltage lines inside the inverter are active, and you risk being electrocuted.



### **WARNING**

#### **Damage to backplane connector pins**

Use light thumb pressure to align the card with the connectors. Next, use the levers to seat the card into the connectors. Failure to align the card first may result in bending of the backplane connector pins.



### **CAUTION**

#### **Loss of service**

Subscriber service will be lost if you accidentally remove a card from the active unit of the peripheral module (PM). Before continuing, confirm that you are removing the card from the inactive unit of the PM.

## 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 it is a command:

**>BSY**

### Commands and fixed parameters

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

**>BSY LINK**

### Variables

Variables are shown in lowercase letters:

**>BSY LINK ps\_link**

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:

```
Any active calls may be lost
Please confirm ("YES", "Y", "NO", or "N"):
```

The following example illustrates the command syntax used in this document.

	Step	Action
Step number	1	• Busy the P-side link of the SMU by typing
Instruction		• <b>&gt;BSY LINK ps_link</b>
Command input		• and pressing the Enter key.
Parameters list		• <i>where</i> ps_link is the number of the P-side link (0 through 19)
Example input		• <i>Example input:</i> <b>&gt;BSY LINK 7</b>
Example output		• <i>Example of a MAP response:</i> Any active calls may be lost Please confirm ("YES", "Y", "NO", or "N"):



---

# Introduction to DataSPAN FRS maintenance

---

Maintenance on the DataSPAN frame relay service (FRS) consists of maintaining the quality of the associated T1 carriers, and clearing DMS-100 Family system alarms which are associated with the DataSPAN FRS product.

This introduction provides an overview of maintenance functions required to maintain DataSPAN FRS. Topics are organized into the following sections:

**Alarm clearing** on page 1-2 provides an overview of alarm clearing and performance monitoring procedures for DataSPAN FRS. It also lists other NTPs containing alarm clearing and performance monitoring procedures.

**Trouble locating** on page 1-3 provides an overview of trouble-locating requirements for DataSPAN FRS.

**Recovery** on page 1-3 provides an overview of office recovery requirements for DataSPAN FRS.

**Routine maintenance** on page 1-3 provides an overview of routine maintenance procedures for DataSPAN FRS. It also lists other NTPs containing routine maintenance procedures for other aspects of the DMS SuperNode.

**Card replacement** on page 1-4 provides an overview of card replacement procedures for DataSPAN FRS. It also lists other NTPs containing card replacement procedures for other aspects of the DMS SuperNode.

**Logs** on page 1-4 provides an overview of the logs relevant to DataSPAN FRS operations and fault clearing.



**WARNING**

**Radio-frequency generating and photographic flash equipment can cause service outage**

Post signs at entrances to switch rooms forbidding the use of radio-frequency (RF) generating and photographic flash equipment.

Operating RF-generating equipment (such as cellular telephones) near the switch can cause degradation of switch performance. The maximum field strength of RF signals near the CC front end should not exceed 5.0 V/m.

Operating a photographic flash unit near a magnetic tape drive can cause a severe malfunction. Magnetic tape drives that use optical devices to detect beginning- and end-of-tape marks are extremely susceptible to flash units.

## Alarm clearing

Alarm indications on the MAP banner inform telephone company personnel of problems that affect service. Trouble reports from customers can also provide indications of problems. The chapter in this document provides procedures for clearing alarms on FRIUs in both the LPP and the SSLPP.

For alarm clearing and performance monitoring procedures for other DMS SuperNode cards in other frames, refer to the following documents:

- *Lines, Trunks, and Peripherals IOD Alarm Clearing and Performance Monitoring Procedures, 297-1001-580*
- *Lines, Trunks, and Peripherals Network Alarm Clearing and Performance Monitoring Procedures, 297-1001-581*
- *Lines, Trunks, and Peripherals Peripheral Module Alarm Clearing and Performance Monitoring Procedures, 297-1001-582*
- *Lines, Trunks, and Peripherals External Alarm Clearing and Performance Monitoring Procedures, 297-1001-583*
- *Lines, Trunks, and Peripherals Trunk Alarm Clearing and Performance Monitoring Procedures, 297-1001-585*

Both menu and non-menu commands are used to complete these procedures. Refer to *DMS-100 Family Non-menu Command Reference Manual, 297-1001-820*, and *DMS-100 Family Menu Command Reference Manual, 297-1001-821*, for a complete description of all commands.

## Trouble locating

Trouble locating for DataSPAN is similar to trouble locating for any DMS SuperNode office. Procedures specific to DataSPAN FRS are described in this document:

- responding to customer reported faults
- PVC status and traffic information
- display committed information rate (CIR) statistics
- display summary information rate (SIR) statistics

If the office is a Common Channel Signaling 7 (CCS7) node, additional procedures for trouble locating are available in the documentation suite for that node. Refer to the DMS SuperNode CCS7 documents in the 297-5101 layer. Additional trouble locating procedures for the DMS-100 switch are described in *Lines, Trunks, and Peripherals Troubleshooting Procedures*, 297-1001-586.

## Recovery

Because DataSPAN FRS is installed in the DMS SuperNode environment, recovery procedures are identical to those used to return a DMS SuperNode installation to service. No additional recovery procedures are required or provided for in this document.

For recovery procedures, refer to *Lines, Trunks, and Peripherals Recovery Procedures*, 297-1001-587. If the office is a Common Channel Signaling 7 (CCS7) node, refer to the DMS SuperNode CCS7 documents in the 297-5101 layer.

## Routine maintenance

Routine maintenance is undertaken to maintain the quality of the DataSPAN equipment, thereby reducing the occurrence of malfunctions. Procedures are available to do the following:

- set up and take down of the carrier loopback test
- use of the frame relay frame capture tool
- tracking of committed information rate (CIR) programming

Additional information on routine maintenance required for non-FRIU specific aspects of the DMS SuperNode can be found in *Lines, Trunks, and Peripherals Routine Maintenance Procedures*, 297-1001-588.

Both menu and non-menu commands are used to complete these procedures. Refer to *DMS-100 Family Non-menu Command Reference Manual*, 297-1001-820, and *DMS-100 Family Menu Command Reference Manual*, 297-1001-821, for a complete description of all commands.

## Card replacement

Card replacement is performed both in response to alarms and also as part of routine maintenance. Where hardware faults generate alarms on the MAP banner, one or more cards associated with the faulty FRIU may need to be replaced. Routine maintenance procedures may require that cards are pulled from service, either for testing or for return to Northern Telecom.

The chapter in this document provides only those card replacement procedures required for replacement of LPP- and SSLPP-based FRIUs. For card replacement procedures for other DMS SuperNode cards in other frames, refer to *Lines, Trunks, and Peripherals Card Replacement Procedures*, 297-1001-589.

Both menu and non-menu commands are used to complete these procedures. Refer to *DMS-100 Family Non-menu Command Reference Manual*, 297-1001-820, and *DMS-100 Family Menu Command Reference Manual*, 297-1001-821, for a complete description of all commands.

## Logs

Logs provide information on the operational status of the DMS SuperNode, including the status of DataSPAN FRS. This document describes the logs that are specific to DataSPAN FRS.

Complete information on DMS SuperNode logs can be found in *Log Report Reference Manual*, 297-1001-840.

---

## DataSPAN FRS alarm clearing procedures

---

This chapter contains procedures for clearing frame relay interface unit (FRIU) alarms for DataSPAN frame relay service (FRS). Before using these procedures, investigate the log reports. These reports contain information that is useful in correcting the fault. The chapter “Interpreting and responding to log reports” describes the log reports of interest.

### Task list

The following list provides the names of all the procedures in this chapter in alphabetical order. To find the appropriate procedure for an alarm, look for the alarm name in the left column and go to the page number listed in the right column. If more than one entry appears under an alarm name, look for the context of the alarm (for example, FRIU), and then the class of the alarm (critical, major, or minor).

To find the procedure in this chapter, do the following:

- 1 Check the alarm indicator.
- 2 Find the indicator in the list below.
- 3 Go to the page indicated.

---

<b>To clear alarms</b>	<b>Go to page</b>
PM FRIU	
critical (in an LPP)	2-7
critical (in an SSLPP)	2-23
PM FRIU	
major (in an LPP)	2-37
major (in an SSLPP)	2-51
PM FRIU	
minor (in an LPP)	2-63
minor (in an SSLPP)	2-85

---

General information on alarm clearing is provided in the remainder of this section.

This chapter contains procedures for clearing alarms. For each alarm in this chapter, you will find a procedure containing the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

### **Explanatory and context-setting information**

The first page of each procedure contains the following headings:

- Indication (where the alarm appears on the MAP display)
- Meaning (what faults can cause the alarm)
- Impact (how the fault affects subscriber service)
- Common procedures (any common procedures needed to complete the alarm clearing procedure)
- Action (how to use the flowchart and step-action instructions)

### **Summary flowchart**

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it. For example, if you see that these instructions involve another office, you will know to advise that office before you begin the step-action instructions.

### **Step-action instructions**

The step-action instructions tell you how to clear an alarm. Normally you will perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step may depend on previous steps; therefore, always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the “Common procedures” chapter of this book to perform a set of instructions, or to another NTP for a related procedure. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing the procedure. For more information on DMS system commands or output, see the “About this document” chapter at the beginning of this document for the appropriate NTP number.

**Note:** Throughout this chapter, the greater than symbol (>) means type the command that follows and press the carriage-return key, unless otherwise indicated.

## DMS SuperNode alarms

The DMS SuperNode switch uses an alarm system to alert maintenance personnel of a component malfunction. The alarm system can provide audio and visual annunciators. These can be tailored to the specific requirements of the operating company.

Audio alarms include bells, gongs, and horns which can be programmed to alert personnel to the severity of the fault. A visual alarm (a red light) is located at the end of the aisle where the faulty component is located. If the switch is located on a number of floors in a building, an additional set of lights identify the floor on which the fault has occurred.

When an alarm occurs, maintenance personnel use the maintenance and administration position (MAP) to identify the system containing the fault. The systems commonly used by a DMS SuperNode switch are:

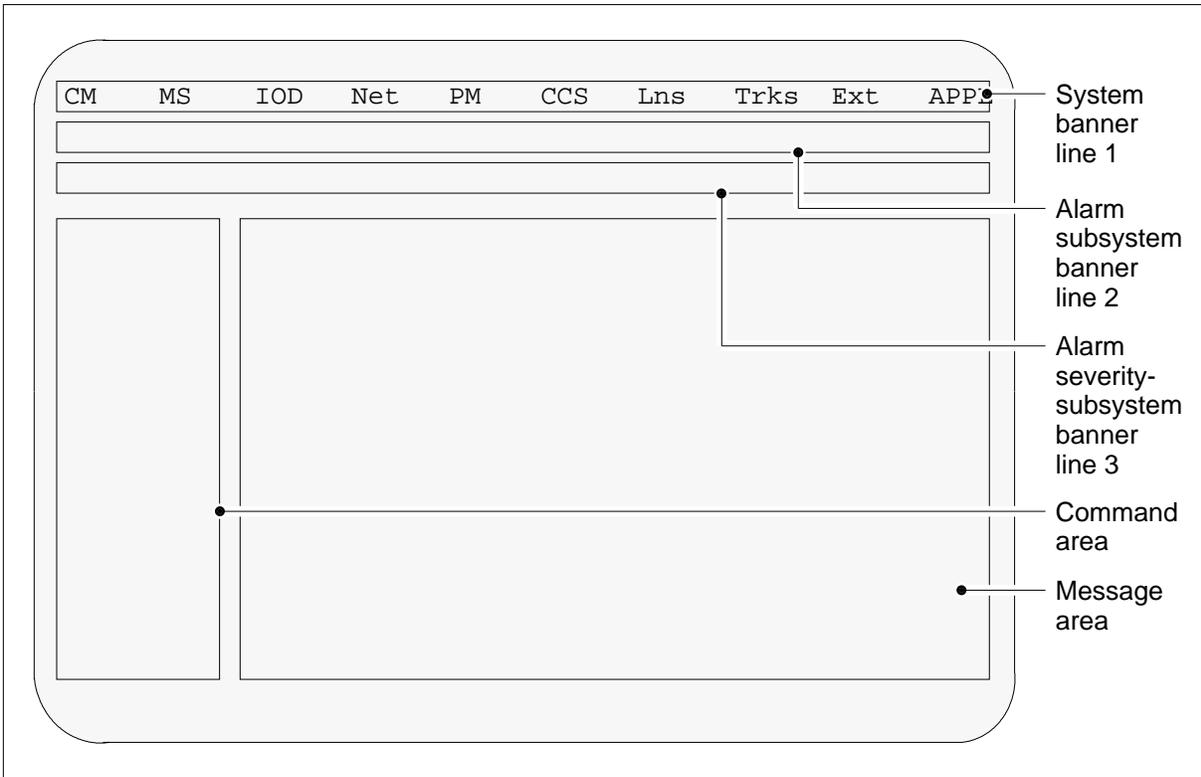
CM	the computing module
MS	the messaging system
IOD	the input and output devices
Net	the switching network
PM	peripheral modules
CCS	the common channel signaling systems
Trks	the trunk groups and trunk modules system
Ext	the external systems

At the MAP, maintenance personnel access the maintenance level of the MAP command interpreter (MAPCI) to identify the faulty system. The illustration in figure 2-1 shows the general layout of the systems alarm area. The top three lines on the screen are used to display alarms.

The systems are also ordered on the screen by degree of severity. The severity is ordered from the left. This means that a PM major alarm is more serious than a CCS major alarm, but less serious than an IOD major alarm. Generally, alarms to the left are cleared first, although individual offices may have alternate approaches to alarm priority.

**Figure 2-1xxx**  
**General layout of the maintenance level of the MAP**

FW30205



## PM alarms

The DataSPAN FRS equipment is classified as peripheral modules. Associated alarms are displayed under the PM banner of MAPCI. Since only one PM alarm is displayed at any one time, a hierarchical method is used to select a PM alarm for display when there are multiple alarms. This means that the displayed PM alarm will mask alarms of lesser severity within the alarm structure.

When a fault is detected, the system displays an alarm on the banner and initiates a recovery action. A PM alarm can change severity or be cleared due to the maintenance action performed by the system. For this reason some of the maintenance procedures in this document may advise personnel to wait a short period of time to permit system-initiated recovery to complete. When an alarm is cleared, any previously masked alarm of lesser severity is then displayed in the banner.

The alarm clearing procedures in this document apply to DataSPAN FRS-related equipment. Equipment that is common to other services provided on the DMS SuperNode are documented in either the DMS SuperNode 297-1001 layer or the DMS SuperNode CCS7 297-5101 layer.

## DataSPAN FRS alarms

DataSPAN FRS equipment consists of frame relay interface units (FRIU) mounted in link peripheral processor (LPP) cabinets, and the associated dedicated T1 carriers.

The FRIU is the only DataSPAN FRS component on which faults result in alarms under the PM header in the alarm banner. Alarms that apply to the T1 carrier are also included in FRIU alarms. The DMS SuperNode alarms which affect DataSPAN FRS include the following:

- FRIU critical
- FRIU major
- FRIU minor
- LIM critical
- LIM major
- LIM minor
- LIMF critical
- LIMF major

Because CCS7 nodes also use the LPP to house CCS7 link interface units (LIU7), an installation containing both CCS7 and the DataSPAN FRS requires investigation of LIM and LIMF alarms to determine which system is affected. FRIU alarms are discussed in this document. LIM and LIMF alarms are documented in the DMS SuperNode 297-1001 layer or the DMS SuperNode CCS7 297-5101 layer.

## Identifying DataSPAN FRS alarms

A fault in the DataSPAN FRS can result in either a customer report or an alarm at the MAP screen.

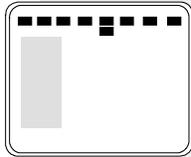
The following list identifies the ways in which a fault can be identified:

- Customer reported failure (no FRIU alarm displayed). The host switch, not equipped with CCS7, indicates alarms (other than FRIU alarms) under the PM banner, and a call has been received from a customer reporting trouble using DataSPAN FRS.
- Customer reported failure without PM alarms. The host switch does not display any PM alarms under the PM banner, but has received a call from a customer reporting trouble using DataSPAN FRS.
- A LIM or LIMF alarm displayed. The host switch (equipped with CCS7 and DataSPAN FRS on separate LPPs) has LPP alarms indicated under the PM banner.
- An FRIU alarm is displayed under the PM banner.

When a fault is identified through an FRIU alarm under the PM banner, it indicates that the problem is in either the FRIU, the T1 carrier, or a channel on the T1 carrier. Use the procedures in this chapter to correct the fault.

**Note:** The Frame Relay Frame Capture tool, which is used to test connections at the FRIU, puts the FRIU into the in-service trouble (ISTb) state. An FRIU minor alarm results. This alarm will be cleared when the frame capture tool has been stopped.

## PM FRIU critical (on an LPP)



CM	MS	IOD	Net	PM	CCS	LnS	Trks	Ext	APPL
.	.	.	.	<b>1FRIU</b> <b>*C*</b>	.	.	.	.	.

### Indication

At the MTC level of the MAP display, FRIU preceded by a number appears under the PM header of the alarm banner, and indicates a frame relay interface unit (FRIU) critical alarm.

### Meaning

One or more FRIUs are system busy or system busy not accessible for one of the following reasons:

- FRIU error interrupts
- FRIU not responding to computing module (CM) because of faults in the link interface module (LIM), message switch (MS), F-buses, or F-bus taps
- in-service test failure

The number of FRIUs affected is indicated by the number under the PM header in the alarm banner.

### Impact

The indicated number of FRIUs are out of service and the T1 channels associated with the FRIUs cannot carry traffic.

### Common procedures

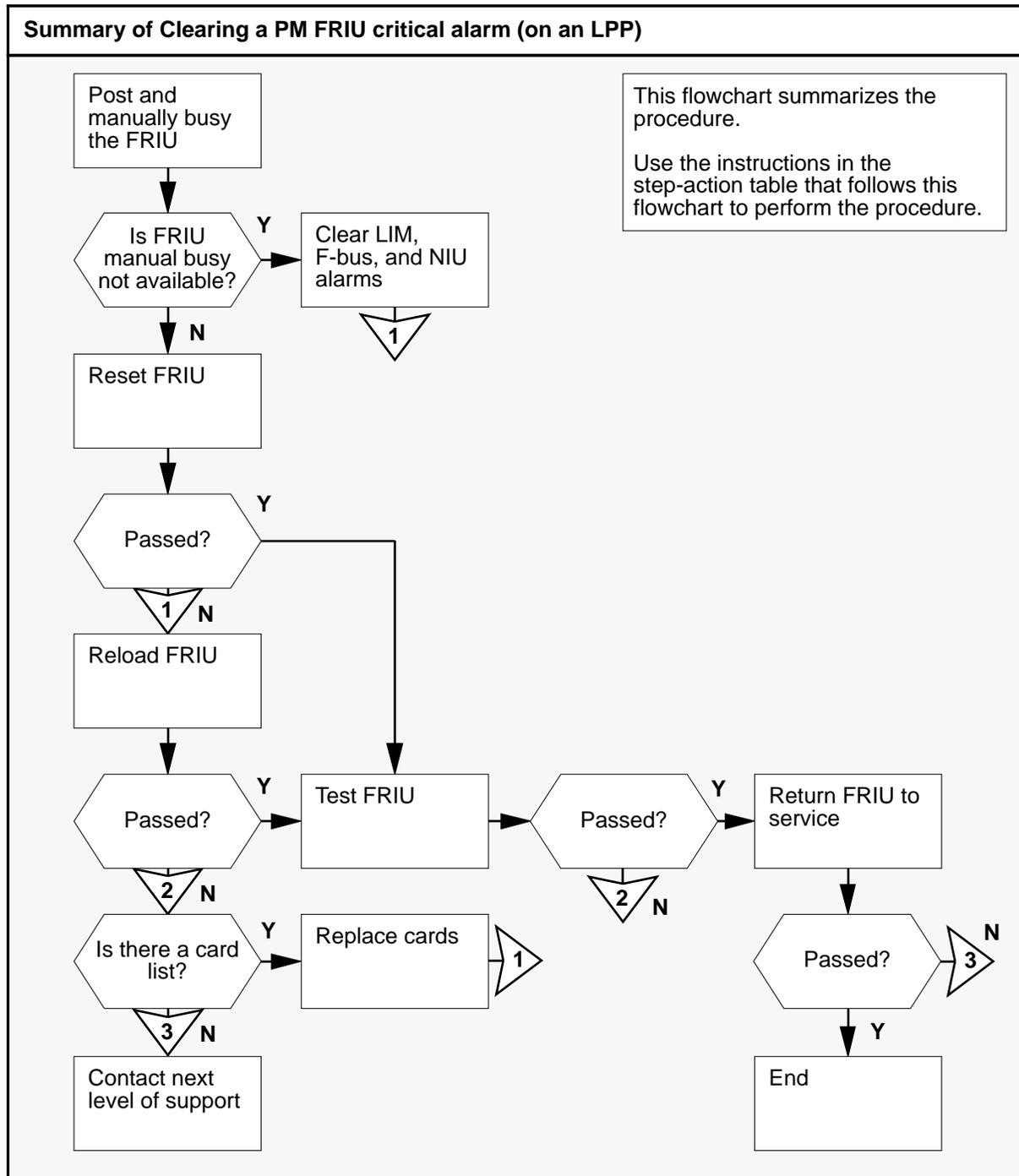
None

### Action

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

PM **FRIU** (continued)

**critical** (on an LPP) (continued)



**PM FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b>															
<b>Step</b>	<b>Action</b>														
<i>At the MAP</i>															
<b>1</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 15%;">SysB</th> <th style="width: 15%;">ManB</th> <th style="width: 15%;">OffL</th> <th style="width: 15%;">CBsy</th> <th style="width: 15%;">ISTb</th> <th style="width: 15%;">InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">70</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
<b>2</b>	<p>Display the system-busy FRIUs by typing <b>&gt;POST FRIU SYSB</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU  121 SysB      Rsvd</pre> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"><b>If the MAP response indicates</b></th> <th style="width: 40%;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>a SysB or SysB (NA) FRIU</td> <td style="text-align: right;">step 6</td> </tr> <tr> <td>End of posted set</td> <td style="text-align: right;">step 3</td> </tr> </tbody> </table>	<b>If the MAP response indicates</b>	<b>Do</b>	a SysB or SysB (NA) FRIU	step 6	End of posted set	step 3								
<b>If the MAP response indicates</b>	<b>Do</b>														
a SysB or SysB (NA) FRIU	step 6														
End of posted set	step 3														
<b>3</b>	<p>Display the system-busy FRIUs by typing <b>&gt;POST FRIU ISTB</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU  121 ISTb (NA) Rsvd</pre> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"><b>If the MAP response indicates</b></th> <th style="width: 40%;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>an ISTb FRIU</td> <td style="text-align: right;">step 4</td> </tr> <tr> <td>an ISTb (NA) FRIU</td> <td style="text-align: right;">step 6</td> </tr> <tr> <td>End of posted set</td> <td style="text-align: right;">step 43</td> </tr> </tbody> </table>	<b>If the MAP response indicates</b>	<b>Do</b>	an ISTb FRIU	step 4	an ISTb (NA) FRIU	step 6	End of posted set	step 43						
<b>If the MAP response indicates</b>	<b>Do</b>														
an ISTb FRIU	step 4														
an ISTb (NA) FRIU	step 6														
End of posted set	step 43														
<b>-continued-</b>															

PM **FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>4</b>	<p>Display the next in-service trouble FRIU by typing  <b>&gt;NEXT</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>                      FRIU 121 ISTb Rsvd</p> <table border="1"> <thead> <tr> <th><b>If the MAP response indicates</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>an ISTb FRIU</td> <td>step 5</td> </tr> <tr> <td>an ISTb (NA) FRIU</td> <td>step 6</td> </tr> <tr> <td>End of posted set</td> <td>step 43</td> </tr> </tbody> </table>	<b>If the MAP response indicates</b>	<b>Do</b>	an ISTb FRIU	step 5	an ISTb (NA) FRIU	step 6	End of posted set	step 43
<b>If the MAP response indicates</b>	<b>Do</b>								
an ISTb FRIU	step 5								
an ISTb (NA) FRIU	step 6								
End of posted set	step 43								
<b>5</b>	Repeat step 4 until an in-service trouble not available FRIU is displayed the end of the posted set is reached.								
<b>6</b>	Record the number of the posted FRIU for use in this procedure.								
-continued-									

**PM FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)					
<b>Step</b>	<b>Action</b>				
<b>7</b>	<p>Query the FRIU to determine the frame type by typing <b>&gt;QUERYPM</b> and pressing the Enter key.</p> <p><b>Note:</b> The FRIU is provisioned in an LPP if the header LIM appears on the far left of the second line in the response. The FRIU is provisioned in an SSLPP if the header MS is shown. In the example, the header is LIM.</p> <p><i>Example of a MAP response:</i>            FRIU FTA: 424B 1000            LIM: 0 Shelf: 1 Slot: 14            Default Load: F8X36CJ            Running Load: F8X36CJ            Carrier is currently InSv.            Carrier Alarm: -----.            LMS States: InSv InSv            Auditing?: Yes Yes            Msg Channels: Acc Acc            TAPs: . .</p> <p><b>If the code is</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">LIM</td> <td>step 9</td> </tr> <tr> <td>MS</td> <td>step 8</td> </tr> </table>	LIM	step 9	MS	step 8
LIM	step 9				
MS	step 8				
<b>8</b>	<p>Perform the procedure <i>Clearing a PM FRIU critical alarm (on an SSLPP)</i> on page 2-23. Do not return to this procedure.</p>				
<b>9</b>	<p>Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>            FRIU carrier will be affected by this mtce action.            Please confirm ("YES", "Y", "NO", or "N"):</p>				
-continued-					

**PM FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>10</b>	<p>Confirm the command by typing  <b>&gt;YES</b>                      and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th><b>If the FRIU is</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>ManB</td> <td>step 29</td> </tr> <tr> <td>ManB (NA)</td> <td>step 11</td> </tr> </tbody> </table>	<b>If the FRIU is</b>	<b>Do</b>	ManB	step 29	ManB (NA)	step 11
<b>If the FRIU is</b>	<b>Do</b>						
ManB	step 29						
ManB (NA)	step 11						
<b>11</b>	<p>Query the FRIU to determine if there are any related C-side faults by typing  <b>&gt;QUERYPM</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>                      FRIU FTA: 424B 1000                      LIM: 0 Shelf: 1 Slot: 14                      Default Load: F8X36CJ                      Running Load:                      Potential service affecting conditions:                          Config Data Mismatch                          Msg Channel #0 NA                          Msg Channel #1 NA                          TAP #0 OOS/NA                          TAP #1 OOS/NA                          Host Unit 0 is not inservice                          Host Unit 1 is not inservice                      Carrier is currently OffL.                      Carrier Alarm: -----.                      LMS States:     SysB             ManB                      Auditing?:     No                No                      Msg Channels:  NA               NA                      TAPs:           S                M</p>						
<b>12</b>	<p>Record the number of the LIM. You will now clear faults associated with the LIM and F-bus.</p> <p><b>Note:</b> The number of the LIM is shown to the right of the LIM header on the MAP response obtained in step 11.</p>						
-continued-							

**PM FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>13</b>	<p>Post the LIM associated with the FRIU by typing</p> <p><b>&gt;POST LIM lim_no</b> and pressing the Enter key.</p> <p><i>where</i> lim_no is the number of the LIM (0 to 16)</p> <p><i>Example of a MAP display:</i></p> <pre style="font-family: monospace;"> LIM 0 ISTb                                 Links_OOS Taps_OOS Unit0: ISTb                      .          12 Unit1: ISTb                      .          12                     </pre>												
<b>14</b>	<p>Access the F-bus level of the MAP display by typing</p> <p><b>&gt;FBUS</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre style="font-family: monospace;"> LIM 0 ISTb                                 Links_OOS Taps_OOS Unit0: ISTb                      .          12 Unit1: ISTb                      .          12                                  Tap: 0    4    8    12   16   20   24   28   32 FBus0: ManB                      BBBB BBBB BBBB BBBB.----- FBus1: ManB                      BBBB BBBB BBBB BBBB.-----                     </pre> <p><b>Note:</b> In the example, symbols under the tap numbers indicate the following:</p> <table style="margin-left: 20px; border: none;"> <tr> <td style="padding-right: 20px;">B</td> <td>F-bus is manual busy or that the controlling LIM unit is system busy or manual busy</td> </tr> <tr> <td>S</td> <td>system-busy tap</td> </tr> <tr> <td>M</td> <td>manual-busy tap</td> </tr> <tr> <td>I</td> <td>in-service trouble tap</td> </tr> <tr> <td>dot (.)</td> <td>in-service tap</td> </tr> <tr> <td>-</td> <td>unequipped tap</td> </tr> </table>	B	F-bus is manual busy or that the controlling LIM unit is system busy or manual busy	S	system-busy tap	M	manual-busy tap	I	in-service trouble tap	dot (.)	in-service tap	-	unequipped tap
B	F-bus is manual busy or that the controlling LIM unit is system busy or manual busy												
S	system-busy tap												
M	manual-busy tap												
I	in-service trouble tap												
dot (.)	in-service tap												
-	unequipped tap												
<b>-continued-</b>													

PM **FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>15</b>	Determine the state of the LIM and both F-buses.  <table border="1"> <thead> <tr> <th><b>If the state of the LIM and both F-buses is</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv and ISTb</td> <td>step 18</td> </tr> <tr> <td>anything else</td> <td>step 16</td> </tr> </tbody> </table>	<b>If the state of the LIM and both F-buses is</b>	<b>Do</b>	InSv and ISTb	step 18	anything else	step 16
<b>If the state of the LIM and both F-buses is</b>	<b>Do</b>						
InSv and ISTb	step 18						
anything else	step 16						
<b>16</b>	Record the state of the faulty LIM and F-buses.						
<b>17</b>	A problem with the LIM produces a PM LIM alarm. A problem with the F-bus produces a PM LIMF alarm. Perform the appropriate alarm clearing procedure in <i>Lines, Trunks, and Peripherals Peripheral Alarm Clearing and Performance Monitoring Procedures</i> , 297-1001-582. When you have completed the procedure, return to this point.						
<b>18</b>	Determine which F-bus tap is associated with the FRIU by typing <b>&gt;TRNSL fbus_no</b> and pressing the Enter key.  <i>where</i> fbus_no is the number of one of the F-buses (0 or 1)  <b>Note:</b> The number of the F-bus tap associated with the FRIU is shown in the third column.  <i>Example of a MAP response:</i> LIM 0 FBus 0 Tap 0 is on FRIU 121 LIM 0 FBus 0 Tap 1 is on FRIU 122 LIM 0 FBus 0 Tap 2 is on FRIU 123 LIM 0 FBus 0 Tap 3 is on FRIU 124 LIM 0 FBus 0 Tap 4 is on FRIU 125 MORE...						
-continued-							

**PM FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)											
<b>Step</b>	<b>Action</b>										
<b>19</b>	<p>Determine the state of the F-bus taps.</p> <p><b>Note:</b> The tap state is shown to the right of the Tap header in the MAP display obtained in step 14. The tap number applies to both F-buses.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>one or both F-bus taps is M</td> <td>step 22</td> </tr> <tr> <td>one F-bus tap is M and the other F-bus tap is S</td> <td>step 22</td> </tr> <tr> <td>one or both F-bus taps is S</td> <td>step 20</td> </tr> <tr> <td>both F-bus taps is I or dot (.)</td> <td>step 26</td> </tr> </tbody> </table>	<b>If the state of</b>	<b>Do</b>	one or both F-bus taps is M	step 22	one F-bus tap is M and the other F-bus tap is S	step 22	one or both F-bus taps is S	step 20	both F-bus taps is I or dot (.)	step 26
<b>If the state of</b>	<b>Do</b>										
one or both F-bus taps is M	step 22										
one F-bus tap is M and the other F-bus tap is S	step 22										
one or both F-bus taps is S	step 20										
both F-bus taps is I or dot (.)	step 26										
<b>20</b>	Choose a system-busy tap to work on.										
<b>21</b>	<p>Manually busy the system-busy F-bus tap by typing <b>&gt;BSY FBUS fbus_no tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> fbus_no is the number of the F-bus (0 or 1) tap_no is the number of the F-bus tap (0 to 35)</p> <p>Go to step 24.</p>										
<b>22</b>	Choose a manual-busy tap to work on.										
<b>23</b>	<p>Determine from office records or from office personnel why the tap has been busied.</p> <p>When permitted, continue with this procedure.</p>										
-continued-											

PM **FRIU** (continued)  
**critical** (on an LPP) (continued)

Clearing a PM FRIU critical alarm (on an LPP) (continued)															
Step	Action														
24	<p>Return the F-bus tap to service by typing  <b>&gt;RTS FBUS fbus_no tap_no</b>  and pressing the Enter key.</p> <p><i>where</i>  fbus_no is the number of the F-bus (0 or 1)  tap_no is the number of the F-bus tap (0 to 35)</p> <table border="1"> <thead> <tr> <th>If the RTS command</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 25</td> </tr> <tr> <td>failed, and a card list is generated</td> <td>step 36</td> </tr> <tr> <td>failed, and no card list is generated</td> <td>step 32</td> </tr> <tr> <td>failed, with the response local maintenance not accessible</td> <td>step 32</td> </tr> <tr> <td>failed for any other reason, and you have not worked on the other tap</td> <td>step 25</td> </tr> <tr> <td>failed for any other reason, and you have worked on the other tap</td> <td>step 43</td> </tr> </tbody> </table>	If the RTS command	Do	passed	step 25	failed, and a card list is generated	step 36	failed, and no card list is generated	step 32	failed, with the response local maintenance not accessible	step 32	failed for any other reason, and you have not worked on the other tap	step 25	failed for any other reason, and you have worked on the other tap	step 43
If the RTS command	Do														
passed	step 25														
failed, and a card list is generated	step 36														
failed, and no card list is generated	step 32														
failed, with the response local maintenance not accessible	step 32														
failed for any other reason, and you have not worked on the other tap	step 25														
failed for any other reason, and you have worked on the other tap	step 43														
25	<p>Determine the state of the other tap.</p> <p><b>Note:</b> The tap state is shown to the right of the Tap header in the MAP display obtained in step 22. The tap number applies to both F-buses.</p> <table border="1"> <thead> <tr> <th>If the state of the other tap is</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>dot (.) (in service) or I (in-service trouble)</td> <td>step 26</td> </tr> <tr> <td>M (manual busy)</td> <td>step 23</td> </tr> <tr> <td>S (system busy)</td> <td>step 21</td> </tr> </tbody> </table>	If the state of the other tap is	Do	dot (.) (in service) or I (in-service trouble)	step 26	M (manual busy)	step 23	S (system busy)	step 21						
If the state of the other tap is	Do														
dot (.) (in service) or I (in-service trouble)	step 26														
M (manual busy)	step 23														
S (system busy)	step 21														
-continued-															

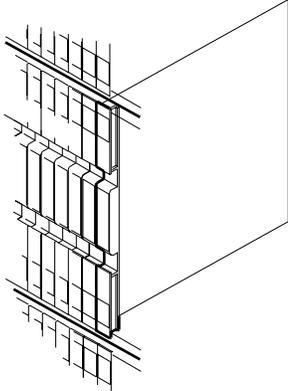
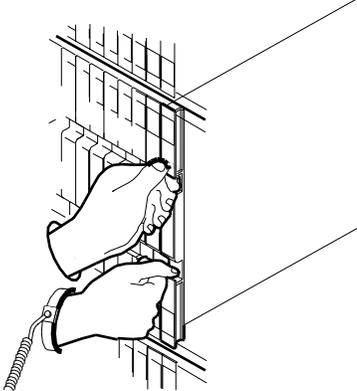
**PM FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>26</b>	Quit from the F-bus level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.						
<b>27</b>	Return to the PM level of the MAP display by typing <b>&gt;PM</b> and pressing the Enter key.						
<b>28</b>	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> friu_no        is the number of the FRIU that you are working on (0 to 500)  <i>Example of a MAP response:</i> FRIU    121    ManB        Rsvd  Go to step 30.						
<b>29</b>	Reset the FRIU by typing <b>&gt;PMRESET</b> and pressing the Enter key.  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the PMRESET command</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 31</td> </tr> <tr> <td>failed</td> <td>step 30</td> </tr> </tbody> </table>	<b>If the PMRESET command</b>	<b>Do</b>	passed	step 31	failed	step 30
<b>If the PMRESET command</b>	<b>Do</b>						
passed	step 31						
failed	step 30						
-continued-							

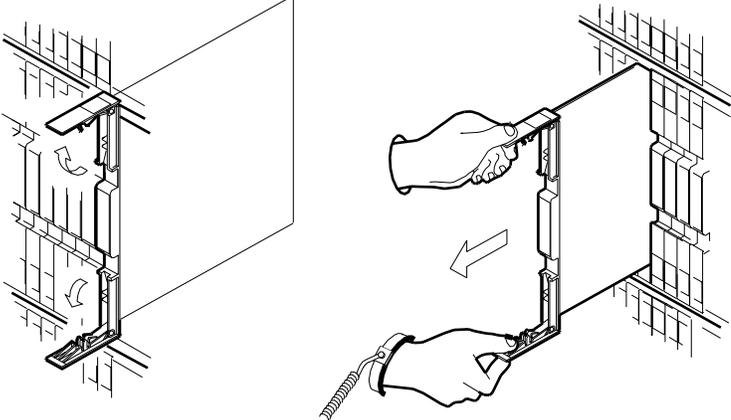
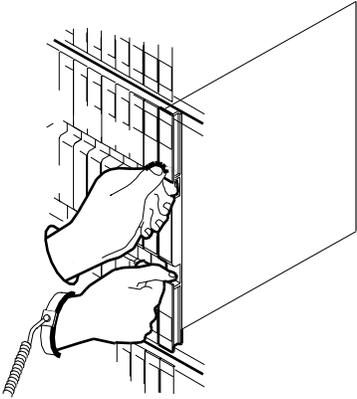
PM **FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP) (continued)</b>													
<b>Step</b>	<b>Action</b>												
<b>30</b>	<p>Load the FRIU by typing  <b>&gt;LOADPM</b>                      and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th><b>If the LOADPM command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 31</td> </tr> <tr> <td>failed, with a card list that contains NTEX22 as the first card on the list</td> <td>step 39</td> </tr> <tr> <td>failed, with a card list that contains NTEX30 or NTEX31 as the first card on the list</td> <td>step 31</td> </tr> <tr> <td>failed, with no card list and you have not checked for LIM or F-bus faults using this procedure</td> <td>step 11</td> </tr> <tr> <td>failed, with no card list and you have already cleared LIM and F-bus alarms</td> <td>step 43</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 31	failed, with a card list that contains NTEX22 as the first card on the list	step 39	failed, with a card list that contains NTEX30 or NTEX31 as the first card on the list	step 31	failed, with no card list and you have not checked for LIM or F-bus faults using this procedure	step 11	failed, with no card list and you have already cleared LIM and F-bus alarms	step 43
<b>If the LOADPM command</b>	<b>Do</b>												
passed	step 31												
failed, with a card list that contains NTEX22 as the first card on the list	step 39												
failed, with a card list that contains NTEX30 or NTEX31 as the first card on the list	step 31												
failed, with no card list and you have not checked for LIM or F-bus faults using this procedure	step 11												
failed, with no card list and you have already cleared LIM and F-bus alarms	step 43												
<b>31</b>	<p>Test the FRIU by typing  <b>&gt;TST</b>                      and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th><b>If the TST command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 42</td> </tr> <tr> <td>failed, with a card list</td> <td>step 36</td> </tr> <tr> <td>failed, with any other result</td> <td>step 43</td> </tr> </tbody> </table>	<b>If the TST command</b>	<b>Do</b>	passed	step 42	failed, with a card list	step 36	failed, with any other result	step 43				
<b>If the TST command</b>	<b>Do</b>												
passed	step 42												
failed, with a card list	step 36												
failed, with any other result	step 43												
-continued-													

**PM FRIU (continued)**  
**critical (on an LPP) (continued)**

Clearing a PM FRIU critical alarm (on an LPP) (continued)	
Step	Action
<i>At the frame</i>	
	<p><b>WARNING</b>  <b>Static electricity damage</b>                      Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.</p>
32	<p>Locate the NTEX22 card for the FRIU you are working on. You will now reseal the three cards for the FRIU you are working on.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
-continued-	

PM **FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP) (continued)</b>	
<b>Step</b>	<b>Action</b>
<b>33</b>	<p>Gently lift the locking levers, and pull the card towards you about 25 mm (1 in.).</p> 
<b>34</b>	<p>Seat and lock the card, as follows:</p> <ol style="list-style-type: none"><li>Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.</li><li>Close the locking levers.</li></ol> 
<b>35</b>	<p>Repeat steps 32 to 34 for the NTEX31 and NTEX30 cards for the FRIU you are working on.</p> <p>Go to step 30.</p>
-continued-	

**PM FRIU** (continued)  
**critical** (on an LPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>36</b>	Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. You will now replace cards on the list.						
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><b>If</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>one or more of the cards on the list have not been replaced using this procedure</td> <td>step 37</td> </tr> <tr> <td>all cards on the list have been replaced using this procedure</td> <td>step 43</td> </tr> </tbody> </table>	<b>If</b>	<b>Do</b>	one or more of the cards on the list have not been replaced using this procedure	step 37	all cards on the list have been replaced using this procedure	step 43
<b>If</b>	<b>Do</b>						
one or more of the cards on the list have not been replaced using this procedure	step 37						
all cards on the list have been replaced using this procedure	step 43						
<b>37</b>	Replace the first card on the list that has not been replaced as a result of this alarm clearing procedure by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.						
<b>38</b>	Go to step 29.						
<b>39</b>	Determine if the NTEX22 card has already been replaced.						
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><b>If the NTEX22 has</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>already been replaced</td> <td>step 43</td> </tr> <tr> <td>not been replaced</td> <td>step 40</td> </tr> </tbody> </table>	<b>If the NTEX22 has</b>	<b>Do</b>	already been replaced	step 43	not been replaced	step 40
<b>If the NTEX22 has</b>	<b>Do</b>						
already been replaced	step 43						
not been replaced	step 40						
<b>40</b>	Replace the NTEX22 card by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.						
<b>41</b>	Go to step 30.						
-continued-							

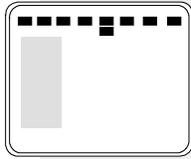
PM **FRIU** (end)

**critical** (on an LPP) (end)

---

<b>Clearing a PM FRIU critical alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>42</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1"><thead><tr><th><b>If the RTS command</b></th><th><b>Do</b></th></tr></thead><tbody><tr><td>passed</td><td>step 44</td></tr><tr><td>failed</td><td>step 43</td></tr></tbody></table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 44	failed	step 43
<b>If the RTS command</b>	<b>Do</b>						
passed	step 44						
failed	step 43						
<b>43</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>44</b>	You have completed this procedure.						
<b>End</b>							

**PM FRIU**  
**critical (on an SSLPP)**



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	<b>1FRIU</b> <b>*C*</b>	.	.	.	.	.

**Indication**

At the MTC level of the MAP display, FRIU preceded by a number appears under the PM header of the alarm banner, and indicates an frame relay interface unit (FRIU) critical alarm.

**Meaning**

One or more FRIUs are system busy or system busy not accessible for one of the following reasons:

- FRIU error interrupts
- FRIU not responding to computing module (CM) because of faults in the message switch (MS), F-buses, or F-bus taps
- in-service test failure

The number of FRIUs affected is indicated by the number under the PM header in the alarm banner.

**Impact**

The indicated number of FRIUs are out of service and the DS-1 channels associated with the FRIUs cannot carry traffic.

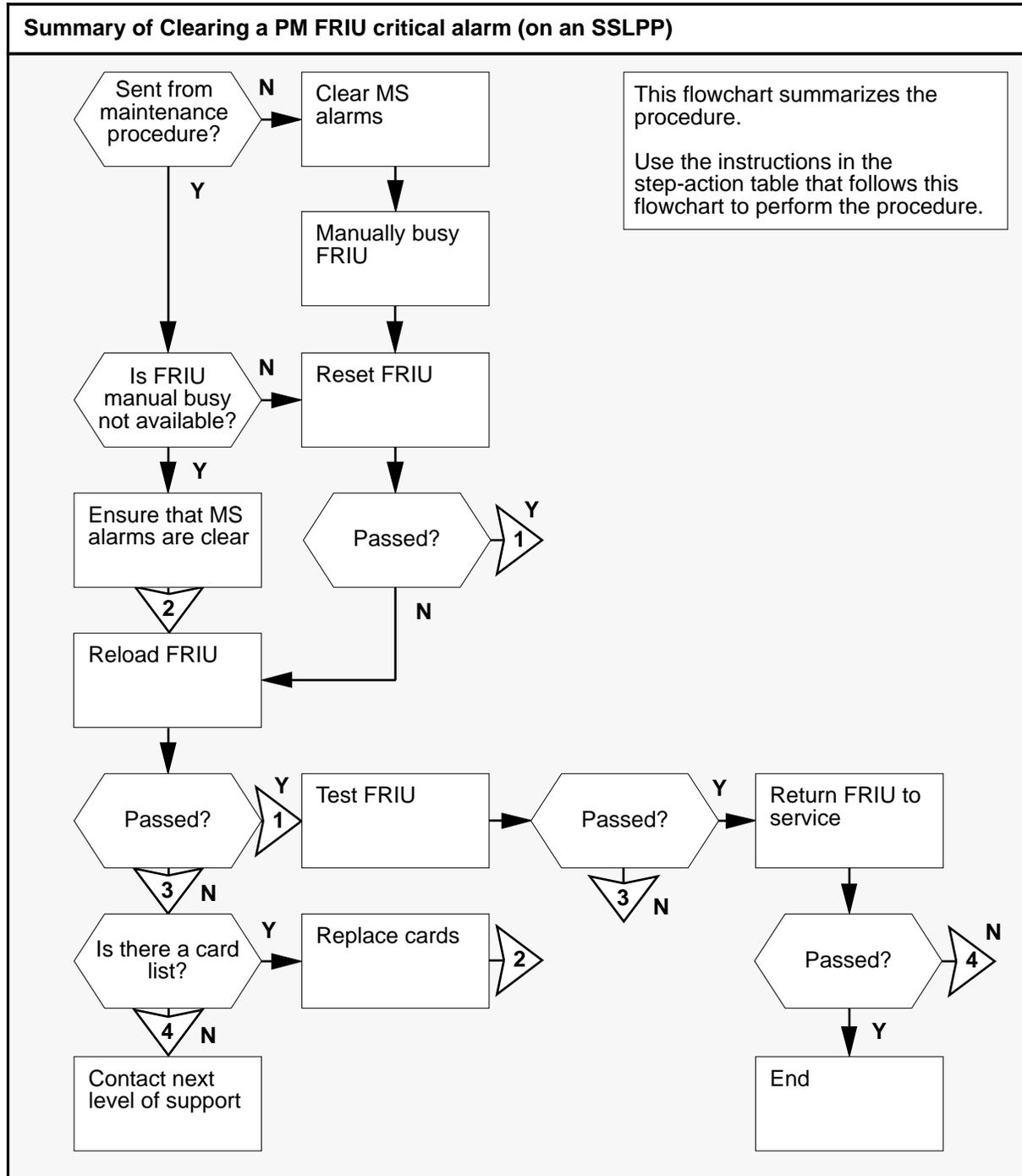
**Common procedures**

None

**Action**

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

PM **FRIU** (continued)  
**critical** (on an SSLPP) (continued)



**PM FRIU (continued)**  
**critical (on an SSLPP) (continued)**

<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b>															
<b>Step</b>	<b>Action</b>														
<b>At the MAP</b>															
<b>1</b>	Determine your next step.  <table border="0" style="width: 100%;"> <tr> <td style="width: 60%;"><b>If you came to this procedure from</b></td> <td style="text-align: right;"><b>Do</b></td> </tr> <tr> <td>another maintenance procedure</td> <td style="text-align: right;">step 7</td> </tr> <tr> <td>anywhere else</td> <td style="text-align: right;">step 2</td> </tr> </table>	<b>If you came to this procedure from</b>	<b>Do</b>	another maintenance procedure	step 7	anywhere else	step 2								
<b>If you came to this procedure from</b>	<b>Do</b>														
another maintenance procedure	step 7														
anywhere else	step 2														
<b>2</b>	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i> <table border="0" style="width: 100%; text-align: center;"> <tr> <td></td> <td>SysB</td> <td>ManB</td> <td>OffL</td> <td>CBsy</td> <td>ISTb</td> <td>InSv</td> </tr> <tr> <td>PM</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>71</td> </tr> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	1	0	0	0	0	71
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	1	0	0	0	0	71									
<b>3</b>	Display the system-busy FRIUs by typing <b>&gt;POST FRIU SYSB</b> and pressing the Enter key.  <i>Example of a MAP response:</i> <pre>FRIU  121 SysB      Rsvd</pre> <table border="0" style="width: 100%;"> <tr> <td style="width: 60%;"><b>If the MAP response indicates</b></td> <td style="text-align: right;"><b>Do</b></td> </tr> <tr> <td>a SysB or SysB (NA) FRIU</td> <td style="text-align: right;">step 7</td> </tr> <tr> <td>End of posted set</td> <td style="text-align: right;">step 4</td> </tr> </table>	<b>If the MAP response indicates</b>	<b>Do</b>	a SysB or SysB (NA) FRIU	step 7	End of posted set	step 4								
<b>If the MAP response indicates</b>	<b>Do</b>														
a SysB or SysB (NA) FRIU	step 7														
End of posted set	step 4														
<b>-continued-</b>															

PM **FRIU** (continued)  
**critical** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP) (continued)</b>									
<b>Step</b>	<b>Action</b>								
<b>4</b>	<p>Display the in-service trouble FRIUs to see if there are in-service trouble not available FRIUs by typing</p> <p><b>&gt;POST FRIU ISTB</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>                      FRIU 121 ISTb (NA) Rsvd</p> <table border="1"> <thead> <tr> <th><b>If the MAP response indicates</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>an ISTb FRIU</td> <td>step 5</td> </tr> <tr> <td>an ISTb (NA) FRIU</td> <td>step 7</td> </tr> <tr> <td>End of posted set</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the MAP response indicates</b>	<b>Do</b>	an ISTb FRIU	step 5	an ISTb (NA) FRIU	step 7	End of posted set	step 34
<b>If the MAP response indicates</b>	<b>Do</b>								
an ISTb FRIU	step 5								
an ISTb (NA) FRIU	step 7								
End of posted set	step 34								
<b>5</b>	<p>Display the next in-service trouble FRIU by typing</p> <p><b>&gt;NEXT</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>                      FRIU 121 ISTb Rsvd</p> <table border="1"> <thead> <tr> <th><b>If the MAP response indicates</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>an ISTb FRIU</td> <td>step 6</td> </tr> <tr> <td>an ISTb (NA) FRIU</td> <td>step 7</td> </tr> <tr> <td>End of posted set</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the MAP response indicates</b>	<b>Do</b>	an ISTb FRIU	step 6	an ISTb (NA) FRIU	step 7	End of posted set	step 34
<b>If the MAP response indicates</b>	<b>Do</b>								
an ISTb FRIU	step 6								
an ISTb (NA) FRIU	step 7								
End of posted set	step 34								
<b>6</b>	<p>Repeat step 4 until an in-service trouble not available FRIU is displayed the end of the posted set is reached.</p>								
<b>-continued-</b>									

**PM FRIU** (continued)  
**critical** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>7</b>	<p>Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i> FRIU carrier will be affected by this mtce action. Please confirm ("YES", "Y", "NO", or "N"):</p>						
<b>8</b>	<p>Confirm the command by typing <b>&gt;YES</b> and pressing the Enter key.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the FRIU is</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>ManB</td> <td>step 21</td> </tr> <tr> <td>ManB (NA)</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the FRIU is</b>	<b>Do</b>	ManB	step 21	ManB (NA)	step 9
<b>If the FRIU is</b>	<b>Do</b>						
ManB	step 21						
ManB (NA)	step 9						
<b>9</b>	<p>Access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card by typing <b>&gt;TABLE MSCDINV;FORMAT PACK</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i> TABLE MSCDINV &lt;line length&gt;: 76 columns can be output per line. &lt;pack mode&gt;: Pack mode is ON. &lt;indent column&gt;: Indented lines will begin in column 1. &lt;first column&gt;: The first column of output is column 1</p>						
<b>-continued-</b>							

PM **FRIU** (continued)  
**critical** (on an SSLPP) (continued)

Clearing a PM FRIU critical alarm (on an SSLPP) (continued)	
Step	Action
10	<p>List all entries in the table by typing</p> <p><b>&gt;LIST ALL</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>MSCDKEY SLOTINFO ----- 0 0 1 TBUSACC NT9X52AA NIL 0 0 2 CLOCK NT9X53AC NT9X54AC 0 0 3 MSP NT9X13DC NT9X26AB 0 0 4 MEMORY NT9X14DB 0 0 5 MAPPER NT9X15AA 0 0 17 DS512 NT9X17AD NT9X62BA 1</pre> <p><b>Note:</b> The example above shows a partial list.</p>
11	<p>Determine the card number of the NT9X17AD MS 4-post universal card, using the response obtained in step 10.</p> <p><b>Note:</b> The card number is shown in the third column of the MAP response to the LIST ALL command. In the example shown in step 10, the NT9X17AD is shown on the last line of the listing, and is card number 17.</p>
12	<p>Quit table MSCDINV by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>
13	<p>Access the MS level of the MAP display to begin searching for MS-related faults affecting the FRIU by typing</p> <p><b>&gt;MS</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>       Message Switch   Clock   Shelf  0          Inter-MS Link 0 1 MS 0      .           M Free   .           . . 2 MS 1      .           Slave   .           . .</pre>
-continued-	

**PM FRIU (continued)**  
**critical (on an SSLPP) (continued)**

**Clearing a PM FRIU critical alarm (on an SSLPP) (continued)****Step Action****14** Access shelf 0 by typing**>SHELF 0**

and pressing the Enter key.

*Example of a MAP display:*

```

MS 0      .          M Free          .          . . 2
MS 1      .          Slave           .          . . 3
Shelf 0           1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card  1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . - - - - - 0 . . . . .
MS 1      . . . . . - - - - - . . . . .

```

**15** Post the NT9X17AD card identified in step 11 by typing**>CARD card\_no**

and pressing the Enter key.

*where***card\_no** is the number of the card identified in step 11*Example of a MAP display:*

```

MS 0      .          M Free          .          . . 2
MS 1      .          Slave           .          . . 3
Shelf 0           1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2
Card  1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
Chain
MS 0      . . . . . - - - - - 0 . . . . .
MS 1      . . . . . - - - - - . . . . .
Card 17 Protocol Port  0____3
MS 0      .  DS512    4  P - P -
MS 1      .  DS512    4  P - P -

```

**-continued-**

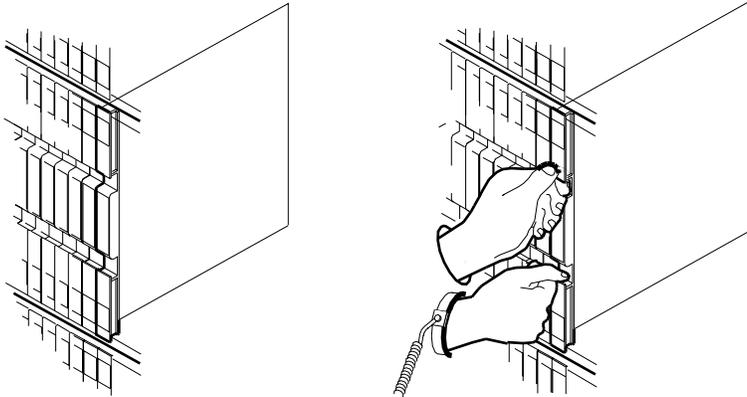
PM **FRIU** (continued)  
**critical** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>16</b>	<p>Determine if the NT9X17AD card identified in step 11 has any faults.</p> <p><b>Note:</b> Locate the state of the card under the card number shown on the MAP display.</p> <table border="1"> <thead> <tr> <th><b>If the card, taps, or F-bus</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>have faults</td> <td>step 17</td> </tr> <tr> <td>do not have faults</td> <td>step 18</td> </tr> </tbody> </table>	<b>If the card, taps, or F-bus</b>	<b>Do</b>	have faults	step 17	do not have faults	step 18
<b>If the card, taps, or F-bus</b>	<b>Do</b>						
have faults	step 17						
do not have faults	step 18						
<b>17</b>	<p>Clear all MS alarms relating to the NT9X17AD card by performing the appropriate MS alarm clearing procedure in <i>Lines, Trunks, and Peripherals ENET and Net Alarm and Performance Monitoring Procedures</i>, 297-1001-581. When you have completed the procedure, return to this point.</p>						
<b>18</b>	<p>Return to the PM level of the MAP display by typing</p> <p><b>&gt;PM</b></p> <p>and pressing the Enter key.</p>						
<b>19</b>	<p>Post the FRIU by typing</p> <p><b>&gt;POST FRIU friu_no</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>friu_no is the number of the FRIU that you have been working on (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU 121 ManB Rsvd</pre> <p>Go to step 21.</p>						
-continued-							

**PM FRIU** (continued)  
**critical** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>20</b>	Reset the FRIU by typing <b>&gt;PMRESET</b> and pressing the Enter key.  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the PMRESET command</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 22</td> </tr> <tr> <td>failed</td> <td>step 21</td> </tr> </tbody> </table>	<b>If the PMRESET command</b>	<b>Do</b>	passed	step 22	failed	step 21		
<b>If the PMRESET command</b>	<b>Do</b>								
passed	step 22								
failed	step 21								
<b>21</b>	Load the FRIU by typing <b>&gt;LOADPM</b> and pressing the Enter key.								
<b>22</b>	Test the FRIU by typing <b>&gt;TST</b> and pressing the Enter key.  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the TST command</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 33</td> </tr> <tr> <td>failed, with a card list that contains NTEX22 as the first card on the list</td> <td>step 30</td> </tr> <tr> <td>failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list</td> <td>step 27</td> </tr> </tbody> </table>	<b>If the TST command</b>	<b>Do</b>	passed	step 33	failed, with a card list that contains NTEX22 as the first card on the list	step 30	failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list	step 27
<b>If the TST command</b>	<b>Do</b>								
passed	step 33								
failed, with a card list that contains NTEX22 as the first card on the list	step 30								
failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list	step 27								
-continued-									

PM **FRIU** (continued)  
**critical** (on an SSLPP) (continued)

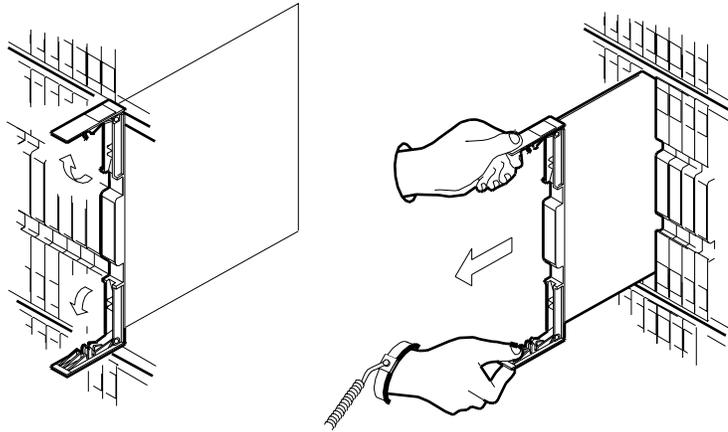
Clearing a PM FRIU critical alarm (on an SSLPP) (continued)	
Step	Action
<i>At the frame</i>	
	<b>WARNING</b> <b>Static electricity damage</b> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.
23	Locate the NTEX22 card for the FRIU you are working on. You will now reseal the three cards for the FRIU you are working on. 
-continued-	

**PM FRIU (continued)**  
**critical (on an SSLPP) (continued)**

**Clearing a PM FRIU critical alarm (on an SSLPP) (continued)**

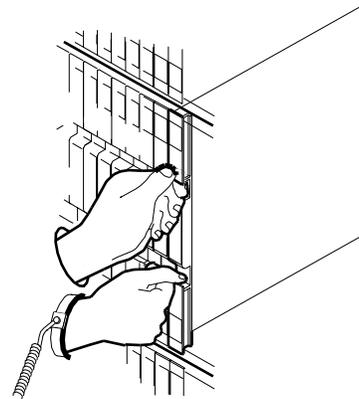
**Step Action**

- 24** Gently lift the locking levers, and pull the card towards you about 25 mm (1 in.).



- 25** Seat and lock the card, as follows:

- a. Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.
- b. Close the locking levers.



- 26** Repeat steps 23 to 25 for the NTEX31 and NTEX30 cards for the FRIU you are working on.

Go to step 21.

-continued-

PM **FRIU** (continued)  
**critical** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP) (continued)</b>							
<b>Step</b>	<b>Action</b>						
<b>27</b>	Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. You will now replace cards on the list.						
	<table border="0"> <tr> <td style="text-align: center;"><b>If</b></td> <td style="text-align: center;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">one or more of the cards on the list have not been replaced using this procedure</td> <td style="border-top: 1px solid black;">step 28</td> </tr> <tr> <td>all cards on the list have been replaced using this procedure</td> <td>step 34</td> </tr> </table>	<b>If</b>	<b>Do</b>	one or more of the cards on the list have not been replaced using this procedure	step 28	all cards on the list have been replaced using this procedure	step 34
<b>If</b>	<b>Do</b>						
one or more of the cards on the list have not been replaced using this procedure	step 28						
all cards on the list have been replaced using this procedure	step 34						
<b>28</b>	Replace the first card on the list that has not been replaced as a result of this alarm clearing procedure by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.						
<b>29</b>	Go to step 20.						
<b>30</b>	Determine if the NTEX22 card has already been replaced.						
	<table border="0"> <tr> <td style="text-align: center;"><b>If the NTEX22 has</b></td> <td style="text-align: center;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">already been replaced</td> <td style="border-top: 1px solid black;">step 34</td> </tr> <tr> <td>not been replaced</td> <td>step 31</td> </tr> </table>	<b>If the NTEX22 has</b>	<b>Do</b>	already been replaced	step 34	not been replaced	step 31
<b>If the NTEX22 has</b>	<b>Do</b>						
already been replaced	step 34						
not been replaced	step 31						
<b>31</b>	Replace the NTEX22 card by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.						
<b>32</b>	Go to step 21.						
-continued-							

---

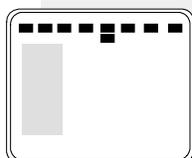
PM **FRIU** (end)  
**critical** (on an SSLPP) (end)

---

<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>33</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1" style="width: 100%;"><thead><tr><th style="text-align: left;"><b>If the RTS command</b></th><th style="text-align: left;"><b>Do</b></th></tr></thead><tbody><tr><td>passed</td><td>step 35</td></tr><tr><td>failed</td><td>step 34</td></tr></tbody></table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 35	failed	step 34
<b>If the RTS command</b>	<b>Do</b>						
passed	step 35						
failed	step 34						
<b>34</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>35</b>	You have completed this procedure.						
<b>End</b>							



## PM FRIU major (on an LPP)



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1FRIU M	.	.	.	.	.

### Indication

At the MTC level of the MAP display, FRIU preceded by a number appears under the PM header of the alarm banner, and indicates a frame relay interface unit (FRIU) major alarm.

### Meaning

One or more FRIUs are manual busy or manual busy not accessible for one of the following reasons:

- FRIU has been manually busied for maintenance purposes
- FRIU has been manually busied for maintenance purposes, and it is not responding to computing module (CM)

The number of FRIUs affected is indicated by the number under the PM header of the alarm banner.

### Impact

The indicated number of FRIUs are out of service and the DS-1 channels associated with the FRIUs cannot carry traffic.

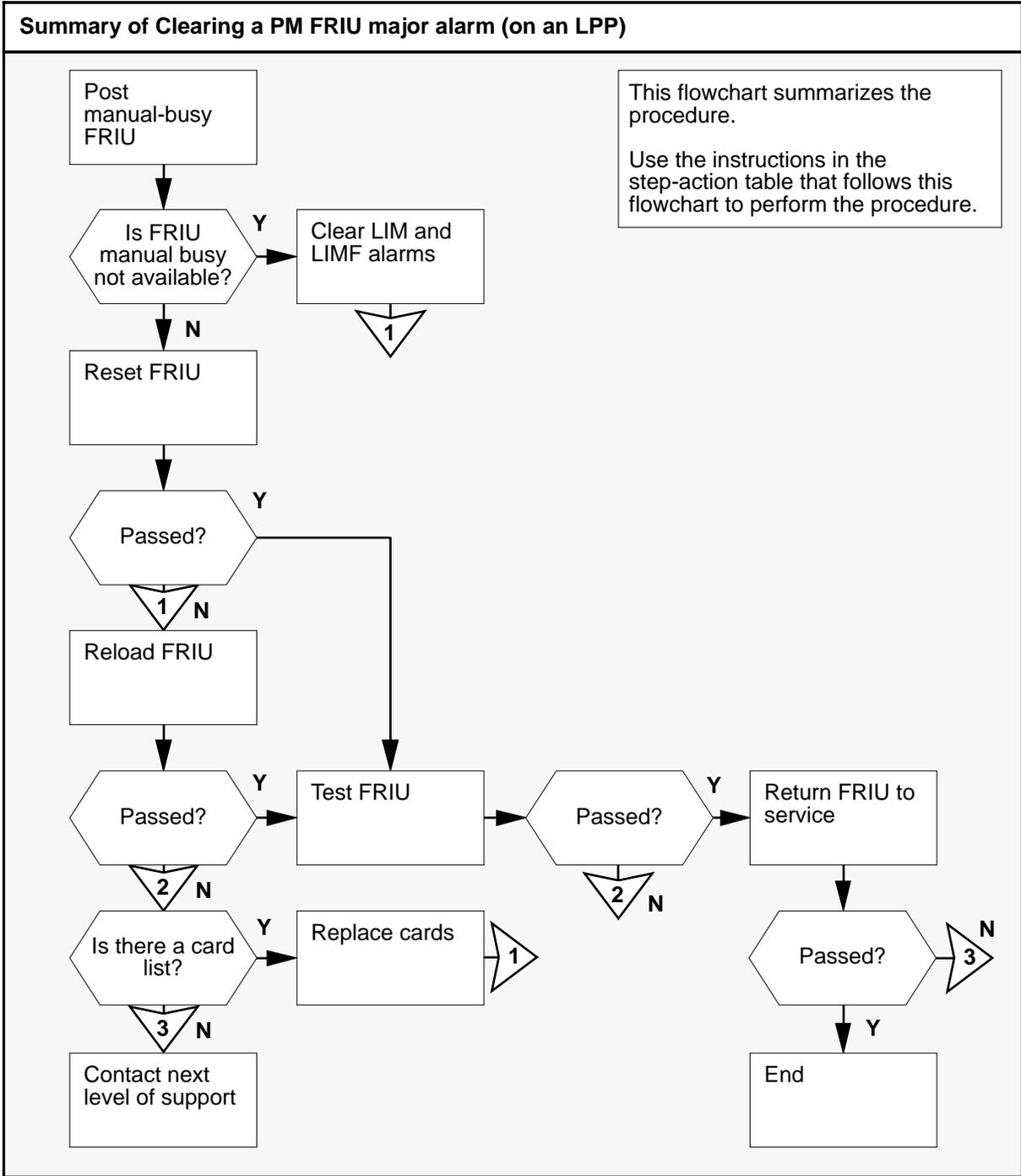
### Common procedures

None

### Action

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

PM **FRIU** (continued)  
**major** (on an LPP) (continued)



**PM FRIU (continued)**  
**major (on an LPP) (continued)**

<b>Clearing a PM FRIU major alarm (on an LPP)</b>															
<b>Step</b>	<b>Action</b>														
<b>At the MAP</b>															
<b>1</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table style="margin-left: 40px;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>70</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	0	2	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	0	2	0	0	0	70									
<b>2</b>	<p>Display the manual-busy FRIUs by typing <b>&gt;POST FRIU MANB</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU  121 ManB      Rsvd</pre> <p><b>If the MAP response indicates</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">a ManB or ManB (NA) FRIU</td> <td style="border-top: 1px solid black; border-bottom: 1px solid black;">step 3</td> </tr> <tr> <td style="border-bottom: 1px solid black;">End of posted set</td> <td style="border-bottom: 1px solid black;">step 39</td> </tr> </table>	a ManB or ManB (NA) FRIU	step 3	End of posted set	step 39										
a ManB or ManB (NA) FRIU	step 3														
End of posted set	step 39														
<b>3</b>	Record the number of the posted FRIU for use in this procedure.														
<b>-continued-</b>															

PM **FRIU** (continued)  
**major** (on an LPP) (continued)

<b>Clearing a PM FRIU major alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>4</b>	<p>Query the FRIU to determine the frame type by typing  <b>&gt;QUERYPM</b>                      and pressing the Enter key.</p> <p><b>Note:</b> The FRIU is provisioned in an LPP if the code LIM is shown to the far left of the second line in the response. The FRIU is provisioned in an SSLPP if the code MS is shown. In the example, the code is LIM.</p> <p><i>Example of a MAP response:</i></p> <pre> FRIU FTA: 424B 1000 LIM: 0 Shelf: 1 Slot: 14 Default Load: F8X36CJ Running Load: F8X36CJ Carrier is currently InSv. Carrier Alarm: -----. LMS States:      InSv          InSv Auditing?:      Yes           Yes Msg Channels:   Acc           Acc TAPs:           .             .                     </pre> <p><b>If the code is</b></p> <table border="1"> <tr> <td>LIM</td> <td>step 6</td> </tr> <tr> <td>MS</td> <td>step 5</td> </tr> </table>	LIM	step 6	MS	step 5		
LIM	step 6						
MS	step 5						
<b>5</b>	<p>Perform the procedure <i>Clearing an FRIU major alarm (on an SSLPP)</i> on page 2-51. Do not return to this procedure.</p>						
<b>6</b>	<p>Determine the state of the FRIU from the response obtained in step 2.</p> <table border="1"> <thead> <tr> <th><b>If the FRIU is</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>ManB</td> <td>step 25</td> </tr> <tr> <td>ManB (NA)</td> <td>step 7</td> </tr> </tbody> </table>	<b>If the FRIU is</b>	<b>Do</b>	ManB	step 25	ManB (NA)	step 7
<b>If the FRIU is</b>	<b>Do</b>						
ManB	step 25						
ManB (NA)	step 7						
-continued-							

**PM FRIU** (continued)  
**major** (on an LPP) (continued)

**Clearing a PM FRIU major alarm (on an LPP)** (continued)**Step Action**

**7** Query the FRIU to determine if there are any related C-side faults by typing

**>QUERYPM**

and pressing the Enter key.

*Example of a MAP response:*

```
FRIU FTA: 424B 1000
LIM: 0 Shelf: 1 Slot: 14
Default Load: F8X36CJ
Running Load:
Potential service affecting conditions:
    Config Data Mismatch
    Msg Channel #1 NA
    TAP #0 OOS/NA
    TAP #1 OOS/NA
    Host Unit 1 is not inservice
Carrier is currently OffL.
Carrier Alarm: -----.
LMS States:      InSv          ManB
Auditing?:      No           No
Msg Channels:   Acc           NA
TAPs:          I             M
```

**8** Record the number of the LIM. You will now clear faults associated with the LIM and F-bus.

**Note:** The number of the LIM is shown to the right of the LIM header on the MAP response obtained in step 7.

**9** Post the LIM associated with the FRIU by typing

**>POST LIM lim\_no**

and pressing the Enter key.

*where*

lim\_no is the number of the LIM (0 to 16)

*Example of a MAP display:*

```
LIM 0 ISTb
                                Links_OOS Taps_OOS
Unit0: ISTb                      .          12
Unit1: ISTb                      .          12
```

-continued-

PM **FRIU** (continued)  
**major** (on an LPP) (continued)

<b>Clearing a PM FRIU major alarm (on an LPP) (continued)</b>													
<b>Step</b>	<b>Action</b>												
<b>10</b>	<p>Access the F-bus level of the MAP display by typing  <b>&gt;FBUS</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre> LIM 0 ISTb                                 Links_OOS Taps_OOS Unit0: ISTb                      .          12 Unit1: ISTb                      .          12                                  Tap: 0    4    8    12   16   20   24   28   32 FBus0: ManB                      BBBB BBBB BBBB BBBB.----- FBus1: ManB                      BBBB BBBB BBBB BBBB.-----                     </pre> <p><b>Note:</b> In the example, symbols under the tap numbers indicate the following:</p> <table> <tr> <td>B</td> <td>F-bus is manual busy or that the controlling LIM unit is system busy or manual busy</td> </tr> <tr> <td>S</td> <td>system-busy tap</td> </tr> <tr> <td>M</td> <td>manual-busy tap</td> </tr> <tr> <td>I</td> <td>in-service trouble tap</td> </tr> <tr> <td>dot (.)</td> <td>in-service tap</td> </tr> <tr> <td>-</td> <td>unequipped tap</td> </tr> </table>	B	F-bus is manual busy or that the controlling LIM unit is system busy or manual busy	S	system-busy tap	M	manual-busy tap	I	in-service trouble tap	dot (.)	in-service tap	-	unequipped tap
B	F-bus is manual busy or that the controlling LIM unit is system busy or manual busy												
S	system-busy tap												
M	manual-busy tap												
I	in-service trouble tap												
dot (.)	in-service tap												
-	unequipped tap												
<b>11</b>	<p>Determine the state of the LIM and both F-buses.</p> <table border="1"> <thead> <tr> <th><b>If the state of the LIM and both F-buses is</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv and ISTb</td> <td>step 14</td> </tr> <tr> <td>anything else</td> <td>step 12</td> </tr> </tbody> </table>	<b>If the state of the LIM and both F-buses is</b>	<b>Do</b>	InSv and ISTb	step 14	anything else	step 12						
<b>If the state of the LIM and both F-buses is</b>	<b>Do</b>												
InSv and ISTb	step 14												
anything else	step 12												
<b>12</b>	Record the state of the faulty LIM and F-buses.												
<b>13</b>	A problem with the LIM produces a PM LIM alarm. A problem with the F-bus produces a PM LIMF alarm. Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.												
<b>-continued-</b>													

**PM FRIU** (continued)  
**major** (on an LPP) (continued)

**Clearing a PM FRIU major alarm (on an LPP)** (continued)**Step Action**

**14** Determine which F-bus tap is associated with the FRIU by typing

**>TRNSL fbus\_no**  
and pressing the Enter key.

*where*

fbus\_no is the number of one of the F-buses (1 or 0)

**Note:** The number of the F-bus tap associated with the FRIU is shown in the third column.

*Example of a MAP response:*

```
LIM 0 FBus 0 Tap 0 is on FRIU 121
LIM 0 FBus 0 Tap 1 is on FRIU 122
LIM 0 FBus 0 Tap 2 is on FRIU 123
LIM 0 FBus 0 Tap 3 is on FRIU 124
LIM 0 FBus 0 Tap 4 is on FRIU 125
MORE...
```

**15** Determine the state of the F-bus taps.

**Note:** The tap state is shown to the right of the Tap header in the MAP display obtained in step 10. The tap number applies to both F-buses.

If the state of	Do
one or both F-bus taps is M	step 18
one F-bus tap is M and the other F-bus tap is S	step 18
one or both F-bus taps is S	step 16
both F-bus taps is I or dot (.)	step 22

**16** Choose a system-busy tap to work on.

-continued-

PM **FRIU** (continued)  
**major** (on an LPP) (continued)

<b>Clearing a PM FRIU major alarm (on an LPP)</b> (continued)															
<b>Step</b>	<b>Action</b>														
17	<p>Manually busy the system-busy F-bus tap by typing  <b>&gt;BSY FBUS fbus_no tap_no FORCE</b>                      and pressing the Enter key.</p> <p><i>where</i>                      fbus_no is the number of the F-bus (0 or 1)                      tap_no is the number of the F-bus tap (0 to 35)</p> <p>Go to step 20.</p>														
18	Choose a manual-busy tap to work on.														
19	<p>Determine from office records or from office personnel why the tap has been busied.</p> <p>When permitted, continue with this procedure.</p>														
20	<p>Return the F-bus tap to service by typing  <b>&gt;RTS FBUS fbus_no tap_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      fbus_no is the number of the F-bus (0 or 1)                      tap_no is the number of the F-bus tap (0 to 35)</p> <table border="1"> <thead> <tr> <th><b>If the RTS command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 21</td> </tr> <tr> <td>failed, and a card list is generated</td> <td>step 32</td> </tr> <tr> <td>failed, and no card list is generated</td> <td>step 28</td> </tr> <tr> <td>failed, with the response local maintenance not accessible</td> <td>step 28</td> </tr> <tr> <td>failed for any other reason, and you have not worked on the other tap</td> <td>step 21</td> </tr> <tr> <td>failed for any other reason, and you have worked on the other tap</td> <td>step 39</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 21	failed, and a card list is generated	step 32	failed, and no card list is generated	step 28	failed, with the response local maintenance not accessible	step 28	failed for any other reason, and you have not worked on the other tap	step 21	failed for any other reason, and you have worked on the other tap	step 39
<b>If the RTS command</b>	<b>Do</b>														
passed	step 21														
failed, and a card list is generated	step 32														
failed, and no card list is generated	step 28														
failed, with the response local maintenance not accessible	step 28														
failed for any other reason, and you have not worked on the other tap	step 21														
failed for any other reason, and you have worked on the other tap	step 39														
-continued-															

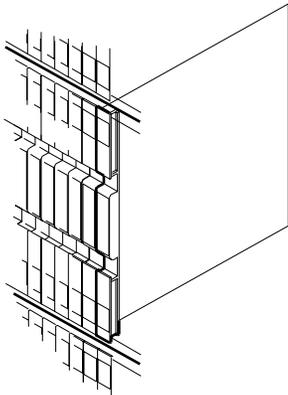
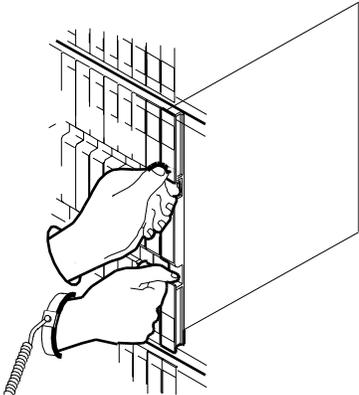
**PM FRIU** (continued)  
**major** (on an LPP) (continued)

<b>Clearing a PM FRIU major alarm (on an LPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>21</b>	<p>Determine the state of the other tap.</p> <p><b>Note:</b> The tap state is shown to the right of the Tap header in the MAP display obtained in step 10. The tap number applies to both F-buses.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the state of the other tap is</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">dot (.) (in service) or I (in-service trouble)</td> <td style="border-bottom: 1px solid black;">step 22</td> </tr> <tr> <td style="border-bottom: 1px solid black;">M (manual busy)</td> <td style="border-bottom: 1px solid black;">step 20</td> </tr> <tr> <td style="border-bottom: 1px solid black;">S (system busy)</td> <td style="border-bottom: 1px solid black;">step 16</td> </tr> </tbody> </table>	<b>If the state of the other tap is</b>	<b>Do</b>	dot (.) (in service) or I (in-service trouble)	step 22	M (manual busy)	step 20	S (system busy)	step 16
<b>If the state of the other tap is</b>	<b>Do</b>								
dot (.) (in service) or I (in-service trouble)	step 22								
M (manual busy)	step 20								
S (system busy)	step 16								
<b>22</b>	<p>Quit from the F-bus level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.</p>								
<b>23</b>	<p>Return to the PM level of the MAP display by typing <b>&gt;PM</b> and pressing the Enter key.</p>								
<b>24</b>	<p>Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.</p> <p><i>where</i> friu_no is the number of the FRIU that you have been working on (0 to 500)</p> <p><i>Example of a MAP response:</i> FRIU 121 ManB Rsvd</p> <p>Go to step 26.</p>								
<b>-continued-</b>									

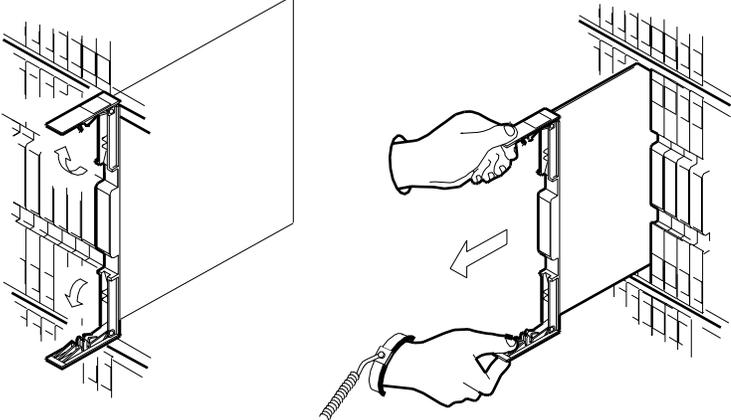
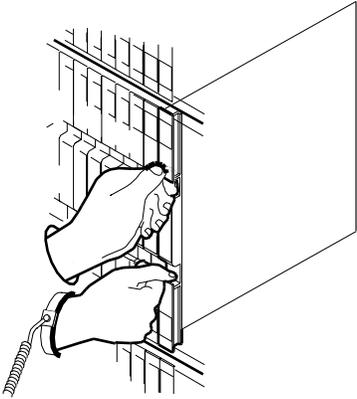
PM **FRIU** (continued)  
**major** (on an LPP) (continued)

<b>Clearing a PM FRIU major alarm (on an LPP) (continued)</b>													
<b>Step</b>	<b>Action</b>												
<b>25</b>	Reset the FRIU by typing <b>&gt;PMRESET</b> and pressing the Enter key.												
	<table border="1"> <thead> <tr> <th><b>If the PMRESET command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 27</td> </tr> <tr> <td>failed</td> <td>step 26</td> </tr> </tbody> </table>	<b>If the PMRESET command</b>	<b>Do</b>	passed	step 27	failed	step 26						
<b>If the PMRESET command</b>	<b>Do</b>												
passed	step 27												
failed	step 26												
<b>26</b>	Load the FRIU by typing <b>&gt;LOADPM</b> and pressing the Enter key.												
	<table border="1"> <thead> <tr> <th><b>If the LOADPM command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 27</td> </tr> <tr> <td>failed, with a card list that contains NTEX22 as the first card on the list</td> <td>step 35</td> </tr> <tr> <td>failed, with a card list that contains NTEX30 or NTEX31 as the first card on the list</td> <td>step 27</td> </tr> <tr> <td>failed, with no card list and you have not checked for LIM or F-bus faults using this procedure</td> <td>step 7</td> </tr> <tr> <td>failed, with no card list and you have already cleared LIM and F-bus alarms</td> <td>step 39</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 27	failed, with a card list that contains NTEX22 as the first card on the list	step 35	failed, with a card list that contains NTEX30 or NTEX31 as the first card on the list	step 27	failed, with no card list and you have not checked for LIM or F-bus faults using this procedure	step 7	failed, with no card list and you have already cleared LIM and F-bus alarms	step 39
<b>If the LOADPM command</b>	<b>Do</b>												
passed	step 27												
failed, with a card list that contains NTEX22 as the first card on the list	step 35												
failed, with a card list that contains NTEX30 or NTEX31 as the first card on the list	step 27												
failed, with no card list and you have not checked for LIM or F-bus faults using this procedure	step 7												
failed, with no card list and you have already cleared LIM and F-bus alarms	step 39												
-continued-													

**PM FRIU (continued)**  
**major (on an LPP) (continued)**

<b>Clearing a PM FRIU major alarm (on an LPP) (continued)</b>									
<b>Step</b>	<b>Action</b>								
<b>27</b>	Test the FRIU by typing <b>&gt;TST</b> and pressing the Enter key.								
	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>If the TST command</b></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">passed</td> <td style="padding: 5px;">step 38</td> </tr> <tr> <td style="padding: 5px;">failed, with a card list</td> <td style="padding: 5px;">step 32</td> </tr> <tr> <td style="padding: 5px;">failed, with any other result</td> <td style="padding: 5px;">step 39</td> </tr> </tbody> </table>	<b>If the TST command</b>	<b>Do</b>	passed	step 38	failed, with a card list	step 32	failed, with any other result	step 39
<b>If the TST command</b>	<b>Do</b>								
passed	step 38								
failed, with a card list	step 32								
failed, with any other result	step 39								
<b>At the frame</b>									
	<p><b>WARNING</b>  <b>Static electricity damage</b>                      Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.</p>								
<b>28</b>	Locate the NTEX22 card for the FRIU you are working on. You will now reseal the three cards for the FRIU you are working on.								
<div style="display: flex; justify-content: space-around; align-items: center;">   </div>									
-continued-									

PM **FRIU** (continued)  
**major** (on an LPP) (continued)

<b>Clearing a PM FRIU major alarm (on an LPP) (continued)</b>	
<b>Step</b>	<b>Action</b>
<b>29</b>	<p>Gently lift the locking levers, and pull the card towards you about 25 mm (1 in.).</p> 
<b>30</b>	<p>Seat and lock the card, as follows:</p> <ol style="list-style-type: none"><li>Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.</li><li>Close the locking levers.</li></ol> 
<b>31</b>	<p>Repeat steps 28 to 30 for the NTEX30 and NTEX31 cards for the FRIU you are working on.</p> <p>Go to step 26.</p>
<b>-continued-</b>	

**PM FRIU** (continued)  
**major** (on an LPP) (continued)

<b>Clearing a PM FRIU major alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>32</b>	Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. You will now replace cards on the list.						
	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; text-align: left;"><b>If</b></td> <td style="width: 50%; text-align: right;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">one or more of the cards on the list have not been replaced using this procedure</td> <td style="border-top: 1px solid black; text-align: right;">step 33</td> </tr> <tr> <td>all cards on the list have been replaced using this procedure</td> <td style="text-align: right;">step 39</td> </tr> </table>	<b>If</b>	<b>Do</b>	one or more of the cards on the list have not been replaced using this procedure	step 33	all cards on the list have been replaced using this procedure	step 39
<b>If</b>	<b>Do</b>						
one or more of the cards on the list have not been replaced using this procedure	step 33						
all cards on the list have been replaced using this procedure	step 39						
<b>33</b>	Replace the first card on the list that has not been replaced as a result of this alarm clearing procedure by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.						
<b>34</b>	Go to step 25.						
<b>35</b>	Determine if the NTEX22 card has already been replaced.						
	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; text-align: left;"><b>If the NTEX22 has</b></td> <td style="width: 50%; text-align: right;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">already been replaced</td> <td style="border-top: 1px solid black; text-align: right;">step 39</td> </tr> <tr> <td>not been replaced</td> <td style="text-align: right;">step 36</td> </tr> </table>	<b>If the NTEX22 has</b>	<b>Do</b>	already been replaced	step 39	not been replaced	step 36
<b>If the NTEX22 has</b>	<b>Do</b>						
already been replaced	step 39						
not been replaced	step 36						
<b>36</b>	Replace the NTEX22 card by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.						
<b>37</b>	Go to step 36.						
-continued-							

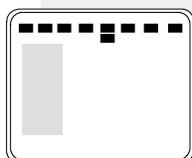
PM **FRIU** (end)

**major** (on an LPP) (end)

---

<b>Clearing a PM FRIU major alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>38</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.						
	<table border="1"><thead><tr><th><b>If the RTS command</b></th><th><b>Do</b></th></tr></thead><tbody><tr><td>passed</td><td>step 40</td></tr><tr><td>failed</td><td>step 39</td></tr></tbody></table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 40	failed	step 39
<b>If the RTS command</b>	<b>Do</b>						
passed	step 40						
failed	step 39						
<b>39</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>40</b>	You have completed this procedure.						
<b>End</b>							

## PM FRIU major (on an SSLPP)



CM	MS	IOD	Net	PM	CCS	LnS	Trks	Ext	APPL
.	.	.	.	<b>1FRIU</b> <b>*C*</b>	.	.	.	.	.

### Indication

At the MTC level of the MAP display, FRIU preceded by a number appears under the PM header of the alarm banner, and indicates a frame relay interface unit (FRIU) major alarm.

### Meaning

One or more FRIUs are manual busy or manual busy not accessible for one of the following reasons:

- FRIU has been manually busied for maintenance purposes
- FRIU has been manually busied for maintenance purposes, and it is not responding to computing module (CM)

The number of FRIUs affected is indicated by the number under the PM header of the alarm banner.

### Impact

The indicated number of FRIUs are out of service and the DS-1 channels associated with the FRIUs cannot carry traffic.

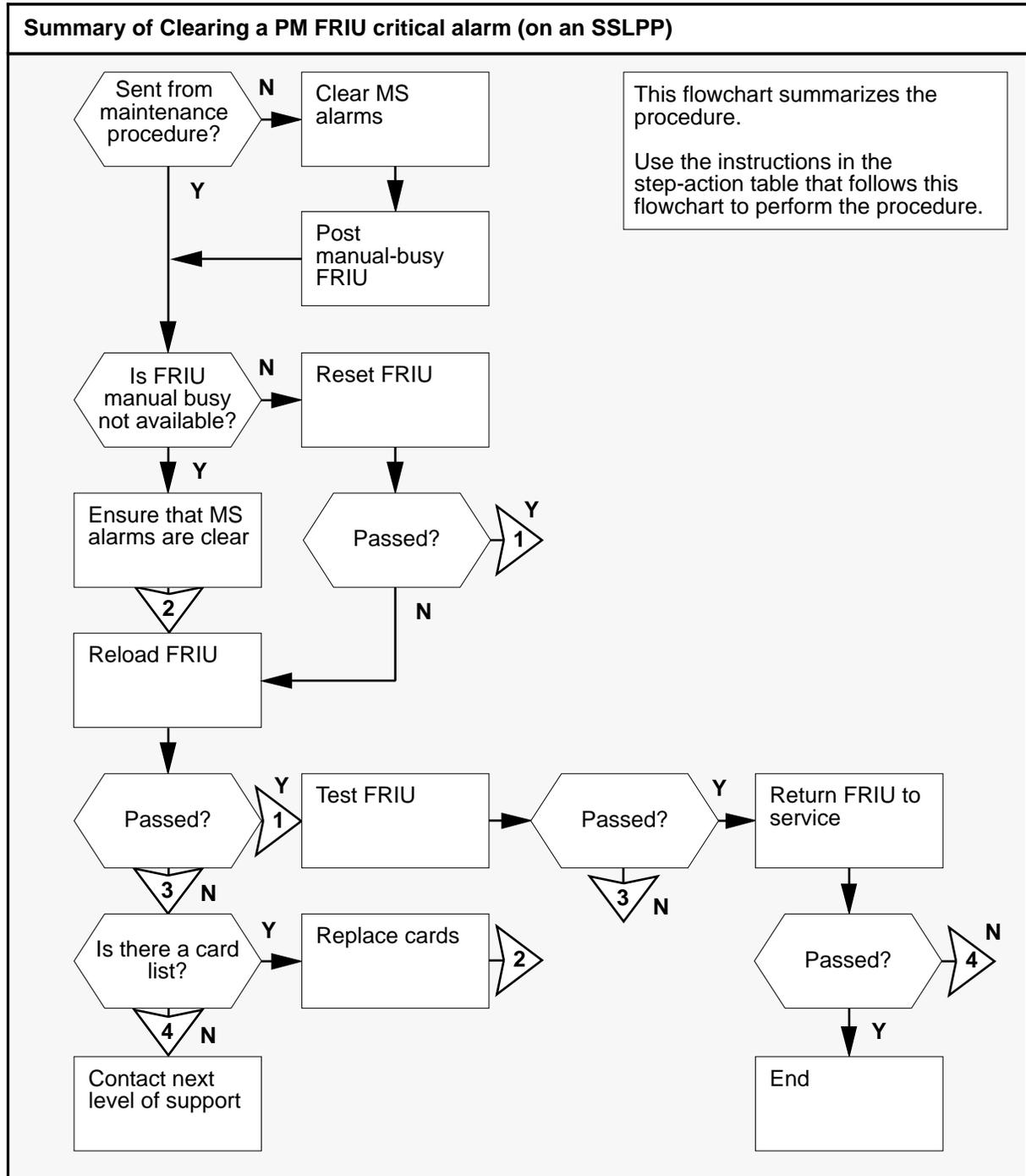
### Common procedures

None

### Action

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

PM **FRIU** (continued)  
**major** (on an SSLPP) (continued)



**PM FRIU** (continued)  
**major** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b>															
<b>Step</b>	<b>Action</b>														
<b>At the MAP</b>															
<b>1</b>	<p>Determine your next step.</p> <table border="1"> <thead> <tr> <th><b>If you came to this procedure from</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>another maintenance procedure and the posted FRIU is ManB (NA)</td> <td>step 4</td> </tr> <tr> <td>another maintenance procedure and the posted FRIU is ManB</td> <td>step 16</td> </tr> <tr> <td>anywhere else</td> <td>step 2</td> </tr> </tbody> </table>	<b>If you came to this procedure from</b>	<b>Do</b>	another maintenance procedure and the posted FRIU is ManB (NA)	step 4	another maintenance procedure and the posted FRIU is ManB	step 16	anywhere else	step 2						
<b>If you came to this procedure from</b>	<b>Do</b>														
another maintenance procedure and the posted FRIU is ManB (NA)	step 4														
another maintenance procedure and the posted FRIU is ManB	step 16														
anywhere else	step 2														
<b>2</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>71</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	0	1	0	0	0	71
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	0	1	0	0	0	71									
<b>3</b>	<p>Display the system-busy FRIUs by typing <b>&gt;POST FRIU MANB</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU 121 ManB Rsvd</pre> <p><b>If the MAP response indicates</b></p> <table border="1"> <tbody> <tr> <td>the FRIU is ManB</td> <td>step 16</td> </tr> <tr> <td>the FRIU is ManB (NA)</td> <td>step 4</td> </tr> <tr> <td>End of posted set</td> <td>step 29</td> </tr> </tbody> </table>	the FRIU is ManB	step 16	the FRIU is ManB (NA)	step 4	End of posted set	step 29								
the FRIU is ManB	step 16														
the FRIU is ManB (NA)	step 4														
End of posted set	step 29														
<b>-continued-</b>															

PM **FRIU** (continued)  
**major** (on an SSLPP) (continued)

Clearing a PM FRIU critical alarm (on an SSLPP) (continued)	
Step	Action
4	<p>Access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card by typing</p> <p><b>&gt;TABLE MSCDINV;FORMAT PACK</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>TABLE MSCDINV &lt;line length&gt;: 76 columns can be output per line. &lt;pack mode&gt;: Pack mode is ON. &lt;indent column&gt;: Indented lines will begin in column 1. &lt;first column&gt;: The first column of output is column 1</pre>
5	<p>List all entries in the table by typing</p> <p><b>&gt;LIST ALL</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>MSCDKEY SLOTINFO ----- 0 0 1 TBUSACC NT9X52AA NIL 0 0 2 CLOCK NT9X53AC NT9X54AC 0 0 3 MSP NT9X13DC NT9X26AB 0 0 4 MEMORY NT9X14DB 0 0 5 MAPPER NT9X15AA 0 0 17 DS512 NT9X17AD NT9X62BA 1</pre> <p><b>Note:</b> The example above shows a partial list.</p>
6	<p>Determine the card number of the NT9X17AD MS 4-post universal card, using the response obtained in step 10.</p> <p><b>Note:</b> The card number is shown in the thrid column of the MAP response to the LIST ALL command. In the example shown in step 10, the NT9X17AD is shown on the last line of the listing, and is card number 17.</p>
7	<p>Quit table MSCDINV by typing</p> <p><b>&gt;QUIT</b>                      and pressing the Enter key.</p>
-continued-	

**PM FRIU** (continued)  
**major** (on an SSLPP) (continued)

<b>Step</b>	<b>Action</b>
<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b> (continued)	
<b>8</b>	<p>Access the MS level of the MAP display to begin searching for MS-related faults affecting the FRIU by typing</p> <p><b>&gt;MS</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre style="margin-left: 40px;"> Message Switch   Clock   Shelf 0           Inter-MS Link 0 1 MS 0             .       M Free           .               . . 2 MS 1             .       Slave             .               . .</pre>
<b>9</b>	<p>Access shelf 0 by typing</p> <p><b>&gt;SHELF 0</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre style="margin-left: 40px;"> MS 0             .       M Free           .               . . 2 MS 1             .       Slave             .               . . 3 Shelf 0 Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 Chain MS 0             . . . . . - - - - - 0 . . . . . MS 1             . . . . . - - - - - . . . . .</pre>
<b>10</b>	<p>Post the NT9X17AD card identified in step 11 by typing</p> <p><b>&gt;CARD card_no</b> and pressing the Enter key.</p> <p><i>where</i> card_no is the number of the card identified in step 11</p> <p><i>Example of a MAP display:</i></p> <pre style="margin-left: 40px;"> MS 0             .       M Free           .               . . 2 MS 1             .       Slave             .               . . 3 Shelf 0 Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 Chain MS 0             . . . . . - - - - - 0 . . . . . MS 1             . . . . . - - - - - . . . . . Card 17 Protocol Port 0____3 MS 0             .   DS512   4   P - P - MS 1             .   DS512   4   P - P -</pre>
<b>-continued-</b>	

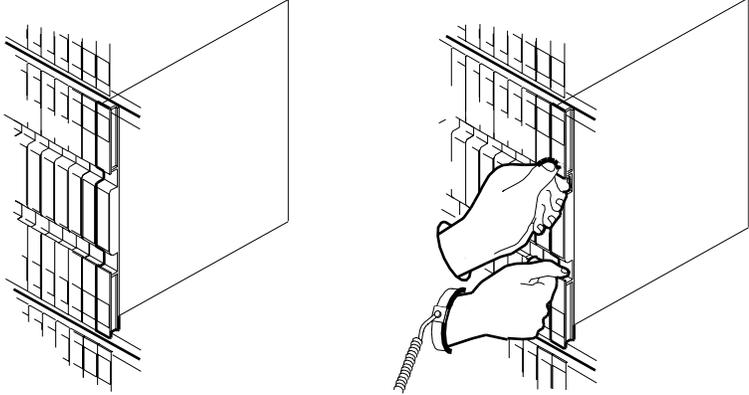
PM **FRIU** (continued)  
**major** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP) (continued)</b>							
<b>Step</b>	<b>Action</b>						
<b>11</b>	<p>Determine if the NT9X17AD card identified in step 11 has any faults.</p> <p><b>Note:</b> Locate the state of the card under the card number shown on the MAP display.</p> <table border="1"> <thead> <tr> <th><b>If the card, taps, or F-bus</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>have faults</td> <td>step 12</td> </tr> <tr> <td>do not have faults</td> <td>step 13</td> </tr> </tbody> </table>	<b>If the card, taps, or F-bus</b>	<b>Do</b>	have faults	step 12	do not have faults	step 13
<b>If the card, taps, or F-bus</b>	<b>Do</b>						
have faults	step 12						
do not have faults	step 13						
<b>12</b>	<p>Ensure that you have cleared alarms identified in step 11 by performing the appropriate MS alarm clearing procedure in <i>Lines, Trunks, and Peripherals ENET and Net Alarm and Performance Monitoring Procedures</i>, 297-1001-581. When you have completed the procedure, return to this point.</p>						
<b>13</b>	<p>Return to the PM level of the MAP display by typing</p> <p><b>&gt;PM</b></p> <p>and pressing the Enter key.</p>						
<b>14</b>	<p>Post the FRIU by typing</p> <p><b>&gt;POST FRIU friu_no</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>friu_no is the number of the FRIU that you have been working on (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU 121 ManB Rsvd</pre> <p>Go to step 16.</p>						
-continued-							

**PM FRIU (continued)**  
**major (on an SSLPP) (continued)**

<b>Clearing a PM FRIU critical alarm (on an SSLPP) (continued)</b>									
<b>Step</b>	<b>Action</b>								
<b>15</b>	Reset the FRIU by typing <b>&gt;PMRESET</b> and pressing the Enter key.  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the PMRESET command</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 17</td> </tr> <tr> <td>failed</td> <td>step 16</td> </tr> </tbody> </table>	<b>If the PMRESET command</b>	<b>Do</b>	passed	step 17	failed	step 16		
<b>If the PMRESET command</b>	<b>Do</b>								
passed	step 17								
failed	step 16								
<b>16</b>	Load the FRIU by typing <b>&gt;LOADPM</b> and pressing the Enter key.								
<b>17</b>	Test the FRIU by typing <b>&gt;TST</b> and pressing the Enter key.  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the TST command</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 28</td> </tr> <tr> <td>failed, with a card list that contains NTEX22 as the first card on the list</td> <td>step 25</td> </tr> <tr> <td>failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list</td> <td>step 22</td> </tr> </tbody> </table>	<b>If the TST command</b>	<b>Do</b>	passed	step 28	failed, with a card list that contains NTEX22 as the first card on the list	step 25	failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list	step 22
<b>If the TST command</b>	<b>Do</b>								
passed	step 28								
failed, with a card list that contains NTEX22 as the first card on the list	step 25								
failed, with a card list that contains NTEX31 or NTEX30 as the first card on the list	step 22								
-continued-									

PM **FRIU** (continued)  
major (on an SSLPP) (continued)

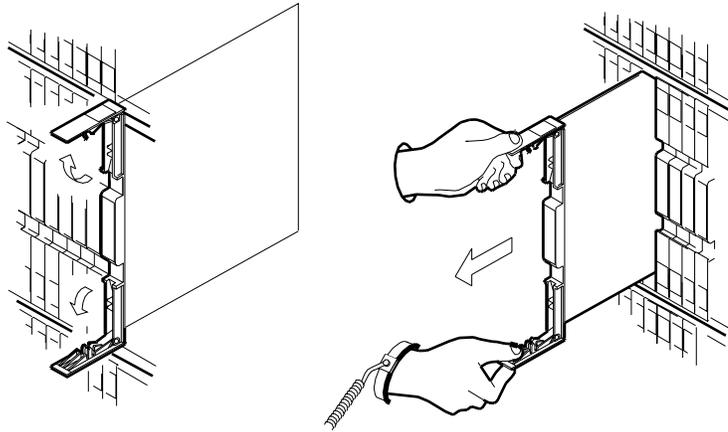
Clearing a PM FRIU critical alarm (on an SSLPP) (continued)	
Step	Action
<i>At the frame</i>	
	<b>WARNING</b> <b>Static electricity damage</b> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.
18	Locate the NTEX22 card for the FRIU you are working on. You will now reseal the three cards for the FRIU you are working on. 
-continued-	

**PM FRIU (continued)**  
**major (on an SSLPP) (continued)**

**Clearing a PM FRIU critical alarm (on an SSLPP) (continued)**

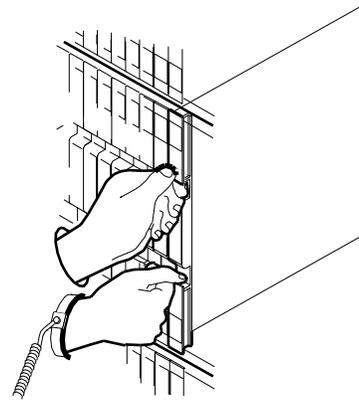
**Step Action**

- 19** Gently lift the locking levers, and pull the card towards you about 25 mm (1 in.).



- 20** Seat and lock the card, as follows:

- a. Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.
- b. Close the locking levers.



- 21** Repeat steps 18 to 20 for the NTEX31 and NTEX30 card for the FRIU you are working on.

Go to step 16.

-continued-

PM **FRIU** (continued)  
**major** (on an SSLPP) (continued)

<b>Clearing a PM FRIU critical alarm (on an SSLPP) (continued)</b>							
<b>Step</b>	<b>Action</b>						
<b>22</b>	Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. You will now replace cards on the list.						
	<table border="0"> <tr> <td style="text-align: right;"><b>If</b></td> <td style="text-align: left;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">one or more of the cards on the list have not been replaced using this procedure</td> <td>step 23</td> </tr> <tr> <td>all cards on the list have been replaced using this procedure</td> <td>step 29</td> </tr> </table>	<b>If</b>	<b>Do</b>	one or more of the cards on the list have not been replaced using this procedure	step 23	all cards on the list have been replaced using this procedure	step 29
<b>If</b>	<b>Do</b>						
one or more of the cards on the list have not been replaced using this procedure	step 23						
all cards on the list have been replaced using this procedure	step 29						
<b>23</b>	Replace the first card on the list that has not been replaced as a result of this alarm clearing procedure by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures, 297-1001-589</i> . When you have completed the procedure, return to this point.						
<b>24</b>	Go to step 15.						
<b>25</b>	Determine if the NTEX22 card has already been replaced.						
	<table border="0"> <tr> <td style="text-align: right;"><b>If the NTEX22 has</b></td> <td style="text-align: left;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">already been replaced</td> <td>step 29</td> </tr> <tr> <td>not been replaced</td> <td>step 26</td> </tr> </table>	<b>If the NTEX22 has</b>	<b>Do</b>	already been replaced	step 29	not been replaced	step 26
<b>If the NTEX22 has</b>	<b>Do</b>						
already been replaced	step 29						
not been replaced	step 26						
<b>26</b>	Replace the NTEX22 card by performing the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures, 297-1001-589</i> . When you have completed the procedure, return to this point.						
<b>27</b>	Go to step 16.						
-continued-							

---

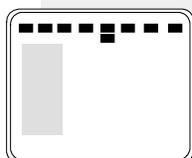
**PM FRIU** (end)  
**major** (on an SSLPP) (end)

---

<b>Clearing a PM FRIU critical alarm (on an SSLPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>28</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 30</td> </tr> <tr> <td>failed</td> <td>step 29</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 30	failed	step 29
<b>If the RTS command</b>	<b>Do</b>						
passed	step 30						
failed	step 29						
<b>29</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>30</b>	You have completed this procedure.						
<b>End</b>							



## PM FRIU minor (on an LPP)



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	<b>1FRIU</b>	.	.	.	.	.

### Indication

At the MTC level of the MAP display, FRIU preceded by a number appears under the PM header of the alarm banner, and indicates an frame relay interface unit (FRIU) minor alarm.

### Meaning

One or more FRIUs are in-service trouble for one of the following reasons:

- running and default load names do not match
- one tap is out of service
- one link interface module (LIM) unit is out of service for FRIUs provisioned on a link peripheral processor (LPP)
- one message switch (MS) unit is out of service for FRIUs provisioned on a single-shelf LPP (SSLPP)
- one F-bus is out of service

The number of FRIUs affected is indicated by the number under the PM header of the alarm banner.

### Impact

FRIUs with in-service trouble still function. Traffic on the DS-1 channels associated with the FRIUs is not affected.

### Common procedures

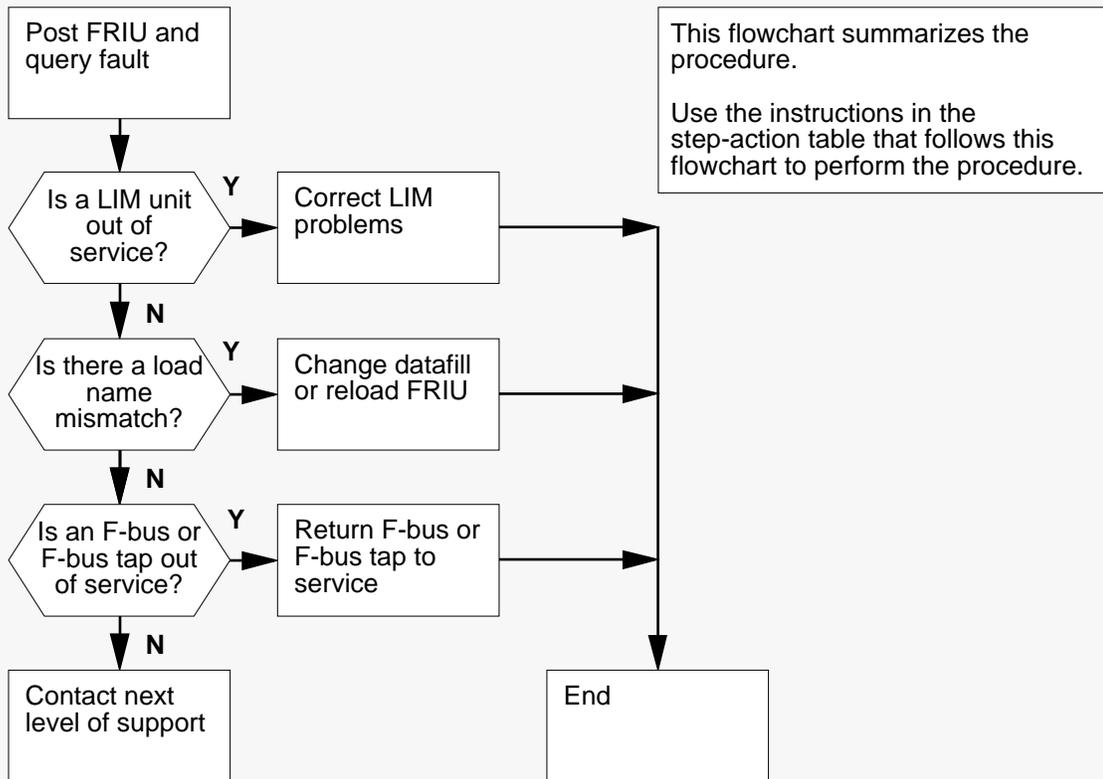
None

### Action

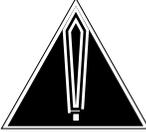
The following flowchart is a summary of this procedure. Use the instructions in the step-action table that follows the flowchart to perform the procedure.

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

**Summary of Clearing a PM FRIU minor alarm (on an LPP)**



**PM FRIU (continued)**  
**minor (on an LPP) (continued)**

<b>Clearing a PM FRIU minor alarm (on an LPP)</b>															
<b>Step</b>	<b>Action</b>														
	<p><b>CAUTION</b> <b>Possible service-affecting action</b></p> <p>To complete the following procedure, you may be required to take an FRIU out of service, resulting in loss of service on the associated access or trunking DS-1 channels. If you are instructed to manually busy an FRIU, do so only during a period of low traffic.</p>														
<b>At the MAP</b>															
<b>1</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">PM</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2</td> <td style="text-align: center;">72</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	0	0	0	0	2	72
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	0	0	0	0	2	72									
<b>2</b>	<p>Post in-service trouble FRIUs by typing <b>&gt;POST FRIU ISTB</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: left;">FRIU</td> <td style="text-align: center;">121</td> <td style="text-align: left;">ISTb</td> <td style="text-align: center;">Rsvd</td> </tr> </tbody> </table>	FRIU	121	ISTb	Rsvd										
FRIU	121	ISTb	Rsvd												
<b>-continued-</b>															

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

Clearing a PM FRIU minor alarm (on an LPP) (continued)							
Step	Action						
3	<p>Query the FRIU to determine the frame type by typing  <b>&gt;QUERYPM</b>                      and pressing the Enter key.</p> <p><b>Note:</b> The FRIU is provisioned in an LPP if the code LIM is shown to the far left of the second line in the response. The FRIU is provisioned in an SSLPP if the code MS is shown. In the example, the code is LIM.</p> <p><i>Example of a MAP response:</i></p> <pre> FRIU FTA: 424B 1000 LIM: 0 Shelf: 1 Slot: 14 Default Load: F8X36CJ Running Load: F8X36CJ Carrier is currently InSv. Carrier Alarm: -----. Istb conditions:     Msg Channel #0 NA     TAP #0 OOS/NA LMS States:      InSv      InSv Auditing?:      Yes       Yes Msg Channels:   NA        Acc TAPs:           S         .                     </pre> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">If the code is</th> <th style="text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>LIM</td> <td>step 5</td> </tr> <tr> <td>MS</td> <td>step 4</td> </tr> </tbody> </table>	If the code is	Do	LIM	step 5	MS	step 4
If the code is	Do						
LIM	step 5						
MS	step 4						
4	<p>Perform the procedure <i>Clearing a PM FRIU minor alarm (on an SSLPP)</i> on page 2-85. Do not return to this procedure.</p>						
-continued-							

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

**Clearing a PM FRIU minor alarm (on an LPP)** (continued)**Step Action**

**5** Determine the fault reason for the posted FRIU from the response obtained in step 3.

If the response has been cleared from the MAP display, obtain another query result by typing

**>QUERYPM**  
and pressing the Enter key.

**Note:** The fault reason is shown under the ISTb Conditions header in the response.

**If the fault reason is****Do**

Msg Channel #x NA  
TAP #x OOS/NA  
Host Unit x is not  
inservice

step 6

Loadname mismatch

step 14

Msg Channel #x NA  
TAP #x OOS/NA

step 25

repeatedly switching between two  
or more of the above reasons

step 58

**6** Determine from the MAP response obtained in step 8 the number of the LIM associated with the FRIU. You will now clear faults associated with the LIM.

If the response has been cleared from the MAP display, obtain another query result by typing

**>QUERYPM**

and pressing the Enter key.

**Note:** The LIM number is shown on the second line of the MAP response.

-continued-

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>7</b>	<p>Post the LIM associated with the in-service trouble FRIU by typing  <b>&gt;POST LIM lim_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      lim_no is the LIM number (0 to 16)</p> <p><i>Example of a MAP display:</i></p> <pre>LIM 0 ISTb                                 Links_OOS Taps_OOS Unit0: ISTb                      .          1 Unit1: InSv                       .          0</pre>						
<b>8</b>	<p>Determine the state of both LIM units.</p> <table border="1"> <thead> <tr> <th><b>If the state of</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>both LIM units is either InSv or ISTb</td> <td>step 11</td> </tr> <tr> <td>one LIM unit is in any other state</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the state of</b>	<b>Do</b>	both LIM units is either InSv or ISTb	step 11	one LIM unit is in any other state	step 9
<b>If the state of</b>	<b>Do</b>						
both LIM units is either InSv or ISTb	step 11						
one LIM unit is in any other state	step 9						
<b>9</b>	Record the number and the state of the faulty LIM unit.						
<b>10</b>	A problem with the LIM unit produces a PM LIM alarm. Perform the appropriate LIM alarm clearing procedure in <i>Lines, Trunks, and Peripherals Alarm and Performance Monitoring Procedures</i> , 297-1001-582. When you have completed the procedure, return to this point.						
-continued-							

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>11</b>	<p>Post the FRIU you have been working on by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.</p> <p><i>where</i> friu_no is the number of the FRIU that you are working on (0 to 500)</p> <p><i>Example of a MAP display:</i> FRIU 121 InSv Rsvd</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv</td> <td>step 59</td> </tr> <tr> <td>ISTb</td> <td>step 12</td> </tr> <tr> <td>anything else</td> <td>step 13</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv	step 59	ISTb	step 12	anything else	step 13
<b>If the state of the FRIU is</b>	<b>Do</b>								
InSv	step 59								
ISTb	step 12								
anything else	step 13								
<b>12</b>	<p>Query the fault reason by typing <b>&gt;QUERYPM FLT</b> and pressing the Enter key.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the fault reason has</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>changed</td> <td>step 5</td> </tr> <tr> <td>not changed</td> <td>step 58</td> </tr> </tbody> </table>	<b>If the fault reason has</b>	<b>Do</b>	changed	step 5	not changed	step 58		
<b>If the fault reason has</b>	<b>Do</b>								
changed	step 5								
not changed	step 58								
<b>13</b>	<p>The state of the FRIU has deteriorated, and alarm severity has increased. Perform the appropriate FRIU alarm clearing procedure in this document. Do not return to this procedure.</p>								
-continued-									

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>14</b>	<p>Determine from the MAP response obtained in step 8 the default load and the running load for the FRIU.</p> <p>If the response has been cleared from the MAP display, obtain another query result by typing</p> <p><b>&gt;QUERYPM</b>  and pressing the Enter key.</p> <p><b>Note:</b> The name of the default load is shown beside the Default Load header in the MAP response. The name of the running load is shown to the right of the Running Load header.</p>								
<b>15</b>	<p>Determine from office records or from office personnel the correct name for the load.</p> <p><b>Note:</b> This procedure assumes that the correct load name is datafilled in table PMLOADS.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>both the default load name and the running load name do not match the load name obtained from office records</td> <td>step 16</td> </tr> <tr> <td>only the default load name does not match the load name obtained from office records</td> <td>step 16</td> </tr> <tr> <td>only the running load name does not match the load name obtained from office records</td> <td>step 24</td> </tr> </tbody> </table>	<b>If</b>	<b>Do</b>	both the default load name and the running load name do not match the load name obtained from office records	step 16	only the default load name does not match the load name obtained from office records	step 16	only the running load name does not match the load name obtained from office records	step 24
<b>If</b>	<b>Do</b>								
both the default load name and the running load name do not match the load name obtained from office records	step 16								
only the default load name does not match the load name obtained from office records	step 16								
only the running load name does not match the load name obtained from office records	step 24								
<b>16</b>	<p>Access table LIUINV by typing</p> <p><b>&gt;TABLE LIUINV</b>  and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>  TABLE: LIUINV</p>								
-continued-									

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>17</b>	<p>Position on the datafill for the FRIU by typing <b>&gt;POSITION friu_no</b> and pressing the Enter key.</p> <p><i>where</i> friu_no is the number of the FRIU (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU 121  LIM  0 2 12  XRX35CJ          NTEX22BB                                      NTEX30AA NTEX31BA</pre>
<b>18</b>	<p>Change the load name datafilled for the FRIU to match the name obtained from office records by typing <b>&gt;CHANGE LOAD</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>ENTER Y TO CONTINUE PROCESSING OR N TO QUIT</pre>
<b>19</b>	<p>Confirm the command by typing <b>&gt;Y</b> and pressing the Enter key.</p>
<b>20</b>	<p>Enter the correct load name by typing <b>&gt;loadname</b> and pressing the Enter key.</p> <p><i>where</i> loadname is the name of the correct load</p> <p><i>Example of a MAP response:</i></p> <pre>TUPLE TO BE CHANGED: FRIU 121  LIM  0 2 12  XRX36CJ          NTEX22BB                                      NTEX30AA NTEX31BA ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.</pre>
<b>21</b>	<p>Confirm the command by typing <b>&gt;Y</b> and pressing the Enter key.</p>
<b>-continued-</b>	

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>22</b>	Quit table LIUINV by typing <b>&gt;QUIT</b> and pressing the Enter key.						
<b>23</b>	Determine whether the name of the running load matches the load name obtained from office records.  <table border="1"> <thead> <tr> <th><b>If the running load name</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>does not match the name obtained from office records</td> <td>step 24</td> </tr> <tr> <td>matches the name obtained from office records</td> <td>step 59</td> </tr> </tbody> </table>	<b>If the running load name</b>	<b>Do</b>	does not match the name obtained from office records	step 24	matches the name obtained from office records	step 59
<b>If the running load name</b>	<b>Do</b>						
does not match the name obtained from office records	step 24						
matches the name obtained from office records	step 59						
<b>24</b>	Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key. Go to step 55.						
<b>25</b>	Determine from the MAP response obtained in step 8 the number of the LIM associated with the FRIU and the tap number.  If the response has been cleared from the MAP display, obtain another query result by typing <b>&gt;QUERYPM</b> and pressing the Enter key.  <b>Note:</b> The LIM number is shown on the third line of the MAP response. The tap number is shown to the right of the TAP header of the MAP response.						
<b>26</b>	Record the number of the LIM and the number of the F-bus tap. You will now clear faults associated with the LIM and the F-bus.  <b>Note:</b> The number of the LIM is shown to the right of the LIM header on the MAP response obtained in step 3. The number of the F-bus tap is shown to the right of the TAP header.						
-continued-							

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

**Clearing a PM FRIU minor alarm (on an LPP)** (continued)

**Step Action**

**27** Post the LIM associated with the FRIU by typing

**>POST LIM lim\_no**  
and pressing the Enter key.

*where*  
lim\_no is the number of the LIM (0 to 16)

*Example of a MAP display:*

```
LIM 0 ISTb
                                Links_OOS Taps_OOS
Unit0: ISTb                      .      12
Unit1: InSv                       .      0
```

**28** Access the F-bus level of the MAP display by typing

**>FBUS**  
and pressing the Enter key.

*Example of a MAP display:*

```
LIM 0 ISTb
                                Links_OOS Taps_OOS
Unit0: ISTb                      .      12
Unit1: InSv                       .      0

                                Tap: 0   4   8  12  16  20  24  28  32
FBus0: ManB                      BBBB BBBB BBBB BBBB.-----
FBus1: InSv                       .... .....
```

**Note:** In the example, symbols under the tap numbers indicate the following:

- B** F-bus is manual busy or that the controlling LIM unit is system busy or manual busy
- S** system-busy tap
- M** manual-busy tap
- I** in-service trouble tap
- dot (.)** in-service tap
- unequipped tap

-continued-

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>29</b>	<p>Determine the state of the F-buses.</p> <p><b>Note:</b> The state of the F-buses is shown to the right of the F-bus header on the MAP display.</p> <table border="1"> <thead> <tr> <th><b>If the state of</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>one of the F-buses is SysB or ManB and the other is either InSv or ISTb</td> <td>step 30</td> </tr> <tr> <td>both F-buses is either InSv or ISTb</td> <td>step 37</td> </tr> </tbody> </table>	<b>If the state of</b>	<b>Do</b>	one of the F-buses is SysB or ManB and the other is either InSv or ISTb	step 30	both F-buses is either InSv or ISTb	step 37		
<b>If the state of</b>	<b>Do</b>								
one of the F-buses is SysB or ManB and the other is either InSv or ISTb	step 30								
both F-buses is either InSv or ISTb	step 37								
<b>30</b>	Record the state of the faulty F-bus.								
<b>31</b>	A problem with an F-bus produces a PM LIMF alarm. Perform the appropriate PM LIMF alarm clearing procedures in this document. When you have completed the procedure, return to this point.								
<b>32</b>	<p>Post the FRIU you have been working on by typing</p> <p><b>&gt;PM;POST FRIU friu_no</b>  and pressing the Enter key.</p> <p><i>where</i>  friu_no is the number of the FRIU that you are working on  (0 to 500)</p> <p><i>Example of a MAP display:</i>  FRIU 121 InSv Rsvd</p> <table border="1"> <thead> <tr> <th><b>If the state of the FRIU is</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv</td> <td>step 59</td> </tr> <tr> <td>ISTb</td> <td>step 34</td> </tr> <tr> <td>anything else</td> <td>step 33</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv	step 59	ISTb	step 34	anything else	step 33
<b>If the state of the FRIU is</b>	<b>Do</b>								
InSv	step 59								
ISTb	step 34								
anything else	step 33								
<b>33</b>	The state of the FRIU has deteriorated, and alarm severity has increased. Perform the appropriate FRIU alarm clearing procedure in this document. Do not return to this procedure.								
-continued-									

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

**Clearing a PM FRIU minor alarm (on an LPP)** (continued)**Step Action**

**34** Query the fault reason by typing  
**>QUERYPM FLT**  
and pressing the Enter key.

<b>If the fault reason has</b>	<b>Do</b>
changed	step 5
not changed	step 35

**35** Post the LIM associated with the FRIU by typing  
**>POST LIM lim\_no**  
and pressing the Enter key.

*where*  
lim\_no is the number of the LIM (0 to 16)

*Example of a MAP display:*

```
LIM 0 InSv
                                     Links_OOS Taps_OOS
Unit0: InSv                          .          1
Unit1: InSv                          .          0
```

-continued-

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

Clearing a PM FRIU minor alarm (on an LPP) (continued)											
Step	Action										
36	<p>Access the F-bus level of the MAP display by typing  <b>&gt;FBUS</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>LIM 0 InSv                                      Links_OOS Taps_OOS Unit0: InSv          .           1 Unit1: InSv          .           0  Tap: 0   4   8   12  16  20  24  28  32 FBus0: InSv      .... .S.. ----- FBus1: InSv      .... .S.. -----</pre> <table border="1"> <thead> <tr> <th>If the state of both F-buses is</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>InSv or ISTb</td> <td>step 37</td> </tr> <tr> <td>anything else</td> <td>step 58</td> </tr> </tbody> </table>	If the state of both F-buses is	Do	InSv or ISTb	step 37	anything else	step 58				
If the state of both F-buses is	Do										
InSv or ISTb	step 37										
anything else	step 58										
37	<p>Determine from the MAP response obtained in the previous step the state of the F-bus taps for the FRIU you are working on.</p> <p><b>Note:</b> The tap state is shown to the right of the Tap header in the MAP response in the previous step. The tap number applies to both F-buses.</p> <table border="1"> <thead> <tr> <th>If the state of</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>both F-bus taps is I or dot (.) and the state of the associated FRIU is not InSv</td> <td>step 38</td> </tr> <tr> <td>both F-bus taps is I or dot (.) and the state of the associated FRIU is InSv</td> <td>step 39</td> </tr> <tr> <td>one F-bus tap is S</td> <td>step 40</td> </tr> <tr> <td>one F-bus tap is M</td> <td>step 41</td> </tr> </tbody> </table> <p style="text-align: center;">-continued-</p>	If the state of	Do	both F-bus taps is I or dot (.) and the state of the associated FRIU is not InSv	step 38	both F-bus taps is I or dot (.) and the state of the associated FRIU is InSv	step 39	one F-bus tap is S	step 40	one F-bus tap is M	step 41
If the state of	Do										
both F-bus taps is I or dot (.) and the state of the associated FRIU is not InSv	step 38										
both F-bus taps is I or dot (.) and the state of the associated FRIU is InSv	step 39										
one F-bus tap is S	step 40										
one F-bus tap is M	step 41										

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>38</b>	<p>Query the fault reason by typing <b>&gt;QUERYPM FLT</b> and pressing the Enter key.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the fault reason has</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>changed</td> <td>step 5</td> </tr> <tr> <td>not changed</td> <td>step 58</td> </tr> </tbody> </table>	<b>If the fault reason has</b>	<b>Do</b>	changed	step 5	not changed	step 58
<b>If the fault reason has</b>	<b>Do</b>						
changed	step 5						
not changed	step 58						
<b>39</b>	<p>The cause of the FRIU minor alarm has been corrected by the system and the alarm cleared.</p> <p>Go to step 59.</p>						
<b>40</b>	<p>Manually busy the system-busy F-bus tap by typing <b>&gt;BSY FBUS fbus_no tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> fbus_no      is the number of the F-bus (0 or 1) tap_no        is the number of the F-bus tap (0 to 35)</p> <p>Go to step 42.</p>						
<b>41</b>	<p>Determine from office records or from office personnel why the tap has been busied.</p> <p>When permitted, continue with this procedure.</p>						
-continued-							

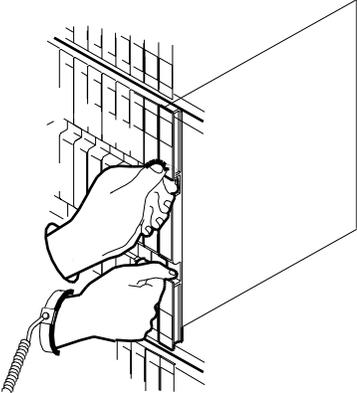
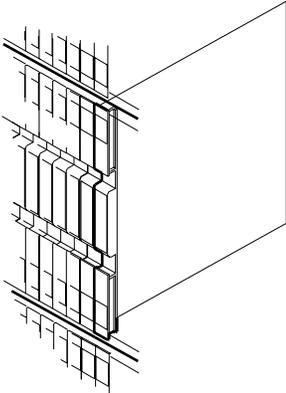
PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>42</b>	<p>Return the F-bus tap to service by typing  <b>&gt;RTS FBUS fbus_no tap_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      fbus_no is the number of the F-bus (0 or 1)                      tap_no is the number of the F-bus tap (0 to 35)</p> <table border="1"> <thead> <tr> <th><b>If the command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 43</td> </tr> <tr> <td>failed, and a card list including the NTEX22, NTEX30, or NTEX31 is generated</td> <td>step 51</td> </tr> <tr> <td>failed, and no card list is generated</td> <td>step 46</td> </tr> <tr> <td>failed, with the response local maintenance not accessible</td> <td>step 46</td> </tr> <tr> <td>failed, with any other response</td> <td>step 58</td> </tr> </tbody> </table>	<b>If the command</b>	<b>Do</b>	passed	step 43	failed, and a card list including the NTEX22, NTEX30, or NTEX31 is generated	step 51	failed, and no card list is generated	step 46	failed, with the response local maintenance not accessible	step 46	failed, with any other response	step 58
<b>If the command</b>	<b>Do</b>												
passed	step 43												
failed, and a card list including the NTEX22, NTEX30, or NTEX31 is generated	step 51												
failed, and no card list is generated	step 46												
failed, with the response local maintenance not accessible	step 46												
failed, with any other response	step 58												
-continued-													

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>43</b>	<p>Post the FRIU you have been working on by typing  <b>&gt;PM;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the number of the FRIU that you are working on            (0 to 500)</p> <p><i>Example of a MAP display:</i>            FRIU 121 InSv Rsvd</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv</td> <td>step 59</td> </tr> <tr> <td>ISTb</td> <td>step 44</td> </tr> <tr> <td>anything else</td> <td>step 45</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv	step 59	ISTb	step 44	anything else	step 45
<b>If the state of the FRIU is</b>	<b>Do</b>								
InSv	step 59								
ISTb	step 44								
anything else	step 45								
<b>44</b>	<p>Query the fault reason by typing  <b>&gt;QUERYPM FLT</b>            and pressing the Enter key.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the fault reason has</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>changed</td> <td>step 5</td> </tr> <tr> <td>not changed</td> <td>step 58</td> </tr> </tbody> </table>	<b>If the fault reason has</b>	<b>Do</b>	changed	step 5	not changed	step 58		
<b>If the fault reason has</b>	<b>Do</b>								
changed	step 5								
not changed	step 58								
<b>45</b>	<p>The state of the FRIU has deteriorated, and alarm severity has increased. Perform the appropriate FRIU alarm clearing procedure in this document. Do not return to this procedure.</p>								
-continued-									

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

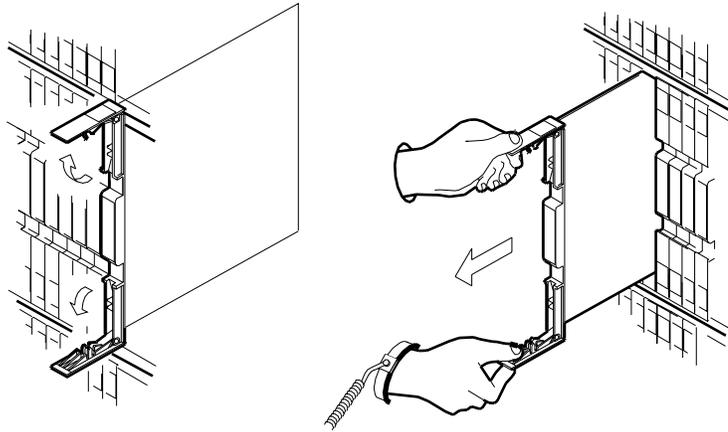
Clearing a PM FRIU minor alarm (on an LPP) (continued)	
Step	Action
46	<p>Post the FRIU you have been working on by typing <b>&gt;PM;POST FRIU friu_no</b> and pressing the Enter key.</p> <p><i>where</i> friu_no is the number of the FRIU that you are working on (0 to 500)</p> <p><i>Example of a MAP display:</i> FRIU 121 ISTb Rsvd</p>
<b>At the frame</b>	
	<p><b>WARNING</b> <b>Static electricity damage</b> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.</p>
47	<p>Locate the NTEX22 card for the FRIU you are working on. You will now reseal the three cards for the FRIU you are working on.</p> <div style="display: flex; justify-content: space-around;"></div>
-continued-	

**PM FRIU** (continued)  
**minor** (on an LPP) (continued)

**Clearing a PM FRIU minor alarm (on an LPP)** (continued)

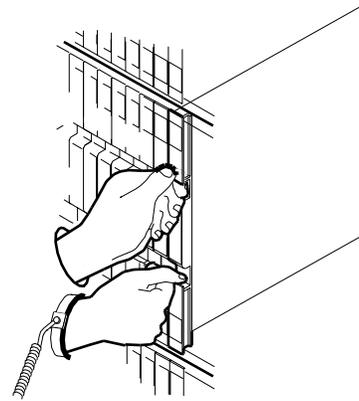
**Step Action**

- 48** Gently lift the locking levers, and pull the card towards you about 25 mm (1 in.).



- 49** Seat and lock the card, as follows:

- a. Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.
- b. Close the locking levers.



- 50** Repeat steps 47 to 49 for the NTEX30 and NTEX31 card for the FRIU you are working on.

Go to step 55.

- 51** Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. You will now replace cards on the list.

-continued-

PM **FRIU** (continued)  
**minor** (on an LPP) (continued)

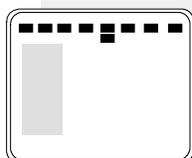
Clearing a PM FRIU minor alarm (on an LPP) (continued)													
Step	Action												
52	<p>Post the FRIU you have been working on by typing  <b>&gt;PM;POST FRIU friu_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      friu_no is the number of the FRIU that you are working on                      (0 to 500)</p> <p><i>Example of a MAP display:</i>                      FRIU 121 ISTb Rsvd</p>												
53	<p>Manually busy the FRIU by typing  <b>&gt;BSY FORCE</b>                      and pressing the Enter key.</p>												
54	<p>Replace the first card on the list that has not been replaced as a result of this alarm clearing procedure. Perform the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures, 297-1001-589</i>. When you have completed the procedure, return to this point.</p>												
55	<p>Load the FRIU by typing  <b>&gt;LOADPM</b>                      and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th>If the LOADPM command</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 56</td> </tr> <tr> <td>failed, with no card list and you have reseated all cards</td> <td>step 58</td> </tr> <tr> <td>failed, with no card list and you have not reseated all cards</td> <td>step 47</td> </tr> <tr> <td>failed, with a card list and you have not replaced one or more of the cards on the list</td> <td>step 54</td> </tr> <tr> <td>failed, with a card list and you have replaced all cards on the list</td> <td>step 58</td> </tr> </tbody> </table>	If the LOADPM command	Do	passed	step 56	failed, with no card list and you have reseated all cards	step 58	failed, with no card list and you have not reseated all cards	step 47	failed, with a card list and you have not replaced one or more of the cards on the list	step 54	failed, with a card list and you have replaced all cards on the list	step 58
If the LOADPM command	Do												
passed	step 56												
failed, with no card list and you have reseated all cards	step 58												
failed, with no card list and you have not reseated all cards	step 47												
failed, with a card list and you have not replaced one or more of the cards on the list	step 54												
failed, with a card list and you have replaced all cards on the list	step 58												
-continued-													

PM **FRIU** (end)  
**minor** (on an LPP) (end)

<b>Clearing a PM FRIU minor alarm (on an LPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>56</b>	Test the FRIU by typing <b>&gt;TST</b> and pressing the Enter key.								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 60%;"><b>If the TST command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 57</td> </tr> <tr> <td>failed, with a card list and you have not replaced one or more of the cards on the list</td> <td>step 54</td> </tr> <tr> <td>failed, with a card list and you have replaced all cards on the list</td> <td>step 58</td> </tr> </tbody> </table>	<b>If the TST command</b>	<b>Do</b>	passed	step 57	failed, with a card list and you have not replaced one or more of the cards on the list	step 54	failed, with a card list and you have replaced all cards on the list	step 58
<b>If the TST command</b>	<b>Do</b>								
passed	step 57								
failed, with a card list and you have not replaced one or more of the cards on the list	step 54								
failed, with a card list and you have replaced all cards on the list	step 58								
<b>57</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 60%;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 59</td> </tr> <tr> <td>failed</td> <td>step 58</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 59	failed	step 58		
<b>If the RTS command</b>	<b>Do</b>								
passed	step 59								
failed	step 58								
<b>58</b>	For further assistance, contact the personnel responsible for the next level of support.								
<b>59</b>	You have completed this procedure.								
<b>End</b>									



## PM FRIU minor (on an SSLPP)



CM	MS	IOD	Net	PM	CCS	Lng	Trks	Ext	APPL
.	.	.	.	<b>1FRIU</b>	.	.	.	.	.

### Indication

At the MTC level of the MAP display, FRIU preceded by a number appears under the PM header of the alarm banner, and indicates an frame relay interface unit (FRIU) minor alarm.

### Meaning

One or more FRIUs are in-service trouble for one of the following reasons:

- running and default load names do not match
- one tap is out of service
- one message switch (MS) unit is out of service
- one F-bus is out of service

The number of FRIUs affected is indicated by the number under the PM header of the alarm banner.

### Impact

FRIUs with in-service trouble still function. Traffic on the DS-1 channels associated with the FRIUs is not affected.

### Common procedures

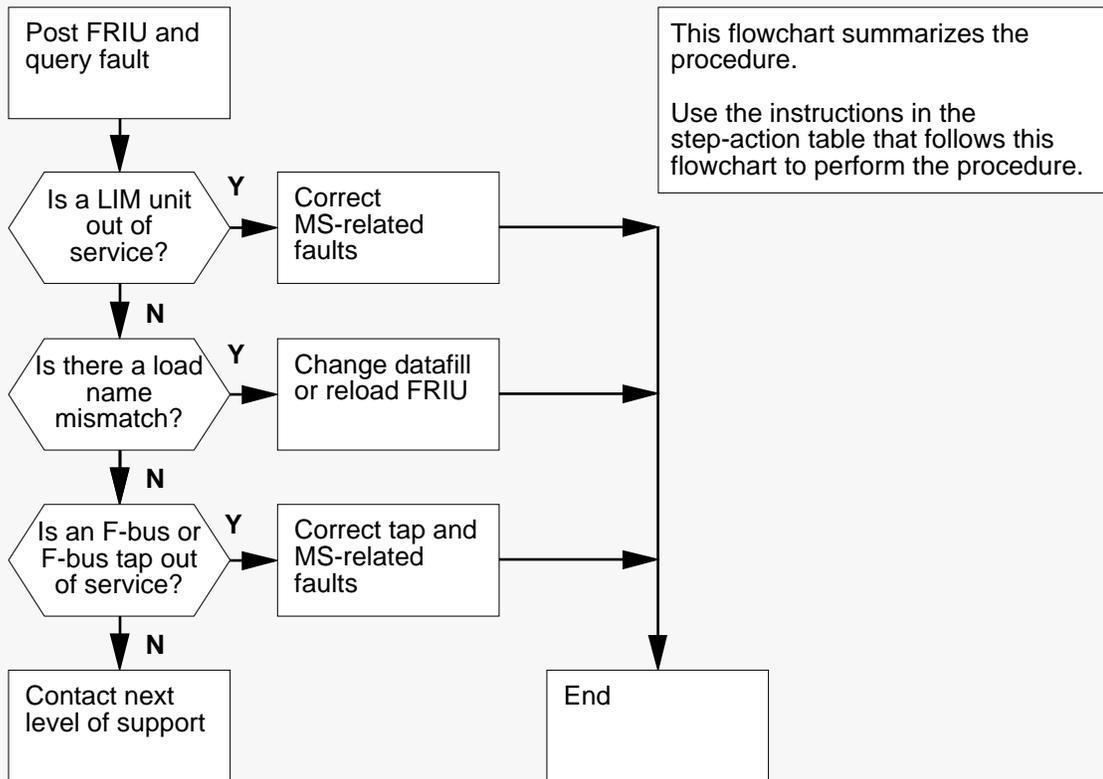
None

### Action

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

PM **FRIU** (continued)  
**minor** (on an SSLPP) (continued)

**Summary of Clearing a PM FRIU minor alarm (on an SSLPP)**



**PM FRIU** (continued)  
**minor** (on an SSLPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an SSLPP)</b>															
<b>Step</b>	<b>Action</b>														
<b>At the MAP</b>															
<b>1</b>	Determine your next step.														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If you came to this procedure from</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>another maintenance procedure</td> <td>step 4</td> </tr> <tr> <td>anywhere else</td> <td>step 2</td> </tr> </tbody> </table>	<b>If you came to this procedure from</b>	<b>Do</b>	another maintenance procedure	step 4	anywhere else	step 2								
<b>If you came to this procedure from</b>	<b>Do</b>														
another maintenance procedure	step 4														
anywhere else	step 2														
	<p><b>CAUTION</b> <b>Possible service-affecting action</b></p> <p>To complete the following procedure, you may be required to take an FRIU out of service, resulting in loss of service on the associated access or trunking DS-1 channels. If you are instructed to manually busy an FRIU, do so only during a period of low traffic.</p>														
<b>At the MAP</b>															
<b>2</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">SysB</th> <th style="text-align: center;">ManB</th> <th style="text-align: center;">OffL</th> <th style="text-align: center;">CBsy</th> <th style="text-align: center;">ISTb</th> <th style="text-align: center;">InSv</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">PM</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2</td> <td style="text-align: center;">72</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	0	0	0	0	2	72
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	0	0	0	0	2	72									
<b>3</b>	<p>Post in-service trouble FRIUs by typing <b>&gt;POST FRIU ISTB</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="text-align: center;">FRIU</td> <td style="text-align: center;">121</td> <td style="text-align: center;">ISTb</td> <td style="text-align: center;">Rsvd</td> </tr> </tbody> </table>	FRIU	121	ISTb	Rsvd										
FRIU	121	ISTb	Rsvd												
<b>-continued-</b>															

PM **FRIU** (continued)  
**minor** (on an SSLPP) (continued)

Clearing a PM FRIU minor alarm (on an SSLPP) (continued)	
Step	Action
4	<p>Query the FRIU to determine the nature of the fault by typing  <b>&gt;QUERYPM</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre> FRIU FTA: 427E 1000 MS Shelf: 1 Slot: 24 Default Load: F8X36CJ Running Load: F8X36CJ ISTB conditions:     Msg Channel #0 NA     TAP #0 OOS/NA Carrier is currently OffL. Carrier Alarm: -----. MS States:      InSv      InSv Auditing?:     No        Yes Msg Channels:  NA        Acc TAPs:         B          .                     </pre>
-continued-	

**PM FRIU** (continued)  
**minor** (on an SSLPP) (continued)

**Clearing a PM FRIU minor alarm (on an SSLPP)** (continued)**Step Action**

**5** Determine the fault reason for the posted FRIU from the response obtained in step 4.

If the response has been cleared from the MAP display, obtain another query result by typing

**>QUERYPM**  
and pressing the Enter key.

**Note:** The fault reason is shown under the ISTb Conditions header in the response.

**If the fault reason is****Do**

Msg Channel #x NA  
TAP #x OOS/NA  
Host Unit x is not  
inservice

step 6

Loadname mismatch

step 17

Msg Channel #x NA  
TAP #x OOS/NA

step 6

repeatedly switching between two  
or more of the above reasons

step 39

**6** Access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card by typing

**>TABLE MSCDINV;FORMAT PACK**  
and pressing the Enter key.

*Example of a MAP response:*

```
TABLE MSCDINV
<line length>: 76 columns can be output per line.
<pack mode>: Pack mode is ON.
<indent column>: Indented lines will begin in column 1.
<first column>: The first column of output is column 1
```

-continued-

PM **FRIU** (continued)  
**minor** (on an SSLPP) (continued)

Clearing a PM FRIU minor alarm (on an SSLPP) (continued)																									
Step	Action																								
7	<p>List all entries in the table by typing</p> <p><b>&gt;LIST ALL</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>MSCDKEY SLOTINFO ----- 0 0 1 TBUSACC NT9X52AA NIL 0 0 2 CLOCK NT9X53AC NT9X54AC 0 0 3 MSP NT9X13DC NT9X26AB 0 0 4 MEMORY NT9X14DB 0 0 5 MAPPER NT9X15AA 0 0 17 DS512 NT9X17AD NT9X62BA 1</pre> <p><b>Note:</b> The example above shows a partial list.</p>																								
8	<p>Determine the card number of the NT9X17AD MS 4-post universal card, using the response obtained in step 10.</p> <p><b>Note:</b> The card number is shown in the third column of the MAP response to the LIST ALL command. In the example shown in step 10, the NT9X17AD is shown on the last line of the listing, and is card number 17.</p>																								
9	<p>Quit table MSCDINV by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>																								
10	<p>Access the MS level of the MAP display to begin searching for MS-related faults affecting the FRIU by typing</p> <p><b>&gt;MS</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="0"> <thead> <tr> <th></th> <th>Message Switch</th> <th>Clock</th> <th>Shelf</th> <th>0</th> <th>Inter-MS Link</th> <th>0</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>MS 0</td> <td>.</td> <td>M Free</td> <td>.</td> <td>.</td> <td>.</td> <td>.</td> <td>2</td> </tr> <tr> <td>MS 1</td> <td>.</td> <td>Slave</td> <td>.</td> <td>.</td> <td>.</td> <td>.</td> <td>.</td> </tr> </tbody> </table>		Message Switch	Clock	Shelf	0	Inter-MS Link	0	1	MS 0	.	M Free	.	.	.	.	2	MS 1	.	Slave	.	.	.	.	.
	Message Switch	Clock	Shelf	0	Inter-MS Link	0	1																		
MS 0	.	M Free	.	.	.	.	2																		
MS 1	.	Slave	.	.	.	.	.																		
<b>-continued-</b>																									

**PM FRIU** (continued)  
**minor** (on an SSLPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an SSLPP)</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>11</b>	<p>Access shelf 0 by typing <b>&gt;SHELF 0</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre> MS 0      .          M Free          .          . . 2 MS 1      .          Slave           .          . . 3 Shelf 0 Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 Chain MS 0      . . . . . - - - - - 0 . . . . . MS 1      . . . . . - - - - - . . . . .                     </pre>
<b>12</b>	<p>Post the NT9X17AD card identified in step 11 by typing <b>&gt;CARD card_no</b> and pressing the Enter key.</p> <p><i>where</i> <b>card_no</b> is the number of the card identified in step 11</p> <p><i>Example of a MAP display:</i></p> <pre> MS 0      .          M Free          .          . . 2 MS 1      .          Slave           .          . . 3 Shelf 0 Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 Chain MS 0      . . . . . - - - - - 0 . . . . . MS 1      . . . . . - - - - - . . . . . Card 17 Protocol Port 0____3 MS 0      .  DS512    4  P - P - MS 1      .  DS512    4  P - P -                     </pre>
<b>-continued-</b>	

PM **FRIU** (continued)  
**minor** (on an SSLPP) (continued)

Clearing a PM FRIU minor alarm (on an SSLPP) (continued)							
Step	Action						
13	<p>Determine if the NT9X17AD card identified in step 11 has any faults.</p> <p><b>Note:</b> Locate the state of the card under the card number shown on the MAP display.</p> <table border="1"> <thead> <tr> <th>If the card, taps, or F-bus</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>have faults</td> <td>step 14</td> </tr> <tr> <td>do not have faults</td> <td>step 15</td> </tr> </tbody> </table>	If the card, taps, or F-bus	Do	have faults	step 14	do not have faults	step 15
If the card, taps, or F-bus	Do						
have faults	step 14						
do not have faults	step 15						
14	<p>Ensure that you have cleared alarms related to the faults identified in step 13 by performing the appropriate MS alarm clearing procedure in <i>Lines, Trunks, and Peripherals ENET and Net Alarm and Performance Monitoring Procedures</i>, 297-1001-581. When you have completed the procedure, return to this point.</p>						
15	<p>Return to the PM level of the MAP display by typing</p> <p><b>&gt;PM</b></p> <p>and pressing the Enter key.</p>						
16	<p>Post the FRIU by typing</p> <p><b>&gt;POST FRIU friu_no</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>friu_no is the number of the FRIU that you have been working on (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU 121 ManB Rsvd</pre> <p>Go to step 36.</p>						
-continued-							

**PM FRIU** (continued)  
**minor** (on an SSLPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an SSLPP)</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>17</b>	<p>Determine from the MAP response obtained in step 8 the default load and the running load for the FRIU.</p> <p>If the response has been cleared from the MAP display, obtain another query result by typing</p> <p><b>&gt;QUERYPM</b> and pressing the Enter key.</p> <p><b>Note:</b> The name of the default load is shown beside the Default Load header in the MAP response. The name of the running load is shown to the right of the Running Load header.</p>								
<b>18</b>	<p>Determine from office records or from office personnel the correct name for the load.</p> <p><b>Note:</b> This procedure assumes that the correct load name is datafilled in table PMLOADS.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">both the default load name and the running load name do not match the load name obtained from office records</td> <td style="padding: 5px;">step 19</td> </tr> <tr> <td style="padding: 5px;">only the default load name does not match the load name obtained from office records</td> <td style="padding: 5px;">step 19</td> </tr> <tr> <td style="padding: 5px;">only the running load name does not match the load name obtained from office records</td> <td style="padding: 5px;">step 27</td> </tr> </tbody> </table>	<b>If</b>	<b>Do</b>	both the default load name and the running load name do not match the load name obtained from office records	step 19	only the default load name does not match the load name obtained from office records	step 19	only the running load name does not match the load name obtained from office records	step 27
<b>If</b>	<b>Do</b>								
both the default load name and the running load name do not match the load name obtained from office records	step 19								
only the default load name does not match the load name obtained from office records	step 19								
only the running load name does not match the load name obtained from office records	step 27								
<b>19</b>	<p>Access table LIUINV by typing</p> <p><b>&gt;TABLE LIUINV</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i> TABLE: LIUINV</p>								
-continued-									

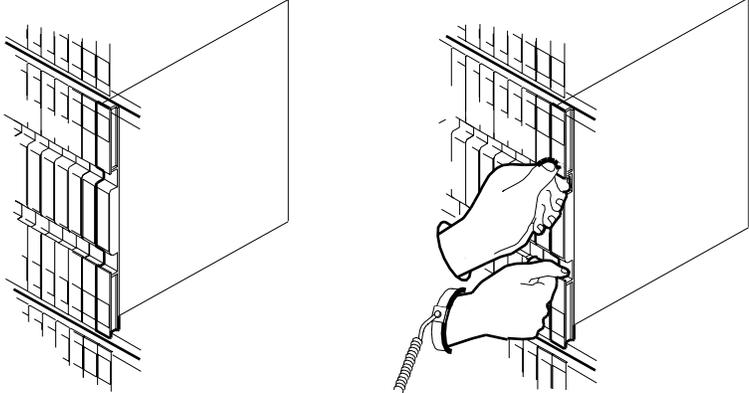
PM **FRIU** (continued)  
**minor** (on an SSLPP) (continued)

Clearing a PM FRIU minor alarm (on an SSLPP) (continued)	
Step	Action
20	<p>Position on the datafill for the FRIU by typing</p> <p><b>&gt;POSITION friu_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      friu_no is the number of the FRIU that you have been working on                      (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU 121 LIM 0 2 12 F8X35CJ NTEX22BB NTEX30AA NTEX31BA</pre>
21	<p>Change the load name datafilled for the FRIU to match the name                      obtained from office records by typing</p> <p><b>&gt;CHANGE LOAD</b>                      and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>ENTER Y TO CONTINUE PROCESSING OR N TO QUIT</pre>
22	<p>Confirm the command by typing</p> <p><b>&gt;Y</b>                      and pressing the Enter key.</p>
23	<p>Enter the correct load name by typing</p> <p><b>&gt;loadname</b>                      and pressing the Enter key.</p> <p><i>where</i>                      loadname is the name of the correct load</p> <p><i>Example of a MAP response:</i></p> <pre>TUPLE TO BE CHANGED: FRIU 121 LIM 0 2 12 F8X36CJ NTEX22BB NTEX30AA NTEX31BA ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.</pre>
24	<p>Confirm the command by typing</p> <p><b>&gt;Y</b>                      and pressing the Enter key.</p>
-continued-	

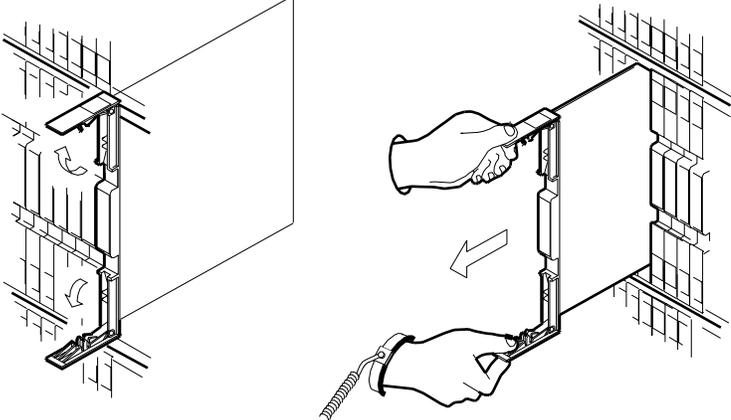
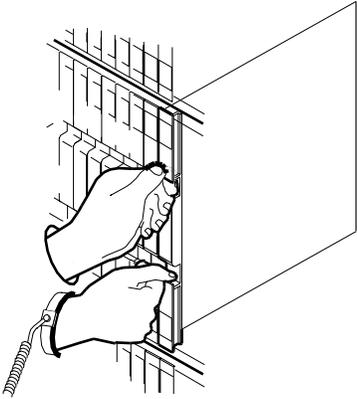
**PM FRIU** (continued)  
**minor** (on an SSLPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an SSLPP)</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>25</b>	Quit table LIUINV by typing <b>&gt;QUIT</b> and pressing the Enter key.						
<b>26</b>	Determine whether the name of the running load matches the load name obtained from office records.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the running load name</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>does not match the name obtained from office records</td> <td>step 27</td> </tr> <tr> <td>matches the name obtained from office records</td> <td>step 40</td> </tr> </tbody> </table>	<b>If the running load name</b>	<b>Do</b>	does not match the name obtained from office records	step 27	matches the name obtained from office records	step 40
<b>If the running load name</b>	<b>Do</b>						
does not match the name obtained from office records	step 27						
matches the name obtained from office records	step 40						
<b>27</b>	Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key. Go to step 36.						
-continued-							

PM **FRIU** (continued)  
**minor** (on an SSLPP) (continued)

Clearing a PM FRIU minor alarm (on an SSLPP) (continued)	
Step	Action
<i>At the frame</i>	
	<b>WARNING</b> <b>Static electricity damage</b> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.
<b>28</b>	Locate the NTEX22 card for the FRIU you are working on. You will now reseal the three cards for the FRIU you are working on. 
-continued-	

**PM FRIU** (continued)  
**minor** (on an SSLPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an SSLPP)</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>29</b>	<p>Gently lift the locking levers, and pull the card towards you about 25 mm (1 in.).</p> 
<b>30</b>	<p>Seat and lock the card, as follows:</p> <ol style="list-style-type: none"> <li>a. Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.</li> <li>b. Close the locking levers.</li> </ol> 
<b>31</b>	<p>Repeat steps 28 to 30 for the NTEX30 and NTEX31 cards for the FRIU you are working on.</p> <p>Go to step 36.</p>
<b>32</b>	<p>Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list. You will now replace cards on the list.</p>
-continued-	

**PM FRIU** (continued)  
**minor** (on an SSLPP) (continued)

<b>Clearing a PM FRIU minor alarm (on an SSLPP)</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>33</b>	<p>Post the FRIU you have been working on by typing  <b>&gt;PM;POST FRIU friu_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      friu_no is the number of the FRIU that you have been working on                      (0 to 500)</p> <p><i>Example of a MAP display:</i>                      FRIU 121 ISTb Rsvd</p>												
<b>34</b>	<p>Manually busy the FRIU by typing  <b>&gt;BSY FORCE</b>                      and pressing the Enter key.</p>												
<b>35</b>	<p>Replace the first card on the list that has not been replaced as a result of this alarm clearing procedure. Perform the appropriate card replacement procedure in <i>Lines, Trunks, and Peripherals Card Replacement Procedures, 297-1001-589</i>. When you have completed the procedure, return to this point.</p>												
<b>36</b>	<p>Load the FRIU by typing  <b>&gt;LOADPM</b>                      and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th><b>If the LOADPM command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 37</td> </tr> <tr> <td>failed, with no card list and you have reseated all cards</td> <td>step 39</td> </tr> <tr> <td>failed, with no card list and you have not reseated all cards</td> <td>step 28</td> </tr> <tr> <td>failed, with a card list and you have not replaced one or more of the cards on the list</td> <td>step 35</td> </tr> <tr> <td>failed, with a card list and you have replaced all cards on the list</td> <td>step 39</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 37	failed, with no card list and you have reseated all cards	step 39	failed, with no card list and you have not reseated all cards	step 28	failed, with a card list and you have not replaced one or more of the cards on the list	step 35	failed, with a card list and you have replaced all cards on the list	step 39
<b>If the LOADPM command</b>	<b>Do</b>												
passed	step 37												
failed, with no card list and you have reseated all cards	step 39												
failed, with no card list and you have not reseated all cards	step 28												
failed, with a card list and you have not replaced one or more of the cards on the list	step 35												
failed, with a card list and you have replaced all cards on the list	step 39												
-continued-													

**PM FRIU (end)**  
**minor (on an SSLPP) (end)**

<b>Clearing a PM FRIU minor alarm (on an SSLPP) (continued)</b>									
<b>Step</b>	<b>Action</b>								
<b>37</b>	<p>Test the FRIU by typing <b>&gt;TST</b> and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th><b>If the TST command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 38</td> </tr> <tr> <td>failed, with a card list and you have not replaced one or more of the cards on the list</td> <td>step 35</td> </tr> <tr> <td>failed, with a card list and you have replaced all cards on the list</td> <td>step 39</td> </tr> </tbody> </table>	<b>If the TST command</b>	<b>Do</b>	passed	step 38	failed, with a card list and you have not replaced one or more of the cards on the list	step 35	failed, with a card list and you have replaced all cards on the list	step 39
<b>If the TST command</b>	<b>Do</b>								
passed	step 38								
failed, with a card list and you have not replaced one or more of the cards on the list	step 35								
failed, with a card list and you have replaced all cards on the list	step 39								
<b>38</b>	<p>Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th><b>If the RTS command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 40</td> </tr> <tr> <td>failed</td> <td>step 39</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 40	failed	step 39		
<b>If the RTS command</b>	<b>Do</b>								
passed	step 40								
failed	step 39								
<b>39</b>	For further assistance, contact the personnel responsible for the next level of support.								
<b>40</b>	You have completed this procedure.								
<b>End</b>									



---

# DataSPAN FRS trouble locating and clearing procedures

---

## Task list

The following list provides the names of all the procedures in this chapter in alphanumeric order. To find the appropriate trouble locating procedure, look for the name in the left column and go to the page number listed in the right column. If more than one entry appears under the procedure name, look next for the context of the task.

---

<b>To perform</b>	<b>Go to page</b>
Troubleshooting a customer-reported failure	
No FRIU alarm	3-3
No PM alarms	3-9

---

This chapter contains procedures for locating and clearing troubles in DataSPAN Frame Relay Service (FRS). For each trouble, you will find a procedure containing the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

### **Explanatory and context-setting information**

In each procedure, the paragraphs titled “Application,” “Definition,” and “Action” contain important explanatory notes and context-setting information. Read these sections before you try to clear the trouble. The paragraph titled “Common procedures” lists the names of common procedures that you may be asked to perform as you follow the step-action instructions. Go to these common procedures only when directed to do so.

### **Summary flowchart**

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to help prepare for it. For example, if you see that these instructions involve

another office, you will know to advise that office before you begin the step-action instructions.

### **Step-action instructions**

The step-action instructions tell you how to locate and clear a trouble. Normally, you will perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step may depend on previous steps; therefore, always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the “Common procedures” chapter of this book to perform a set of instructions or to another NTP for a related procedure. If this happens, you will be told when to return to the original instructions and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure. For more information on DMS system commands or output, see the “About this document” chapter at the beginning of this document for the appropriate NTP number.

## Troubleshooting a customer-reported failure No FRIU alarms

---

### Application

Use this procedure to clear faults where service disruption is reported by the customer but frame relay interface unit (FRIU) alarms are not displayed under the alarm banner on the MAP display.

### Definition

FRIU alarms are not displayed on the MAP banner. Post the FRIU and clear any alarms. If there are no alarms for the posted FRIU, query traffic and perform loopback tests.

### Common procedures

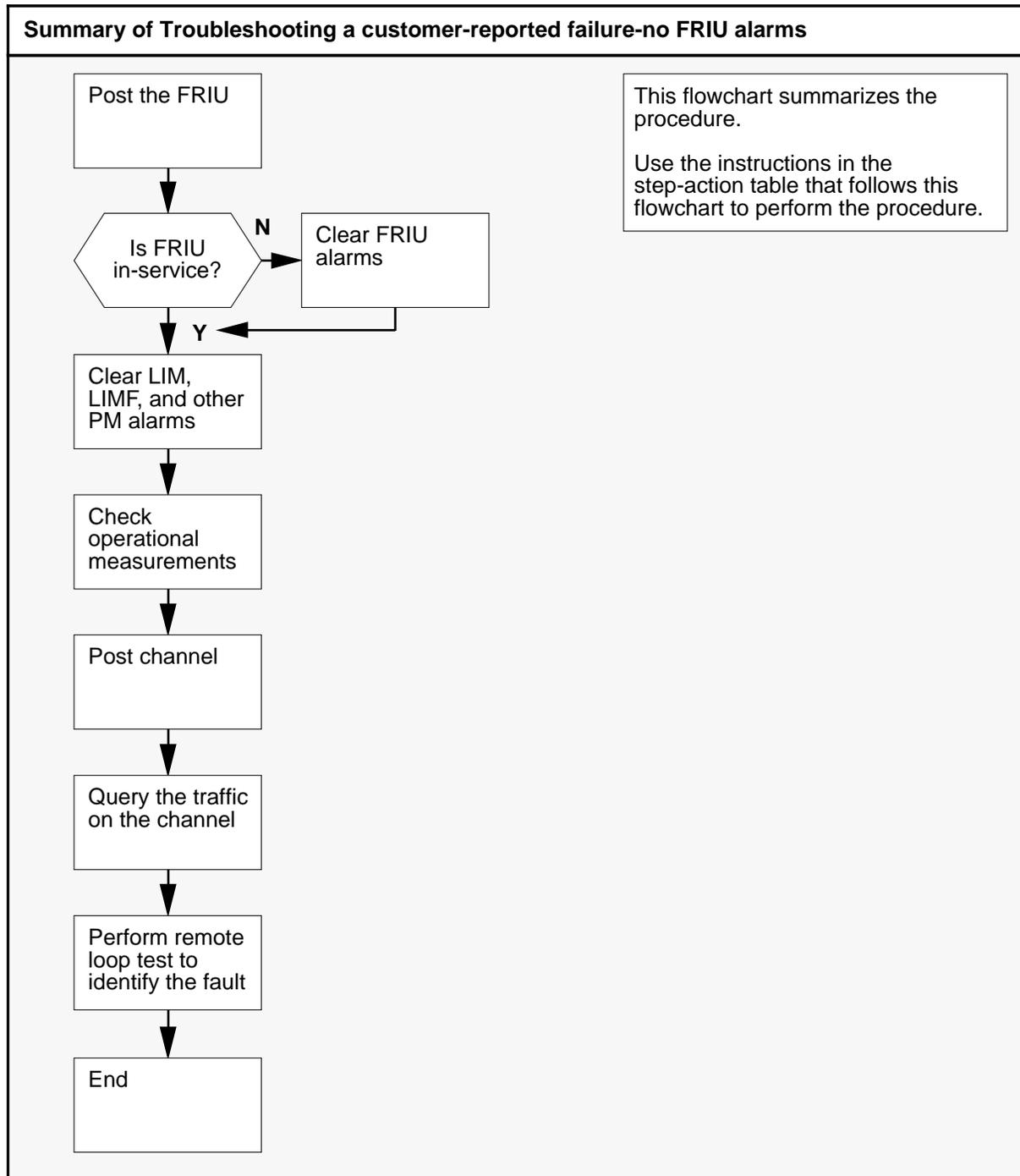
None

### Action

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

Troubleshooting a customer-reported failure (continued)

**No FRIU alarms** (continued)



## Troubleshooting a customer-reported failure (continued)

### No FRIU alarms (continued)

<b>Troubleshooting a customer-reported failure-no FRIU alarms</b>	
<b>Step</b>	<b>Action</b>
<b>At the MAP</b>	
<b>1</b>	Obtain the directory number (DN) from the fault report.
<b>2</b>	<p>Access the PVDNCI level of the MAP display by typing</p> <p><b>&gt;PVDNCI</b> and pressing the Enter key.</p> <p><i>MAP response:</i> PVDNCI :</p>
<b>3</b>	<p>Identify the agent ID associated with the DN obtained from the fault report by typing</p> <p><b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.</p> <p><i>where</i> dir_no is the DN obtained from the fault report</p> <p><i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
<b>4</b>	<p>Locate the FRIU and channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.</p> <p><i>where</i> agent_no is the agent ID obtained in step 3</p> <p><i>MAP response:</i> AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1 FRIU 5 7</p> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.</p>
-continued-	

Troubleshooting a customer-reported failure (continued)

**No FRIU alarms** (continued)

<b>Troubleshooting a customer-reported failure-no FRIU alarms</b> (continued)																			
<b>Step</b>	<b>Action</b>																		
5	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.																		
6	Access the PM level of the MAP display by typing <b>&gt;MAPCI; MTC; PM</b> and pressing the Enter key.																		
7	Post the FRIU identified in step 4 by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> friu_no is the FRIU number obtained in step 4  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>SysB</td> <td>step 8</td> </tr> <tr> <td>SysB (NA)</td> <td>step 8</td> </tr> <tr> <td>ManB</td> <td>step 9</td> </tr> <tr> <td>ManB (NA)</td> <td>step 9</td> </tr> <tr> <td>ISTb</td> <td>step 10</td> </tr> <tr> <td>ISTb (NA)</td> <td>step 8</td> </tr> <tr> <td>InSv (NA)</td> <td>step 11</td> </tr> <tr> <td>InSv</td> <td>step 13</td> </tr> </tbody> </table>	<b>If the FRIU is</b>	<b>Do</b>	SysB	step 8	SysB (NA)	step 8	ManB	step 9	ManB (NA)	step 9	ISTb	step 10	ISTb (NA)	step 8	InSv (NA)	step 11	InSv	step 13
<b>If the FRIU is</b>	<b>Do</b>																		
SysB	step 8																		
SysB (NA)	step 8																		
ManB	step 9																		
ManB (NA)	step 9																		
ISTb	step 10																		
ISTb (NA)	step 8																		
InSv (NA)	step 11																		
InSv	step 13																		
8	Perform the procedure <i>Clearing a PM FRIU critical alarm (on an LPP)</i> on page 2-7 in this document. Do not return to this procedure.																		
9	Perform the procedure <i>Clearing a PM FRIU major alarm (on an LPP)</i> on page 2-37 in this document. Do not return to this procedure.																		
-continued-																			

Troubleshooting a customer-reported failure (continued)  
**No FRIU alarms** (continued)

<b>Troubleshooting a customer-reported failure-no FRIU alarms</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>10</b>	Perform the procedure <i>Clearing a PM FRIU minor alarm (on an LPP)</i> on page 2-63 in this document. Do not return to this procedure.						
<b>11</b>	Determine from the MAP banner if any alarms are present under the PM header.  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 50%;"><b>If</b></th> <th style="text-align: left; width: 50%;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="border-top: 1px solid black;">any are present</td> <td style="border-top: 1px solid black;">step 12</td> </tr> <tr> <td>no alarms are present</td> <td>step 13</td> </tr> </tbody> </table>	<b>If</b>	<b>Do</b>	any are present	step 12	no alarms are present	step 13
<b>If</b>	<b>Do</b>						
any are present	step 12						
no alarms are present	step 13						
<b>12</b>	Perform the appropriate alarm clearing procedures. Refer to <i>Lines Trunks, and Peripherals Peripheral Module Alarm and Performance Monitoring Procedures</i> , 298-1001-582, and <i>DMS SuperNode Signalling Transfer Point Alarm and Performance Monitoring Procedures</i> , 298-5101-543.						
<b>13</b>	Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of CRC errors in <ul style="list-style-type: none"> <li>▪ OM group FRSAGENT, register PTERR for each involved agent</li> <li>▪ OM group FRSPM, register PORTERR for each involved device</li> <li>▪ OM group FRT1, register FRT1CRC for the involved carrier</li> </ul> For more information on OMs, refer to <i>DMS SuperNode DataSPAN Frame Relay Service Administration Guide</i> , 297-5111-301.						
-continued-							

Troubleshooting a customer-reported failure (end)

No FRIU alarms (end)

Troubleshooting a customer-reported failure-no FRIU alarms (continued)	
Step	Action
14	<p>Post the access channel by typing  <b>&gt;CARR;CHAN;POST chan_no</b>                      and pressing the Enter key.</p> <p>where                      chan_no is the channel number that appeared in response to the PVDNCI command</p> <p><i>Example of a MAP display:</i></p> <pre> CARRIER                      Alarm  BER    ES   SES   UAS InSv                          &lt;-9.   0    0    211  CHANNEL 1 N  CHANNEL 1      ( 24 x DS0) InSv /NoLMI                     </pre>
15	<p>Check the traffic level on the access channel by typing  <b>&gt;QTRAFFIC</b>                      and pressing the Enter key.</p> <p><i>MAP response:</i></p> <pre> CHANNEL 1      (24 x DS0) InSv /NoLMI qtraffic Traffic from 15:30:00 to 15:36:32 Frames Tx:      30 Frames Rx:      0 Abort Rx:      0 Port errors:    0 Invalid msg length: 0 Invalid DLCI:    0                     </pre>
16	<p>Perform remote loop tests to identify the fault. See the "Routine Maintenance Procedures" chapter in this document for procedures on how to set up and take down loops required for carrier and channel remote loopback tests.</p>
17	<p>You have completed this procedure.</p>
<b>End</b>	

## Troubleshooting a customer-reported failure No PM alarms

---

### Application

Use this procedure to clear faults where service disruption is reported by the customer but PM alarms are not displayed under the alarm banner on the MAP display.

### Definition

PM alarms are not displayed on the MAP banner. Post the FRIU and clear any alarms. Return channels to service, if required. If there are no alarms for the posted FRIU, query traffic and perform loopback tests.

### Common procedures

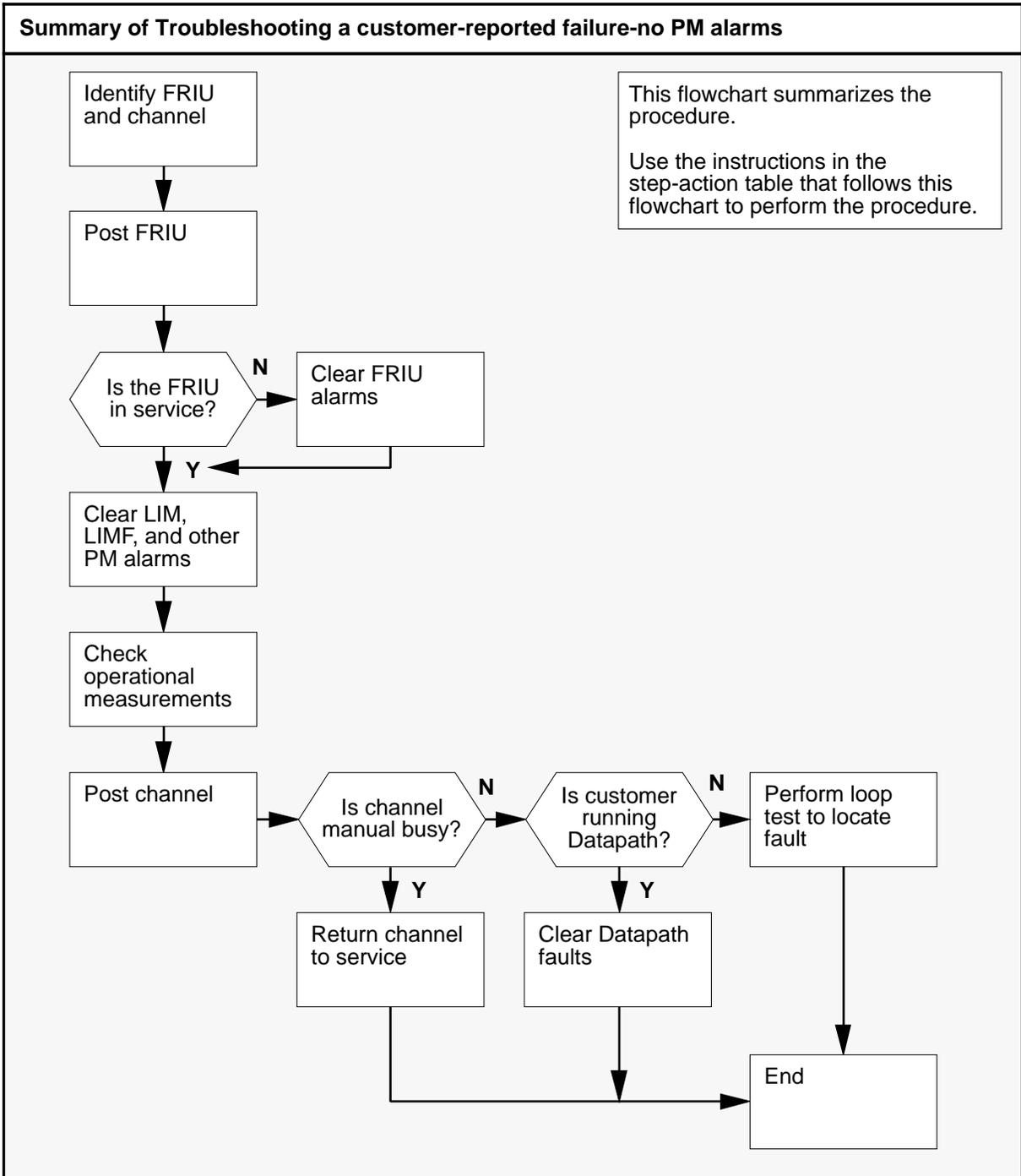
None

### Action

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

Troubleshooting a customer-reported failure (continued)

No PM alarms (continued)



## Troubleshooting a customer-reported failure (continued)

### No PM alarms (continued)

<b>Troubleshooting a customer-reported failure-no PM alarms</b>							
<b>Step</b>	<b>Action</b>						
<b>1</b>	Determine the state of the channel.  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 2px 5px;"><b>If the channel state is</b></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 2px 5px;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 2px 5px;">not manual busy</td> <td style="padding: 2px 5px;">step 2</td> </tr> <tr> <td style="padding: 2px 5px;">manual busy</td> <td style="padding: 2px 5px;">step 22</td> </tr> </tbody> </table>	<b>If the channel state is</b>	<b>Do</b>	not manual busy	step 2	manual busy	step 22
<b>If the channel state is</b>	<b>Do</b>						
not manual busy	step 2						
manual busy	step 22						
<b>At the MAP</b>							
<b>2</b>	Access the PVDNCI level of the MAP display by typing <b>&gt;PVDNCI</b> and pressing the Enter key.  <i>MAP response:</i> PVDNCI :						
<b>3</b>	Identify the agent ID associated with the DN obtained from the fault report by typing <b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.  <i>where</i> dir_no is the DN obtained from the fault report  <i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1  <b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.						
<b>-continued-</b>							

Troubleshooting a customer-reported failure (continued)

**No PM alarms** (continued)

<b>Troubleshooting a customer-reported failure-no PM alarms</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>4</b>	Locate the FRIU and channel associated with the agent ID by typing <b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.  <i>where</i> agent_no is the agent ID obtained in step 3  <i>MAP response:</i> AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1 FRIU 5 7  <b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.
<b>5</b>	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.
<b>6</b>	Access the PM level of the MAP display by typing <b>&gt;MAPCI; MTC; PM</b> and pressing the Enter key.
-continued-	

Troubleshooting a customer-reported failure (continued)  
**No PM alarms** (continued)

<b>Troubleshooting a customer-reported failure-no PM alarms</b> (continued)																			
<b>Step</b>	<b>Action</b>																		
<b>7</b>	<p>Post the FRIU identified in step 4 by typing  <b>&gt;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the FRIU number obtained in step 4</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>SysB</td> <td>step 8</td> </tr> <tr> <td>SysB (NA)</td> <td>step 8</td> </tr> <tr> <td>ManB</td> <td>step 9</td> </tr> <tr> <td>ManB (NA)</td> <td>step 9</td> </tr> <tr> <td>ISTb</td> <td>step 10</td> </tr> <tr> <td>ISTb (NA)</td> <td>step 8</td> </tr> <tr> <td>InSv (NA)</td> <td>step 11</td> </tr> <tr> <td>InSv</td> <td>step 11</td> </tr> </tbody> </table>	<b>If the FRIU is</b>	<b>Do</b>	SysB	step 8	SysB (NA)	step 8	ManB	step 9	ManB (NA)	step 9	ISTb	step 10	ISTb (NA)	step 8	InSv (NA)	step 11	InSv	step 11
<b>If the FRIU is</b>	<b>Do</b>																		
SysB	step 8																		
SysB (NA)	step 8																		
ManB	step 9																		
ManB (NA)	step 9																		
ISTb	step 10																		
ISTb (NA)	step 8																		
InSv (NA)	step 11																		
InSv	step 11																		
<b>8</b>	Perform the procedure <i>Clearing a PM FRIU critical alarm (on an LPP)</i> on page 2-7 in this document. Do not return to this procedure.																		
<b>9</b>	Perform the procedure <i>Clearing a PM FRIU major alarm (on an LPP)</i> on page 2-37 in this document. Do not return to this procedure.																		
<b>10</b>	Perform the procedure <i>Clearing a PM FRIU minor alarm (on an LPP)</i> on page 2-63 in this document. Do not return to this procedure.																		
-continued-																			

Troubleshooting a customer-reported failure (continued)

**No PM alarms** (continued)

<b>Troubleshooting a customer-reported failure-no PM alarms</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>11</b>	Determine from the MAP banner if any alarms are present under the PM header.						
	<table border="1"> <thead> <tr> <th><b>If there are</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>any are present</td> <td>step 12</td> </tr> <tr> <td>no alarms are present</td> <td>step 13</td> </tr> </tbody> </table>	<b>If there are</b>	<b>Do</b>	any are present	step 12	no alarms are present	step 13
<b>If there are</b>	<b>Do</b>						
any are present	step 12						
no alarms are present	step 13						
<b>12</b>	Perform the appropriate alarm clearing procedures. Refer to <i>Lines Trunks, and Peripherals Peripheral Module Alarm and Performance Monitoring Procedures</i> , 298-1001-582, and <i>DMS SuperNode Signalling Transfer Point Alarm and Performance Monitoring Procedures</i> , 298-5101-543.						
<b>13</b>	<p>Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of CRC errors in</p> <ul style="list-style-type: none"> <li>▪ OM group FRSAGENT, register PTERR for each involved agent</li> <li>▪ OM group FRSPM, register PORTERR for each involved device</li> <li>▪ OM group FRT1, register FRT1CRC for the involved carrier</li> </ul> <p>For more information on OMs, refer to <i>DMS SuperNode DataSPAN Frame Relay Service Administration Guide</i>, 297-5111-301.</p>						
-continued-							

## Troubleshooting a customer-reported failure (continued)

### No PM alarms (continued)

<b>Troubleshooting a customer-reported failure-no PM alarms</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>14</b>	<p>Post the access channel by typing  <b>&gt;CARR;CHAN;POST chan_no</b>            and pressing the Enter key.</p> <p>where            chan_no is the channel number that appeared in response to the            PVDNCI command</p> <p><i>Example of a MAP display:</i></p> <pre style="font-family: monospace;"> CARRIER                               Alarm  BER    ES   SES  UAS InSv                                   &lt;-9.   0    0   211  CHANNEL  1           N  CHANNEL  1      ( 24 x DS0) InSv /NoLMI           </pre>								
<b>15</b>	<p>Determine the state of each channel.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>If the channel state is</b></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">ManB</td> <td style="padding: 5px;">step 16</td> </tr> <tr> <td style="padding: 5px;">anything else, and the customer is using Datapath</td> <td style="padding: 5px;">step 22</td> </tr> <tr> <td style="padding: 5px;">anything else, and the customer is using DDS</td> <td style="padding: 5px;">step 23</td> </tr> </tbody> </table>	<b>If the channel state is</b>	<b>Do</b>	ManB	step 16	anything else, and the customer is using Datapath	step 22	anything else, and the customer is using DDS	step 23
<b>If the channel state is</b>	<b>Do</b>								
ManB	step 16								
anything else, and the customer is using Datapath	step 22								
anything else, and the customer is using DDS	step 23								
<b>16</b>	Select a manual-busy channel to return to service.								
<b>17</b>	<p>Post the channel by typing  <b>&gt;POST chan_no</b>            and pressing the Enter key.</p> <p>where            chan_no is the number of the channel to be returned to service</p>								
<b>-continued-</b>									

Troubleshooting a customer-reported failure (end)

No PM alarms (end)

<b>Troubleshooting a customer-reported failure-no PM alarms</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>18</b>	Return the channel to service by typing <b>&gt;RTS</b> and pressing the Enter key.						
<b>19</b>	Repeat steps 17 to 18 for each manual-busy channel.  Go to step 20.						
<b>20</b>	Determine if the channels are in service.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If one of more channels are</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>dot (.) (in service)</td> <td>step 24</td> </tr> <tr> <td>anything else</td> <td>step 21</td> </tr> </tbody> </table>	<b>If one of more channels are</b>	<b>Do</b>	dot (.) (in service)	step 24	anything else	step 21
<b>If one of more channels are</b>	<b>Do</b>						
dot (.) (in service)	step 24						
anything else	step 21						
<b>21</b>	Perform the appropriate alarm clearing procedure to clear the alarm. FRIU alarms clearing procedures are described in this document. Other PM alarms are described in <i>Lines Trunks, and Peripherals Peripheral Module Alarm and Performance Monitoring Procedures</i> , 298-1001-582, and <i>DMS SuperNode Signalling Transfer Point Alarm and Performance Monitoring Procedures</i> , 298-5101-543.						
<b>22</b>	Perform Datapath fault clearing procedures. Refer to <i>DMS-100 DATAPATH Maintenance and Installation Guide</i> , 297-2121-223. Do not return to this procedure.						
<b>23</b>	Perform remote loop tests to identify the fault. See the "Routine Maintenance Procedures" chapter in this document for procedures on how to set up and take down loops required for carrier and channel remote loopback tests.						
<b>24</b>	You have completed this procedure.						
<b>End</b>							

---

# DataSPAN FRS routine maintenance procedures

---

## Task list

The following list provides the names of all the procedures in this chapter, in alphabetical order. To find the appropriate routine maintenance procedure, look for its name in the left column and go to the page number listed in the right column. If more than one entry appears under a procedure name, look for the context of the task.

---

To perform	Go to page
Conducting a carrier loopback test	4-3
Determining PVC status	4-11
Obtaining CIR statistics	4-17
Obtaining SIR statistics	4-23
Removing a loop after a carrier remote loopback test	4-27
Removing a loop after a channel remote loopback test	4-33
Setting up a loop for a carrier remote loopback test	4-39
Setting up a loop for a channel remote loopback test	4-45
Using the frame relay frame capture tool	4-51

---

This chapter contains routine maintenance procedures for DMS SuperNode DataSPAN FRS. For each routine maintenance task, you will find a procedure containing the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

### Explanatory and context-setting information

In each procedure, the paragraphs titled “Task,” “Interval,” and “Action” contain important explanatory notes and context-setting information. Read these sections before you try to perform the routine maintenance task. The paragraph titled “Common procedures” lists the names of common procedures that you may be asked to perform as you follow the step-action instructions. Go to these common procedures only when directed to do so.

### **Summary flowchart**

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it. For example, if you see that these instructions involve another office, you will know to advise that office before you begin the step-action instructions.

### **Step-action instructions**

The step-action instructions tell you how to perform the routine maintenance. Normally, you will perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step may depend on previous steps; therefore, always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the “Common procedures” chapter of this book to perform a set of instructions or to another NTP for a related procedure. When this happens, you will be told when to return to the original instructions and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure. For more information on DMS system commands or output, see the “About this document” chapter at the beginning of this document for the appropriate NTP number.

## Conducting a carrier loopback test

---

### Task

Use this procedure to test access channel integrity between the FRIU and the customer equipment.

To perform the test, place the selected channels into loopback mode and then send frames from the FRIU to the customer premises equipment (CPE). Frames are returned to the FRIU from the point of loopback. The condition of the frames returned to the FRIU indicates the integrity of the link from the FRIU to the point of loopback. Not only does this test reveal the overall integrity of the access channel link, it can identify the location of a link fault.

If the test fails or indicates a high bit error rate (BER), check the integrity of the T1 carrier, the FRIU, and the customer equipment. When the tests have been completed, remove the loop at the MAP display.

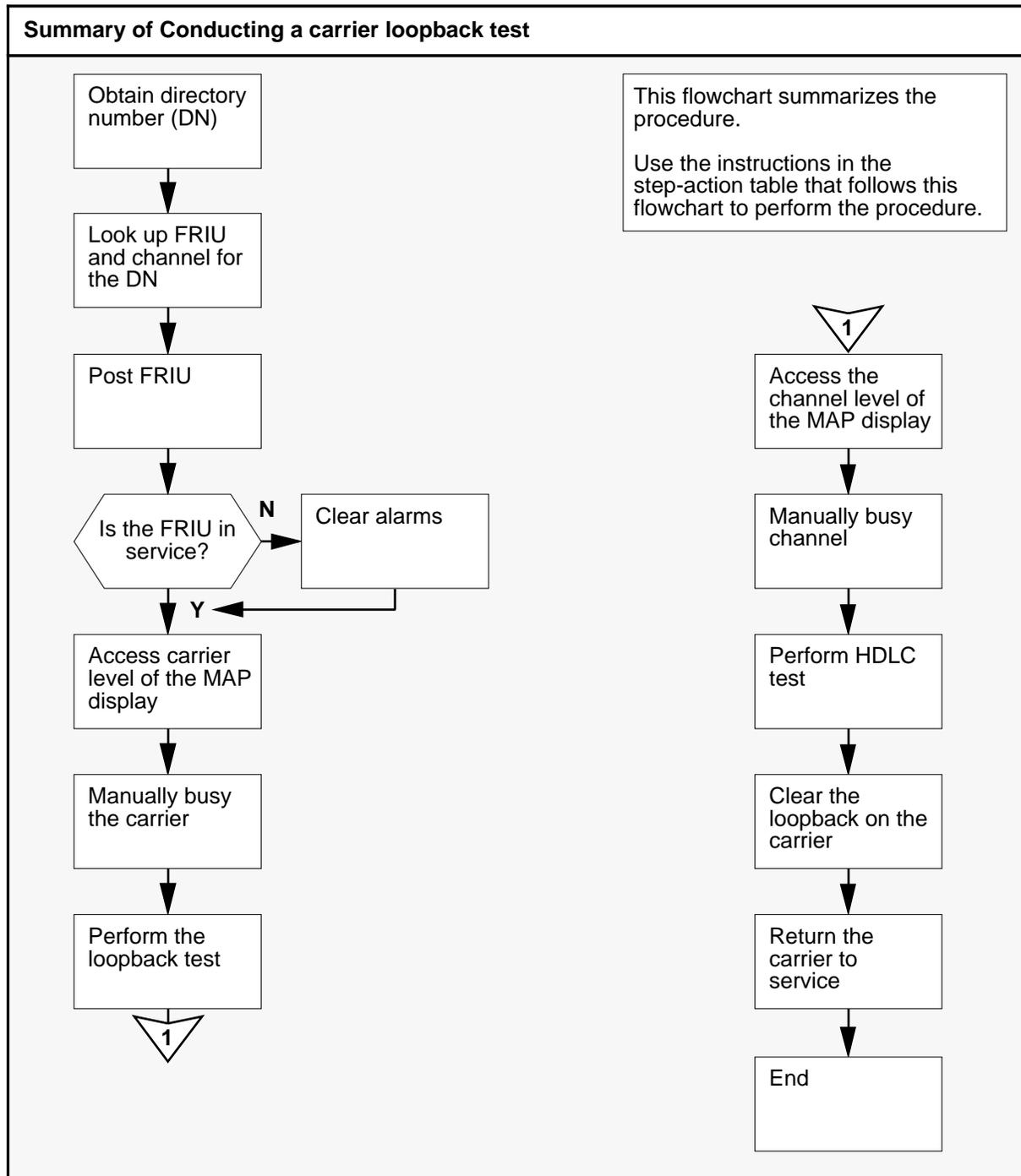
### Interval

This procedure is repeated at regular intervals, or when the quality of the T1 carrier is suspect.

### Action

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

## Conducting a carrier loopback test (continued)



## Conducting a carrier loopback test (continued)

<b>Conducting a carrier loopback test</b>	
<b>Step</b>	<b>Action</b>
<b>1</b>	Obtain the directory number (DN) from the customer.
<b>At the MAP</b>	
<b>2</b>	<p>Access the PVDNCI level of the MAP display by typing  <b>&gt;PVDNCI</b>  and pressing the Enter key.</p> <p><i>MAP response:</i>  PVDNCI :</p>
<b>3</b>	<p>Identify the agent ID associated with the DN obtained from the customer by typing  <b>&gt;FRSDISP DN NO dir_no</b>  and pressing the Enter key.</p> <p><i>where</i>  dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i>  PVDNCI :  DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
<b>4</b>	<p>Determine the FRIU number and the channel associated with the agent ID by typing  <b>&gt;FRSDISP AGENT ID agent_no</b>  and pressing the Enter key.</p> <p><i>where</i>  agent_no is the agent ID obtained in step 3</p> <p><i>MAP response:</i>  AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO  1 6132263770 NATL LS_1536KBS NIL N1 FRIU 121 7</p> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>
<b>-continued-</b>	

## Conducting a carrier loopback test (continued)

Conducting a carrier loopback test (continued)															
Step	Action														
5	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.														
6	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i> <table style="margin-left: 100px; border: none;"> <tr> <td></td> <td style="text-align: center;">SysB</td> <td style="text-align: center;">ManB</td> <td style="text-align: center;">OffL</td> <td style="text-align: center;">CBsy</td> <td style="text-align: center;">ISTb</td> <td style="text-align: center;">InSv</td> </tr> <tr> <td style="text-align: left;">PM</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">70</td> </tr> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
7	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> fri_u_no is the number of the FRIU you obtained at step 4  <i>Example of a MAP response:</i> FRIU 121 InSv Rsvd  <table style="margin-left: 100px; border: none;"> <tr> <td style="border-bottom: 1px solid black;"><b>If the state of the FRIU is</b></td> <td style="border-bottom: 1px solid black;"><b>Do</b></td> </tr> <tr> <td>InSv or ISTb</td> <td>step 9</td> </tr> <tr> <td>anything else</td> <td>step 8</td> </tr> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv or ISTb	step 9	anything else	step 8								
<b>If the state of the FRIU is</b>	<b>Do</b>														
InSv or ISTb	step 9														
anything else	step 8														
8	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.														
9	Access the Carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.														
10	Manually busy the carrier by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.														
-continued-															

**Conducting a carrier loopback test** (continued)

<b>Conducting a carrier loopback test</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>11</b>	Determine which test needs to be completed.												
	<table border="1"> <thead> <tr> <th><b>If you need to test</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>in-band between the FRIU and the customer's DS1 interface connection</td> <td>step 12</td> </tr> <tr> <td>the customer service unit (at 1.344 or 1.536 Mbit/s)</td> <td>step 13</td> </tr> <tr> <td>out-of-band between the FRIU and the customer's DS1 interface connector</td> <td>step 14</td> </tr> <tr> <td>out-of-band between the FRIU and the customer's equipment (at 1.344 or 1.536 Mbit/s)</td> <td>step 15</td> </tr> <tr> <td>a payload loopback out-of-band between the FRIU and the customer installation (at 1.344 or 1.536 Mbit/s)</td> <td>step 16</td> </tr> </tbody> </table>	<b>If you need to test</b>	<b>Do</b>	in-band between the FRIU and the customer's DS1 interface connection	step 12	the customer service unit (at 1.344 or 1.536 Mbit/s)	step 13	out-of-band between the FRIU and the customer's DS1 interface connector	step 14	out-of-band between the FRIU and the customer's equipment (at 1.344 or 1.536 Mbit/s)	step 15	a payload loopback out-of-band between the FRIU and the customer installation (at 1.344 or 1.536 Mbit/s)	step 16
<b>If you need to test</b>	<b>Do</b>												
in-band between the FRIU and the customer's DS1 interface connection	step 12												
the customer service unit (at 1.344 or 1.536 Mbit/s)	step 13												
out-of-band between the FRIU and the customer's DS1 interface connector	step 14												
out-of-band between the FRIU and the customer's equipment (at 1.344 or 1.536 Mbit/s)	step 15												
a payload loopback out-of-band between the FRIU and the customer installation (at 1.344 or 1.536 Mbit/s)	step 16												
<b>12</b>	<p>Test in-band between the FRIU and the customer's DS1 interface connector by typing</p> <p><b>&gt;LOOP RMTEND CONN</b> and pressing the Enter key.</p> <p>Go to step 17.</p>												
<b>13</b>	<p>Test the customer service unit (at 1.344 or 1.536 Mbit/s) by typing</p> <p><b>&gt;LOOP RMTEND LINE</b> and pressing the Enter key.</p> <p>Go to step 17.</p>												
<b>14</b>	<p>Test out-of-band between the FRIU and the customer's DS1 interface connector by typing</p> <p><b>&gt;LOOP RMTEND CONN OOB</b> and pressing the Enter key.</p> <p>Go to step 17.</p>												
-continued-													

**Conducting a carrier loopback test (continued)**

<b>Conducting a carrier loopback test (continued)</b>	
<b>Step</b>	<b>Action</b>
15	<p>Test out-of-band between the FRIU and the customer's equipment (at 1.344 or 1.536 Mbit/s) by typing</p> <p><b>&gt;LOOP RMTEND LINE OOB</b> and pressing the Enter key.</p> <p>Go to step 17.</p>
16	<p>Test a payload loopback out-of-band between the FRIU and the customer installation (at 1.344 Mbit/s or 1.536 Mbit/s) by typing</p> <p><b>&gt;LOOP RMTEND PAYLD</b> and pressing the Enter key.</p> <p>Go to step 17.</p>
17	<p>Access the Channel level of the MAP display by typing</p> <p><b>&gt;CHAN</b> and pressing the Enter key.</p>
18	<p>Manually busy a channel by typing</p> <p><b>&gt;BSY channel_no</b> and pressing the Enter key.</p> <p><i>where</i> channel_no is the number of the channel (0 to 23)</p>
19	<p>Perform an high level data link connection (HDLC) test on the selected channel by typing</p> <p><b>&gt;HDLCTST channel_no</b> and pressing the Enter key.</p> <p><i>where</i> channel_no is the number of the channel (0 to 23)</p>
20	<p>Record the HDLC test output and bit error rate (BER) from the MAP display.</p> <p><b>Note:</b> You can let this test run for any length of time. The longer the test runs, the more reliable results will be. You may want to leave the test running to detect intermittent link faults or link transients.</p>
-continued-	

---

## Conducting a carrier loopback test (continued)

---

<b>Conducting a carrier loopback test</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>21</b>	<p>Return the channel to service by typing  <b>&gt;RTS</b>            and pressing the Enter key.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the state of the channel is</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv</td> <td>step 24</td> </tr> <tr> <td>anything else</td> <td>step 22</td> </tr> </tbody> </table>	<b>If the state of the channel is</b>	<b>Do</b>	InSv	step 24	anything else	step 22
<b>If the state of the channel is</b>	<b>Do</b>						
InSv	step 24						
anything else	step 22						
<b>22</b>	<p>Perform the appropriate FRIU alarm clearing procedure in this document to clear any FRIU alarms. When you have completed the procedure, return to this point.</p>						
<b>23</b>	<p>Return to the Carrier level of the MAP display by typing  <b>&gt;CARR</b>            and pressing the Enter key.</p> <p>Go to step 17.</p>						
<b>24</b>	<p>Return to the Carrier level of the MAP display by typing  <b>&gt;QUIT</b>            and pressing the Enter key.</p>						
<b>25</b>	<p>Clear the loopback on the carrier by typing  <b>&gt;LOOP CLEAR</b>            and pressing the Enter key.</p> <p><b>Note:</b> This command clears all loopbacks that were established on the carrier.</p>						
-continued-							

## Conducting a carrier loopback test (end)

<b>Conducting a carrier loopback test</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>26</b>	<p>Return the carrier to service by typing  <b>&gt;RTS</b>                      and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th><b>If the state of the carrier is</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv</td> <td>step 28</td> </tr> <tr> <td>anything else</td> <td>step 27</td> </tr> </tbody> </table>	<b>If the state of the carrier is</b>	<b>Do</b>	InSv	step 28	anything else	step 27
<b>If the state of the carrier is</b>	<b>Do</b>						
InSv	step 28						
anything else	step 27						
<b>27</b>	<p>Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.</p> <p>Go to step 29.</p>						
<b>28</b>	<p>Return to the PM level of the MAP display by typing  <b>&gt;QUIT</b>                      and pressing the Enter key.</p>						
<b>29</b>	You have completed this procedure.						
<b>End</b>							

## Determining PVC status

---

### Task

Use this procedure to display pre-permanent virtual connection (PVC) status and traffic information on the posted channel. The following information is displayed:

- frame and octet counts for both transmitted and received frames
- explicit congestion notification (ECN) events

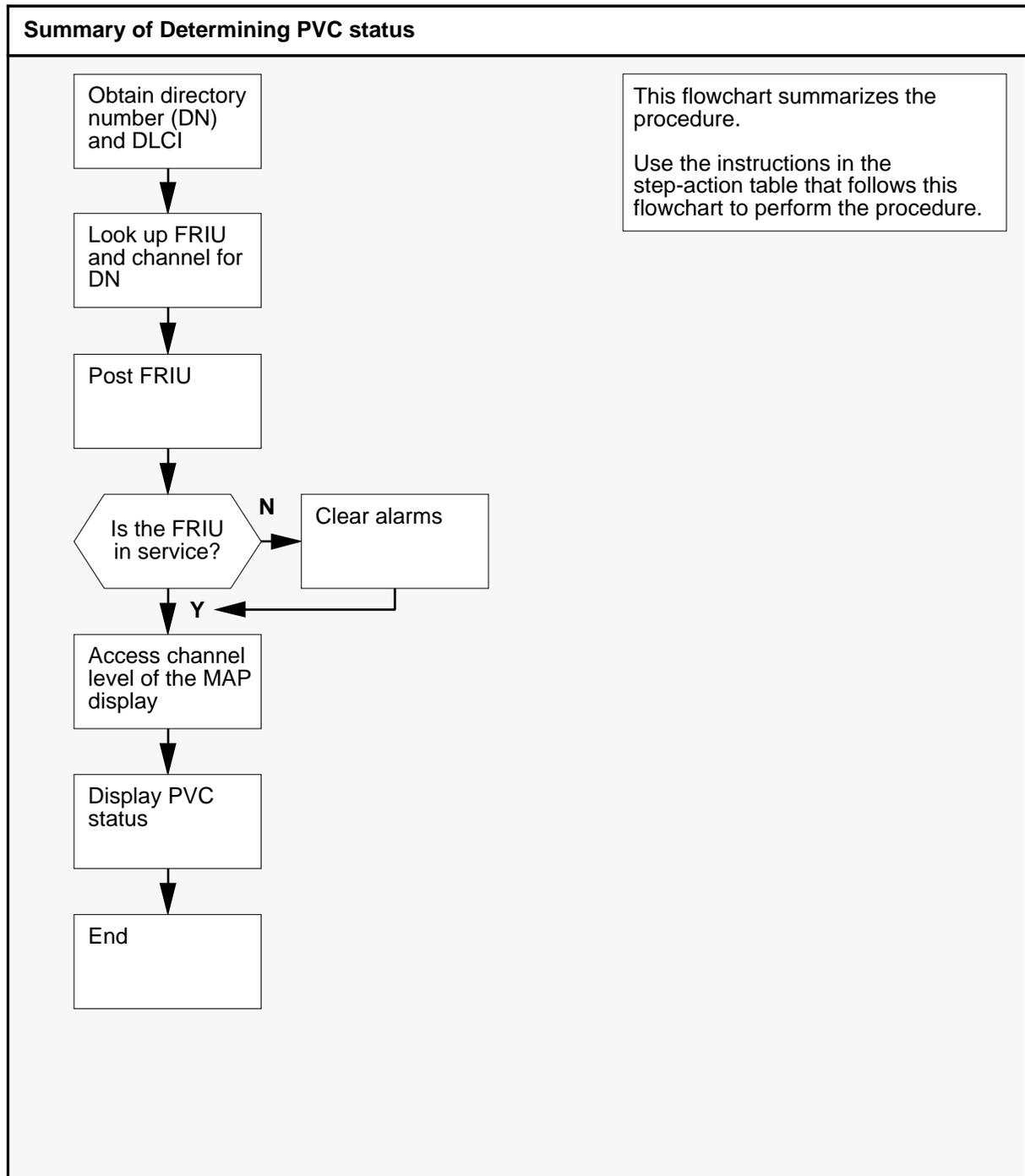
### Interval

Perform this procedure as required.

### Action

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

## Determining PVC status (continued)



**Determining PVC status** (continued)

<b>Determining PVC status</b>	
<b>Step</b>	<b>Action</b>
<b>1</b>	From office records or from office personnel, obtain the directory number (DN) for the customer.
<b>2</b>	From office records or from office personnel, obtain the data link connection identifier (DLCI) for the customer.
<b>At the MAP</b>	
<b>3</b>	<p>Access the PVDNCI level of the MAP display by typing</p> <p><b>&gt;PVDNCI</b></p> <p>and pressing the Enter key.</p> <p><i>MAP response:</i></p> <p>PVDNCI :</p>
<b>4</b>	<p>Identify the agent ID associated with the DN obtained from the customer by typing</p> <p><b>&gt;FRSDISP DN NO dir_no</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i></p> <p>PVDNCI :</p> <p>DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
<b>5</b>	<p>Determine the FRIU number and the channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>agent_no is the agent ID obtained in step 4</p> <p><i>MAP response:</i></p> <pre>AGENT DN      NP      SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1          FRIU 121 7</pre> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>
-continued-	

**Determining PVC status** (continued)

<b>Determining PVC status</b> (continued)															
<b>Step</b>	<b>Action</b>														
6	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.														
7	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i>  <table border="0" style="margin-left: 100px;"> <tr> <td></td> <td style="text-align: center;">SysB</td> <td style="text-align: center;">ManB</td> <td style="text-align: center;">OffL</td> <td style="text-align: center;">CBsy</td> <td style="text-align: center;">ISTb</td> <td style="text-align: center;">InSv</td> </tr> <tr> <td style="text-align: left;">PM</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">70</td> </tr> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
8	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> fri_u_no is the number of the FRIU you obtained in step 4  <i>Example of a MAP response:</i> <table border="0" style="margin-left: 100px;"> <tr> <td style="text-align: left;">FRIU</td> <td style="text-align: center;">121</td> <td style="text-align: left;">InSv</td> <td style="text-align: center;">Rsvd</td> </tr> </table> <table border="0" style="margin-left: 100px;"> <tr> <td style="text-align: left;"><b>If the state of the FRIU is</b></td> <td style="text-align: left;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">InSv or ISTb</td> <td style="border-top: 1px solid black;">step 10</td> </tr> <tr> <td>anything else</td> <td>step 9</td> </tr> </table>	FRIU	121	InSv	Rsvd	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv or ISTb	step 10	anything else	step 9				
FRIU	121	InSv	Rsvd												
<b>If the state of the FRIU is</b>	<b>Do</b>														
InSv or ISTb	step 10														
anything else	step 9														
9	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.														
10	Access the Carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.														
11	Access the Channel level of the MAP display by typing <b>&gt;CHAN</b> and pressing the Enter key.														
-continued-															

**Determining PVC status (end)****Determining PVC status (continued)****Step Action**

**12** Display the status of the PVC by typing

**>QPLLC dcli\_no option**

and pressing the Enter key.

*where*

dcli\_no is the number of the DLCI (0 to 1023)

option is the congestion option (CONGESTION)

**Note:** The first MAP display example shows the results of the command without the CONGESTION option parameter. The second example shows the results of the command with the congestion option parameter.

*Example of a MAP display:*

```
QPLLC 101
T1 RX :      1002 Frames;      16032 Octets;      0 Lost
T1 TX :      304 Frames;      4864 Octets;      0 Lost
Dest agent avail:Y  Connect rec:Y  Abit:N  BidirAbit:Y
```

*Example of a MAP display:*

```
QPLLC 101 congestion
Frames set with: BECN:      125 FECN :      80
Frames discarded with: DE=1:      30 DE=0:      20
SIR = 19200 b/s Frames over Bc: 34 CIR discards frames: 20
```

**13** You have completed this procedure.

**End**



## Obtaining CIR statistics

---

### Task

Use this procedure to obtain committed information rate (CIR) statistics for a specific frame relay interface unit (FRIU).

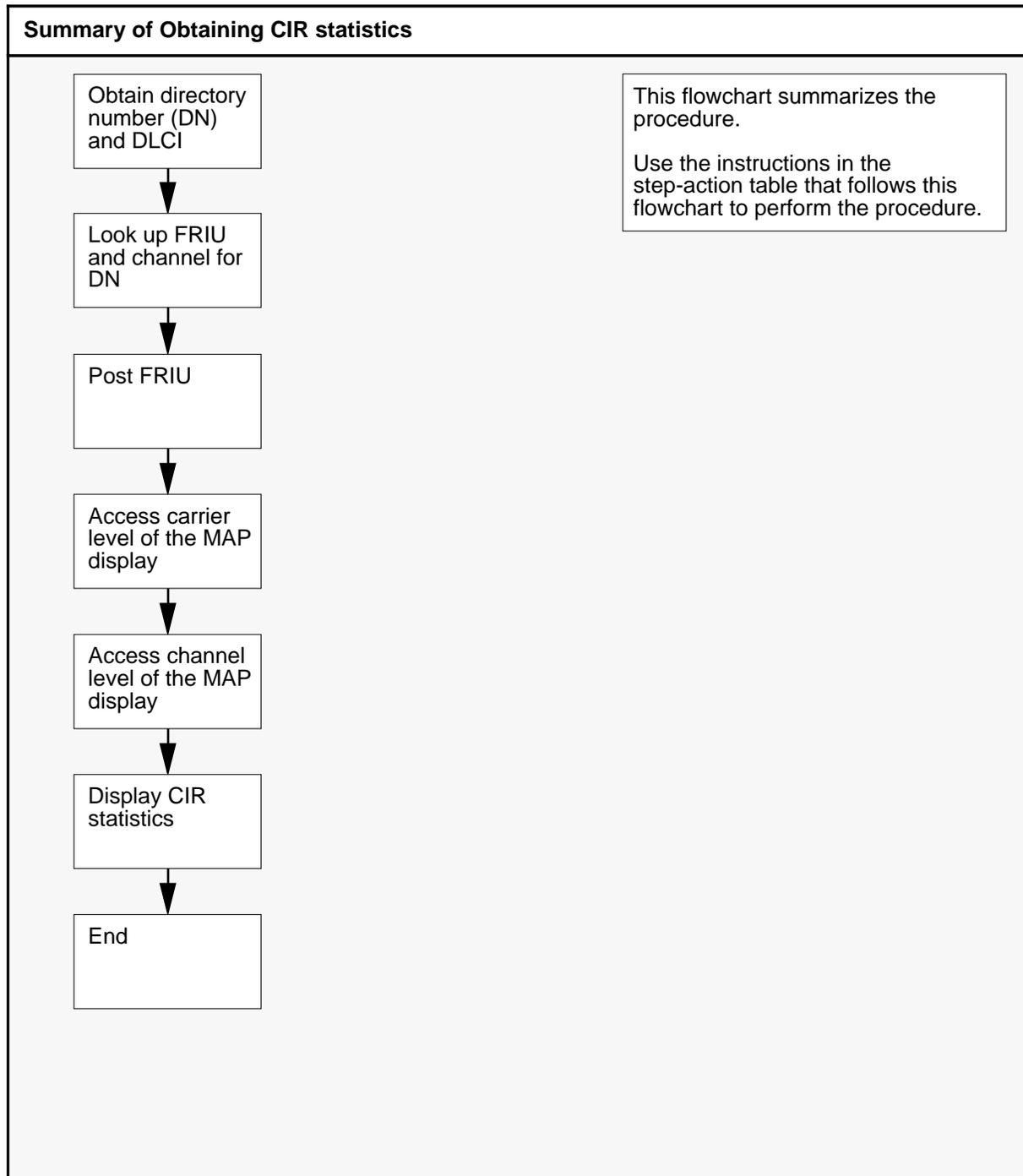
### Interval

Perform this procedure as required.

### Action

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

## Obtaining CIR statistics (continued)



**Obtaining CIR statistics** (continued)

<b>Obtaining CIR statistics</b>	
<b>Step</b>	<b>Action</b>
<b>1</b>	From office records or from office personnel, obtain the directory number (DN) for the customer.
<b>At the MAP</b>	
<b>2</b>	Access the PVDNCI level of the MAP display by typing <b>&gt;PVDNCI</b> and pressing the Enter key.  <i>MAP response:</i> PVDNCI :
<b>3</b>	Identify the agent ID associated with the DN obtained from the customer by typing <b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.  <i>where</i> dir_no is the DN supplied by the customer  <i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1  <b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.
<b>4</b>	Determine the FRIU number and the channel associated with the agent ID by typing <b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.  <i>where</i> agent_no is the agent ID obtained in step 4  <i>MAP response:</i> AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1 FRIU 121 7  <b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.
-continued-	

## Obtaining CIR statistics (continued)

Obtaining CIR statistics (continued)															
Step	Action														
5	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.														
6	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i> <table style="margin-left: 100px; border: none;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>70</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
7	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> fri_u_no is the number of the FRIU you obtained in step 4  <i>Example of a MAP response:</i> FRIU 121 InSv Rsvd														
8	Access the Carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.														
9	Access the Channel level of the MAP display by typing <b>&gt;CHAN</b> and pressing the Enter key.														
-continued-															

---

**Obtaining CIR statistics (end)**

---

<b>Obtaining CIR statistics</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>10</b>	Display CIR statistics by typing <b>&gt;QUERYCH</b> and pressing the Enter key.  <i>Example of a MAP display:</i> QueryCH Speed: LS_1536KBS Mode: LAPD A/B sig: NO Agent ID: 5 Connected device: NIL DN: 12245678005 Total SIR Provisioned: 0 (bits/sec)
<b>11</b>	You have completed this procedure.
<b>End</b>	



## Obtaining SIR statistics

---

### Task

Use this procedure to obtain summary information rate (SIR) statistics for a specific frame relay interface unit (FRIU) and channel.

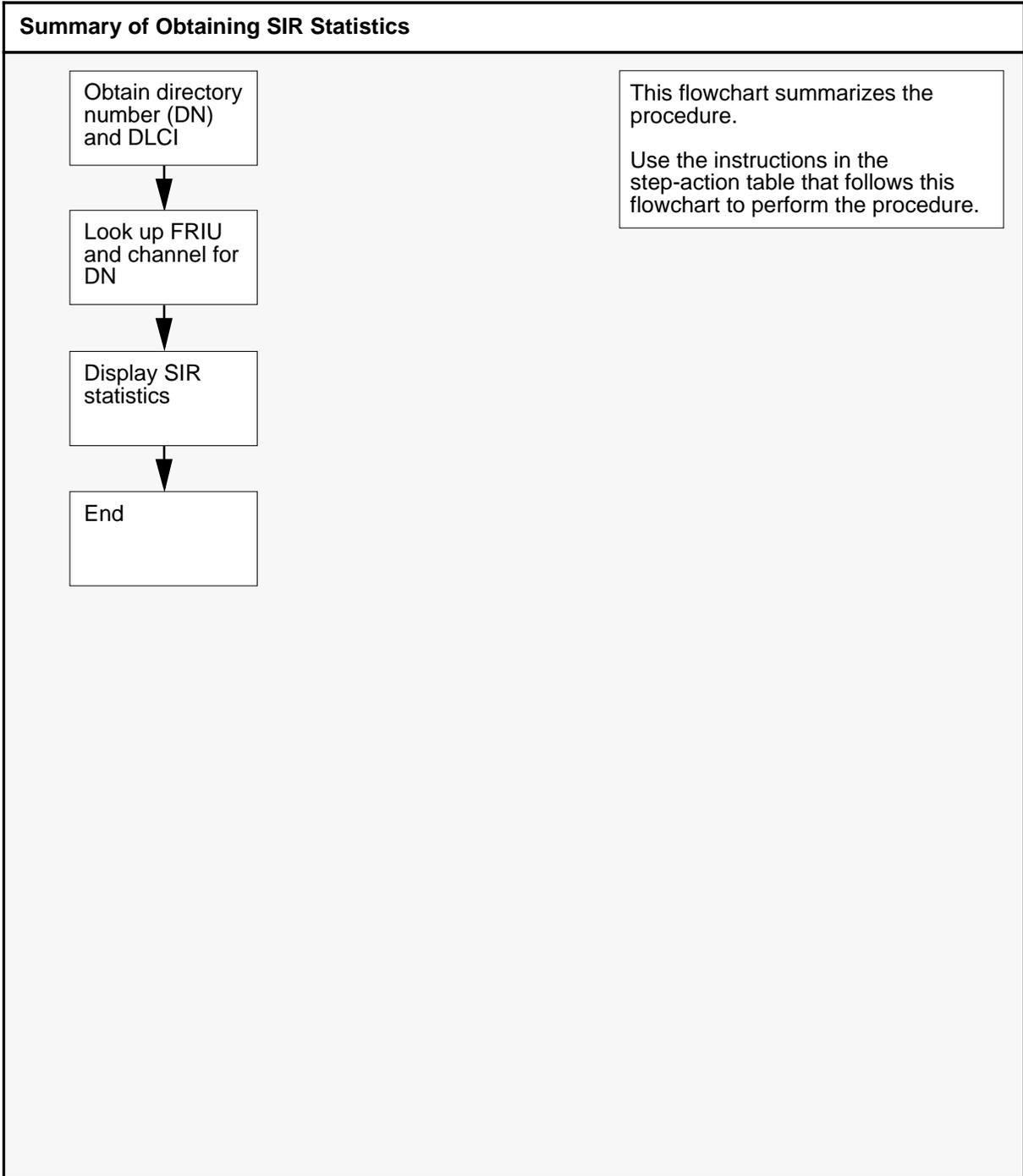
### Interval

Perform this procedure as required.

### Action

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

## Obtaining SIR statistics (continued)



**Obtaining SIR statistics** (continued)

<b>Obtaining SIR statistics</b>	
<b>Step</b>	<b>Action</b>
1	From office records or from office personnel, obtain the directory number (DN) for the customer.
<b>At the MAP</b>	
2	<p>Access the PVDNCI level of the MAP display by typing</p> <p><b>&gt;PVDNCI</b></p> <p>and pressing the Enter key.</p> <p><i>MAP response:</i></p> <pre>PVDNCI :</pre>
3	<p>Identify the agent ID associated with the DN obtained from the customer by typing</p> <p><b>&gt;FRSDISP DN NO dir_no</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i></p> <pre>PVDNCI : DN 6132263770 belongs to FRS Agent 1</pre> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
4	<p>Determine the FRIU number and the channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>agent_no is the agent ID obtained in step 4</p> <p><i>MAP response:</i></p> <pre>AGENT DN      NP      SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1          FRIU 121 7</pre> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>
-continued-	

**Obtaining SIR statistics (end)**

<b>Obtaining SIR statistics</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>5</b>	<p>Display SIR statistics for the FRIU by typing  <b>&gt;SIRTRACK friu_no chan_no</b>  and pressing the Enter key.</p> <p><i>where</i>  friu_no        is the number of the FRIU obtained in step 4  chan_no       is the number of the channel obtained in step 4</p> <p><i>Example of a MAP response:</i></p> <pre> ***** DLCIs and associated SIRs for FRIU 121 Channel 7 *****  DLCI:          101      102      103      104      105      106      107 SIR(bit/s):No  Enf    No  Enf    No  Enf    No  Enf    No  Enf    No  Enf  DLCI:          108      109      110      111      112      113      114 SIR(bit/s):No  Enf    No  Enf    No  Enf    No  Enf    No  Enf    No  Enf  DLCI:          115      116      117      118      119      120      121 SIR(bit/s):No  Enf    No  Enf    No  Enf    No  Enf    No  Enf    No  Enf  DLCI:          122      123      124 SIR(bit/s):No  Enf    No  Enf    No  Enf  Total SIRs for this channel : 0 (bits/sec) </pre>
<b>6</b>	<p>Return to the CI level of the MAP display by typing  <b>&gt;QUIT</b>  and pressing the Enter key.</p>
<b>7</b>	You have completed this procedure.
<b>End</b>	

## Removing a loop after a carrier remote loopback test

---

### Task

Use this procedure to take the frame relay interface unit (FRIU) and its associated carrier out of loopback mode.

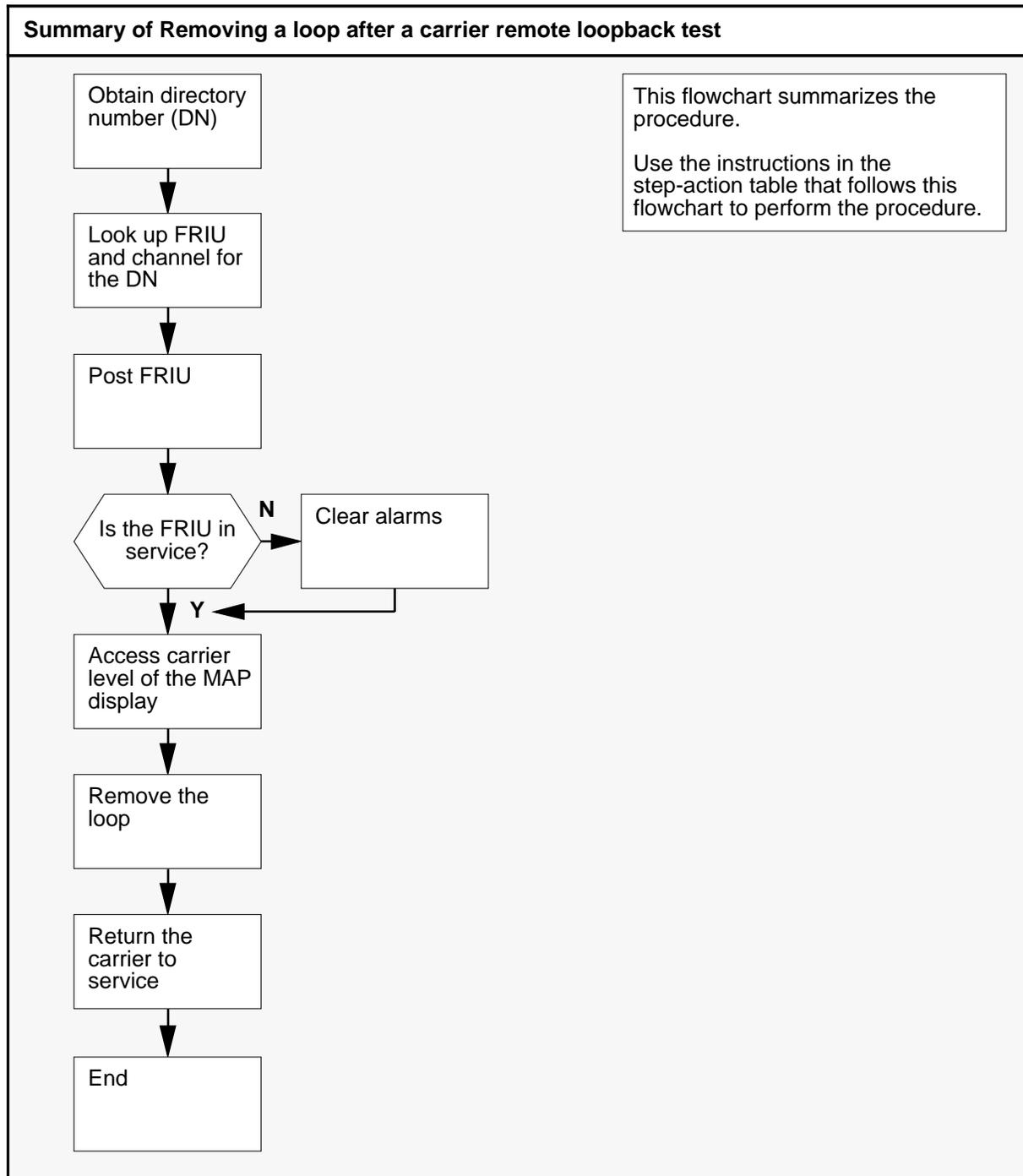
### Interval

This procedure is performed after the customer has completed loopback tests between the customer premises equipment and the FRIU.

### Action

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

## Removing a loop after a carrier remote loopback test (continued)



## Removing a loop after a carrier remote loopback test (continued)

Removing a loop after a carrier remote loopback test	
Step	Action
1	Obtain the directory number (DN) from the customer.
<b>At the MAP</b>	
2	<p>Access the PVDNCI level of the MAP display by typing</p> <p><b>&gt;PVDNCI</b> and pressing the Enter key.</p> <p><i>MAP response:</i> PVDNCI :</p>
3	<p>Identify the agent ID associated with the DN obtained from the customer by typing</p> <p><b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.</p> <p><i>where</i> dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
4	<p>Determine the FRIU number and the channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.</p> <p><i>where</i> agent_no is the agent ID obtained in step 3</p> <p><i>MAP response:</i> AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1 FRIU 121 7</p> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>
-continued-	

**Removing a loop after a carrier remote loopback test (continued)**

<b>Removing a loop after a carrier remote loopback test (continued)</b>															
<b>Step</b>	<b>Action</b>														
<b>5</b>	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.														
<b>6</b>	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i> <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>70</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
<b>7</b>	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> friu_no is the number of the FRIU you obtained at step 4  <i>Example of a MAP response:</i> FRIU 121 InSv Rsvd  <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th style="border-bottom: 1px solid black;"><b>If the state of the FRIU is</b></th> <th style="border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv or ISTb</td> <td>step 9</td> </tr> <tr> <td>anything else</td> <td>step 8</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv or ISTb	step 9	anything else	step 8								
<b>If the state of the FRIU is</b>	<b>Do</b>														
InSv or ISTb	step 9														
anything else	step 8														
<b>8</b>	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.														
<b>9</b>	Access the Carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.														
<b>10</b>	Take the FRIU out of loopback mode by typing <b>&gt;LOOP CLEAR</b> and pressing the Enter key.  <b>Note:</b> The system responds by setting the carrier state to manual busy.														
-continued-															

---

**Removing a loop after a carrier remote loopback test (end)**


---

<b>Removing a loop after a carrier remote loopback test</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>11</b>	Return the carrier to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1"> <thead> <tr> <th><b>If the state of the carrier is</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>InSv</td> <td>step 13</td> </tr> <tr> <td>anything else</td> <td>step 12</td> </tr> </tbody> </table>	<b>If the state of the carrier is</b>	<b>Do</b>	InSv	step 13	anything else	step 12
<b>If the state of the carrier is</b>	<b>Do</b>						
InSv	step 13						
anything else	step 12						
<b>12</b>	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.  Go to step 14.						
<b>13</b>	Return to the PM level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.						
<b>14</b>	You have completed this procedure.						
<b>End</b>							



## Removing a loop after a channel remote loopback test

---

### Task

Use this procedure to take the frame relay interface unit (FRIU) and specific channels out of loopback mode.

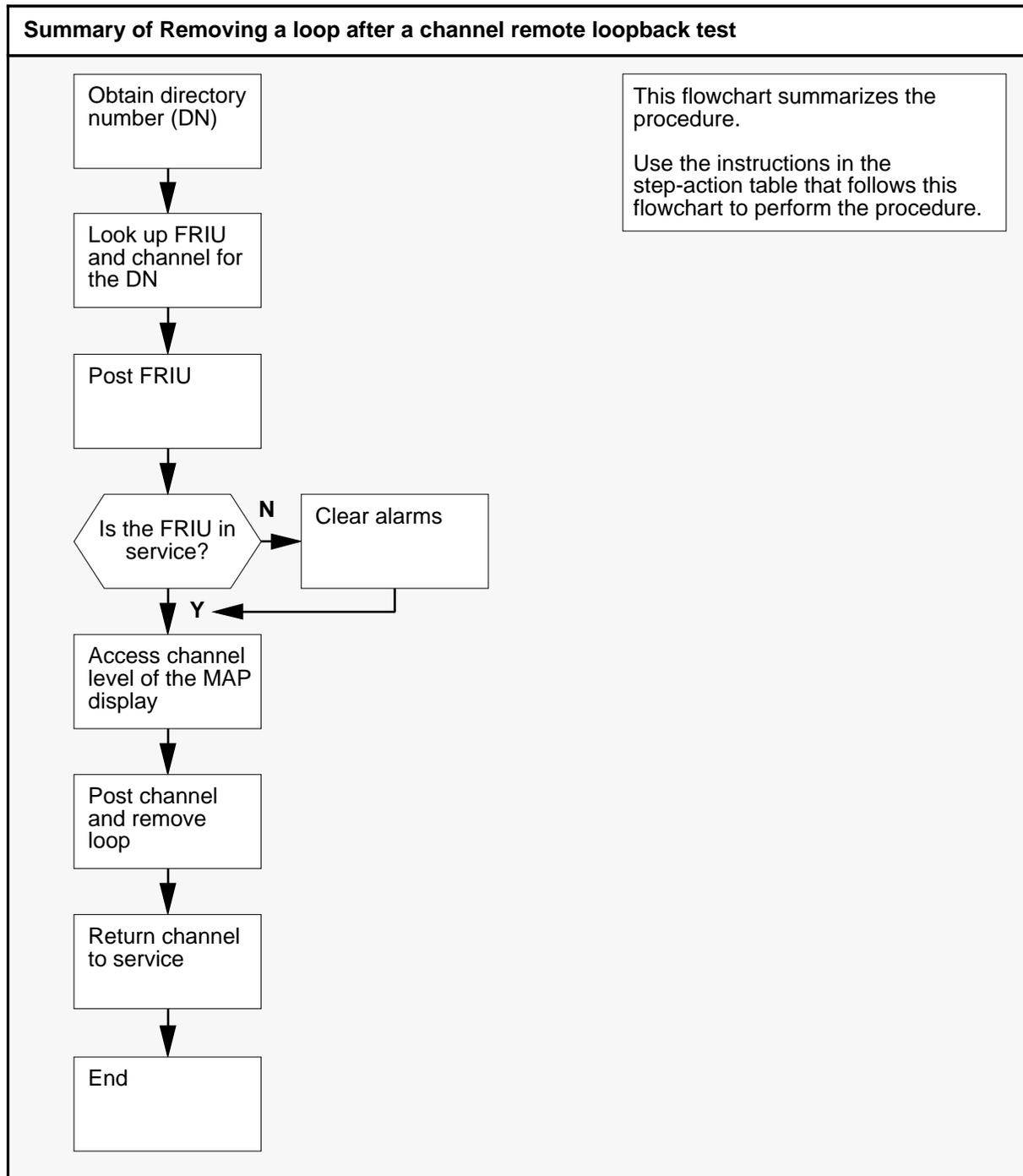
### Interval

This procedure is performed after the customer has completed tests on the carrier.

### Action

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

## Removing a loop after a channel remote loopback test (continued)



## Removing a loop after a channel remote loopback test (continued)

Removing a loop after a channel remote loopback test	
Step	Action
1	Obtain the directory number (DN) from the customer.
<b>At the MAP</b>	
2	<p>Access the PVDNCI level of the MAP display by typing</p> <p><b>&gt;PVDNCI</b> and pressing the Enter key.</p> <p><i>MAP response:</i> PVDNCI :</p>
3	<p>Identify the agent ID associated with the DN obtained from the customer by typing</p> <p><b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.</p> <p><i>where</i> dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
4	<p>Determine the FRIU number and the channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.</p> <p><i>where</i> agent_no is the agent ID obtained in step 3</p> <p><i>MAP response:</i> AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1 FRIU 121 7</p> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>
-continued-	

**Removing a loop after a channel remote loopback test (continued)**

Removing a loop after a channel remote loopback test (continued)															
Step	Action														
5	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.														
6	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i> <table style="margin-left: 40px; border: none;"> <tr> <td></td> <td style="text-align: center;">SysB</td> <td style="text-align: center;">ManB</td> <td style="text-align: center;">OffL</td> <td style="text-align: center;">CBsy</td> <td style="text-align: center;">ISTb</td> <td style="text-align: center;">InSv</td> </tr> <tr> <td>PM</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">70</td> </tr> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
7	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> fri_u_no is the number of the FRIU you obtained at step 4  <i>Example of a MAP response:</i> FRIU 121 InSv Rsvd  <table style="margin-left: 40px; border: none;"> <tr> <td style="border-bottom: 1px solid black;"><b>If the state of the FRIU is</b></td> <td style="border-bottom: 1px solid black;"><b>Do</b></td> </tr> <tr> <td>InSv or ISTb</td> <td>step 9</td> </tr> <tr> <td>anything else</td> <td>step 8</td> </tr> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv or ISTb	step 9	anything else	step 8								
<b>If the state of the FRIU is</b>	<b>Do</b>														
InSv or ISTb	step 9														
anything else	step 8														
8	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.														
9	Access the Carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.														
10	Access the Channel level of the MAP display by typing <b>&gt;CHAN</b> and pressing the Enter key.														
-continued-															

---

## Removing a loop after a channel remote loopback test (end)

---

Removing a loop after a channel remote loopback test (continued)							
Step	Action						
11	<p>Post the channel by typing</p> <p><b>&gt;POST chan_no</b> and pressing the Enter key.</p> <p><i>where</i> chan_no is the number of the channel</p>						
12	<p>Remove the FRIU from loopback mode by typing</p> <p><b>&gt;LOOP CLEAR</b> and pressing the Enter key.</p> <p><b>Note:</b> The system responds by setting the channel state to manual busy.</p>						
13	<p>Return the channel to service by typing</p> <p><b>&gt;RTS</b> and pressing the Enter key.</p> <table border="1"> <thead> <tr> <th>If the state of the channel is</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>InSv</td> <td>step 16</td> </tr> <tr> <td>anything else</td> <td>step 14</td> </tr> </tbody> </table>	If the state of the channel is	Do	InSv	step 16	anything else	step 14
If the state of the channel is	Do						
InSv	step 16						
anything else	step 14						
14	<p>Perform the appropriate FRIU alarm clearing procedure in this document to clear any FRIU alarms. When you have completed the procedure, return to this point.</p>						
15	Go to step 17.						
16	<p>Return to the PM level of the MAP display by typing</p> <p><b>&gt;QUIT 2</b> and pressing the Enter key.</p>						
17	You have completed this procedure.						
End							



---

## Setting up a loop for a carrier remote loopback test

---

### Task

Use this procedure to place the frame relay interface unit (FRIU) and its associated carrier in loopback mode. The customer can then run a loopback test between the customer premises equipment and the FRIU. The test frames are received at the FRIU and sent directly back (looped back) to the customer who, when satisfied with test results, can terminate the test. The FRIU can then be taken out of loopback mode. If the customer's test fails, check the quality of the T1 carrier by performing a loopback test from the office.

All channels on the T1 carrier are included in the test, permitting the customer to perform bit pattern tests or framed data tests.

### Interval

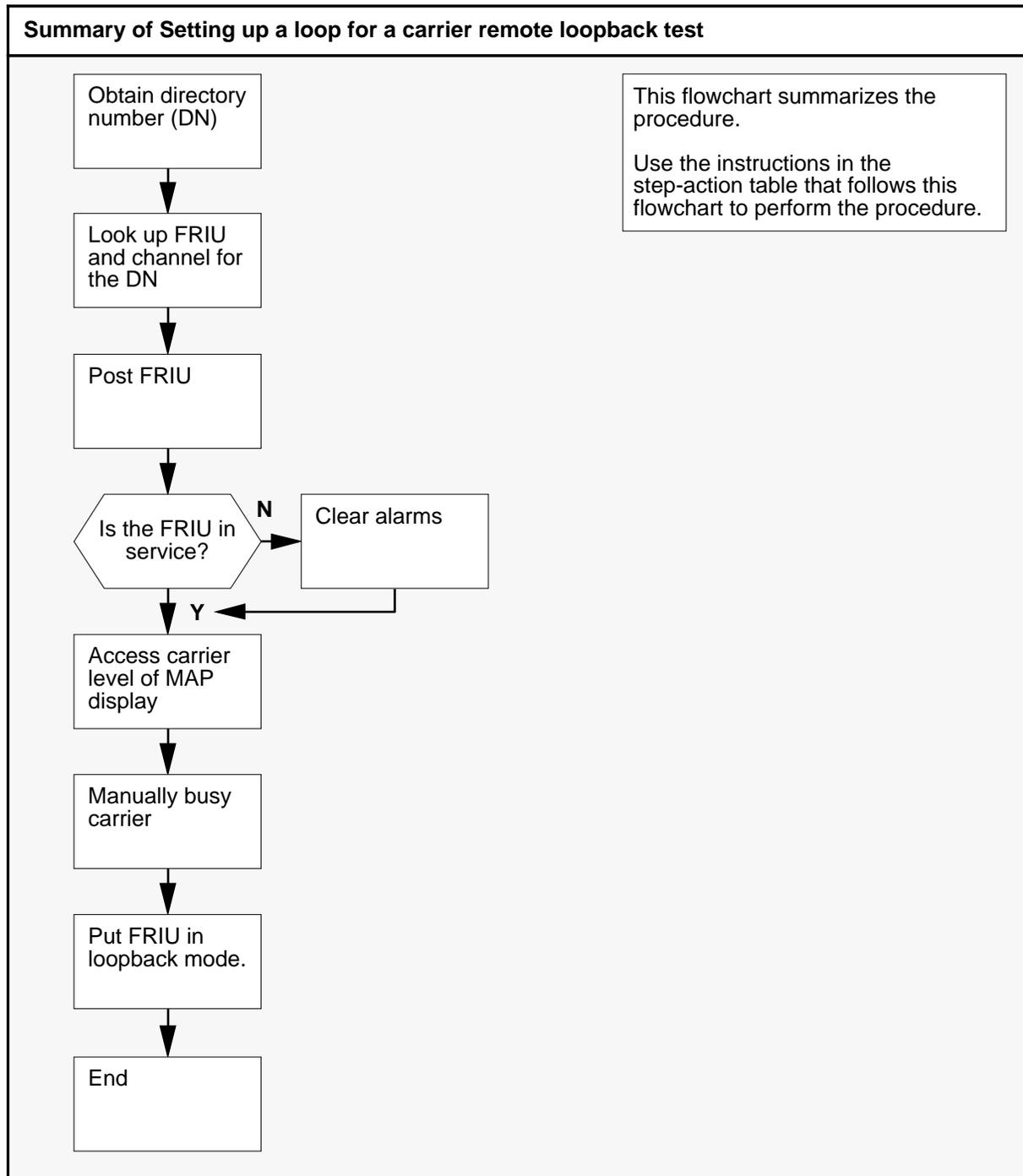
This procedure is performed at a customer's request.

### Action

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

**Note:** This procedure does not apply to Datapath connections. In step 4, when the carrier is made busy, an on-hook message is sent to Datapath, and the connection is cleared.

## Setting up a loop for a carrier remote loopback test (continued)



---

**Setting up a loop for a carrier remote loopback test** (continued)

---

<b>Setting up a loop for a carrier remote loopback test</b>	
<b>Step</b>	<b>Action</b>
<b>1</b>	Obtain the directory number (DN) from the customer.
<b>At the MAP</b>	
<b>2</b>	<p>Access the PVDNCI level of the MAP display by typing</p> <p><b>&gt;PVDNCI</b> and pressing the Enter key.</p> <p><i>MAP response:</i> PVDNCI :</p>
<b>3</b>	<p>Identify the agent ID associated with the DN obtained from the customer by typing</p> <p><b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.</p> <p><i>where</i> dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
<b>4</b>	<p>Determine the FRIU number and the channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.</p> <p><i>where</i> agent_no is the agent ID obtained in step 3</p> <p><i>MAP response:</i> AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1 FRIU 121 7</p> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>
-continued-	

## Setting up a loop for a carrier remote loopback test (continued)

Setting up a loop for a carrier remote loopback test (continued)															
Step	Action														
5	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.														
6	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i> <table style="margin-left: auto; margin-right: auto; border: none;"> <tr> <td></td> <td style="text-align: center;">SysB</td> <td style="text-align: center;">ManB</td> <td style="text-align: center;">OffL</td> <td style="text-align: center;">CBsy</td> <td style="text-align: center;">ISTb</td> <td style="text-align: center;">InSv</td> </tr> <tr> <td style="text-align: left;">PM</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">70</td> </tr> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
7	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> fri_u_no is the number of the FRIU you obtained at step 4  <i>Example of a MAP response:</i> FRIU 121 InSv Rsvd  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"><b>If the state of the FRIU is</b></td> <td style="width: 40%;"><b>Do</b></td> </tr> <tr> <td style="border-top: 1px solid black;">InSv or ISTb</td> <td style="border-top: 1px solid black;">step 9</td> </tr> <tr> <td>anything else</td> <td>step 8</td> </tr> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	InSv or ISTb	step 9	anything else	step 8								
<b>If the state of the FRIU is</b>	<b>Do</b>														
InSv or ISTb	step 9														
anything else	step 8														
8	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.														
9	Access the carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.														
10	Inform the customer that you are ready to set a loop on the selected carrier. Proceed when the customer is ready to complete the loop.														
-continued-															

---

**Setting up a loop for a carrier remote loopback test (end)**

---

<b>Setting up a loop for a carrier remote loopback test (continued)</b>	
<b>Step</b>	<b>Action</b>
<b>11</b>	Manually busy the carrier by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.
<b>12</b>	Put the FRIU in loopback mode by typing <b>&gt;LOOP REMOTE</b> and pressing the Enter key.  <b>Note:</b> The system responds by setting the carrier state to ManB-R.
<b>13</b>	Inform the customer that testing can begin.  <b>Note:</b> After the customer tells you that the test is complete, remove the FRIU and the carrier from loopback mode by performing the procedure <i>Removing a loop after a carrier remote loopback test</i> on page 4-27.
<b>14</b>	You have completed this procedure.
<b>End</b>	



---

## Setting up a loop for a channel remote loopback test

---

### Task

Use this procedure to place the frame relay interface unit (FRIU) and specific channels on the associated carrier in loopback mode. The customer can then run a loopback test between the customer premises equipment and the FRIU. The test frames are received at the FRIU and sent directly back (looped back) to the customer who, when satisfied with test results, can terminate the test. The FRIU can then be taken out of loopback mode. If the customer's test fails, check the quality of the T1 carrier by performing a loopback test from the office.

This test involves one or more specific channels on the T1 carrier. It enables the customer to perform framed data tests on these channels.

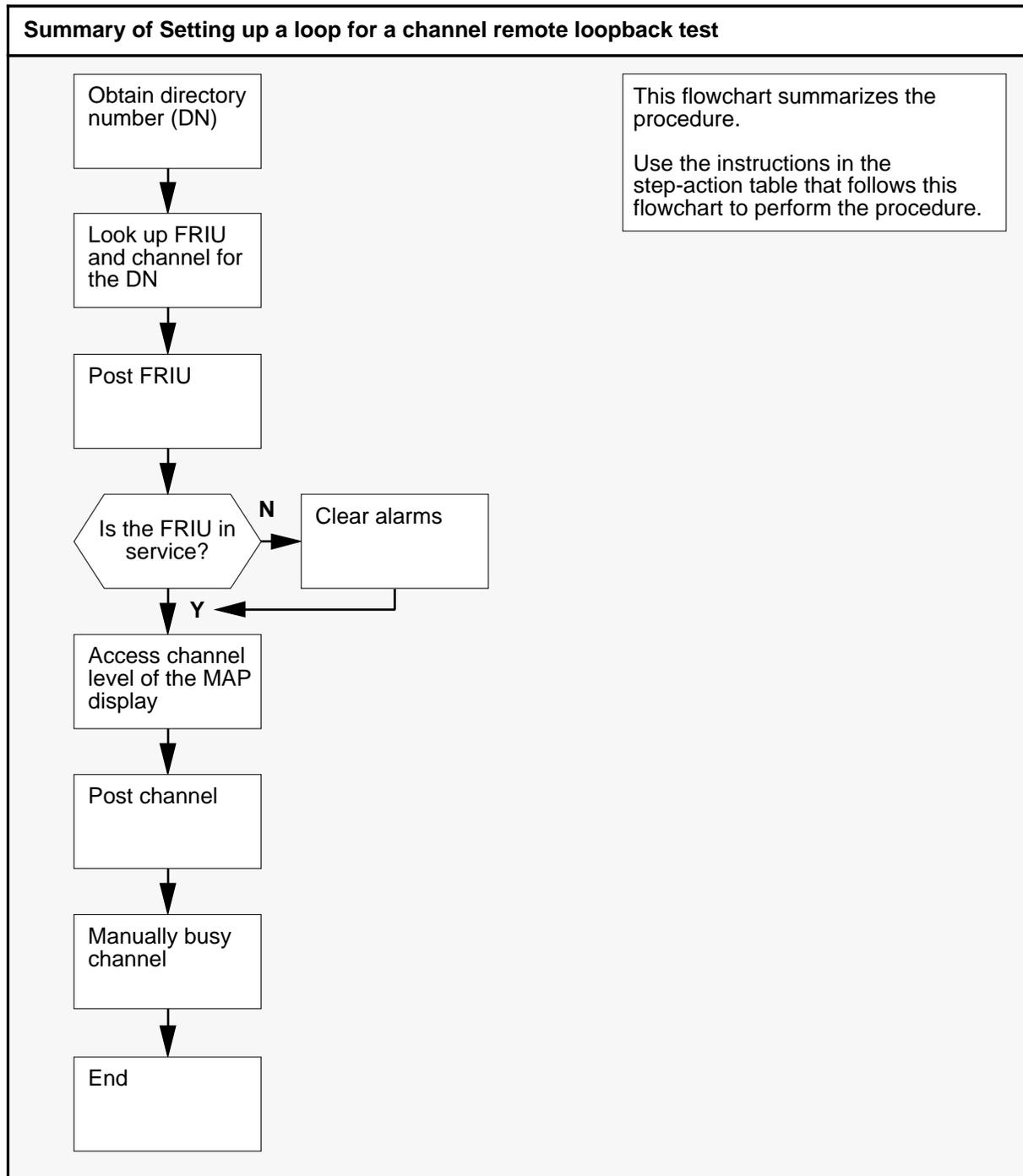
### Interval

This procedure is performed at a customer's request.

### Action

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

## Setting up a loop for a channel remote loopback test (continued)



---

**Setting up a loop for a channel remote loopback test (continued)**


---

<b>Setting up a loop for a channel remote loopback test</b>	
<b>Step</b>	<b>Action</b>
1	Obtain the directory number (DN) from the customer.
<b>At the MAP</b>	
2	<p>Access the PVDNCI level of the MAP display by typing</p> <p><b>&gt;PVDNCI</b> and pressing the Enter key.</p> <p><i>MAP response:</i> PVDNCI :</p>
3	<p>Identify the agent ID associated with the DN obtained from the customer by typing</p> <p><b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.</p> <p><i>where</i> dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
4	<p>Determine the FRIU number and the channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.</p> <p><i>where</i> agent_no is the agent ID obtained in step 3</p> <p><i>MAP response:</i> AGENT DN NP SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1 FRIU 121 7</p> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>
-continued-	

## Setting up a loop for a channel remote loopback test (continued)

Setting up a loop for a channel remote loopback test (continued)															
Step	Action														
5	Return to the CI level of the MAP display by typing <b>&gt;QUIT</b> and pressing the Enter key.														
6	Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.  <i>Example of a MAP display:</i> <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>70</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
7	Post the FRIU by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> fri_u_no is the number of the FRIU you obtained in step 4  <i>Example of a MAP response:</i> FRIU 121 InSv Rsvd  <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th style="border-bottom: 1px solid black;">If the state of the FRIU is</th> <th style="border-bottom: 1px solid black;">Do</th> </tr> </thead> <tbody> <tr> <td>InSv or ISTb</td> <td>step 9</td> </tr> <tr> <td>anything else</td> <td>step 8</td> </tr> </tbody> </table>	If the state of the FRIU is	Do	InSv or ISTb	step 9	anything else	step 8								
If the state of the FRIU is	Do														
InSv or ISTb	step 9														
anything else	step 8														
8	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.														
9	Access the Carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.														
10	Access the Channel level of the MAP display by typing <b>&gt;CHAN</b> and pressing the Enter key.														
-continued-															

---

**Setting up a loop for a channel remote loopback test (end)**


---

<b>Setting up a loop for a channel remote loopback test (continued)</b>	
<b>Step</b>	<b>Action</b>
11	<p>Post the channel that is to be tested by typing  <b>&gt;POST chan_no</b>            and pressing the Enter key.</p> <p><i>where</i>            chan_no is the number of the channel for which the customer has requested the loopback</p>
12	<p>Inform the customer that you are ready to set a loop on the selected channel. Proceed when the customer is ready.</p>
13	<p>Manually busy the channel by typing  <b>&gt;BSY</b>            and pressing the Enter key.</p>
14	<p>Put the FRIU in loopback mode by typing  <b>&gt;LOOP REMOTE</b>            and pressing the Enter key.</p> <p><b>Note:</b> The system responds by setting the carrier state to manual busy remote.</p>
15	<p>Inform the customer that testing can begin.</p> <p><b>Note:</b> After the customer tells you that the test is complete, remove the FRIU and the carrier from loopback mode by performing the procedure <i>Removing a loop after a channel remote loopback test</i> on page 4-33.</p>
16	<p>You have completed this procedure.</p>
End	



## Using the frame relay capture tool

---

### Task

This procedure captures frames being received at or transmitted from an FRIU on the T1 carrier. The frames are copied into an ASCII file on the computing module (CM) for analysis. Note that the frame capture process puts the FRIU in the in-service trouble state. The FRIU will return to in-service when the CAPSTOP command is issued. Take care when specifying parameters for Frame Capture. This tool can have an impact on the speed and efficiency of frame switching.

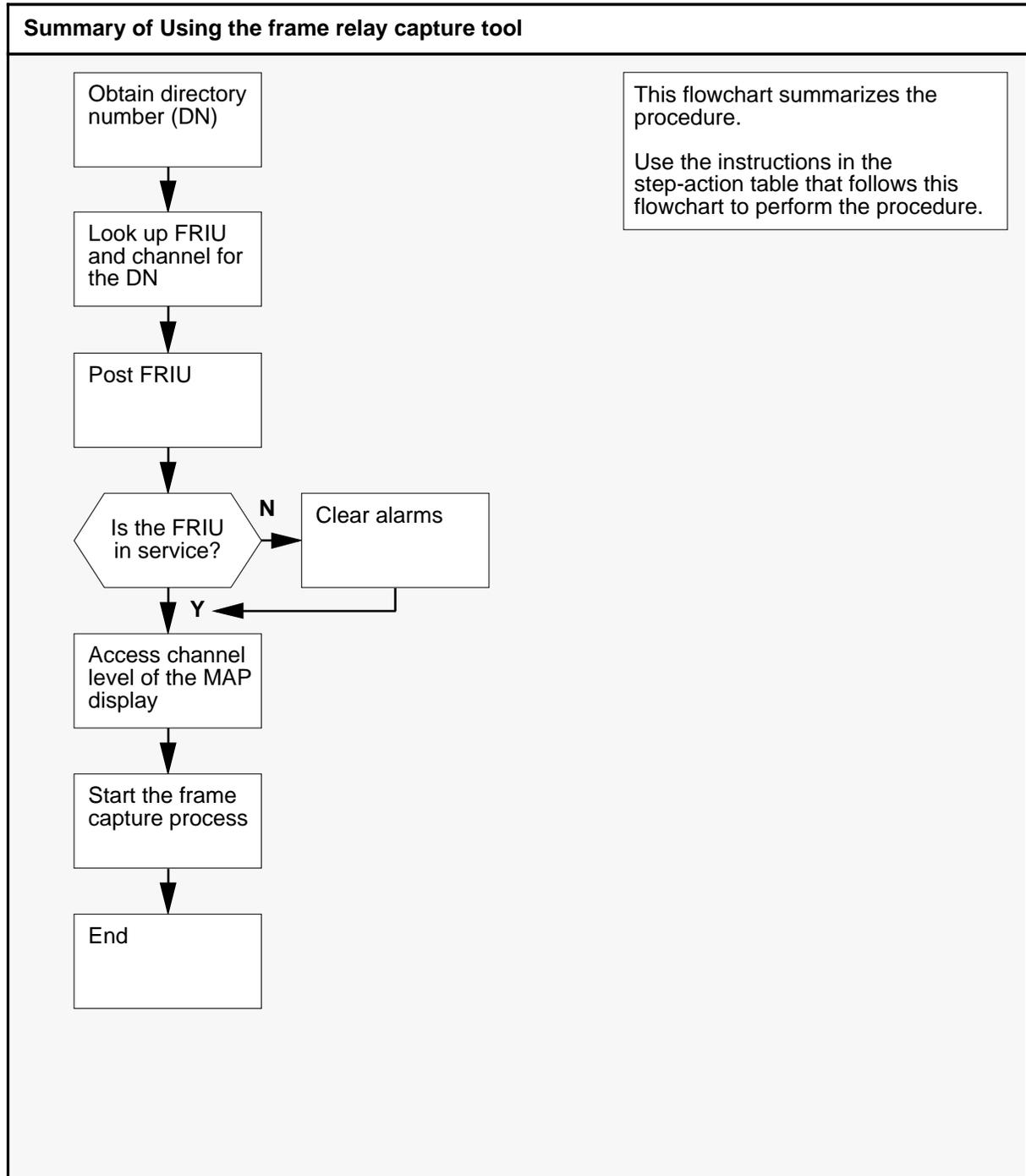
### Interval

Perform this procedure as part of troubleshooting or monitoring of the FRIU and its associated T1 carrier.

### Action

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

## Using the frame relay capture tool (continued)



## Using the frame relay capture tool (continued)

Using the frame relay capture tool	
Step	Action
	 <p><b>WARNING</b> Potential service interruption. When the FRIU is in the in-service trouble state, customer service may be affected through the customer access channel.</p>
1	Obtain the directory number (DN) from the customer.
<b>At the MAP</b>	
2	<p>Access the PVDNCI level of the MAP display by typing <b>&gt;PVDNCI</b> and pressing the Enter key.</p> <p><i>MAP response:</i> PVDNCI :</p>
3	<p>Identify the agent ID associated with the DN obtained from the customer by typing <b>&gt;FRSDISP DN NO dir_no</b> and pressing the Enter key.</p> <p><i>where</i> dir_no is the DN supplied by the customer</p> <p><i>MAP response:</i> PVDNCI : DN 6132263770 belongs to FRS Agent 1</p> <p><b>Note:</b> The agent ID is shown at the end of the response. In the example, the agent ID is 1.</p>
-continued-	

## Using the frame relay capture tool (continued)

Using the frame relay capture tool (continued)															
Step	Action														
4	<p>Determine the FRIU number and the channel associated with the agent ID by typing</p> <p><b>&gt;FRSDISP AGENT ID agent_no</b> and pressing the Enter key.</p> <p>where agent_no is the agent ID obtained in step 3</p> <p><i>MAP response:</i></p> <pre>AGENT DN      NP      SPEED CONDEV AB CUSTOMER CONNECT TO 1 6132263770 NATL LS_1536KBS NIL N1          FRIU 121 7</pre> <p><b>Note:</b> The FRIU number and channel assigned to this agent are shown under the CONNECT TO header in the MAP response. In the example, the FRIU is 121 and the channel number is 7.</p>														
5	<p>Return to the CI level of the MAP display by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>														
6	<p>Access the PM level of the MAP display by typing</p> <p><b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>70</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	2	0	0	0	0	70
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	2	0	0	0	0	70									
7	<p>Post the FRIU by typing</p> <p><b>&gt;POST FRIU friu_no</b> and pressing the Enter key.</p> <p>where friu_no is the number of the FRIU you obtained in step 4</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU 121 InSv      Rsvd</pre> <table border="1"> <thead> <tr> <th>If the state of the FRIU is</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>InSv or ISTb</td> <td>step 9</td> </tr> <tr> <td>anything else</td> <td>step 8</td> </tr> </tbody> </table>	If the state of the FRIU is	Do	InSv or ISTb	step 9	anything else	step 8								
If the state of the FRIU is	Do														
InSv or ISTb	step 9														
anything else	step 8														
-continued-															

## Using the frame relay capture tool (continued)

<b>Using the frame relay capture tool</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>8</b>	Perform the appropriate FRIU alarm clearing procedure in this document to clear the major or critical alarm on this FRIU. When you have completed the procedure, return to this point.
<b>9</b>	Access the Carrier level of the MAP display by typing <b>&gt;CARR</b> and pressing the Enter key.
<b>10</b>	Access the Channel level of the MAP display by typing <b>&gt;CHAN</b> and pressing the Enter key.
<b>11</b>	<p>Start the frame capture process by specifying which frames are to be captured by typing</p> <p><b>&gt;CAPSTART dlc_i_no slice_size frame_type overwrite file_name dev_name</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>dlc_i_no is the number of the data link connection identifier (DLCI)</p> <p>slice_size is the number of octets captured (64, 128, 256, 512, 1024, 2102)</p> <p>frame_type is the optional parameter for the type of frames to be captured by the process (rx, tx, or all)</p> <p>overwrite is the optional parameter for existing file_name (Y or N)</p> <p>file_name is the optional parameter for the filename under which to record results (12 characters maximum)</p> <p>dev_name is the optional parameter for the device on which to record results (default is SFDEV)</p> <p><i>Example input:</i></p> <p><b>&gt;CAPSTART 900 128 all Y 29NOV_900 PRT1</b></p> <p><b>Note:</b> The FRIU is put in the in-service trouble state until the frame capture process is complete.</p>
-continued-	

## Using the frame relay capture tool (end)

---

Using the frame relay capture tool (continued)	
Step	Action
12	<p>Terminate the frame relay capture process by typing <b>&gt; CAPSTOP</b> and pressing the Enter key.</p> <p><b>Note:</b> After stopping the frame capture process you must wait for the CM to complete writing the capture file. This could take several minutes. Do not attempt another CAPSTART command until the CAPQUERY command returns the message <code>Frame capture not running</code>.</p>
13	<p>Retrieve the ASCII file from the CM and examine it to determine if there are any faults.</p>
14	<p>You have completed this procedure.</p>
End	

---

# DataSPAN FRS card replacement procedures

---

## Task list

The following list provides the names of all the procedures in this chapter. The procedures are organized by the product engineering code (PEC) of the card. The PECs are in alphanumeric order. To find the appropriate procedure, look for the PEC in the left column and go to the page number listed in the right column. If more than one entry appears under a PEC, look for the context of the card.

---

<b>To change cards</b>	<b>Go to page</b>
NTEX22	
for an FRIU in an LPP link interface shelf	5-3
for an FRIU in an SSLPP	5-15
NTEX30	
for an FRIU in an LPP link interface shelf	5-27
for an FRIU in an SSLPP	5-39
NTEX31	
for an FRIU in an LPP link interface shelf	5-51
for an FRIU in an SSLPP	5-63

---

This chapter contains procedures for changing cards in the DMS SuperNode DataSPAN FRS. For each card replacement task, you will find a procedure containing the following:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

### **Explanatory and context-setting information**

In each procedure, the paragraph titled “Application” tells you where you can use this procedure and for which versions of a card. Read this section before you try to perform the step-action instructions. The paragraph titled “Common procedures” lists common procedures that you may be asked to

perform as you follow the step-action instructions. Go to these common procedures only when directed to do so.

### **Summary flowchart**

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it. For example, if you see that these instructions will involve another office, you will know to advise that office before you begin the step-action instructions.

### **Step-action instructions**

The step-action instructions tell you how to change a card. Normally, you will perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step in a sequence may depend on previous steps; therefore, always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the “Common procedures” chapter of this book to perform a set of instructions or to another NTP for a related procedure. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure. For more information on DMS system commands or output, see the “About this document” chapter at the beginning of this document for the appropriate NTP number.

---

**NTEX22**  
for an FRIU in an LPP link interface shelf

---

**Application**

Use this procedure to replace the following card in a frame relay interface unit (FRIU) in a link peripheral processor (LPP) link interface shelf (LIS).

PEC	Suffixes	Name
NTEX22	BB	Integrated processor and F-bus interface card

**Common procedures**

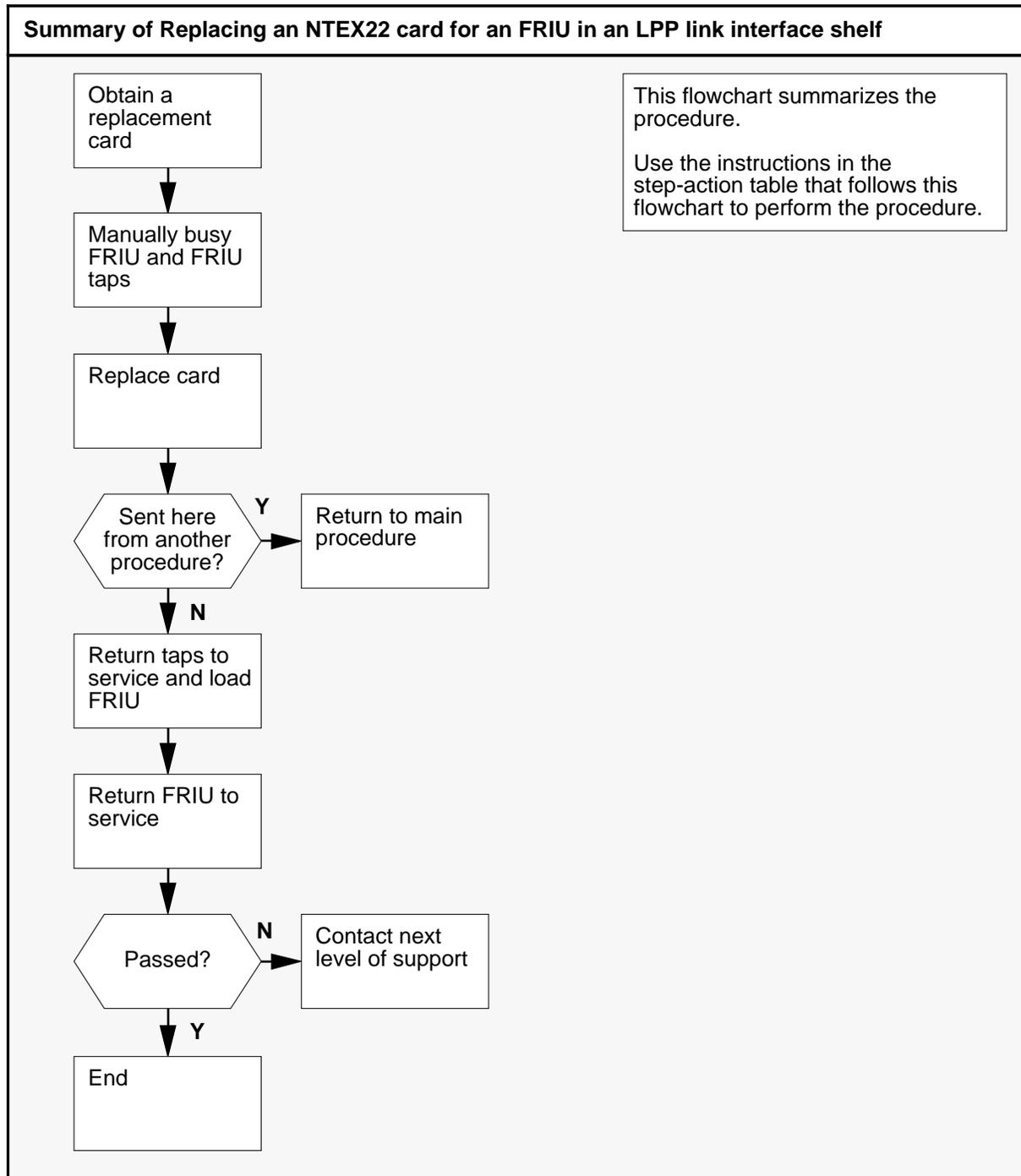
None

**Action**

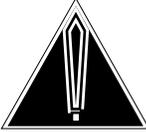
The following flowchart is a summary of this procedure. Use the instructions in the step-action table that follows the flowchart to perform the procedure.

**NTEX22** (continued)

for an FRIU in an LPP link interface shelf (continued)



**NTEX22** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b>							
<b>Step</b>	<b>Action</b>						
	<div style="display: flex; align-items: center;">  <div> <p><b>CAUTION</b> <b>Loss of service</b> This procedure removes an FRIU from service and temporarily interrupts traffic on the associated access or trunking DS-1 channels. If you are replacing a card for an in-service FRIU, perform this procedure during a period of low traffic.</p> </div> </div>						
<b>1</b>	Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.						
<b>At the MAP</b>							
<b>2</b>	<p>Ensure that the replacement card is compatible with the software load by typing</p> <p><b>&gt;CHECKREL LIS pec release</b> and pressing the Enter key.</p> <p><i>where</i></p> <p>pec                    is the PEC and suffix of the new card release                is the two-character code located on the faceplate of the replacement card</p> <p><i>Example input:</i></p> <p><b>&gt;CHECKREL LIS NTEX22BB 01</b></p> <p><i>Example of a MAP response:</i></p> <pre> PEC      BASELINE EXCEPT  RELEASE COMPATIBLE NTEX22BB  02      None      01      *NO Card release is below baseline. Do not plug the card into the LIS. </pre> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the replacement card is</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">compatible</td> <td style="border-bottom: 1px solid black;">step 6</td> </tr> <tr> <td>not compatible</td> <td>step 3</td> </tr> </tbody> </table>	<b>If the replacement card is</b>	<b>Do</b>	compatible	step 6	not compatible	step 3
<b>If the replacement card is</b>	<b>Do</b>						
compatible	step 6						
not compatible	step 3						
-continued-							

**NTEX22** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b> (continued)															
<b>Step</b>	<b>Action</b>														
<b>3</b>	<p>From the MAP display, record the baseline release code (BASELINE) and any exception release codes (EXCEPT).</p> <p><b>Note:</b> The baseline release code is listed under the BASELINE header. The exception release code is listed under the EXCEPT header.</p>														
<b>4</b>	Determine which release codes are compatible with the software load in the switch.														
<b>5</b>	<p>Obtain a replacement card with a compatible release code. A compatible release code is one that is</p> <ul style="list-style-type: none"> <li>▪ greater than or equal to the baseline release code, and</li> <li>▪ not an exception release code</li> </ul> <p><b>Note:</b> The range of release codes in ascending order is 01 to 09, 0A to 0Z, and 10 to VZ.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If you</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>can obtain a compatible replacement card</td> <td>step 2</td> </tr> <tr> <td>cannot obtain a compatible replacement card</td> <td>step 32</td> </tr> </tbody> </table>	<b>If you</b>	<b>Do</b>	can obtain a compatible replacement card	step 2	cannot obtain a compatible replacement card	step 32								
<b>If you</b>	<b>Do</b>														
can obtain a compatible replacement card	step 2														
cannot obtain a compatible replacement card	step 32														
<b>6</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>1</td> <td>10</td> <td>12</td> <td>0</td> <td>6</td> <td>49</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	1	10	12	0	6	49
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	1	10	12	0	6	49									
-continued-															

**NTEX22** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>7</b>	<p>Post the FRIU that contains the NTEX22 card to be replaced by typing  <b>&gt;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the number of the FRIU (0 to 500)</p> <p><i>Example of a MAP display:</i>            FRIU 121 InSv</p>												
<b>8</b>	<p>Determine the state of the FRIU.</p> <p><b>Note:</b> The state of the FRIU is shown to the right of the FRIU number, as shown in the display in step 7.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>OffL</td> <td>step 32</td> </tr> <tr> <td>ManB</td> <td>step 13</td> </tr> <tr> <td>InSv or ISTb</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were directed to this procedure from a maintenance procedure</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were not directed to this procedure from a maintenance procedure</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	OffL	step 32	ManB	step 13	InSv or ISTb	step 12	anything else, and you were directed to this procedure from a maintenance procedure	step 12	anything else, and you were not directed to this procedure from a maintenance procedure	step 9
<b>If the state of the FRIU is</b>	<b>Do</b>												
OffL	step 32												
ManB	step 13												
InSv or ISTb	step 12												
anything else, and you were directed to this procedure from a maintenance procedure	step 12												
anything else, and you were not directed to this procedure from a maintenance procedure	step 9												
-continued-													

**NTEX22** (continued)  
 for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>9</b>	<p>Consult with office personnel to determine if you should clear the alarm before replacing the NTEX22 card.</p> <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>clear the alarm</td> <td>step 10</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is not ManB (NA)</td> <td>step 12</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is ManB (NA)</td> <td>step 13</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	clear the alarm	step 10	continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12	continue replacing the card, and the state of the FRIU is ManB (NA)	step 13
<b>If you are instructed to</b>	<b>Do</b>								
clear the alarm	step 10								
continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12								
continue replacing the card, and the state of the FRIU is ManB (NA)	step 13								
<b>10</b>	<p>Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.</p>								
<b>11</b>	<p>Consult with office personnel to determine if you should continue to replace the NTEX22 card.</p> <p><b>Note:</b> Inform office personnel of the fault that was cleared, and if any cards were changed in the process of clearing the alarm.</p> <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>continue replacing the card</td> <td>step 12</td> </tr> <tr> <td>stop replacing the card</td> <td>step 33</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	continue replacing the card	step 12	stop replacing the card	step 33		
<b>If you are instructed to</b>	<b>Do</b>								
continue replacing the card	step 12								
stop replacing the card	step 33								
<b>12</b>	<p>Manually busy the FRIU by typing  <b>&gt;BSY FORCE</b>          and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>          FRIU 121 BSY Passed</p>								
-continued-									

**NTEX22** (continued)  
for an FRIU in an LPP link interface shelf (continued)

Replacing an NTEX22 for an FRIU in an LPP link interface shelf (continued)	
Step	Action
13	<p>Query the FRIU you are working on by typing</p> <p><b>&gt;QUERYPM</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre>FRIU FTA: 424B 1000 LIM: 0 Shelf: 1 Slot: 14 Default Load: F8X36CJ Running Load: F8X36CJ Carrier is currently InSv. Carrier Alarm: . LMS States: InSv InSv Auditing?: Yes Yes Msg Channels: Acc Acc TAPs: . .</pre>
14	<p>Record the number of the link interface module (LIM) associated with the FRIU you are working on.</p> <p><b>Note:</b> The LIM number is shown to the right of the word LIM on the third line of the display. In the example in step 13, the LIM number is 0.</p>
15	<p>Post the LIM associated with the FRIU you are working on by typing</p> <p><b>&gt;POST LIM lim_no</b> and pressing the Enter key.</p> <p><i>where</i> lim_no is the number of the LIM recorded in step 14</p> <p><i>Example of a MAP display:</i></p> <pre>LIM 1 InSv Unit0: InSv Links_OOS Taps_OOS Unit1: InSv . .</pre>
-continued-	

**NTEX22** (continued)  
 for an FRIU in an LPP link interface shelf (continued)

Replacing an NTEX22 for an FRIU in an LPP link interface shelf (continued)	
Step	Action
16	<p>Access the F-bus level of the MAP display by typing  <b>&gt;FBUS</b>            and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>           Tap: 0   4   8   12  16  20  24  28  32 FBus0: InSv    .... FBus1: InSv    ....           </pre>
17	<p>Determine which F-bus tap is associated with the FRIU by typing  <b>&gt;TRNSL fbus_no</b>            and pressing the Enter key.</p> <p><i>where</i>  <b>fbus_no</b> is the number of one of the F-buses (0 or 1)</p> <p><b>Note:</b> The number of the F-bus tap associated with the FRIU is shown in the third column of the MAP response.</p> <p><i>Example of a MAP response:</i></p> <pre> LIM 0 FBus 0 Tap 0 is on  FRIU 121 LIM 0 FBus 0 Tap 1 is on  FRIU 122 LIM 0 FBus 0 Tap 2 is on  FRIU 123 LIM 0 FBus 0 Tap 3 is on  FRIU 124 LIM 0 FBus 0 Tap 4 is on  FRIU 125 MORE...           </pre>
18	<p>Manually busy the FRIU tap on F-bus 0 by typing  <b>&gt;BSY FBUS 0 tap_no FORCE</b>            and pressing the Enter key.</p> <p><i>where</i>  <b>tap_no</b> is the number of the tap recorded in step 17</p> <p><b>Note:</b> The state of the tap changes to M when you issue this command.</p>
-continued-	

**NTEX22** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>19</b>	<p>Manually busy the FRIU tap on F-bus 1 by typing  <b>&gt;BSY FBUS 1 tap_no FORCE</b>            and pressing the Enter key.</p> <p><i>where</i>            tap_no        is the number of the tap recorded in step 17</p> <p><i>Example of a MAP response:</i></p> <pre>LIM 1 FBus 1 Tap 0 Busy requires confirmation because the following node may be isolated. FRIU 121 Please confirm ("YES", "Y", "NO", or "N"):</pre>
<b>20</b>	<p>Confirm the command by typing  <b>&gt;YES</b>            and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>Confirmed ... LIM 1 FBus 1 Tap 0 Busy initiated. LIM 1 FBus 1 Tap 0 Busy passed.</pre> <p><b>Note:</b> The state of the tap changes to "M" when you issue this command.</p>
<b>At the LPP</b>	
	<p><b>WARNING</b>  <b>Static electricity damage</b>            Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling cards. This protects the cards against damage caused by static electricity.</p>
<b>21</b>	Locate the NTEX22 card associated with the FRIU you are working on.
<b>22</b>	Replace the NTEX22 card by performing the procedure <i>Replacing a SuperNode card</i> in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.
-continued-	

**NTEX22** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>23</b>	The next action depends on your reason for performing this procedure.  <table border="1"> <thead> <tr> <th><b>If you were</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>directed to this procedure from a maintenance procedure</td> <td>step 24</td> </tr> <tr> <td>not directed to this procedure from a maintenance procedure</td> <td>step 25</td> </tr> </tbody> </table>	<b>If you were</b>	<b>Do</b>	directed to this procedure from a maintenance procedure	step 24	not directed to this procedure from a maintenance procedure	step 25
<b>If you were</b>	<b>Do</b>						
directed to this procedure from a maintenance procedure	step 24						
not directed to this procedure from a maintenance procedure	step 25						
<b>24</b>	Return to the maintenance procedure that sent you to this procedure and continue as directed.						
<b>At the MAP</b>							
<b>25</b>	Return the first tap to service for the FRIU you are working on by typing <b>&gt;RTS FBUS 0 tap_no</b> and pressing the Enter key.  <i>where</i> tap_no is the number of the first FRIU tap that you recorded in step 17  <table border="1"> <thead> <tr> <th><b>If the RTS command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 27</td> </tr> <tr> <td>failed</td> <td>step 26</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 27	failed	step 26
<b>If the RTS command</b>	<b>Do</b>						
passed	step 27						
failed	step 26						
<b>26</b>	Record the number of the tap. Give this information to personnel responsible for the next level of support, if required.						
-continued-							

**NTEX22** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>27</b>	<p>Return the second tap to service for the FRIU you are working on by typing</p> <p><b>&gt;RTS FBUS 1 tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the second FRIU tap that you recorded in step 17</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 28</td> </tr> <tr> <td>failed, and the first tap returned to service</td> <td>step 28</td> </tr> <tr> <td>failed, and the first tap did not return to service</td> <td>step 32</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 28	failed, and the first tap returned to service	step 28	failed, and the first tap did not return to service	step 32
<b>If the RTS command</b>	<b>Do</b>								
passed	step 28								
failed, and the first tap returned to service	step 28								
failed, and the first tap did not return to service	step 32								
<b>28</b>	<p>Quit from the F-bus level of the MAP display by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>								
<b>29</b>	<p>Post the FRIU you are working on by typing</p> <p><b>&gt;POST FRIU FRIU_no</b> and pressing the Enter key.</p> <p><i>where</i> FRIU_no is the number of the FRIU (0 to 500)</p>								
<b>30</b>	<p>Load the FRIU by typing</p> <p><b>&gt;LOADPM</b> and pressing the Enter key.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the LOADPM command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 31</td> </tr> <tr> <td>failed</td> <td>step 32</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 31	failed	step 32		
<b>If the LOADPM command</b>	<b>Do</b>								
passed	step 31								
failed	step 32								
-continued-									

**NTEX22** (end)

for an FRIU in an LPP link interface shelf (end)

---

<b>Replacing an NTEX22 for an FRIU in an LPP link interface shelf</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>31</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1"><thead><tr><th><b>If the RTS command</b></th><th><b>Do</b></th></tr></thead><tbody><tr><td>passed</td><td>step 33</td></tr><tr><td>failed</td><td>step 32</td></tr></tbody></table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 33	failed	step 32
<b>If the RTS command</b>	<b>Do</b>						
passed	step 33						
failed	step 32						
<b>32</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>33</b>	You have completed this procedure.						
<b>End</b>							

---

**NTEX22**  
for an FRIU in an SSLPP

---

**Application**

Use this procedure to replace the following card for a frame relay interface unit (FRIU) installed in a single-shelf link peripheral processor (SSLPP).

PEC	Suffixes	Name
NTEX22	BB	Integrated processor and F-bus interface card

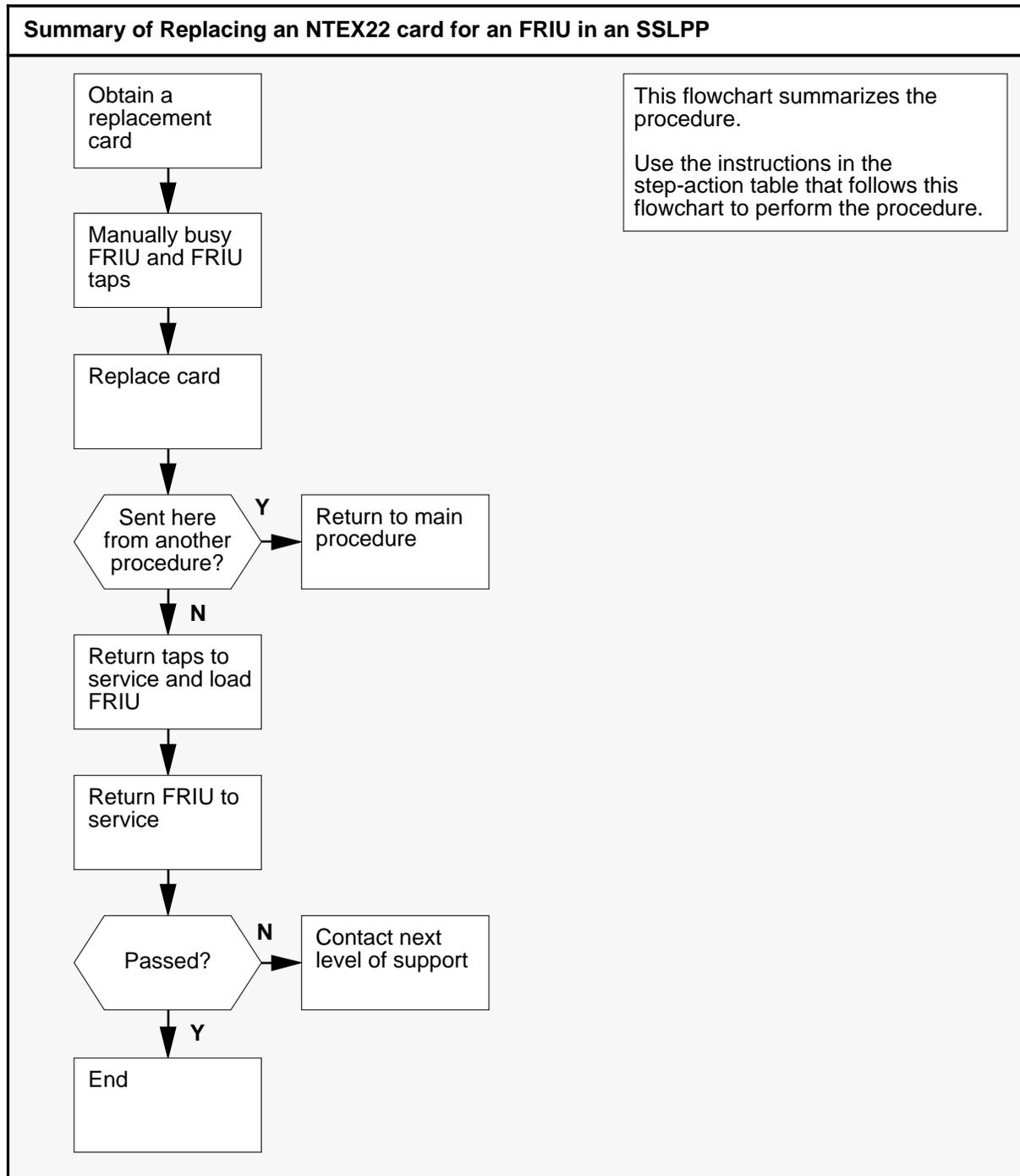
**Common procedures**

None

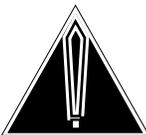
**Action**

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

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)



## NTEX22 (continued) for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b>							
<b>Step</b>	<b>Action</b>						
	<div style="display: flex; align-items: center;">  <div> <p><b>CAUTION</b> <b>Loss of service</b></p> <p>This procedure removes an FRIU from service and temporarily interrupts traffic on the associated access or trunking DS-1 channels. If you are replacing a card for an in-service FRIU, perform this procedure during a period of low traffic.</p> </div> </div>						
<b>1</b>	<p>Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.</p>						
<b>At the MAP</b>							
<b>2</b>	<p>Ensure that the replacement card is compatible with the software load by typing</p> <p><b>&gt;CHECKREL LIS pec release</b> and pressing the Enter key.</p> <p><i>where</i></p> <p>pec                    is the PEC and suffix of the new card release                is the two-character code located on the faceplate of the replacement card</p> <p><i>Example input:</i></p> <p><b>&gt;CHECKREL LIS NTEX22BB 01</b></p> <p><i>Example of a MAP response:</i></p> <pre> PEC      BASELINE EXCEPT  RELEASE COMPATIBLE NTEX22BB  02      None      01      *NO Card release is below baseline. Do not plug the card into the LIS. </pre> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>If the replacement card is</b></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">compatible</td> <td style="padding: 5px;">step 6</td> </tr> <tr> <td style="padding: 5px;">not compatible</td> <td style="padding: 5px;">step 3</td> </tr> </tbody> </table>	<b>If the replacement card is</b>	<b>Do</b>	compatible	step 6	not compatible	step 3
<b>If the replacement card is</b>	<b>Do</b>						
compatible	step 6						
not compatible	step 3						
<b>-continued-</b>							

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b> (continued)															
<b>Step</b>	<b>Action</b>														
<b>3</b>	<p>From the MAP display, record the baseline release code (BASELINE) and any exception release codes (EXCEPT).</p> <p><b>Note:</b> The baseline release code is listed under the BASELINE header. The exception release code is listed under the EXCEPT header.</p>														
<b>4</b>	Determine which release codes are compatible with the software load in the switch.														
<b>5</b>	<p>Obtain a replacement card with a compatible release code. A compatible release code is one that is</p> <ul style="list-style-type: none"> <li>▪ greater than or equal to the baseline release code, and</li> <li>▪ not an exception release code</li> </ul> <p><b>Note:</b> The range of release codes in ascending order is 01 to 09, 0A to 0Z, and 10 to VZ.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If you</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>can obtain a compatible replacement card</td> <td>step 6</td> </tr> <tr> <td>cannot obtain a compatible replacement card</td> <td>step 35</td> </tr> </tbody> </table>	<b>If you</b>	<b>Do</b>	can obtain a compatible replacement card	step 6	cannot obtain a compatible replacement card	step 35								
<b>If you</b>	<b>Do</b>														
can obtain a compatible replacement card	step 6														
cannot obtain a compatible replacement card	step 35														
<b>6</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>1</td> <td>10</td> <td>12</td> <td>0</td> <td>6</td> <td>49</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	1	10	12	0	6	49
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	1	10	12	0	6	49									
-continued-															

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>7</b>	<p>Post the FRIU that contains the NTEX22 card to be replaced by typing  <b>&gt;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the number of the FRIU (0 to 500)</p> <p><i>Example of a MAP display:</i></p> <pre>FRIU   121 InSv      Rsvd</pre>												
<b>8</b>	<p>Determine the state of the FRIU.</p> <p><b>Note:</b> The state of the FRIU is shown to the right of the FRIU number, as shown in the display in step 7.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>OffL</td> <td>step 35</td> </tr> <tr> <td>ManB</td> <td>step 13</td> </tr> <tr> <td>InSv or ISTb</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were directed to this procedure from a maintenance procedure</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were not directed to this procedure from a maintenance procedure</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	OffL	step 35	ManB	step 13	InSv or ISTb	step 12	anything else, and you were directed to this procedure from a maintenance procedure	step 12	anything else, and you were not directed to this procedure from a maintenance procedure	step 9
<b>If the state of the FRIU is</b>	<b>Do</b>												
OffL	step 35												
ManB	step 13												
InSv or ISTb	step 12												
anything else, and you were directed to this procedure from a maintenance procedure	step 12												
anything else, and you were not directed to this procedure from a maintenance procedure	step 9												
-continued-													

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>9</b>	Consult with office personnel to determine if you should clear the alarm before replacing the NTEX22 card.								
	<table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>clear the alarm</td> <td>step 10</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is not ManB (NA)</td> <td>step 12</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is ManB (NA)</td> <td>step 13</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	clear the alarm	step 10	continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12	continue replacing the card, and the state of the FRIU is ManB (NA)	step 13
<b>If you are instructed to</b>	<b>Do</b>								
clear the alarm	step 10								
continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12								
continue replacing the card, and the state of the FRIU is ManB (NA)	step 13								
<b>10</b>	Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.								
<b>11</b>	Consult with office personnel to determine if you should continue to replace the NTEX22 card.								
	<p><b>Note:</b> Inform office personnel of the fault that was cleared, and if any cards were changed in the process of clearing the alarm.</p> <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>continue replacing the card</td> <td>step 12</td> </tr> <tr> <td>stop replacing the card</td> <td>step 35</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	continue replacing the card	step 12	stop replacing the card	step 35		
<b>If you are instructed to</b>	<b>Do</b>								
continue replacing the card	step 12								
stop replacing the card	step 35								
<b>12</b>	Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.  <i>Example of a MAP response:</i> FRIU 121 BSY Passed								
-continued-									

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b> (continued)	
<b>Step</b>	<b>Action</b>
<b>13</b>	<p>Access table LIUINV to determine the message switch (MS) card and port number associated with the FRIU by typing</p> <p><b>&gt;TABLE LIUINV</b> and pressing the Enter key.</p> <p><i>MAP response:</i> TABLE: LIUINV</p>
<b>14</b>	<p>Display the tuple for the FRIU you are working on by typing</p> <p><b>&gt;POS FRIU friu_no</b> and pressing the Enter key.</p> <p><i>where</i> friu_no is the number of FRIU (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre> TOP LIUNAME      LOCATION      LOAD      PROCINFO CARDINFO ----- FRIU 121     MS 17 0 1 12   F8X36CJ NTEX22BB NTEX30AA NTEX31AA   FBUS  56000  NIL </pre>
<b>15</b>	<p>Record the MS card and port number that terminates the DS512 link to the SSLPP you are working on.</p> <p><b>Note:</b> In the example in step 14, the MS card number is 17 and the port number is 0.</p>
<b>16</b>	<p>Quit from table LIUINV by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>
<b>17</b>	<p>Access the MS level of the MAP display by typing</p> <p><b>&gt;MS</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>       Message Switch  Clock  Shelf  0      Inter-MS Link 0 1 MS 0      .          M Free  .          R R MS 1      S          Slave   C          C C </pre>
<b>-continued-</b>	

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX22 card for an FRIU in an SSLPP (continued)	
Step	Action
18	<p>Access the Card level of the MAP display by typing  <b>&gt;SHELF 0;CARD card_no;PORT port_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      card_no is the MS card number recorded in step 15                      port_no is the MS port number recorded in step 15</p> <p><i>Example of a MAP display:</i></p> <pre>                     Message Switch   Clock   Shelf 0       Inter-MS Link 0 1 MS 0      .                   M Free   .                   R R MS 1      S                   Slave     C                   C C  Shelf 0 Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 Chain MS 0      . . . . . - - - - - . . . . . MS 1      C C C C C - - - - - C C C C C C C C C C  Card 17   Port 00 FBus Tap: 0    4    8 MS 0      .           .           . . . . . MS 1      C           C   C           CC-- C--- C---</pre> <p><b>Note:</b> Codes under the F-bus header indicate the following:</p> <ul style="list-style-type: none"> <li>C indicates C-side busy</li> <li>S indicates a system-busy F-bus</li> <li>M indicates a manual-busy F-bus</li> <li>I indicates an in-service trouble F-bus</li> <li>. indicates an in-service F-bus</li> <li>O indicates an offline F-bus</li> </ul> <p>Codes under the F-bus tap numbers (0 to 11) indicate the following:</p> <ul style="list-style-type: none"> <li>C indicates C-side busy (the F-bus is manual busy or the controlling MS or MS port is system busy or manual busy)</li> <li>S indicates a system-busy tap</li> <li>M indicates a manual-busy tap</li> <li>I indicates an in-service trouble tap</li> <li>. indicates an in-service tap</li> <li>O indicates an offline tap</li> <li>- indicates an unequipped (spare) tap</li> </ul>
-continued-	

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b> (continued)																									
<b>Step</b>	<b>Action</b>																								
<b>19</b>	<p>Determine which F-bus tap is associated with the FRIU by typing <b>&gt;TRNSL 0</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <table border="1"> <thead> <tr> <th>Site</th> <th>Flr</th> <th>RPos</th> <th>Bay_id</th> <th>Shf</th> <th>Description</th> <th>Slot</th> <th>EqPEC</th> </tr> </thead> <tbody> <tr> <td>HOST</td> <td>01</td> <td>A00</td> <td>DPCC 0</td> <td>39</td> <td>MS 0:0:17</td> <td>23</td> <td>9X17AD FRNT</td> </tr> <tr> <td>HOST</td> <td>01</td> <td>A00</td> <td>DPCC 0</td> <td>39</td> <td>MS 0:0:17</td> <td>23</td> <td>9X62BA BACK</td> </tr> </tbody> </table> <p>FBus 0 Tap 0 is on FRIU 313 FBus 0 Tap 1 is on FRIU 314 FBus 0 Tap 4 is on FRIU 317 FBus 0 Tap 8 is on FRIU 318</p>	Site	Flr	RPos	Bay_id	Shf	Description	Slot	EqPEC	HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X17AD FRNT	HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X62BA BACK
Site	Flr	RPos	Bay_id	Shf	Description	Slot	EqPEC																		
HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X17AD FRNT																		
HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X62BA BACK																		
<b>20</b>	<p>Manually busy the FRIU tap on F-bus 0 by typing <b>&gt;BSY 0 TAP tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the tap (0 to 11) recorded in step 19</p> <p><i>Example of a MAP response:</i></p> <p>Request to MAN BUSY MS: 0 shelf: 0 card:17 port: 0 Tap: 0 submitted. Request to MAN BUSY MS: 0 shelf: 0 card:17 port: 0 Tap: 0 passed.</p>																								
<b>21</b>	<p>Manually busy the FRIU tap on F-bus 1 by typing <b>&gt;BSY 1 TAP tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the tap (0 to 11) recorded in step 19</p> <p><i>MAP response:</i></p> <p>Warning, P-side nodes may be isolated. Please confirm ("YES", "Y", "NO", or "N"):</p>																								
<b>22</b>	<p>Confirm the command by typing <b>&gt;YES</b> and pressing the Enter key.</p>																								
-continued-																									

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX22 card for an FRIU in an SSLPP (continued)							
Step	Action						
<b>At the SSLPP</b>							
	<p><b>WARNING</b>  <b>Static electricity damage</b>                      Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling cards. This protects the cards against damage caused by static electricity.</p>						
<b>23</b>	Locate the NTEX22 card associated with the FRIU you are working on.						
<b>24</b>	Replace the NTEX22 card by performing the procedure <i>Replacing a SuperNode card in Lines, Trunks, and Peripherals Card Replacement Procedures, 297-1001-589</i> . When you have completed the procedure, return to this point.						
<b>25</b>	<p>The next action depends on your reason for performing this procedure.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">If you were</th> <th style="text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>directed to this procedure from a maintenance procedure</td> <td>step 26</td> </tr> <tr> <td>not directed to this procedure from a maintenance procedure</td> <td>step 27</td> </tr> </tbody> </table>	If you were	Do	directed to this procedure from a maintenance procedure	step 26	not directed to this procedure from a maintenance procedure	step 27
If you were	Do						
directed to this procedure from a maintenance procedure	step 26						
not directed to this procedure from a maintenance procedure	step 27						
<b>26</b>	Return to the maintenance procedure that sent you to this procedure and continue as directed.						
-continued-							

**NTEX22** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b> (continued)									
<b>Step</b>	<b>Action</b>								
<i>At the MAP</i>									
<b>27</b>	<p>Return to service the first tap of the FRIU you are working on by typing <b>&gt;RTS 0 TAP tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the first FRIU tap that you recorded in step 19</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 29</td> </tr> <tr> <td>failed</td> <td>step 28</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 29	failed	step 28		
<b>If the RTS command</b>	<b>Do</b>								
passed	step 29								
failed	step 28								
<b>28</b>	Record the number of the tap. Give this information to personnel responsible for the next level of support, if required.								
<b>29</b>	<p>Return to service the second tap of the FRIU you are working on by typing <b>&gt;RTS 1 TAP tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the second FRIU tap that you recorded in step 19</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 30</td> </tr> <tr> <td>failed, and the first tap returned to service</td> <td>step 30</td> </tr> <tr> <td>failed, and the first tap did not return to service</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 30	failed, and the first tap returned to service	step 30	failed, and the first tap did not return to service	step 34
<b>If the RTS command</b>	<b>Do</b>								
passed	step 30								
failed, and the first tap returned to service	step 30								
failed, and the first tap did not return to service	step 34								
-continued-									

**NTEX22** (end)

for an FRIU in an SSLPP (end)

<b>Replacing an NTEX22 card for an FRIU in an SSLPP</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>30</b>	Access the PM level of the MAP display by typing <b>&gt;PM</b> and pressing the Enter key.						
<b>31</b>	Post the FRIU you are working on by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> friu_no is the number of the FRIU (0 to 500)						
<b>32</b>	Load the FRIU by typing <b>&gt;LOADPM</b> and pressing the Enter key.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the LOADPM command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 33</td> </tr> <tr> <td>failed</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 33	failed	step 34
<b>If the LOADPM command</b>	<b>Do</b>						
passed	step 33						
failed	step 34						
<b>33</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 35</td> </tr> <tr> <td>failed</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 35	failed	step 34
<b>If the RTS command</b>	<b>Do</b>						
passed	step 35						
failed	step 34						
<b>34</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>35</b>	You have completed this procedure.						
<b>End</b>							

---

**NTEX30**  
for an FRIU in an LPP link interface shelf

---

**Application**

Use this procedure to replace the following card in a frame relay interface unit (FRIU) in a link peripheral processor (LPP) link interface shelf (LIS).

PEC	Suffixes	Name
NTEX30	AA	T1 analog paddle board

**Common procedures**

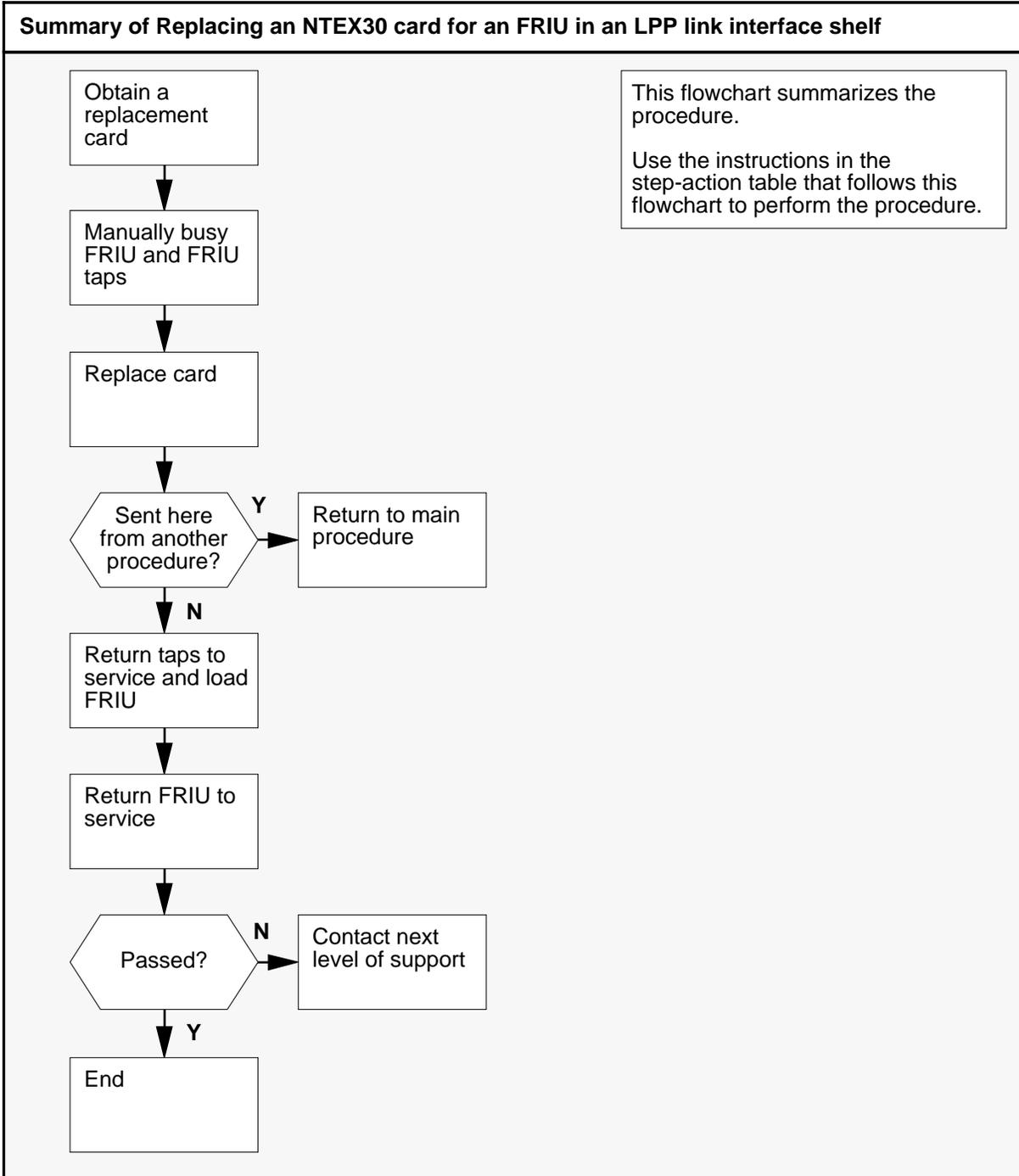
None

**Action**

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

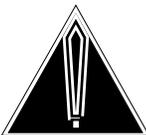
**NTEX30** (continued)

for an FRIU in an LPP link interface shelf (continued)



## NTEX30 (continued)

### for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX30 for an FRIU in an LPP link interface shelf</b>							
<b>Step</b>	<b>Action</b>						
	<div style="display: flex; align-items: center;">  <div> <p><b>CAUTION</b>  <b>Loss of service</b>            This procedure removes an FRIU from service and temporarily interrupts traffic on the associated access or trunking DS-1 channels. If you are replacing a card for an in-service FRIU, perform this procedure during a period of low traffic.</p> </div> </div>						
<b>1</b>	Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.						
<b>At the MAP</b>							
<b>2</b>	Ensure that the replacement card is compatible with the software load by typing <b>&gt;CHECKREL LIS pec release</b> and pressing the Enter key.  <i>where</i> pec                    is the PEC and suffix of the new card release                is the two-character code located on the faceplate of the replacement card  <i>Example input:</i> <b>&gt;CHECKREL LIS NTEX30AA 01</b>  <i>Example of a MAP response:</i> <pre>           PEC   BASELINE EXCEPT   RELEASE COMPATIBLE           NTEX30AA   02   None       01       *NO           Card release is below baseline.           Do not plug the card into the LIS.           </pre> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>If the replacement card is</b></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">compatible</td> <td style="padding: 5px;">step 6</td> </tr> <tr> <td style="padding: 5px;">not compatible</td> <td style="padding: 5px;">step 3</td> </tr> </tbody> </table>	<b>If the replacement card is</b>	<b>Do</b>	compatible	step 6	not compatible	step 3
<b>If the replacement card is</b>	<b>Do</b>						
compatible	step 6						
not compatible	step 3						
<b>-continued-</b>							

**NTEX30** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX30 for an FRIU in an LPP link interface shelf</b> (continued)															
<b>Step</b>	<b>Action</b>														
<b>3</b>	<p>From the MAP display, record the baseline release code (BASELINE) and any exception release codes (EXCEPT).</p> <p><b>Note:</b> The baseline release code is listed under the BASELINE header. The exception release code is listed under the EXCEPT header.</p>														
<b>4</b>	Determine which release codes are compatible with the software load in the switch.														
<b>5</b>	<p>Obtain a replacement card with a compatible release code. A compatible release code is one that is</p> <ul style="list-style-type: none"> <li>▪ greater than or equal to the baseline release code, and</li> <li>▪ not an exception release code</li> </ul> <p><b>Note:</b> The range of release codes in ascending order is 01 to 09, 0A to 0Z, and 10 to VZ.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If you</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>can obtain a compatible replacement card</td> <td>step 6</td> </tr> <tr> <td>cannot obtain a compatible replacement card</td> <td>step 32</td> </tr> </tbody> </table>	<b>If you</b>	<b>Do</b>	can obtain a compatible replacement card	step 6	cannot obtain a compatible replacement card	step 32								
<b>If you</b>	<b>Do</b>														
can obtain a compatible replacement card	step 6														
cannot obtain a compatible replacement card	step 32														
<b>6</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>1</td> <td>10</td> <td>12</td> <td>0</td> <td>6</td> <td>49</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	1	10	12	0	6	49
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	1	10	12	0	6	49									
-continued-															

**NTEX30** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX30 for an FRIU in an LPP link interface shelf</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>7</b>	<p>Post the FRIU that contains the NTEX30 card to be replaced by typing  <b>&gt;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the number of the FRIU (0 to 500)</p> <p><i>Example of a MAP display:</i>            FRIU 121 InSv</p>												
<b>8</b>	<p>Determine the state of the FRIU.</p> <p><b>Note:</b> The state of the FRIU is shown to the right of the FRIU number, as shown in the display in step 7.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>OffL</td> <td>step 32</td> </tr> <tr> <td>ManB</td> <td>step 13</td> </tr> <tr> <td>InSv or ISTb</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were directed to this procedure from a maintenance procedure</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were not directed to this procedure from a maintenance procedure</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	OffL	step 32	ManB	step 13	InSv or ISTb	step 12	anything else, and you were directed to this procedure from a maintenance procedure	step 12	anything else, and you were not directed to this procedure from a maintenance procedure	step 9
<b>If the state of the FRIU is</b>	<b>Do</b>												
OffL	step 32												
ManB	step 13												
InSv or ISTb	step 12												
anything else, and you were directed to this procedure from a maintenance procedure	step 12												
anything else, and you were not directed to this procedure from a maintenance procedure	step 9												
-continued-													

**NTEX30** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX30 for an FRIU in an LPP link interface shelf</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>9</b>	Consult with office personnel to determine if you should clear the alarm before replacing the NTEX30 card.  <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>clear the alarm</td> <td>step 10</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is not ManB (NA)</td> <td>step 12</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is ManB (NA)</td> <td>step 13</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	clear the alarm	step 10	continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12	continue replacing the card, and the state of the FRIU is ManB (NA)	step 13
<b>If you are instructed to</b>	<b>Do</b>								
clear the alarm	step 10								
continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12								
continue replacing the card, and the state of the FRIU is ManB (NA)	step 13								
<b>10</b>	Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.								
<b>11</b>	Consult with office personnel to determine if you should continue to replace the NTEX30 card.  <p><b>Note:</b> Inform office personnel of the fault that was cleared, and if any cards were changed in the process of clearing the alarm.</p> <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>continue replacing the card</td> <td>step 12</td> </tr> <tr> <td>stop replacing the card</td> <td>step 33</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	continue replacing the card	step 12	stop replacing the card	step 33		
<b>If you are instructed to</b>	<b>Do</b>								
continue replacing the card	step 12								
stop replacing the card	step 33								
<b>12</b>	Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.  <i>Example of a MAP response:</i> FRIU 121 BSY Passed								
-continued-									

**NTEX30** (continued)  
for an FRIU in an LPP link interface shelf (continued)

Replacing an NTEX30 for an FRIU in an LPP link interface shelf (continued)	
Step	Action
13	<p>Query the FRIU you are working on by typing</p> <p><b>&gt;QUERYPM</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre> FRIU FTA: 424B 1000 LIM: 0 Shelf: 1 Slot: 14 Default Load: F8X36CJ Running Load: F8X36CJ Carrier is currently InSv. Carrier Alarm: . LMS States: InSv InSv Auditing?: Yes Yes Msg Channels: Acc Acc TAPs: . . </pre>
14	<p>Record the number of the link interface module (LIM) associated with the FRIU you are working on.</p> <p><b>Note:</b> The LIM number is shown to the right of the word LIM on the third line of the display. In the example in step 13, the LIM number is 0.</p>
15	<p>Post the LIM associated with the FRIU you are working on by typing</p> <p><b>&gt;POST LIM lim_no</b> and pressing the Enter key.</p> <p>where lim_no is the number of the LIM recorded in step 14</p> <p><i>Example of a MAP display:</i></p> <pre> LIM 1 InSv Unit0: InSv Links_OOS Taps_OOS Unit1: InSv . . </pre>
-continued-	

**NTEX30** (continued)  
 for an FRIU in an LPP link interface shelf (continued)

Replacing an NTEX30 for an FRIU in an LPP link interface shelf (continued)	
Step	Action
16	<p>Access the F-bus level of the MAP display by typing  <b>&gt;FBUS</b>            and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>           Tap: 0   4   8   12  16  20  24  28  32 FBus0: InSv    .... FBus1: InSv    ....           </pre>
17	<p>Determine which F-bus tap is associated with the FRIU by typing  <b>&gt;TRNSL fbus_no</b>            and pressing the Enter key.</p> <p><i>where</i>  <b>fbus_no</b> is the number of one of the F-buses (0 or 1)</p> <p><b>Note:</b> The number of the F-bus tap associated with the FRIU is shown in the third column of the MAP display.</p> <p><i>Example of a MAP response:</i></p> <pre> LIM 0 FBus 0 Tap 0 is on  FRIU 121 LIM 0 FBus 0 Tap 1 is on  FRIU 122 LIM 0 FBus 0 Tap 2 is on  FRIU 123 LIM 0 FBus 0 Tap 3 is on  FRIU 124 LIM 0 FBus 0 Tap 4 is on  FRIU 125 MORE...           </pre>
18	<p>Manually busy the FRIU tap on F-bus 0 by typing  <b>&gt;BSY FBUS 0 tap_no FORCE</b>            and pressing the Enter key.</p> <p><i>where</i>  <b>tap_no</b> is the number of the tap recorded in step 17</p> <p><b>Note:</b> The state of the tap changes to M when you issue this command.</p>
-continued-	

## NTEX30 (continued)

### for an FRIU in an LPP link interface shelf (continued)

Replacing an NTEX30 for an FRIU in an LPP link interface shelf (continued)	
Step	Action
19	<p>Manually busy the FRIU tap on F-bus 1 by typing</p> <p><b>&gt;BSY FBUS 1 tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the tap recorded in step 17</p> <p><i>Example of a MAP response:</i></p> <pre>LIM 1 FBus 1 Tap 0 Busy requires confirmation because the following node may be isolated. FRIU 121 Please confirm ("YES", "Y", "NO", or "N"):</pre>
20	<p>Confirm the command by typing</p> <p><b>&gt;YES</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>Confirmed ... LIM 1 FBus 1 Tap 0 Busy initiated. LIM 1 FBus 1 Tap 0 Busy passed.</pre> <p><b>Note:</b> The state of the tap changes to "M" when you issue this command.</p>
<b>At the LPP</b>	
	<p><b>WARNING</b> <b>Static electricity damage</b></p> <p>Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling cards. This protects the cards against damage caused by static electricity.</p>
21	Locate the NTEX30 card associated with the FRIU you are working on.
22	Replace the NTEX30 card by performing the procedure <i>Replacing a SuperNode card</i> in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.
-continued-	

**NTEX30** (continued)  
 for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX30 for an FRIU in an LPP link interface shelf</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>23</b>	The next action depends on your reason for performing this procedure.						
	<table border="1"> <thead> <tr> <th><b>If you were</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>directed to this procedure from a maintenance procedure</td> <td>step 24</td> </tr> <tr> <td>not directed to this procedure from a maintenance procedure</td> <td>step 25</td> </tr> </tbody> </table>	<b>If you were</b>	<b>Do</b>	directed to this procedure from a maintenance procedure	step 24	not directed to this procedure from a maintenance procedure	step 25
<b>If you were</b>	<b>Do</b>						
directed to this procedure from a maintenance procedure	step 24						
not directed to this procedure from a maintenance procedure	step 25						
<b>24</b>	Return to the maintenance procedure that sent you to this procedure and continue as directed.						
<b>At the MAP</b>							
<b>25</b>	<p>Return the first tap to service for the FRIU you are working on by typing <b>&gt;RTS FBUS 0 tap_no</b> and pressing the Enter key.</p> <p><i>where</i>  <i>tap_no</i> is the number of the first FRIU tap that you recorded in step 17</p> <table border="1"> <thead> <tr> <th><b>If the RTS command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 27</td> </tr> <tr> <td>failed</td> <td>step 26</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 27	failed	step 26
<b>If the RTS command</b>	<b>Do</b>						
passed	step 27						
failed	step 26						
<b>26</b>	Record the number of the tap. Give this information to personnel responsible for the next level of support, if required.						
-continued-							

**NTEX30** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX30 for an FRIU in an LPP link interface shelf</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>27</b>	<p>Return the second tap to service for the FRIU you are working on by typing</p> <p><b>&gt;RTS FBUS 1 tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the second FRIU tap that you recorded in step 17</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 28</td> </tr> <tr> <td>failed, and the first tap returned to service</td> <td>step 28</td> </tr> <tr> <td>failed, and the first tap did not return to service</td> <td>step 32</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 28	failed, and the first tap returned to service	step 28	failed, and the first tap did not return to service	step 32
<b>If the RTS command</b>	<b>Do</b>								
passed	step 28								
failed, and the first tap returned to service	step 28								
failed, and the first tap did not return to service	step 32								
<b>28</b>	<p>Quit from the F-bus level of the MAP display by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>								
<b>29</b>	<p>Post the FRIU you are working on by typing</p> <p><b>&gt;POST FRIU FRIU_no</b> and pressing the Enter key.</p> <p><i>where</i> FRIU_no is the number of the FRIU (0 to 500)</p>								
<b>30</b>	<p>Load the FRIU by typing</p> <p><b>&gt;LOADPM</b> and pressing the Enter key.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the LOADPM command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 31</td> </tr> <tr> <td>failed</td> <td>step 32</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 31	failed	step 32		
<b>If the LOADPM command</b>	<b>Do</b>								
passed	step 31								
failed	step 32								
-continued-									

**NTEX30** (end)

for an FRIU in an LPP link interface shelf (end)

---

<b>Replacing an NTEX30 for an FRIU in an LPP link interface shelf</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>31</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1"><thead><tr><th><b>If the RTS command</b></th><th><b>Do</b></th></tr></thead><tbody><tr><td>passed</td><td>step 33</td></tr><tr><td>failed</td><td>step 32</td></tr></tbody></table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 33	failed	step 32
<b>If the RTS command</b>	<b>Do</b>						
passed	step 33						
failed	step 32						
<b>32</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>33</b>	You have completed this procedure.						
<b>End</b>							

---

**NTEX30**  
for an FRIU in an SSLPP

---

**Application**

Use this procedure to replace the following card for a frame relay interface unit (FRIU) installed in a single-shelf link peripheral processor (SSLPP).

PEC	Suffixes	Name
NTEX30	AA	T1 analog paddle board

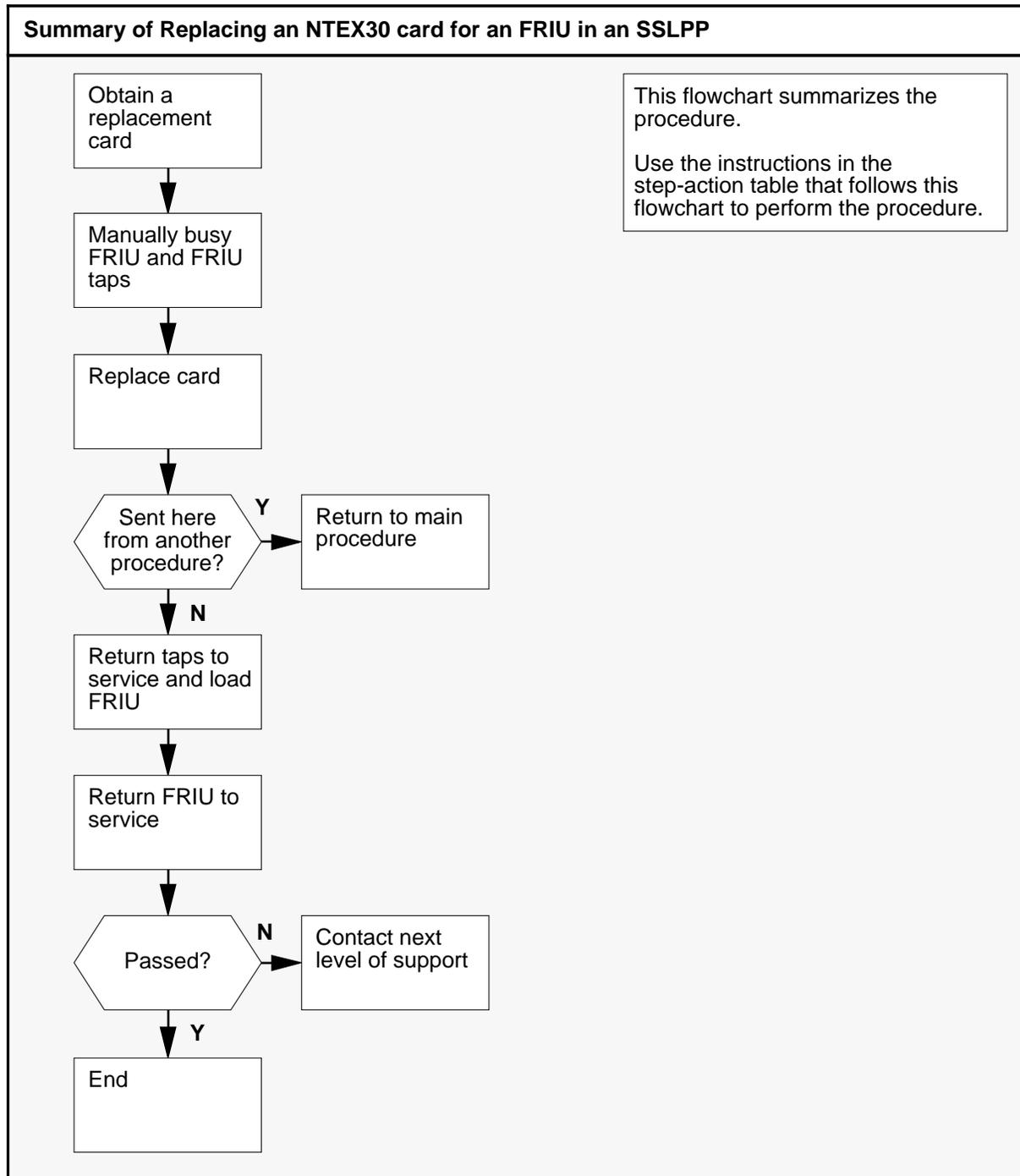
**Common procedures**

None

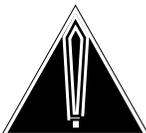
**Action**

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

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)



## NTEX30 (continued) for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX30 card for an FRIU in an SSLPP</b>							
<b>Step</b>	<b>Action</b>						
	<p><b>CAUTION</b> <b>Loss of service</b> This procedure removes an FRIU from service and temporarily interrupts traffic on the associated access or trunking DS-1 channels. If you are replacing a card for an in-service FRIU, perform this procedure during a period of low traffic.</p>						
<b>1</b>	<p>Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.</p>						
<b>At the MAP</b>							
<b>2</b>	<p>Ensure that the replacement card is compatible with the software load by typing</p> <p><b>&gt;CHECKREL LIS pec release</b> and pressing the Enter key.</p> <p><i>where</i> pec is the PEC and suffix of the new card release is the two-character code located on the faceplate of the replacement card</p> <p><i>Example input:</i> <b>&gt;CHECKREL LIS NTEX30AA 01</b></p> <p><i>Example of a MAP response:</i></p> <pre> PEC      BASELINE EXCEPT  RELEASE COMPATIBLE NTEX30AA  02      None      01      *NO Card release is below baseline. Do not plug the card into the LIS. </pre> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the replacement card is</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">compatible</td> <td style="border-bottom: 1px solid black;">step 6</td> </tr> <tr> <td>not compatible</td> <td>step 3</td> </tr> </tbody> </table>	<b>If the replacement card is</b>	<b>Do</b>	compatible	step 6	not compatible	step 3
<b>If the replacement card is</b>	<b>Do</b>						
compatible	step 6						
not compatible	step 3						
-continued-							

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX30 card for an FRIU in an SSLPP (continued)															
Step	Action														
3	<p>From the MAP display, record the baseline release code (BASELINE) and any exception release codes (EXCEPT).</p> <p><b>Note:</b> The baseline release code is listed under the BASELINE header. The exception release code is listed under the EXCEPT header.</p>														
4	Determine which release codes are compatible with the software load in the switch.														
5	<p>Obtain a replacement card with a compatible release code. A compatible release code is one that is</p> <ul style="list-style-type: none"> <li>▪ greater than or equal to the baseline release code, and</li> <li>▪ not an exception release code</li> </ul> <p><b>Note:</b> The range of release codes in ascending order is 01 to 09, 0A to 0Z, and 10 to VZ.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">If you</th> <th style="text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>can obtain a compatible replacement card</td> <td>step 6</td> </tr> <tr> <td>cannot obtain a compatible replacement card</td> <td>step 34</td> </tr> </tbody> </table>	If you	Do	can obtain a compatible replacement card	step 6	cannot obtain a compatible replacement card	step 34								
If you	Do														
can obtain a compatible replacement card	step 6														
cannot obtain a compatible replacement card	step 34														
6	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>1</td> <td>10</td> <td>12</td> <td>0</td> <td>6</td> <td>49</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	1	10	12	0	6	49
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	1	10	12	0	6	49									
-continued-															

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX30 card for an FRIU in an SSLPP</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>7</b>	<p>Post the FRIU that contains the NTEX30 card to be replaced by typing  <b>&gt;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the number of the FRIU (0 to 500)</p> <p><i>Example of a MAP display:</i></p> <pre>FRIU   121  InSv      Rsvd</pre>												
<b>8</b>	<p>Determine the state of the FRIU.</p> <p><b>Note:</b> The state of the FRIU is shown to the right of the FRIU number, as shown in the display in step 7.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>OffL</td> <td>step 34</td> </tr> <tr> <td>ManB</td> <td>step 13</td> </tr> <tr> <td>InSv or ISTb</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were directed to this procedure from a maintenance procedure</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were not directed to this procedure from a maintenance procedure</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	OffL	step 34	ManB	step 13	InSv or ISTb	step 12	anything else, and you were directed to this procedure from a maintenance procedure	step 12	anything else, and you were not directed to this procedure from a maintenance procedure	step 9
<b>If the state of the FRIU is</b>	<b>Do</b>												
OffL	step 34												
ManB	step 13												
InSv or ISTb	step 12												
anything else, and you were directed to this procedure from a maintenance procedure	step 12												
anything else, and you were not directed to this procedure from a maintenance procedure	step 9												
-continued-													

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX30 card for an FRIU in an SSLPP (continued)									
Step	Action								
9	Consult with office personnel to determine if you should clear the alarm before replacing the NTEX30 card.								
	<table border="1"> <thead> <tr> <th>If you are instructed to</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>clear the alarm</td> <td>step 10</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is not ManB (NA)</td> <td>step 12</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is ManB (NA)</td> <td>step 13</td> </tr> </tbody> </table>	If you are instructed to	Do	clear the alarm	step 10	continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12	continue replacing the card, and the state of the FRIU is ManB (NA)	step 13
	If you are instructed to	Do							
clear the alarm	step 10								
continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12								
continue replacing the card, and the state of the FRIU is ManB (NA)	step 13								
10	Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.								
11	Consult with office personnel to determine if you should continue to replace the NTEX30 card.								
	<b>Note:</b> Inform office personnel of the fault that was cleared, and if any cards were changed in the process of clearing the alarm.								
	<table border="1"> <thead> <tr> <th>If you are instructed to</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>continue replacing the card</td> <td>step 12</td> </tr> <tr> <td>stop replacing the card</td> <td>step 35</td> </tr> </tbody> </table>	If you are instructed to	Do	continue replacing the card	step 12	stop replacing the card	step 35		
If you are instructed to	Do								
continue replacing the card	step 12								
stop replacing the card	step 35								
12	Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.  <i>Example of a MAP response:</i> FRIU 121 BSY Passed								
-continued-									

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX30 card for an FRIU in an SSLPP (continued)	
Step	Action
13	<p>Access table LIUINV to determine the message switch (MS) card and port number associated with the FRIU by typing</p> <p><b>&gt;TABLE LIUINV</b> and pressing the Enter key.</p> <p><i>MAP response:</i> TABLE: LIUINV</p>
14	<p>Display the tuple for the FRIU you are working on by typing</p> <p><b>&gt;POS FRIU friu_no</b> and pressing the Enter key.</p> <p><i>where</i> fri_u_no is the number of FRIU (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre> TOP LIUNAME      LOCATION      LOAD      PROCINFO CARDINFO ----- FRIU 121     MS 17 0 1 12   F8X36CJ NTEX30BB NTEX30AA NTEX31AA   FBUS  56000  NIL </pre>
15	<p>Record the MS card and port number that terminates the DS512 link to the SSLPP you are working on.</p> <p><b>Note:</b> In the example in step 14, the MS card number is 17 and the port number is 0.</p>
16	<p>Quit from table LIUINV by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>
17	<p>Access the MS level of the MAP display by typing</p> <p><b>&gt;MS</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>       Message Switch  Clock  Shelf  0      Inter-MS Link 0 1 MS 0      .          M Free  .          R R MS 1      S          Slave   C          C C </pre>
-continued-	

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX30 card for an FRIU in an SSLPP (continued)	
Step	Action
18	<p>Access the Card level of the MAP display by typing  <b>&gt;SHELF 0;CARD card_no;PORT port_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      card_no is the MS card number recorded in step 15                      port_no is the MS port number recorded in step 15</p> <p><i>Example of a MAP display:</i></p> <pre>                     Message Switch   Clock   Shelf 0       Inter-MS Link 0 1 MS 0      .                   M Free   .                   R R MS 1      S                   Slave     C                   C C  Shelf 0 Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 Chain MS 0      . . . . . - - - - - . . . . . MS 1      C C C C C - - - - - C C C C C C C C C C  Card 17   Port 00 FBus Tap: 0    4    8 MS 0      .           .           . . . . . MS 1      C           C   C           CC-- C--- C---</pre> <p><b>Note:</b> Codes under the F-bus header indicate the following:</p> <ul style="list-style-type: none"> <li>C indicates C-side busy</li> <li>S indicates a system-busy F-bus</li> <li>M indicates a manual-busy F-bus</li> <li>I indicates an in-service trouble F-bus</li> <li>. indicates an in-service F-bus</li> <li>O indicates an offline F-bus</li> </ul> <p>Codes under the F-bus tap numbers (0 to 11) indicate the following:</p> <ul style="list-style-type: none"> <li>C indicates C-side busy (the F-bus is manual busy or the controlling MS or MS port is system busy or manual busy)</li> <li>S indicates a system-busy tap</li> <li>M indicates a manual-busy tap</li> <li>I indicates an in-service trouble tap</li> <li>. indicates an in-service tap</li> <li>O indicates an offline tap</li> <li>- indicates an unequipped (spare) tap.</li> </ul>
-continued-	

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX30 card for an FRIU in an SSLPP</b> (continued)																									
<b>Step</b>	<b>Action</b>																								
<b>19</b>	<p>Determine which F-bus tap is associated with the FRIU by typing <b>&gt;TRNSL 0</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <table border="1"> <thead> <tr> <th>Site</th> <th>Flr</th> <th>RPos</th> <th>Bay_id</th> <th>Shf</th> <th>Description</th> <th>Slot</th> <th>EqPEC</th> </tr> </thead> <tbody> <tr> <td>HOST</td> <td>01</td> <td>A00</td> <td>DPCC 0</td> <td>39</td> <td>MS 0:0:17</td> <td>23</td> <td>9X17AD FRNT</td> </tr> <tr> <td>HOST</td> <td>01</td> <td>A00</td> <td>DPCC 0</td> <td>39</td> <td>MS 0:0:17</td> <td>23</td> <td>9X62BA BACK</td> </tr> </tbody> </table> <p>FBus 0 Tap 0 is on FRIU 313 FBus 0 Tap 1 is on FRIU 314 FBus 0 Tap 4 is on FRIU 317 FBus 0 Tap 8 is on FRIU 318</p>	Site	Flr	RPos	Bay_id	Shf	Description	Slot	EqPEC	HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X17AD FRNT	HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X62BA BACK
Site	Flr	RPos	Bay_id	Shf	Description	Slot	EqPEC																		
HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X17AD FRNT																		
HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X62BA BACK																		
<b>20</b>	<p>Manually busy the FRIU tap on F-bus 0 by typing <b>&gt;BSY 0 TAP tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the tap (0 to 11) recorded in step 19</p> <p><i>Example of a MAP response:</i></p> <p>Request to MAN BUSY MS: 0 shelf: 0 card:17 port: 0 Tap: 0 submitted. Request to MAN BUSY MS: 0 shelf: 0 card:17 port: 0 Tap: 0 passed.</p>																								
<b>21</b>	<p>Manually busy the FRIU tap on F-bus 1 by typing <b>&gt;BSY 1 TAP tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the tap (0 to 11) recorded in step 19</p> <p><i>MAP response:</i></p> <p>Warning, P-side nodes may be isolated. Please confirm ("YES", "Y", "NO", or "N"):</p>																								
<b>22</b>	<p>Confirm the command by typing <b>&gt;YES</b> and pressing the Enter key.</p>																								
-continued-																									

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX30 card for an FRIU in an SSLPP (continued)							
Step	Action						
<b>At the SSLPP</b>							
	<p><b>WARNING</b>  <b>Static electricity damage</b>                      Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling cards. This protects the cards against damage caused by static electricity.</p>						
<b>23</b>	Locate the NTEX30 card associated with the FRIU you are working on.						
<b>24</b>	Replace the NTEX30 card by performing the procedure <i>Replacing a SuperNode card in Lines, Trunks, and Peripherals Card Replacement Procedures, 297-1001-589</i> . When you have completed the procedure, return to this point.						
<b>25</b>	<p>The next action depends on your reason for performing this procedure.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">If you were</th> <th style="text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>directed to this procedure from a maintenance procedure</td> <td>step 26</td> </tr> <tr> <td>not directed to this procedure from a maintenance procedure</td> <td>step 27</td> </tr> </tbody> </table>	If you were	Do	directed to this procedure from a maintenance procedure	step 26	not directed to this procedure from a maintenance procedure	step 27
If you were	Do						
directed to this procedure from a maintenance procedure	step 26						
not directed to this procedure from a maintenance procedure	step 27						
<b>26</b>	Return to the maintenance procedure that sent you to this procedure and continue as directed.						
-continued-							

**NTEX30** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX30 card for an FRIU in an SSLPP</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>At the MAP</b>									
<b>27</b>	<p>Return to service the first tap of the FRIU you are working on by typing <b>&gt;RTS 0 TAP tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the first FRIU tap that you identified in step 19</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 29</td> </tr> <tr> <td>failed</td> <td>step 28</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 29	failed	step 28		
<b>If the RTS command</b>	<b>Do</b>								
passed	step 29								
failed	step 28								
<b>28</b>	Record the number of the tap. Give this information to personnel responsible for the next level of support, if required.								
<b>29</b>	<p>Return to service the second tap of the FRIU you are working on by typing <b>&gt;RTS 1 TAP tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the second FRIU tap that you recorded in step 19</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 30</td> </tr> <tr> <td>failed, and the first tap returned to service</td> <td>step 30</td> </tr> <tr> <td>failed, and the first tap did not return to service</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 30	failed, and the first tap returned to service	step 30	failed, and the first tap did not return to service	step 34
<b>If the RTS command</b>	<b>Do</b>								
passed	step 30								
failed, and the first tap returned to service	step 30								
failed, and the first tap did not return to service	step 34								
-continued-									

**NTEX30** (end)

for an FRIU in an SSLPP (end)

<b>Replacing an NTEX30 card for an FRIU in an SSLPP</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>30</b>	Access the PM level of the MAP display by typing <b>&gt;PM</b> and pressing the Enter key.						
<b>31</b>	Post the FRIU you are working on by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> friu_no is the number of the FRIU (0 to 500)						
<b>32</b>	Load the FRIU by typing <b>&gt;LOADPM</b> and pressing the Enter key.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the LOADPM command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 33</td> </tr> <tr> <td>failed</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 33	failed	step 34
<b>If the LOADPM command</b>	<b>Do</b>						
passed	step 33						
failed	step 34						
<b>33</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 35</td> </tr> <tr> <td>failed</td> <td>step 34</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 35	failed	step 34
<b>If the RTS command</b>	<b>Do</b>						
passed	step 35						
failed	step 34						
<b>34</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>35</b>	You have completed this procedure.						
<b>End</b>							

---

**NTEX31**  
for an FRIU in an LPP link interface shelf

---

**Application**

Use this procedure to replace the following card in a frame relay interface unit (FRIU) in a link peripheral processor (LPP) link interface shelf (LIS).

PEC	Suffixes	Name
NTEX31	BA	Enhanced frame relay access processor circuit pack

**Common procedures**

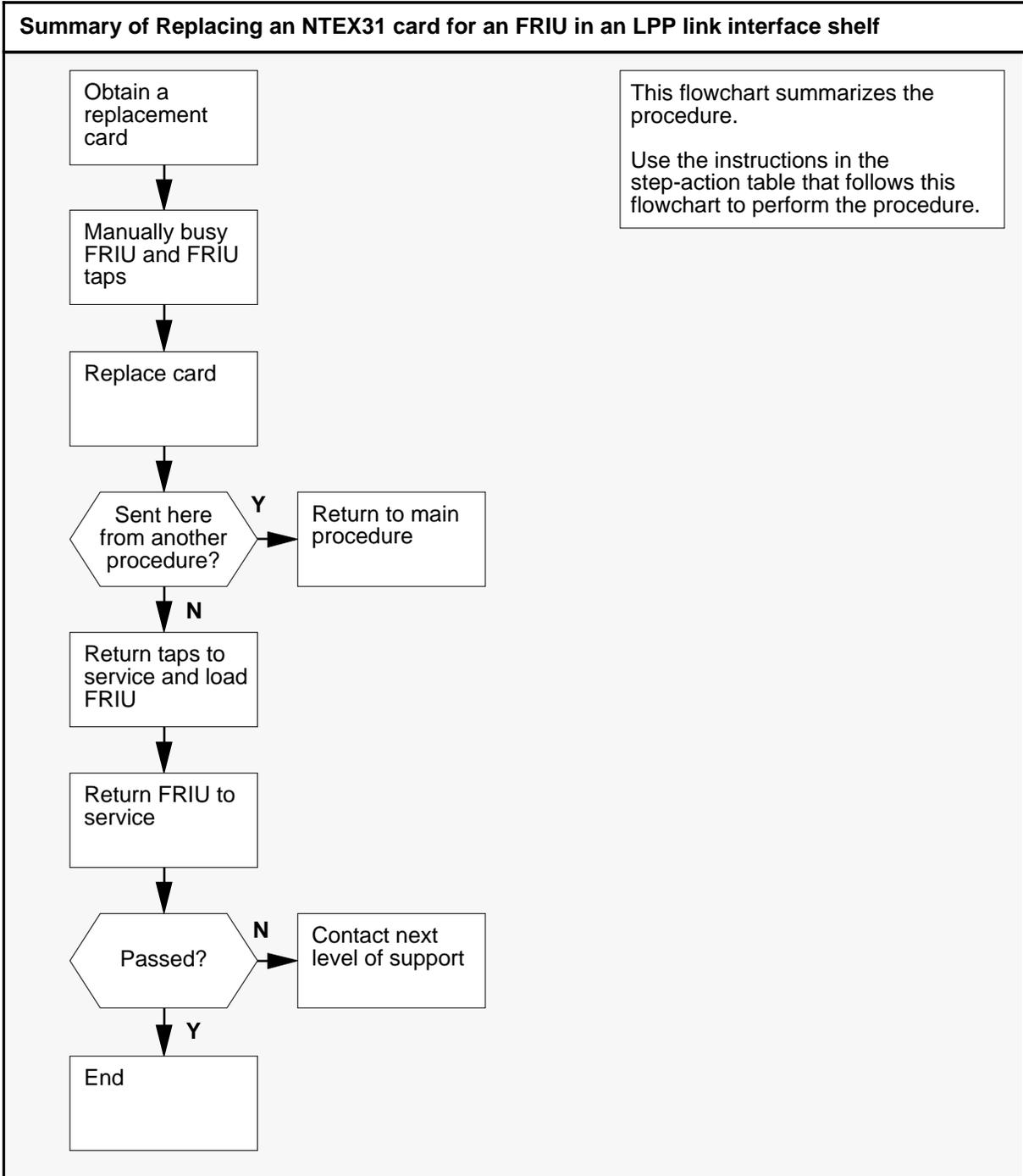
*Replacing a SuperNode card* is referenced in this procedure.

**Action**

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

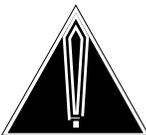
**NTEX31** (continued)

for an FRIU in an LPP link interface shelf (continued)



## NTEX31 (continued)

### for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf</b>							
<b>Step</b>	<b>Action</b>						
	<div style="display: flex; align-items: center;">  <div> <p><b>CAUTION</b>  <b>Loss of service</b>            This procedure removes an FRIU from service and temporarily interrupts traffic on the associated access or trunking DS-1 channels. If you are replacing a card for an in-service FRIU, perform this procedure during a period of low traffic.</p> </div> </div>						
<b>1</b>	Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.						
<b>At the MAP</b>							
<b>2</b>	Ensure that the replacement card is compatible with the software load by typing <b>&gt;CHECKREL LIS pec release</b> and pressing the Enter key.  <i>where</i> pec                    is the PEC and suffix of the new card release                is the two-character code located on the faceplate of the replacement card  <i>Example input:</i> <b>&gt;CHECKREL LIS NTEX31AA 01</b>  <i>Example of a MAP response:</i> <pre>           PEC   BASELINE EXCEPT   RELEASE COMPATIBLE           NTEX31AA   02   None       01       *NO           Card release is below baseline.           Do not plug the card into the LIS.</pre>						
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>If the replacement card is</b></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">compatible</td> <td style="padding: 5px;">step 6</td> </tr> <tr> <td style="padding: 5px;">not compatible</td> <td style="padding: 5px;">step 3</td> </tr> </tbody> </table>		<b>If the replacement card is</b>	<b>Do</b>	compatible	step 6	not compatible	step 3
<b>If the replacement card is</b>	<b>Do</b>						
compatible	step 6						
not compatible	step 3						
<b>-continued-</b>							

**NTEX31** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf</b> (continued)															
<b>Step</b>	<b>Action</b>														
<b>3</b>	<p>From the MAP display, record the baseline release code (BASELINE) and any exception release codes (EXCEPT).</p> <p><b>Note:</b> The baseline release code is listed under the BASELINE header. The exception release code is listed under the EXCEPT header.</p>														
<b>4</b>	Determine which release codes are compatible with the software load in the switch.														
<b>5</b>	<p>Obtain a replacement card with a compatible release code. A compatible release code is one that is</p> <ul style="list-style-type: none"> <li>▪ greater than or equal to the baseline release code, and</li> <li>▪ not an exception release code</li> </ul> <p><b>Note:</b> The range of release codes in ascending order is 01 to 09, 0A to 0Z, and 10 to VZ.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If you</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>can obtain a compatible replacement card</td> <td>step 6</td> </tr> <tr> <td>cannot obtain a compatible replacement card</td> <td>step 32</td> </tr> </tbody> </table>	<b>If you</b>	<b>Do</b>	can obtain a compatible replacement card	step 6	cannot obtain a compatible replacement card	step 32								
<b>If you</b>	<b>Do</b>														
can obtain a compatible replacement card	step 6														
cannot obtain a compatible replacement card	step 32														
<b>6</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>1</td> <td>10</td> <td>12</td> <td>0</td> <td>6</td> <td>49</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	1	10	12	0	6	49
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	1	10	12	0	6	49									
-continued-															

**NTEX31** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>7</b>	<p>Post the FRIU that contains the NTEX31 card to be replaced by typing  <b>&gt;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the number of the FRIU (0 to 500)</p> <p><i>Example of a MAP display:</i>            FRIU 121 InSv</p>												
<b>8</b>	<p>Determine the state of the FRIU.</p> <p><b>Note:</b> The state of the FRIU is shown to the right of the FRIU number, as shown in the display in step 7.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>OffL</td> <td>step 32</td> </tr> <tr> <td>ManB</td> <td>step 13</td> </tr> <tr> <td>InSv or ISTb</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were directed to this procedure from a maintenance procedure</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were not directed to this procedure from a maintenance procedure</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	OffL	step 32	ManB	step 13	InSv or ISTb	step 12	anything else, and you were directed to this procedure from a maintenance procedure	step 12	anything else, and you were not directed to this procedure from a maintenance procedure	step 9
<b>If the state of the FRIU is</b>	<b>Do</b>												
OffL	step 32												
ManB	step 13												
InSv or ISTb	step 12												
anything else, and you were directed to this procedure from a maintenance procedure	step 12												
anything else, and you were not directed to this procedure from a maintenance procedure	step 9												
-continued-													

**NTEX31** (continued)  
 for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>9</b>	<p>Consult with office personnel to determine if you should clear the alarm before replacing the NTEX31 card.</p> <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>clear the alarm</td> <td>step 10</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is not ManB (NA)</td> <td>step 12</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is ManB (NA)</td> <td>step 13</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	clear the alarm	step 10	continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12	continue replacing the card, and the state of the FRIU is ManB (NA)	step 13
<b>If you are instructed to</b>	<b>Do</b>								
clear the alarm	step 10								
continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12								
continue replacing the card, and the state of the FRIU is ManB (NA)	step 13								
<b>10</b>	<p>Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.</p>								
<b>11</b>	<p>Consult with office personnel to determine if you should continue to replace the NTEX31 card.</p> <p><b>Note:</b> Inform office personnel of the fault that was cleared, and if any cards were changed in the process of clearing the alarm.</p> <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>continue replacing the card</td> <td>step 12</td> </tr> <tr> <td>stop replacing the card</td> <td>step 33</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	continue replacing the card	step 12	stop replacing the card	step 33		
<b>If you are instructed to</b>	<b>Do</b>								
continue replacing the card	step 12								
stop replacing the card	step 33								
<b>12</b>	<p>Manually busy the FRIU by typing  <b>&gt;BSY FORCE</b>          and pressing the Enter key.</p> <p><i>Example of a MAP response:</i>          FRIU 121 BSY Passed</p>								
-continued-									

## NTEX31 (continued)

### for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf (continued)</b>	
<b>Step</b>	<b>Action</b>
<b>13</b>	<p>Query the FRIU you are working on by typing</p> <p><b>&gt;QUERYPM</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <pre style="margin-left: 20px;"> FRIU FTA: 424B 1000 LIM: 0 Shelf: 1 Slot: 14 Default Load: F8X36CJ Running Load: F8X36CJ Carrier is currently InSv. Carrier Alarm: . LMS States: InSv InSv Auditing?: Yes Yes Msg Channels: Acc Acc TAPs: . . </pre>
<b>14</b>	<p>Record the number of the link interface module (LIM) associated with the FRIU you are working on.</p> <p><b>Note:</b> The LIM number is shown to the right of the word LIM on the third line of the display. In the example in step 13, the LIM number is 0.</p>
<b>15</b>	<p>Post the LIM associated with the FRIU you are working on by typing</p> <p><b>&gt;POST LIM lim_no</b> and pressing the Enter key.</p> <p><i>where</i> lim_no is the number of the LIM recorded in step 14</p> <p><i>Example of a MAP display:</i></p> <pre style="margin-left: 20px;"> LIM 1 InSv Unit0: InSv Links_OOS Taps_OOS Unit1: InSv . . </pre>
<b>-continued-</b>	

**NTEX31** (continued)  
 for an FRIU in an LPP link interface shelf (continued)

Replacing an NTEX31 for an FRIU in an LPP link interface shelf (continued)	
Step	Action
16	<p>Access the F-bus level of the MAP display by typing  <b>&gt;FBUS</b>            and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>           Tap: 0   4   8   12  16  20  24  28  32 FBus0: InSv    .... FBus1: InSv    ....           </pre>
17	<p>Determine which F-bus tap is associated with the FRIU by typing  <b>&gt;TRNSL fbus_no</b>            and pressing the Enter key.</p> <p><i>where</i>  <b>fbus_no</b> is the number of one of the F-buses (0 or 1)</p> <p><b>Note:</b> The number of the F-bus tap associated with the FRIU is shown in the third column.</p> <p><i>Example of a MAP response:</i></p> <pre> LIM 0 FBus 0 Tap 0 is on  FRIU 121 LIM 0 FBus 0 Tap 1 is on  FRIU 122 LIM 0 FBus 0 Tap 2 is on  FRIU 123 LIM 0 FBus 0 Tap 3 is on  FRIU 124 LIM 0 FBus 0 Tap 4 is on  FRIU 125 MORE...           </pre>
18	<p>Manually busy the FRIU tap on F-bus 0 by typing  <b>&gt;BSY FBUS 0 tap_no FORCE</b>            and pressing the Enter key.</p> <p><i>where</i>  <b>tap_no</b> is the number of the tap recorded in step 17</p> <p><b>Note:</b> The state of the tap changes to M when you issue this command.</p>
-continued-	

## NTEX31 (continued)

### for an FRIU in an LPP link interface shelf (continued)

Replacing an NTEX31 for an FRIU in an LPP link interface shelf (continued)	
Step	Action
19	<p>Manually busy the FRIU tap on F-bus 1 by typing</p> <p><b>&gt;BSY FBUS 1 tap_no FORCE</b></p> <p>and pressing the Enter key.</p> <p><i>where</i></p> <p>tap_no        is the number of the tap recorded in step 17</p> <p><i>Example of a MAP response:</i></p> <pre>LIM 1 FBus 1 Tap 0 Busy requires confirmation because the following node may be isolated. FRIU 121 Please confirm ("YES", "Y", "NO", or "N"):</pre>
20	<p>Confirm the command by typing</p> <p><b>&gt;YES</b></p> <p>and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>Confirmed ... LIM 1 FBus 1 Tap 0 Busy initiated. LIM 1 FBus 1 Tap 0 Busy passed.</pre> <p><b>Note:</b> The state of the tap changes to M when you issue this command.</p>
<b>At the LPP</b>	
	<p><b>WARNING</b></p> <p><b>Static electricity damage</b></p> <p>Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling cards. This protects the cards against damage caused by static electricity.</p>
21	Locate the NTEX31 card associated with the FRIU you are working on.
22	Replace the NTEX31 card by performing the procedure <i>Replacing a SuperNode card</i> in <i>Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.
-continued-	

**NTEX31** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>23</b>	The next action depends on your reason for performing this procedure.  <table border="1"> <thead> <tr> <th><b>If you were</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>directed to this procedure from a maintenance procedure</td> <td>step 24</td> </tr> <tr> <td>not directed to this procedure from a maintenance procedure</td> <td>step 25</td> </tr> </tbody> </table>	<b>If you were</b>	<b>Do</b>	directed to this procedure from a maintenance procedure	step 24	not directed to this procedure from a maintenance procedure	step 25
<b>If you were</b>	<b>Do</b>						
directed to this procedure from a maintenance procedure	step 24						
not directed to this procedure from a maintenance procedure	step 25						
<b>24</b>	Return to the maintenance procedure that sent you to this procedure and continue as directed.						
<b>At the MAP</b>							
<b>25</b>	Return the first tap to service for the FRIU you are working on by typing <b>&gt;RTS FBUS 0 tap_no</b> and pressing the Enter key.  <i>where</i> tap_no is the number of the first FRIU tap that you recorded in step 17  <table border="1"> <thead> <tr> <th><b>If the RTS command</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 27</td> </tr> <tr> <td>failed</td> <td>step 26</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 27	failed	step 26
<b>If the RTS command</b>	<b>Do</b>						
passed	step 27						
failed	step 26						
<b>26</b>	Record the number of the tap. Give this information to personnel responsible for the next level of support, if required.						
-continued-							

**NTEX31** (continued)  
for an FRIU in an LPP link interface shelf (continued)

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>27</b>	<p>Return the second tap to service for the FRIU you are working on by typing</p> <p><b>&gt;RTS FBUS 1 tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the second FRIU tap that you recorded in step 17</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 28</td> </tr> <tr> <td>failed, and the first tap returned to service</td> <td>step 28</td> </tr> <tr> <td>failed, and the first tap did not return to service</td> <td>step 32</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 28	failed, and the first tap returned to service	step 28	failed, and the first tap did not return to service	step 32
<b>If the RTS command</b>	<b>Do</b>								
passed	step 28								
failed, and the first tap returned to service	step 28								
failed, and the first tap did not return to service	step 32								
<b>28</b>	<p>Quit from the F-bus level of the MAP display by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>								
<b>29</b>	<p>Post the FRIU you are working on by typing</p> <p><b>&gt;POST FRIU FRIU_no</b> and pressing the Enter key.</p> <p><i>where</i> FRIU_no is the number of the FRIU (0 to 500)</p>								
<b>30</b>	<p>Load the FRIU by typing</p> <p><b>&gt;LOADPM</b> and pressing the Enter key.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the LOADPM command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 31</td> </tr> <tr> <td>failed</td> <td>step 32</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 31	failed	step 32		
<b>If the LOADPM command</b>	<b>Do</b>								
passed	step 31								
failed	step 32								
-continued-									

**NTEX31** (end)

for an FRIU in an LPP link interface shelf (end)

---

<b>Replacing an NTEX31 for an FRIU in an LPP link interface shelf</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>31</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1"><thead><tr><th><b>If the RTS command</b></th><th><b>Do</b></th></tr></thead><tbody><tr><td>passed</td><td>step 33</td></tr><tr><td>failed</td><td>step 32</td></tr></tbody></table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 33	failed	step 32
<b>If the RTS command</b>	<b>Do</b>						
passed	step 33						
failed	step 32						
<b>32</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>33</b>	You have completed this procedure.						
<b>End</b>							

---

**NTEX31**  
for an FRIU in an SSLPP

---

**Application**

Use this procedure to replace the following card for a frame relay interface unit (FRIU) installed in a single-shelf link peripheral processor (SSLPP).

PEC	Suffixes	Name
NTEX31	BA	Enhanced frame relay access processor circuit pack

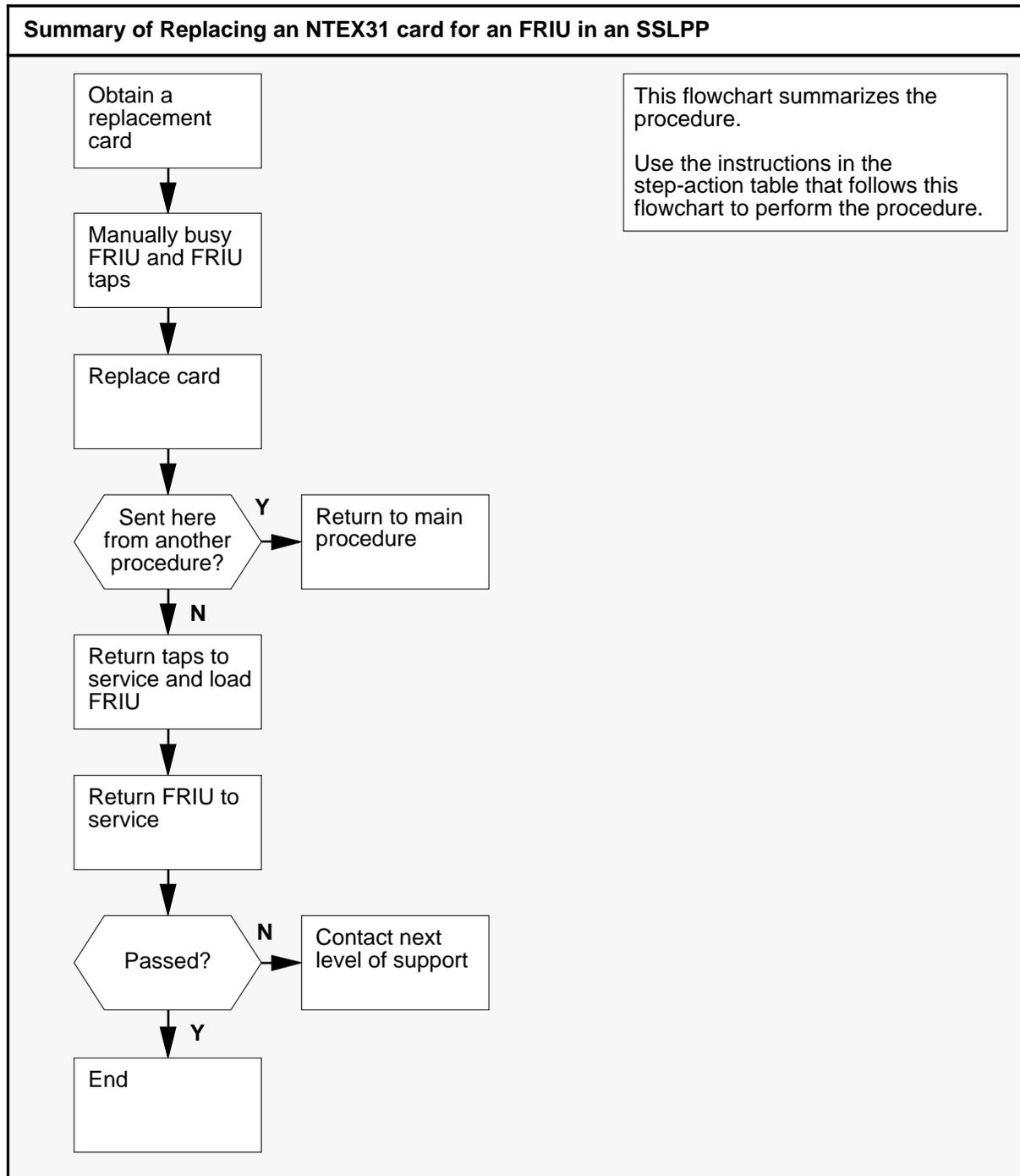
**Common procedures**

*Replacing a SuperNode card* is referenced in this procedure.

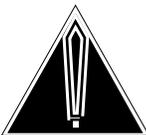
**Action**

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

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)



## NTEX31 (continued) for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX31 card for an FRIU in an SSLPP</b>							
<b>Step</b>	<b>Action</b>						
	<div style="display: flex; align-items: center;">  <div> <p><b>CAUTION</b> <b>Loss of service</b></p> <p>This procedure removes an FRIU from service and temporarily interrupts traffic on the associated access or trunking DS-1 channels. If you are replacing a card for an in-service FRIU, perform this procedure during a period of low traffic.</p> </div> </div>						
<b>1</b>	<p>Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.</p>						
<b>At the MAP</b>							
<b>2</b>	<p>Ensure that the replacement card is compatible with the software load by typing</p> <p><b>&gt;CHECKREL LIS pec release</b> and pressing the Enter key.</p> <p><i>where</i></p> <p>pec                    is the PEC and suffix of the new card release                is the two-character code located on the faceplate of the replacement card</p> <p><i>Example input:</i></p> <p><b>&gt;CHECKREL LIS NTEX31AA 01</b></p> <p><i>Example of a MAP response:</i></p> <pre> PEC      BASELINE EXCEPT  RELEASE COMPATIBLE NTEX31AA  02      None      01      *NO Card release is below baseline. Do not plug the card into the LIS. </pre> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>If the replacement card is</b></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 5px;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">compatible</td> <td style="padding: 5px;">step 6</td> </tr> <tr> <td style="padding: 5px;">not compatible</td> <td style="padding: 5px;">step 3</td> </tr> </tbody> </table>	<b>If the replacement card is</b>	<b>Do</b>	compatible	step 6	not compatible	step 3
<b>If the replacement card is</b>	<b>Do</b>						
compatible	step 6						
not compatible	step 3						
<b>-continued-</b>							

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX31 card for an FRIU in an SSLPP</b> (continued)															
<b>Step</b>	<b>Action</b>														
<b>3</b>	<p>From the MAP display, record the baseline release code (BASELINE) and any exception release codes (EXCEPT).</p> <p><b>Note:</b> The baseline release code is listed under the BASELINE header. The exception release code is listed under the EXCEPT header.</p>														
<b>4</b>	Determine which release codes are compatible with the software load in the switch.														
<b>5</b>	<p>Obtain a replacement card with a compatible release code. A compatible release code is one that is</p> <ul style="list-style-type: none"> <li>▪ greater than or equal to the baseline release code, and</li> <li>▪ not an exception release code</li> </ul> <p><b>Note:</b> The range of release codes in ascending order is 01 to 09, 0A to 0Z, and 10 to VZ.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If you</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>can obtain a compatible replacement card</td> <td>step 6</td> </tr> <tr> <td>cannot obtain a compatible replacement card</td> <td>step 33</td> </tr> </tbody> </table>	<b>If you</b>	<b>Do</b>	can obtain a compatible replacement card	step 6	cannot obtain a compatible replacement card	step 33								
<b>If you</b>	<b>Do</b>														
can obtain a compatible replacement card	step 6														
cannot obtain a compatible replacement card	step 33														
<b>6</b>	<p>Access the PM level of the MAP display by typing <b>&gt;MAPCI;MTC;PM</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>SysB</th> <th>ManB</th> <th>OffL</th> <th>CBsy</th> <th>ISTb</th> <th>InSv</th> </tr> </thead> <tbody> <tr> <td>PM</td> <td>1</td> <td>10</td> <td>12</td> <td>0</td> <td>6</td> <td>49</td> </tr> </tbody> </table>		SysB	ManB	OffL	CBsy	ISTb	InSv	PM	1	10	12	0	6	49
	SysB	ManB	OffL	CBsy	ISTb	InSv									
PM	1	10	12	0	6	49									
-continued-															

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX31 card for an FRIU in an SSLPP</b> (continued)													
<b>Step</b>	<b>Action</b>												
<b>7</b>	<p>Post the FRIU that contains the NTEX31 card to be replaced by typing  <b>&gt;POST FRIU friu_no</b>            and pressing the Enter key.</p> <p><i>where</i>            friu_no is the number of the FRIU (0 to 500)</p> <p><i>Example of a MAP display:</i></p> <pre>FRIU   121 InSv      Rsvd</pre>												
<b>8</b>	<p>Determine the state of the FRIU.</p> <p><b>Note:</b> The state of the FRIU is shown to the right of the FRIU number, as shown in the example MAP display in step 7.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the state of the FRIU is</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>OffL</td> <td>step 33</td> </tr> <tr> <td>ManB</td> <td>step 13</td> </tr> <tr> <td>InSv or ISTb</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were directed to this procedure from a maintenance procedure</td> <td>step 12</td> </tr> <tr> <td>anything else, and you were not directed to this procedure from a maintenance procedure</td> <td>step 9</td> </tr> </tbody> </table>	<b>If the state of the FRIU is</b>	<b>Do</b>	OffL	step 33	ManB	step 13	InSv or ISTb	step 12	anything else, and you were directed to this procedure from a maintenance procedure	step 12	anything else, and you were not directed to this procedure from a maintenance procedure	step 9
<b>If the state of the FRIU is</b>	<b>Do</b>												
OffL	step 33												
ManB	step 13												
InSv or ISTb	step 12												
anything else, and you were directed to this procedure from a maintenance procedure	step 12												
anything else, and you were not directed to this procedure from a maintenance procedure	step 9												
-continued-													

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX31 card for an FRIU in an SSLPP</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>9</b>	Consult with office personnel to determine if you should clear the alarm before replacing the NTEX31 card.								
	<table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>clear the alarm</td> <td>step 10</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is not ManB (NA)</td> <td>step 12</td> </tr> <tr> <td>continue replacing the card, and the state of the FRIU is ManB (NA)</td> <td>step 13</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	clear the alarm	step 10	continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12	continue replacing the card, and the state of the FRIU is ManB (NA)	step 13
<b>If you are instructed to</b>	<b>Do</b>								
clear the alarm	step 10								
continue replacing the card, and the state of the FRIU is not ManB (NA)	step 12								
continue replacing the card, and the state of the FRIU is ManB (NA)	step 13								
<b>10</b>	Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.								
<b>11</b>	Consult with office personnel to determine if you should continue to replace the NTEX31 card.								
	<p><b>Note:</b> Inform office personnel of the particulars of the alarm clearing activity, and if any cards were changed in the process of clearing the alarm.</p> <table border="1"> <thead> <tr> <th><b>If you are instructed to</b></th> <th><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>continue replacing the card</td> <td>step 12</td> </tr> <tr> <td>stop replacing the card</td> <td>step 34</td> </tr> </tbody> </table>	<b>If you are instructed to</b>	<b>Do</b>	continue replacing the card	step 12	stop replacing the card	step 34		
<b>If you are instructed to</b>	<b>Do</b>								
continue replacing the card	step 12								
stop replacing the card	step 34								
<b>12</b>	Manually busy the FRIU by typing <b>&gt;BSY FORCE</b> and pressing the Enter key.  <i>Example of a MAP response:</i> FRIU 121 BSY Passed								
-continued-									

## NTEX31 (continued) for an FRIU in an SSLPP (continued)

Replacing an NTEX31 card for an FRIU in an SSLPP (continued)	
Step	Action
13	<p>Access table LIUINV to determine the message switch (MS) card and port number associated with the FRIU by typing</p> <p><b>&gt;TABLE LIUINV</b> and pressing the Enter key.</p> <p><i>MAP response:</i> TABLE: LIUINV</p>
14	<p>Display the tuple for the FRIU you are working on by typing</p> <p><b>&gt;POS FRIU friu_no</b> and pressing the Enter key.</p> <p><i>where</i> friu_no is the number of FRIU (0 to 500)</p> <p><i>Example of a MAP response:</i></p> <pre> TOP LIUNAME      LOCATION      LOAD      PROCINFO CARDINFO ----- FRIU 121     MS 17 0 1 12   F8X36CJ NTEX31BB NTEX31AA NTEX31AA   FBUS  56000  NIL </pre>
15	<p>Record the MS card and port number that terminates the DS512 link to the SSLPP you are working on.</p> <p><b>Note:</b> In the example in step 14, the MS card number is 17 and the port number is 0.</p>
16	<p>Quit from table LIUINV by typing</p> <p><b>&gt;QUIT</b> and pressing the Enter key.</p>
17	<p>Access the MS level of the MAP display by typing</p> <p><b>&gt;MS</b> and pressing the Enter key.</p> <p><i>Example of a MAP display:</i></p> <pre>       Message Switch  Clock  Shelf  0      Inter-MS Link 0 1 MS 0      .          M Free  .          R R MS 1      S          Slave   C          C C </pre>
-continued-	

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX31 card for an FRIU in an SSLPP (continued)	
Step	Action
18	<p>Access the Card level of the MAP display by typing  <b>&gt;SHELF 0;CARD card_no;PORT port_no</b>                      and pressing the Enter key.</p> <p><i>where</i>                      card_no is the MS card number recorded in step 15                      port_no is the MS port number recorded in step 15</p> <p><i>Example of a MAP display:</i></p> <pre> Message Switch   Clock   Shelf 0       Inter-MS Link 0 1 MS 0             .       M Free       .               R R MS 1             S       Slave         C               C C  Shelf 0 Card 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 Chain MS 0             . . . . . - - - - - . . . . . MS 1             C C C C C - - - - - C C C C C C C C C C  Card 17  Port 00 FBus Tap: 0    4    8 MS 0             .       .       . . . . . MS 1             C       C   C       CC-- C--- C---</pre> <p><b>Note:</b> Codes under the F-bus header indicate the following:</p> <ul style="list-style-type: none"> <li>C indicates C-side busy</li> <li>S indicates a system-busy F-bus</li> <li>M indicates a manual-busy F-bus</li> <li>I indicates an in-service trouble F-bus</li> <li>. indicates an in-service F-bus</li> <li>O indicates an offline F-bus</li> </ul> <p>Codes under the F-bus tap numbers (0 to 11) indicate the following:</p> <ul style="list-style-type: none"> <li>C indicates C-side busy (the F-bus is manual busy or the controlling MS or MS port is system busy or manual busy)</li> <li>S indicates a system-busy tap</li> <li>M indicates a manual-busy tap</li> <li>I indicates an in-service trouble tap</li> <li>. indicates an in-service tap</li> <li>O indicates an offline tap</li> <li>- indicates an unequipped (spare) tap</li> </ul>
-continued-	

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX31 card for an FRIU in an SSLPP</b> (continued)																									
<b>Step</b>	<b>Action</b>																								
<b>19</b>	<p>Determine which F-bus tap is associated with the FRIU by typing <b>&gt;TRNSL 0</b> and pressing the Enter key.</p> <p><i>Example of a MAP response:</i></p> <table border="1"> <thead> <tr> <th>Site</th> <th>Flr</th> <th>RPos</th> <th>Bay_id</th> <th>Shf</th> <th>Description</th> <th>Slot</th> <th>EqPEC</th> </tr> </thead> <tbody> <tr> <td>HOST</td> <td>01</td> <td>A00</td> <td>DPCC 0</td> <td>39</td> <td>MS 0:0:17</td> <td>23</td> <td>9X17AD FRNT</td> </tr> <tr> <td>HOST</td> <td>01</td> <td>A00</td> <td>DPCC 0</td> <td>39</td> <td>MS 0:0:17</td> <td>23</td> <td>9X62BA BACK</td> </tr> </tbody> </table> <p>FBus 0 Tap 0 is on FRIU 313 FBus 0 Tap 1 is on FRIU 314 FBus 0 Tap 4 is on FRIU 317 FBus 0 Tap 8 is on FRIU 318</p>	Site	Flr	RPos	Bay_id	Shf	Description	Slot	EqPEC	HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X17AD FRNT	HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X62BA BACK
Site	Flr	RPos	Bay_id	Shf	Description	Slot	EqPEC																		
HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X17AD FRNT																		
HOST	01	A00	DPCC 0	39	MS 0:0:17	23	9X62BA BACK																		
<b>20</b>	<p>Manually busy the FRIU tap on F-bus 0 by typing <b>&gt;BSY 0 TAP tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the tap (0 to 11) recorded in step 19</p> <p><i>Example of a MAP response:</i></p> <p>Request to MAN BUSY MS: 0 shelf: 0 card:17 port: 0 Tap: 0 submitted. Request to MAN BUSY MS: 0 shelf: 0 card:17 port: 0 Tap: 0 passed.</p>																								
<b>21</b>	<p>Manually busy the FRIU tap on F-bus 1 by typing <b>&gt;BSY 1 TAP tap_no FORCE</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the tap (0 to 11) recorded in step 19</p> <p><i>MAP response:</i></p> <p>Warning, P-side nodes may be isolated. Please confirm ("YES", "Y", "NO", or "N"):</p>																								
<b>22</b>	<p>Confirm the command by typing <b>&gt;YES</b> and pressing the Enter key.</p>																								
-continued-																									

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)

Replacing an NTEX31 card for an FRIU in an SSLPP (continued)							
Step	Action						
<b>At the SSLPP</b>							
	<p><b>WARNING</b>  <b>Static electricity damage</b>                      Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling cards. This protects the cards against damage caused by static electricity.</p>						
<b>23</b>	Replace the NTEX31 card by performing the procedure <i>Replacing a SuperNode card in Lines, Trunks, and Peripherals Card Replacement Procedures</i> , 297-1001-589. When you have completed the procedure, return to this point.						
<b>24</b>	<p>The next action depends on your reason for performing this procedure.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">If you were</th> <th style="text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>directed to this procedure from a maintenance procedure</td> <td>step 25</td> </tr> <tr> <td>not directed to this procedure from a maintenance procedure</td> <td>step 26</td> </tr> </tbody> </table>	If you were	Do	directed to this procedure from a maintenance procedure	step 25	not directed to this procedure from a maintenance procedure	step 26
If you were	Do						
directed to this procedure from a maintenance procedure	step 25						
not directed to this procedure from a maintenance procedure	step 26						
<b>25</b>	Return to the maintenance procedure that sent you to this procedure and continue as directed.						
-continued-							

**NTEX31** (continued)  
for an FRIU in an SSLPP (continued)

<b>Replacing an NTEX31 card for an FRIU in an SSLPP</b> (continued)									
<b>Step</b>	<b>Action</b>								
<b>At the MAP</b>									
<b>26</b>	<p>Return to service the first tap of the FRIU you are working on by typing <b>&gt;RTS 0 TAP tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the first FRIU tap that you recorded in step 19</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the RTS command</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 28</td> </tr> <tr> <td>failed</td> <td>step 27</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 28	failed	step 27		
<b>If the RTS command</b>	<b>Do</b>								
passed	step 28								
failed	step 27								
<b>27</b>	Record the number of the tap. Give this information to personnel responsible for the next level of support, if required.								
<b>28</b>	<p>Return to service the second tap of the FRIU you are working on by typing <b>&gt;RTS 1 TAP tap_no</b> and pressing the Enter key.</p> <p><i>where</i> tap_no is the number of the second FRIU tap that you recorded in step 19</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><b>If the RTS command</b></th> <th style="text-align: left; border-bottom: 1px solid black;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 29</td> </tr> <tr> <td>failed, and the first tap returned to service</td> <td>step 29</td> </tr> <tr> <td>failed, and the first tap did not return to service</td> <td>step 33</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 29	failed, and the first tap returned to service	step 29	failed, and the first tap did not return to service	step 33
<b>If the RTS command</b>	<b>Do</b>								
passed	step 29								
failed, and the first tap returned to service	step 29								
failed, and the first tap did not return to service	step 33								
-continued-									

**NTEX31** (end)

for an FRIU in an SSLPP (end)

<b>Replacing an NTEX31 card for an FRIU in an SSLPP</b> (continued)							
<b>Step</b>	<b>Action</b>						
<b>29</b>	Access the PM level of the MAP display by typing <b>&gt;PM</b> and pressing the Enter key.						
<b>30</b>	Post the FRIU you are working on by typing <b>&gt;POST FRIU friu_no</b> and pressing the Enter key.  <i>where</i> friu_no is the number of the FRIU (0 to 500)						
<b>31</b>	Load the FRIU by typing <b>&gt;LOADPM</b> and pressing the Enter key.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the LOADPM command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 32</td> </tr> <tr> <td>failed</td> <td>step 33</td> </tr> </tbody> </table>	<b>If the LOADPM command</b>	<b>Do</b>	passed	step 32	failed	step 33
<b>If the LOADPM command</b>	<b>Do</b>						
passed	step 32						
failed	step 33						
<b>32</b>	Return the FRIU to service by typing <b>&gt;RTS</b> and pressing the Enter key.  <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><b>If the RTS command</b></th> <th style="text-align: left;"><b>Do</b></th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 34</td> </tr> <tr> <td>failed</td> <td>step 33</td> </tr> </tbody> </table>	<b>If the RTS command</b>	<b>Do</b>	passed	step 34	failed	step 33
<b>If the RTS command</b>	<b>Do</b>						
passed	step 34						
failed	step 33						
<b>33</b>	For further assistance, contact the personnel responsible for the next level of support.						
<b>34</b>	You have completed this procedure.						
<b>End</b>							

---

# Interpreting and responding to log reports

---

This chapter provides information on interpreting and responding to log reports, and describes the correlation between log reports and operational measurements (OM) in a DMS SuperNode equipped with DataSPAN. The following major topics are discussed:

**Index of DMS log reports** on page 6-2 lists the log reports that affect the DataSPAN feature package. The complete list can be found in the *Log Report Reference Manual*, 297-1001-840.

**OM to log report associations** on page 6-5 correlates the log messages and OMs that apply to the DataSPAN feature package. Although log messages and OMs are independent systems, they can be used as an aid to troubleshooting, and identifying prospective failures.

Log report listings begin on page 6-6. Note that these log reports are only a subset of the log reports with DDM, PM, or FRS prefixes.

## Index of DMS log reports

The following tables list log reports that are associated with DataSPAN. The reports are listed sequentially by their identifying number and contains their alarm class, an explanation, and where further information can be found in this chapter.

For all logs, refer to *Log Report Reference Manual*, 297-1001-840.

<b>Table 6-1xxx</b>			
<b>Index of DataSPAN associated AMAB log reports</b>			
<b>Log report number</b>	<b>Alarm class</b>	<b>Explanation</b>	<b>See</b>
AMAB120	no alarm	For information only. It is produced when an ISDN packet mode automatic message accounting (AMA) record is produced.	page 6-6

<b>Table 6-2xxx</b>			
<b>Index of DataSPAN associated DDM log reports</b>			
<b>Log report number</b>	<b>Alarm class</b>	<b>Explanation</b>	<b>See</b>
DDM100	no alarm	For information only. It is produced when the DDM has successfully transferred data to a PM.	page 6-7
DDM101	minor	An error log report.	page 6-8
DDM102	minor	An error log report.	page 6-9
DDM103	no alarm	For information only. It is produced when the DDM has successfully transferred a data table to a PM.	
DDM104	minor	An error log report.	page 6-11
DDM105	no alarm	For information only. It is produced when the DDM has successfully transferred data to a PM and the distributed data is available in the PM.	page 6-12
DDM106	minor	An error log report.	page 6-13
DDM107	minor	An error log report.	page 6-14

<b>Table 6-3xxx Index of DataSPAN associated FRS log reports</b>			
<b>Log report number</b>	<b>Alarm class</b>	<b>Explanation</b>	<b>See</b>
FRS101	no alarm	A change of state report for T1 trunks.	page 6-15
FRS110	no alarm	For information only. It is produced when there is no recording unit available when a frame relay billing record is generated.	page 6-16
FRS111	no alarm	For information only. It is produced when a counter for frame relay billing reaches the 90% threshold.	page 6-17
FRS121	minor alarm	The exchange of LMI messages has been interrupted or restored.	page 6-18
FRS181	no alarm	For information only. There was a mismatch between the connection information in the CM and an FRIU.	page 6-19
FRS201	no alarm	For information only. It is produced when billing data is totally or partially lost.	page 6-20
FRS301	no alarm	For information only. It is produced when automatic logical link connections are created or destroyed.	page 6-21

6-4 Interpreting and responding to log reports

<b>Table 6-4xxx Index of DataSPAN associated PM log reports</b>			
<b>Log report number</b>	<b>Alarm class</b>	<b>Explanation</b>	<b>See</b>
PM102	critical	An error log report.	page 6-23
PM103	no alarm	For information only. It is produced when a LIM or an FRIU is placed in the offline state.	page 6-24
PM104	no alarm	For information only. It is produced when a LIM or an FRIU is placed in the unequipped state.	page 6-25
PM105	major	An error log report.	page 6-26
PM106	no alarm	For information only. It is produced when a LIM or FRIU has been successfully returned to service (its status has been changed to in-service).	page 6-27
PM109	minor	An error log report.	page 6-28
PM110	no alarm	For information only. It is produced when preset limits have been reached. When the limits are exceeded, another log message will be generated that is associated with an alarm.	page 6-29
PM111	no alarm	For information only. It is produced when a DataSPAN associated alarm has been cleared.	page 6-30
PM128	minor	An error log report.	page 6-31
PM181	no alarm	An information log report.	page 6-32
PM182	major	An error log report.	page 6-33
PM183	major or critical	An error log report.	page 6-34
PM184	no alarm	For information only. It is produced when a LIM F-bus has been returned-to-service.	page 6-35

---

## OM to log report associations

Operational measurements (OM) can be used in conjunction with log reports to help identify fault conditions and to aid in diagnosis and recovery.

For more information on OMs, refer to *DMS SuperNode DataSPAN Frame Relay Service Administration Guide*, 297-5111-301.

The section below identifies OM groups that may be useful when responding to DataSPAN-associated log reports.

### PM102 log report

This log indicates that an FRIU or other peripheral module PM unit has gone into the system-busy state.

The FRSPM group OMs indicate the number of FRIU faults, and report on different aspects of FRIU loading and link integrity. Refer to FRSPM group OMs if log reports associated with PM102 do not provide enough information to troubleshoot the fault.

### PM105 log report

This log indicates an FRIU or other PM has been manually busied.

The reasons for manually busying an FRIU may be reflected in OMs of the FRSPM group. The FRSPM group OMs indicate the number of unit faults, different aspects of unit loading, and transmission integrity. If you are unsure why a particular FRIU was manually busied, refer to other maintenance personnel, office records, and FRSPM OMs.

### PM109 log report

This log indicates a failure of a T1 carrier.

The FRT1 group OMs indicate the integrity of T1 carriers carrying frame relay traffic. When a T1 carrier used for frame relay traffic fails, refer to the FRT1 group OMs for information on the nature of the failure, and the prior integrity of the carrier. This information can be helpful in diagnosing the cause of the failure, and the overall impact of the failure on FRS.

### PM128 log report

This log indicates an FRIU or other PM has gone into an in-service trouble state.

The FRSPM group OMs indicate the number of FRIU faults, and report on different aspects of FRIU loading and link integrity. If you are unsure why the FRIU has entered the in-service trouble state, refer to FRSPM group OMs.

## **AMAB120**

---

### **Seriousness**

This log report is for information only. It is not associated with an alarm.

### **Explanation**

An ISDN packet-mode automatic message accounting (AMA) record has been produced.

### **Action**

No action is required.

### **References**

Refer to table S in the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

The distributed data manager (DDM) subsystem for the switch has transferred data successfully to a peripheral module (PM).

**Action**

No action is required.

**References**

Refer to the *Log Report Reference Manual*, 297-1001-840.

## DDM101

---

### Seriousness

This log report is associated with a minor alarm.

### Explanation

The distributed data manager (DDM) subsystem has failed to transfer distributed data to a peripheral module (PM).

During a return to service (RTS) of a PM, the data transfer failure causes the RTS procedure to fail.

During a BCS upgrade, the log indicates that an in-service PM failed to receive a new table.

### Action

If the RTS procedure fails, report the problem to the personnel responsible for the next level of support.

If the log is generated during a BCS upgrade, leave the PM in service and return the PM to service during a low-traffic period.

### Reference

Refer to the PM alarm clearing procedures in this document. Refer also to *Lines, Trunks, and Peripherals Peripheral Modules Alarm Clearing and Performance Monitoring Procedures*, 297-1001-582, and to the *Log Report Reference Manual*, 297-1001-840.

**\Seriousness**

This log report is associated with a minor alarm.

**Explanation**

The distributed data manager (DDM) subsystem has failed to update the distributed data for a peripheral module (PM). The PM data is erroneous and PM applications can be degraded.

**Action**

Manually busy the PM and return it to service.

**Reference**

Refer to the PM alarm clearing procedures in this document. Refer also to *Lines, Trunks, and Peripherals Peripheral Modules Alarm Clearing and Performance Monitoring Procedures*, 297-1001-582, and to the *Log Report Reference Manual*, 297-1001-840.

## **DDM103**

---

### **Seriousness**

This log report is for information only. It is not associated with an alarm.

### **Explanation**

The distributed data manager (DDM) subsystem for the switch has transferred data successfully to a peripheral module (PM).

### **Action**

No action is required.

### **References**

Refer to Table S in the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is associated with a minor alarm.

**Explanation**

The distributed data manager (DDM) subsystem is unable to maintain distributed data for a peripheral module (PM). The PM has failed or the data manager cannot download a table. The PM is made system busy and an automatic return-to-service (RTS) procedure is attempted.

**Action**

An automatic RTS procedure can be monitored.

**Reference**

Refer to the PM alarm clearing procedures in this document. Refer also to *Lines, Trunks, and Peripherals Peripheral Modules Alarm Clearing and Performance Monitoring Procedures*, 297-1001-582, and to the *Log Report Reference Manual*, 297-1001-840.

## **DDM105**

---

### **Seriousness**

This log report is for information only. It is not associated with an alarm.

### **Explanation**

The distributed data manager (DDM) subsystem for the switch has transferred data successfully to a peripheral module (PM). Distributed data is now available at the PM node.

### **Action**

No action is required.

### **References**

Refer to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is associated with a minor alarm.

**Explanation**

An audit of the distributed data has failed. The log identifies the table that failed the audit.

**Action**

Consult the next level of support.

**Reference**

Refer to the PM alarm clearing procedures in this document. Refer also to *Lines, Trunks, and Peripherals Peripheral Modules Alarm and Performance Monitoring Procedures*, 297-1001-582, and to the *Log Report Reference Manual*, 297-1001-840.

## **DDM107**

---

### **Seriousness**

This log report is associated with a minor alarm.

### **Explanation**

An attempt to retrieve OM data has failed.

### **Action**

Consult the next level of support.

### **Reference**

Refer to the PM alarm clearing procedures in this document. Refer also to *Lines, Trunks, and Peripherals Peripheral Modules Alarm and Performance Monitoring Procedures*, 297-1001-582, and to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

The status of a T1 trunk has changed from busy (BSY) to in-service (INSV), or from INSV to BSY.

**Action**

If the trunk has gone from INSV to BSY, bring the trunk up again by returning to service (RTS) the carrier of the appropriate FRIU.

If the trunk has gone from BSY to INSV, no action is required.

**References**

Refer to the appropriate alarm clearing procedures in this document or to the *Log Report Reference Manual*, 297-1001-840.

## FRS110

---

### Seriousness

This log report is for information only. It is not associated with an alarm.

### Explanation

No recording unit is available when a frame relay billing record is generated. No billing data is lost because the billing record is generated when a recording unit is available.

### Action

Increase the office parameter recording units for the office.

### Reference

Refer to the *Office Parameter Reference Manual*, 297-1001-455.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

A counter for frame relay billing has reached the 90% threshold. No billing information is lost because a billing record is generated before the counter overflows.

**Action**

If this log report is generated frequently, change the interval value in table AGGREINT to a smaller number so that the length of the aggregation interval is shorter.

**Reference**

Refer to the *DMS SuperNode DataSPAN Frame Relay Service Administration Guide*, 297-5111-301.

## FRS121

---

### Seriousness

This log report is associated with a minor alarm.

### Explanation

A local management interface (LMI) connection between the FRIU and the destination equipment has been interrupted or restored.

### Action

Investigate the interruption. There may be a problem with the destination equipment.

### References

Refer to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

A periodic audit comparing the data in the CM and the FRIU has detected a mismatch. One of the following has occurred in the FRIU connection tables:

- a tuple has been added
- a tuple has been deleted
- a tuple has been modified

**Action**

No action is required. The connection information is corrected in the FRIU by the audit. If a mismatch occurs too often and there is a risk of impaired service, report the problem to the personnel responsible for the next level of support.

**References**

Refer to the *Log Report Reference Manual*, 297-1001-840.

## FRS201

---

### Seriousness

This log report is for information only. It is not associated with an alarm.

### Explanation

Billing data has been partially or totally lost for one of the following reasons:

- an FRIU was in the system-busy state
- an FRIU failed to upload billing data when it was put into the manual-busy state
- an FRIU failed to upload billing data during a normal retrieval sequence
- the billing counter is reset

### Action

No action is required.

### Reference

Refer to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

An automatic logical link connection (ALLC) has been created or destroyed. This could be the result of one of the following:

- deletion of a tuple in table FRSCNEND for the originating end of a call
- deletion of a tuple in table FRSCNEND for the receiving end of a call
- confirmation of creation of originator local access
- confirmation of creation of receiver local access
- incorrect datafill in table FRSCNEND

**Action**

No action is required if the reason for the log is one of the following:

- ESTABLISHED
- RELEASED
- CONFIRMED ORIGINATOR LOCAL-ACCESS CREATED
- CONFIRMED RECEIVER LOCAL-ACCESS CREATED
- ORIGINATING LOCAL END REMOVED
- RECEIVER LOCAL END REMOVED

Follow the recommended procedure if the reason for the log is one of those listed below:

- CALLED DN-DLCI NOT FOUND then check the datafill in table FRSCNEND at the called station's office, and in the local office.
- INCORRECT ROUTE TO CALLED DN then change the entry in field ROUTING in table FRSCNEND in the origination office to the correct trunk group CLI name.
- CALLED DN-DLCI ALREADY ASSIGNED then check tuples in table FRSCNEND at both the originating and destination offices, to make sure the DN-DLCI match.
- NO MORE DLCIS IN TRUNK GROUP FOR NEW CONNECTION then try again to establish the connection. If it fails a second time, look at the trunk group and see if any DLCIS remain. Obtain a new trunk group.
- FRSCNEND TBL ERR: UNABLE TO CHANGE STATUS TO CONF. The entry in field STATE cannot be changed manually from PENDING to CONFIRMED. Delete the tuple and add it again.

## **FRS301** (end)

---

- FRSCNEND TBL ERR: DELETED DN REFERENCED then manually update table FRSCNEND at the office containing the called DN, to remove the connection to the deleted DN.
- FRSCNEND TBL ERR: UNABLE TO ADD CONNECTION then call your next level of support.
- DN DOES NOT BELONG TO ANY CUSTOMER then make sure the DN is associated with a customer in table PVDNAGEN.
- CONNECTION CONFIRMED AT REMOTE BUT LOCALLY DELETED then manually remove the connection at the remote end.
- NO ACTIVE TRUNK MEMBER FOR SIGNALING IN TRK GRP then ensure that at least one trunk member is in service (or in-service trouble).

### **References**

Refer to the *DMS SuperNode DataSPAN Frame Relay Service Administration Guide*, 297-5111-301.

**Seriousness**

This log report is associated with a critical PM alarm.

**Explanation**

A peripheral module (PM) is system busy. For DataSPAN frame relay service, the PM is a frame relay interface unit.

**Action**

From the first line of the log, identify the PM that is system busy. Clear the alarm using the appropriate alarm clearing procedure.

**Reference**

Refer to the procedure *Clearing a PM FRIU critical alarm (on an LPP)* on page 2-7 in this document. Refer also to the *Log Report Reference Manual*, 297-1001-840.

## PM103

---

### Seriousness

This log report is for information only. It is not associated with an alarm.

### Explanation

A peripheral module (PM) has been placed offline. For DataSPAN frame relay service, the PM is a frame relay interface unit.

This log is also generated when an external node (EXND) peripheral is placed offline from the unequipped state.

### Action

No action is required.

### Reference

Refer to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

A peripheral module (PM) is manually changed from offline to unequipped. For DataSPAN frame relay service, the PM is a frame relay interface unit.

**Action**

No action is required.

**Reference**

Refer to the *Log Report Reference Manual*, 297-1001-840.

## PM105

---

### Seriousness

This log report is associated with a major PM alarm.

### Explanation

A peripheral module (PM) is manual busy. For DataSPAN frame relay service, the PM is a frame relay interface unit.

### Action

From the first line of the log report, identify the PM that is manual busy. When the maintenance action is complete, return the PM to service.

### Reference

Refer to the procedure *Clearing a PM FRIU major alarm (on an LPP)* on page 2-37 in this document. Refer also to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

A peripheral module (PM) is returned to service. For DataSPAN frame relay service, the PM is a frame relay interface unit.

**Action**

No action is required.

**Reference**

Refer to the *Log Report Reference Manual*, 297-1001-840.

## PM109

---

### Seriousness

This log report is associated with a minor alarm.

### Explanation

A T1 carrier line is made system busy (SysB).

### Action

If log PM106 is generated for less than two seconds, no action is required. If this log is generated for longer, perform maintenance on the T1 carrier.

### Reference

Refer to the appropriate alarm clearing chapters in this document if the log report is associated with DataSPAN FRS, or to the following:

- *Lines, Trunks, and Peripherals Peripheral Modules Alarm and Performance Monitoring Procedures*, 297-1001-582
- *Lines, Trunks, and Peripherals Card Replacement Procedures*, 297-1001-589
- *Log Report Reference Manual*, 297-1001-840

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

A service count threshold has been reached. Some function has been performed on a peripheral module.

**Action**

If the limit is cleared, no action is required. If the maintenance limit is set, perform facility maintenance. If an out-of-service limit is set, deload the trunks and perform facility maintenance.

**Reference**

Refer to the following:

- *Lines, Trunks, and Peripherals Peripheral Modules Alarm and Performance Monitoring Procedures, 297-1001-582*
- *Lines, Trunks, and Peripherals Card Replacement Procedures, 297-1001-589*
- *Log Report Reference Manual, 297-1001-840*

## PM111

---

### Seriousness

This log report is for information only. It is not associated with an alarm.

### Explanation

A peripheral module has been returned to service.

### Action

No action is required.

### Reference

Refer to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is associated with a minor PM alarm.

**Explanation**

A peripheral module (PM) is in-service trouble. For DataSPAN frame relay service, the PM is a frame relay interface unit.

**Action**

From the first line of the log, identify the PM that is in-service trouble. Clear the alarm using the appropriate procedure.

**Reference**

Refer to *Clearing a PM FRIU minor alarm (on an LPP)* on page 2-63 in this document. Refer also to *Lines, Trunks, and Peripherals Peripheral Modules Alarm and Performance Monitoring Procedures*, 297-1001-582, and to the *Log Report Reference Manual*, 297-1001-840.

## PM181

---

### Seriousness

This log report is associated with a critical PM alarm.

### Explanation

This log indicates one of the following:

- a CCS7 frame relay interface unit (FRIU) failure occurred
- a link interface module (LIM) failure occurred
- a LIM routine exercise (REx) test found faults in the LIM
- one or more F-bus taps changed to in-service trouble within the last 3 s

### Action

Check the first line of the PM181 log to determine which peripheral module (PM) has the problem. Look for other PM logs that indicate changes in the state of the link interface module (LIM) or the frame relay interface unit (FRIU). Check to see if a LIM or FRIU alarm exists.

**Note:** An in-service test (INSV TST) executed on the MS, LIM, or MTM will not generate this log.

If, after a return-to-service command, the PM does not change state, a no-change-of-state log may occur. This log will indicate that there are no LIM or FRIU alarms and that the PM181 log was probably generated by a transient fault and can be ignored.

If other logs indicating changes in state occurred, or if there are alarms, refer to the appropriate alarm-clearing procedure in this document and in *Lines, Trunks, and Peripherals Peripheral Alarm Clearing and Monitoring Procedures*, 297-1001-582. If PM181 logs provide a list of faulty cards to be replaced, replace the cards and retest the PM after each card replacement until the fault is cleared.

Because this log provides a list of faults, it may be useful when you are performing an alarm-clearing procedure.

### Reference

Refer to the procedure *Clearing a PM FRIU critical alarm (on an LPP)* on page 2-7 in this document. Refer also to *Lines, Trunks, and Peripherals Peripheral Alarm Clearing and Monitoring Procedures*, 297-1001-582, and to *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is associated with a major PM alarm.

**Explanation**

One or more LIM F-bus taps has changed states to manual busy in the last 3 s. You may be required to manually busy a LIM F-bus in order to perform maintenance tasks.

**Action**

Return the LIM F-bus to service when maintenance action is complete.

**Reference**

Refer to the procedure *Clearing a PM LIMF major alarm in Lines, Trunks, and Peripherals Peripheral Alarm Clearing and Monitoring Procedures*, 297-1001-582. Refer also to the *Log Report Reference Manual*, 297-1001-840.

## PM183

---

### Seriousness

This log report is associated with a critical or major PM alarm.

### Explanation

One or more LIM F-bus taps have changed state to system busy within the last 3 s. If the transition was from a non-system-busy state, the log was generated immediately.

### Action

From the first line of the log report, identify the system-busy LIM F-bus. Post the LIM that is associated with the system-busy F-bus, and access the F-bus MAP level.

### References

Refer to the procedure *Clearing a PM LIMF critical alarm in Lines, Trunks, and Peripherals Peripheral Alarm Clearing and Monitoring Procedures*, 297-1001-582, if both F-buses are system busy. Refer to the procedure *Clearing a PM LIMF major alarm in Lines, Trunks, and Peripherals Peripheral Alarm Clearing and Monitoring Procedures*, 297-1001-582 if only one F-bus is system busy. Refer also to the *Log Report Reference Manual*, 297-1001-840.

**Seriousness**

This log report is for information only. It is not associated with an alarm.

**Explanation**

A peripheral module (PM) has been returned to service. This log is also generated if one or more F-bus taps have returned to service within the last 3 s.

**Action**

No action is required.

**Reference**

Refer to the *Log Report Reference Manual*, 297-1001-840.



---

## List of terms

---

**A/B signaling**

This form of signaling allows supervision across a virtual data channel without the use of link management interface (LMI) functions.

**access channel**

A virtual channel connecting FRS endpoints. This channel can be 56 kbit/s, 64 kbit/s, 384 kbit/s, 1.344 Mbit/s, or 1.536 Mbit/s, depending on the DataSPAN software load, and the type and configuration of the channel.

**access connection**

A connection from the customer's CSU/DSU to the DataSPAN LPP.

**agent**

A tool for connection identification and administration. Each DataSPAN connection belongs to a link management agent that uniquely identifies the connection across the network.

**ALLC**

*See* automatic logical link connection.

**alternate mark inversion (AMI) signal**

A system for line transmission in which the mark condition of a coded signal is represented alternately by a positive and negative voltage of equal amplitude, and in which space is represented by zero amplitude.

**AMA**

*See* automatic message accounting.

**AMA billing**

*See* automatic message accounting.

**AMI**

*See* alternate mark inversion (AMI) signal.

**application-specific unit (ASU)**

A combination of hardware and software components that carries out a particular function on the signals carried on the channel buses (C-bus) and frame transport buses (F-bus) in a link peripheral processor (LPP). Examples of ASUs are frame relay interface units (FRIU), Ethernet interface units (EIU), CCS7 link interface units (LIU7), and network interface units (NIU).

**ASU**

*See* application-specific unit.

**automatic logical link connection (ALLC)**

A type of logical link connection which is established automatically by DataSPAN on request. To request an ALLC, only the endpoints of the connections need to be defined. *See* logical link connection (LLC) and permanent logical link connection (PLLC).

**automatic message accounting (AMA)**

An automatic recording system that documents all the necessary billing data of customer-dialed long distance calls.

**basic rate interface (BRI)**

A type of access to ISDN service provided by a set of time-division multiplexed digital channels of information, including two B-channels, one D-channel, and one or more maintenance channels, often described as 2B (channels) + D (channel). A BRI is typically used on lines between customer premises and a central office switch. *See also* B-channel, D-channel. Formerly known as basic rate access.

**Bb channel**

A 64-kbit/s channel carrying multiplexed B-channel data packets to the packet handler. Bb is pronounced "B sub-b." *See also* B-channel.

**B-channel**

A 64-kbit/s digital bidirectional channel used by ISDN for carrying either circuit-switched voice or data, or packet-switched data. *See also* Bb channel.

**BER**

*See* bit error rate.

**BERT**

*See* bit error rate test.

**bipolar violation (BpV)**

An error in the transmission of bipolar signals when two successive marks have the same polarity.

**bit error rate (BER)**

The number of received bits that are in error, relative to a specific number of bits received, expressed as a number and a power of 10.

**bit error rate test (BERT)**

A test that is used to measure the transmission quality of a loop. A BERT transmits a known bit pattern over a line and compares the reflected signal against the initial pattern.

**BpV**

*See* bipolar violation.

**BRA**

*See* basic rate interface (BRI).

**BRI**

*See* basic rate interface (BRI).

**burst**

- Interference with, or interruption of, a digital signal.
- Transmission of a packet of data.
- In data communications, a sequence of signals counted as a unit in accordance with a specific criterion or measure.

**byte multiplexing**

A form of time-division multiplexing in which the whole of a byte from one subchannel is sent as a unit, and bytes from other subchannels follow in successive time slots.

**call detail recording (CDR)**

A system that collects and records data on all calls processed by the DMS switch. Call detail recording information is stored on a recording device and used to compile studies on traffic and equipment service, division of revenue, engineering, and fraud.

**call processing (CP)**

The software that handles the processes involved in setting up connections through the DMS-100 Family network between calling and called parties.

**CB**

*See* channel bank (CB).

**C-bus**

*See* channel bus (C-bus).

**CCITT**

From the French for International Telegraph and Telephone Consultative Committee (Comité Consultatif International Télégraphique et Téléphonique). Until March 1993, the CCITT was one of four permanent groups within the International Telecommunication Union (ITU). The CCITT studied technical issues in telecommunication on an international basis, and issued recommendations intended to improve standardization and effectiveness within the industry. The work of the CCITT continues in the ITU Telecommunication Standardization Sector (ITU-T).

**CCITT recommendations**

A series of standards prepared by the CCITT that are called recommendations because they are advisory in nature and not obligatory. For example, ISDN standards are CCITT recommendations.

**CCS7**

*See* Common Channel Signalling System 7.

**CDR**

*See* call detail recording.

**CDR billing**

*See* call detail recording.

**central message controller (CMC)**

A hardware device, located in the central control complex (CCC) frame, that provides an interface between the CPU, network module controllers (NMC), and I/O controllers (IOC).

**central office (CO)**

A switching office (SO) arranged for terminating customer lines and provided with switching equipment and trunks for establishing connections to and from other SOs. Also known as local office. *See also* end office (EO), office classification.

**central processing unit (CPU)**

The hardware unit of a computing system that contains the circuits that control and perform the execution of instructions.

**central side (C-side)**

The side of a node that faces away from the peripheral modules (PM) and toward the central control (CC). Also known as control side. *See also* peripheral side (P-side).

**channel**

A vehicle for exchanging bits at a fixed rate with a customer.

**channel bank (CB)**

Communication equipment performing the operation of multiplexing. A channel bank is used typically for multiplexing voice grade channels.

**channel bus (C-bus)**

A proprietary Bell-Northern Research (BNR) duplicated 10-bit time division multiplexed bus running at 4 MHz. The C-bus interconnects network interface units (NIU) with link interface units (LIU).

**channelized T1**

A T1 carrier can carry a number of distinct virtual channels contained within the physical data stream. Channelized T1 provides up to 24 channels of 56 or 64 kbit/s each, multiplexed together onto the T1 carrier's 1.344-Mbit/s or 1.536-Mbit/s data stream.

**circuit**

The physical medium plus the electrical signals that carry one or more channels.

**CLLI**

*See* common language location identifier.

**CM**

*See* computing module.

**CMC**

*See* central message controller (CMC).

**CO**

*See* central office (CO).

**COI**

*See* community of interest (COI).

**Common Channel Signaling 7 (CCS7)**

A digital message-based network signaling standard, defined by the CCITT, that separates call signaling information from voice channels so that interoffice signaling is exchanged over a separate signaling link.

**common language location identifier (CLLI)**

A standard identification method for trunk groups in the following form:

aaaa bb xx yyyy

*where:*

aaaa is the city code  
bb is the province or state code  
xx is the trunk group identifier  
yyyy is the trunk number

*See also* short common language location identifier (SCLLI).

**community of interest (COI)**

A group of frame relay service clients who regularly establish connections with one another. This group is significant to the provisioning of network resources.

**computing module (CM)**

The processor and memory of the dual-plane combined core (DPCC) used by DMS SuperNode. Each CM consists of a pair of CPUs with associated memory that operate in a synchronous matched mode on two separate planes. Only one plane is active; it maintains overall control of the system while the other plane is on standby.

**core**

A packaged system in the DMS-100 Family switches consisting of the CPU, memory, and central message controller (CMC). The DMS-100 switch core also includes the input/output controller (IOC) and network module (NM). *See also* dual network packaged core (DNPC).

**CPE**

*See* customer premises equipment (CPE).

**CPU**

*See* central processing unit.

**CRC**

*See* cyclic redundancy check.

**C-side**

*See* central side (C-side).

**CSU/DSU**

*See* customer service/data service unit.

**customer premises equipment (CPE)**

Equipment, such as ISDN terminals, that is located on the customer's premises.

**customer service/data service unit (CSU/DSU)**

Provides an interface between the destination equipment and the DataSPAN frame relay service access channels.

**cyclic redundancy check (CRC)**

A method of detecting errors. Typically, a 16-bit check character is added to each data block based on a repeated examination of each information bit.

**DE-4**

DE-4 channel bank

**data communications processor (DCP)**

DMS-100 Family digital switch peripheral units which provide facilities for transmitting data through telephone networks. These are more commonly known as application-specific units (ASU).

**data link connection identifier (DLCI)**

A unique two-byte code included in each data packet. By identifying the logical connection to which the packet belongs, it lets many virtual channels share a single physical channel (for instance, a non-channelized T1).

**Datapath**

Northern Telecom's system for providing direct circuit-switched digital data transmission through a DMS switch over existing telephone networks. Datapath also provides connectivity to public and private networks. Datapath functions with industry-standard data terminal equipment (DTE) and applications, using T-link rate adaptation protocol for communication.

**DataSPAN**

The Northern Telecom product name for the NT implementation of the frame relay service.

**data terminal equipment (DTE)**

Any equipment that operates as an input/output terminating device. This includes video display units (VDU), printers, computers, and digital telephones.

**D-channel**

A channel that carries call control messages between a terminal on an ISDN interface and the exchange termination. Call control messages are used to set up, maintain, or clear a circuit-switched call on a B-channel. The D-channel also carries low-speed packet data between a terminal on an ISDN interface and a terminal in the packet data network. For BRI, the D-channel is a 16-kbit/s bidirectional channel. For PRI, the D-channel is a 64-kbit/s bidirectional channel. *See also* Bb channel, basic rate interface (BRI), and primary rate interface (PRI).

**DDS**

*See* digital data service.

**DDU**

*See* disk drive unit.

**dedicated T1 from a remote site**

A T1 circuit containing only frame relay customer access channels. They are permanent access channels and do not use A/B signaling. Typically they come from a DS-1 crossconnect which is multiplexing a number of DDS DSO channels onto a single T1 circuit terminating on the LPP.

**dedicated trunk**

A trunk that carries traffic for one station class only.

**digital data service (DDS)**

A private line service providing digital connectivity and data services.

**Digital Multiplex System (DMS)**

A central office switching system where all external signals are converted to digital data and stored in assigned time-slots. Switching is performed by a central control complex which re-assigns the original time slots.

**digital trunk controller (DTC)**

Links data channels on T1 circuits from remote peripherals and other offices to the DMS network. Conveys DataSPAN data from the DMS network to the LPP using T1s.

**directory number (DN)**

A number that uniquely identifies a telephone extension or telephone routing destination.

**disk drive unit (DDU)**

Consists of a disk drive and a power converter card installed in an I/O equipment frame.

**DLCI**

*See* data link connection identifier (DLCI).

**DMS**

*See* digital multiplex system (DMS).

**DMS-core**

The call management and system control component of the DMS SuperNode processor. The DMS-core portion consists of a computing module (CM) and a system load module (SLM).

**DN**

*See* directory number.

**DNPC**

*See* dual network packaged core (DNPC).

**double shelf network (DSN)**

A network with one network plane on a single shelf of a double shelf network equipment (DSNE) frame, permitting two complete networks for each plane in a single bay.

**double shelf network equipment (DSNE) frame**

A frame that packages one network plane on a single shelf, permitting two complete networks for each plane in a single bay.

**DPCC**

*See* dual plane combined core.

**DS-0**

Level 0 in the multiplexing hierarchy supporting a single 64-kbit/s channel.

**DS-1**

Level 1 in the multiplexing hierarchy (24 interleaved channels on T1).

**DS-1 cross connect**

A physical frame or cross connect in the CO for terminating DS-1 circuits.

**DS30**

A DMS proprietary full duplex internal messaging protocol and hardware interface.

**DS30A**

A 32-channel transmission link between the line concentrating module (LCM) and controllers in the DMS-100 Family switches. DS30A is similar to DS30, though intended for use over shorter distances.

**DS512 fiber link**

The fiber optic transmission link implemented in the DMS SuperNode processor. The DS512 is used for connecting the computing module (CM) to the message switch. One DS512 fiber link is the equivalent of 16 DS30 links.

**DSNE**

*See* double shelf network equipment (DSNE) frame.

**DSX-1**

A physical frame or cross-connect panel in the CO for terminating DS-1 circuits.

**DTC**

*See* digital trunk controller.

**DTE**

*See* data terminal equipment.

**dual network packaged core (DNPC)**

The basic element of the DMS-100 switch. The DNPC is a two-bay unit containing a central control complex (CCC) and two switching network modules (NM).

**dual-plane combined core (DPCC)**

One of the three cabinet models for the DMS SuperNode processor. The DPCC contains two message switches and a system load module (SLM).

**EMC**

*See* enhanced multipurpose cabinet (EMC)

**end office (EO)**

A switching office (SO) arranged for terminating customer lines and provided with trunks for establishing connections to and from other SOs. *See also* central office (CO), office classification.

**Enhanced multipurpose cabinet (EMC)**

A fiberized cabinet that houses up to two single shelf link peripheral processors. Up to 24 ASUs can be connected directly to the message switch (MS) without the need for the link interface module (LIM) or the local message switch (LMS).

**ESF**

*See* extended superframe format.

**extended superframe format (ESF)**

A DMS SuperNode configuration consisting of 24 consecutive DS-1 frames.

**F-bus**

*See* frame transport bus.

**F-bus tap**

*See* frame transport bus (F-bus) tap.

**FCS**

*See* frame check sequence.

**FIFO**

*See* first in, first out (FIFO).

**first in, first out (FIFO)**

An arrangement for handling calls in which the calls are queued in the order of their arrival. In combination with priority, calls are serviced in the order of their arrival by the agent who has been idle the longest.

**fractional channel**

A 384-kbit/s virtual channel connecting FRS endpoints.

**fractional T1 access**

A T1 carrier can carry a number of distinct virtual channels contained within the physical data stream. Fractional T1 provides up to 4 channels of 384 kbit/s each, multiplexed together onto the T1 carrier's 1.344-Mbit/s or 1.536-Mbit/s data stream.

**frame**

One complete cycle of events in time-division multiplexing. The frame usually includes a sequence of time slots for the various channels and extra bits, which are used, for example, for control or framing.

**frame check sequence (FCS)**

A 2-byte segment in a data packet, used to verify proper framing.

**frame relay access processor (FRAP)**

This is the circuit pack in the FRIU that provides support for FRS networking functions.

**frame relay frame capture tool**

A diagnostic tool that lets the operating company personnel capture and store frames passing through the FRIU. Captured frames are stored in the CM for later examination.

**frame relay interface unit (FRIU)**

The application-specific unit (ASU) for DataSPAN frame relay service. It provides the physical connection for T1 carriers at the LPP.

**frame relay service (FRS)**

The global term used to describe the system defined by the CCITT recommendation I.122.

**frame supervisory panel (FSP)**

A facility that accepts the frame battery feed and ground return from the power distribution center (PDC). The FSP distributes the battery feed, by means of subsidiary fuses and feeds, to the shelves of the bay in which it is mounted. The FSP also contains alarm circuits.

**frame transport bus (F-bus)**

An 8-bit bus that provides data communications between a link interface module (LIM) and the application-specific units (ASU) that are provisioned in a link peripheral processor (LPP) cabinet or frame. To ensure reliability, two load-sharing F-buses are provided in an LPP. Each F-bus is dedicated to one of the two LIM units.

**frame transport bus (F-bus) tap**

A facility that provides messaging access to a frame transport bus (F-bus). The tap is either part of the F-bus rate adapter card used by the link interface module (LIM) or is part of the frame relay interface unit (FRIU). *See also* frame transport bus (F-bus).

**framing**

Synchronization of the equipment at the receiving end of a time-division multiplex (TDM) channel so that it correctly recognizes the frame.

**FRAP**

*See* frame relay access processor.

**FRIU**

*See* frame relay interface unit.

**FRS**

*See* frame relay service.

**FSP**

*See* frame supervisory panel.

**HDLC**

*See* high-level data link control (HDLC).

**high level data link control (HDLC)**

The channel by which high-level control messages from the central control are carried between the digital carrier module (DCM) and remote line modules (RLM).

**high speed data unit (HSDU)**

DMS equipment that terminates a 56-kbit/s line.

**HSDU**

*See* high speed data unit.

**IEC**

*See* interexchange carrier.

**in-band signaling**

A signaling method in which signals are sent over the same transmission channel or circuit as the user's communication and in the same frequency band as that provided for the users. Some pay phones use in-band multifrequency tones to control coin collection and coin return.

**input/output controller (IOC)**

An equipment shelf that provides an interface between up to 36 I/O devices and the central message controller (CMC). The IOC contains a peripheral processor (PP) that independently performs local tasks, thus relieving the load on the CPU.

**Integrated processor and F-bus interface card.**

This card is used in application specific units as the link general processor and the dual F-bus interface. The processor maintains and operates the two F-bus interface controllers, as well as operating other on-board maintenance functions.

**integrated services digital network (ISDN)**

A set of standards proposed by the CCITT to establish compatibility between the telephone network and various data terminals and devices. ISDN is a communications network that provides access to voice, data, and imaging services from a single type of connector.

**interexchange carrier (IEC)**

Any carrier authorized to carry customer transmissions between local access and transport areas (LATA) interstate or intrastate.

**inter-LATA**

Telecommunication services, revenues, and functions that originate in one local access and transport area (LATA) and terminate either outside that LATA or inside another LATA.

**International Organization for Standardization (ISO)**

The organization responsible for creating a seven-layer protocol model for a data communications network.

**inter-nodal T1 data trunk**

A non-channelized T1 facility that transfers data on logical links between LPP on the same or different central offices. The trunk is a shared facility since it may carry data on logical links associated with different customers.

**intra-LATA**

Telecommunication services, revenues, and functions that originate in one local access and transport area (LATA) and terminate either outside that LATA or inside another LATA.

**IOC**

*See* input/output controller (IOC).

**IPF card**

Integrated processor and F-bus interface card.

**ISDN**

*See* integrated services digital network.

**ISDN line**

The physical part of a basic rate interface (BRI) that connects the terminals to the network termination (NT1 or NT2).

**ISO**

*See* International Organization for Standardization.

**LAN**

*See* local area network.

**LAPB**

*See* link access procedure balanced (LAPB).

**LAPD**

*See* link access procedure on the D-channel (LAPD).

**LATA**

*See* local access transport area.

**LCM**

*See* line concentrating module.

**LEC**

*See* local exchange carrier.

**LGC**

*See* line group controller.

**LIM**

*See* link interface module.

**line concentrating module (LCM)**

A peripheral module (PM) that connects the line trunk controller (LTC) or line group controller (LGC) and up to 640 customer lines using two to six DS30A links.

**line group controller (LGC)**

A peripheral module (PM) that connects DS30 links from the network to line concentrating modules (LCM).

**line trunk controller (LTC)**

A peripheral module (PM) that is a combination of the line group controller (LGC) and the digital trunk controller (DTC) and provides all the services offered by both. It supports line concentrating module (LCM) and AB trunks.

**link access procedure balanced (LAPB)**

An ISDN access protocol used with links established on a B-channel. LAPB supports a single data link that operates with a fixed single-byte address convention between the ISDN terminal and the network.

**link access procedure on the D-channel (LAPD)**

An ISDN access protocol used with links established on a D-channel.

**link access protocol for the B-channel**

A subset of the high-level data link control (HDLC) procedures. Link access protocol for the B-channel is used by the X.25 interface, and is the accepted protocol for ISDN-transmitted high-speed packet-switched data.

**link interface module (LIM)**

A peripheral module (PM) that controls messaging between link interface units (LIU) in a link peripheral processor (LPP). The LIM also controls messages between the LPP and the DMS-bus component. An LIM consists of two LIM units and two frame transport buses (F-bus). The two LIM units operate in a load-sharing mode with each other. *See also* frame transport bus (F-bus), link peripheral processor (LPP), and local message switch (LMS).

**link interface unit (LIU)**

A peripheral module (PM) that processes messages entering and leaving a link peripheral processor (LPP) through an individual signaling data link.

**link peripheral processor (LPP)**

A DMS SuperNode equipment frame. It provides the interface between the DMS-core and DMS-bus, and between the CCS7 signaling network and DataSPAN equipment. It contains a number of peripheral modules depending on its application. For frame relay applications, frame relay interface units (FRIU) are used in the LPP. *See* frame relay interface unit (FRIU).

**links from DMS remote**

Links from DMS remote are circuits using DMS proprietary signaling which permits a DATAPATH user, within 18 km of the remote office, to establish a switch channel to the LPP.

**LIU7**

*See* link interface unit.

**LLC**

*See* logical link connection.

**LMI**

*See* local management interface.

**LMS**

*See* local message switch.

**local access and transport area (LATA)**

A geographic area within which an operating company may offer telecommunications-related services. *See also* inter-LATA and intra-LATA.

**local area network (LAN)**

A network that permits the interconnection and intercommunication of multiple computers, primarily for the sharing of resources such as data storage devices and printers.

**local exchange carrier (LEC)**

Any carrier authorized to carry customer transmissions within a local access and transport areas (LATA).

**local management interface (LMI)**

A protocol that provides high-level communication between destination devices and the DataSPAN frame relay service.

**local message switch (LMS)**

A shelf in the link peripheral processor (LPP) frame or cabinet. The LMS exchanges messages between application-specific units (ASU) in the LPP and provides access to the DMS-bus. Also known as link interface module (LIM).

**LOF**

*See* loss of frame.

**logical link connection (LLC)**

A virtual data channel joining two data devices across a frame relay service. An LLC can share access channels and trunks with other logical link connections. Each logical link connection uses identifiers in data packets to establish and maintain effective connections across the network.

**LOS**

*See* loss of signal.

**loss of frame (LOF)**

Loss of frame occurs when the receiving end of a link can no longer identify valid frames in the incoming signal. It may or may not be associated with a loss of signal.

**loss of signal (LOS)**

Loss of signal occurs when the receiving end of a link can no longer detect a signal (alternating voltage) on the link.

**LPP**

*See* link peripheral processor.

**LTC**

*See* line trunk controller.

**magnetic tape drive (MTD)**

In a DMS switch, a device used to record DMS-100 Family data. An MTD can be mounted on either a magnetic tape center (MTC) frame or an input/output equipment (IOE) frame. Also known as tape drive.

**maintenance and administration position (MAP)**

A group of components that provide a user interface between operating company personnel and DMS-100 Family systems. A MAP consists of a visual display unit and keyboard, a voice communications module, test facilities, and MAP furniture.

**MAP**

*See* maintenance and administration position.

**message switch (MS)**

A high-capacity communications facility that functions as the messaging hub of the dual-plane combined core (DPCC) of a DMS SuperNode processor. The MS controls messaging between the DMS-bus components 18by concentrating and distributing messages and by allowing other DMS-STP components to communicate directly with each other.

**MS**

*See* message switch.

**MTD**

*See* magnetic tape drive.

**network (NET)**

1. An organization of stations capable of interconnection but not necessarily on the same channel. 2. Two or more interrelated circuits. 3. A combination of terminals and circuits in which transmission facilities interconnect user stations directly. 4. A combination of circuits and terminals serviced by a single switching or processing center. 5. An interconnected group of computers or terminals. 6. The NET module frame of the DMS-100 Family system.

**non-private data links**

FRS links between endpoints that belong to different FRS customers.

**NT-ACCESS**

Northern Telecom's online ordering and provisioning tool.

**OAM**

*See* operation, administrations, and maintenance.

**office classification**

One of a set of numbers assigned to offices according to their function in the North American direct distance dialing network. The class numbers used are as follows:

- class 1-regional center (RC)
- class 2-sectional center (SC)
- class 3-primary center (PC)
- class 4-toll center (TC) if operators present, otherwise toll point (TP)
- class 5-end office (EO)

**OM**

*See* operational measurements.

**Open Systems Interconnection (OSI)**

A seven-layer model for reliable transfer of information between intelligent nodes. Defined by the CCITT.

**operation, administration, and maintenance (OAM)**

All of the tasks necessary for providing, maintaining, or modifying the services provided by a switching system. These tasks include provisioning of hardware, creation of service, verification of new service, and trouble recognition and clearance.

**operational measurements (OM)**

The hardware and software resources of the DMS-100 Family systems that control the collection and display of measurements taken on an operating system. The OM subsystem organizes the measurement data and manages its transfer to displays and records. The OM data is used as a basis for maintenance, traffic, accounting, and provisioning decisions.

**OSI**

*See* Open Systems Interconnection.

**packet**

A group of binary digits, including data and call control signals, that is switched as a composite whole. Data, call control signals, and possible error control information are arranged in a specified format for transmission to the network.

**P-bus**

processor bus

**PCM**

*See* pulse code modulation.

**peripheral module (PM)**

A generic term referring to all hardware modules of DMS-100 Family systems that provide interfaces with external line, trunk, or service facilities. A PM contains peripheral processors, which perform local routines, thus relieving the load on the central processing unit.

**permanent logical link connection (PLLC)**

A type of logical link connection which maintains a permanent pathway across the frame relay service. *See* logical link connection (LLC) and automatic logical link connection (ALLC).

**permanent virtual circuit (PVC)**

A continuously available virtual path between remote applications and DMS applications. The PVC eliminates the need to establish a circuit on an each call basis.

**PLLC**

*See* permanent logical link connection.

**PM**

*See* peripheral module.

**PRI**

*See* primary rate interface (PRI).

**primary rate access (PRA)**

*See* primary rate interface (PRI).

**primary rate interface (PRI)**

An interface that carries nB+D channels over a digital DS-1 facility (23B+D in North America and 30B+D in Europe). PRI is used to link private networking facilities, such as private branch exchanges (PBX), local area networks (LAN), and host computers with a standardized architecture acting as the bridge between private switching equipment and the public network. Formerly known as primary rate access. *See also* B-channel, D-channel.

**private data links**

FRS links between endpoints that belong to a single FRS customer.

**processor F-bus interface (PFI)**

Processor F-Bus interface

**pulse code modulation (PCM)**

- The process used to convert an analog (voice waveform) signal to a digital code.
- A form of modulation in which the modulating signal is sampled, and the sample is quantified, coded, and sent as a bit stream.
- The representation of an analog waveform by coding and quantifying periodic samples of the signal such that each element of information consists of a binary number representing the value of the sample.

**PVC**

*See* permanent virtual circuit.

**remote terminal interface paddle board (RTIF)**

Provides an interface for terminals that are located far from the equipment frame. Terminals can be located in another room, another building or at the far end of a network connection.

**RTIF**

*See* remote terminal interface paddle board.

**SEAS**

*See* signaling, engineering and administration system.

**service switching point (SSP)**

A CCS7 signaling node that interacts with the SCP to implement special service code features.

**SES**

*See* severe errored seconds.

**severe errored seconds (SES)**

This is the number of seconds during which a carrier was in a state of severe failure. Frames were not being exchanged during periods of severe failure.

**short common language location identifier (SCLLI)**

The shortened version of the common language location identifier (CLLI), used in data tables to identify the physical transmission paths between offices.

**signaling, engineering and administration system (SEAS)**

A system that provides a single administrative center that uses network signaling transfer points (STP) to monitor and coordinate the elements of a Common Channel Signaling 7 (CCS7) network. The administration and engineering functions of the SEAS allow the operating company to process, store, and report traffic and performance data on a network-wide basis. This data can be used to evaluate network performance, to balance loads between STP nodes, and to perform other network management tasks.

**signaling point (SP)**

Any node in a CCS7 network that originates, terminates, or transfers signaling messages from one signaling link to another.

**signaling transfer point (STP)**

A node in a CCS7 network that routes messages between nodes. STPs transfer messages between incoming and outgoing signaling links but, with the exception of network management information, do not originate or terminate messages. STPs are deployed in pairs. If one STP fails, the mate takes over, ensuring that service continues without interruption.

**SLM**

*See* system load module.

**Single shelf link peripheral processor**

A link peripheral processor in which all application specific units (ASU) and interface components are provisioned on a single shelf and connected directly to the message switch using fiber optic cables. The SSLPP is installed in the enhanced multipurpose cabinet (EMC).

**SS7**

*See* Common Channel Signaling 7.

**SSLPP**

*See* single shelf link peripheral processor.

**statistical service**

A statistic service is one which generates a random or pseudo-random distribution of traffic on the bus or network, without requiring committed network resources on the part of the customer. With a statistical service, the customer is concerned only with average traffic levels, and not with traffic peaks.

**SP**

*See* signaling point.

**SSP**

*See* service switching point.

**STP**

*See* signaling transfer point.

**system load module (SLM)**

A mass storage system in a DMS SuperNode processor that stores office images. From the SLM, new loads or stored images can be booted into the computing module (CM).

**T1**

A telecommunications transmission standard for DS-1 rate.

**T1 carrier**

A digital transmission circuit carrying a bipolar 8-bit data stream at 1.536 Mbit/s. The eighth bit may not be used by all carrier applications. (Effective throughput using only 7 bits is 1.344 Mbit/s.)

**T1 frame**

A sequence of 193 bits (DS-1 frame) sent on a T1 line. One bit is framing and the rest is normally 24 channels of 8 bits of information.

**T-bus**

Transaction bus.

**T-link**

A full duplex byte-oriented adaptation protocol designed to transfer synchronous or asynchronous data over a digital circuit at digital trunk equipment (DTE) data rates of up to 64 kbit/s.

**transport**

The name of the fourth layer of the OSI architecture. The transport layer protocol is designed to run over any combination of the above sub-network technologies. It provides end to end data integrity.

**unchannelized T1 customer access**

A T1 circuit dedicated to one customer that is used to provide one frame relay channel operating at 1.536 Mbit/s terminating on the FRIU. The customer may be either in the local switch serving area or on a remote site.

**WAN**

*See* wide area network.

**wide area network (WAN)**

A data transport mechanism allowing communication between a number of computing and communications devices. A WAN typically serves devices which are located far from each other, and may be made up of a number of local area networks (LAN) linked by data channels and routers. *See* local area network (LAN).





DMS-100 Family

# DMS SuperNode DataSPAN Frame Relay Service

Maintenance Guide

© 1991, 1992, 1993, 1994, 1995 Northern Telecom  
All rights reserved.

**NORTHERN TELECOM CONFIDENTIAL:** The information contained in this document is the property of Northern Telecom. Except as specifically authorized in writing by Northern Telecom, the holder of this document shall keep the information contained herein confidential and shall protect same in whole or in part from disclosure and dissemination to third parties and use same for evaluation, operation, and maintenance purposes only.

Information is subject to change without notice. Northern Telecom reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This device complies with the Class "A" limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations.

DataSPAN, DMS, DMS SuperNode, MAP, and NT are trademarks of Northern Telecom. Datapath is a trademark used by Northern Telecom under licence. Ethernet is a trademark of Xerox Corporation. SEAS is a trademark of Bellcore.

Publication number: 297-5111-501  
Product release: BCS36 and up  
Document release: Standard 05.03  
Date: August 1995

Printed in the United States of America

