

Critical Release Notice

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The content of this customer NTP supports the
SN09 (DMS) software release.

Bookmarks used in this NTP highlight the changes between the NA015 baseline and the current release. The bookmarks provided are color-coded to identify release-specific content changes. NTP volumes that do not contain bookmarks indicate that the NA015 baseline remains unchanged and is valid for the current release.

Bookmark Color Legend

Black: Applies to content for the NA015 baseline that is valid through the current release.

Red: Applies to new or modified content for NA017 that is valid through the current release.

Blue: Applies to new or modified content for NA018 (SN05 DMS) that is valid through the current release.

Green: Applies to new or modified content for SN06 (DMS) that is valid through the current release.

Purple: Applies to new or modified content for SN07 (DMS) that is valid through the current release.

Pink: Applies to new or modified content for SN08 (DMS) that is valid through the current release.

Orange: Applies to new or modified content for SN09 (DMS) that is valid through the current release.

Attention!

Adobe® Acrobat® Reader™ 5.0 or higher is required to view bookmarks in color.

Publication History

Note: Refer to the NA015 baseline document for Publication History prior to the NA017 release.

September 2005

Preliminary release 17.01 or software release SN09 (DMS). Updates made for this release are shown below:

Volume 1

Corrected paragraph on page 4-36 according to CR Q01117454

Volume 2 - 4

No changes

March 2004

Standard release 16.03 for software release SN06 (DMS). Updates made for this release are shown below:

Volume 1

No changes

Volume 2

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Volume 3 - 4

No changes

September 2003

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Volume 1 - 4

No changes

June 2003

Preliminary release 16.01 for software release SN06 (DMS). Updates for this release are shown below:

Volume 1 - 4

No changes

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DMS-100 Family

North American DMS-100

Alarm Clearing and Performance Monitoring Procedures

Volume 3 of 4

LET0015 and up Standard 14.02 May 2001

DMS-100 Family

North American DMS-100

Alarm Clearing and Performance Monitoring Procedures

Volume 3 of 4

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1 Peripheral module alarm clearing procedures

Introduction

This chapter provides alarm clearing procedures for the peripheral module (PM). Peripheral module alarms appear under the PM header of the alarm banner in the MAP display. All procedures contain the following sections:

- Alarm display
- Indication
- Meaning
- Result
- Common procedures
- Action

Alarm display

This section indicates how the alarm appears at the MAP terminal.

Indication

This section indicates the location of the alarm indication, the design of the alarm, the affected subsystem, and the alarm severity.

Meaning

This section indicates the cause of the alarm.

Result

This section describes the results of the alarm condition.

Common procedures

This section lists common procedures that you follow during the alarm clearing procedure. A common procedure is a series of steps that repeats in maintenance procedures. The removal and replacement of a card are examples of a common procedure. The common procedures are in the common procedures chapter in this NTP.

1-2 Peripheral module alarm clearing procedures

Do not use common procedures unless the stepaction procedure directs you.

Action

This section provides a summary flowchart of the alarm clearing procedure. A detailed step-action procedure follows the flowchart.

PM 1SPM CLKOOS SPM major

Alarm banner

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

Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

Meaning

The clock out-of-synchronization (CLKOOS) alarm generates when the synchronization circuitry cannot meet the standard performance specifications for its application.

This usually happens under three different circumstances: when the message switch (MS) clock is not synchronized, when a SONET synchronization reference (OC3) of acceptable quality is not available, or when the DMS-SPM loses frequency traceability between the MS clock and the OC3.

The SPM334 log relates to the CLKOOS alarm.

Table MNCKTPAK contains the datafill related to the CLKOOS alarm.

Impact

Service degradations may occur at downstream equipment using DS1 carriers dropped out of the OC3 payload originating in the SPM raising the CLKOOS alarm. Prompt actions should be taken to resolve the CLKOOS condition.

Common procedures

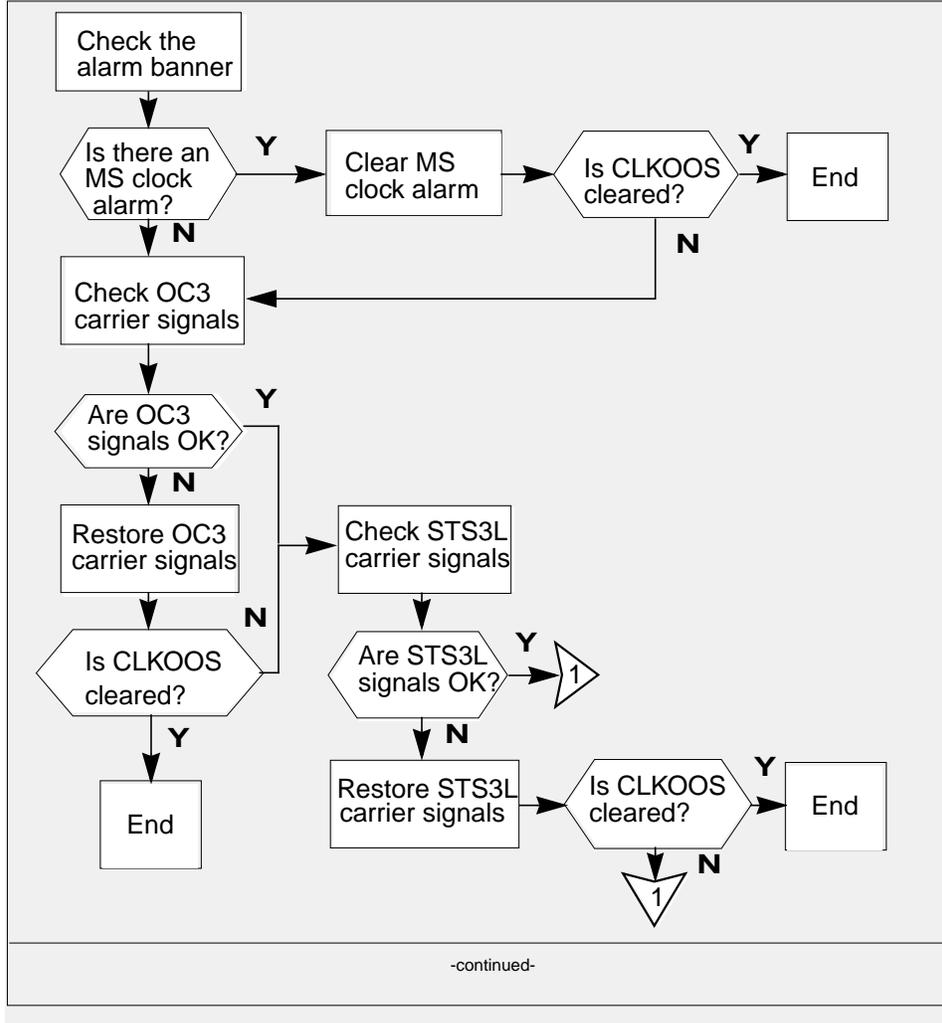
See "Accessing SPM alarms."

Action

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

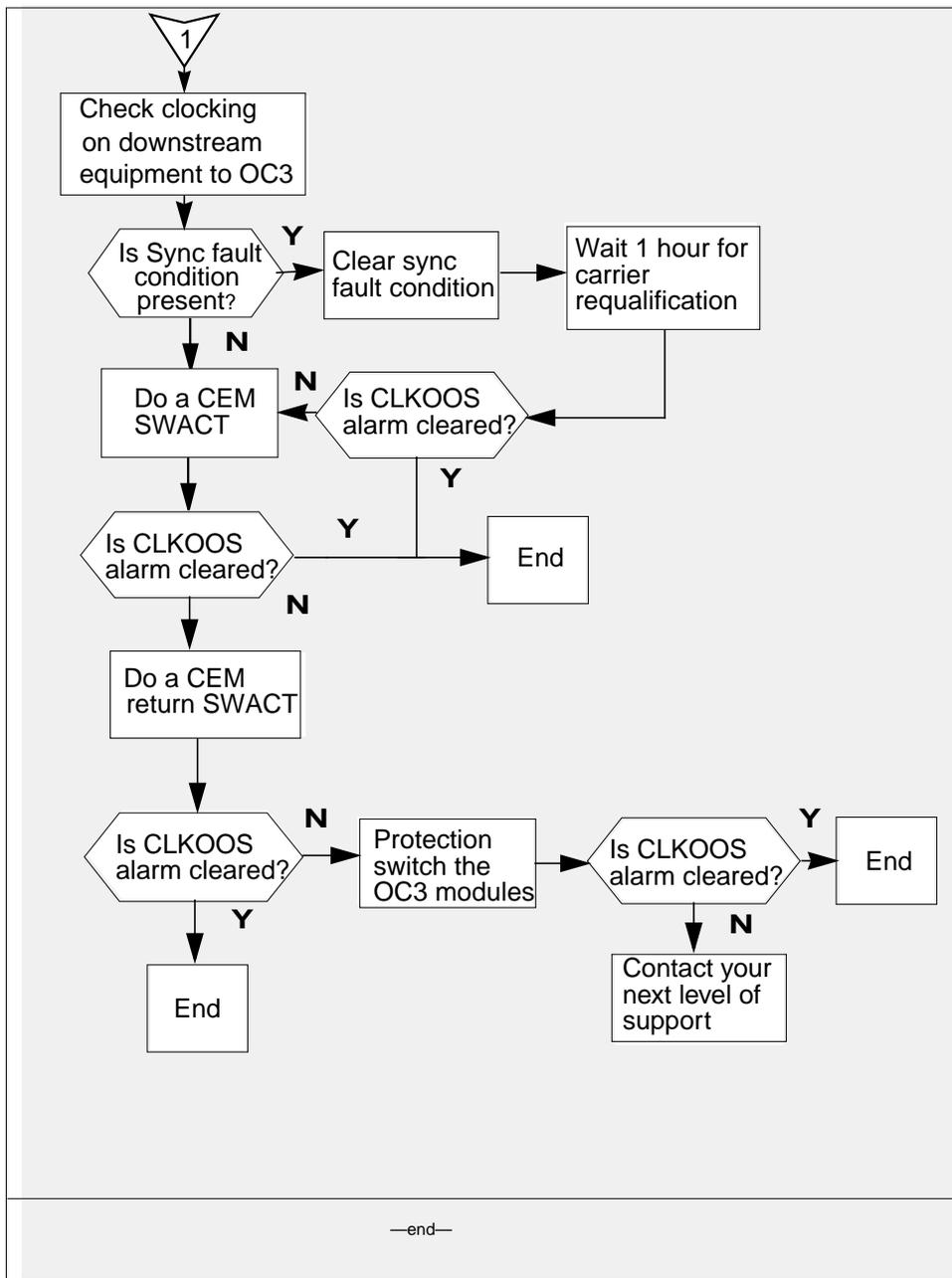
PM 1SPM CLKOOS SPM major (continued)

Summary of clearing a CLKOOS alarm



Summary of clearing a CLKOOS alarm (continued)

**PM 1SPM CLKOOS SPM
major (continued)**



PM 1SPM CLKOOS SPM major (continued)

Clearing a CLKOOS alarm

At the MAP terminal

- 1 Access the PM level of the map screen by typing
>MAPCI ;MTC ;PM
 and pressing the Enter key.

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	1	1	3	2	12

- 2 Display all the inservice-trouble (ISTb) SPMs by typing
>DISP STATE ISTb SPM
 and pressing the enter key.
- 3 Post each ISTb SPM by typing
>POST SPM spm_no
 and pressing the Enter key.

where

spm_no
 is the number of the SPM (0 to 63)

Example of a MAP screen:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	7	2	2	2	9	16
SPM	0	2	1	0	1	0


```
SPM 11 ISTb Loc: Site HOST Floor 1 Row A FrPos 13
```

Shlf0	SL	A	Stat	Shlf0	SL	A	Stat	Shlf1	SL	A	Stat	Shlf1	SL	A	Stat		
-----	1	-	----	CEM	1	8	I	SysB	-----	1	-	----	-----	8	-	----	
-----	2	-	----	OC3	0	9	A	----	-----	2	-	----	-----	9	-	----	
DSP	3	3	I	OffL	OC3	1	10	I	----	-----	3	-	----	-----	10	-	----
-----	4	-	----	-----	11	-	----	-----	-----	4	-	----	-----	11	-	----	
-----	5	-	----	DSP12	12	A	----	-----	-----	5	-	----	-----	12	-	----	
-----	6	-	----	DSP13	13	A	----	-----	-----	6	-	----	-----	13	-	----	
CEM	0	7	A	ISTb	-----	14	A	----	-----	7	-	----	-----	14	-	----	

- 4 Select the ISTb common equipment module (CEM) by typing
>SELECT CEM cem_no

where

cem_no
 is the number of the ISTb CEM (0 or 1)

Example of a MAP screen:

PM 1SPM CLKOOS SPM major (continued)

```
SPM 11 CEM 0 Act ISTb
```

```
Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
```

```
Default Load: SPMLOAD
```

```
Clock:
```

```
Input Ref:           Source:           Current Mode:
```

- 5** List the alarms on the CEM by typing

```
>LISTALM
```

and pressing the Enter key.

Example of a MAP screen:

```
SPM 11 CEM 0 Act ISTb
```

```
Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
```

```
Default Load: SPMLOAD
```

```
Clock:
```

```
Input Ref:           Source:           Current Mode:
```

```
ListAlm
```

```
ListAlm: SPM 11 CEM 0
```

```
SEVERITY      ALARM      ACTION
```

```
-----
```

Critical	None	
Major	CLKOOS	RPT
Minor	None	
No_Alarm	None	

- 6** Record the number of each SPM exhibiting the CLKOOS condition.
- 7** Access the MTC level of the MAP screen by typing
- ```
>MAPCI:MTC
```
- and pressing the Enter key.
- 8** Check the alarm banner and determine whether there is an MS clock alarm.

| If there is           | Do      |
|-----------------------|---------|
| an MS clock alarm     | step 9  |
| not an MS clock alarm | step 10 |

- 9** Clear the MS clock alarm using the appropriate alarm clearing procedures. When you have completed the procedures, go to step 13.

## PM 1SPM CLKOOS SPM major (continued)

---

- 10 Access the CARRIER level of the MAP screen by typing  
>MAPCI ;MTC ;TRKS ;CARRIER  
and pressing the Enter key.
- 11 Post the SPM number for the SPM that is raising the CLKOOS alarm by typing  
>POST SPM *spm\_no*  
*where*

**spm\_no**  
is the number of the SPM

This takes you directly to the OC3S level for the alarmed SPM.

- 12 Determine whether OC3 carriers are in-service.

| If OC3 carriers are | Do      |
|---------------------|---------|
| in-service          | step 15 |
| not in-service      | step 13 |

- 13 Restore OC3 carrier signals.
- Note 1:** Contact your next level of support if you are not familiar with the network procedures required to restore OC3 clock signals.
- Note 2:** The CEM sync circuitry uses the STS3L carrier for synchronization, not the OC3. For proper clearing of the CLKOOS condition, OC3 and STS3L carriers must be in-service.

- 14 List the alarms on the CEM by typing  
>LISTALM  
and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 33 |
| CLKOOS                  | step 15 |

- 15 Access the STS3L carriers by typing  
>NEXT  
and pressing the Enter key.

- 16 Determine whether STS3L carriers are in-service

| If STS3L carriers are | Do      |
|-----------------------|---------|
| in-service            | step 19 |

## PM 1SPM CLKOOS SPM major (continued)

| If STS3L carriers are | Do      |
|-----------------------|---------|
| not in-service        | step 17 |

- 17 Restore the STS3L carrier signals.

**Note 1:** Contact your next level of support if you are not familiar with the network procedures required to restore OC3 clock signals.

**Note 2:** The CEM sync circuitry uses the STS3L carrier for synchronization, not the OC3. For proper clearing of the CLKOOS condition, OC3 and STS3L carriers must be in-service.

- 18 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 33 |
| CLKOOS                  | step 19 |

- 19 Determine if sync fault condition is present on the downstream equipment driving the OC3 into the SPM.

| If sync fault condition is | Do      |
|----------------------------|---------|
| present                    | step 20 |
| not present                | step 22 |

- 20 Clear sync fault condition on downstream equipment driving the OC3 into the SPM.

**Note:** Once a sync fault condition is corrected, the SPM clears the CLKOOS condition, but there will be a delay of between 20 and 40 minutes while the SPM evaluates the stability of the OC3 carrier frequency.

- 21 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 33 |
| CLKOOS                  | step 22 |

- 22 Force the CEMs to switch activity by typing

>PROT ; FORCE ; QUIT

and pressing the enter key.

## PM 1SPM CLKOOS SPM major (continued)

---

- 23** Select the active (A) CEM by typing  
>**SELECT CEM cem\_no**  
and pressing the Enter key.  
*where*  
**cem\_no**  
is the number of the active CEM (0 or 1)

- 24** List the alarms on the CEM by typing  
>**LISTALM**  
and pressing the enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 25 |
| CLKOOS                  | step 28 |

- 25** Force the CEMs to switch activity by typing  
>**PROT ; FORCE ; QUIT**  
and pressing the Enter key.
- 26** Select the active (A) CEM by typing  
>**SELECT CEM cem\_no**  
and pressing the Enter key.  
*where*  
**cem\_no**  
is the number of the active CEM (0 or 1)
- 27** List the alarms on the CEM by typing  
>**LISTALM**  
and pressing the Enter key.  
*Example of a MAP screen:*

## PM 1SPM CLKOOS SPM major (continued)

```
SPM 11 CEM 0 Act ISTb
```

```
Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
```

```
Default Load: SPMLOAD
```

```
Clock:
```

```
Input Ref: Source: Current Mode:
```

```
ListAlm
```

```
ListAlm: SPM 11 CEM 0
```

```
SEVERITY ALARM ACTION
```

```

Critical None
Major CLKOOS RPT
Minor None
No_Alarm None
```

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 33 |
| CLKOOS                  | step 28 |

- 28** Select the active OC3 module by typing

```
>SELECT OC3 oc3_no
```

and pressing the Enter key.

*where*

**oc3\_no**

is the number of the active OC3

*Example of a MAP screen:*

```

 SysB ManB OffL CBSy ISTb InSv
PM 1 2 4 0 6 2
SPM 0 2 2 0 1 1
OC3 0 0 2 0 0 0

SPM 5 OC3 0 Act

Loc : Row D FrPos 6 ShPos 6 ShId 0 Slot 9 Prot Grp : 1
Default Load: SPMLOAD Prot Role : Working

POST:
OC3:
```

- 29** List the protection status of the OC3 modules by typing

```
>PROT
```

and pressing the Enter key.

---

## PM 1SPM CLKOOS SPM major (end)

---

*Example of a MAP screen*

```
SPM 5 ISTb
Prot Grp: OC3_GRP 1 Mode: Non-revertive Schema: one_plus_one
SH0 U R A Stat Sh0 U R A Stat Sh1 U R A Stat Sh1 U R A Stat
1 - - - - - 8 - - - - - 1 - - - - - 8 - - - - -
2 - - - - - 9 - - - - - 2 - - - - - 9 - - - - -
3 - - - - - 10 - - - - - 3 - - - - - 10 - - - - -
4 - - - - - 11 - - - - - 4 - - - - - 11 - - - - -
5 - - - - - 12 - - - - - 5 - - - - - 12 - - - - -
6 - - - - - 13 - - - - - 6 - - - - - 13 - - - - -
7 - - - - - 14 - - - - - 7 - - - - - 14 - - - - -
```

- 30** Determine the active OC3. Force the OC3s to switch activity by typing  
>**FORCE act\_oc3\_no inact\_oc3\_no**  
and pressing the Enter key.

*where*

**act\_oc3\_no**  
is the number of an active (A) OC3 (0 or 1)

**inact\_oc3\_no**  
is the number of an (I) inactive OC3

- 31** Return to the SPM level and list the alarms on the CEM by typing  
>**LISTALM**  
and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 33 |
| CLKOOS                  | step 32 |

- 32** For further assistance, contact the personnel responsible for the next level of support.
- 33** You have completed this procedure. Return to the CI level of the MAP screen by typing  
>**QUIT ALL**  
and pressing the Enter key.

## PM 1SPM COTLOW SPM minor

### Alarm display

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

### Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor ( ) alarm indicator appears beneath it.

### Meaning

The low water mark threshold was exceeded for CCS7-continuity-test (COT) transceiver resources. The demand for COT resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the COTLOW alarm. Table MNNODE contains the datafill related to the COTLOW alarm.

### Impact

If the threshold setting is low enough to ensure that there are adequate resources in the COT pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available COT resources cannot meet the demand, call processing or grades of service, or both, are degraded.

### Common procedures

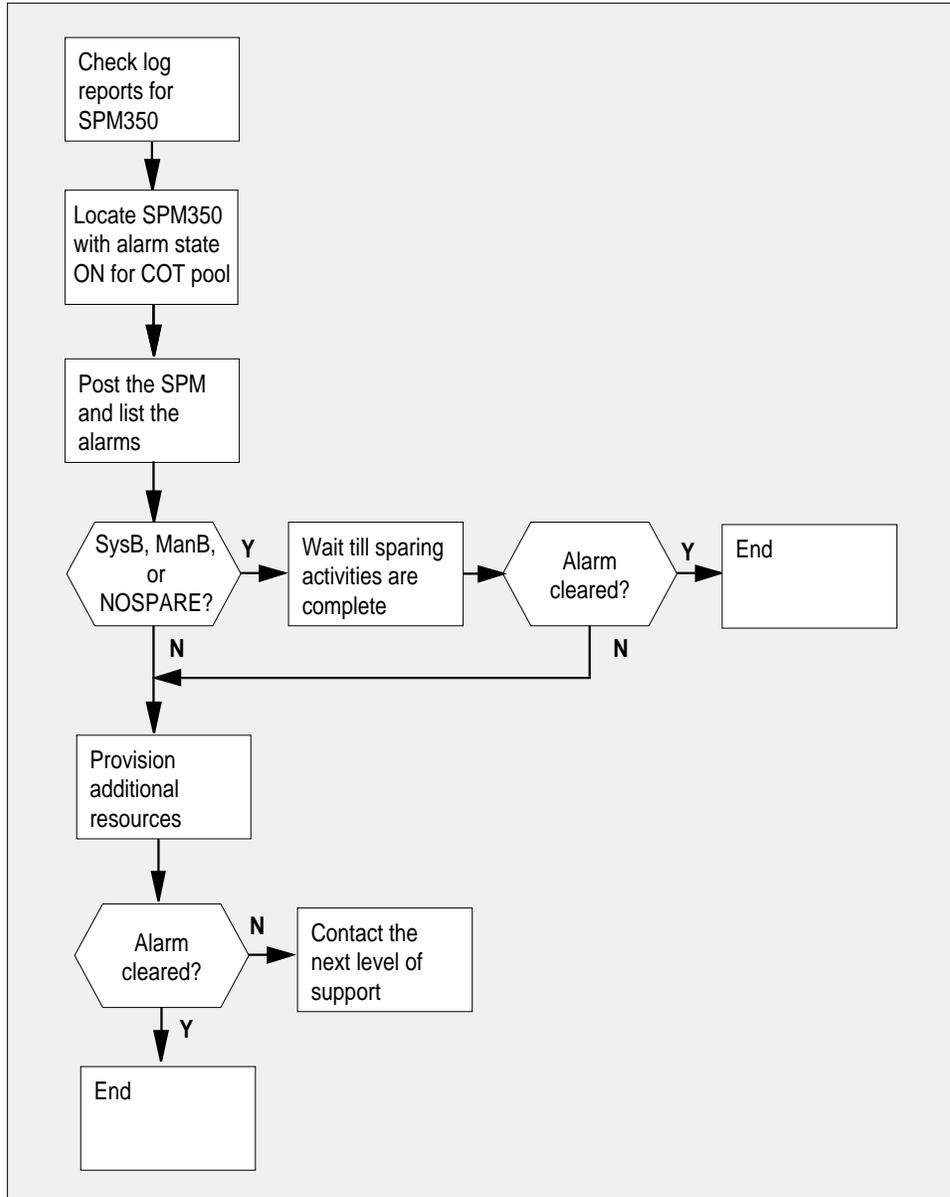
See "Accessing SPM alarms."

### Action

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

# PM 1SPM COTLOW SPM minor (continued)

## Summary of clearing a COTLOW alarm



## Clearing a COTLOW alarm

### At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

---

**PM 1SPM COTLOW SPM  
minor (continued)**

---

>LOGUTIL

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

>DUMPLOGS SPM 350

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL = COT
SPM_NUM = 20
NUM_FREE = 39
NUM-INUSE = 61
```

**Note:** OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3 Locate an SPM350 log with ALARM\_STATE = ON and POOL = COT. Record the number of the SPM.
- 4 Post the SPM by typing

>MAPCI;MTC;PM;POST SPM *spm\_no*

and pressing the Enter key.

*where*

**spm\_no**

is the number of the SPM (0 to 63) shown in the log report

*Example of a MAP screen:*

## PM 1SPM COTLOW SPM minor (continued)

```

 SysB ManB OffL Cbsy ISTb InSv
 PM 7 2 2 2 9 16
 SPM 0 1 1 0 0 1

 SPM 20 InSv Loc: Site HOST Floor 1 Row A FrPos 13

 Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
 ---- 1 - ---- CEM 1 8 I InSv ---- 1 - ---- ---- 8 - ----
 ---- 2 - ---- OC3 0 9 A InSv ---- 2 - ---- ---- 9 - ----
 DSP 3 3 I OffL OC3 1 10 I InSv ---- 3 - ---- ---- 10 - ----
 ---- 4 - ---- ---- 11 - ---- ---- 4 - ---- ---- 11 - ----
 ---- 5 - ---- DSP12 12 A InSv ---- 5 - ---- ---- 12 - ----
 ---- 6 - ---- DSP13 13 A InSv ---- 6 - ---- ---- 13 - ----
 CEM 0 7 A InSv ---- 14 A InSv ---- 7 - ---- ---- 14 - ----

```

- 5 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

*Example of a MAP screen:*

```

ListAlm
ListAlm: SPM 11

SEVERITY ALARM ACTION

Critical None
Major None
Minor COTLOW RPT
No_Alarm None

```

- 6 Do the following substeps to determine if sparing activities are underway.
- a Check the alarm list for a NOSPARE alarm.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Major NOSPARE               | step 6b |
| Major None                  | step 6c |

- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE PM alarm clearing procedure.

## PM 1SPM COTLOW SPM minor (end)

- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.
- d Wait until the state of the DSPs indicates InSv.

7 When the DSPs are returned to service, determine if the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor COTLOW                | step 8  |
| Minor None                  | step 11 |

8 Provision additional digital signal processor (DSP) resource modules (RM). Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

**Note:** Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

9 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor COTLOW                | step 10 |
| Minor None                  | step 11 |

10 For further assistance, contact the personnel responsible for the next level of support.

11 You have completed this procedure. Return to the CI level of the MAP screen by typing

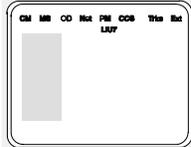
>QUIT ALL

and pressing the Enter key.

## PM 1SPM DTMFLOW SPM minor

---

### Alarm display



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

### Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor ( ) alarm indicator appears beneath it.

### Meaning

The low water mark threshold was exceeded for dual-tone multifrequency (DTMF) resources. The demand for DTMF resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the DTMFLOW alarm. Table MNNODE contains the datafill related to the DTMFLOW alarm.

### Impact

If the threshold setting is low enough to ensure that there are adequate resources in the DTMF pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available DTMF resources cannot meet the demand, call processing or grades of service, or both, are degraded.

### Common procedures

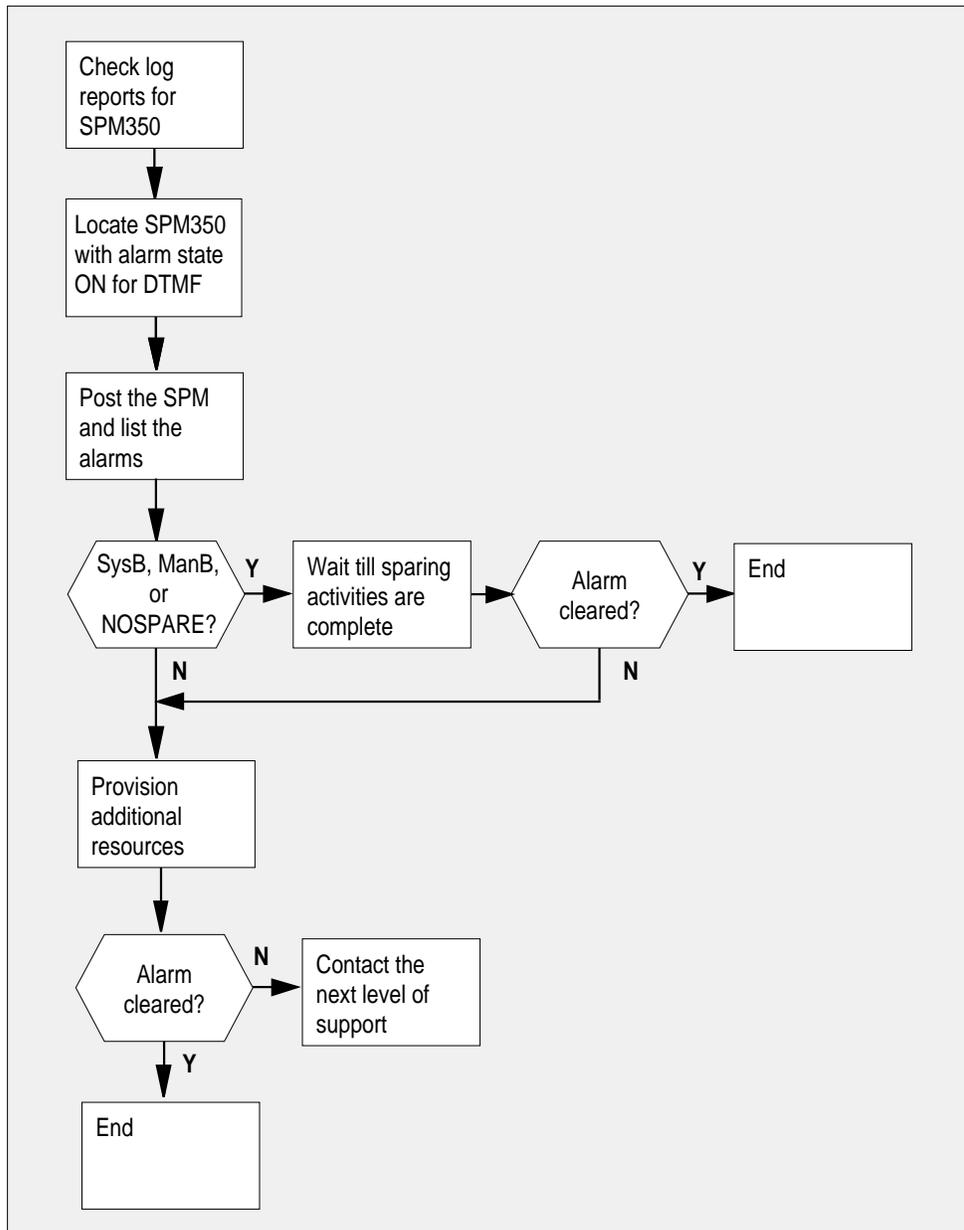
See “Accessing SPM alarms.”

### Action

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

**PM 1SPM DTMFLOW SPM  
minor (continued)**

**Summary of clearing a DTMFLOW alarm**



## PM 1SPM DTMFLOW SPM minor (continued)

---

### Clearing a DTMFLOW alarm

#### *At the MAP terminal*

- 1 Access the log utility level of the MAP screen by typing

```
>LOGUTIL
```

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

```
>DUMPLOGS SPM 350
```

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL = DTMF
SPM_NUM = 20
NUM_FREE = 39
NUM-INUSE = 61
```

**Note:** OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3 Locate an SPM350 log with ALARM\_STATE = ON and POOL = DTMF . Record the number of the SPM.
- 4 Post the SPM by typing

```
>MAPCI;MTC;PM;POST SPM spm_no
```

and pressing the Enter key.

*where*

**spm\_no**

is the number of the SPM (0 to 63) shown in the log report

*Example of a MAP screen:*

## PM 1SPM DTMFLOW SPM minor (continued)

```

 SysB ManB OffL CBsy ISTb InSv
 PM 7 2 2 2 9 16
 SPM 0 1 1 0 0 1

SPM 20 InSv Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I InSv ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A InSv ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I InSv ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A InSv ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A InSv ----- 6 - ---- ----- 13 - ----
CEM 0 7 A InSv ----- 14 A InSv ----- 7 - ---- ----- 14 - ----

```

- 5 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

*Example of a MAP screen:*

```

ListAlm
ListAlm: SPM 11

SEVERITY ALARM ACTION

Critical None
Major None
Minor ECANLOW RPT
No_Alarm None

```

- 6 Do the following substeps to Determine whether sparing activities are underway.

- a Check the alarm list for a NOSPARE alarm.

| If the alarm list indicates | Do       |
|-----------------------------|----------|
| Major NOSPARE               | step 6 b |
| Major None                  | step 6 c |

- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE PM alarm clearing procedure.

---

## PM 1SPM DTMFLOW SPM minor (end)

---

- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.
  - d Wait until the state of the DSPs indicates InSv.
- 7 When the DSPs are returned to service, Determine whether the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor DTMFLOW               | step 8  |
| Minor None                  | step 11 |

- 8 Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

**Note:** Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor DTMFLOW               | step 10 |
| Minor None                  | step 11 |

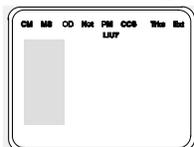
- 10 For further assistance, contact the personnel responsible for the next level of support.
- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

## PM 1SPM ECANLOW SPM minor

### Alarm display



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

### Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor ( ) alarm indicator appears beneath it.

### Meaning

The low water mark threshold was exceeded for echo canceller (ECAN) resources. The demand for ECAN resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the ECANLOW alarm. Table MNNODE contains the datafill related to the ECANLOW alarm.

### Impact

If the threshold setting is low enough to ensure that there are adequate resources in the ECAN pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available ECAN resources cannot meet the demand, call processing or grades of service, or both, are degraded.

### Common procedures

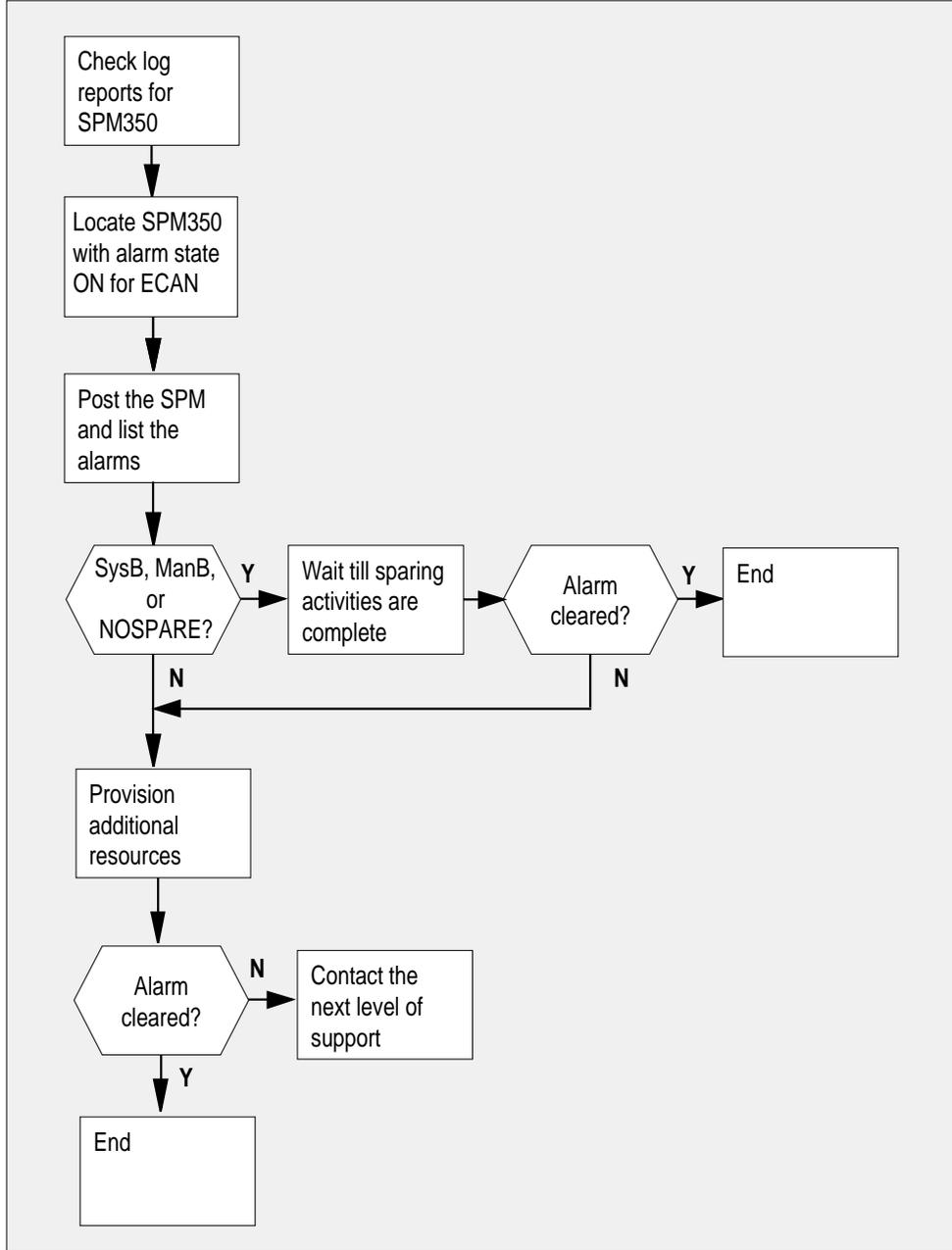
See “Accessing SPM alarms.”

### Action

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

# PM 1SPM ECANLOW SPM minor (continued)

## Summary of clearing an ECANLOW alarm



---

## PM 1SPM ECANLOW SPM minor (continued)

---

### Clearing a ECANLOW alarm

#### At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

```
>LOGUTIL
```

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

```
>DUMPLOGS SPM 350
```

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL = ECAN
SPM_NUM = 20
NUM_FREE = 39
NUM-INUSE = 61
```

**Note:** OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3 Locate an SPM350 log with ALARM\_STATE = ON and POOL = ECAN. Record the number of the SPM.

- 4 Post the SPM by typing

```
>MAPCI ;MTC ;TRK ;POST SPM spm_no
```

and pressing the Enter key.

*where*

**spm\_no**

is the number of the SPM (0 to 63) shown in the log report

*Example of a MAP screen:*

**PM 1SPM ECANLOW SPM**  
**minor** (continued)

```

 SysB ManB OffL CBsy ISTb InSv
 PM 7 2 2 2 9 16
 SPM 0 1 1 0 0 1

SPM 20 InSv Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I InSv ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A InSv ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I InSv ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A InSv ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A InSv ----- 6 - ---- ----- 13 - ----
CEM 0 7 A InSv ----- 14 A InSv ----- 7 - ---- ----- 14 - ----

```

- 5 List the alarms on the SPM by typing

>**LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

```

ListAlm
ListAlm: SPM 11

SEVERITY ALARM ACTION

Critical None
Major None
Minor ECANLOW RPT
No_Alarm None

```

- 6 Do the following substeps to determine whether sparing activities are underway.

- a Check the alarm list for a NOSPARE alarm.

| If the alarm list indicates | Do       |
|-----------------------------|----------|
| Major NOSPARE               | step 6 b |
| Major None                  | step 6 c |

- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE alarm clearing procedure.
- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing

---

## PM 1SPM ECANLOW SPM minor (end)

---

activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.

d Wait until the state of the DSPs indicates InSv.

- 7 When the DSPs are returned to service, Determine whether the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor ECANLOW               | step 8  |
| Minor None                  | step 11 |

- 8 Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

**Note:** Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor ECANLOW               | step 10 |
| Minor None                  | step 11 |

- 10 For further assistance, contact the personnel responsible for the next level of support.

- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

## PM 1SPM HLDOVR SPM major

---

### Alarm banner



| CM | MS | IOD | Net | PM   | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1SPM | .   | .   | .    | .   | .    |
| .  | .  | .   | .   | M    | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

### Meaning

The common equipment module (CEM) clocks have lost network synchronization. The clocks are running in holdover (HLDOVR) mode.

The DMS-Spectrum Peripheral Module (SPM) log SPM501 relates to the HLDOVR alarm. Table MNCKTPAK contains the datafill related to the HLDOVR alarm.

### Impact

SPM is not synchronized with the network. Carrier traffic is not supported. Other clock-related alarms may also occur.

### Common procedures

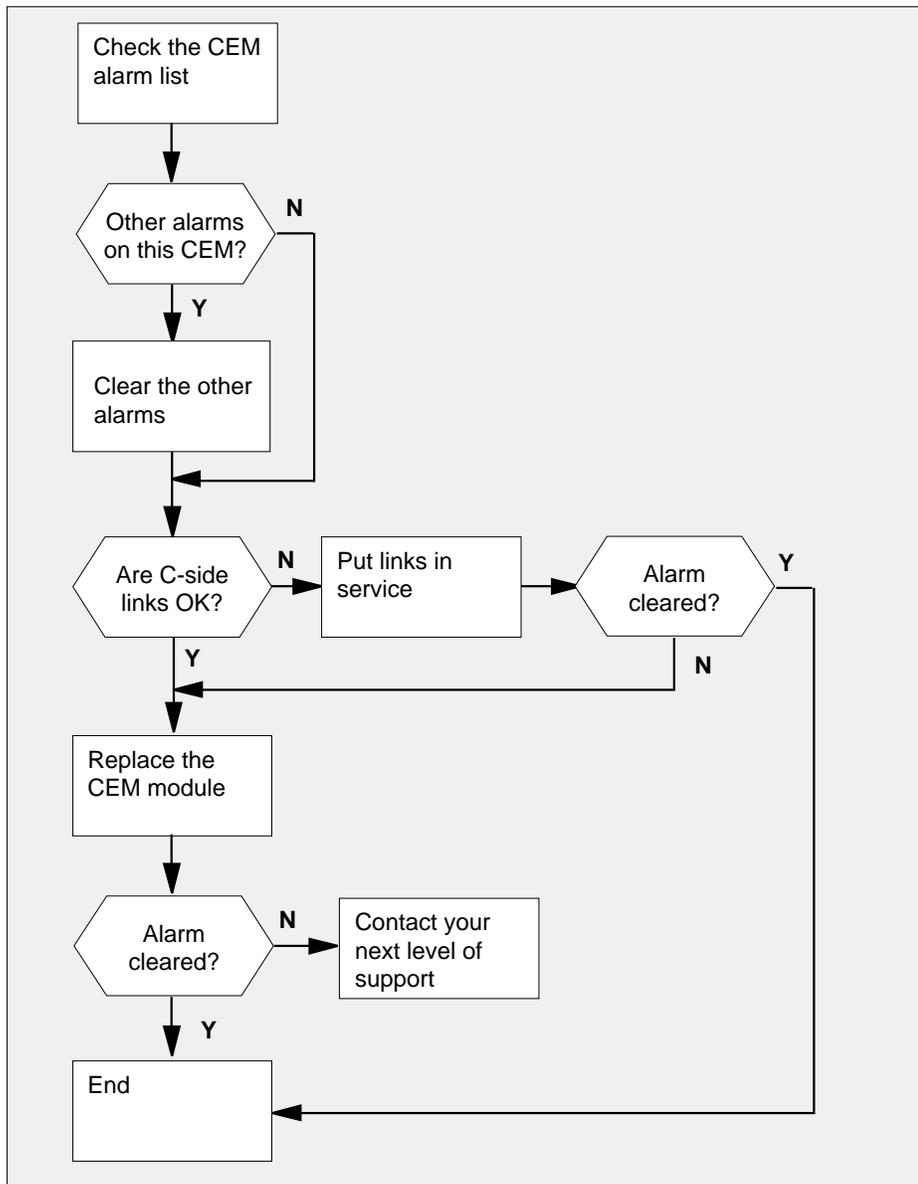
See "Accessing SPM alarms."

### Action

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

**PM 1SPM HLDOVR SPM**  
**major (continued)**

**Summary of clearing an HLDOVR alarm**



## PM 1SPM HLDOVR SPM major (continued)

### Clearing a HLDOVR alarm

#### At the MAP terminal

- 1 Access the PM level of the MAP screen by typing

>MAPCI ;MTC ;PM

and pressing the Enter key.

*Example of a MAP screen:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Display all the system-busy SPMs by typing

>DISP STATE SYSB SPM

and pressing the Enter key.

- 3 Record the number of the SPMs.

- 4 Post each system-busy SPM by typing

>POST SPM *spm\_no*

and pressing the Enter key.

*where*

**spm\_no**

is the number of the SPM (0 to 63)

*Example of a MAP screen:*

|     |      |      |      |      |      |      |
|-----|------|------|------|------|------|------|
|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM  | 7    | 2    | 2    | 2    | 9    | 16   |
| SPM | 0    | 2    | 1    | 0    | 0    | 0    |

SPM 11 **SysB** Loc: Site HOST Floor 1 Row A FrPos 13

|       |    |   |       |             |       |    |       |             |       |   |       |       |       |    |       |       |
|-------|----|---|-------|-------------|-------|----|-------|-------------|-------|---|-------|-------|-------|----|-------|-------|
| Shlf0 | SL | A | Stat  | Shlf0       | SL    | A  | Stat  | Shlf1       | SL    | A | Stat  | Shlf1 | SL    | A  | Stat  |       |
| ----- | 1  | - | ----- | CEM         | 1     | 8  | I     | <b>SysB</b> | ----- | 1 | -     | ----- | 8     | -  | ----- |       |
| ----- | 2  | - | ----- | OC3         | 0     | 9  | A     | -----       | 2     | - | ----- | ----- | 9     | -  | ----- |       |
| DSP   | 3  | 3 | I     | OffL        | OC3   | 1  | 10    | I           | ----- | 3 | -     | ----- | ----- | 10 | -     | ----- |
| ----- | 4  | - | ----- | -----       | 11    | -  | ----- | -----       | 4     | - | ----- | ----- | 11    | -  | ----- |       |
| ----- | 5  | - | ----- | DSP12       | 12    | A  | ----- | -----       | 5     | - | ----- | ----- | 12    | -  | ----- |       |
| ----- | 6  | - | ----- | DSP13       | 13    | A  | ----- | -----       | 6     | - | ----- | ----- | 13    | -  | ----- |       |
| CEM   | 0  | 7 | A     | <b>SysB</b> | ----- | 14 | A     | -----       | 7     | - | ----- | ----- | 14    | -  | ----- |       |

- 5 Select the system-busy CEM by typing

>SELECT CEM *cem\_no*

and pressing the Enter key.

*where*

## PM 1SPM HLDOVR SPM major (continued)

**cem\_no**

is the number of the CEM (0 or 1)

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
```

- 6** List the alarms on the CEM by typing

**>LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
ListAlm
ListAlm: SPM 11 CEM 0
```

| SEVERITY | ALARM   | ACTION |
|----------|---------|--------|
| -----    |         |        |
| Critical | None    |        |
| Major    | HOLDOVR | RPT    |
| Minor    | None    |        |
| No_Alarm | None    |        |

- 7** Determine whether there are any other CEM alarms.

| If there are        | Do     |
|---------------------|--------|
| no other CEM alarms | step 9 |
| other CEM alarms    | step 8 |

- 8** Clear the other CEM alarms using the appropriate SPM alarm clearing procedures. When you have completed the procedures, return to this step.
- 9** List the status of the C-side links by typing

**>TRNSL**

**PM 1SPM HLDOVR SPM**  
**major** (continued)

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
Trnsl
Link 1: ENET 0 0 30 0; Status: OK
Link 2: ENET 1 0 30 1; Status: NA
Link 3: ENET 0 0 30 2; Status: OK
Link 4: ENET 1 0 30 3; Status: OK
```

- 10** Determine whether the C-side links are in service.

| If the C-side links appear as | Do      |
|-------------------------------|---------|
| OK                            | step 13 |
| NA or UR                      | step 11 |

- 11** Return the C-side links to service. When you have completed the procedure, return to this point.

**Note:** Contact your next level of support if you are not familiar with the procedures required to restore C-side links to service.

- 12** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 16 |
| HOLDOVR                 | step 13 |

- 13** Replace the CEM module. For detailed instructions, see “SPM NTLX63AA CEM card” in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 14** List the alarms on the CEM by typing

>LISTALM

---

**PM 1SPM HLDOVR SPM  
major (end)**

---

and pressing the Enter key.

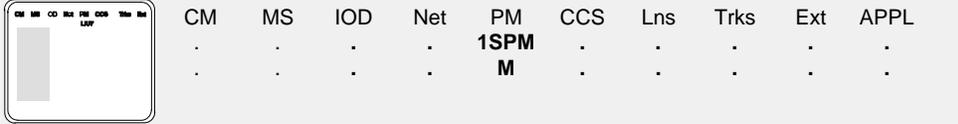
| <b>If the alarm list shows</b> | <b>Do</b> |
|--------------------------------|-----------|
| None                           | step 16   |
| HOLDOVR                        | step 15   |

- 15** For further assistance, contact the personnel responsible for the next level of support.
- 16** You have completed this procedure. Return to the CI level of the MAP screen by typing  
>QUIT ALL  
and pressing the Enter key.

## PM 1SPM HLDOVR24 SPM major

---

### Alarm banner



| CM | MS | IOD | Net | PM   | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1SPM | .   | .   | .    | .   | .    |
| .  | .  | .   | .   | M    | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

### Meaning

The common equipment module (CEM) clocks have not been synchronized with the network for 24 hours or more. The clocks are running in holdover (HLDOVR) mode.

The DMS-Spectrum Peripheral Module (SPM) log SPM501 relates to the HLDOVR24 alarm, Table MNCKTPAK contains the datafill related to the HLDOVR24 alarm.

### Impact

SPM has not been synchronized with the network for 24 hours or more, carrier traffic has not been supported, other clock-related alarms may have been generated.

### Common procedures

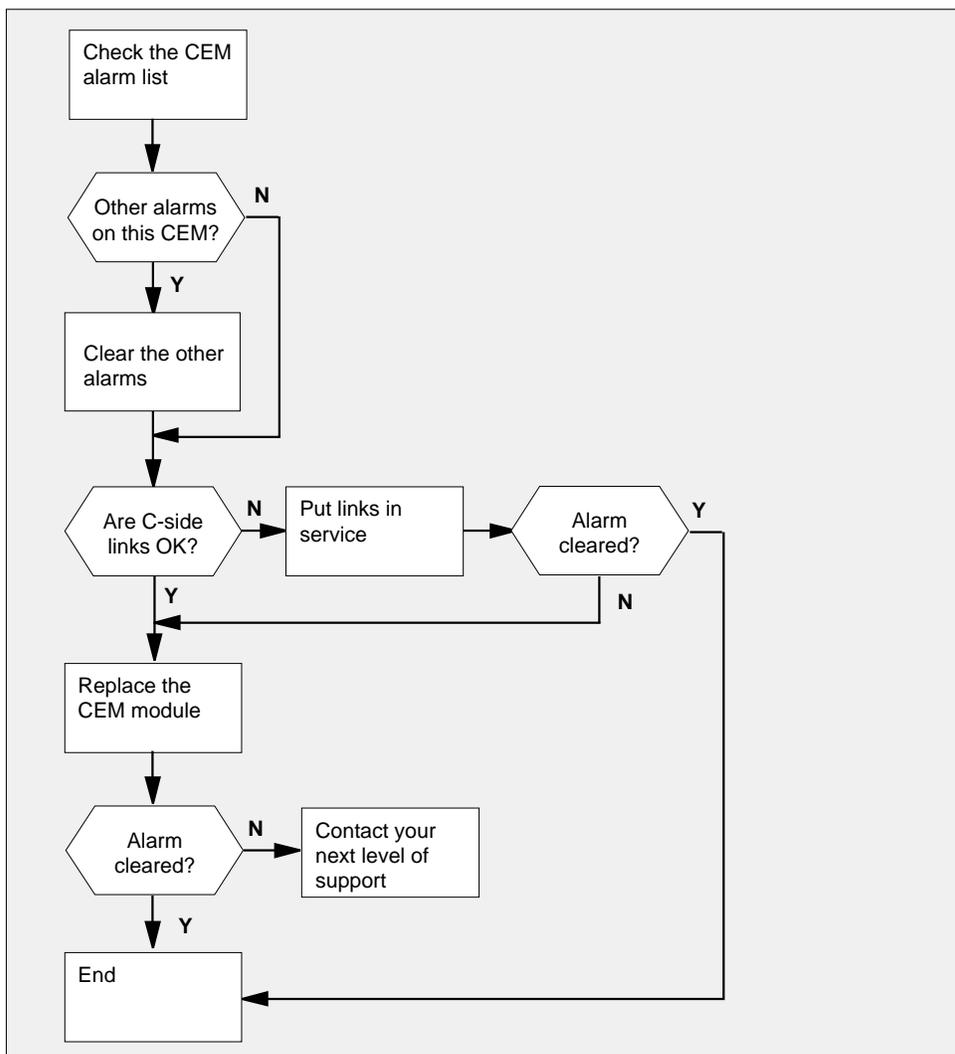
See "Accessing SPM alarms."

### Action

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

## PM 1SPM HLDOVR24 SPM major (continued)

### Summary of clearing an HLDOVR24 alarm



### Clearing an HLDOVR24 alarm

#### At the MAP terminal

- 1 Access the PM level of the MAP screen by typing  
`>MAPCI ;MTC ;PM`  
 and pressing the Enter key.

*Example of a MAP screen:*

## PM 1SPM HLDOVR24 SPM major (continued)

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Display all the system-busy SPMs by typing

```
>DISP STATE SYSB SPM
```

and pressing the Enter key.

- 3 Record the number of the SPMs.

- 4 Post each system-busy SPM by typing

```
>POST SPM spm_no
```

and pressing the Enter key.

where

**spm\_no**

is the number of the SPM (0 to 63)

Example of a MAP screen:

|     |      |      |      |      |      |      |
|-----|------|------|------|------|------|------|
|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM  | 7    | 2    | 2    | 2    | 9    | 16   |
| SPM | 0    | 2    | 1    | 0    | 0    | 0    |

```
SPM 11 SysB Loc: Site HOST Floor 1 Row A FrPos 13
```

| Shlf0 | SL | A | Stat   | Shlf0 | SL | A  | Stat   | Shlf1 | SL | A | Stat | Shlf1 | SL | A | Stat |
|-------|----|---|--------|-------|----|----|--------|-------|----|---|------|-------|----|---|------|
| ----- | 1  | - | ----   | CEM   | 1  | 8  | I SysB | ----- | 1  | - | ---- | ----- | 8  | - | ---- |
| ----- | 2  | - | ----   | OC3   | 0  | 9  | A      | ----- | 2  | - | ---- | ----- | 9  | - | ---- |
| DSP   | 3  | 3 | I OffL | OC3   | 1  | 10 | I      | ----- | 3  | - | ---- | ----- | 10 | - | ---- |
| ----- | 4  | - | ----   | ----- | 11 | -  | ----   | ----- | 4  | - | ---- | ----- | 11 | - | ---- |
| ----- | 5  | - | ----   | DSP12 | 12 | A  | ----   | ----- | 5  | - | ---- | ----- | 12 | - | ---- |
| ----- | 6  | - | ----   | DSP13 | 13 | A  | ----   | ----- | 6  | - | ---- | ----- | 13 | - | ---- |
| CEM   | 0  | 7 | A SysB | ----- | 14 | A  | ----   | ----- | 7  | - | ---- | ----- | 14 | - | ---- |

- 5 Select the system-busy CEM by typing

```
>SELECT CEM cem_no
```

and pressing the Enter key.

where

**cem\_no**

is the number of the CEM (0 or 1)

Example of a MAP screen:

---

## PM 1SPM HLDOVR24 SPM major (continued)

---

```
SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
```

- 6** List the alarms on the CEM by typing

**>LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
ListAlm
ListAlm: SPM 11 CEM 0
```

```
SEVERITY ALARM ACTION

Critical None
Major HOLDOVR24 RPT
Minor None
No_Alarm None
```

- 7** Determine whether there are any other CEM alarms.

| If there are        | Do     |
|---------------------|--------|
| no other CEM alarms | step 9 |
| other CEM alarms    | step 8 |

- 8** Clear the other CEM alarms using the appropriate SPM alarm clearing procedures, When you have completed the procedures, return to this step

- 9** List the status of the C-side links by typing

**>TRNSL**

and pressing the Enter key.

**PM 1SPM HLDOVR24 SPM**  
**major** (continued)

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLoad
Clock:
Input Ref: Source: Current Mode:
Trnsl
Link 1: ENET 0 0 30 0; Status: OK
Link 2: ENET 1 0 30 1; Status: NA
Link 3: ENET 0 0 30 2; Status: OK
Link 4: ENET 1 0 30 3; Status: OK
```

- 10 Determine whether the C-side links are in service.

| If the C-side links appear as | Do      |
|-------------------------------|---------|
| OK                            | step 13 |
| NA or UR                      | step 11 |

- 11 Return the C-side links to service. When you have completed the procedure, return to this point.

**Note:** Contact your next level of support if you are not familiar with the procedures required to restore C-side links to service.

- 12 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 16 |
| HOLDOVR24               | step 13 |

- 13 Replace the CEM module. For detailed instructions, see “SPM NTLX63AA CEM card” in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 14 List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 16 |

---

**PM 1SPM HLDVR24 SPM**  
**major (end)**

---

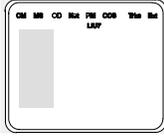
| If the alarm list shows | Do      |
|-------------------------|---------|
| HLDVR24                 | step 15 |

- 15** For further assistance, contact the personnel responsible for the next level of support.
- 16** You have completed this procedure. Return to the CI level of the MAP screen by typing  
**>QUIT ALL**  
and pressing the Enter key.

## PM 1SPM ISTB SPM minor

---

### Alarm display



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

### Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A minor ( ) alarm indicator appears beneath it.

### Meaning

The DMS-Spectrum Peripheral Module (SPM) is in an in-service trouble (ISTB) state. The SPM is in service, but it is experiencing non-service-affecting faults.

The following logs relate to the ISTB alarm:

- SPM300
- SPM331
- SPM500
- SPM630
- ENET308

Tables MNCKTPAK and MNNODE contain datafill related to the ISTB alarm.

### Impact

The following devices generate an ISTB alarm:

- Node
- CEM
- OC3
- DSP
- VSP
- ATM
- DLC

**PM 1SPM ISTB SPM  
minor (continued)**

---

*Note:* This alarm does not affect service.

|  |                                                                                                                                        |
|--|----------------------------------------------------------------------------------------------------------------------------------------|
|  | <p style="text-align: center;"><b>ATTENTION</b></p> <p>The asynchronous transfer mode (ATM) feature does not apply to all markets.</p> |
|--|----------------------------------------------------------------------------------------------------------------------------------------|

**Common procedures**

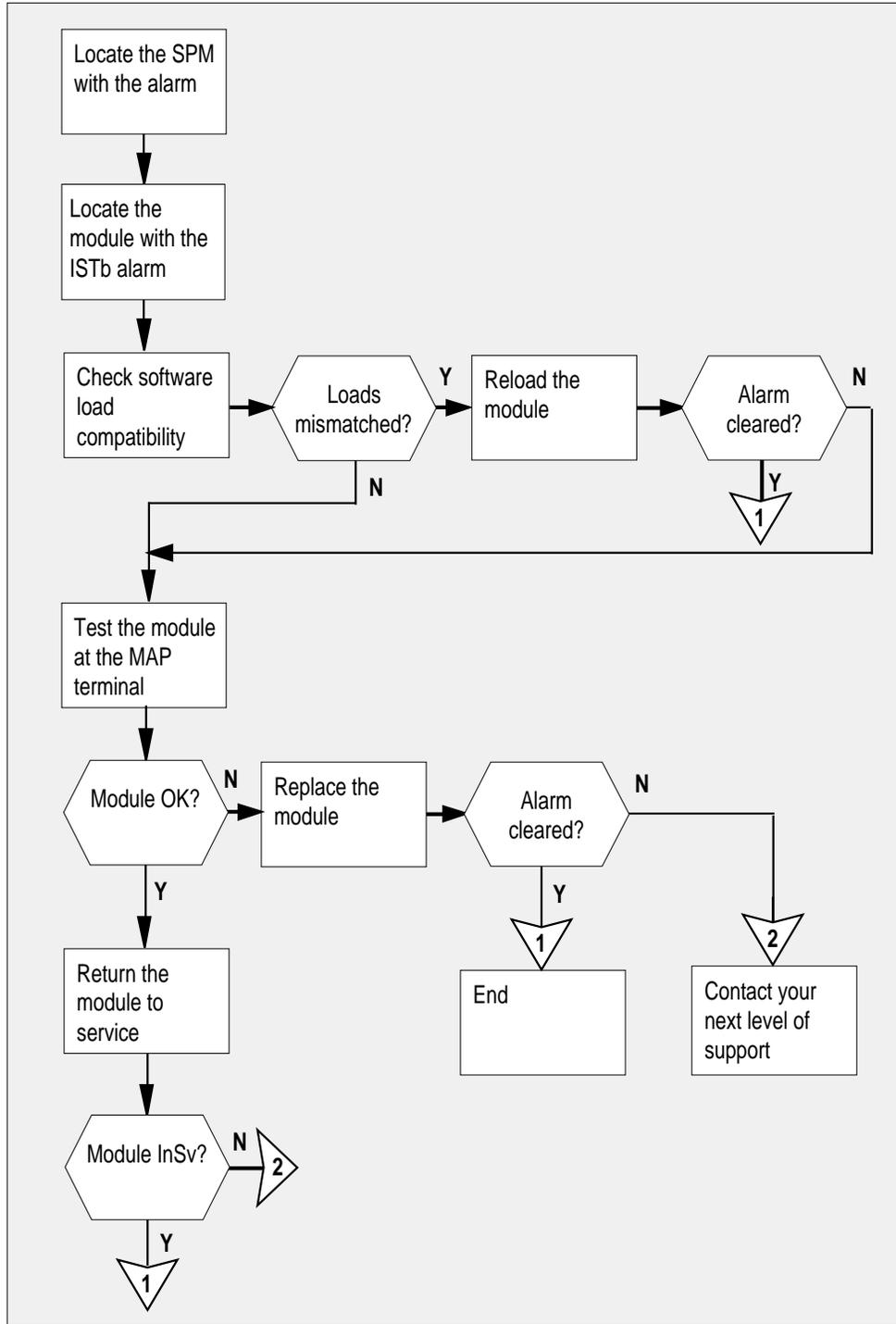
See “Accessing SPM alarms.”

**Action**

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

# PM 1SPM ISTB SPM minor (continued)

## Summary of clearing an ISTb alarm



---

## PM 1SPM ISTB SPM minor (continued)

---

### Clearing an ISTB alarm

#### *At the MAP terminal*

- 1 Access the PM level of the MAP screen by typing  
`>MAPCI ;MTC ;PM`  
 and pressing the Enter key.

*Example of a MAP screen:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Show the state of all PMs by typing  
`>STATUS`  
 and pressing the Enter key.
- 3 Display the SPMs that are in-service trouble by typing  
`>DISP STATE ISTB SPM`  
 and pressing the Enter key.
- 4 Record the number of the SPMs.
- 5 Post each in-service trouble SPM by typing  
`>POST SPM spm_no`  
 and pressing the Enter key.

*where*

**spm\_no**

is the number of the SPM (0 to 63)

*Example of a MAP screen:*

**PM 1SPM ISTB SPM**  
**minor** (continued)

```

 SysB ManB OffL CBsy ISTb InSv
 PM 7 2 2 2 9 16
 SPM 0 2 1 0 1 0

SPM 11 ISTb Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I SysB ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A ----- 6 - ---- ----- 13 - ----
CEM 0 7 A ISTb VSP14 14 A ----- 7 - ---- ----- 14 - ----

```

- 6 Determine which of the CEM, OC3, DSP, VSP, ATM, or DLC modules is in-service trouble (ISTb) and select the modules by typing

>**SELECT module\_type module\_no**

and pressing the Enter key.

where

**module\_type**

is the type of module (CEM, OC3, DSP, VSP, ATM, or DLC)

**module\_no**

is the number of the module (0 to 27)

Example of a MAP screen:

```

SPM 3 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLOAD Prot Role: Working

```

- 7 Show the actual software load by typing

>**QUERYMOD**

and pressing the Enter key.

Example of a MAP screen:

---

## PM 1SPM ISTB SPM minor (continued)

---

```

SPM 3 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Working
QueryMod
SPM 12 OC3 0 Query: Request has been submitted.
OC3 0 ISTb Act Loc: Row D FrPos 64 ShPos 6 ShId 0 Slot 9
Default Load: SPMLoad Actual Load: SPMLoad

```

- 8** Check that the software loads match by typing

```
>TABLE MNCKTPAK
```

and pressing the Enter key.

Locate the appropriate tuple in table MNCKTPAK by typing

```
>LOCATE SPM node_id shelf_id slotnum
```

and pressing the Enter key.

*where*

**node\_id**

is the node number of the SPM (0 to 63)

**shelf\_id**

is the number of the module shelf (0 or 1)

**slotnum**

is the number of the module slot (0 to 14)

- 9** Display the tuple and compare the actual software load to the datafilled software load by typing

```
>DISPLAY
```

and pressing the Enter key.

*Example of a MAP screen:*

```

SPM 3 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Working
dis
 SPM 11 0 9 OC3 0 1 WORKING (SYSB CR RPT) (MANB MJ RPT)
 (ISTB MN RPT) (PROTFAIL CR RPT) $
 NTLX71AA 01 SPMLoad

```

- 10** Download matching software by typing

```
>LOADMOD
```

## PM 1SPM ISTB SPM minor (continued)

---

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 3 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Spare
SPM 3 OC3 1 Load: Request has been submitted.
```

- 11** List the alarms on the module by typing

**>LISTALM**

and pressing the Enter key.

- 12** Determine whether the alarm has cleared.

- 13** Perform an in-service test on the module by typing

**>TST**

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 3 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Spare
Clock:Input Ref: Internal Source: C Side 0 Current Mode:
Acquire
Tst
SPM 3 CEM 0 Test : Request has been submitted.
SPM 3 CEM 0 Test : Test passed.
```

- 14** Determine the test condition of the module.

- 15** Manual busy the module by typing

**>BSY**

and pressing the Enter key.

- 16** Perform an out-of-service test on the module by typing

**>TST**

and pressing the Enter key.

- 17** Determine the test condition of the module.

## PM 1SPM ISTB SPM minor (end)

---

- 18 Return the module to service by typing  
**>RTS**  
and pressing the Enter key.
- 19 Determine the state of the module.
- 20 Replace the CEM, OC3, DSP, VSP, ATM, or DLC module, as appropriate. For detailed instructions, see one of the following the *Card Replacement Procedures*. When you have completed the procedure, return to this point.
  - "SPM NTLX63AA CEM card"
  - "SPM NTLX71AA OC3 card"
  - "SPM NTLX65AA DSP card"
  - "SPM NTLX66AA VSP card"
  - "SPM NTLX73AA ATM card"
- 21 List the alarms on the module by typing  
**>LISTALM**  
and pressing the Enter key.
- 22 Determine whether the alarm has cleared.
- 23 For further assistance, contact the personnel responsible for the next level of support.
- 24 You have completed this procedure. Return to the CI level of the MAP screen by typing  
**>QUIT ALL**  
and pressing the Enter key.

## PM 1SPM MANB SPM major

### Alarm banner

| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1SPM</b> | .   | .   | .    | .   | .    |
| .  | .  | .   | .   | <b>M</b>    | .   | .   | .    | .   | .    |

### Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A major (M) alarm indicator appears beneath it.

### Meaning

The DMS-Spectrum Peripheral Module (SPM) is in manual busy (MANB) state. A severe disruption of service exists. Immediate attention is required.

The following logs relate to the MANB alarm:

- CARR500
- CARR501
- CARR510
- CARR512
- SPM300
- SPM331
- SPM500
- SPM630

Tables MNCKTPAK and MNNODE contain datafill related to the MANB alarm.

### Impact

The following devices generate MANB alarms:

- NODE
- CEM
- OC3
- DSP
- VSP

**PM 1SPM MANB SPM  
major (continued)**

---

- ATM
- DLC

The active module generating the alarm is not in service, and you must return it to service.

**Common procedures**

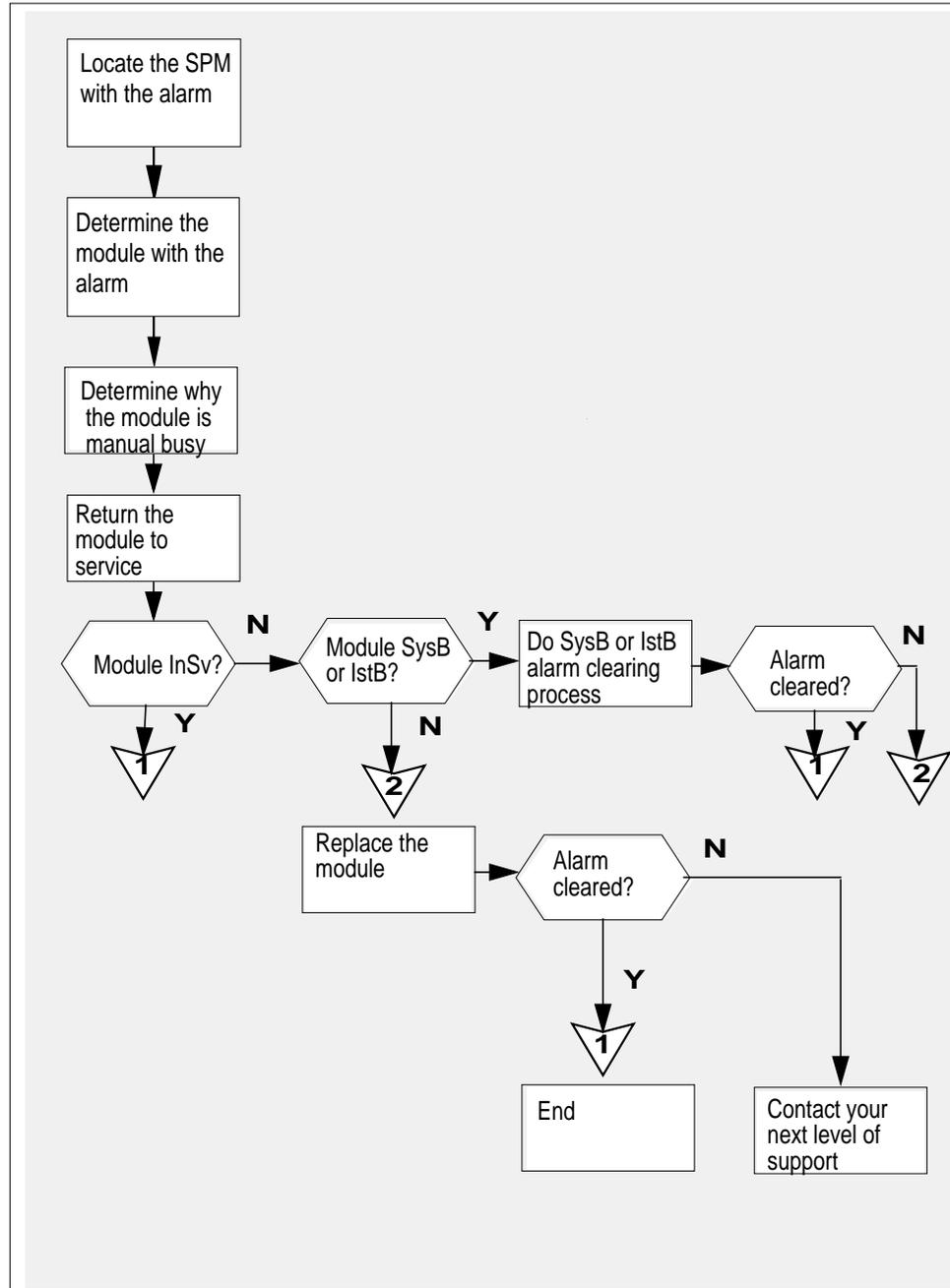
See "Accessing SPM alarms."

**Action**

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

# PM 1SPM MANB SPM major (continued)

## Summary of clearing a MANB alarm



---

## PM 1SPM MANB SPM major (continued)

---

### Clearing a MANB alarm

#### *At the MAP terminal*

- 1 Access the PM level of the MAP screen by typing

**>MAPCI ;MTC ;PM**

and pressing the Enter key.

*Example of a MAP screen:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Show the state of all PMs by typing

**>STATUS**

and pressing the Enter key.

- 3 Display the SPM that are manual busy by typing

**>DISP STATE MANB SPM**

and pressing the Enter key.

- 4 Record the number of teh SPMs

- 5 Post each manual busy SPM by typing

**>POST SPM *spm\_no***

and pressing the Enter key.

*where*

***spm\_no***

is the number of the SPM (0 to 63)

*Example of a MAP screen:*

**PM 1SPM MANB SPM**  
**major** (continued)

```

 SysB ManB OffL CBsy ISTb InSv
 PM 7 2 2 2 9 16
 SPM 0 2 1 0 0 0

SPM 11 SysB Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I SysB ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A ----- ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I ----- ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A ----- ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A ----- ----- 6 - ---- ----- 13 - ----
CEM 0 7 A ManB VSP14 14 A ----- ----- 7 - ---- ----- 14 - ----

```

- 6 Determine which of the CEM, OC3, DSP, VSP, ATM, or DLC modules is manual busy (ManB) and select the modules by typing

>**SELECT module\_type module\_no**

and pressing the Enter key.

where

**module\_type**

is the type of module (CEM, OC3, DSP, VSP, ATM, or DLC).

**module\_no**

is the number of the module (0 to 27).

Example of a MAP screen:

```

SPM 3 OC3 1 Act mANb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Spare

```

- 7 If the status of the module is ManB, determine why the module was manual busied. Continue with step 8 as soon as possible.

- 8 Return the module to service by typing

>**RTS**

and pressing the Enter key.

- 9 Determine the state of the module.

| If the module is | Do      |
|------------------|---------|
| InSv             | step 16 |

## PM 1SPM MANB SPM major (end)

| If the module is | Do      |
|------------------|---------|
| SysB or IstB     | step 10 |
| any other state  | step 12 |

**10** Perform the alarm clearing procedures for SysB or IstB, as appropriate.

**11** Determine the state of the module.

| If the module is | Do      |
|------------------|---------|
| InSv             | step 16 |
| any other state  | step 12 |

**12** Replace the CEM, OC3, DSP, VSP, or ATM module as appropriate. For detailed instructions, see one of the following *Card Replacement Procedures*. When you have completed the card replacement procedure, return to this point.

- “SPM NTLX63AA CEM card”
- “SPM NTLX71AA OC3 card”
- “SPM NTLX65AA DSP card
- “SPM NTLX66AA VSP card”
- “SPM NTLX73AA ATM card”
- “SPM NTLX72AA DLC card”

**13** List the alarms on the module by typing

**>LISTALM**

and pressing the Enter key.

**14** Determine whether the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| MANB                        | step 15 |
| None                        | step 16 |

**15** For further assistance, contact the personnel responsible for the next level of support.

**16** You have completed this procedure. Return to the CI level of the MAP screen by typing

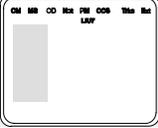
**>QUIT ALL**

and pressing the Enter key.

## PM 1SPM MANBNA SPM major

---

### Alarm banner



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1SPM</b> | .   | .   | .    | .   | .    |
| .  | .  | .   | .   | <b>M</b>    | .   | .   | .    | .   | .    |

### Indication

At the Node level of the MAP screen, SPM preceded by a number appears under the PM header of the alarm banner and a major (M) alarm indicator appears beneath it.

### Meaning

A DMS-Spectrum Peripheral Module (SPM) has been busied manually (MANB) and it is not accessible (NA). The SPM is in ManB state and a network error caused it to be isolated from the enhanced network (ENET) links or the message switch (MS) ports.

Log SPM600 relates to the MANBNA alarm. Tables MNCKTPAK and MNNODE contain datafill related to the MANBNA alarm.

### Impact

The MANBNA alarm is generated by the common equipment module (CEM) and the node.

A serious disruption of service exists. Immediate attention is required.

### Common procedures

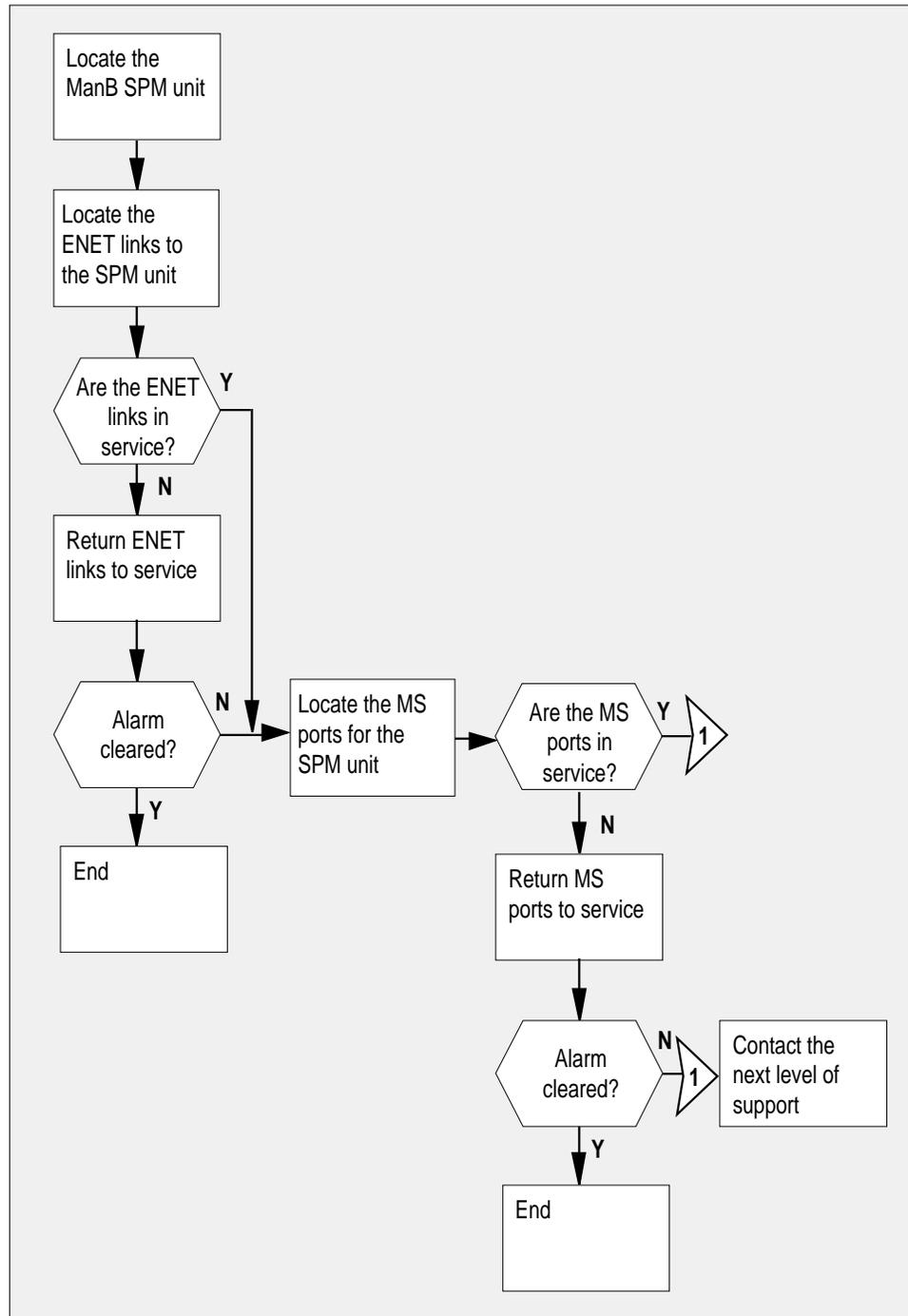
See "Accessing SPM alarms."

### Action

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

**PM 1SPM MANBNA SPM  
major (continued)**

**Summary of clearing a MANBNA alarm**



## PM 1SPM MANBNA SPM major (continued)

### Clearing a MANBNA alarm

#### At the MAP terminal

- 1 Access the PM level of the MAP screen by typing  
**>MAPCI ;MTC ;PM**  
 and pressing the Enter key.

*Example of a MAP screen:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Display all the system-busy SPMs by typing  
**>DISP STATE MANB SPM**  
 and pressing the Enter key.
- 3 Record the number of the SPMs.
- 4 Post each manual-busy-not-available SPM by typing  
**>POST SPM spm\_no**  
 and pressing the Enter key.

*where*

**spm\_no**  
 is the number of the SPM (0 to 63)

*Example of a MAP screen:*

|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM  | 7    | 2    | 2    | 2    | 9    | 16   |
| SPM | 1    | 2    | 1    | 0    | 0    | 0    |

```
SPM 11 ManB Loc: Site HOST Floor 1 Row A FrPos 13
```

| Shlf0 | SL | A | Stat  | Shlf0 | SL    | A  | Stat  | Shlf1 | SL    | A | Stat  | Shlf1 | SL    | A     | Stat  |       |
|-------|----|---|-------|-------|-------|----|-------|-------|-------|---|-------|-------|-------|-------|-------|-------|
| ----- | 1  | - | ----- | CEM   | 1     | 8  | I     | SysB  | ----- | 1 | -     | ----- | 8     | -     | ----- |       |
| ----- | 2  | - | ----- | OC3   | 0     | 9  | A     | ----- | 2     | - | ----- | 9     | -     | ----- |       |       |
| DSP   | 3  | 3 | I     | OffL  | OC3   | 1  | 10    | I     | ----- | 3 | -     | ----- | 10    | -     | ----- |       |
| ----- | 4  | - | ----- | ----- | 11    | -  | ----- | ----- | 4     | - | ----- | ----- | 11    | -     | ----- |       |
| ----- | 5  | - | ----- | DSP12 | 12    | A  | ----- | ----- | 5     | - | ----- | ----- | 12    | -     | ----- |       |
| ----- | 6  | - | ----- | DSP13 | 13    | A  | ----- | ----- | 6     | - | ----- | ----- | 13    | -     | ----- |       |
| CEM   | 0  | 7 | A     | ManB  | ----- | 14 | A     | ----- | ----- | 7 | -     | ----- | ----- | 14    | -     | ----- |

- 5 List the status of the ENET links by typing  
**>TRNSL**  
 and pressing the Enter key.

## PM 1SPM MANBNA SPM major (continued)

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB (NA)

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
Trnsl
Link 1: ENET 0 0 30 0; Status: OK
Link 2: ENET 1 0 30 1; Status: NA
Link 3: ENET 0 0 30 2; Status: OK
Link 4: ENET 1 0 30 3; Status: OK
```

- 6 Determine whether the ENET links are in service.

| If the status of the ENET links is | Do      |
|------------------------------------|---------|
| OK                                 | step 9b |
| NA or UR                           | step 7  |

- 7 If the status of the ENET links is **NA** (not available), Determine whether they were manual busied and why. Return the ENET links to service as soon as possible. When you have completed the procedure, return to this point.

**Note:** Contact your next level of support if you are not familiar with the procedures required to restore ENET links to service.

- 8 List the alarms on the SPM by typing

>**LISTALM**

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 10 |
| MANBNA                  | step 9  |

- 9 Perform the following substeps to record ENET information:

- a List the status of the ENET links by typing

>**TRNSL**

and pressing the Enter key.

*Example of a MAP screen:*

## PM 1SPM MANBNA SPM major (continued)

---

```
SPM 11 CEM 0 Act SysB (NA)

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
Trnsl
Link 1: ENET 0 0 30 0; Status: OK
Link 2: ENET 1 0 30 1; Status: NA
Link 3: ENET 0 0 30 2; Status: OK
Link 4: ENET 1 0 30 3; Status: OK
```

- 10**
  - b** Record the ENET shelf number (30 in the example above)
  - Do the following substeps to determine the MS card numbers:
    - a** At the CI level of MAP screen, locate the MS card that the ENET is connected to by typing  

```
>TABLE ENINV
```

and pressing the Enter key.
    - b** Create a heading for the tuple by typing  

```
>HEADING
```

and pressing the Enter key.
    - c** Position on the tuple for the ENET shelf by typing  

```
>POS enet_shelf_no
```

and pressing the Enter key.  
*where*

**enet\_shelf\_no**  
is the number of the ENET shelf

*Example of a MAP screen:*

## PM 1SPM MANBNA SPM major (continued)

```

CI:
>table eninv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: ENINV
>heading
ENKEY ENCLASS FRTYPE FRNO FRPEC SHPEC MSCARD0 MSLINK0 MSPORT0 FLOOR0
ROW0 FRPOS0 SHELF0 LOAD0 MSCARD1 MSLINK1 MSPORT1
FLOOR1 ROW1 FRPOS1 SHELF1 LOAD1

>pos 0
 0 PRI ENC 0 NT9X05AB NT9X0801 6 0 0 1
 F 2 39 ENX08AX 10 0 0
 1 F 1 39 ENX08AX

```

**d** Record the MS card numbers under MSCARD0 and MSCARD1 (6 and 10 in the example above).

**11** Locate the MS cards by typing

```
>MAPCI;MTC;MS;SHELF 0;CARD ms_card_no
```

and pressing the Enter key.

where

**ms\_card\_no**  
is the number of the MS card

Example of a MAP screen:

```

Message Switch Clock Shelf 0 Inter-MS Link 0 1
MS 0 . Master F R R
MS 1 S Slave C C C

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 F . . . F - F .
MS 1 C C C C C C C C C C C C C C C C C C - C C C C C C

Card 06 Protocol Port 0____3 4____7 8____11 12____15
MS 0 . DS512 64 P P
MS 1 C DS512 64 C P P P P P P P P P P P P P

```

**12** Do the following substeps to check the status of both ports (0 and 1) on both MS cards (MSCARD0 and MSCARD1).

**PM 1SPM MANBNA SPM**  
**major** (continued)

- a Determine the state of each MS card port that connects to the SPM with the SYSBNA alarm, by typing

>TRNSL **ms\_card\_port**

and pressing the Enter key.

where

**ms\_card\_port**

is the number of the MS card port (0 or 1)

*Example of a MAP screen:*

```
PORT 20=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 21=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 22=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 23=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 24=SPM 12 (OK :AV SYST ACC NCP MSRR PSRR)
```

- b Repeat Step 12a. for the second MS port.
- c Repeat Step 11 for the other MS card and repeat Steps 12a. and 12b. to check the MS ports on that card. INSERT TABLE

| If the status of the MS ports shows | Do      |
|-------------------------------------|---------|
| OK for all four ports               | step 15 |
| NA or UR for any port               | step 13 |

- 13 Return the MS ports to service. When you have completed the procedure, return to this point.

**Note:** Contact your next level of support if you are not familiar with the procedures required to restore MS ports to service.

- 14 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 16 |
| SYSBNA                  | step 15 |

- 15 For further assistance, contact the personnel responsible for the next level of support.

**PM 1SPM MANBNA SPM  
major (end)**

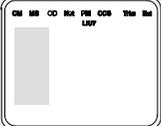
---

- 16** You have completed this procedure. Return to the CI level of the MAP screen by typing  
**>QUIT ALL**  
and pressing the Enter key.

## PM 1SPM MFLOW SPM minor

---

### Alarm display



| CM | MS | IOD | Net | PM         | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | PM<br>1SPM | .   | .   | .    | .   | .    |
| .  | .  | .   | .   |            | .   | .   | .    | .   | .    |

### Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor ( ) alarm indicator appears beneath it.

### Meaning

The low water mark threshold was exceeded for multifrequency (MF) resources. The demand for MF resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the MFLOW alarm. Tables MNCKTPAK and MNNODE contain datafill related to the MFLOW alarm.

### Impact

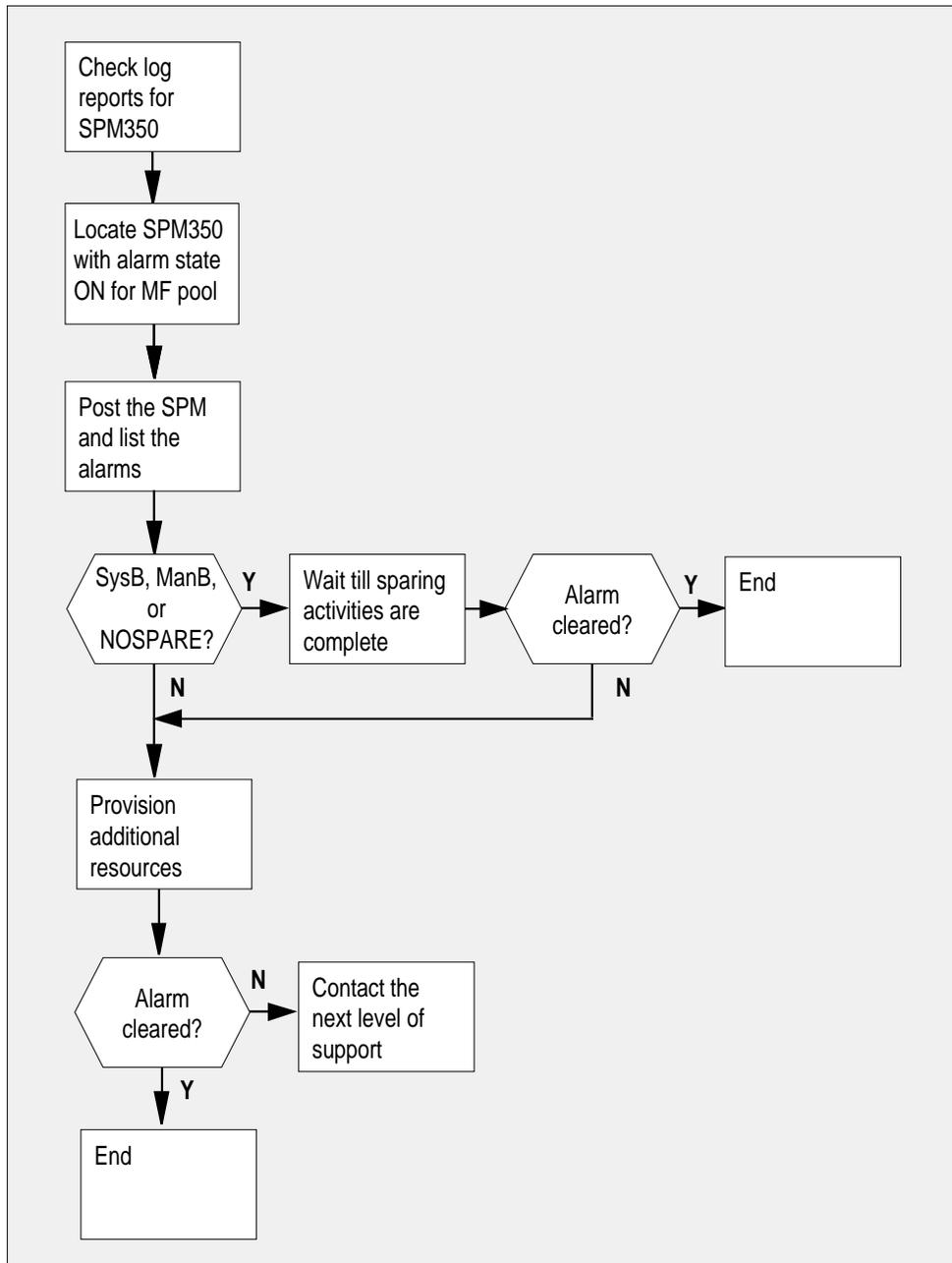
If the threshold setting is low enough to ensure that there are adequate resources in the MF pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available MF resources cannot meet the demand, call processing or grades of service, or both, are degraded.

### Common procedures

See “Accessing SPM alarms.”

### Action

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

**PM 1SPM MFLOW SPM  
minor (continued)****Summary of clearing an MFLOW alarm**

## PM 1SPM MFLOW SPM minor (continued)

---

### Clearing an MFLOW alarm

#### *At the MAP terminal*

- 1 Access the log utility level of the MAP screen by typing

```
>LOGUTIL
```

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

```
>DUMPLOGS SPM 350
```

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL = MF
SPM_NUM = 20
NUM_FREE = 39
NUM-INUSE = 61
```

**Note:** OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

- 3 Locate an SPM350 log with ALARM\_STATE = ON and POOL = MF. Record the number of the SPM.

- 4 Post the SPM by typing

```
>MAPCI;MTC;PM;POST SPM spm_no
```

and pressing the Enter key.

*where*

**spm\_no**

is the number of the SPM (0 to 63) shown in the log report

*Example of a MAP screen:*

## PM 1SPM MFLOW SPM minor (continued)

```

 SysB ManB OffL CBsy ISTb InSv
PM 7 2 2 2 9 16
SPM 0 1 1 0 0 1

SPM 20 InSv Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I InSv ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A InSv ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I InSv ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A InSv ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A InSv ----- 6 - ---- ----- 13 - ----
CEM 0 7 A InSv ----- 14 A InSv ----- 7 - ---- ----- 14 - ----

```

**5** List the alarms on the SPM by typing

**>LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

```

ListAlm
ListAlm: SPM 11

SEVERITY ALARM ACTION

Critical None
Major None
Minor MFLOW RPT
No_Alarm None

```

**6** Do the following substeps to Determine whether sparing activities are underway.

**a** Check the alarm list for a NOSPARE alarm.

| If the alarm list indicates | Do       |
|-----------------------------|----------|
| Major NOSPARE               | step 6 b |
| Major None                  | step 6 c |

**b** Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE alarm clearing procedure.

**c** Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.

## PM 1SPM MFLOW SPM minor (end)

---

d Wait until the state of the DSPs indicates InSv.

- 7 When the DSPs are returned to service, Determine whether the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor MFLOW                 | step 8  |
| Minor None                  | step 11 |

- 8 Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

**Note:** Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor MFLOW                 | step 10 |
| Minor None                  | step 11 |

- 10 For further assistance, contact the personnel responsible for the next level of support.

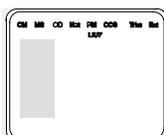
- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

## PM 1SPM NOSPARE SPM major

### Alarm banner



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1SPM</b> | .   | .   | .    | .   | .    |
| .  | .  | .   | .   | <b>M</b>    | .   | .   | .    | .   | .    |

### Indication

At the OC3, VSP, DSP, or ATM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a major (M) alarm indicator appears beneath it.

### Meaning

The last spare module in a protection group is not available for service.

The DMS-Spectrum Peripheral Module (SPM) logs SPM330 and SPM331 relate to the NOSPARE alarm. Table MNPRTGRP contains datafill related to the NOSPARE alarm.

### Impact

No sparing capability alarms are generated for the following modules:

- OC3
- DSP
- VSP
- ATM

This alarm indicates that redundant capability for one of these modules is not available. A serious disruption of service can occur and immediate attention is required.

### Common procedures

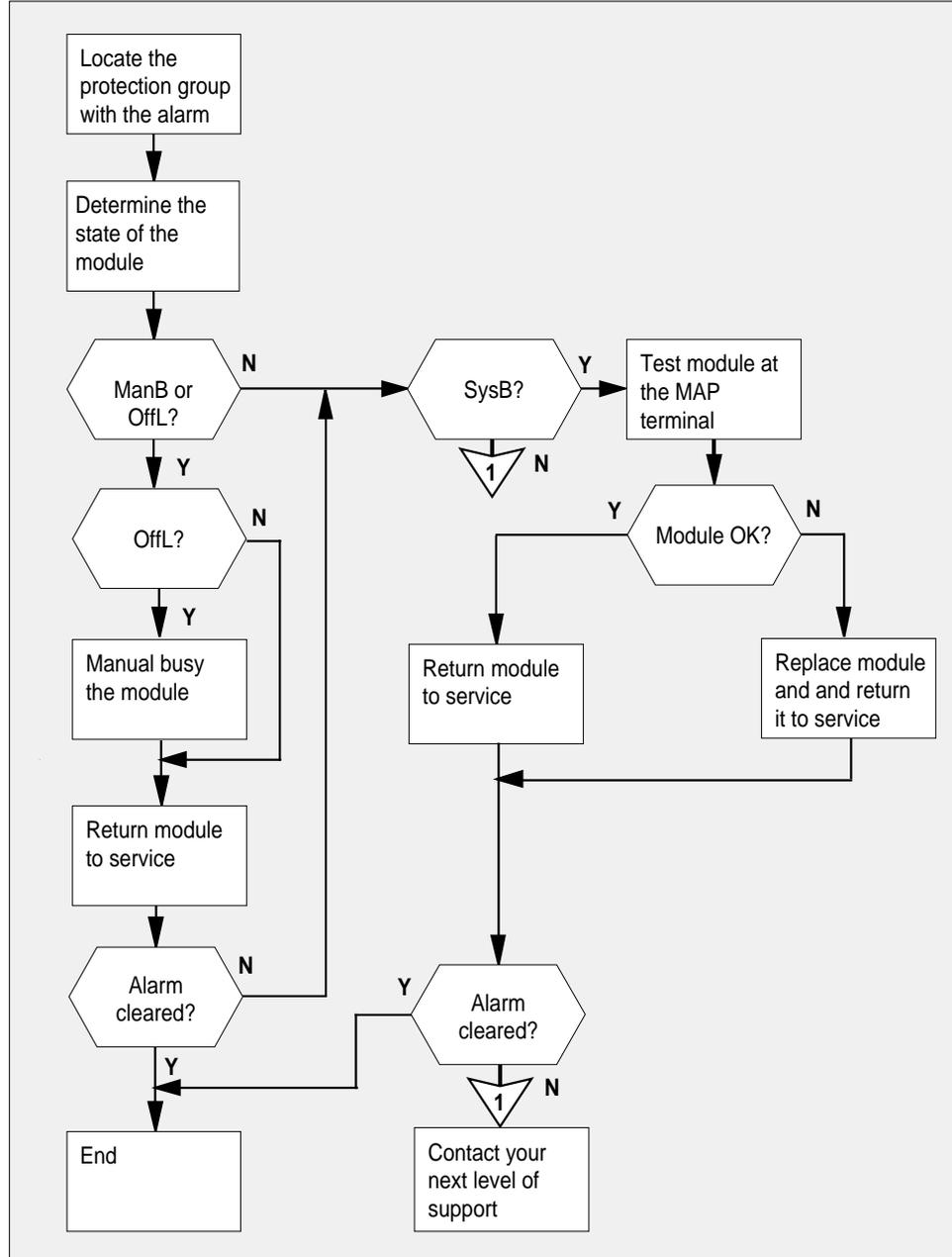
See "Accessing SPM alarms."

### Action

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

**PM 1SPM NOSPARE SPM**  
**major** (continued)

**Summary of clearing a NOSPARE alarm**



---

## PM 1SPM NOSPARE SPM major (continued)

---

### Clearing a NOSPARE alarm

#### *At the MAP terminal*

- 1 Access the PM level of the MAP screen by typing

**>MAPCI ;MTC ;PM**

and pressing the Enter key.

*Example of a MAP screen:*

| PM | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| 1  | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Show the state of all PMs by typing

**>STATUS**

and pressing the Enter key.

- 3 Post the SPMs by typing

**>POST SPM all**

and pressing the Enter key.

*where*

**all**

refers to all of the SPMs (0 to 63)

- 4 List the alarms on each SPM by typing

**>LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

## PM 1SPM NOSPARE SPM major (continued)

```

 SysB ManB OffL CBSy ISTb InSv
 PM 7 2 2 2 9 16
 SPM 0 2 1 0 0 0

SPM 11 SysB Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I SysB ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A ----- 6 - ---- ----- 13 - ----
CEM 0 7 A SysB VSP14 14 A ----- 7 - ---- ----- 14 - ----
ListAlm
ListAlm: SPM 11 CEM 0

SEVERITY ALARM ACTION

Critical None
Major NOSPARE RPT
Minor None
No_Alarm None

```

- 5 Record the number of each SPM with a NOSPARE alarm.
- 6 Determine which of the OC3, DSP, VSP, or ATM modules are not in service (InSv, CBSy, or IsTb) and select the modules by typing

>SELECT module\_type module\_number

and pressing the Enter key.

where

**module\_type**

is the type of module (OC3, DSP, VSP, or ATM).

**module\_no**

is the number of the module (0 to 27)

- 7 Locate the NOSPARE alarms on each module by typing

>PROT;LISTALM

and pressing the Enter key.

- 8 Determine the state of the module from the LISTALM display.

*Example of a MAP screen:*

## PM 1SPM NOSPARE SPM major (continued)

```

SPM 16 InSv
Prot Grp: VSP_GRP 1 Mode: Non-revertive Schema: m_for_n
Sh0 U R A Stat Sh0 U R A Stat Sh1 U R A Stat Sh1 U R A Stat
 1 - - - - - 8 - - - - - 1 0 W A ManB 8 - - - - -
 2 - - - - - 9 - - - - - 2 1 W A ManB 9 - - - - -
 3 - - - - - 10 - - - - - 3 - - - - - 10 - - - - -
 4 - - - - - 11 - - - - - 4 - - - - - 11 - - - - -
 5 - - - - - 12 - - - - - 5 - - - - - 12 - - - - -
 6 - - - - - 13 - - - - - 6 - - - - - 13 - - - - -
 7 - - - - - 14 - - - - - 7 - - - - - 14 - - - - -
ListAlm

```

```
ListAlm: VSP_GRP 1
```

```

SEVERITY ALARM ACTION

Critical None
Major NOSPARE RPT
Minor None
No_Alarm None

```

| If the module is   | Do      |
|--------------------|---------|
| OffL               | step 9  |
| ManB               | step 10 |
| in any other state | step 13 |

- 9** Return to the module level and set the module to manual busy by typing

```
>QUIT;BSY;RTS
```

and pressing the Enter key. Go to Step 11.

- 10** Return to the module level and return the module to service by typing

```
>QUIT;RTS
```

and pressing the Enter key.

- 11** List the alarms on the module at the protection level by typing

```
>PROT;LISTALM
```

and pressing the Enter key.

*Example of a MAP screen:*

**PM 1SPM NOSPARE SPM  
major** (continued)

ListAlm

ListAlm: VSP\_GRP 1

```

SEVERITY ALARM ACTION

Critical None
Major None
Minor None
No_Alarm None

```

- 12 Determine whether the NOSPARE alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| NOSPARE                     | step 13 |
| None                        | step 21 |

- 13 Determine the state of the module.

| If the module is   | Do      |
|--------------------|---------|
| SysB               | step 14 |
| in any other state | step 20 |

- 14 Perform an in-service test on the module by typing

>TST

and pressing the Enter key.

*Example of a MAP screen:*

```

SPM 3 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Spare
Clock:Input Ref: Internal Source: C Side 0 Current Mode:
Acquire
Tst
SPM 3 CEM 0 Test : Request has been submitted.
SPM 3 CEM 0 Test : Test passed.

```

- 15 Determine the test condition of the module. I

| If the test results show | Do      |
|--------------------------|---------|
| Test passed.             | step 16 |

## PM 1SPM NOSPARE SPM major (end)

| If the test results show | Do      |
|--------------------------|---------|
| Test failed.             | step 19 |

- 16** Return the module to service by typing

**>RTS**

and pressing the Enter key.

- 17** List the alarms on the module by typing

**>LISTALM**

and pressing the Enter key.

- 18** Determine whether the NOSPARE alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| NOSPARE                     | step 20 |
| None                        | step 21 |

- 19** Replace the OC3, DSP, VSP, or ATM module, as appropriate. For detailed instructions, see one of the following the *Card Replacement Procedures*. When you have completed the procedure, return to this point.

- "SPM NTLX71AA OC3 card"
- "SPM NTLX65AA DSP card"
- "SPM NTLX66AA VSP card"
- "SPM NTLX73AA ATM card"

- 20** For further assistance, contact the personnel responsible for the next level of support.

- 21** You have completed this procedure. Return to the CI level of the MAP screen by typing

**>QUIT ALL**

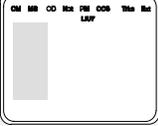
and pressing the Enter key.

---

## PM 1SPM PROTFAIL SPM critical

---

### Alarm banner



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

### Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A critical (\*C\*) alarm indicator appears beneath it.

### Meaning

Protection (PROT) switching failed to occur on protected modules.

The following DMS-Spectrum Peripheral Module (SPM) logs relate to the PROTFAIL alarm .

- SPM300
- SPM331
- SPM500
- SPM630

Table MNCKTPAK contains datafill related to the PROTFAIL alarm

### Impact

The following devices issue protection failure alarms:

- OC3
- DSP
- VSP
- ATM
- DLC

| Attention                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------|
| The voice signal processor (VSP), asynchronous transfer mode (ATM), and data link controller (DLC) do not apply to all markets. |

**PM 1SPM PROTFAIL SPM  
critical** (continued)

---

This alarm indicates that one or more active modules failed and protection switching to back-up modules did not occur. A severe service-affecting condition exists, and the alarm requires immediate corrective action.

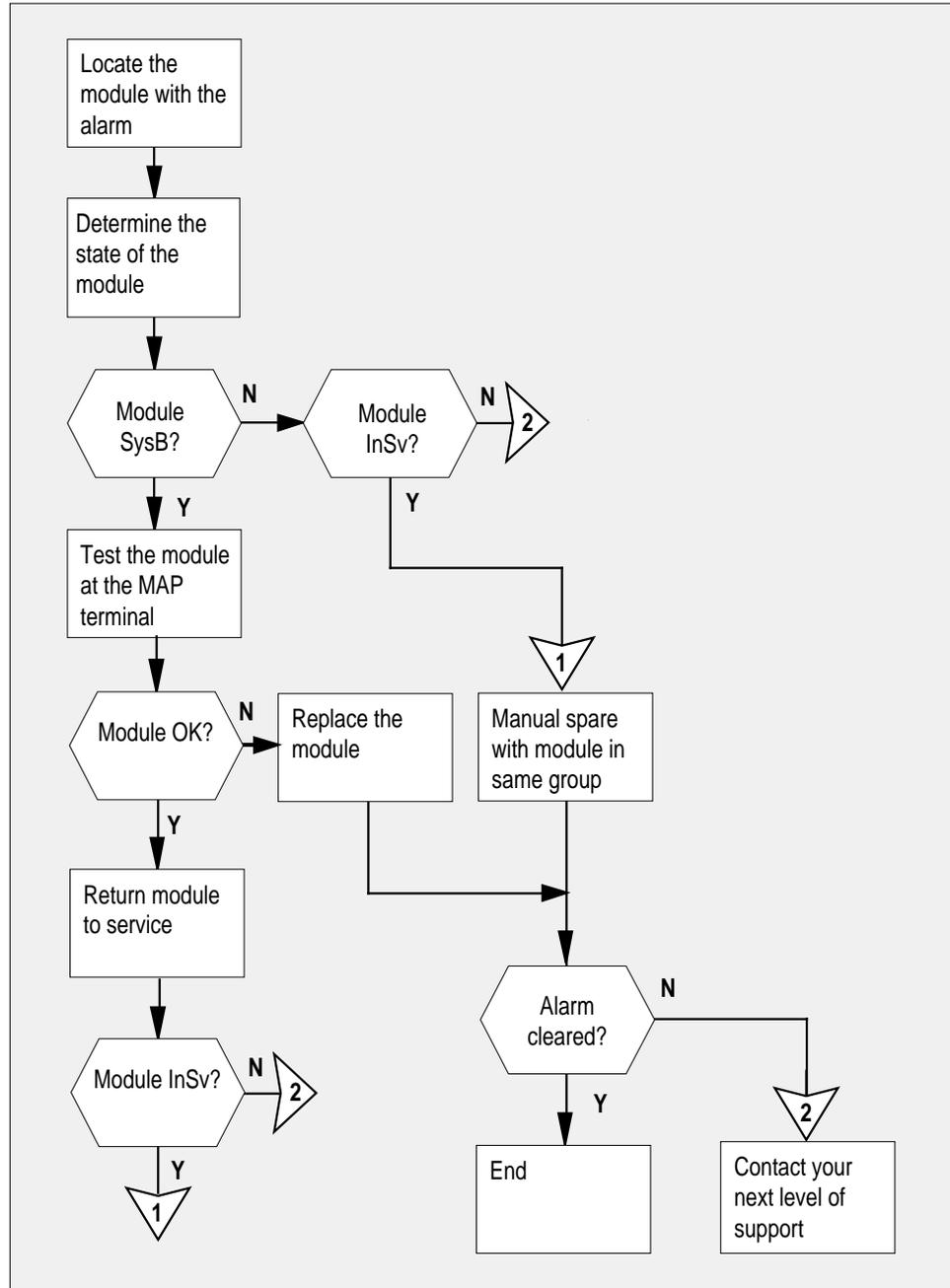
**Common procedures**

For basic information about SPM alarms, see "Accessing SPM alarms".

**Action**

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

# PM 1SPM PROTFAIL SPM critical (continued)



---

**PM 1SPM PROTFAIL SPM  
critical** (continued)

---

**Clearing a PROTFAIL alarm****At the MAP terminal**

- 1 Access the PM level of the MAP screen by typing

```
>MAPCI;MTC;PM
```

and pressing the Enter key.

*Example of a MAP screen:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Show the state of all PMs by typing

```
>STATUS
```

and pressing the Enter key.

- 3 Post the SPMs by typing

```
>POST SPM all
```

and pressing the Enter key.

*where*

**all**

refers to all of the SPM (0 to 63)

*Example of a MAP screen:*

**PM 1SPM PROTFAIL SPM**  
**critical** (continued)

|     |  | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|--|------|------|------|------|------|------|
| PM  |  | 7    | 2    | 2    | 2    | 9    | 16   |
| SPM |  | 0    | 2    | 1    | 0    | 0    | 0    |

| SPM   | 11    | SysB  | Loc:  | Site  | HOST  | Floor | 1     | Row   | A     | FrPos | 13    |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Shlf0 | SL    | A     | Stat  | Shlf0 | SL    | A     | Stat  | Shlf1 | SL    | A     | Stat  |       |
| ----- | 1     | -     | ----- | CEM   | 1     | 8     | I     | SysB  | ----- | 1     | -     | ----- |
| ----- | 2     | -     | ----- | OC3   | 0     | 9     | A     | ----- | 2     | -     | ----- |       |
| DSP   | 3     | 3     | I     | OffL  | OC3   | 1     | 10    | I     | ----- | 3     | -     | ----- |
| ----- | 4     | -     | ----- | ----- | 11    | -     | ----- | ----- | 4     | -     | ----- |       |
| ----- | 5     | -     | ----- | DSP12 | 12    | A     | ----- | ----- | 5     | -     | ----- |       |
| ----- | 6     | -     | ----- | DSP13 | 13    | A     | ----- | ----- | 6     | -     | ----- |       |
| CEM   | 0     | 7     | A     | SysB  | VSP14 | 14    | A     | ----- | 7     | -     | ----- |       |
| ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |       |

- 4 Record the number of each SPM with a PROTFAIL alarm.
- 5 Determine which of the OC3, DSP, VSP, ATM, or DLC modules are not in service (InSv, CBsy, or ISTb) and select the modules by typing

>**SELECT module\_type module\_no**  
and pressing the Enter key.

where

**module\_type**  
is the type of module (OC3, DSP, VSP, ATM, or DLC)

**module\_no**  
is the number of the module (0 to 27)

Example of a MAP screen:

|         |       |         |       |       |       |    |      |   |      |    |      |      |       |       |
|---------|-------|---------|-------|-------|-------|----|------|---|------|----|------|------|-------|-------|
| SPM     | 3     | OC3     | 1     | InAct | OffL  |    |      |   |      |    |      |      |       |       |
| Loc :   | Row   | E       | FrPos | 8     | ShPos | 24 | ShId | 0 | Slot | 10 | Prot | Grp  | : 1   |       |
| Default | Load: | SPMLOAD |       |       |       |    |      |   |      |    |      | Prot | Role: | Spare |

- 6 Locate the PROTFAIL alarms on each module by typing

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

Example of a MAP screen:

## PM 1SPM PROTFAIL SPM critical (continued)

```
ListAlm
ListAlm: SPM 11 OC3

SEVERITY ALARM ACTION

Critical None
Major PROTFAIL RPT
Minor None
No_Alarm None
```

- 7 Determine the state of the module from the SELECT display.

| If the module is   | Do      |
|--------------------|---------|
| SysB               | step 8  |
| in any other state | step 11 |

- 8 Perform an in-service test on the module by typing

**>TST**

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 OC3 1 Act ISTb

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLoad Prot Role: Spare
Clock:Input Ref: Internal Source: C Side 0 Current Mode:
Acquire
Tst
SPM 3 CEM 0 Test : Request has been submitted.
SPM 3 CEM 0 Test : Test passed.
```

- 9 Determine the test condition of the module.

| If the test results show | Do      |
|--------------------------|---------|
| Test passed.             | step 10 |
| Test failed.             | step 12 |

- 10 Return the module to service by typing

**>RTS**

---

## PM 1SPM PROTFAIL SPM

**critical** (continued)

---

and pressing the Enter key.

- 11 Determine the state of the module.

| If the module is   | Do      |
|--------------------|---------|
| InSv               | step 13 |
| in any other state | step 17 |

- 12 Replace the module identified in step 5. For detailed instructions, see the SPM section of the *Card Replacement Procedures*. When you complete the card replacement procedure, go to step 13 of this procedure.

- 13 Access the protection level of the MAP screen by typing

>PROT

and pressing the Enter key.

- 14 Do a manual protection switch with a module in the same protection group by typing

>MANUAL from\_unit\_no to\_unit\_no

and pressing the Enter key.

where

**from\_unit\_no**

is the number (0 to 27) of the module with the alarm.

**to\_unit\_no**

is the number (0 to 27) of the inactive module in the same protection group

*Example of a MAP screen:*

```
SPM 0 DSP 1 Manual: Request has been submitted.
SPM 0 DSP 0 Manual: Command completed.
```

- 15 List the alarms on the module by typing

>LISTALM

and pressing the Enter key.

- 16 Determine whether the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| PROTFAIL                    | step 17 |
| None                        | step 18 |

**PM 1SPM PROTFAIL SPM  
critical (end)**

---

- 17** For further assistance, contact the personnel responsible for the next level of support.
- 18** You have completed this procedure. Return to the CI level of the MAP screen by typing

**>QUIT ALL**

and pressing the Enter key.

## PM 1SPM SYSB SPM critical

### Alarm banner

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

### Indication

At the PM level of the MAP display, SPM appears under the PM header of the alarm banner, preceded by a number. A critical (\*C\*) alarm indicator appears beneath it.

### Meaning

A module in a DMS-Spectrum Peripheral Module (SPM) is in system-busy (SYSB) state. A severe disruption of service exists. This alarm requires immediate attention.

The following logs relate to the SYSB alarm:

- NODE500
- SPM300
- SPM331
- SPM500
- SPM630
- CARR500
- CARR501
- CARR510
- CARR511
- CARR512

Tables MNCKTPAK and MNNODE contain datafill related to the SYSB alarm.

### Impact

The following devices generate SYSB alarms:

- Node
- CEM

**PM 1SPM SYSB SPM  
critical** (continued)

---

- OC3
- DSP
- VSP
- ATM
- DLC

|                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Attention</b>                                                                                                                |
| The voice signal processor (VSP), asynchronous transfer mode (ATM), and data link controller (DLC) do not apply to all markets. |

The active module generating the alarm is not in service. You must return it to service or replace it.

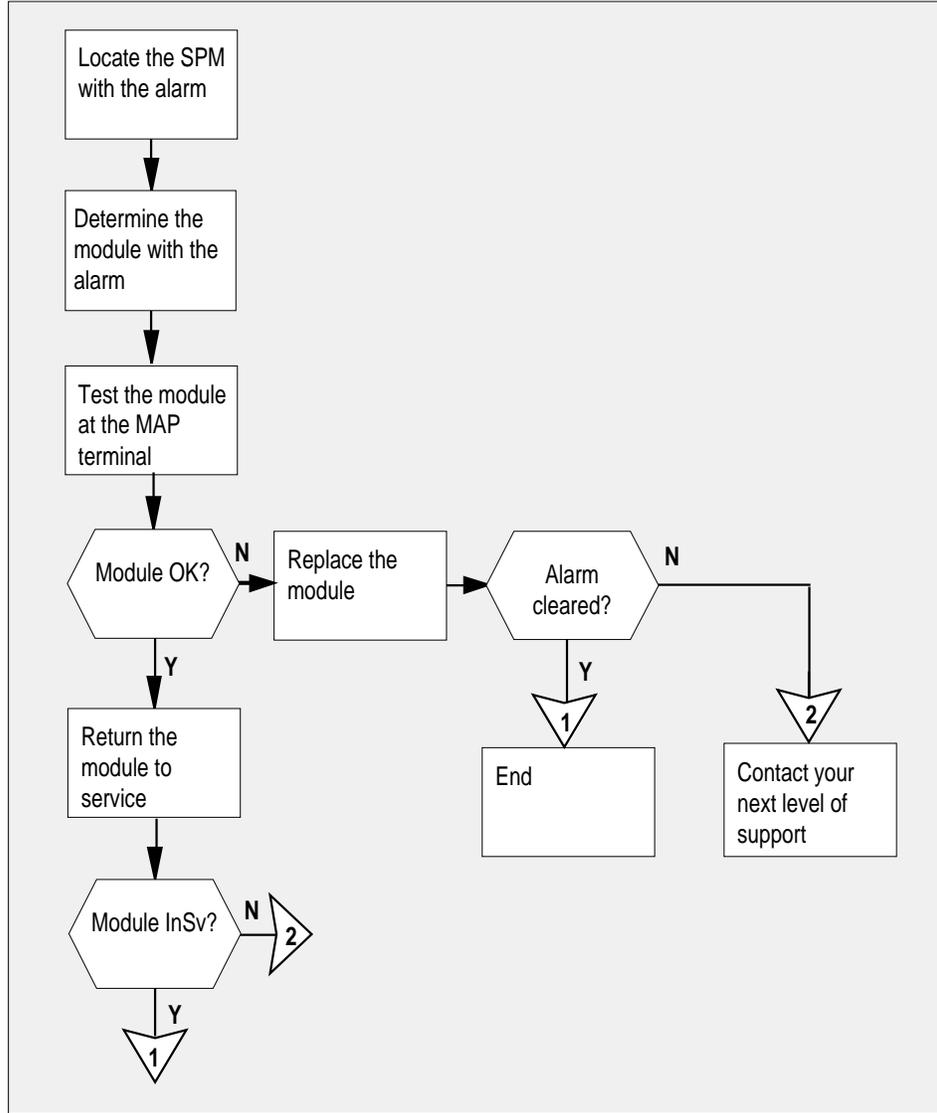
### **Common procedures**

For basic information about SPM alarms, see "Accessing SPM alarms" in this document.

### **Action**

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

**PM 1SPM SYSB SPM**  
**critical** (continued)



---

## PM 1SPM SYSB SPM critical (continued)

---

### Clearing a SYSB alarm

#### *At the MAP terminal*

- 1 Access the PM level of the MAP screen by typing

**>MAPCI ;MTC ;PM**

and pressing the Enter key.

*Example of a MAP screen:*

|    | SysB | ManB | OffL | CBSy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Show the state of all PMs by typing

**>STATUS**

and pressing the Enter key.

- 3 Display the SPMs that are system busy by typing

**>DISP STATE SYSB SPM**

and pressing the Enter key.

- 4 Record the number of the SPMs.

- 5 Post each system busy SPM by typing

**>POST SPM *spm\_no***

and pressing the Enter key.

*where*

***spm\_no***

is the number of the SPM (0 to 63)

*Example of a MAP screen:*

**PM 1SPM SYSB SPM**  
**critical** (continued)

```

 SysB ManB OffL CBsy ISTb InSv
PM 7 2 2 2 9 16
SPM 0 2 1 0 0 0

SPM 11 SysB Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I SysB ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A ----- 6 - ---- ----- 13 - ----
CEM 0 7 A SysB VSP14 14 A ----- 7 - ---- ----- 14 - ----

```

- 6 Determine which of the CEM, OC3, DSP, VSP, or ATM modules is system-busy and select the modules by typing

>**SELECT module\_type module\_no**

and pressing the Enter key.

where

**module\_type**

is the type of module (CEM, OC3, DSP, VSP, or ATM).

**module\_no**

is the number of the module (0 to 27)

Example of a MAP screen:

```

SPM 3 OC3 1 InAct OffL

Loc : Row E FrPos 8 ShPos 24 ShId 0 Slot 10 Prot Grp : 1
Default Load: SPMLOAD Prot Role: Spare

```

- 7 Test the module by typing

>**TST**

and pressing the Enter key.

- 8 Determine the test condition of the module.

| If the module test is | Do      |
|-----------------------|---------|
| OK                    | step 9  |
| not OK                | step 11 |

---

**PM 1SPM SYSB SPM**  
**critical (end)**


---

- 9** Return the module to service by typing

**>RTS**

and pressing the Enter key.

- 10** Determine the state of the module.

| If the module is | Do      |
|------------------|---------|
| InSv             | step 15 |
| any other state  | step 14 |

- 11** Replace the module identified in step 6. For detailed instructions, see the SPM section of the *Card Replacement Procedures*. When you complete the card replacement procedure, go to step 12 of this procedure.

- 12** List the alarms on the module by typing

**>LISTALM**

and pressing the Enter key.

- 13** Determine whether the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| SYSB                        | step 14 |
| None                        | step 15 |

- 14** For further assistance, contact the personnel responsible for the next level of support.

- 15** You have completed this procedure. Return to the CI level of the MAP screen by typing

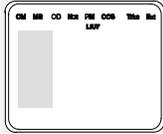
**>QUIT ALL**

and pressing the Enter key.

## PM 1SPM SYSBNA SPM critical

---

### Alarm banner



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

### Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the alarm banner and a critical (\*C\*) alarm indicator appears beneath it.

### Meaning

The SPM node is system busy (SYSB) and it is not accessible (NA). The DMS-Spectrum Peripheral Module (SPM) is in SysB state and a network error has caused it to be isolated from the enhanced network (ENET) links or the message switch (MS) ports.

Log ENET311 relates to the SYSBNA alarm. Tables MNCKTPAK and MNNODE contain datafill related to the SYSBNA alarm.

### Impact

A severe service-affecting condition exists. Immediate corrective action is required.

### Common procedures

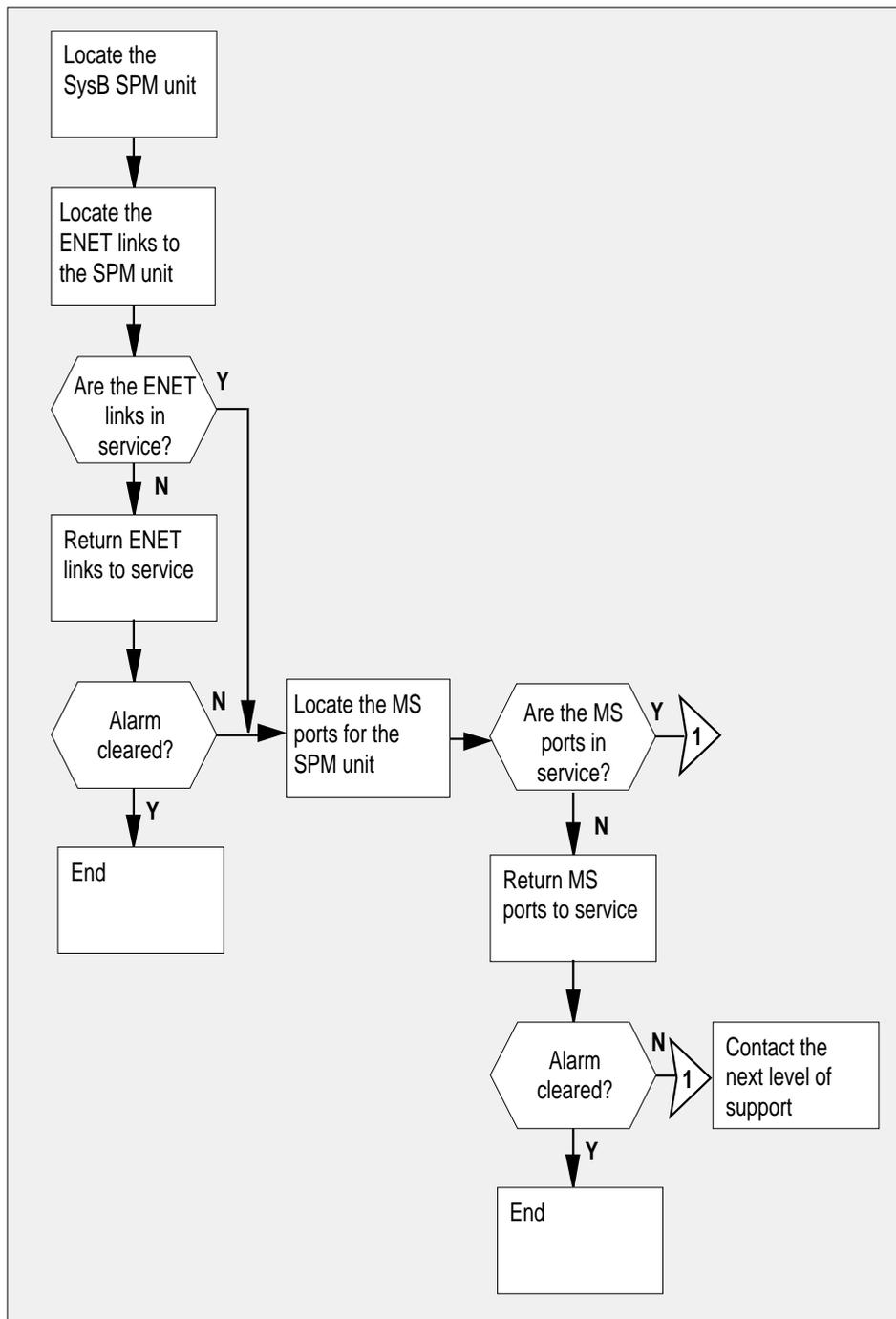
For basic information about SPM alarms, see “Accessing SPM alarms” in this document.

### Action

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

**PM 1SPM SYSBNA SPM**  
**critical** (continued)

**Summary of clearing a SYSBNA alarm**



## PM 1SPM SYSBNA SPM critical (continued)

### Clearing a SYSBNA alarm

#### At the MAP terminal

- 1 Access the PM level of the MAP screen by typing

```
>MAPCI;MTC;PM
```

and pressing the Enter key.

*Example of a MAP screen:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Display all the system-busy SPMs by typing

```
>DISP STATE SYSB SPM
```

and pressing the Enter key.

- 3 Record the number of the SPMs.
- 4 Post each system-busy-not-available SPM by typing

```
>POST SPM spm_no
```

and pressing the Enter key.

*where*

**spm\_no**  
is the number of the SPM (0 to 63)

*Example of a MAP screen:*

|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM  | 7    | 2    | 2    | 2    | 9    | 16   |
| SPM | 1    | 2    | 1    | 0    | 0    | 0    |

```
SPM 11 SysB Loc: Site HOST Floor 1 Row A FrPos 13
```

| Shlf0 | SL | A | Stat   | Shlf0 | SL | A  | Stat   | Shlf1 | SL | A | Stat | Shlf1 | SL | A | Stat |
|-------|----|---|--------|-------|----|----|--------|-------|----|---|------|-------|----|---|------|
| ----- | 1  | - | ----   | CEM   | 1  | 8  | I SysB | ----- | 1  | - | ---- | ----- | 8  | - | ---- |
| ----- | 2  | - | ----   | OC3   | 0  | 9  | A      | ----- | 2  | - | ---- | ----- | 9  | - | ---- |
| DSP   | 3  | 3 | I OffL | OC3   | 1  | 10 | I      | ----- | 3  | - | ---- | ----- | 10 | - | ---- |
| ----- | 4  | - | ----   | ----- | 11 | -  | ----   | ----- | 4  | - | ---- | ----- | 11 | - | ---- |
| ----- | 5  | - | ----   | DSP12 | 12 | A  | ----   | ----- | 5  | - | ---- | ----- | 12 | - | ---- |
| ----- | 6  | - | ----   | DSP13 | 13 | A  | ----   | ----- | 6  | - | ---- | ----- | 13 | - | ---- |
| CEM   | 0  | 7 | A SysB | ----- | 14 | A  | ----   | ----- | 7  | - | ---- | ----- | 14 | - | ---- |

## PM 1SPM SYSBNA SPM critical (continued)

- 5 List the status of the ENET links by typing

>TRNSL

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB (NA)

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
Trnsl
Link 1: ENET 0 0 30 0; Status: OK
Link 2: ENET 1 0 30 1; Status: NA
Link 3: ENET 0 0 30 2; Status: OK
Link 4: ENET 1 0 30 3; Status: OK
```

- 6 Determine whether the ENET links are in service.

| If the status of the ENET links is | Do      |
|------------------------------------|---------|
| OK                                 | step 9b |
| NA or UR                           | step 7  |

- 7 Return the ENET links to service. Refer to the *Alarm Clearing and Performance Monitoring Procedures Reference Manual*. When you have completed the procedure, return to this point.

**Note:** Contact your next level of support if you are not familiar with the procedures required to restore ENET links to service.

- 8 List the alarms on the SPM unit by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 10 |
| SYSBNA                  | step 9  |

- 9 Perform the following substeps to record ENET information:

## PM 1SPM SYSBNA SPM critical (continued)

---

- a List the status of the ENET links by typing

>TRNSL

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act SysB (NA)

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
Trnsl
Link 1: ENET 0 0 30 0; Status: OK
Link 2: ENET 1 0 30 1; Status: NA
Link 3: ENET 0 0 30 2; Status: OK
Link 4: ENET 1 0 30 3; Status: OK
```

- b Record the ENET shelf number (30 in the example above).
- 10** Do the following substeps to determine the MS card numbers:
- a At the CI level of MAP screen, locate the MS card that the ENET is connected to by typing

>TABLE ENINV

and pressing the Enter key.

- b Create a heading for the tuple by typing

>HEADING

and pressing the Enter key.

- c Position on the tuple for the ENET shelf by typing

>POS enet\_shelf\_no

and pressing the Enter key.

*where*

**enet\_shelf\_no**

is the number of the ENET shelf

*Example of a MAP screen:*

## PM 1SPM SYSBNA SPM critical (continued)

```

CI:
>table eninv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: ENINV
>heading
ENKEY ENCLASS FRTYPE FRNO FRPEC SHPEC MSCARD0 MSLINK0 MSPORT0 FLOOR0
ROW0 FRPOS0 SHELF0 LOAD0 MSCARD1 MSLINK1 MSPORT1
FLOOR1 ROW1 FRPOS1 SHELF1 LOAD1

>pos 0
 0 PRI ENC 0 NT9X05AB NT9X0801 6 0 0 1
 F 2 39 ENX08AX 10 0 0
 1 F 1 39 ENX08AX

```

**d** Record the MS card numbers under MSCARD0 and MSCARD1 (6 and 10 in the previous example).

**11** Locate the MS cards by typing

```
>MAPCI;MTC;MS;SHELF 0;CARD ms_card_no
```

and pressing the Enter key.

where

**ms\_card\_no**  
is the number of the MS card

Example of a MAP screen:

```

Message Switch Clock Shelf 0 Inter-MS Link 0 1
MS 0 . Master F 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 F . . . F - F .
MS 1 C C C C C C C C C C C C C C C C - C C C C C C

Card 06 Protocol Port 0____3 4____7 8____11 12____15
MS 0 . DS512 64 P P
MS 1 C DS512 64 C P P P P P P P P P P P P P

```

**12** Do the following substeps to check the status of both ports (0 and 1) on both MS cards (MSCARD0 and MSCARD1).

**PM 1SPM SYSBNA SPM**  
**critical** (continued)

- a Determine the state of each MS card port that connects to the SPM with the SYSBNA alarm, by typing

>TRNSL ms\_card\_port  
 and pressing the Enter key.

where

**ms\_card\_port**  
 is the number of the MS card port (0 or 1)

Example of a MAP screen:

```
PORT 20=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 21=SPM 10 (OK ,P:NA SYST ACC NP MSRR ^PSRR)
PORT 22=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 23=SPM 11 (OK :UR SYST ACC NP MSRR PSRR)
PORT 24=SPM 12 (OK :AV SYST ACC NCP MSRR PSRR)
```

- b Repeat step 12a for the second MS port.
- c Repeat step 11 for the other MS card and repeat steps 12a and 12b to check the MS ports on that card.

| If the status of the MS ports shows | Do      |
|-------------------------------------|---------|
| OK for all four ports               | step 15 |
| NA or UR for any port               | step 13 |

- 13 Return the MS ports to service. Refer to the *Alarm Clearing and Performance Monitoring Procedures Reference Manual*. When you have completed the procedure, return to this point.

**Note:** Contact your next level of support if you are not familiar with the procedures required to restore MS ports to service.

- 14 List the alarms on the SPM unit by typing

>LISTALM  
 and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 16 |
| SYSBNA                  | step 15 |

- 15 For further assistance, contact the personnel responsible for the next level of support.

**PM 1SPM SYSBNA SPM  
critical (end)**

---

- 16** You have completed this procedure. Return to the CI level of the MAP screen by typing

**>QUIT ALL**

and pressing the Enter key.

## PM1SPM TONESLOW SPM minor

### Alarm display

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

### Indication

At the PM level of the MAP display, SPM preceded by a number appears under the PM header of the alarm banner and a minor ( ) alarm indicator appears beneath it.

### Meaning

The low water mark threshold was exceeded for tone synthesizer (TONESYN) resources. The demand for TONESYN resources exceeded the threshold setting.

The DMS-Spectrum Peripheral Module (SPM) log SPM350 relates to the TONESLOW alarm. Tables MNCKTPAK and MNNODE contain datafill related to the TONESLOW alarm.

### Impact

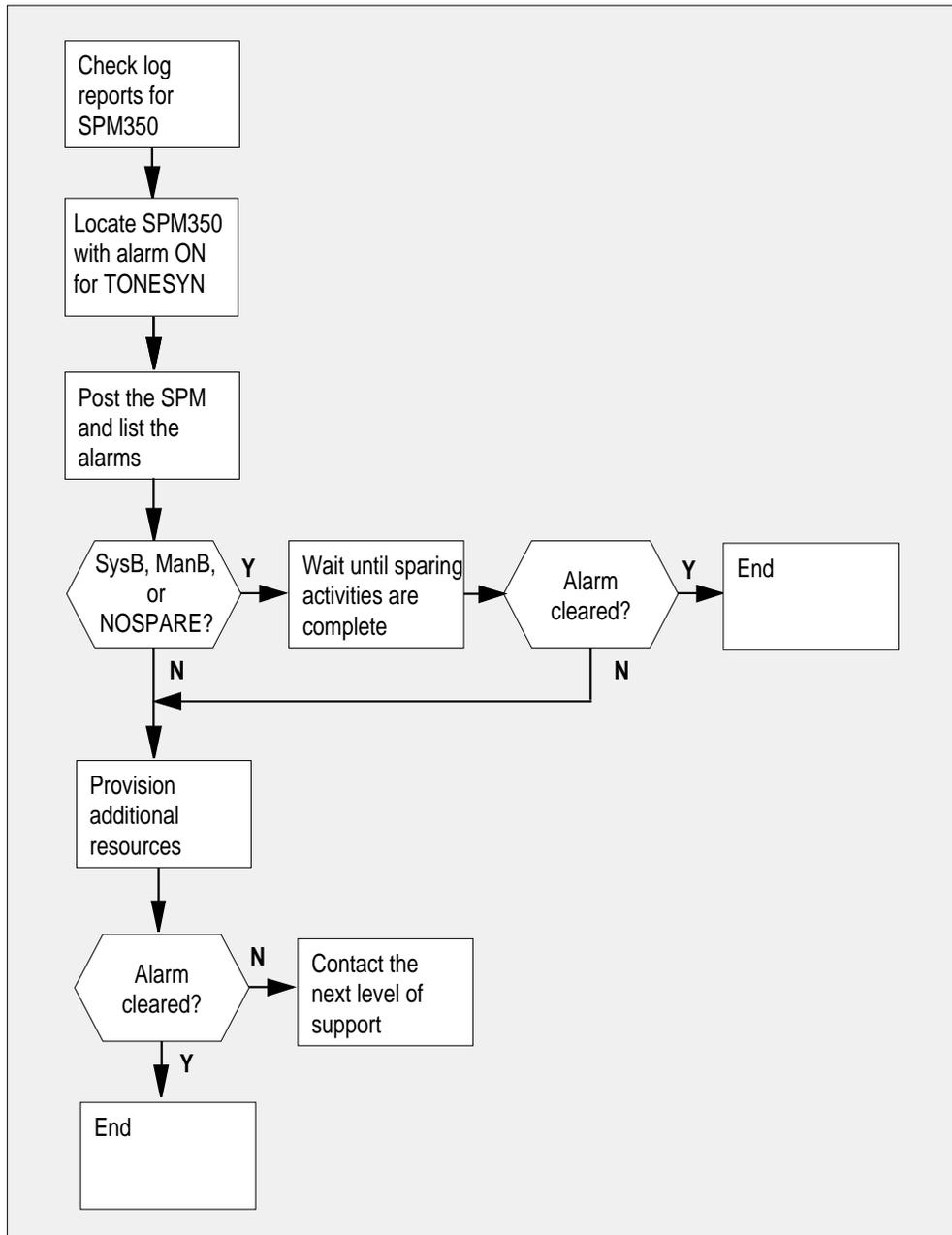
If the threshold setting is low enough to ensure that there are adequate resources in the TONESYN pool to meet the current call rate, there is no immediate effect on service. However, if the call rate increases and the available TONESYN resources cannot meet the demand, call processing or grades of service, or both, are degraded.

### Common procedures

See “Accessing SPM alarms.”

### Action

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

**PM1SPM TONESLOW SPM  
minor (continued)****Summary of clearing a TONESLOW alarm**

## PM1SPM TONESLOW SPM minor (continued)

---

### Clearing a TONESLOW alarm

#### At the MAP terminal

- 1 Access the log utility level of the MAP screen by typing

```
>LOGUTIL
```

and pressing the Enter key.

- 2 Display all the SPM350 logs by typing

```
>DUMPLOGS SPM 350
```

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM350 Nov19 20:01:33 1400 Pool Percent Free Resources
Low
ALARM_STATE = ON
POOL = TONESYN
SPM_NUM = 20
NUM_FREE = 39
NUM-INUSE = 61
```

**Note 1:** OPEN SPM 350 can be used instead of the DUMPLOGS command. Logs can then be browsed using the LAST, FIRST, BACK, and FORWARD commands.

#### **Note 2:**

- 3 Locate an SPM350 log with ALARM\_STATE = ON and POOL = TONESYN. Record the number of the SPM.

- 4 Post the SPM by typing

```
>MAPCI;MTC;PM;POST SPM spm_no
```

and pressing the Enter key.

*where*

**spm\_no**

is the number of the SPM (0 to 63) shown in the log report

*Example of a MAP screen:*

## PM1SPM TONESLOW SPM minor (continued)

```

 SysB ManB OffL CBsy ISTb InSv
 PM 7 2 2 2 9 16
 SPM 0 1 1 0 0 1

SPM 20 InSv Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I InSv ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A InSv ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I InSv ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A InSv ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A InSv ----- 6 - ---- ----- 13 - ----
CEM 0 7 A InSv ----- 14 A InSv ----- 7 - ---- ----- 14 - ----

```

### 5 List the alarms on the SPM by typing

>**LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

```
ListAlm
ListAlm: SPM 11 OC3 0
```

```

SEVERITY ALARM ACTION

Critical None
Major None
Minor TONESLOW RPT
No_Alarm None

```

### 6 Do the following substeps to determine if sparing activities are underway.

- a Check the alarm list for a NOSPARE alarm.
- b Verify that sparing activities are underway by other personnel. Otherwise, clear the NOSPARE alarm by following the SPM NOSPARE alarm clearing procedure.

| If the alarm list indicates | Do       |
|-----------------------------|----------|
| Major NOSPARE               | step 6 b |
| Major None                  | step 6 c |

- c Check the list of posted modules for DSPs that are system busy (SysB) or manual busy (ManB). If other personnel are involved in sparing activities, check with them to make sure the DSPs will be returned to service. Otherwise, clear any alarms and return the units to service.
- d Wait until the state of the DSPs indicates InSv.

## PM1SPM TONESLOW SPM minor (end)

---

- 7 When the DSPs are returned to service, determine if the alarm has cleared.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor TONESLOW              | step 8  |
| Minor None                  | step 11 |

- 8 Provision additional DSP RMs. For detailed instructions and provisioning information, see "SPM NTLX65AA DSP RM card" in the appropriate *Card Replacement Procedures*. When you have completed the procedures, return to this point.

**Note:** Contact your next level of support if you are not familiar with the policies and procedures for provisioning DSP RMs.

- 9 List the alarms on the SPM unit by typing

>LISTALM

and pressing the Enter key.

| If the alarm list indicates | Do      |
|-----------------------------|---------|
| Minor TONESLOW              | step 10 |
| Minor None                  | step 11 |

- 10 For further assistance, contact the personnel responsible for the next level of support.

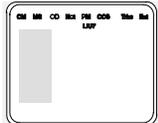
- 11 You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

## PM 1SPM VCXO70 SPM minor

### Alarm banner



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

### Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a minor ( ) alarm indicator appears beneath it.

### Meaning

The voltage controlled oscillator (VCXO) has exceeded the 70% threshold of its dynamically adjustable range in order to keep the common equipment module (CEM) synchronized to a timing reference.

The DMS-Spectrum Peripheral Module (SPM) log SPM301 relates to the VCXO70 alarm. Table MNCKTPAK contains datafill related to the VCXO70 alarm.

### Impact

Service is not affected.

### Common procedures

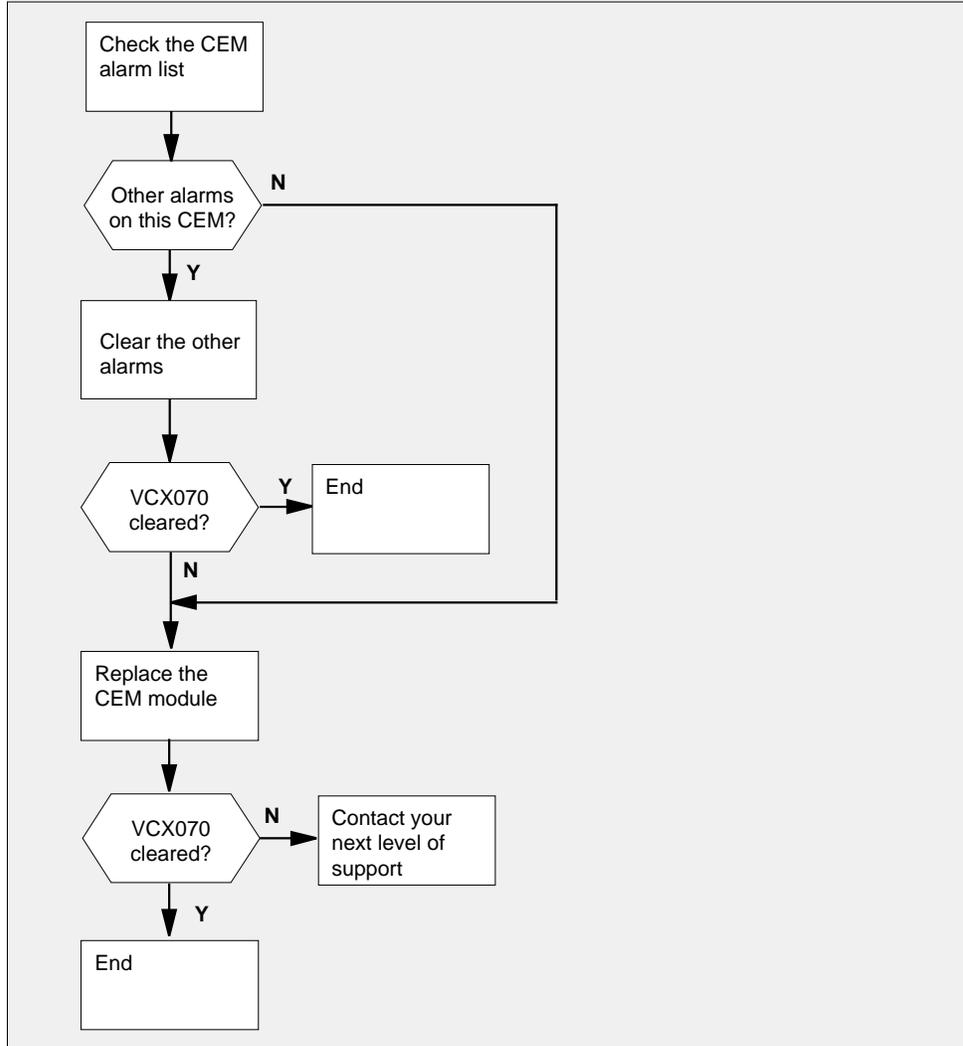
See "Accessing SPM alarms."

### Action

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

# PM 1SPM VCX070 SPM minor (continued)

## Summary of clearing a VCX070 alarm



## Clearing an VCX070 alarm

### At the MAP terminal

- 1 Access the PM level of the MAP screen by typing  
`>MAPCI ;MTC ;PM`  
and pressing the Enter key.  
*Example of a MAP screen:*

---

## PM 1SPM VCXO70 SPM minor (continued)

---

```

 SysB ManB OffL CBSy ISTb InSv
PM 1 1 1 3 1 12

```

- 2 Display all the inservice-trouble (ISTb) SPMs by typing

```
>DISP STATE ISTb SPM
```

and pressing the Enter key.

- 3 Record the number of the SPMs.

- 4 Post each ISTb SPM by typing

```
>POST SPM spm_no
```

and pressing the Enter key.

where

**spm\_no**

is the number of the SPM (0 to 63)

*Example of a MAP screen:*

```

 SysB ManB OffL CBSy ISTb InSv
PM 7 2 2 2 9 16
SPM 0 2 1 0 1 0

SPM 11 ISTb Loc: Site HOST Floor 1 Row A FrPos 13

Shlf0 SL A Stat Shlf0 SL A Stat Shlf1 SL A Stat Shlf1 SL A Stat
----- 1 - ---- CEM 1 8 I SysB ----- 1 - ---- ----- 8 - ----
----- 2 - ---- OC3 0 9 A ----- ----- 2 - ---- ----- 9 - ----
DSP 3 3 I OffL OC3 1 10 I ----- ----- 3 - ---- ----- 10 - ----
----- 4 - ---- ----- 11 - ---- ----- 4 - ---- ----- 11 - ----
----- 5 - ---- DSP12 12 A ----- ----- 5 - ---- ----- 12 - ----
----- 6 - ---- DSP13 13 A ----- ----- 6 - ---- ----- 13 - ----
CEM 0 7 A ISTb ----- 14 A ----- ----- 7 - ---- ----- 14 - ----

```

- 5 Select the ISTb CEM by typing

```
>SELECT CEM cem_no
```

and pressing the Enter key.

where

**cem\_no**

is the number of the CEM (0 or 1)

*Example of a MAP screen:*

## PM 1SPM VCX070 SPM minor (continued)

---

```
SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
```

- 6 List the alarms on the CEM by typing

>**LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
ListAlm
ListAlm: SPM 11 CEM 0
```

```
SEVERITY ALARM ACTION

Critical None
Major None
Minor VCX070 RPT
No_Alarm None
```

- 7 Determine whether there are any other CEM alarms.

| If there are        | Do      |
|---------------------|---------|
| no other CEM alarms | step 10 |
| other CEM alarms    | step 8  |

- 8 Clear the other CEM alarms using the appropriate SPM alarm clearing procedures. When you have completed the procedures, return to this step.

---

## PM 1SPM VCX070 SPM minor (end)

---

**At the MAP terminal**

- 9** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 13 |
| VCX070                  | step 10 |

- 10** Replace the CEM module. For detailed instructions, see "SPM NTLX63AA CEM card" in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 11** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 13 |
| VCX070                  | step 12 |

- 12** For further assistance, contact the personnel responsible for the next level of support.

- 13** You have completed this procedure. Return to the CI level of the MAP screen by typing

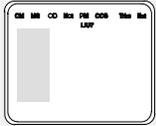
>QUIT ALL

and pressing the Enter key.

## PM 1SPM VCXO90 SPM major

---

### Alarm banner



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1SPM</b> | .   | .   | .    | .   | .    |
| .  | .  | .   | .   | <b>M</b>    | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP screen, SPM preceded by a number appears under the PM header of the MAP screen and a major (M) alarm indicator appears beneath it.

### Meaning

The voltage controlled oscillator (VCXO) has exceeded the 90% threshold of its dynamically adjustable range in order to keep the common equipment module (CEM) synchronized to a timing reference.

The DMS-Spectrum Peripheral Module (SPM) log SPM301 relates to the VCXO90 alarm. Table MNCKTPAK contains datafill related to the VCXO90 alarm.

### Impact

Synchronization failure can occur. The affected CEM should be replaced.

### Common procedures

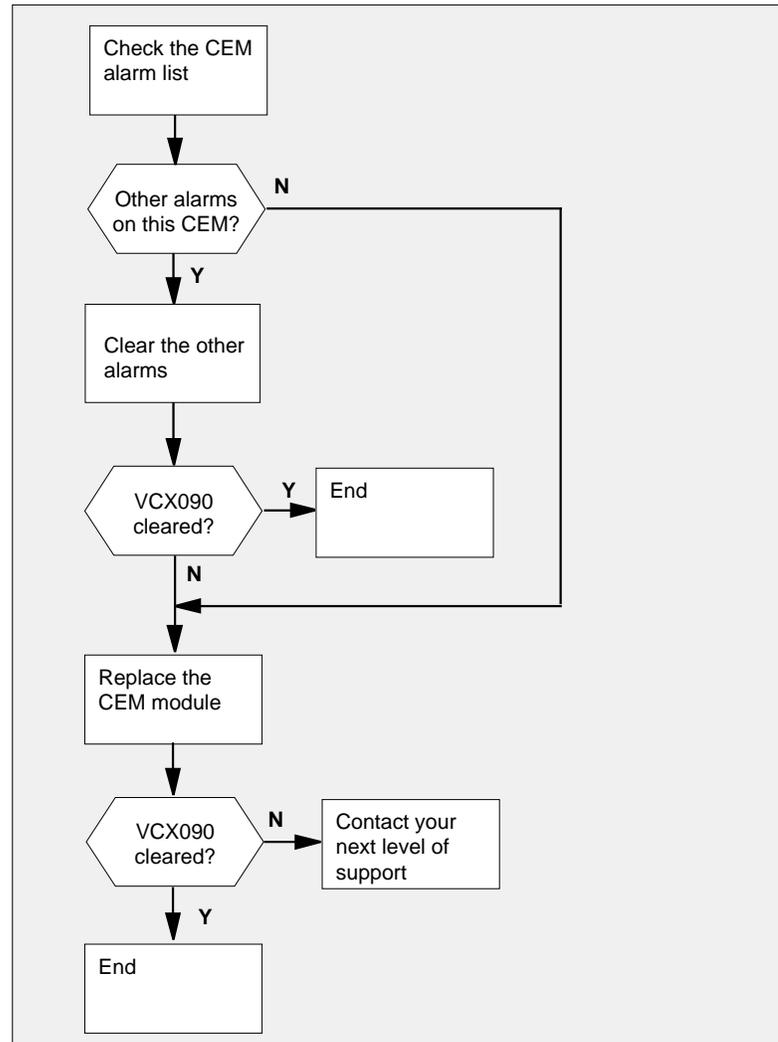
See "Accessing SPM alarms."

### Action

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

## PM 1SPM VCX090 SPM major (continued)

### Summary of clearing a VCX090 alarm



## Clearing a VCX090 alarm

### *At the MAP terminal*

- 1 Access the PM level of the MAP screen by typing  
`>MAPCI ;MTC ;PM`  
 and pressing the Enter key.  
*Example of a MAP screen:*

## PM 1SPM VCXO90 SPM major (continued)

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 Display all the inservie-trouble (ISTb) SPMs by typing

```
>DISP STATE ISTb SPM
```

and pressing the Enter key.

- 3 Record the number of the SPMs.

- 4 Post each ISTb SPM by typing

```
>POST SPM spm_no
```

and pressing the Enter key.

where

**spm\_no**

is the number of the SPM (0 to 63)

Example of a MAP screen:

|     |      |      |      |      |      |      |
|-----|------|------|------|------|------|------|
|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM  | 7    | 2    | 2    | 2    | 9    | 16   |
| SPM | 0    | 2    | 1    | 0    | 2    | 0    |

SPM 11 **ISTb** Loc: Site HOST Floor 1 Row A FrPos 13

| Shlf0 | SL | A | Stat   | Shlf0 | SL | A  | Stat   | Shlfl | SL | A | Stat | Shlfl | SL | A | Stat |
|-------|----|---|--------|-------|----|----|--------|-------|----|---|------|-------|----|---|------|
| ----- | 1  | - | ----   | CEM   | 1  | 8  | I SysB | ----- | 1  | - | ---- | ----- | 8  | - | ---- |
| ----- | 2  | - | ----   | OC3   | 0  | 9  | A      | ----- | 2  | - | ---- | ----- | 9  | - | ---- |
| DSP   | 3  | 3 | I OffL | OC3   | 1  | 10 | I      | ----- | 3  | - | ---- | ----- | 10 | - | ---- |
| ----- | 4  | - | ----   | ----- | 11 | -  | ----   | ----- | 4  | - | ---- | ----- | 11 | - | ---- |
| ----- | 5  | - | ----   | DSP12 | 12 | A  | ----   | ----- | 5  | - | ---- | ----- | 12 | - | ---- |
| ----- | 6  | - | ----   | DSP13 | 13 | A  | ----   | ----- | 6  | - | ---- | ----- | 13 | - | ---- |
| CEM   | 0  | 7 | A ISTb | ----- | 14 | A  | ----   | ----- | 7  | - | ---- | ----- | 14 | - | ---- |

- 5 Select the ISTb CEM by typing

```
>SELECT CEM cem_no
```

and pressing the Enter key.

where

**cem\_no**

is the number of the CEM (0 or 1)

Example of a MAP screen:

---

## PM 1SPM VCX090 SPM major (continued)

---

```
SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
```

### 6 List the alarms on the CEM by typing

**>LISTALM**

and pressing the Enter key.

*Example of a MAP screen:*

```
SPM 11 CEM 0 Act ISTb

Loc : Row F FrPos 64 ShPos 6 ShId 0 Slot 7
Default Load: SPMLOAD
Clock:
Input Ref: Source: Current Mode:
ListAlm
ListAlm: SPM 11 CEM 0
```

```
SEVERITY ALARM ACTION

Critical None
Major None
Minor VCX090 RPT
No_Alarm None
```

### 7 Determine whether there are any other CEM alarms.

| If there are        | Do      |
|---------------------|---------|
| no other CEM alarms | step 10 |
| other CEM alarms    | step 8  |

### 8 Clear the other CEM alarms using the appropriate SPM alarm clearing procedures. When you have completed the procedures, return to this step

### 9 List the alarms on the CEM by typing

**>LISTALM**

## PM 1SPM VCX090 SPM major (end)

---

and pressing the Enter key.

| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 13 |
| VCX090                  | step 10 |

- 10** Replace the CEM module. For detailed instructions, see "SPM NTLX63AA CEM card" in the appropriate *Card Replacement Procedures*. When you complete the card replacement procedure, return to this point.

- 11** List the alarms on the CEM by typing

>LISTALM

and pressing the Enter key.

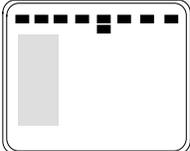
| If the alarm list shows | Do      |
|-------------------------|---------|
| None                    | step 13 |
| VCX090                  | step 12 |

- 12** For further assistance, contact the personnel responsible for the next level of support.

- 13** You have completed this procedure. Return to the CI level of the MAP screen by typing

>QUIT ALL

and pressing the Enter key.

**PM APU  
critical****Alarm display**


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

**Indication**

At the MTC level of the MAP display, APU (preceded by a number) appears under the PM header of the alarm banner. The APU indicates a critical alarm for an application processor unit (APU).

**Meaning**

One or more APUs are system busy, system busy not available, or in-service trouble not available.

**Result**

System busy APUs reduce the service provided by an application. An example of a service is Automated Directory Assistance Service (ADAS) or DMS-100 Mail.

The number under the PM header in the alarm banner indicates the number of affected APUs.

**Common procedures**

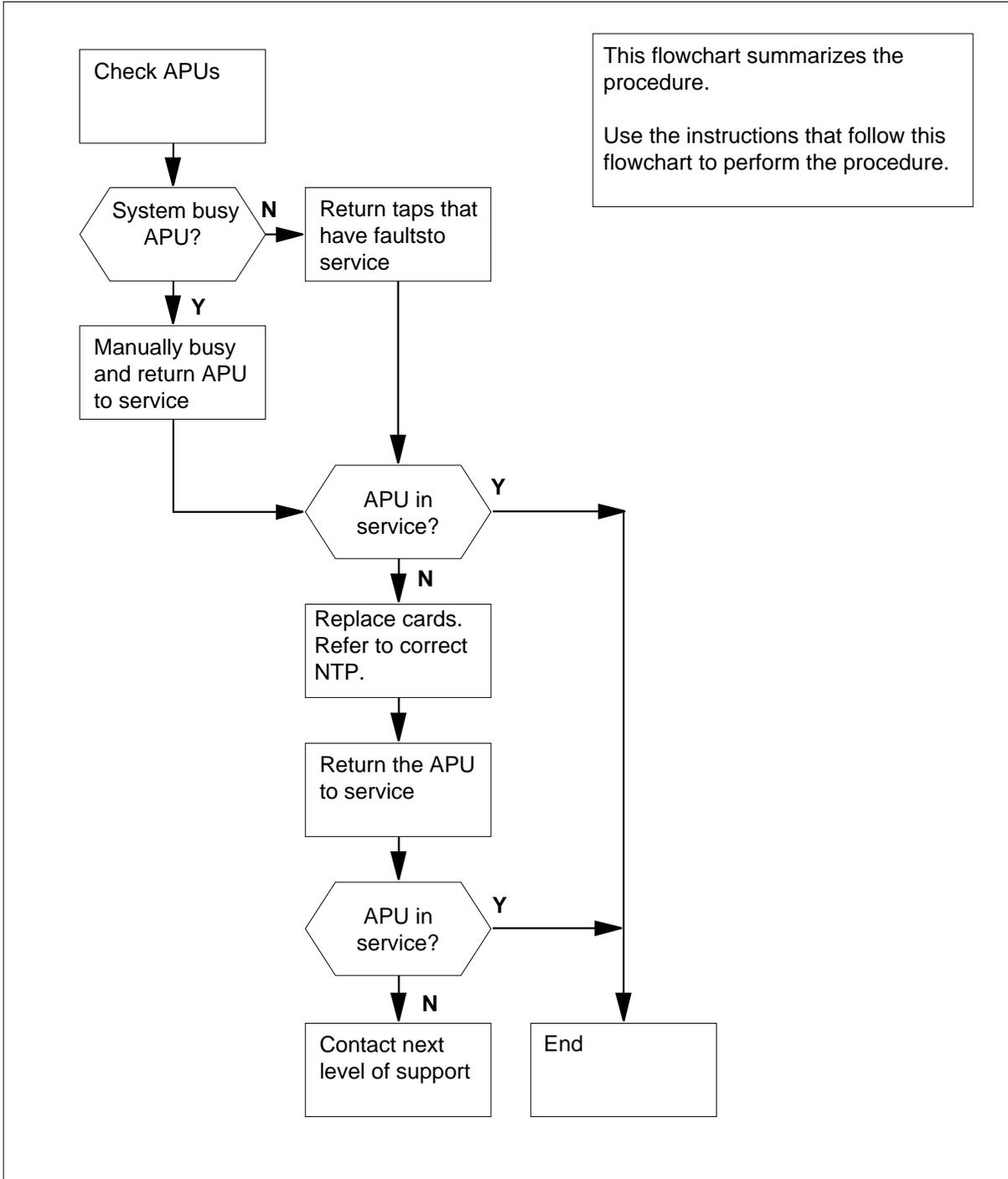
There are no common procedures.

**Action**

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

# PM APU critical (continued)

## Summary of How to clear a PM APU critical alarm



---

## PM APU critical (continued)

---

### How to clear a PM APU critical alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

*Example of a MAP display:*

```

 SysB ManB OffL CBsy ISTb InSv
PM 1 1 1 3 2 12

```

- 2 To display all system busy APUs, type

```
>DISP STATE SYSB APU
```

and press the Enter key.

- 3 Determine if any system busy APUs are present.

| If system busy APUs | Do      |
|---------------------|---------|
| are present         | step 4  |
| are not present     | step 26 |

- 4 Record the number of the APUs.

- 5 To post the system busy APU, type

```
>POST APU apu_no
```

and press the Enter key.

*where*

**apu\_no**

is the number of the APU (0 to 511)

*Example of a MAP display:*

```
APU 1 SysB
```

- 6 Determine the state of the posted APU.

| If the posted APU | Do      |
|-------------------|---------|
| is SysB (NA)      | step 31 |
| is SysB           | step 7  |

---

**PM APU**  
**critical** (continued)

---

- 7 The APU has a problem. Wait 15 min while the system attempts to clear the fault.
- | If the state of the APU   | Do       |
|---------------------------|----------|
| changes from SysB to InSv | step 111 |
| does not change           | step 8   |
- 8 To force the APU to busy, type  
**>BSY FORCE**  
and press the Enter key.
- 9 To test the APU, type  
**>TST**  
and press the Enter key.
- | If the TST command                                  | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 16 |
| failed, and the system did not generate a card list | step 10 |
| failed, and the system generated a card list        | step 11 |
- 10 To reset the APU, type  
**>PMRESET**  
and press the Enter key.
- | If the PMRESET command                              | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 16 |
| failed, and the system did not generate a card list | step 15 |
| failed, and the system generated a card list        | step 11 |
- 11 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
- 12 To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

---

**PM APU**  
**critical** (continued)

---

**At the MAP display**

**13** To manually busy the APU, type

>**BSY APU apu\_no**

and press the Enter key.

where

**apu\_no**

is the number of the APU (0 to 511)

| If the <b>BSY</b> command | Do       |
|---------------------------|----------|
| passed                    | step 14  |
| failed                    | step 110 |

**14** To reset the APU, type

>**PMRESET**

and press the Enter key.

| If the <b>PMRESET</b> command | Do      |
|-------------------------------|---------|
| passed                        | step 16 |
| failed                        | step 15 |

**15** To load the APU, type

>**LOADPM**

and press the Enter key.

| If the <b>LOADPM</b> command                        | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 16 |
| failed, and the system did not generate a card list | step 17 |
| failed, and the system generated a card list        | step 91 |

**16** To return the APU to service, type

>**RTS**

and press the Enter key.

| If the <b>RTS</b> command | Do       |
|---------------------------|----------|
| passed                    | step 111 |

---

**PM APU**  
**critical** (continued)

|           | <b>If the RTS command</b>                                                                                                                                     | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed                                                                                                                                                        | step 91   |
| <b>17</b> | Record the location, description, slot number, product engineer code (PEC), and PEC suffix of the cards on the list.                                          |           |
| <b>18</b> | To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |

**At the MAP display**

**19** To manually busy the APU, type  
**>BSY APU apu\_no**  
 and press the Enter key.  
*where*  
**apu\_no**  
 is the number of the APU (0 to 511)

**20** To reset the APU, type  
**>PMRESET**  
 and press the Enter key.

|  | <b>If the PMRESET command</b> | <b>Do</b> |
|--|-------------------------------|-----------|
|  | passed                        | step 25   |
|  | failed                        | step 21   |

**21** To load the APU, type  
**>LOADPDM**  
 and press the Enter key.

|  | <b>If the LOADPDM command</b>                                                      | <b>Do</b> |
|--|------------------------------------------------------------------------------------|-----------|
|  | passed                                                                             | step 25   |
|  | failed, and you did not replace all cards on the list that you recorded in step 17 | step 22   |
|  | failed, and you replaced all cards on the list that you recorded in step 17        | step 91   |

**22** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

---

**PM APU**  
**critical** (continued)

---

**At the MAP display**

- 23** To manually busy the APU, type

```
>BSY APU apu_no
```

and press the Enter key.

where

**apu\_no**

is the number of the APU (0 to 511)

- 24** Go to step 20.

- 25** To return the APU to service, type

```
>RTS
```

and press the Enter key.

| If the RTS command | Do       |
|--------------------|----------|
| passed             | step 111 |
| failed             | step 91  |

- 26** An in-service trouble not available APU can generate the alarm. To post the in-service trouble APUs, type

```
>POST APU ISTB
```

and press the Enter key.

*Example of a MAP display:*

```
APU 1 ISTb (NA)
```

| If the posted APU | Do      |
|-------------------|---------|
| is ISTb (NA)      | step 30 |
| is ISTb           | step 27 |

- 27** To scroll to the next in-service trouble APU in the posted set, type

```
>NEXT
```

and press the Enter key.

- 28** Determine if the posted APU is in-service trouble not available.

| If the posted APU | Do      |
|-------------------|---------|
| is ISTb (NA)      | step 30 |
| is ISTb           | step 29 |

## PM APU

### critical (continued)

---

- 29** Determine if you reached the end of the posted set.

---

**If you**

**Do**

---

did not reach the end of the posted set    step 27

reached the end of the posted set    step 110

---

- 30** To determine the LIM for the in-service trouble not available APU, type

**>QUERYPM**

and press the Enter key.

*Example of a MAP response:*

```
PM type: APU PM No.: 1 Status: ISTb (NA)
LIM: 0 Shelf: 1 Slot: 10 APU FTA: 4250 1000
Default load: ULX36BX
Running load: ULX36CD
ISTb conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States : InSv InSv
Auditing : No No
Msg Channels : NA NA
TAP 2 : S(NA) M(NA)
```

Go to step 32.

- 31** To determine the LIM for the system busy not available APU, type

**>QUERYPM**

and press the Enter key.

*Example of a MAP response:*

---

**PM APU**  
**critical** (continued)

---

```

PM type: APU PM No.: 0 Status: Sysb (NA)
LIM: 0 Shelf: 1 Slot: 10 APU FTA: 4250 1000
Default load: ULX36CD
Running load: ULX36CD
Potential service affecting conditions:
 MSG Channel #0 NA
 MSG Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing: No No
Msg Channels: NA NA
TAP1: S(NA) M(NA)

```

- 32** Record the number of the APU and the number of the LIM for the APU.  
Record the number of the F-bus tap.

**Note:** The APU number appears on the right of the APU header. The LIM number appears on the right of the LIM header.

- 33** To post the LIM for the APU, type

```
>POST LIM lim_no
```

and press the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 16)

*Example of a MAP:*

```

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

```

- 34** To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

*Example of a MAP:*

```

 Tap: 0 4 8 12 16 20
FBus0: InSv .-S- .-. .-. .-. I.-. .-.
FBus1: InSv .-S- .-. .-. .-. I.-. .-.

```

**PM APU**  
**critical** (continued)

---

- 35** Determine the state of the LIM units and both F-buses (0 and 1).  
**Note:** Make sure that each LIM unit is in service or in-service trouble.  
 Make sure that each F-bus is in service or in-service trouble.

| <b>If the state of the LIM and both F-buses</b> | <b>Do</b> |
|-------------------------------------------------|-----------|
| is <i>InSv</i>                                  | step 38   |
| is other than listed here                       | step 36   |

- 36** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.

- 37** Determine if the APU critical alarm cleared.

| <b>If the APU critical alarm</b> | <b>Do</b> |
|----------------------------------|-----------|
| cleared                          | step 111  |
| did not clear                    | step 1    |

- 38** Determine the state of the F-bus taps for the APU.  
**Note:** The tap number that you recorded in step 32 applies to both F-buses.

| <b>If</b>                                       | <b>Do</b> |
|-------------------------------------------------|-----------|
| both F-bus taps are M                           | step 41   |
| both F-bus taps are S                           | step 40   |
| one F-bus tap is M and the other F-bus tap is S | step 39   |

- 39** Work on the manually-busy F-bus tap first.  
 Go to step 42.

- 40** To force the F-bus tap for the APU to busy, type  
**>BSY FBUS fbus\_no\_tap\_no FORCE**  
 and press the Enter key.

*where*

**fbus\_no**  
 is the number of the F bus (0 or 1)

**tap\_no**  
 is the number of the tap (0 to 35)

Go to step 43.

- 41** Select one of the manually-busy taps on the F-bus 0 or 1 on which to work.

---

**PM APU**  
**critical** (continued)

---

- 42** Determine from office records or operating company personnel why the tap is manually-busy.

When you have permission, continue this procedure.

- 43** To return the F-bus tap for the APU to service, type

```
>RTS FBUS fbus_no tap_no
```

and press the Enter key.

where

**fbus\_no**

is the number of the F bus (0 or 1)

**tap\_no**

is the number of the tap (0 to 35)

---

| If the RTS command                                                                                | Do      |
|---------------------------------------------------------------------------------------------------|---------|
| passed                                                                                            | step 79 |
| failed, and the system generated a card list, and both APU taps are out of service                | step 44 |
| failed, and the system did not generate a card list                                               | step 79 |
| failed, with the response <code>Return to service failed -local maintenance not accessible</code> | step 79 |

- 44** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.

- 45** Determine the state of the F-bus taps for the APU.

---

| If                        | Do      |
|---------------------------|---------|
| both APU taps are M       | step 46 |
| a minimum of one tap is S | step 67 |

- 46** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**At the MAP display**

- 47** To manually busy the offline APU, type

```
>BSY APU apu_no
```

and press the Enter key.

where

**apu\_no**

is the number of the APU (0 to 511)

**PM APU**  
**critical** (continued)

---

- 48** To post the LIM associated with the APU, type  
**>POST LIM lim\_no**  
 and press the Enter key.  
*where*  
     **lim\_no**  
         is the number of the LIM (0 to 16)
- 49** To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.
- 50** To return the first F-bus tap for the APU to service, type  
**>RTS FBUS fbus\_no\_tap\_no**  
 and press the Enter key.  
*where*  
     **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)

---

| If the RTS command                                    | Do      |
|-------------------------------------------------------|---------|
| passed                                                | step 56 |
| failed, and you did not replace all cards on the list | step 51 |
| failed, and you replaced all cards on the list        | step 91 |

---

- 51** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**At the MAP display**

- 52** To manually busy the offline APU, type  
**>BSY APU apu\_no**  
 and press the Enter key.  
*where*  
     **apu\_no**  
         is the number of the APU (0 to 511)
- 53** To post the LIM for the APU, type  
**>POST LIM lim\_no**  
 and press the Enter key.

---

**PM APU**  
**critical** (continued)

---

*where*

**lim\_no**

is the number of the LIM (0 to 16)

**54** To access the F-bus level of the MAP display, type

**>FBUS**

and press the Enter key.

**55** Go to step 50.

**56** To return the second F-bus tap for the APU to service, type

**>RTS FBUS fbus\_no tap\_no**

and press the Enter key.

*where*

**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)

---

**If the RTS command**

**Do**

---

passed

step 57

failed

step 57

---

**57** To quit from the F-bus level of the MAP display, type

**>QUIT**

and press the Enter key.

**58** To post the APU, type

**>POST APU apu\_no**

and press the Enter key.

*where*

**apu\_no**

is the number of the APU (0 to 511)

**59** To reset the APU, type

**>PMRESET**

and press the Enter key.

---

**If the PMRESET command**

**Do**

---

passed

step 64

failed

step 60

---

**PM APU**  
**critical** (continued)

---

**60** To load the APU, type  
 >LOADPDM  
 and press the Enter key.

| If the LOADPDM command                                | Do      |
|-------------------------------------------------------|---------|
| passed                                                | step 64 |
| failed, and the system generated a card list          | step 61 |
| failed, and you did not replace all cards on the list | step 65 |
| failed, and you replaced all cards on the list        | step 91 |

**61** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.

**62** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**At the MAP display**

**63** To manually busy the offline APU, type  
 >BSY APU apu\_no  
 and press the Enter key.  
*where*  
     **apu\_no**  
         is the number of the APU (0 to 511)  
 Go to step 59.

**64** To return the APU to service, type  
 >RTS  
 and press the Enter key.

| If the RTS command | Do       |
|--------------------|----------|
| passed             | step 111 |
| failed             | step 110 |

**65** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**66** To manually busy the offline APU, type  
 >BSY APU apu\_no

---

**PM APU**  
**critical** (continued)

---

and press the Enter key.

where

**apu\_no**  
is the number of the APU (0 to 511)

Go to step 59.

- 67** To quit from the F-bus level of the MAP display, type

>QUIT

and press the Enter key.

- 68** To post the APU, type

>POST APU apu\_no

and press the Enter key.

where

**apu\_no**  
is the number of the APU (0 to 511)

- 69** To manually busy the APU, type

>BSY

and press the Enter key.

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 71 |
| failed             | step 70 |

- 70** To force the APU to busy, type

>BSYFORCE

and press the Enter key.

- 71** To replace the first card on the list that you recorded in step 44, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**At the MAP display**

- 72** To manually busy the APU, type

>BSY APU apu\_no

and press the Enter key.

where

**apu\_no**  
is the number of the APU (0 to 511)

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 73 |

**PM APU**  
**critical** (continued)

|                           | <b>If the BSY command</b>                                                                                                                                             | <b>Do</b> |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                           | failed                                                                                                                                                                | step 110  |
| <b>73</b>                 | To reset the APU, type<br>> <b>PMRESET</b><br>and press the Enter key.                                                                                                |           |
|                           | <b>If the PMRESET command</b>                                                                                                                                         | <b>Do</b> |
|                           | passed                                                                                                                                                                | step 78   |
|                           | failed                                                                                                                                                                | step 74   |
| <b>74</b>                 | To load the APU, type<br>> <b>LOADPDM</b><br>and press the Enter key.                                                                                                 |           |
|                           | <b>If the LOADPDM command</b>                                                                                                                                         | <b>Do</b> |
|                           | passed                                                                                                                                                                | step 78   |
|                           | failed, and you did not replace all cards on the list that you recorded in step 44                                                                                    | step 75   |
|                           | failed, and you replaced all cards on the list that you recorded at step 44                                                                                           | step 91   |
| <b>75</b>                 | To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.          |           |
| <b>At the MAP display</b> |                                                                                                                                                                       |           |
| <b>76</b>                 | To manually busy the offline APU, type<br>> <b>BSY APU apu_no</b><br>and press the Enter key.<br><i>where</i><br><b>apu_no</b><br>is the number of the APU (0 to 511) |           |
| <b>77</b>                 | Go to step 73.                                                                                                                                                        |           |
| <b>78</b>                 | To return the APU to service, type<br>> <b>RTS</b>                                                                                                                    |           |

---

**PM APU**  
**critical** (continued)

---

and press the Enter key.

|           | <b>If the RTS command</b>                                                                                                                                                                                                                                                                    | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                                                                       | step 111  |
|           | failed                                                                                                                                                                                                                                                                                       | step 91   |
| <b>79</b> | Determine if you worked on the other APU tap.                                                                                                                                                                                                                                                |           |
|           | <b>If you</b>                                                                                                                                                                                                                                                                                | <b>Do</b> |
|           | worked on the other APU tap                                                                                                                                                                                                                                                                  | step 88   |
|           | did not work on the other APU tap                                                                                                                                                                                                                                                            | step 80   |
| <b>80</b> | Determine the state of the second APU tap.                                                                                                                                                                                                                                                   |           |
|           | <b>If the state of the second APU tap</b>                                                                                                                                                                                                                                                    | <b>Do</b> |
|           | is M                                                                                                                                                                                                                                                                                         | step 82   |
|           | is S                                                                                                                                                                                                                                                                                         | step 81   |
| <b>81</b> | To force one of the system busy taps for the APU to busy, type<br>> <b>BSY FBUS fbus_no tap_no FORCE</b><br>and press the Enter key.<br><i>where</i><br><b>fbus_no</b><br>is the number of the F bus (0 or 1)<br><b>tap_no</b><br>is the number of the F bus tap (0 to 35)<br>Go to step 82. |           |
| <b>82</b> | To return the F-bus tap for the APU to service, type<br>> <b>RTS FBUS fbus_no tap_no</b><br>and press the Enter key.<br><i>where</i><br><b>fbus_no</b><br>is the number of the F bus (0 or 1)                                                                                                |           |

**PM APU**  
**critical** (continued)

|           |                                                                                                                                                                                         | <b>tap_no</b><br>is the number of the F bus tap (0 to 35) |           |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------|
|           | <b>If the RTS command</b>                                                                                                                                                               |                                                           | <b>Do</b> |
|           | passed                                                                                                                                                                                  |                                                           | step 83   |
|           | failed, and the system generated a card list                                                                                                                                            |                                                           | step 44   |
|           | failed, and the system did not generate a card list                                                                                                                                     |                                                           | step 91   |
|           | failed, with the response <code>Return to service failed -local maintenance not accessible</code>                                                                                       |                                                           | step 91   |
| <b>83</b> | Determine if one APU critical alarm cleared.                                                                                                                                            |                                                           |           |
|           | <b>If one APU critical alarm</b>                                                                                                                                                        |                                                           | <b>Do</b> |
|           | cleared                                                                                                                                                                                 |                                                           | step 111  |
|           | did not clear and you are working on an <code>ISTb (NA) APU</code>                                                                                                                      |                                                           | step 88   |
|           | cleared and you are working on a <code>SysB (NA) APU</code>                                                                                                                             |                                                           | step 84   |
| <b>84</b> | To quit from the F-bus level of the MAP display, type<br><code>&gt;QUIT</code><br>and press the Enter key.                                                                              |                                                           |           |
| <b>85</b> | To post the system busy not available APU, type<br><code>&gt;POST APU apu_no</code><br>and press the Enter key.<br><i>where</i><br><b>apu_no</b><br>is the number of the APU (0 to 511) |                                                           |           |
| <b>86</b> | Determine the state of the APU.                                                                                                                                                         |                                                           |           |
|           | <b>If the state of the APU</b>                                                                                                                                                          |                                                           | <b>Do</b> |
|           | changed from <code>SysB (NA)</code> to <code>SysB</code>                                                                                                                                |                                                           | step 87   |
|           | did not change                                                                                                                                                                          |                                                           | step 90   |
| <b>87</b> | You are working on system busy APU.<br>Go to step 8.                                                                                                                                    |                                                           |           |

---

**PM APU**  
**critical** (continued)

---

- 88** To quit from the F-bus level of the MAP display, type  
>**QUIT**  
and press the Enter key.
- 89** To post the APU, type  
>**POST APU apu\_no**  
and press the Enter key.  
*where*  
**apu\_no**  
is the number of the APU (0 to 511)
- 90** To force the APU to manually busy, type  
>**BSY FORCE**  
and press the Enter key.
- 91** Determine if you already unseated and reseated the NTEX22 and NT9X14 APU cards during this procedure.

---

| <b>If you</b>                                                 | <b>Do</b> |
|---------------------------------------------------------------|-----------|
| unseated and reseated the two APU cards in this procedure     | step 110  |
| did not unseat and reseat the two APU cards in this procedure | step 92   |

---

- 92** To offline the APU, type  
>**OFFL**  
and press the Enter key.
- 93** To determine the location of the offline APU, type  
>**QUERYPM**  
and press the Enter key.
- Note:** The QUERYPM command provides the LIM number, shelf number, and slot number of the far left card of the APU card pair.

*Example of a MAP response:*

```
PM type: APU PM No.: 0 Status: OffL
LIM: 0 Shelf: 1 Slot: 10 APU FTA: 4250 1000
```

## PM APU

### critical (continued)

---

*At the LPP*

94



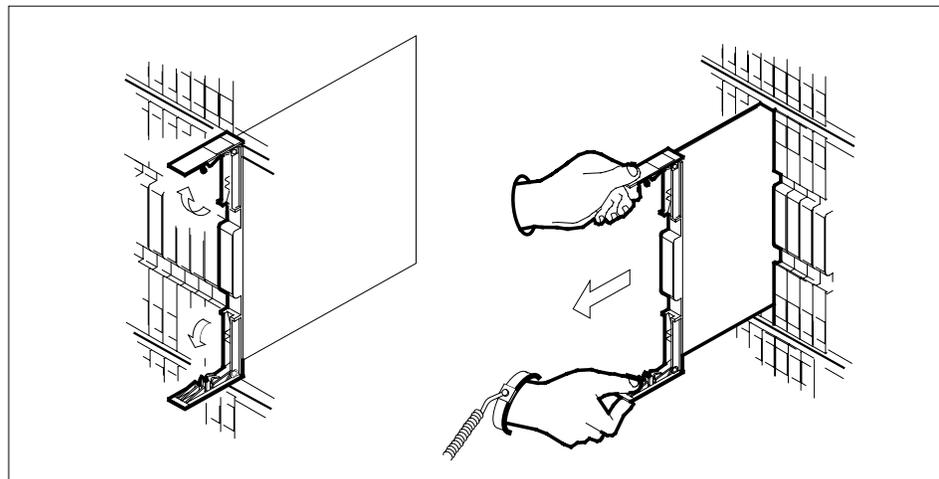
#### **WARNING**

##### **Static electricity damage**

Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X14 card for the APU.

- 95 Open the locking levers on the card. Carefully pull the NT9X14 card toward you until you remove the card from the connector.

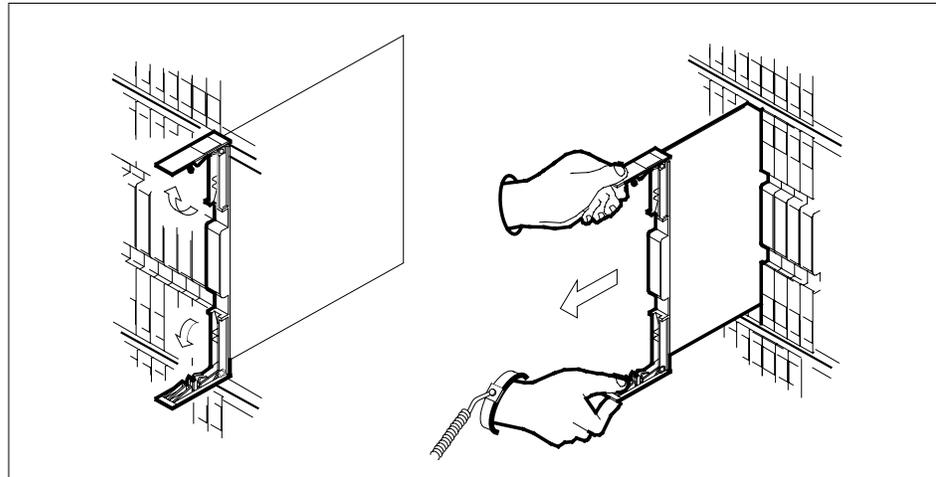


- 96 Leave the NT9X14 card in the slot on the link interface shelf (LIS).

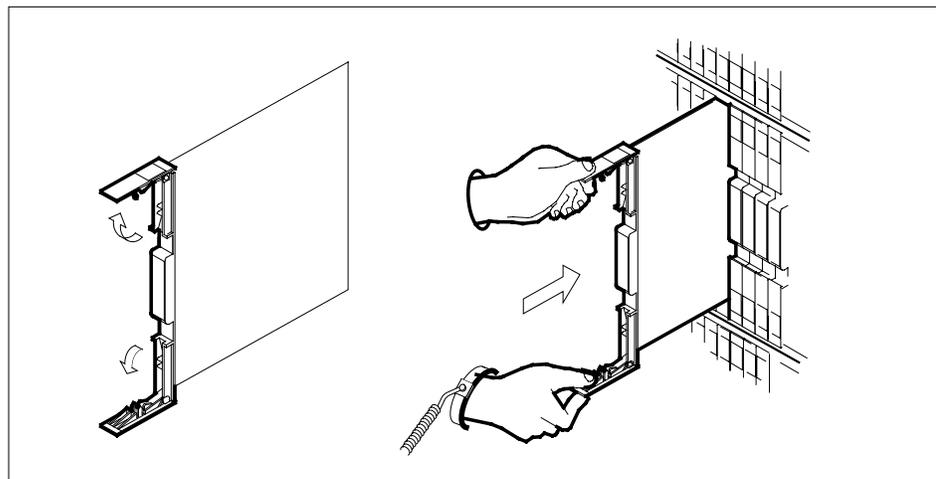
97 Locate the NTEX22 card for the APU.

- 98 Open the locking levers on the card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.

**PM APU**  
**critical** (continued)



**99** Carefully slide the NTEX22 card back into the LIS.



**100** Seat and lock the NTEX22 card as follows:

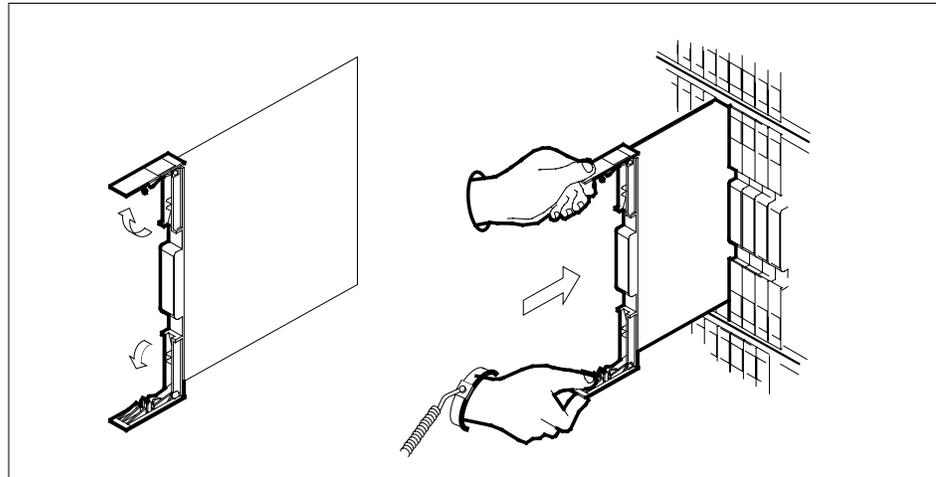
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- Close the locking levers.

**101** Carefully slide the NT9X14 card back into the LIS.

## PM APU

### critical (continued)

---



**102** Seat and lock the NT9X14 card as follows:

- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- Close the locking levers.

#### ***At the MAP display***

**103** To manually busy the APU, type

```
>BUSY APU apu_no
```

and press the Enter key.

*where*

**apu\_no**

is the number of the APU (0 to 511)

**104** To set the APU again, type

```
>PMRESET
```

and press the Enter key.

---

| <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
|-------------------------------|-----------|

---

|        |          |
|--------|----------|
| passed | step 106 |
| failed | step 105 |

---

**105** To load the APU, type

```
>LOADPM
```

---

**PM APU**  
**critical (end)**


---

and press the Enter key.

| If the LOADPM command | Do       |
|-----------------------|----------|
| passed                | step 106 |
| failed                | step 110 |

- 106** To return the APU to service, type  
**>RTS**  
 and press the Enter key.

| If the RTS command                                                           | Do       |
|------------------------------------------------------------------------------|----------|
| passed                                                                       | step 111 |
| failed, and the system did not generate a card list                          | step 110 |
| failed, and the system generated a card list                                 | step 107 |
| failed, the system generated a card list, and you re-placed cards in the APU | step 110 |

- 107** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.

- 108** To post the LIM for the APU, type

**>POST LIM lim\_no**

and press the Enter key.

*where*

**lim\_no**

is the number of the LIM (0 to 16)

- 109** To access the F-bus level of the MAP display, type

**>FBUS**

and press the Enter key.

Go to step 44.

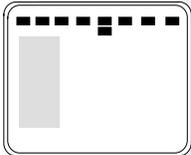
- 110** For additional help, contact the next level of support.

- 111** The procedure is complete.

## PM APU major

---

### Alarm display



| CM | MS | IOD | Net | PM   | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1APU | .   | .   | .    | .   | .    |
|    |    |     |     | *C*  |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, APU (preceded by a number) appears under the PM header of the alarm banner. The APU indicates a major alarm for the application processor unit (APU).

### Meaning

One or more APUs are manually-busy or manually-busy not available.

### Result

Manually-busy APUs reduce the service provided by an application. An example of a service is Automated Directory Assistance Service (ADAS) or DMS-100 Mail.

### Common procedures

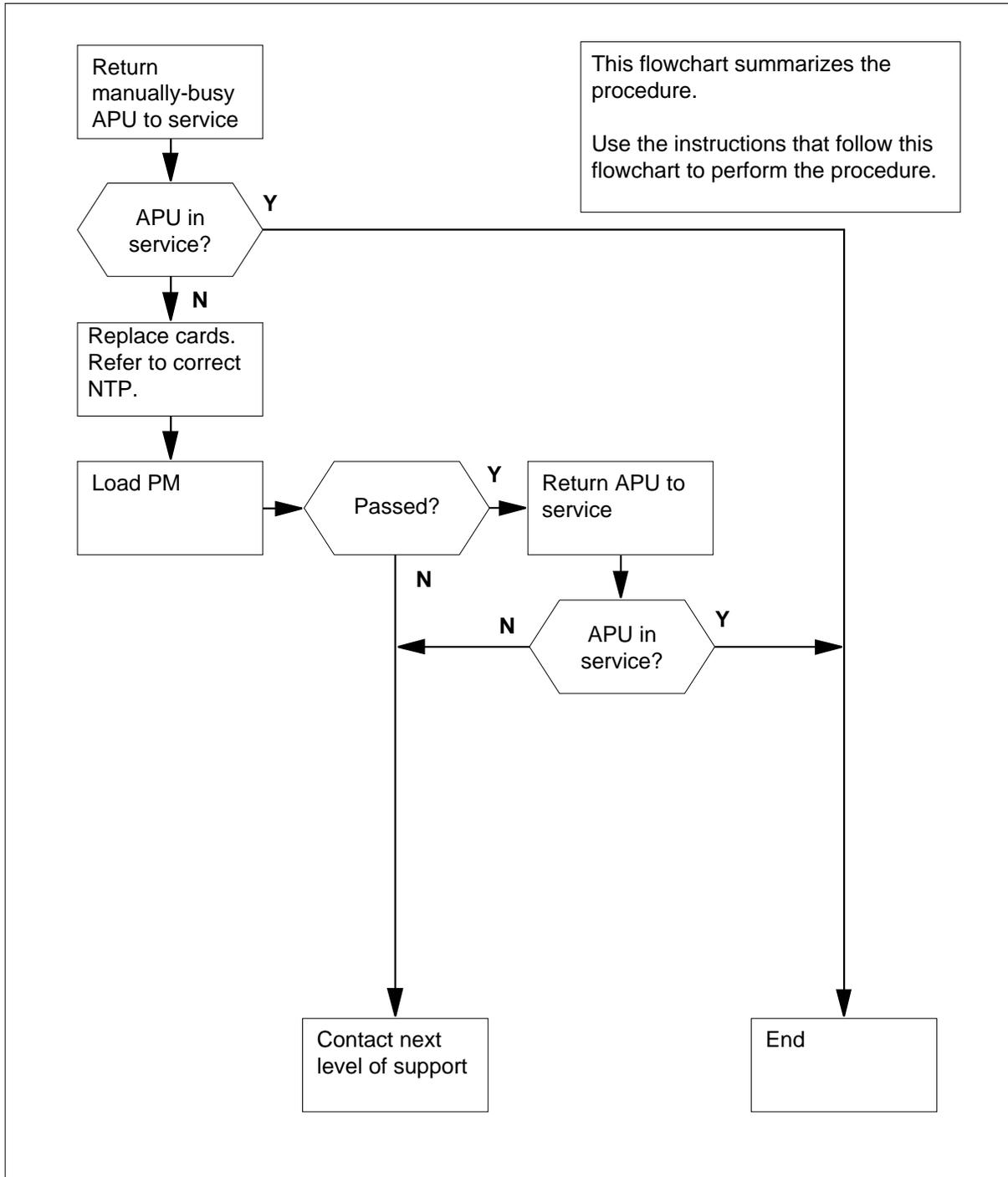
There are no common procedures.

### Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

**PM APU  
major (continued)**

**Summary of clearing a PM APU major alarm**



## PM APU major (continued)

---

### Clearing a PM APU major alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

*Example of a MAP display:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 1    | 1    | 3    | 2    | 12   |

- 2 To display all manually-busy APUs, type

>DISP STATE MANB APU

and press the Enter key.

- 3 Record the manually-busy APUs.

- 4 To post a manually-busy APU, type

>POST APU apu\_no

and press the Enter key.

where

**apu\_no**

is the number of the APU that you recorded in step 3

*Example of a MAP display:*

APU 1 ManB

- 5 Determine the state of the posted APU.

---

| If the posted APU | Do |
|-------------------|----|
|-------------------|----|

---

|              |         |
|--------------|---------|
| is ManB (NA) | step 19 |
|--------------|---------|

|         |        |
|---------|--------|
| is ManB | step 6 |
|---------|--------|

---

- 6 Determine from office records or from operating company personnel why the APU is manually-busy.

When you have permission, continue this procedure.

- 7 To test the posted APU, type

>TST

---

**PM APU**  
**major (continued)**


---

and press the Enter key.

| <b>If the TST command</b>                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| passed                                              | step 10   |
| failed, and the system generated a card list        | step 11   |
| failed, and the system did not generate a card list | step 8    |

- 8** To reset the APU, type  
>**PMRESET**  
and press the Enter key.

| <b>If the PMRESET command</b>                       | <b>Do</b> |
|-----------------------------------------------------|-----------|
| passed                                              | step 10   |
| failed, and the system generated a card list        | step 11   |
| failed, and the system did not generate a card list | step 9    |

- 9** To load the APU, type  
>**LOADPM**  
and press the Enter key.

| <b>If the LOADPM command</b>                        | <b>Do</b> |
|-----------------------------------------------------|-----------|
| passed                                              | step 10   |
| failed, and the system generated a card list        | step 11   |
| failed, and the system did not generate a card list | step 71   |

- 10** To return the APU to service, type  
>**RTS**  
and press the Enter key.

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 86   |

---

**PM APU**  
**major** (continued)

|                           | <b>If the RTS command</b>                                                                                                                                     | <b>Do</b> |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                           | failed, and the system generated a card list                                                                                                                  | step 11   |
|                           | failed, and the system did not generate a card list                                                                                                           | step 71   |
| <b>11</b>                 | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.                                       |           |
| <b>12</b>                 | To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>At the MAP display</b> |                                                                                                                                                               |           |
| <b>13</b>                 | To manually busy the offline APU, type<br>>BSY<br>and press the Enter key.                                                                                    |           |
|                           | <b>If the BSY command</b>                                                                                                                                     | <b>Do</b> |
|                           | passed                                                                                                                                                        | step 14   |
|                           | failed, and the system generated a card list                                                                                                                  | step 85   |
| <b>14</b>                 | To reset the APU, type<br>>PMRESET<br>and press the Enter key.                                                                                                |           |
|                           | <b>If the PMRESET command</b>                                                                                                                                 | <b>Do</b> |
|                           | passed                                                                                                                                                        | step 18   |
|                           | failed, and the system generated a card list                                                                                                                  | step 15   |
| <b>15</b>                 | To load the APU, type<br>>LOADPM<br>and press the Enter key.                                                                                                  |           |
|                           | <b>If the LOADPM command</b>                                                                                                                                  | <b>Do</b> |
|                           | passed                                                                                                                                                        | step 18   |
|                           | failed, and you did not replace all cards on the list that you recorded at step 11                                                                            | step 16   |

---

**PM APU**  
**major (continued)**

---

|           | <b>If the LOADPM command</b>                                                                                                                                                                                                                                                                                                                                       | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and you replaced all cards on the list that you recorded at step 11                                                                                                                                                                                                                                                                                        | step 71   |
|           | failed, and the system did not generate a card list                                                                                                                                                                                                                                                                                                                | step 71   |
| <b>16</b> | To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                                                                                                                       |           |
| <b>17</b> | Go to step 13.                                                                                                                                                                                                                                                                                                                                                     |           |
| <b>18</b> | To return the APU to service, type<br>>RTS<br>and press the Enter key.                                                                                                                                                                                                                                                                                             |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                                                                                                                                                          | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                                                                                                                             | step 86   |
|           | failed, and you did not replace all cards on the list that you recorded in step 11                                                                                                                                                                                                                                                                                 | step 16   |
|           | failed, and you replaced all cards on the list that you recorded in step 11                                                                                                                                                                                                                                                                                        | step 71   |
| <b>19</b> | To determine the link interface module (LIM) for the manually-busy APU that is not available, type<br>>QUERYPM<br>and press the Enter key.<br><i>Example of a MAP response:</i>                                                                                                                                                                                    |           |
|           | <pre> PM type:APU PM No.:1      Status: ManB(NA) LIM: 1 Shelf:3 Slot: 8      APU FTA:424E 1000 Default Load: LCC36BX Running Load: LCC36BX Potential service affecting conditions:   Msg Channel #0 NA   Msg Channel #1 NA   TAP #0 OOS/NA   TAP #1 OOS/NA LMS States:   InSv  InSv Auditing :    No    No Msg Channels: NA    NA TAP 2 :       S(NA) M(NA) </pre> |           |

## PM APU major (continued)

- 20** Record the number of the APU, the number of the LIM, and the number of the tap.

**Note:** The APU number appears on the right of the APU header. The LIM number appears on the right of the word LIM in the MAP response. The tap number appears on the right of the TAP header.

- 21** To post the LIM for the APU that you recorded in step 20, type

```
>POST LIM lim_no
```

and press the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 17)

Example of a MAP response:

```
LIM 1 InSv
 Links_OOS Taps_OOS
Unit0: InSv . 1
Unit1: InSv . 1
 Tap: 0 4 8 12 16 20
FBus0: InSv .-M- .I.I .I.I .I.I ..- .--
FBus1: InSv .-M- .I.I .I.I .I.I ..- .--
```

- 22** To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

- 23** Determine the state of the LIM units and both F-buses (0 and 1).

**Note:** Make sure that each LIM unit is in service or in-service trouble. Make sure that each F-bus is in service or in-service trouble.

| If the state of the LIM and both F-buses | Do |
|------------------------------------------|----|
|------------------------------------------|----|

|         |         |
|---------|---------|
| is InSv | step 26 |
|---------|---------|

|             |         |
|-------------|---------|
| is not InSv | step 24 |
|-------------|---------|

- 24** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.

- 25** Determine if the APU major alarm cleared.

| If the APU major alarm | Do |
|------------------------|----|
|------------------------|----|

|         |         |
|---------|---------|
| cleared | step 86 |
|---------|---------|

|               |        |
|---------------|--------|
| did not clear | step 1 |
|---------------|--------|

---

**PM APU**  
**major (continued)**


---

- 26** Determine the state of the F-bus taps for with the APU.  
**Note:** The tap number that you recorded in step 20 applies to both F-bus 0 and F-bus 1.
- | <b>If</b>                                       | <b>Do</b> |
|-------------------------------------------------|-----------|
| both F-bus taps are M                           | step 31   |
| both F-bus taps are S                           | step 27   |
| one F-bus tap is M and the other F-bus tap is S | step 30   |
- 
- 27** To quit from the F-bus level of the MAP display, type  
**>QUIT**  
and press the Enter key.
- 28** To post the APU, type  
**>POST APU apu\_no**  
and press the Enter key.  
*where*  
**apu\_no**  
is the number of the APU (0 to 511)
- 29** To return the APU to service, type  
**>RTS**  
and press the Enter key.
- | <b>If the RTS command</b>                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| passed                                              | step 86   |
| failed, and the system generated a card list        | step 34   |
| failed, and the system did not generate a card list | step 70   |
- 
- 30** Work on the manually-busy F-bus tap first.  
Go to step 32.
- 31** Select one of the manually-busy taps on either F-bus on which to work.
- 32** Determine from office records or from operating company personnel why the tap is manually-busy.  
Continue this procedure as permitted.

**PM APU**  
**major** (continued)

- 33** To return the F-bus tap for the APU to service, type  
**>RTS FBUS fbus\_no tap\_no**  
 and press the Enter key.

where

**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)

| If the RTS command                                                                    | Do      |
|---------------------------------------------------------------------------------------|---------|
| passed                                                                                | step 62 |
| failed, and the system generated a card list, and both APU taps are out of service    | step 34 |
| failed, and the system did not generate a card list                                   | step 62 |
| failed, with the response Return to Service failed - local maintenance not accessible | step 62 |

- 34** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

- 35** Determine the state of the F-bus taps for the APU.

| If                                     | Do      |
|----------------------------------------|---------|
| both taps are M                        | step 36 |
| a minimum of one tap is in service (.) | step 53 |
| a minimum of one tap is S              | step 53 |

- 36** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 37** To manually busy the offline APU, type  
**>BSY APU apu\_no**  
 and press the Enter key.

where

**apu\_no**  
 is the number of the APU (0 to 511)

- 38** To post the LIM for the APU, type  
**>POST LIM lim\_no**

---

**PM APU**  
**major (continued)**


---

and press the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 17)

- 39** To access the F-bus level of the MAP display, type  
>**FBUS**

and press the Enter key.

- 40** To return the F-bus tap for the APU to service, type  
>**RTS FBUS fbus\_no tap\_no**

and press the Enter key.

where

**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)

---

**If the RTS command**

**Do**

passed

step 45

failed, and the system generated  
a card list

step 41

failed, and the system did not  
generate a card list

step 70

- 
- 41** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 42** To manually busy the offline APU, type

>**BSY APU apu\_no**

and press the Enter key.

where

**apu\_no**

is the number of the APU (0 to 511)

---

**If the BSY command**

**Do**

passed

step 43

failed

step 85

- 
- 43** To post the LIM for the APU, type

>**POST LIM lim\_no**

**PM APU**  
**major** (continued)

---

and press the Enter key.

*where*

**lim\_no**  
 is the number of the LIM (0 to 17)

- 44** To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.  
 Go to step 40.

- 45** To return the other F-bus tap for the APU, type  
**>RTS FBUS fbus\_no tap\_no**  
 and press the Enter key.

*where*

**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)

---

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 46   |
| failed                    | step 70   |

---

- 46** To quit from the F-bus level, type  
**>QUIT**  
 and press the Enter key.

- 47** To post the APU, type  
**>POST APU apu\_no**  
 and press the Enter key.

*where*

**apu\_no**  
 is the number of the APU (0 to 511)

- 48** To reset the APU, type  
**>PMRESET**  
 and press the Enter key.

---

| <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passed                        | step 52   |
| failed                        | step 49   |

---

---

**PM APU**  
**major (continued)**


---

- 49** To load the APU, type  
**>LOADPDM**  
 and press the Enter key.
- | <b>If the LOADPDM command</b>                         | <b>Do</b> |
|-------------------------------------------------------|-----------|
| passed                                                | step 52   |
| failed, and you did not replace all cards on the list | step 50   |
| failed, and you replaced all cards on the list        | step 70   |
- 50** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 51** To manually busy the offline APU, type  
**>BSY APU apu\_no**  
 and press the Enter key.  
*where*  
**apu\_no**  
 is the number of the APU (0 to 511)
- | <b>If the BSY command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 48   |
| failed                    | step 85   |
- 52** To return the APU to service, type  
**>RTS**  
 and press the Enter key.
- | <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 86   |
| failed                    | step 70   |
- 53** To quit the F-bus level, type  
**>QUIT**  
 and press the Enter key.
- 54** To post the APU, type  
**>POST APU apu\_no**  
 and press the Enter key.

**PM APU**  
**major** (continued)

---

where

**apu\_no**  
 is the number of the APU (0 to 511)

**55** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**56** To manually busy the offline APU, type

>BSY APU apu\_no

and press the Enter key.

where

**apu\_no**  
 is the number of the APU (0 to 511)

---

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 57 |
| failed             | step 85 |

---

**57** To reset the APU, type

>PMRESET

and press the Enter key.

---

| If the PMRESET command | Do      |
|------------------------|---------|
| passed                 | step 61 |
| failed                 | step 58 |

---

**58** To load the APU, type

>LOADPDM

and press the Enter key.

---

| If the LOADPDM command                                | Do      |
|-------------------------------------------------------|---------|
| passed                                                | step 61 |
| failed, and you did not replace all cards on the list | step 59 |
| failed, and you replaced all cards on the list        | step 70 |

---

**59** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**60** To manually busy the offline APU, type

>BSY APU apu\_no

---

**PM APU**  
**major (continued)**


---

and press the Enter key.

where

**apu\_no**  
is the number of the APU (0 to 511)

|           | <b>If the BSY command</b>                                                                                                                                                                                                               | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                  | step 57   |
|           | failed                                                                                                                                                                                                                                  | step 85   |
| <b>61</b> | To return the APU to service, type<br>>RTS<br>and press the Enter key.                                                                                                                                                                  |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                               | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                  | step 85   |
|           | failed                                                                                                                                                                                                                                  | step 70   |
| <b>62</b> | Determine the state of the second APU tap.                                                                                                                                                                                              |           |
|           | <b>If the state of the second APU tap</b>                                                                                                                                                                                               | <b>Do</b> |
|           | is M                                                                                                                                                                                                                                    | step 64   |
|           | is S                                                                                                                                                                                                                                    | step 63   |
| <b>63</b> | To manually busy the F-bus tap for the APU, type<br>>RTS FBUS fbus_no tap_no<br>and press the Enter key.<br>where<br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35) |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                               | <b>Do</b> |
|           | passed, and the other tap is out of service                                                                                                                                                                                             | step 64   |
|           | passed, and the other tap is in service                                                                                                                                                                                                 | step 64   |
|           | failed, both taps are out of service, and the system generated a card list                                                                                                                                                              | step 34   |

---

**PM APU**  
**major** (continued)

|           | <b>If the RTS command</b>                                                                                                                                          | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, the other tap is in service, and the system generated a card list                                                                                          | step 64   |
|           | failed, and the system did not generated a card list                                                                                                               | step 70   |
|           | failed with the response Service failed - local maintenance not accessible.                                                                                        | step 70   |
| <b>64</b> | To quit the F-bus level, type<br><b>&gt;QUIT</b><br>and press the Enter key.                                                                                       |           |
| <b>65</b> | To post the APU, type<br><b>&gt;POST APU apu_no</b><br>and press the Enter key.<br><i>where</i><br><b>apu_no</b><br>is the number of the APU (0 to 511)            |           |
| <b>66</b> | To return the APU to service, type<br><b>&gt;RTS</b><br>and press the Enter key.                                                                                   |           |
|           | <b>If the RTS command</b>                                                                                                                                          | <b>Do</b> |
|           | passed                                                                                                                                                             | step 85   |
|           | failed, and the system generated a card list                                                                                                                       | step 67   |
|           | failed, and the system did not generate a card list                                                                                                                | step 70   |
| <b>67</b> | Record the location, description, slot number, product engineering code (PEC), PEC suffix of the cards on the list.                                                |           |
| <b>68</b> | To post the LIM for the APU, type<br><b>&gt;POST LIM lim_no</b><br>and press the Enter key.<br><i>where</i><br><b>lim_no</b><br>is the number of the LIM (0 to 17) |           |
| <b>69</b> | To access the F-bus level of the MAP display, type<br><b>&gt;FBUS</b>                                                                                              |           |

## PM APU major (continued)

and press the Enter key.

Go to step 35.

- 70** Determine if you already unseated and reseated the NTEX22 and NT9X14 APU cards during this procedure.

| If you                                           | Do      |
|--------------------------------------------------|---------|
| unseated and reseated the two APU cards          | step 85 |
| have not unseated and reseated the two APU cards | step 71 |

- 71** To offline the APU, type

>OFFL

and press the Enter key.

- 72** To determine the location of the APU, type

>QUERYPM

and press the Enter key.

**Note:** The QUERYPM command provides the LIM number, shelf number, and slot number of the far left card of the APU.

### At the LPP

- 73**



#### WARNING

##### Static electricity damage

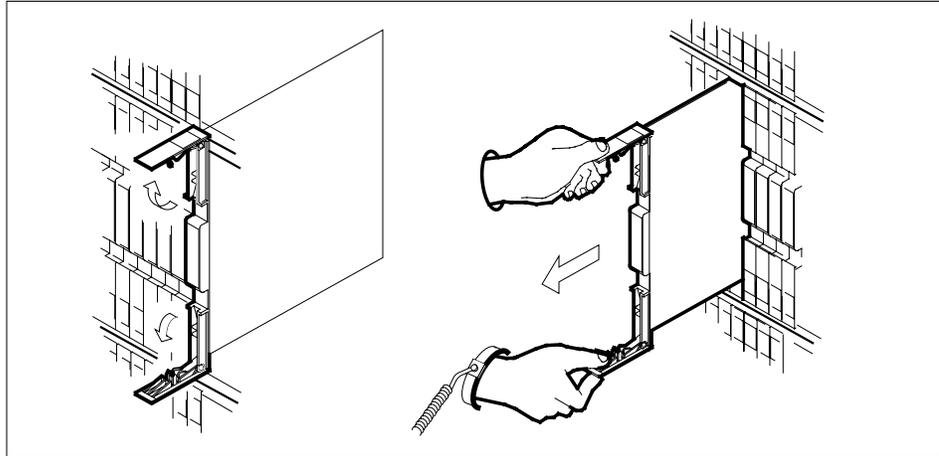
Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X14 card for the APU.

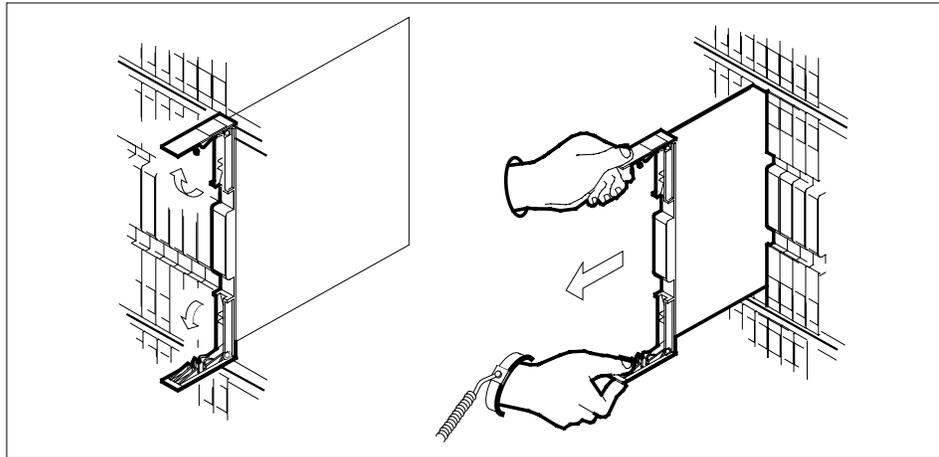
- 74** Open the locking levers on the card. Carefully pull the NT9X14 card toward you; unseat the card from the connector.

## PM APU major (continued)

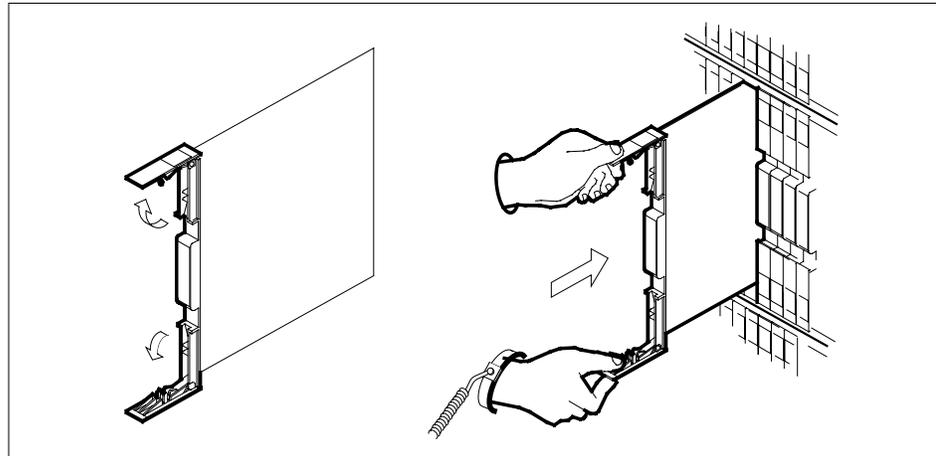
---



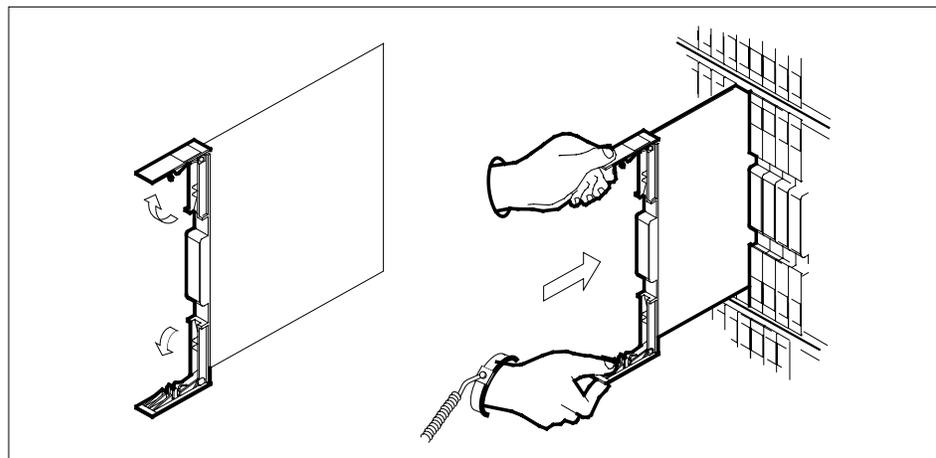
- 75 Leave the NT9X14 card in the slot on the link interface shelf (LIS).
- 76 Locate the NTEX22 card for the APU.
- 77 Open the locking levers on the card. Carefully pull the NTEX22 card toward you; unseat the card from the connector.



- 78 Carefully slide the NTEX22 card back into the LIS.

**PM APU**  
**major (continued)**

- 79** Seat and lock the NTEX22 card as follows:
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
  - Close the locking levers.
- 80** Carefully slide the NT9X14 card back into the LIS.



- 81** Seat and lock the NT9X14 card as follows:
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
  - Close the locking levers.

## PM APU major (end)

---

**At the MAP display**

**82** To manually busy the offline APU, type

>BSY APU apu\_no

and press the Enter key.

where

**apu\_no**

is the number of the APU (0 to 511)

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 83 |
| failed             | step 85 |

**83** To load the APU, type

>LOADPM

and press the Enter key.

| If the LOADPM command                                                       | Do      |
|-----------------------------------------------------------------------------|---------|
| passed                                                                      | step 84 |
| failed, and the system did not generate a card list                         | step 85 |
| failed, and the system generated a card list                                | step 34 |
| failed, the system generated a card list, and you replaced cards in the APU | step 85 |

**84** To return the APU to service, type

>RTS

and press the Enter key.

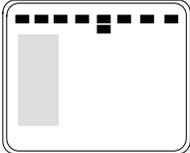
| If the RTS command                                                              | Do      |
|---------------------------------------------------------------------------------|---------|
| passed                                                                          | step 86 |
| failed, and the system did not generate a card list                             | step 85 |
| failed, and the system generated a card list                                    | step 34 |
| failed, and the system generated a card list, and you replaced cards in the APU | step 85 |

**85** For additional help, contact the next level of support.

**86** The procedure is complete.

## PM APU minor

### Alarm display



| CM | MS | IOD | Net | PM          | CCS | LnS | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1APU</b> | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP display, APU (preceded by a number) appears under the PM header of the alarm banner. The APU indicates a minor alarm for the application processor unit (APU).

### Meaning

One or more APUs are in-service trouble. One of the F-bus taps for the APU can be manually busy or system busy. The APU also can have a loadname mismatch.

The number under the PM header of the alarm banner indicated the number of the affected APUs.

### Result

APUs that are in-service trouble continue to function. The in-service trouble APUs function at a reduced capacity.

### Common procedures

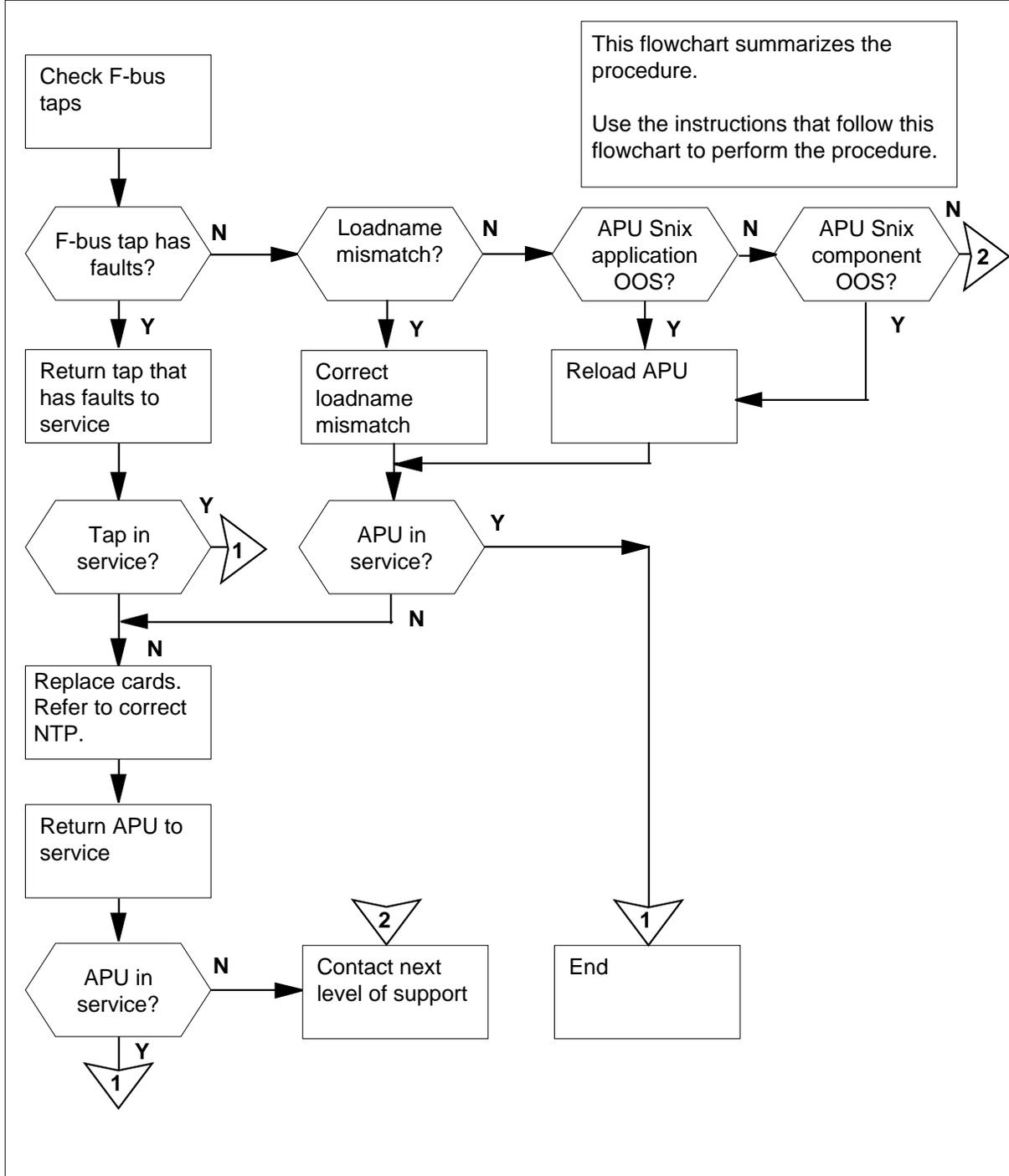
There are no common procedures.

### Action

This procedure contains a summary flowchart and list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

# PM APU minor (continued)

## Summary of clearing a PM APU minor alarm



---

## PM APU minor (continued)

---

### Clearing a PM APU minor alarm

#### *At the MAP terminal*

- 1 To access the PM level of the MAP display, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

*Example of a MAP display:*

```
 SysB ManB OffL CBSy ISTb InSv
PM 0 0 0 0 2 49
```

- 2 To display all system busy APUs, type

```
>DISP STATE ISTB APU
```

and press the Enter key.

- 3 Record the numbers of the in-service trouble APUs.

- 4 To post an in-service trouble APU, type

```
>POST APU apu_no
```

and press the Enter key.

*where*

**apu\_no**

is the number of the APU (0 to 511)

*Example of a MAP display:*

```
APU 1 ISTb
```

- 5 To display the faults that cause the in-service trouble condition, type

```
>QUERYPM
```

and press the Enter key.

*Example of a MAP response:*

```
PM type:APU PM No.:1 Status: ISTb
LIM: 1 Shelf:2 Slot: 12 APU FTA:4250 1000
Default Load: ULX36BX
Running Load: ULX36BX
ISTB conditions:
 APU Snix application out-of-service
LMS States : ISTb ISTB
Auditing : Yes Yes
Msg Channels: Acc Acc
TAP 2 : . .
```

**PM APU**  
**minor** (continued)

- 6 Record the APU number, the tap number, and the state of the tap. Record the link interface module (LIM) number of the posted APU.  
**Note:** In the example in step 5, the APU number is 1, the LIM number is 1, and the tap number is 2.
- 7 To determine the faults, look under the ISTB conditions header on the MAP response.

| If the header indicates                                                         | Do       |
|---------------------------------------------------------------------------------|----------|
| one of the F-bus taps is out of service (shown as Tap # nOOS or Tap # n OOS/NA) | step 10  |
| Loadname Mismatch                                                               | step 67  |
| APU Snix application out-of-service                                             | step 8   |
| APU Snix component out-of-service                                               | step 9   |
| other than listed here                                                          | step 117 |

- 8 The APU Snix application is out of service. Wait 15 min while the system attempts to clear the fault.

| If the state of the APU   | Do       |
|---------------------------|----------|
| changes from ISTb to InSv | step 118 |
| does not change           | step 79  |

- 9 The APU Snix component is out of service. Wait 5 min while the system attempts to clear the fault.

| If the state of the APU   | Do       |
|---------------------------|----------|
| changes from ISTb to InSv | step 118 |
| does not change           | step 79  |

- 10 Record the number of the F-bus that contains the APU tap that is out of service.

**Note:** The F-bus number appears on the right of the TAP # header.

- 11 To post the LIM for the APU, type

```
>POST LIM lim_no
```

and press the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 17) that you recorded in step 6

*Example of a MAP display:*



**PM APU**  
**minor** (continued)

**17** Determine from office records or operating company personnel why the F-bus tap is manually busy.

| <b>If you</b>                          | <b>Do</b> |
|----------------------------------------|-----------|
| can return the F-bus tap to service    | step 19   |
| cannot return the F-bus tap to service | step 118  |

**18** To force the system busy F-bus tap for the APU to busy, type  
**>BSY FBUS fbus\_no tap\_no FORCE**  
and press the Enter key.

where

**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)

Example of a MAP response:

```
LIM 1 FBUS 0 Tap 0 Busy initiated.
LIM 1 FBUS 0 Tap 0 Busy passed
```

**19** To test the F-bus tap for the APU, type  
**>TST FBUS fbus\_no tap\_no**  
and press the Enter key.

where

**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)

| <b>If the TST command</b>                                                                   | <b>Do</b> |
|---------------------------------------------------------------------------------------------|-----------|
| passed                                                                                      | step 45   |
| failed, and the system generated a card list                                                | step 46   |
| failed, and the system did not generate a card list                                         | step 91   |
| failed, with the response <i>Return to Service failed -local maintenance not accessible</i> | step 20   |
| other than listed here                                                                      | step 117  |

**20** To perform an in-service test on the LIM unit for the APU, type  
**>TST UNIT unit\_no**

## PM APU minor (continued)

and press the Enter key.

where

**unit\_no**  
is the number of the LIM unit (0 or 1)

**Note:** In step 10, you recorded the F-bus number that contains the out-of-service APU tap. The LIM unit 0 associates with F-bus 0. The LIM unit 1 associates with F bus 1.

| If the TST command                                  | Do       |
|-----------------------------------------------------|----------|
| passed                                              | step 45  |
| failed, and the system generated a card list        | step 21  |
| failed, and the system did not generate a card list | step 117 |
| is other than listed here                           | step 117 |

- 21 Record the location, description, slot number, PEC, and PEC suffix of the cards on the list.
- 22



### WARNING

#### Potential loss of service

Make sure that the mate LIM unit is in service before you manually busy the LIM unit. This LIM unit contains the card that you want to replace. If you do not make sure that the unit is in service, you can isolate nodes. The nodes are on link interface shelves (LIS) 1, 2, and 3.

Determine the state of the mate LIM unit.

**Note:** If the APU tap that is out of service is on F-bus 0, LIM unit 1 is the mate unit. If the APU tap that is out of service is on F-bus 1, LIM unit 0 is the mate unit.

| If the state of the mate LIM unit | Do      |
|-----------------------------------|---------|
| is <i>InSv</i> or <i>ISTb</i>     | step 25 |
| is other than listed here         | step 23 |

- 23 Perform the correct alarm clearing procedure in this document to return the LIM unit to service. Complete the procedure and return to this point.
- 24 Go to step 15.

**PM APU**  
**minor** (continued)

- 25 To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.

*Example of a MAP display:*

```

 Tap: 0 4 8 12 16 20 24 28 32
FBus0: InSv ---- ---- ---- ---. ---
FBus1: InSv ...M .I.. .S.. ---- ---- ---- ---

```

**Note:** In the example, B indicates that the F-bus is manually busy. The letter B also can indicate the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap, An M indicates a manually busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

- 26



**WARNING**  
**Potential loss of service**

Make sure the mate F-bus is in service. Make sure the taps for equipped and online nodes are in service. Make sure that the mate F-bus and taps are in service before you manually busy the LIM unit. The LIM unit contains the card you want to replace. If you do not make sure the mate F-bus and taps are in service, you can isolate nodes. The nodes are on LIS 1, 2, and 3.

Determine the state of the mate F-bus.

**Note:** If the out-of-service APU tap is on F-bus 0, F-bus 1 is the mate unit. If the out-of-service APU tap is on F-bus 1, F-bus 0 is the mate unit. The F-bus state appears on the right of the words FBus0 or FBus1 in the example MAP display in step 25.

| If the state of the mate F-bus | Do      |
|--------------------------------|---------|
| is <i>InSv</i> or <i>ISTb</i>  | step 29 |
| is other than listed here      | step 27 |

- 27 Perform the correct alarm clearing procedure in this document to return the mate F-bus to service. Complete the procedure and return to this point.
- 28 Go to step 15.
- 29 Determine the state of the taps on the mate F-bus.

**Note:** The tap states appear in the two rows of characters under the numbers 0 to 35 (or 0 to 23). The location of the tap states appear in the example MAP display in step 25. If the out-of-service APU tap is on F-bus

## PM APU minor (continued)

0, examine the taps on F-bus 1. If the out-of-service APU tap is on F-bus 1, examine the taps on F-bus 0.

| If the taps on the mate F-bus                | Do      |
|----------------------------------------------|---------|
| are in service (.) or in-service trouble (I) | step 32 |
| are manual busy (M) or system busy (S)       | step 30 |

**30** Perform the correct alarm clearing procedure in this document to return the taps to service. Complete the procedure and return to this point.

**31** Go to step 15.

**32**



### CAUTION

#### Loss of service

Manually busy the F-bus for the LIM unit that contains the card that you replace. If you do not manually busy the F-bus, a loss of CCS7 messaging for all application specific units (ASU) occurs. The ASUs are in the link peripheral processor (LPP) that carry traffic.

Manually busy the F-bus for the LIM unit that contains the card that you replace. To manually busy the F-bus, type

```
>BSY FBUS fbus_no
```

and press the Enter key.

where

**fbus\_no**

is the number of the F-bus (0 or 1)

**Note:** F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

| If the response                                                                                                                                                                       | Do      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| is <i>LIM x FBus y Busy initiated.</i><br><i>LIM x FBus y Busy passed.</i>                                                                                                            | step 34 |
| is <i>LIM x FBus y Busy requires confirmation because the following PMs may be active on this bus...PM xx unit 0PM xx unit 1</i><br><i>Please confirm ("YES", "Y", "NO", or "N"):</i> | step 33 |

**PM APU**  
**minor** (continued)

**33** To confirm the command, type

**>YES**

and press the Enter key.

*Example of a MAP display:*

```

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

```

LIM 1 FBus 0 Busy initiated.

LIM 1 FBus 0 Busy passed.

**Note:** The previous example shows a manually busy F-bus 0.

**34** To manually busy the LIM unit that contains the card that has faults, type

**>BSY UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LIM unit (0 or 1)

**35** To reset the LIM unit, type

**>PMRESET unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LIM unit (0 or 1)

| If the PMRESET command | Do      |
|------------------------|---------|
| passed                 | step 42 |
| failed                 | step 36 |

**36** To load the LIM unit, type

**>LOADPM UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LIM unit (0 or 1)

| If the LOADPM command | Do      |
|-----------------------|---------|
| passed                | step 42 |

---

**PM APU  
minor** (continued)

---

| If the LOADPM command                               | Do       |
|-----------------------------------------------------|----------|
| failed, and the system generated a card list        | step 37  |
| failed, and the system did not generate a card list | step 117 |

**37** Change the first card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**At the MAP display**

**38** To manually busy the offline APU, type  
`>BSY APU apu_no`  
 and press the Enter key.  
*where*  
**apu\_no**  
 is the number of the APU unit (0 to 511)

**39** To load the LIM unit, type  
`>LOADPM UNIT unit_no`  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LIM unit (0 or 1)

| If the LOADPM command                                                              | Do       |
|------------------------------------------------------------------------------------|----------|
| passed                                                                             | step 42  |
| failed, and you did not replace all cards on the list that you recorded in step 37 | step 40  |
| failed, and you replaced all cards on the list that you recorded in step 37        | step 117 |

**40** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**41** Go to step 38.

**42** To return the LIM unit for the APU to service, type  
`>RTS UNIT unit_no`  
 and press the Enter key.  
*where*

**PM APU**  
**minor** (continued)

**unit\_no**  
 is the number of the LIM unit (0 or 1)

| If the RTS command | Do       |
|--------------------|----------|
| passed             | step 43  |
| failed             | step 117 |

**43** To access the F-bus level of the MAP display, type  
**>FBUS**

and press the Enter key.

**44** To return the F-bus to service, type

**>RTS FBUS fbus\_no**

and press the Enter key.

where

**fbus\_no**  
 is the number of the F-bus (0 or 1)

**Note:** F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

| If the RTS command | Do       |
|--------------------|----------|
| passed             | step 45  |
| failed             | step 117 |

**45** To return the F-bus tap for the APU to service, type

**>RTS FBUS fbus\_no tap\_no**

and press the Enter key.

where

**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)

| If the RTS command                                  | Do       |
|-----------------------------------------------------|----------|
| passed                                              | step 116 |
| failed, and the system generated a card list        | step 46  |
| failed, and the system did not generate a card list | step 91  |

---

**PM APU  
minor (continued)**


---

- 46** Record the location, description, slot number, the product engineering code (PEC), and PEC suffix of the cards on the list.
- 47** To quit from the F-bus level of the MAP display, type  
**>QUIT**  
 and press the Enter key.
- 48** To post the APU that you recorded in step 3, type  
**>POST APU apu\_no**  
 and press the Enter key.  
*where*  
**apu\_no**  
 is the number of the APU unit (0 to 511)
- 49** To manually busy the APU, type  
**>BSY**  
 and press the Enter key.
- 
- | <b>If the BSY command</b>  | <b>Do</b> |
|----------------------------|-----------|
| passed                     | step 52   |
| failed                     | step 51   |
| prompts for a confirmation | step 50   |
- 
- 50** To confirm the command, type  
**>YES**  
 and press the Enter key.  
 Go to step 52.
- 51** To force the APU to busy, type  
**>BSYFORCE**  
 and press the Enter key.
- 52** Change the first card on the list that you recorded in step 46. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

***At the MAP display***

- 53** To manually busy the offline APU, type  
**>BSY APU apu\_no**  
 and press the Enter key.  
*where*  
**apu\_no**  
 is the number of the APU unit (0 to 511)

**PM APU**  
**minor** (continued)

---

- 54** To reset the APU, type  
**>PMRESET**  
 and press the Enter key.
- | <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passed                        | step 56   |
| failed                        | step 55   |
- 
- 55** To load the APU, type  
**>LOADPM**  
 and press the Enter key.
- | <b>If the LOADPM command</b>                                            | <b>Do</b> |
|-------------------------------------------------------------------------|-----------|
| passed                                                                  | step 56   |
| failed, and you did not replace all cards on the list that you recorded | step 61   |
| failed, and you replaced all cards on the list that you recorded        | step 97   |
- 
- 56** To post the LIM for the APU, type  
**>POST LIM lim\_no**  
 and press the Enter key.  
*where*  
     **lim\_no**  
         is the number of the LIM (0 to 17)
- 57** To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.
- 58** To return the F-bus tap for the APU to service, type  
**>RTS FBUS fbus\_no tap\_no**  
 and press the Enter key.  
*where*  
     **fbus\_no**  
         is the number of the F-bus (0 or 1)

---

**PM APU  
minor** (continued)

---

**tap\_no**  
is the number of the F-bus tap (0 to 35)

| <b>If the RTS command</b>                                               | <b>Do</b> |
|-------------------------------------------------------------------------|-----------|
| passed                                                                  | step 64   |
| failed, and you did not replace all cards on the list that you recorded | step 59   |
| failed, and you replaced all cards on the list that you recorded        | step 91   |

**59** To quit from the F-bus level of the MAP display, type

**>QUIT**

and press the Enter key.

**60** To post the APU, type

**>POST APU apu\_no**

and press the Enter key.

where

**apu\_no**  
is the number of the APU unit (0 to 511)

**61** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**62** To manually busy the offline APU, type

**>BSY APU apu\_no**

and press the Enter key.

where

**apu\_no**  
is the number of the APU unit (0 to 511)

**63** Go to step 53.

**64** To quit the F-bus level of the MAP display, type

**>QUIT**

and press the Enter key.

**65** To post the APU, type

**>POST APU apu\_no**

and press the Enter key.

where

**apu\_no**  
is the number of the APU unit (0 to 511)

**PM APU**  
**minor** (continued)

- 66** To return the APU to service, type  
**>RTS**  
 and press the Enter key.

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 118  |
| failed                    | step 97   |

- 67**

|                                                                                   |                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b><br/> <b>Possible action that affects service</b><br/>                 Contact the next level of support before you continue.<br/>                 Contact the next level of support to make sure that you can<br/>                 change the default load or the running load.</p> |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Record the names of the default load and the running load.

*Example of a MAP response:*

```
PM type:APU PM No.:1 Status: ISTb
LIM: 1 Shelf:2 Slot: 12 APU FTA:4250 1000
Default Load: ULX36BX
Running Load: ULX36BX
ISTB conditions:
 Loadname Mismatch
LMS States: ISTb ISTb
Auditing : Yes Yes
Msg Channels: Acc Acc
TAP 2 : . .
```

- 68** The default load and the running load do not match. To correct this fault, you must change the default load or the running load.

| <b>If instructions direct you to</b> | <b>Do</b> |
|--------------------------------------|-----------|
| change the default load              | step 69   |
| change the running load              | step 78   |
| not take action                      | step 118  |

- 69** To access table PMLOADS, type  
**>TABLE PMLOADS**  
 and press the Enter key.

---

**PM APU**  
**minor (continued)**


---

- 70** To position the default load in table PMLOADS, type  
**>POSITION load\_name**  
 and press the Enter key.  
*where*  
**load\_name**  
 is the number of the default load

- 71** Determine if the default load is in table PMLOADS.

| <b>If the default load</b> | <b>Do</b> |
|----------------------------|-----------|
| is in the table            | step 72   |
| is not in the table        | step 117  |

- 72** To quit from the table, type  
**>QUIT**  
 and press the Enter key.

- 73** To access table LIUINV, type  
**>TABLE LIUINV**  
 and press the Enter key.  
*Example of a MAP response:*

TABLE: LIUINV

- 74** To change the position on the key value of the tuple, type  
**>POSITION APU apu\_no**  
 and press the Enter key.  
*where*  
**apu\_no**  
 is the number of the APU unit (0 to 511)

- 75** To indicate the field in the tuple that you want to change, type  
**>CHANGELOAD**

- 76** To enter the new value of the field that you want to change, type  
**new\_load\_name**  
 and press the Enter key.  
*where*  
**new\_load\_name**  
 is the number of the running load that you recorded in

step 67

**PM APU**  
**minor** (continued)

---

**77** Make sure that the indicated changes are correct. To confirm the new value of the changed field, type  
**>Y**  
 and press the Enter key.  
*MAP response:*

TUPLE CHANGED

**78** To quit from the table, type  
**>QUIT**  
 and press the Enter key.  
 Go to step 116.

**79** To manually busy the APU, type  
**>BSY**  
 and press the Enter key.

| <b>If the BSY command</b>  | <b>Do</b> |
|----------------------------|-----------|
| passed                     | step 82   |
| failed                     | step 81   |
| prompts for a confirmation | step 80   |

**80** To confirm the command, type  
**>YES**  
 and press the Enter key.  
 Go to step 82.

**81** To force the APU to busy, type  
**>BSYFORCE**  
 and press the Enter key.

**82** To load the APU, type  
**>LOADPDM**  
 and press the Enter key.

| <b>If the LOADPDM command</b>                | <b>Do</b> |
|----------------------------------------------|-----------|
| passed                                       | step 90   |
| failed, and the system generated a card list | step 83   |

## PM APU minor (continued)

| If the LOADPM command                                                                                                                                                 | Do      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| failed, and the system did not generate a card list                                                                                                                   | step 97 |
| <b>83</b> Record the location, description, slot number, the production engineering code (PEC), and the PEC suffix of the cards on the list.                          |         |
| <b>84</b> Change the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.   |         |
| <b>At the MAP display</b>                                                                                                                                             |         |
| <b>85</b> To manually busy the offline APU, type<br>>BSY APU apu_no<br>and press the Enter key.<br>where<br><b>apu_no</b><br>is the number of the APU unit (0 to 511) |         |
| <b>86</b> To set the APU, type<br>>PMRESET<br>and press the Enter key.                                                                                                |         |
| If the PMRESET command                                                                                                                                                | Do      |
| passed                                                                                                                                                                | step 90 |
| failed                                                                                                                                                                | step 87 |
| <b>87</b> To load the APU, type<br>>LOADPM<br>and press the Enter key.                                                                                                |         |
| If the LOADPM command                                                                                                                                                 | Do      |
| passed                                                                                                                                                                | step 90 |
| failed, and you did not replace all cards on the list that you recorded in step 83                                                                                    | step 88 |
| failed, and you replaced all cards on the list that you recorded in step 83                                                                                           | step 97 |
| <b>88</b> Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.   |         |
| <b>89</b> Go to step 85.                                                                                                                                              |         |

**PM APU**  
**minor** (continued)

---

**90** To return the APU to service, type  
**>RTS**  
 and press the Enter key.

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 116  |
| failed                    | step 97   |

**91** To quit the F-bus level of the MAP display, type  
**>QUIT**  
 and press the Enter key.

**92** To post the APU, type  
**>POST APU apu\_no**  
 and press the Enter key.  
*where*  
     **apu\_no**  
     is the number of the APU unit (0 to 511)

**93** Determine the state of the APU.

| <b>If the state of the APU</b> | <b>Do</b> |
|--------------------------------|-----------|
| is ManB                        | step 97   |
| is not ManB                    | step 94   |

**94** To manually busy the APU, type  
**>BSY**  
 and press the Enter key.

| <b>If the BSY command</b>  | <b>Do</b> |
|----------------------------|-----------|
| passed                     | step 97   |
| failed                     | step 96   |
| prompts for a confirmation | step 95   |

**95** To confirm the command, type  
**>YES**  
 and press the Enter key.  
 Go to step 97.

## PM APU minor (continued)

- 96** To force the APU to busy, type  
>**BSYFORCE**  
and press the Enter key.
- 97** To offline the APU, type  
>**OFFL**  
and press the Enter key.
- 98** To determine the location of the APU, type  
>**QUERYPM**  
and press the Enter key.

**Note:** The QUERYPM command provides the LIM number, shelf number, and slot number of the front far-left card of the APU.

*Example of a MAP response:*

```
PM type:APU PM No.:110 Status: OffL
LIM: 1 Shelf:2 Slot: 12 APU FTA:4250 1000
Default Load: ULX36BX
Running Load: ULX36BX
 Msg Channel #0 NA
 TAP #0 OOS/NA
LMS States: InSv InSv
Auditing : No Yes
Msg Channels: NA Acc
TAP 2 : M .
```

### **At the LPP**

**99**



#### **WARNING**

##### **Static electricity damage**

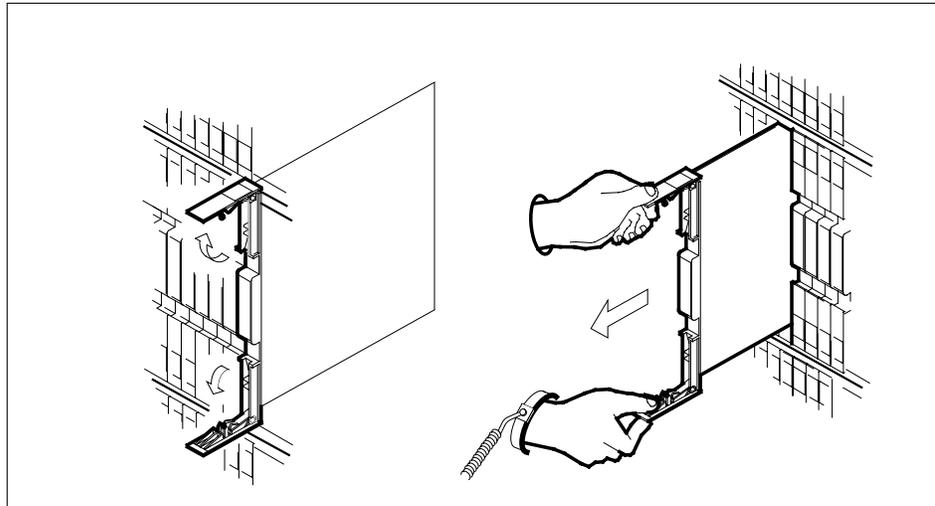
Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X14 card for the APU.

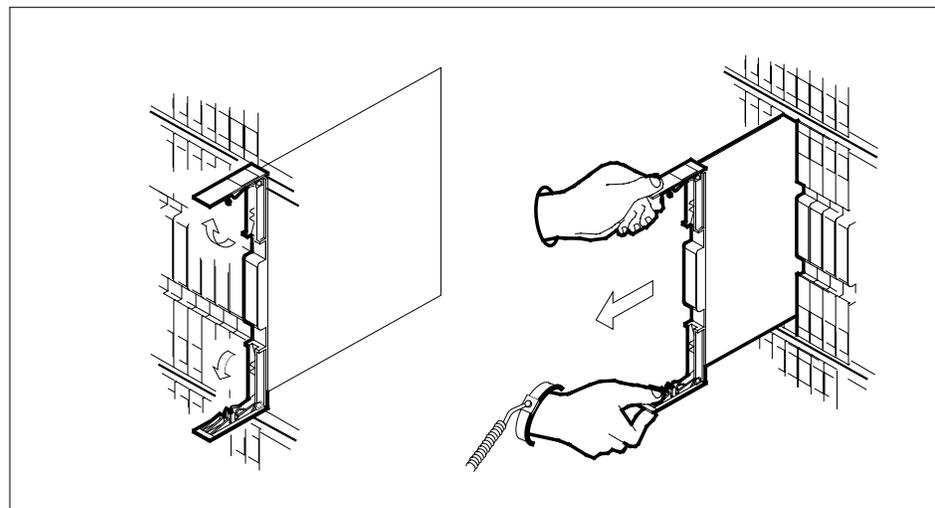
- 100** Open the locking levers on the card. Carefully pull the NT9X14 card toward you until you remove the card from the connector.

## PM APU minor (continued)

---



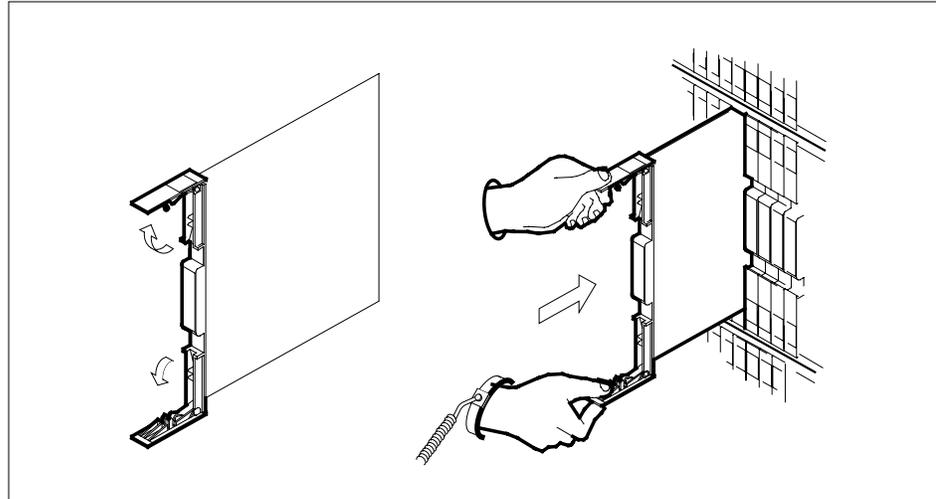
- 101** Leave the NT9X14 card in the slot on the link interface shelf (LIS).
- 102** Locate the NTEX22 card for the APU.
- 103** Open the locking levers on the card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.



- 104** Carefully slide the NTEX22 card back into the LIS.
- 105** Seat and lock the NTEX22 card as follows:
  - Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
  - Close the locking levers.

## PM APU minor (continued)

- 106** Carefully slide the NT9X14 card back into the LIS.



- 107** Seat and lock the NT9X14 card as follows:
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
  - Close the locking levers.
- 108** To manually busy the APU, type  
>BSY  
and press the Enter key.

| If the BSY command | Do       |
|--------------------|----------|
| passed             | step 109 |
| failed             | step 117 |

- 109** To load the APU, type  
>LOADPM  
and press the Enter key.

| If the LOADPM command                                                                 | Do       |
|---------------------------------------------------------------------------------------|----------|
| passed                                                                                | step 111 |
| failed, the system generated a card list and you did not replace any cards in the APU | step 110 |

**PM APU**  
**minor** (continued)

|            | <b>If the LOADPM command</b>                                                                                                                                       | <b>Do</b> |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | failed, the system generated a card list and you replaced cards in the APU                                                                                         | step 117  |
|            | failed, and the system did not generate a card list                                                                                                                | step 117  |
| <b>110</b> | Record the location, description, slot number, the PEC, and PEC suffix of the cards on the list.<br>Go to step 37.                                                 |           |
| <b>111</b> | To return the APU to service, type<br><b>&gt;RTS</b><br>and press the Enter key.                                                                                   |           |
|            | <b>If the RTS command</b>                                                                                                                                          | <b>Do</b> |
|            | passed                                                                                                                                                             | step 112  |
|            | failed, the system generated a card list and you replaced any cards in the APU                                                                                     | step 110  |
|            | failed, the system generated a card list and you replaced cards in the APU                                                                                         | step 117  |
|            | failed, and the system did not generate a card list                                                                                                                | step 117  |
| <b>112</b> | To post the LIM for the APU, type<br><b>&gt;POST LIM lim_no</b><br>and press the Enter key.<br><i>where</i><br><b>lim_no</b><br>is the number of the LIM (0 to 17) |           |
| <b>113</b> | To access the F-bus level of the MAP display, type<br><b>&gt;FBUS</b><br>and press the Enter key.                                                                  |           |
| <b>114</b> | Determine if one of the APU taps is manually busy.                                                                                                                 |           |
|            | <b>If an APU tap</b>                                                                                                                                               | <b>Do</b> |
|            | is manually busy                                                                                                                                                   | step 115  |
|            | is not manually busy                                                                                                                                               | step 116  |
| <b>115</b> | To return the F-bus tap for the APU to service, type<br><b>&gt;RTS FBUS fbus_no tap_no</b>                                                                         |           |

---

**PM APU  
minor (end)**


---

and press the Enter key.

*where*

**fbus\_no**

is the number of the F-bus (0 or 1)

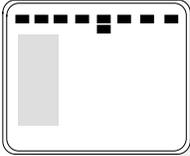
**tap\_no**

is the number of the F-bus tap (0 to 35)

|            | <b>If the RTS command</b>                               | <b>Do</b> |
|------------|---------------------------------------------------------|-----------|
|            | passed                                                  | step 116  |
|            | failed                                                  | step 117  |
| <b>116</b> | Determine if one APU minor alarm cleared.               |           |
|            | <b>If an APU minor alarm</b>                            | <b>Do</b> |
|            | cleared                                                 | step 118  |
|            | did not clear                                           | step 117  |
| <b>117</b> | For additional help, contact the next level of support. |           |
| <b>118</b> | The procedure is complete.                              |           |

## PM CBSY major

### Alarm display



| CM | MS | IOD | Net | PM    | CCS | Lns | Trks | Ext |
|----|----|-----|-----|-------|-----|-----|------|-----|
| .  | .  | .   | .   | 1CBSY | .   | .   | .    | .   |
|    |    |     |     | M     |     |     |      |     |

### Indication

At the MTC level of the MAP display, CBSY (preceded by a number and followed by an M) appears under the PM header of the alarm banner. A CBSY indicates a C-side busy (CBSy) major alarm. The number that precedes the CBSy indicates the number of peripheral modules (PM) affected by the alarm. The previous figure illustrates an alarm banner with a CBSy major alarm.

This alarm applies only to the following PMs:

- maintenance trunk module (MTM)
- service trunk module (STM)
- trunk module 8 (TM8)

### Meaning

The indicated PMs are CBSy.

### Result

The PM cannot communicate with the device on the C-side of the PM.

### Common procedures

This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing PM C-side faults*

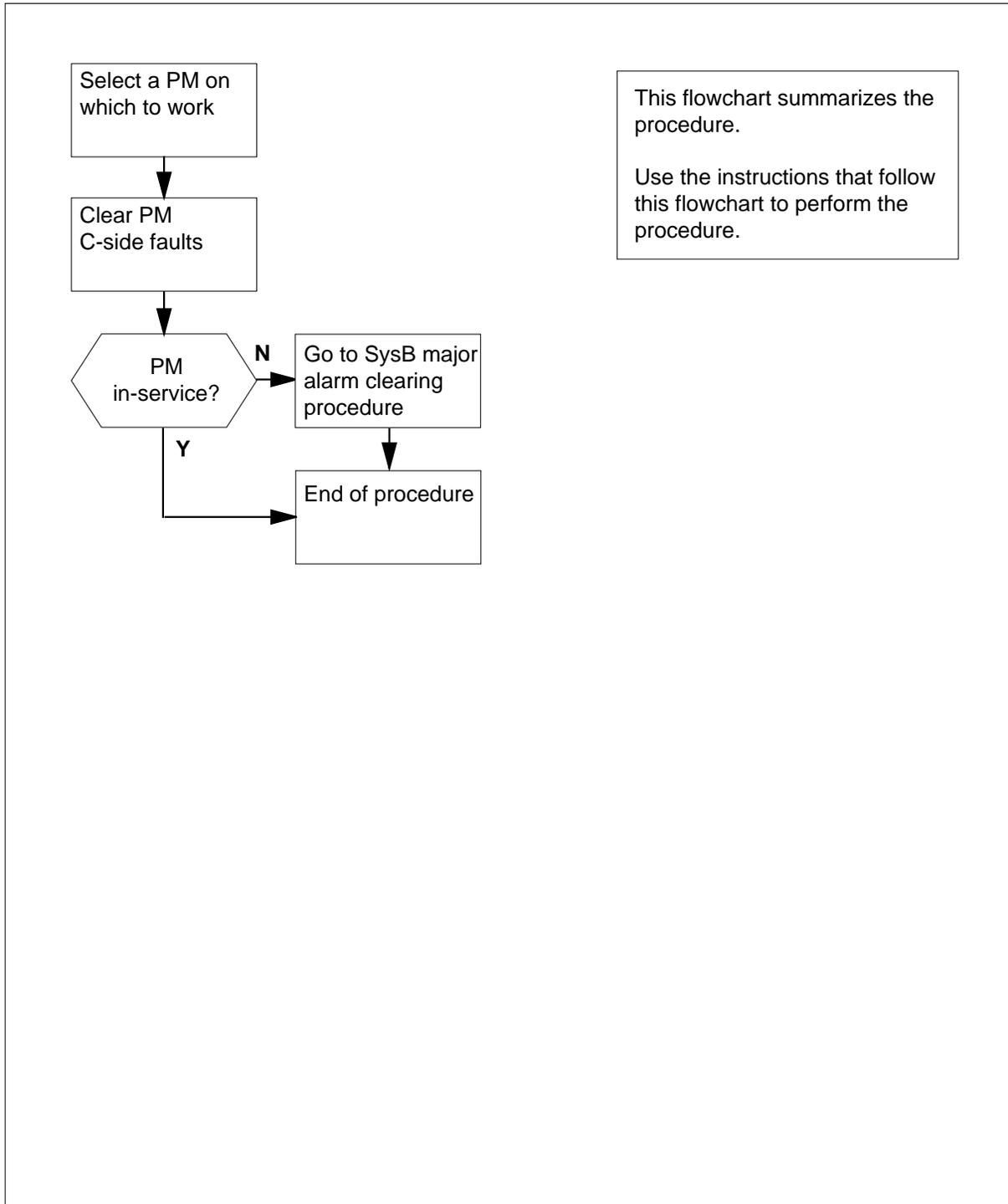
Do not go to the common procedure unless the step-action procedure directs you to go.

### Action

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

## PM CBSY major (continued)

### Summary of clearing a PM CBSY major alarm



**PM CBSY**  
**major** (continued)

---

**Clearing a PM CBSY major alarm**

**At the MAP terminal**

- 1** To access the PM level of the MAP display, type  
**>MAPCI ;MTC :PM**  
 and press the Enter key.

*Example of a MAP display:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

| <b>If</b>                                   | <b>Do</b> |
|---------------------------------------------|-----------|
| an audible alarm rings                      | step 2    |
| the M indicator at the alarm banner flashes | step 2    |
| other than listed here                      | step 3    |

- 2** To silence the alarm, type  
**>SIL**  
 and press the Enter key.
- 3** To display all CBsy PMs, type  
**>DISP STATE CBSY**  
 and press the Enter key.

*Example of a MAP display:*  
 CBsy TM8 : 0

**Note:** If multiple types of PMs are CBsy, work on MTMs first. If multiple PMs are CBsy, select one on which to work.

Record the number of the PM.

- 4** Go to the common procedure *Clearing PM C-side faults*. Complete the procedure and return to this point.

| <b>If the PM</b>   | <b>Do</b> |
|--------------------|-----------|
| changes to SysB    | step 5    |
| remains CBsy       | step 6    |
| returns to service | step 7    |

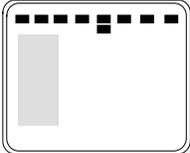
**PM CBSY  
major (end)**

---

- 5 The CBSy major alarm changed to a SysB major alarm. Refer to the correct procedure in this document. Go to step 7.
- 6 Treat the CBSy PM as a SysB PM. Refer to the correct procedure in this document. Go to step 7.
- 7 The procedure is complete.

## PM DCH major

### Alarm display



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1DCH</b> | .   | .   | .    | .   | .    |
|    |    |     |     | <b>M</b>    |     |     |      |     |      |

### Indication

DCH (preceded by a number) appears under the PM header of the alarm banner. An M follows the DCH. The DCH indicates a major alarm for a D-channel handler (DCH). The number that precedes the DCH indicates the number of DCHs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DCH major alarm.

### Meaning

A DCH is system busy. A system-busy DCH causes the peripheral module (PM) that contains the DCH to have in-service trouble. A DCH is system busy for any of the following reasons:

- the ISDN signaling preprocessor (ISP) or the central control (CC) cannot communicate with the DCH
- a DCH returns to service from a C-side busy state
- a DCH goes through system-initiated diagnostics
- a DCH begins after the PM started again
- a DCH takeover failed
- a DCH appears to babble
- traps cause a DCH reset

### Result

The affected DCH cannot support ISDN service. The system automatically assigns ISDN service groups (ISG) to the spare DCH because all offices have DCH sparing.

### Common procedures

This procedure refers to *Monitoring system maintenance*.

Do not go to the common procedure unless the step-action procedure directs you to go.

**PM DCH**  
**major** (continued)

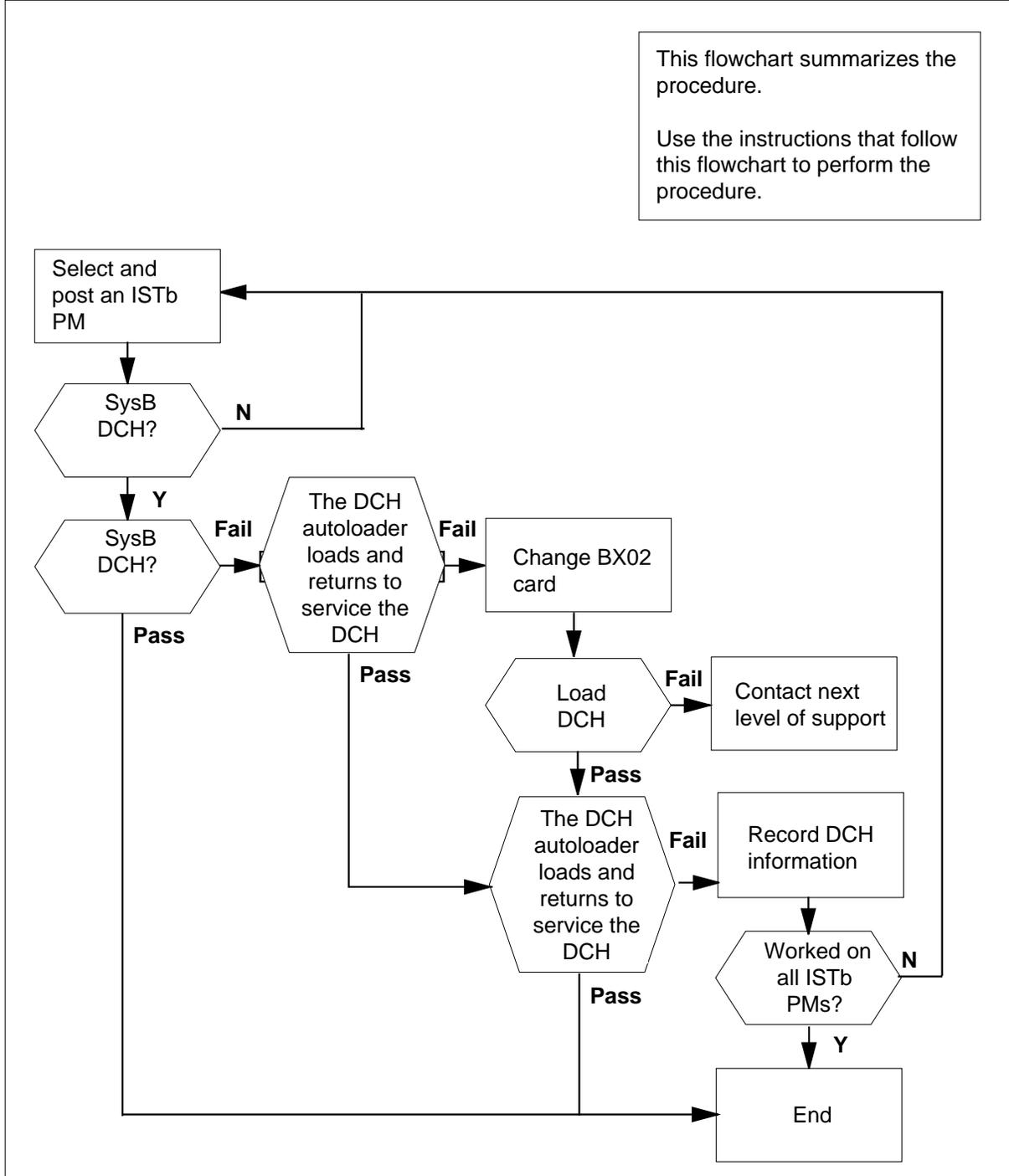
---

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

# PM DCH major (continued)

## Summary of clearing a PM DCH major alarm



---

## PM DCH major (continued)

---

### Clearing a PM DCH major alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type

```
>MAPCI:MTC;PM
```

and press the Enter key.

*Example of a MAP response*

| PM | SysB | ManB | OffL | CBSy | ISTb | InSv |
|----|------|------|------|------|------|------|
|    | 8    | 0    | 19   | 19   | 3    | 13   |

| If                                          | Do     |
|---------------------------------------------|--------|
| an audible alarm rings                      | step 2 |
| the M indicator at the alarm banner flashes | step 2 |
| is other than listed here                   | step 3 |

- 2 To silence the alarm, type

```
>SIL
```

and press the Enter key.

- 3 To display all in-service trouble PMs, type

```
>DISP STATE ISTB
```

and press the Enter key.

*Example of a MAP response*

```
ISTb LTC : 0,10,90
```

- 4 Record the PM type and the PM numbers for all in-service trouble PMs that have DCHs.

**Note:** The PM type appears on the right of the ISTb header in the MAP response. The PM number for each in-service trouble PM appears on the right of the PM type. Commas separate multiple in-service trouble PMs.

- 5 To post a PM from the list that you recorded in step 4, type

```
>POST pm_type pm_no
```

and press the Enter key.

where

**pm\_type**

is the PM type that you recorded in step 4

**PM DCH**  
**major** (continued)

---

**pm\_no**  
 is the PM number that you recorded in step 4

*Example input*

>POST LTC 0

*Example of a MAP response*

|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM  | 8    | 0    | 19   | 19   | 3    | 13   |
| LTC | 0    | 0    | 0    | 0    | 3    | 4    |

LTC 0 ISTb Links\_OOS: CSide 0 , PSide 1  
 Unit0: Act InSv  
 Unit1: Inact InSv

| <b>If an MTCE flag</b>      | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 6    |
| does not appear             | step 7    |

**6** Go to the common procedure *Monitoring system maintenance*. Complete the procedure and return to this step.

| <b>If the major alarm</b> | <b>Do</b> |
|---------------------------|-----------|
| remains                   | step 7    |
| changes                   | step 22   |
| clears                    | step 23   |

**7** To determine the DCH that is SysB, type

>TRNSL P

and press the Enter key.

*Example of a MAP response*

---

## PM DCH major (continued)

---

```

LGCI 0 ISTb Links_OOS: CSide 16 , PSide 0
Unit0: Act InSv
Unit1: Inact InSv

```

```

TRNSL P
Link 0: Multiple nodes 0;Cap MS;Status:OK
;MsgCond:OPN

```

```

Link 1: Carrier of Class - Trunk ;Status:Offl
Link 13: DCH 3;Status:OK

```

```

Link 15: DCH 2;Status:OK
Link 17: DCH 0;Status:SysB

```

```

Link 19: DCH 1;Status:OK

```

- 8** To access the DCH level of the MAP terminal and determine the state of the DCHs, type

**>DCH**

and press the Enter key.

*Example of a MAP response*

|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM  | 8    | 0    | 19   | 19   | 3    | 13   |
| LTC | 0    | 0    | 0    | 0    | 3    | 4    |

```

LTC 0 ISTb Links_OOS: CSide 0 , PSide 1
Unit0: Act InSv
Unit1: Inact InSv

```

```

DCH 2 1 0 0 2 1

```

**Note:** The states for all DCHs that associate with the posted PM appear on the bottom line of the MAP display. You obtained the bottom line of the MAP display in step 8.

| If                                                               | Do      |
|------------------------------------------------------------------|---------|
| a minimum of one DCHs that associates with the posted PM is SysB | step 9  |
| all DCHs associated with the posted PM are InSv or ISTb          | step 17 |

---

## PM DCH major (continued)

- 9** To post the SysB DCH identified in step 7 and determine the SysB DCH fault, type

>POST dch\_no

and press the Enter key.

where

**dch\_no**  
is the number of the DCH

|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM  | 8    | 0    | 19   | 19   | 3    | 13   |
| LTC | 0    | 0    | 0    | 0    | 3    | 4    |

```
LTC 0 ISTb Links_OOS: CSide 0 , PSide 1
Unit0: Act InSv
Unit1: Inact InSv
```

```
DCH 2 1 0 0 2 1
DCH 82 ISG 200 SysB LTC 0 port 3 Access error
```

*Example of a MAP response*

**Note 1:** When the posted set includes a minimum of two DCHs, the DCHs appear one at a time. The appearance of the DCHs begins with the first unit of the posted set.

**Note 2:** The fault reason appears at the end of the line for the current DCH of the posted set. In the previous example, the fault reason is Access error.

| If within 1 min the state of the DCH | Do |
|--------------------------------------|----|
|--------------------------------------|----|

|         |         |
|---------|---------|
| is SysB | step 10 |
|---------|---------|

|                 |         |
|-----------------|---------|
| is InSv or ISTb | step 16 |
|-----------------|---------|

**Note:** The DCH autoloader loads and returns to service one DCH at a time. Log DCH604 documents which DCHs the loader has an effect on.

- 10** To manually busy the DCH, type

>BSY

and press the Enter key.

**Note:** The autoloader services one DCH at a time. The operating company might decide to abort the autoloader process and manually load multiple DCHs in parallel. Manually loading DCH cards in parallel is faster than the autoloader process.

*Example of a MAP response*

```
DCH 82 Bsy Passed
```

- 11** To return the DCH to service, type

>RTS

---

**PM DCH**  
**major (continued)**


---

and press the Enter key.

*Example of a MAP response*

```
DCH 82 Out-of-service test initiated
Fail message received from PM
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
DCH 82 Tst Failed Testid : DCHIFdiag
```

---

| <b>If the RTS</b>                  | <b>Do</b> |
|------------------------------------|-----------|
| fails and the DCH is ManB          | step 12   |
| passes and the DCH is InSv or ISTb | step 16   |

---

- 12** To load the DCH, type

**>LOADPM**

and press the Enter key.

*Example of a MAP response*

```
Request submitted on DCH 82
DCH 82 load Passed : DCH36A
```

---

| <b>If the LOADPM</b>                 | <b>Do</b> |
|--------------------------------------|-----------|
| fails                                | step 13   |
| passes                               | step 14   |
| fails and you replaced the BX02 card | step 21   |

---

- 13** To change the NTB02 card, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to step 12.

- 14** To return the DCH to service, type

**>RTS**

and press the Enter key.

*Example of a MAP response*

**PM DCH**  
**major** (continued)

---

DCH 82 Out-of-service test initiated  
DCH 82 Tst Passed  
DCH 82 Rts Passed

| <b>If the RTS</b>                         | <b>Do</b> |
|-------------------------------------------|-----------|
| fails and the DCH remains ManB            | step 15   |
| passes and the DCH is either InSv or ISTb | step 16   |

- 15** Record the following information about the DCH in use.
- the PM type and number
  - the DCH number
  - the original and the current fault reason, and the state of the DCH
- You will require additional maintenance action to recover this DCH. Go to step 16 and work on another DCH. Return all system-busy DCHs to service. Give the information recorded in step 15 to the next level of support.

- 16** To display the next DCH in the posted set, type  
**>NEXT**  
and press the Enter key.

| <b>If</b>                | <b>Do</b> |
|--------------------------|-----------|
| another SysB DCH appears | step 10   |
| End of post set appears  | step 17   |

- 17** Review the list of ISTb PMs that you recorded in step 4.

| <b>If you</b>                                                                 | <b>Do</b> |
|-------------------------------------------------------------------------------|-----------|
| did not work on all PMs on the list                                           | step 18   |
| worked on all the PMs on the list, and you did not return all DCHs to service | step 21   |
| worked on all the PMs on the list, and you returned all DCHs to service       | step 23   |

- 18** To return to the PM level of the MAP terminal, type  
**>QUIT**  
and press the Enter key.

---

**PM DCH  
major (end)**


---

- 19** To post the next PM on the list that you recorded in step 4, type

```
>POST pm_type pm_no
```

and press the Enter key.

where

**pm\_type**

is the PM type that you recorded in step 4

**pm\_no**

is the PM number that you recorded in step 4

---

**If an MTCE flag**

**Do**

appears next to either unit

step 20

does not appear

step 7

- 
- 20** Go to the common procedure *Monitoring system maintenance*. Complete the procedure and return to this step.

---

**If the major alarm**

**Do**

remains

step 7

changes

step 22

clears

step 23

- 
- 21** You will require additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed to clear this alarm. Go to step 23.

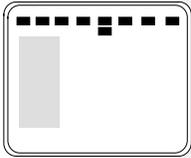
- 22** The DCH major alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.

- 23** The procedure is complete.

## PM DCH minor

---

### Alarm display



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

### Indication

DCH (preceded by a number) appears under the PM header of the alarm banner. The DCH indicates a minor alarm for a D-channel handler (DCH). The number that precedes indicates the number of DCHs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DCH minor alarm.

### Meaning

A DCH is in-service trouble. The DCH is in-service trouble for any of the following reasons:

- a congested or overloaded DCH
- a command protocol violation
- ISDN service group (ISG) channels associated to a DCH are manual busy or system busy
- DCH product engineering code (PEC), load, or sparing problems
- DCH is manual busy

A C-side busy DCH causes a DCH minor alarm. All DCHs for the PM that are not manual busy or off-line will be C-side busy. The C-side busy DCHs occur when the PM is system busy. The PM-related alarm indicator masks the DCH minor alarm indicator when the PM is system busy.

### Result

In-service trouble DCHs do not affect service.

### Common procedures

This procedure refers to *Monitoring system maintenance*.

Do not go to the common procedure unless the step-action procedure directs you to go.

**PM DCH**  
**minor** (continued)

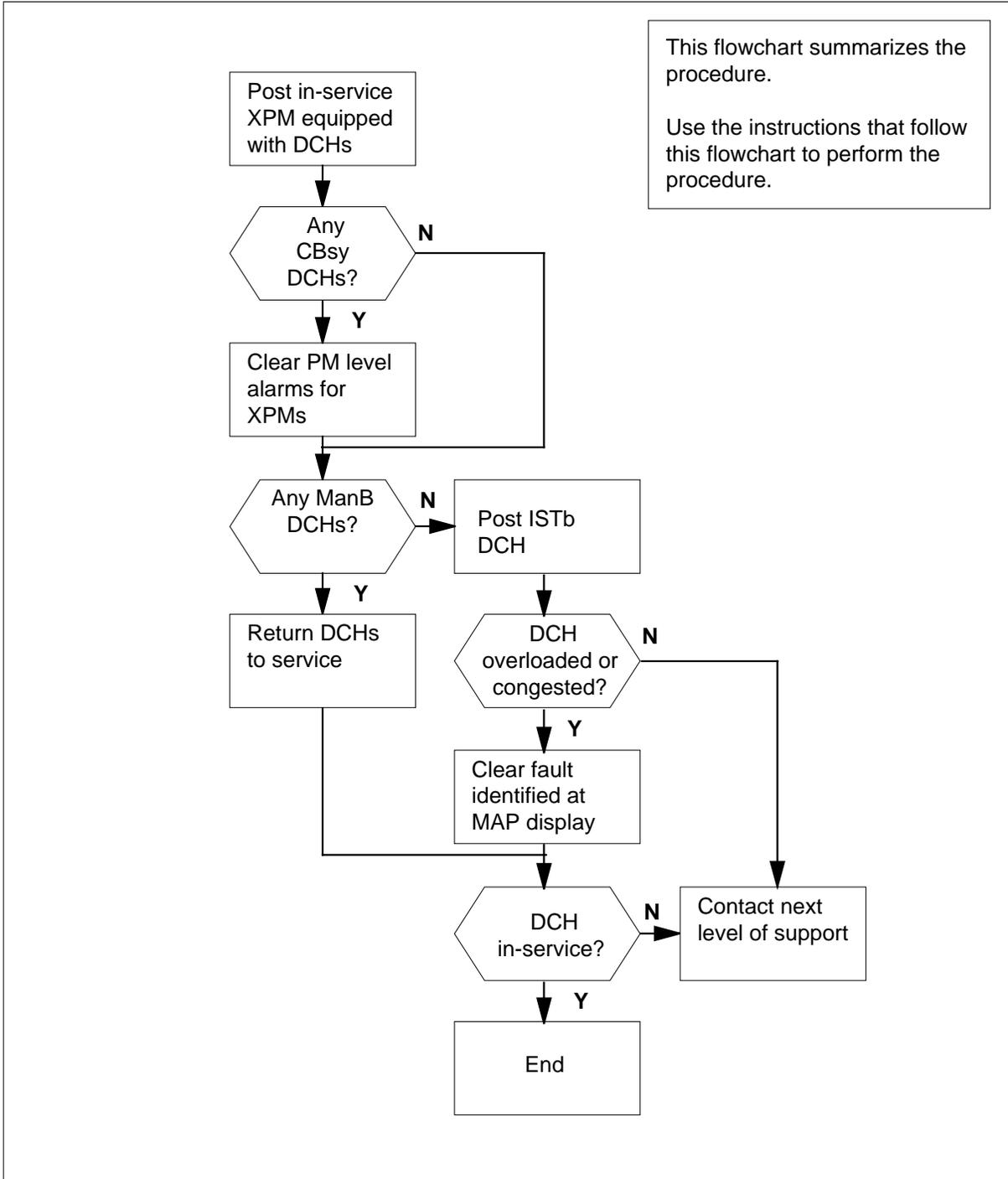
---

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

# PM DCH minor (continued)

## Summary of clearing a PM DCH minor alarm



---

## PM DCH minor (continued)

---

### Clearing a PM DCH minor alarm

#### *At the MAP terminal*

- 1 To access the PM level of the MAP terminal, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

*Example of a MAP response:*

| PM | SysB | ManB | OffL | CBSy | ISTb | InSv |
|----|------|------|------|------|------|------|
|    | 8    | 0    | 19   | 19   | 3    | 13   |

---

**If an audible alarm**

**Do**

rings

step 2

does not ring

step 3

---

- 2 To silence the alarm, type

```
>SIL
```

and press the Enter key.

- 3 To display all in-service peripheral modules (PM), type

```
>DISP STATE INSV
```

and press the Enter key.

*Example of a MAP response:*

```
InSv MTM : 1,2
InSv STM : 0,2,4,8,10
InSv LTC : 3
InSv DTCI: 2
InSv LCME: HOST 55 0,HOST 86 0,HOST 67 0,HOST 65 0
```

- 4 Record the PM type and the PM numbers for all in-service PMs that have DCHs. If necessary, consult office records or operating company personnel.

**Note:** The system displays the PM type on the right of the InSv header in the MAP response. The system displays the PM number for each in-service PM on the right of the colon. If multiple in-service PMs are present, commas separate the numbers.

- 5 To post the first PM in the list that you recorded at step 4, type

```
>POST pm_type pm_no
```

and press the Enter key.

*where*

## PM DCH minor (continued)

**pm\_type**  
is the PM type that you recorded at step 4

**pm\_no**  
is the PM number that you recorded at step 4

*Example input:*

>POST LTC 3

*Example of a MAP response:*

|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM  | 8    | 0    | 19   | 19   | 3    | 13   |
| LTC | 0    | 0    | 0    | 0    | 3    | 4    |

```
LTC 3 InSv Links_OOS: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv
```

- 6** To access the DCH level of the MAP terminal, type

>DCH

and press the Enter key.

*Example of a MAP response:*

|     | SysB | ManB | OffL | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM  | 8    | 0    | 19   | 19   | 3    | 13   |
| LTC | 0    | 0    | 0    | 0    | 3    | 4    |

```
LTC 3 InSv Links_OOS: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv
```

|     |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|
| DCH | 0 | 1 | 0 | 0 | 1 | 3 |
|-----|---|---|---|---|---|---|

**Note:** The states for all DCHs that associate with the posted PM appear on the bottom line of the MAP display.

| If DCHs         | Do     |
|-----------------|--------|
| are present     | step 7 |
| are not present | step 8 |

- 7** The fault is present in the PM or the C-side of the PM that contains the DCH. To clear other PM-related alarms, perform the correct procedures to clear the alarm. Complete the procedure and return to this point.

- 8** Determine from the MAP display if manual busy or in-service trouble DCHs are present.

| If                                      | Do     |
|-----------------------------------------|--------|
| ManB DCHs and ISTb DCHs are not present | step10 |

---

## PM DCH minor (continued)

---

- |           | If                                                                                                                                                                                                                                                                                                                         | Do      |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
|           | ManB DCHs and ISTb DCHs are present                                                                                                                                                                                                                                                                                        | step 9  |
|           | ManB DCHs are not present but ISTb DCHs are present                                                                                                                                                                                                                                                                        | step 18 |
| <b>9</b>  | To post all manual busy DCHs, type<br><b>&gt;POST MANB</b><br>and press the Enter key.<br><i>Example of a MAP response:</i>                                                                                                                                                                                                |         |
|           | <pre>           SysB   ManB   OffL   CBsy   ISTb   InSv PM          8     0     19     19     3     13 LTC         0     0     0      0     3     4  LTC  0 ISTb Links_OOS: CSide 0 , PSide 1 Unit0:  Act  InSv Unit1:  Inact InSv  DCH          0     1     0     0     1     3 DCH  82 ISG 200 ManB LTC  0 port 3 </pre> |         |
|           | <b>Note:</b> The posted set includes a minimum of two DCHs that appear one at a time. The appearance of the DCHs begins with the first unit of the posted set.                                                                                                                                                             |         |
| <b>10</b> | Determine from office records or from operating company personnel why the DCH is manual busy. Determine if you can return the DCH to service.                                                                                                                                                                              |         |
|           | If you                                                                                                                                                                                                                                                                                                                     | Do      |
|           | can return the DCH to service                                                                                                                                                                                                                                                                                              | step 11 |
|           | cannot return the DCH to service                                                                                                                                                                                                                                                                                           | step 16 |
| <b>11</b> | To return the DCH to service, type<br><b>&gt;RTS</b><br>and press the Enter key.<br><i>Example of a MAP response:</i>                                                                                                                                                                                                      |         |

**PM DCH**  
**minor** (continued)

```

RTS
DCH 82 Out-of-service test initiated
Fail message received from PM
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
DCH 82 Tst Failed Testid : DCHIFdiag

```

| If the RTS command                                           | Do      |
|--------------------------------------------------------------|---------|
| passes                                                       | step 16 |
| passes or fails, and Cbsy DCHs for the posted PM are present | step 7  |
| fails, and Cbsy DCHs for the posted PM are not present       | step 12 |

- 12** To load the DCH, type  
**>LOADPM**  
*Example of a MAP response:*

```

Request submitted on DCH 82
DCH 82 load Failed : S00DTEMP
Failed To Open File

```

| If the LOADPM command                          | Do      |
|------------------------------------------------|---------|
| passes                                         | step 14 |
| fails, and you replaced the BX02 card          | step 15 |
| fails, and you have not replaced the BX02 card | step 13 |

- 13** To replace the NTB02 card, perform the correct procedure in the *Card Replacement Procedures*. Complete the procedure and go to step 12.

- 14** To return the DCH to service, type  
**>RTS**  
 and press the Enter key.

| If the RTS command          | Do      |
|-----------------------------|---------|
| passes, and the DCH is InSv | step 16 |
| passes, and the DCH is ISTb | step 18 |

## PM DCH minor (continued)

- |           | <b>If the RTS command</b>                                                                                                                                                                                                                                                                                                  | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | fails, and you did not replace the BX02 card                                                                                                                                                                                                                                                                               | step 13   |
|           | fails, and you replaced the BX02 card                                                                                                                                                                                                                                                                                      | step 15   |
| <b>15</b> | Record the following information about the DCH: <ul style="list-style-type: none"> <li>• the PM type and number</li> <li>• the DCH number</li> <li>• the original fault reason (manual busy)</li> </ul> Return the the maximum number of manual busy DCHs to service. Give this information to your next level of support. |           |
| <b>16</b> | To display the next manual busy DCH in the posted set, type<br>>NEXT<br>and press the Enter key.                                                                                                                                                                                                                           |           |

- |           | <b>If</b>                                                                                                                         | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | another ManB DCH displays                                                                                                         | step 10   |
|           | End of Post Set displays                                                                                                          | step 17   |
| <b>17</b> | Determine from the MAP display if in-service trouble DCHs are present.                                                            |           |
|           | <b>If DCHs</b>                                                                                                                    | <b>Do</b> |
|           | are present                                                                                                                       | step 18   |
|           | are not present                                                                                                                   | step 65   |
| <b>18</b> | To post all DCHs that are in-service trouble, type<br>>POST ISTB<br>and press the Enter key.<br><i>Example of a MAP response:</i> |           |

```

 SysB ManB OffL CBsy ISTb InSv
PM 8 0 19 19 3 13
LTC 0 0 0 0 3 4

LTC 3 InSv Links_OOS: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv

DCH 0 1 0 0 1 3
DCH 50 ISG 200 ISTb LTC 3 port 3 Overloaded

```

**PM DCH**  
**minor** (continued)

---

**Note:** When the posted set includes a minimum of two DCHs, the DCHs appear one at a time. The DCHs begin with the first unit of the posted set.

- 19** Determine the fault reason for the current DCH displayed in the posted set.
- Note:** The fault reason appears at the end of the line for the posted DCH. In the example at step 18, the fault reason is Overloaded.

| <b>If the fault reason</b> | <b>Do</b> |
|----------------------------|-----------|
| is Congested               | step 20   |
| is CPV                     | step 22   |
| is DCH Chnls BSY           | step 27   |
| is Off                     | step 37   |
| is Incorrect PEC           | step 40   |
| is Loadname                | step 55   |
| is Overloaded              | step 20   |

- 20** A DCH equipment problem is present. Record the following information about the DCH:
- the PM type and number
  - the DCH number
  - the fault reason that you obtained at step 19
- After you return to service all possible DCHs, give this information to the next level of support.

- 21** To display the next DCH in the posted set, type  
**>NEXT**  
and press the Enter key.

| <b>If</b>                 | <b>Do</b> |
|---------------------------|-----------|
| another ISTb DCH displays | step 19   |
| End of post set displays  | step 65   |

- 22** To cancel any maintenance action in progress for this DCH, type  
**>ABTK**  
and press the Enter key.

- 23** To manually busy the DCH, type  
**>BSY**  
and press the Enter key.

## PM DCH minor (continued)

*Example of a MAP response:*

DCH 50 Bsy Passed

- 24** To return the DCH to service, type  
>**RTS**

*Example of a MAP response:*

```
DCH 50 Out-of-service test initiated
Fail message received from PM
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 003 05 BX02
DCH 50 Tst Failed Testid : DCHIFdiag
```

| If the RTS command | Do      |
|--------------------|---------|
| passes             | step 26 |
| fails              | step 25 |

- 25** Record the following information about the DCH:
- the PM type and number
  - the DCH number
  - the original fault reason (and the current fault reason if different from the original)

Clear all the in-service trouble fault reasons for the DCHs. Give this information to the next level of support.

- 26** To display the next DCH in the posted set, type  
>**NEXT**  
and press the Enter key.

| If                        | Do      |
|---------------------------|---------|
| another ISTb DCH displays | step 19 |
| End of post set displays  | step 65 |

- 27** Record the DCH number and the ISG number for the posted set.

**Note:** The DCH number appears on the right of the DCH header on the bottom line of the MAP display. The ISG number appears on the right of the ISG header on the bottom line of the MAP display.

*Example of a MAP response:*

## PM DCH minor (continued)

```

 SysB ManB OffL CBSy ISTb InSv
PM 8 0 19 19 3 13
LTC 0 0 0 0 3 4

LTC 3 InSv Links_OOS: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv

DCH 0 0 0 0 1 4
DCH 50 ISG 200 ISTb LTC 3 port 3 DCH CHNLS BSY

```

**28** To access the ISG level of the MAP terminal, type

**>ISG**

and press the Enter key.

*Example of a MAP response:*

```

 SysB ManB OffL CBSy ISTb InSv
PM 8 0 19 19 3 13
LTC 0 0 0 0 3 4

LTC 3 InSv Links_OOS: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv
ISG 111111111 222222222 33
 123456789 0123456789 0123456789 01

```

**29** To post the ISG for the in-service trouble DCH, type

**>POST isg\_no**

and press the Enter key.

where

**isg\_no**

is the number of the ISG (0 to 255) that you recorded at step 27

*Example of a MAP response:*

```

 SysB ManB OffL CBSy ISTb InSv
PM 8 0 19 19 3 13
LTC 0 0 0 0 3 4

LTC 3 InSv Links_OOS: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act InSv
ISG 111111111 222222222 33
 123456789 0123456789 0123456789 01
 OOOOO OOOO..... MM

ISG 42 DCH 50 ISTb LTC 3 port 3 DCH Chnls BSY

```

---

**PM DCH**  
**minor** (continued)

---

- 30** Determine the state of the ISG channel that associate with the DCH.
- | <b>If a minimum of one channel</b>                              | <b>Do</b> |
|-----------------------------------------------------------------|-----------|
| is M (manual busy) and is not in any other out-of-service state | step 31   |
| is any other out-of-service state                               | step 35   |
- 31** To return the ISG channels to service, type  
>RTS ALL  
and press the Enter key.
- | <b>If all manual busy ISG channels</b> | <b>Do</b> |
|----------------------------------------|-----------|
| returned to service                    | step 33   |
| did not return to service              | step 4    |
- 32** Record the state of the ISG channels.  
**Note:** The state of the ISG channels appears on the right of the DCH number in the MAPdisplay.
- 33** To access the DCH level of the MAP display and post the DCH that you recorded in step 27, type  
>DCH; POST dch\_no  
and press the Enter key.  
*where*  
**dch\_no**  
is the number of the DCH (0 to 255)
- 34** Determine the state of the DCH.  
**Note:** The state of the DCH appears on the right of the ISG number on the bottom line of the MAP display.
- | <b>If the state of the DCH</b>       | <b>Do</b> |
|--------------------------------------|-----------|
| Text CharFormat="Mono"><br>InSvText> | step 36   |
| is other than listed here            | step 35   |
- 35** Record the following information about the DCH:
- the PM type and number
  - the DCH
  - the original fault reason (and the current fault reason if different from the original)

**PM DCH**  
**minor** (continued)

- After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.
- 36** To display the next DCH in the posted set, type  
**>NEXT**  
and press the Enter key.
- | <b>If</b>                 | <b>Do</b> |
|---------------------------|-----------|
| another ISTb DCH displays | step 19   |
| End of post set displays  | step 65   |
- 37** To turn on the sparing bit, type  
**>SPARING ON**  
and press the Enter key.  
*Example of a MAP response:*  
DCH 50 Enable Takeover Passed
- | <b>If the SPARING command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passes                        | step 39   |
| fails                         | step 38   |
- 38** Record the following information about the DCH:
- the PM type and number
  - the DCH number
  - the original fault reason (Sparing off)
- After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.
- 39** To display the next DCH in the posted set, type  
**>NEXT**  
and press the Enter key.
- | <b>If</b>                 | <b>Do</b> |
|---------------------------|-----------|
| another ISTb DCH displays | step 19   |
| End of post set displays  | step 65   |
- 40** From office records or from operating company personnel, determine the PEC and PEC suffix that the DCH must contain.
- 41** To determine the PEC that you enter for the DCH, type  
**>QUERYPM**  
and press the Enter key.

## PM DCH minor (continued)

*Example of a MAP response:*

```
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
Loadnames: DCHINV - DCH01IN, DCH - DCH01IN; INTL INDEX:18
```

**Note:** The PEC appears under the EqPEC header on the MAP display. In this example, the PEC entered for the DCH is NTB02.

- 42** Determine the location of the DCH.

**Note:** The location of the DCH appears under the Site, Flr, RPos, Bay\_id, and Shf headers on the MAP display. In step 41, the location of the DCH is HOST 01 B02 LTEI 00 32.

### **At the XPM**

- 43** Locate the DCH card (NTB02) in the frame. Record the PEC and PEC suffix of the DCH in the slot.

**Note:** The PEC and PEC suffix appear on the faceplate of the card.

### **At the MAP display**

- 44** Determine the level of the PEC mismatch.

---

| <b>If the PEC that you obtained from operating company personnel or from office records</b>                                                           | <b>Do</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| matches the PEC entered in a software table that you obtained at step 41, but not the PEC on the faceplate of the card that you obtained at step 43   | step 45   |
| matches the PEC on the faceplate of the card that you obtained at step 43, but not the PEC entered in a software table that you obtained at step 41   | step 51   |
| does not match the PEC entered in a software table that you obtained at step 41, or the PEC on the faceplate of the card that you obtained at step 43 | step 51   |

- 45** To manually busy the DCH, type

>BSY

and press the Enter key.

*Example of a MAP response:*

```
Services may be affected
Please confirm ("YES", "Y", "NO", or "N"):
```

- 46** To confirm the command, type

>YES

## PM DCH minor (continued)

---

and press the Enter key.

*Example of a MAP response:*  
DCH 50 Bsy Passed

- 47** To replace the NTB02 card with the card that has the correct PEC and PEC suffix, perform the correct procedure. Locate the correct procedure in the *Card Replacement Procedures*. Complete the procedure and return to this point.

- 48** To load the DCH, type

>LOADPM

and press the Enter key.

*Example of a MAP response:*

```
Request submitted on DCH 50
DCH 50 load Failed : S00DTEMP
Failed To Open File
```

---

| If the LOADPM command | Do      |
|-----------------------|---------|
| passes                | step 49 |
| fails                 | step 68 |

---

- 49** To return the DCH to service, type

>RTS

and press the Enter key.

*Example of a MAP response:*

```
DCH 50 Out-of-service test initiated
DCH 50 Tst Passed
DCH 50 Rts Passed
```

- 50** Determine from the MAP display the state of the DCH.

**Note:** The state of the DCH appears on the right of the ISG number. Locate the ISG number on the bottom line of the MAP display.

---

| If within three minutes the state of the DCH | Do      |
|----------------------------------------------|---------|
| is InSv                                      | step 52 |
| is other than listed here                    | step 51 |

---

- 51** Record the following information about the DCH:

- the PM type and number
- the DCH number

---

**PM DCH**  
**minor (continued)**


---

- the original fault reason (and the current fault reason if different from the original)
- cards replaced
- the PEC that you obtained from office records or from operating company personnel

After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.

**52** To post all DCHs that are in-service trouble, type

**>POST ISTB**

and press the Enter key.

| <b>If the posted set</b> | <b>Do</b> |
|--------------------------|-----------|
| includes DCHs            | step 53   |
| does not include DCHs    | step 65   |

**53** Determine your next step.

| <b>If you</b>                        | <b>Do</b> |
|--------------------------------------|-----------|
| worked on the displayed DCH          | step 54   |
| have not worked on the displayed DCH | step 19   |

**54** To display the next DCH in the posted set, type

**>NEXT**

and press the Enter key.

| <b>If</b>                 | <b>Do</b> |
|---------------------------|-----------|
| another ISTb DCH displays | step 53   |
| End of post set displays  | step 65   |

**55** Determine from office records or from operating company personnel the correct load for the DCH.

**56** To determine the entered load for the DCH and the load that runs on the DCH, type

**>QUERYPM**

and press the Enter key.

*Example of a MAP response:*

## PM DCH minor (continued)

---

```

Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 B02 LTEI 00 32 LTC : 000 05 BX02
Loadnames DCHINV - DCH01CV , DCH - DCH35CV ; INTL INDEX 18

```

**Note:** The loadname entered for the DCH appears on the right of the DCHINV header. The system displays the loadname that runs on the DCH on the right of the DCH header. In this example, the loadnames are DCH01CV and DCH35CV.

- 57 Determine the level of the loadname mismatch.

---

**If the loadname that you obtained from operating company personnel or from office records**

---

**Do**

matches the loadname entered in a software table that you obtained at step 56 but not the name of the load that ran on the DCH step 58

matches the name of the load that runs on the DCH but not the loadname entered in a software table that you obtained at step 56 step 63

does not match the loadname entered in a software table that you obtained at step 56 or the name of the load that runs on the DCH step 63

---

- 58 To manually busy the DCH, type

>**BSY**

and press the Enter key.

*Example of a MAP response:*

```

Services may be affected
Please confirm ("YES", "Y", "NO", or "N"):

```

- 59 To confirm the command, type

>**YES**

and press the Enter key.

*Example of a MAP response:*  
DCH 50 Bsy Passed

- 60 To load the DCH, type

>**LOADPM**

and press the Enter key.

*Example of a MAP response:*

---

## PM DCH minor (continued)

---

```
Request submitted on DCH 50
DCH 50 load Failed : S00DTEMP
Failed To Open File
```

| If the LOADPM command | Do      |
|-----------------------|---------|
| passed                | step 61 |
| failed                | step 68 |

**61** To return the DCH to service, type

**>RTS**

and press the Enter key.

*Example of a MAP response:*

```
DCH 50 Out-of-service test initiated
DCH 50 Tst Passed
DCH 50 Rts Passed
```

**62** Determine the state of the DCH.

**Note:** The state of the DCH appears on the right of the ISG number. Locate the ISG number on the bottom line of the MAP display.

| If within three minutes the state of the DCH | Do      |
|----------------------------------------------|---------|
| is InSv                                      | step 64 |
| is other than listed here                    | step 63 |

**63** Record the following information about the DCH:

- the PM type and number
- the DCH number
- the original fault reason (Loadname)
- the loadname that you obtained from office records or from operating company personnel

After you clear fault reasons for in-service trouble for all possible DCHs, give this information to the next level of support.

**64** To display the next DCH in the posted set, type

**>NEXT**

**PM DCH**  
**minor** (end)

---

and press the Enter key.

| <b>If</b>                 | <b>Do</b> |
|---------------------------|-----------|
| another ISTb DCH displays | step 19   |
| End of post set displays  | step 65   |

**65** Determine your next step.

| <b>If you</b>                                                                                                                    | <b>Do</b> |
|----------------------------------------------------------------------------------------------------------------------------------|-----------|
| posted all in-service PMs and worked on all in-service trouble or manual busy DCHs and all DCHs are in-service                   | step 69   |
| posted all in-service PMs and worked on all in-service trouble or manual busy DCHs and not all DCHs could be returned to service | step 68   |
| did not post all in-service PMs                                                                                                  | step 66   |

**66** To quit the DCH level of the MAP display, type  
**>QUIT**

and press the Enter key.

**67** To post the next PM on the list that you recorded at step 4, type

**>POST pm\_type pm\_no**

and press the Enter key.

*where*

**pm\_type**

is the PM type that you recorded at step 4

**pm\_no**

is the PM number that you recorded at step 4

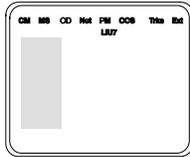
Go to step 5.

**68** You will require additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed in your attempt to clear this alarm.

**69** This procedure is complete.

## PM DCH (in a TMS) major

### Alarm display



| CM | MS | IOD | Net | PM    | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------|-----|------|-----|------|
| .  | .  | .   | .   | n DCH | .   | .    | .   | .    |
|    |    |     |     | M     |     |      |     |      |

### Indication

An n D-channel handler (DCH) indication indicates a DCH alarm. An n DCH indication appears under the peripheral module (PM) subsystem header. This header is at the maintenance level of the maintenance and administration position (MAP).

This procedure applies to a DCH in a TOPS message switch (TMS) for all TOPS office configurations of the TMS, which follow:

- The TMS connects to an integrated TPC, which supports up to four integrated MP positions.
- The TMS connects to a virtual TPC, which supports MPX-IWS positions on a token ring.

### Meaning

The indicated number (n) of DCHs or enhanced D-channel handlers (EDCHs) are in the system busy (SysB) state.

### Result

The DCH problem affects call handling equipment that subtends the TOPS message switch (TMS). The DCH problem does not affect the equipment if subtending lines are SysB. If the primary DCH or EDCH has defects, the secondary or redundant DCH or EDCH activates. Call handling abilities remain.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.



## PM DCH (in a TMS) major (continued)

### Clearing a PM DCH major alarm

**At the MAP:**

**1**

#### ATTENTION

Enter this procedure from a PM system level clearing alarm procedure step. This step identifies the fault that associates with a DCH.

To silence the alarm, type:

**>MAPCI ;MTC ;SIL**

and press the ENTER key.

**2** To access the TMS level through the PM level at the MAP, and post the in-service trouble (ISTb) TMS, type:

**>PM;POST TMS ISTb**

and press the ENTER key.

*Normal response on the MAP display:*

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH
 M
TMS
0 Quit PM 0 1 2 0 2 18
2 Post_ TMS 0 0 0 0 1 0
3 Listset
4
5 TMS 0 ISTb Links_OOS: CSide 0, PSide 1
6 Trns1_ Unit0: Act InSv
7 Tst_ Unit1: InAct InSv
8 Bsy_
9 RTS_
10 OffL
11 LoadPM_
12 Disp_
13 Next
14 SwAct
15 QueryPM
16 DCH
17 PERFORM
18 ISG

```

**3** To identify the system busy (SysB) port and associated DCH, type:

**>TRNSL P**

**PM DCH (in a TMS)**  
**major** (continued)

and press the ENTER key.

*Normal response on the MAP display:*

```

 CM MS IOD Net PM CCS LNS Trks Ext APPL
 1 DCH
 M
TMS
0 Quit PM 0 1 2 0 2 18
2 Post_ TMS 0 0 0 0 1 0
3 Listset
4 TMS 0 ISTb Links_OOS: CSide 0, PSide 1
5 Trnsl_ Unit0: Act InSv
6 Tst_ Unit1: InAct InSv
7 Bsy_
8 RTS_ Trnsl P
9 OffL Link 0: Multiple Nodes 0;Cap MS ;Status:OK MssCond:OPN
10 LoadPM_ Link 1: Carrier of Class - Trunk ;Status:OK
11 Disp_ Link 13: DCH 5;Status:OK
12 Next Link 15: DCH 4;Status:OK
13 SwAct Link 17: DCH 2;Status:OK
14 QueryPM Link 19: DCH 3;Status:SBsy
15 DCH
16
17 PERFORM
18 ISG

```

- 4 To access the DCH level through the PM level at the MAP, type:

>DCH

and press the ENTER key.

*Normal response on the MAP display:*

## PM DCH (in a TMS) major (continued)

| CM | MS      | IOD     | Net   | PM         | CCS  | LNS  | Trks | Ext  | APPL    |
|----|---------|---------|-------|------------|------|------|------|------|---------|
| .  | .       | .       | .     | 1 DCH      | .    | .    | .    | .    | .       |
|    |         |         |       | M          |      |      |      |      |         |
|    |         |         | SysB  | ManB       | OffL | CBsy | ISTb | InSv |         |
| 0  | Quit    | PM      | 0     | 0          | 10   | 0    | 1    | 130  |         |
| 2  | Post_   | TMS     | 0     | 0          | 0    | 0    | 1    | 4    |         |
| 3  |         |         |       |            |      |      |      |      |         |
| 4  |         | TMS 0   | ISTb  | Links_OOS: |      |      | CSTb | 0    | PSide 1 |
| 5  | Trnsl   | Unit 0: | Act   | InSv       |      |      |      |      |         |
| 6  | Tst     | Unit 1: | Inact | InSv       |      |      |      |      |         |
| 7  | Bsy     |         |       |            |      |      |      |      |         |
| 8  | RTS     | DCH     | 1     | 0          | 0    | 0    | 0    | 3    |         |
| 9  | OffL    |         |       |            |      |      |      |      |         |
| 10 | LoadPM  |         |       |            |      |      |      |      |         |
| 11 |         |         |       |            |      |      |      |      |         |
| 12 | Next    |         |       |            |      |      |      |      |         |
| 13 |         |         |       |            |      |      |      |      |         |
| 14 | QueryPM |         |       |            |      |      |      |      |         |
| 15 | Disp    |         |       |            |      |      |      |      |         |
| 16 |         |         |       |            |      |      |      |      |         |
| 17 |         |         |       |            |      |      |      |      |         |
| 18 |         |         |       |            |      |      |      |      |         |

- 5 To post the DCH that is SysB and that requires clearing, type:

>POST n

where

n  
= DCH number

and press the ENTER key.

Normal response on the MAP display:

## PM DCH (in a TMS) major (continued)

```

 CM MS IOD Net PM CCS LNS Trks Ext APPL
 1 DCH
 M
 DCH
0 Quit PM 0 0 10 0 1 130
2 Post_ TMS 0 0 0 0 1 4
3
4 TMS 0 InSv Links_OOS: CSide 0 PSide 1
5 Trnsl Unit 0: Act InSv
6 Tst Unit 1: Inact InSv
7 Bsy
8 RTS DCH 1 0 0 0 0 3
9 OffL
10 LoadPM DCH 3 ISG 3 SysB TMS 0 port 19 Access Error
11
12 Next
13
14 QueryPM
15 Disp
16
17
18

```

**6** To busy the DCH that requires clearing, type:

**>BSY**

and press the ENTER key.

Type:

**>YES**

and press the ENTER key.

Explanation:

If you issue the BSY command when the DCH is in service, the system requires confirmation, YES. The system requires confirmation before removal of the DCH from service.

You must give a YES response when you respond to the prompt.

The DCH remains in the current state if you issue the BSY command when the DCH is in service. The DCH remains in the current state when the system receives negative confirmation in response to the prompt.

*Normal response on the MAP display:*

## PM DCH (in a TMS) major (continued)

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH
 M
DCH
0 Quit PM 0 0 OffL CBSy ISTb InSv
2 Post_ TMS 0 0 0 0 1 130
3
4 TMS 0 InSv Links_OOS: CSide 0 PSide 1
5 Trnsl Unit 0: Act InSv
6 Tst Unit 1: Inact InSv
7 Bsy
8 RTS DCH 1 0 0 0 0 3
9 OffL
10 LoadPM BSY
11 Operator Services may be affected.
12 Next Please confirm ("YES" or "NO"):
13 YES
14 QueryPM DCH 0 Bsy Passed
15 Disp
16
17
18

```

**7** To reload the DCH that has defects, type:

**>LOADPM**

and press the ENTER key.

*Normal response on the MAP display:*

**PM DCH (in a TMS)  
major (continued)**

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH
 M
DCH
 SysB ManB OffL CBsy ISTb InSv
0 Quit PM 0 0 18 1 2 44
2 Post_ TMS 0 0 0 0 1 0
3
4 TMS 0 ISTb Links_OOS: CSide 0 PSide 1
5 Trns1 Unit 0: InSv
6 Tst Unit 1: InSv
7 Bsy
8 RTS DCH 0 1 0 0 0 3
9 OffL
10 LoadPM DCH 3 ISG 3 ManB TMS 0 port 19
11
12 Next LoadPM
13 Request submitted on DCH 3
14 QueryPM DCH 3 load Passed :XCH36CR
15 Disp
16
17
18

```

See the following table to determine the next action.

| If reload                                             | Do                                                                                             |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------|
| is successful                                         | step 9                                                                                         |
| is not successful and the system produces a card list | Go to <i>Card Replacement Procedures</i> and replace the first card on the list. Go to step 7. |
| is not successful                                     | step 8                                                                                         |

**8** To test the DCH that has defects, type:

**>TST**

---

**PM DCH (in a TMS)  
major (end)**


---

and press the ENTER key.

| <b>If test</b>                                                 | <b>Do</b>                                                                                      |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| passes                                                         | step 9                                                                                         |
| is not successful and the system produces a card list          | Go to <i>Card Replacement Procedures</i> and replace the first card on the list. Go to step 7. |
| is not successful and the system does not generate a card list | step 10                                                                                        |

**9** To return the tested DCH to service, type:

**>RTS**

and press the ENTER key.

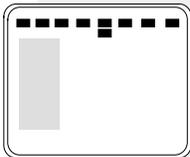
| <b>If RTS</b>                                         | <b>Do</b>                                                                                      |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------|
| is successful                                         | step 11                                                                                        |
| is not successful and the system produced a card list | Go to <i>Card Replacement Procedures</i> and replace the first card on the list. Go to step 7. |
| is not successful                                     | step 10                                                                                        |

**10** For additional help, contact the next level of maintenance.

**11** The procedure is complete. If other alarms appear, reference the correct clearing alarm procedures for the indicated alarms.

## PM DCH (in a TMS) minor

### Alarm display



| CM | MS | IOD | Net | PM           | Lns | Trks | Ext | APPL |
|----|----|-----|-----|--------------|-----|------|-----|------|
| .  | .  | .   | .   | <b>n DCH</b> | .   | .    | .   | .    |

### Indication

An n DCH indication indicates a DCH alarm. An n DCH (D-channel handler) indication appears under the peripheral module (PM) subsystem header. This header is at the maintenance level of the maintenance and administration position (MAP).

This procedure applies to a DCH in a TOPS message switch (TMS) for all TOPS office configurations of the TMS, which follow:

- The TMS connects to an integrated TPC, which supports up to four integrated MP positions.
- The TMS connects to a virtual TPC, which supports MPX-IWS positions on a token ring.

### Meaning

The indicated number (n) of DCHs or enhanced D-channel handler (EDCH) are in the in-service trouble state (ISTb).

### Result

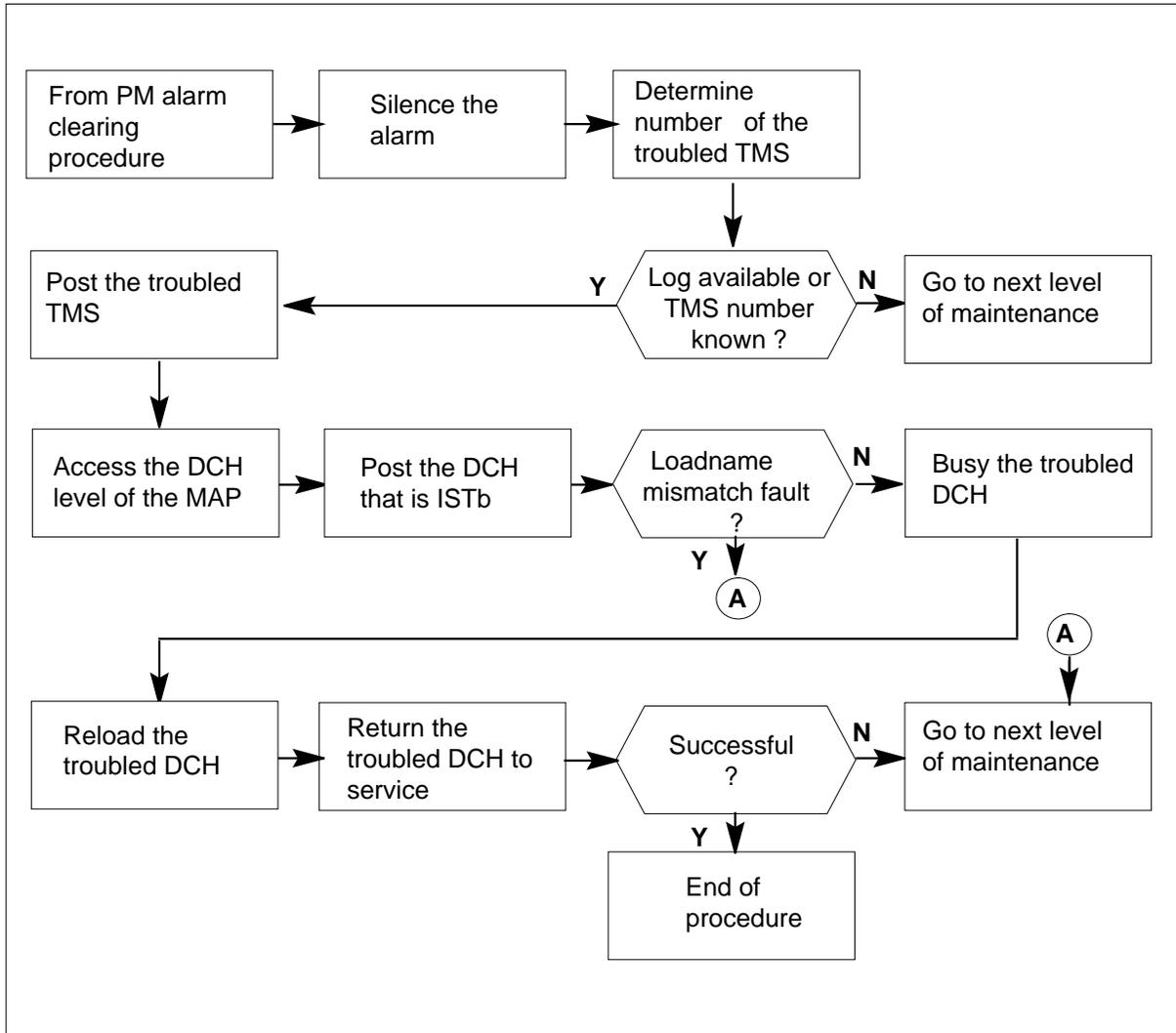
The DCH trouble affects call handling equipment that subtends the TOPS message switch (TMS). If subtending lines are system busy (SysB), the DCH trouble does not affect the equipment. If the primary DCH or EDCH has defects, the secondary or redundant DCH or EDCH activates. The system does not lose call handling capabilities.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM DCH (in a TMS) minor (continued)

### Summary of clearing a PM DCH (in a TMS) minor alarm



# PM DCH (in a TMS) minor (continued)

## Clearing a PM DCH (in a TMS) minor alarm

### At the MAP terminal

1

**ATTENTION**  
Enter this procedure from a step in the procedure to clear a PM system level alarm. This step identifies a fault associated with a DCH.

To silence the alarm, type

**>MAPCI ;MTC ;SIL**

and press the ENTER key.

2

Determine the number of the TMS that contains the DCH that has defects. To determine the number of the TMS, retrieve one of the DCH logs, DCH 100 to DCH 106. The system generates these logs at the printer.

DCH 100 Report format:

```
DCH100 mmdd hh: mm: ss ssdd SYSB Chnl
ISG vvv CHNL ww chnltyp pmid PORT yy CHNL zz
rempmid
FROM: chnlstate REASON: reasontext
```

Example:

```
DCH100 MAR 19 14: 22: 00 1988 SYSB Chnl
ISG 3 CHNL 10 TDC TMS 0 PORT 1 CHNL 5
TPC 20
FROM: InSv REASON: Sync Loss
```

Note:  
pmid = the peripheral module identifier for TMS. This identifier includes the PMS type of the TMS and the external PM number.

| If                                     | Do      |
|----------------------------------------|---------|
| the system does not generate a DCH log | step 10 |
| TMS number is known                    | step 3  |

3

To access the TMS level through the PM level at the MAP and post the TMS, type

**>PM;POST TMS n**

and press the ENTER key.

*where*

## PM DCH (in a TMS) minor (continued)

n is the TMS number.

### Example of a MAP display

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH

TMS
0 Quit PM 0 0 2 0 1 18
2 Post_ TMS 0 0 0 0 0 1
3 Listset
4
5 Trnsl_ Unit0: Act InSv
6 Tst_ Unit1: InAct InSv
7 Bsy_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15 DCH
16
17 PERFORM
18 ISG

```

- 4 To access the DCH level through the PM level at the MAP, type  
**>DCH**  
 and press the ENTER key.

---

## PM DCH (in a TMS) minor (continued)

---

### Example of a MAP display

```
CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH

DCH
0 Quit PM 0 0 10 0 1 130
2 Post_ TMS 0 0 0 0 0 5
3
4 TMS 0 InSv Links_OOS: CSide 0, PSide 0
5 Trnsl_ Unit 0: Act InSv
6 Tst_ Unit 1: InAct InSv
7 Bsy_
8 RTS_ DCH 0 0 0 0 1 3
9 OffL
10 LoadPM_
11
12 Next
13
14 QueryPM
15 Disp
16
17
18
```

- 5 To post the DCH that is in-service trouble (ISTb) and requires clearing, type  
**>POST ISTB**  
and press the ENTER key.

## PM DCH (in a TMS) minor (continued)

### Example of a MAP display

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH

DCH
0 Quit PM 0 0 10 0 1 130
2 Post_TMS 0 0 0 0 0 5
3
4 TMS 0 InSv Links_OOS: CSide 0, PSide 0
5 Trnsl_ Unit 0: Act InSv
6 Tst_ Unit 1: InAct InSv
7 Bsy_
8 RTS_ DCH 0 0 0 0 1 3
9 OffL
10 LoadPM_ DCH 5 ISG 3 ISTb TMS 0 port 17 Loadname
11
12 Next
13
14 QueryPM
15 Disp
16
17
18

```

- 6 To check that the loadnames in table DCHINV and the DCH card are the same, type

```
>querypm flt
```

and press the ENTER key.

**PM DCH (in a TMS)  
minor** (continued)

**Example of a MAP display**

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH

DCH
0 Quit PM 0 0 10 0 1 130
2 Post_ TMS 0 0 0 0 0 5
3
4
5 Trnsl_ Unit 0: Act InSv
6 Tst_ Unit 1: InAct InSv
7 Bsy_
8 RTS_ DCH 0 0 0 0 1 3
9 OffL
10 LoadPM_ DCH 5 ISG 3 ISTb TMS 0 port 17 Loadname
11 querypm flt
12 Next Site Flr RPos Bay_id Shf Description Slot EqPEC
13 HOST 01 B04 LTEI 00 51 TMS : 000 01 BX02
14 QueryPM Loadnames : DCHINV -EXC03BX , DCH -EXC03BX ; INTL INDEX 2
15 Disp DCH is ISTb
16 The following in-service trouble conditions exist:
17 Loadname
18

```

**Note:** The EXC03BX loadname appears in the previous MAP example. This loadname is the load that the system uses in the EDCH.

| If                        | Do      |
|---------------------------|---------|
| mismatch is present       | step 10 |
| a mismatch is not present | step 7  |

- 7** To busy the DCH that requires clearing, type  
**>BSY**  
and press the ENTER key.
- If you issue a BSY command when the ISDN service group (ISG) channel is in service, the system requires a confirmation. The system requires this request before removal of the ISG channel from service. If requested, confirm the request for busy. To confirm this request, type:  
**>yes**  
and press the ENTER key.
- If you receive a negative confirmation (NO) in response to the prompt, the ISG channel remains in the current state.

## PM DCH (in a TMS) minor (continued)

### Example of a MAP display

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH

DCH
0 Quit PM 0 0 0 0 1 24
2 Post_ TMS 0 0 0 0 1 0
3
4
5 Trnsl_ Unit 0: InSv
6 Tst_ Unit 1: InSv
7 Bsy_
8 RTS_ DCH 0 0 0 0 1 3
9 OffL
10 LoadPM_ DCH 5 ISG 3 ISTb TMS 0 port 17 Loadname
11
12 Next BSY
13 Operator Services may be affected.
14 QueryPM Please confirm ("YES" or "NO"):
15 Disp YES
16 DCH 5 Bsy Passed
17
18

```

- 8** To reload the affected DCH, type  
**>loadpm**  
 and press the ENTER key.

## PM DCH (in a TMS) minor (end)

### Example of a MAP display

```

CM MS IOD Net PM CCS LNS Trks Ext APPL
. . . . 1 DCH

DCH
0 Quit PM SysB ManB OffL Cbsy ISTb InSv
 24
2 Post_ TMS 0 0 0 0 1 0
3
4 TMS 0 InSv Links_OOS: CSide 0, PSide 0
5 Trnsl_ Unit 0: InSv
6 Tst_ Unit 1: InSv
7 Bsy_
8 RTS_ DCH 0 0 0 0 1 3
9 OffL
10 LoadPM_ DCH 5 ISG 3 ISTb TMS 0 port 17 Loadname
11
12 Next LoadPM
13 Request submitted on DCH 5
14 QueryPM DCH 5 load Passed : EXC03BX
15 Disp
16
17
18

```

/
  
loadname

**Note:** The EXC03BX loadname appears in the previous MAP display. This loadname is the load that the system uses in the EDCH.

- 9 To return the tested DCH to service, type

>RTS

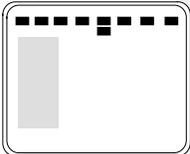
and press the ENTER key.

| If RTS          | Do      |
|-----------------|---------|
| is complete     | step 11 |
| is not complete | step 10 |

- 10 For additional help, contact the next level of maintenance.
- 11 The procedure is complete. If other alarms appear, reference the correct procedure to clear the specified alarms.

## PM DTC critical

### Alarm display

|                                                                                   | CM | MS | IOD | Net | PM                        | CCS | LnS | Trks | Ext | APPL |
|-----------------------------------------------------------------------------------|----|----|-----|-----|---------------------------|-----|-----|------|-----|------|
|  | .  | .  | .   | .   | <b>1DTC</b><br><b>*C*</b> | .   | .   | .    | .   | .    |

### Indication

DTC (preceded by a number and followed by a \*C\*) appears under the PM header of the alarm banner. The DTC indicates a critical alarm for a digital trunk controller (DTC). The number that precedes the DTC indicates the number of DTCs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DTC critical alarm.

### Meaning

The DTC is system busy (SysB) or C-side busy (CBsy). A DTC is SysB if both units are SysB. A DTC is SysB if one unit is SysB and the other unit is manual busy (ManB). A DTC is CBsy if both units are CBsy.

### Result

Service discontinues when a DTC is SysB or CBsy.

### Common procedures

The procedures refer to the following common procedures:

- *Clearing PM C-side links*
- *Monitoring system maintenance*

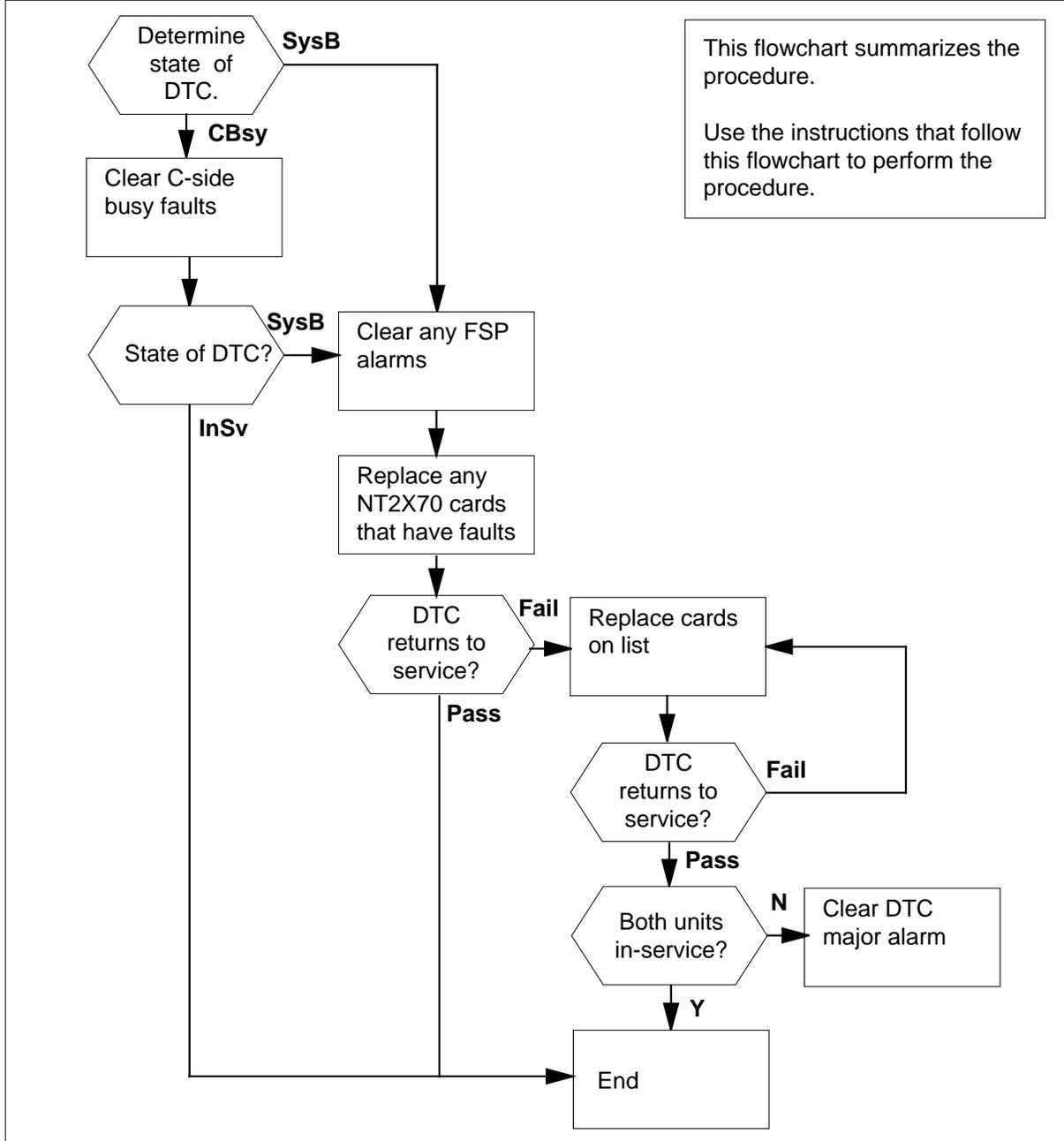
Do not go to the common procedures unless the step-action procedure directs you to go.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

# PM DTC critical (continued)

## Summary of clearing a PM DTC critical alarm



## PM DTC critical (continued)

### Layout of DTC shelf

| Paddle boards |                           | Cards  |                                        |     |
|---------------|---------------------------|--------|----------------------------------------|-----|
| 25R           |                           | NT2X70 | Power converter card                   | 25F |
| 24R           |                           | NT0X50 | Filler faceplate                       | 24F |
| 23R           |                           | NT6X40 | DS30 C-side interface card             | 23F |
| 22R           |                           | NT6X40 | DS30 C-side interface card             | 22F |
| 21R           |                           | NT6X41 | Speech bus formatter card              | 21F |
| 20R           | NTMX71 XPM+ terminator PB | NT6X42 | Channel supervision message card       | 20F |
| 19R           |                           | NT0X50 | Filler Faceplate*                      | 19F |
| 18R           |                           | NT6X69 | Message protocol and Tone card*        | 18F |
| 17R           |                           | NT7X05 | Peripheral/Remote Loader-16 Card       | 17F |
| 16R           |                           | NT6X92 | Universal tone receiver card*          | 16F |
| 15R           |                           | NT6X92 | Universal tone receiver card*          | 15F |
| 14R           |                           | NT6X44 | Time switch card                       | 14F |
| 13R           |                           | NT6X70 | Continuity tone detector card*         | 13F |
| 12R           |                           | NTSX05 | SX05 processor card (Note 4) or        | 12F |
|               |                           | NTMX77 | Unified processor card or              |     |
|               |                           | NTAX74 | Cellular access processor (Note 2 & 3) |     |
| 11R           |                           | NT0X50 | Filler faceplate                       | 11F |
| 10R           |                           | NT0X50 | Filler faceplate                       | 10F |
| 09R           |                           | NT0X50 | Filler faceplate                       | 09F |
| 08R           |                           | NT0X50 | Filler faceplate                       | 08F |
| 07R           |                           | NT0X50 | Filler faceplate                       | 07F |
| 06R           |                           | NT0X50 | Filler faceplate                       | 06F |
| 05R           |                           | NT6X50 | DS1 interface card                     | 05F |
| 04R           |                           | NT6X50 | DS1 interface card                     | 04F |
| 03R           |                           | NT6X50 | DS1 interface card                     | 03F |
| 02R           |                           | NT6X50 | DS1 interface card                     | 02F |
| 01R           |                           | NT6X50 | DS1 interface card                     | 01F |

← Rear
Front →

**Note 1:** The NT6X40AA is provisioned in slots 22F and 23F for the “AA” version only. Subsequent versions are provisioned in slot 22F. Fiberized versions are provisioned as a paddle board in slot 22R in addition to the front plane card.

**Note 2:** Beginning with MIP08/XPM08, the NTAX74 processor is supported in the MCI-ACD DTCI application with an XLI load.

**Note 3:** Beginning with MTX06/XPM08, the NTAX74 processor is supported in the 2-processor PDTC for MTX application with a WDT load.

**Note 4:** Beginning with NA011/XPM11, MMP/XPM12 (for Japan), the NTSX05AA processor is supported in the DTC with a QLI load.

**PM DTC**  
**critical** (continued)

---

**Clearing a PM DTC critical alarm**

**At the MAP terminal**

**1** To access the PM level of the MAP terminal, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

| <b>If</b>              | <b>Do</b> |
|------------------------|-----------|
| an audible alarm rings | step 2    |
| no audible alarm rings | step 3    |

**2** To silence the alarm, type

**>SIL**

and press the Enter key.

**3** To determine if SysB or CBsy DTCs caused the critical alarm, type

**>STATUS**

and press the Enter key.

*Example of a MAP response:*

|      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|
|      | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM   | 2    | 0    | 0    | 2    | 0    | 25   |
| TM8  | 0    | 0    | 0    | 0    | 0    | 2    |
| MTM  | 0    | 0    | 0    | 0    | 0    | 3    |
| LGC  | 1    | 0    | 0    | 0    | 0    | 3    |
| LCM  | 0    | 0    | 0    | 2    | 0    | 0    |
| DTC  | 1    | 0    | 0    | 0    | 0    | 1    |
| LIM  | 0    | 0    | 0    | 0    | 0    | 1    |
| LIU7 | 0    | 0    | 0    | 0    | 0    | 1    |
| FRIU | 0    | 0    | 0    | 0    | 0    | 1    |
| DTCI | 0    | 0    | 0    | 0    | 0    | 1    |
| LCME | 0    | 0    | 0    | 0    | 0    | 1    |

MORE . . .

**Note:** If DTCs are SysB and CBsy, work on the SysB DTCs first.

---

**PM DTC**  
**critical** (continued)

---

- 4** To display all the CBsy or SysB DTCs, type  
**>DISP STATE state DTC**  
 and press the Enter key.  
 where  
     **state**  
     is CBsy or SysB, that you determined in step 3  
*Example of a MAP response:*

SysB DTC : 0

**Note:** If multiple DTCs are CBsy or SysB, select a DTC to work on.  
 Record the DTCs number.

- | <b>If you</b>      | <b>Do</b> |
|--------------------|-----------|
| recover a CBsy DTC | step 5    |
| recover a SysB DTC | step 6    |
- 5** Go to the common procedure *Clear PM C-side faults* in this document.  
 Complete the procedure and return to this step.
- | <b>If</b>                        | <b>Do</b>                                           |
|----------------------------------|-----------------------------------------------------|
| the DTC remains CBsy             | Treat the CBsy DTC as a SysB DTC and go to step 25. |
| the DTC changes to SysB          | step 6                                              |
| one DTC unit returns to service  | step 46                                             |
| both DTC units return to service | step 48                                             |
- 6** Check the EXT header of the alarm banner for an FSP alarm.
- | <b>If an FSP alarm</b> | <b>Do</b> |
|------------------------|-----------|
| is present             | step 7    |
| is not present         | step 25   |
- 7** To locate the FSP alarm, type  
**>EXT; LIST FSP**  
 and press the Enter key.  
*Example of a MAP response:*

## PM DTC critical (continued)

### FSPAISD

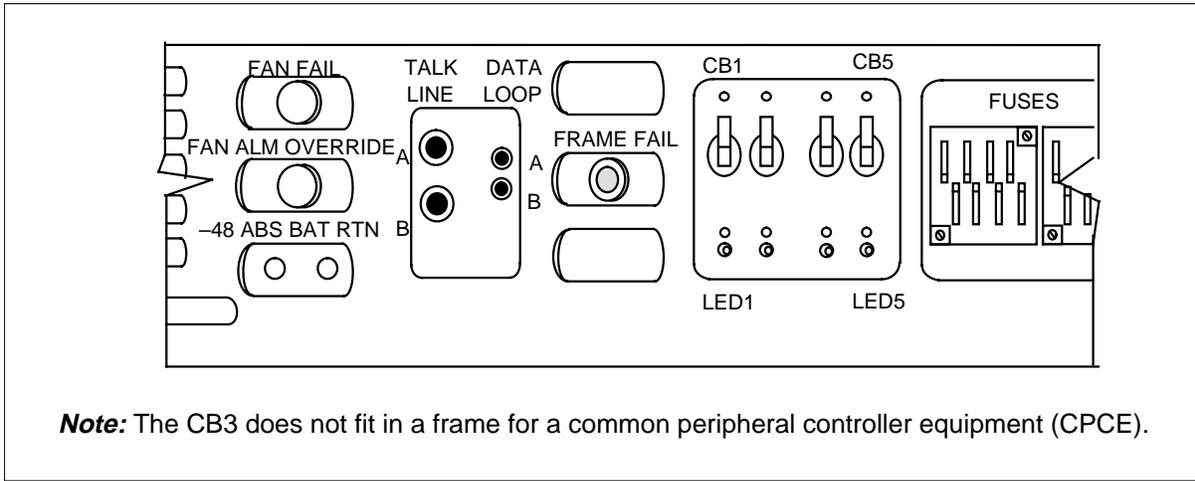
In this example, the alarm is an FSP alarm on Aisle D.

#### **At the equipment aisle**

- 8 Go to the aisle identified in step 7. The end aisle alarm will illuminate.

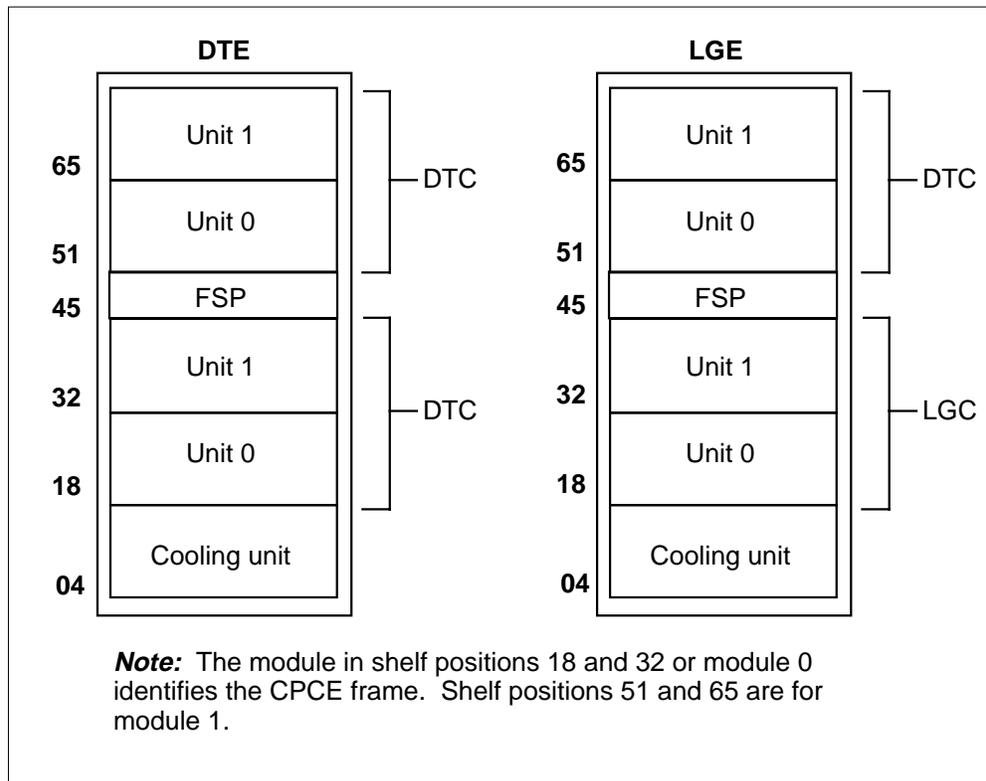
#### **At the equipment frame**

- 9 Identify the frame with the FSP alarm. Check the frame fail lamp on the frame supervisory panel (FSP) on each frame. The frame with the FSP alarm has an illuminated frame fail lamp. The following figure illustrates an FSP with an illuminated fail lamp.



- 10 For a DTC critical alarm, the frame that has the DTC is a CPCE type. The frame can be a digital trunk equipment (DTE) frame or a line group equipment (LGE) frame. Identify the PMs contained in the frame. Refer to the following figure for help.

## PM DTC critical (continued)

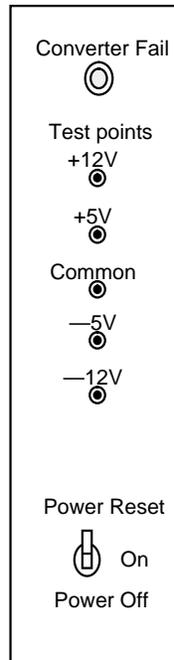


- 11 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "Layout of DTC shelf" for help to locate this card. Refer to the following figure of a NT2X70AE card for help to check the Converter Fail LED.

## PM DTC

**critical** (continued)

---



---

| <b>If any CONVERTER FAIL LEDs</b> | <b>Do</b> |
|-----------------------------------|-----------|
| are lit                           | step 12   |
| are not lit                       | step 16   |

---

- 12** Note the DTC with the LED lights on.

**At the MAP display**

- 13** To post the SysB DTC, type  
>PM; POST DTC dtc\_no  
and press the Enter key.

where

**dtc\_no**

is the number (0 to 255) of the DTC that you recorded in step 4

---

**PM DTC**  
**critical** (continued)

---

**ATTENTION**

Record the active unit (0 or 1) to use later in this procedure. When you manually busy the DTC, unit activity will not display.

*Example of a MAP response:*

```
PM Type: DTC PM No.: 0 PM Int. No: 0 Node_No.: 21
PMs Equipped: 38 Loadname: ECL07BI
Unit 0 is patched
Unit 1 is patched
```

|           | <b>If a Mtce indicator</b>                                                                                                | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------|-----------|
|           | displays next to either unit                                                                                              | step 14   |
|           | does not display                                                                                                          | step 15   |
| <b>14</b> | Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step. |           |
|           | <b>If the critical alarm</b>                                                                                              | <b>Do</b> |
|           | remains                                                                                                                   | step 15   |
|           | changes                                                                                                                   | step 46   |
|           | clears                                                                                                                    | step 48   |
| <b>15</b> | Determine if the DTC is the same as the DTC that you identified in step 12.                                               |           |
|           | <b>If the DTC is</b>                                                                                                      | <b>Do</b> |
|           | different                                                                                                                 | step 16   |
|           | the same                                                                                                                  | step 17   |
| <b>16</b> | Clear the FSP alarm. Perform the correct procedure in this document. Complete the procedure and return to step 6.         |           |
| <b>17</b> | To busy the DTC, type<br>> <b>BSY PM</b><br>and press the Enter key.                                                      |           |
| <b>18</b> | Choose the active unit on which to work, as recorded in step 13.                                                          |           |

## PM DTC

### critical (continued)

#### At the equipment frame

- 19 Change the NT2X70 card. Refer to the correct procedure in the *Card Replacement Procedures*. Complete the procedure and return to this step.

#### At the MAP terminal

- 20 The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is: Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:*

```
Unit 0:
 NT7X05 load File: [ECL07BI] ← (NT7X05 load file name)
 NT7X05 Image File: ECL07BI
 NT7X05 Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
 NT7X05 load File: ECL07BI
 NT7X05 Image File: ECL07BI
 NT7X05 Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for an DTC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
 Slotlet 0:
 Flash Load File: [QLI10BI] ← (Processor load file name)
 Flash Image File: QLI10BI
 Flash CMR File: CMR07A
Unit 1
 Slotlet 0:
 Flash Load File: QLI10BG ** Mismatch **
 Flash Image File: QLI10BG ** Mismatch **
 Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If the PRL card or packet | Do      |
|---------------------------|---------|
| is present                | step 21 |
| is not present            | step 24 |

## PM DTC critical (continued)

- 21** Determine if the DTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card.

| If the DTC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 22 |
| NTSX06 PRL packet              | step 23 |

- 22** To load the DTC from the local image, type  
>LOADPM PM LOCAL IMAGE  
and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 23 |

- 23**



### **DANGER**

#### **Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the DTC from the local loadfile, type  
>LOADPM PM LOCAL LOADFILE  
and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 24 |

- 24** To load the DTC from the CM, type  
>LOADPM PM

**PM DTC**  
**critical** (continued)

and press the Enter key.

| <b>If the load</b>                                  | <b>Do</b> |
|-----------------------------------------------------|-----------|
| failed, and the system generated a card list        | step 38   |
| failed, and the system did not generate a card list | step 47   |
| passed                                              | step 37   |

- 25** To post the DTC, type  
**>POST DTC dtc\_no**  
 and press the Enter key.  
*where*  
**dtc\_no**  
 is the number (0 to 255) of the DTC you recorded in step 4

*Example of a MAP response:*

```
DTC 0 SysB Links_OOS: CSide 32, PSide 0
Unit0: Act SysB
Unit1: Inact SysB
```

| <b>If a Mtce indicator</b>  | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 26   |
| does not display            | step 27   |

- 26** Go to the common procedure *Monitoring system maintenance* in this document. Complete the procedure and return to this step.

| <b>If the critical alarm</b> | <b>Do</b> |
|------------------------------|-----------|
| remains                      | step 27   |
| changes                      | step 46   |
| clears                       | step 48   |

- 27** To query the DTC for fault indications, type  
**>QUERYPM FLT**  
 and press the Enter key.

*Example of a MAP response:*

Activity dropped

---

**PM DTC**  
**critical** (continued)

---

- 28** Record the MAP response.
- | If the MAP response                | Do      |
|------------------------------------|---------|
| is SWACT In Progress               | step 29 |
| is Load Corruption                 | step 30 |
| is Load Failed                     | step 30 |
| is Distributed Data Loading Failed | step 30 |
| is Activity dropped                | step 30 |
| is Not loaded since power up       | step 30 |
| is other than listed here          | step 36 |
- 29** The system attempts to recover the DTC with a switch of activity between the two DTC units. Wait until system maintenance is complete.
- | If                                  | Do      |
|-------------------------------------|---------|
| neither DTC unit returns to service | step 36 |
| one DTC unit returns to service     | step 46 |
| both DTC units return to service    | step 48 |
- 30** To busy the DTC, type  
>BSY PM  
and press the Enter key.
- 31** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type  
>QUERYPM FILES  
and press the Enter key.
- Note:** If PRL cards are not present, the MAP response is:  
Flash not datafilled. QueryPm files invalid
- Example of a MAP display for an DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:*

## PM DTC critical (continued)

```

Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.

```

*Example of a MAP display for an DTC with an NTSX05 processor with an NTSX06 PRL card:*

```

Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A

```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If the PRL card or packetlet | Do      |
|------------------------------|---------|
| is present                   | step 32 |
| is not present               | step 35 |

- 32** Determine if the DTC is equipped with an NTSX06 PRL packetlet or an NT7X05 PRL card. To determine if the DTC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```

QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor

```

*Example of a MAP response if an SX05 processor is present*

## PM DTC critical (continued)

```
QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
```

| If the DTC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 33 |
| NTSX06 PRL packlet             | step 34 |

- 33** To load the DTC from the local image, type  
**>LOADPM PM LOCAL IMAGE**  
 and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 34 |

**34**



### **DANGER**

#### **Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the DTC from the local loadfile, type  
**>LOADPM PM LOCAL LOADFILE**  
 and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 35 |

- 35** To load the DTC, type  
**>LOADPM PM**

**PM DTC**  
**critical** (continued)

and press the Enter key.

|           | <b>If the load</b>                                                                | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------|-----------|
|           | failed, and the system generated a card list                                      | step 38   |
|           | failed, and the system did not generate a card list                               | step 47   |
|           | passed                                                                            | step 37   |
| <b>36</b> | To busy the DTC, type<br>> <b>BSY PM</b><br>and press the Enter key.              |           |
| <b>37</b> | To return the DTC to service, type<br>> <b>RTS PM</b><br>and press the Enter key. |           |
|           | <b>If</b>                                                                         | <b>Do</b> |
|           | the DTC failed to return to service and the system generated a card list          | step 38   |
|           | one DTC unit returned to service                                                  | step 46   |
|           | both DTC units returned to service                                                | step 48   |

**At the equipment frame**

- 38** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "Layout of DTC shelf" in this procedure for help to locate this card.

The MAP response in step 13 (when you complete this step) or step 28 can help you isolate the card that has faults. Refer to the following table for help.

**(Sheet 1 of 2)**

| <b>MAP response</b> | <b>Suspect cards</b>           |
|---------------------|--------------------------------|
| PM Audit            | NT6X69, NTMX77, NTAX74, NTSX05 |
| Activity Dropped    | NTMX77, NTAX74, NTSX05         |

**PM DTC**  
**critical** (continued)

(Sheet 2 of 2)

| MAP response                       | Suspect cards                                                        |
|------------------------------------|----------------------------------------------------------------------|
| No WAI Received                    | NT6X40, NT6X41, NT6X42,<br>NT6X44, NT6X69, NTMX77,<br>NTAX74, NTSX05 |
| LINK Audit                         | NT6X40, NT6X41, NT6X42,<br>NT6X44, NT6X69, NTMX77,<br>NTAX74, NTSX05 |
| Load Corruption                    | NT6X42, NTMX77, NTAX74,<br>NTSX05                                    |
| Load Failed                        | NTMX77, NTAX74, NTSX05                                               |
| Distributed Data Loading<br>Failed | NT6X69, NTMX77, NTAX74,<br>NTSX05                                    |

| If you                                      | Do      |
|---------------------------------------------|---------|
| replace an NT6X42, NTMX77<br>or NTAX74 card | step 39 |
| an NTSX05 card                              | step 40 |
| replace a card other than listed<br>here    | step 44 |

**At the MAP display**

- 39** Use the information that you recorded in step 13 to load the active DTC unit. To load the active DTC unit from the local image on the NT7X05 or NTSX05 PRL card, type

```
>LOADPDM ACTIVE LOCAL IMAGE
```

and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 42 |
| failed      | step 40 |

**PM DTC**  
**critical** (continued)

40



**DANGER**  
**Possible service interruption**  
 The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the active DTC unit from the local loadfile on the PRL card, type  
**>LOADPM ACTIVE LOCAL LOADFILE**  
 and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 42 |
| failed      | step 41 |

41 To load the active DTC unit from the CM, type  
**>LOADPM ACTIVE**  
 and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 42 |
| failed      | step 47 |

42 To query the DTC counters for the firmware load on the NTMX77, NTAX74, or NTSX05 type  
**>QUERYPM CNTRS**  
 and press the Enter key.

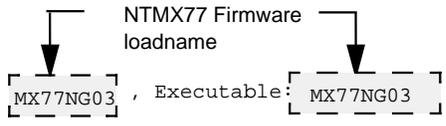
*Example of a MAP display for an DTC equipped with an NTMX77:*

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: ECL07BI
EPRom Version: AB02
EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03
UP:MX77AA
Unit 1:
Ram Load: ECL07BI
EPRom Version: AB02
EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03
UP:MX77AA

```

NTMX77 Firmware loadname



## PM DTC critical (continued)

*Example of a MAP display for an DTC equipped with an NTAX74:*

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: XLI07BI1
EPRom Version: AB02
EEPROM Load: Loadable: AX74XE0I, Executable: AX74XE0I
UP:AX74AA
Unit 1:
Ram Load: XLI07BI1
EPRom Version: AB02
EEPROM Load: Loadable: AX74XE0I, Executable: AX74XE0I
UP:AX74AA

```

NTAX74 Firmware  
loadname

*Example of a MAP display for an DTC equipped with an NTSX05:*

```

QueryPM cntrs
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA IP: BX01
Unit 1:
Ram Load: QLI10BG
EPRom Version: AC01
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01

```

NTAX74 Firmware  
loadname

| If firmware    | Do      |
|----------------|---------|
| is correct     | step 44 |
| is not correct | step 43 |

- 43** To load the NTMX77, NTAX74, NTSX05 firmware, type  
>LOADFW ACTIVE  
and press the Enter key.

| If load | Do      |
|---------|---------|
| passed  | step 44 |
| failed  | step 47 |

- 44** To return the active DTC unit to service, type  
>RTS ACTIVE

**PM DTC**  
**critical** (end)

---

and press the Enter key.

| <b>If the unit</b>                                                                                     | <b>Do</b> |
|--------------------------------------------------------------------------------------------------------|-----------|
| does not return to service and you did not replace all the cards on the list of cards that have faults | step 45   |
| does not return to service and you replaced all the cards on the list of cards that have faults        | step 47   |
| fails and the system does not generate a card list                                                     | step 47   |
| returns to service                                                                                     | step 46   |

**At the equipment frame**

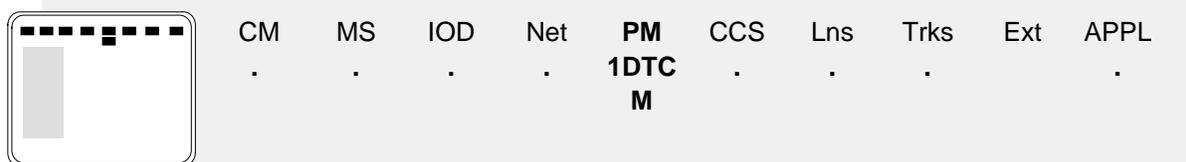
- 45** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "Design of DTC shelf" for help to locate this card.

| <b>If you replace</b>             | <b>Do</b> |
|-----------------------------------|-----------|
| an NTMX77, NTAX74, or NT6X42 card | step 39   |
| an NTSX05 card                    | step 40   |
| cards other than listed here      | step 44   |

- 46** The DTC critical alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Go to step 48.
- 47** You will require additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed to attempt to clear this alarm.
- 48** The procedure is complete.

## PM DTC major

### Alarm display



| CM | MS | IOD | Net | PM   | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1DTC | .   | .   | .    | .   | .    |
|    |    |     |     | M    |     |     |      |     |      |

### Indication

DTC (preceded by a number) appears under the PM header of the alarm banner. The DTC indicates a major alarm for a digital trunk controller (DTC). The number that precedes the DTC indicates the number of DTCs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DTC major alarm.

### Meaning

The DTC is in-service trouble (ISTb) for of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in-service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in-service

### Result

The alarm does not affect service. A backup unit is not available in the DTC.

### Common procedures

This procedure refers to the following common procedures:

- *Clearing PM C-side links*
- *Monitoring system maintenance*

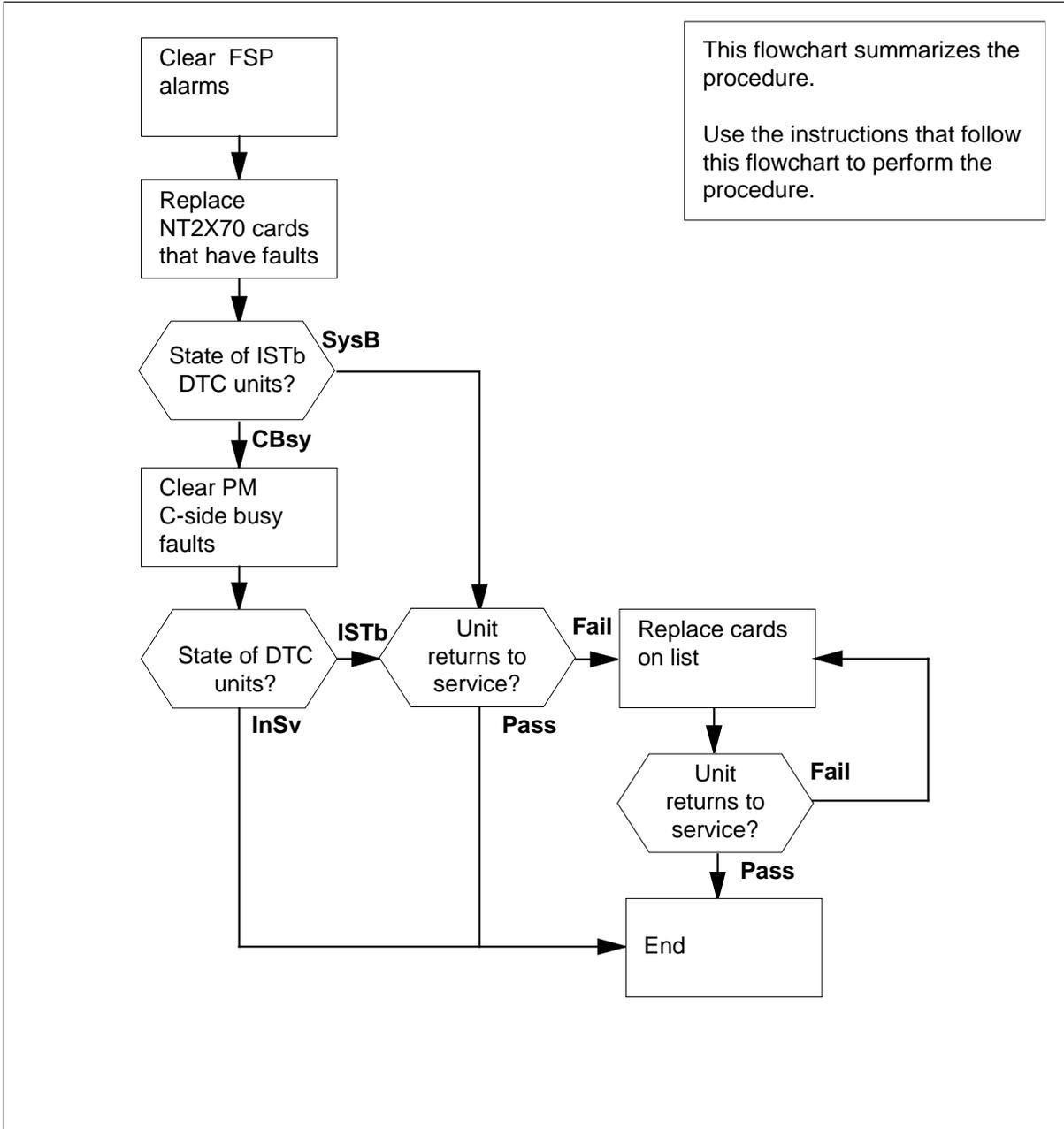
Do not go to the common procedures unless the step-action procedure directs you to go.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

# PM DTC major (continued)

## Summary of clearing a PM DTC major alarm



## PM DTC major (continued)

### Layout of DTC shelf

| Paddle boards |                           | Cards  |                                        |     |
|---------------|---------------------------|--------|----------------------------------------|-----|
| 25R           |                           | NT2X70 | Power converter card                   | 25F |
| 24R           |                           | NT0X50 | Filler faceplate                       | 24F |
| 23R           |                           | NT6X40 | DS30 C-side interface card             | 23F |
| 22R           |                           | NT6X40 | DS30 C-side interface card             | 22F |
| 21R           |                           | NT6X41 | Speech bus formatter card              | 21F |
| 20R           | NTMX71 XPM+ terminator PB | NT6X42 | Channel supervision message card       | 20F |
| 19R           |                           | NT0X50 | Filler Faceplate*                      | 19F |
| 18R           |                           | NT6X69 | Message protocol and Tone card*        | 18F |
| 17R           |                           | NT7X05 | Peripheral/Remote Loader-16 Card       | 17F |
| 16R           |                           | NT6X92 | Universal tone receiver card*          | 16F |
| 15R           |                           | NT6X92 | Universal tone receiver card*          | 15F |
| 14R           |                           | NT6X44 | Time switch card                       | 14F |
| 13R           |                           | NT6X70 | Continuity tone detector card*         | 13F |
| 12R           |                           | NTSX05 | SX05 processor card (Note 4) or        | 12F |
|               |                           | NTMX77 | Unified processor card or              |     |
|               |                           | NTAX74 | Cellular access processor (Note 2 & 3) |     |
| 11R           |                           | NT0X50 | Filler faceplate                       | 11F |
| 10R           |                           | NT0X50 | Filler faceplate                       | 10F |
| 09R           |                           | NT0X50 | Filler faceplate                       | 09F |
| 08R           |                           | NT0X50 | Filler faceplate                       | 08F |
| 07R           |                           | NT0X50 | Filler faceplate                       | 07F |
| 06R           |                           | NT0X50 | Filler faceplate                       | 06F |
| 05R           |                           | NT6X50 | DS1 interface card                     | 05F |
| 04R           |                           | NT6X50 | DS1 interface card                     | 04F |
| 03R           |                           | NT6X50 | DS1 interface card                     | 03F |
| 02R           |                           | NT6X50 | DS1 interface card                     | 02F |
| 01R           |                           | NT6X50 | DS1 interface card                     | 01F |

← Rear
Front →

**Note 1:** The NT6X40AA is provisioned in slots 22F and 23F for the “AA” version only. Subsequent versions are provisioned in slot 22F. Fiberized versions are provisioned as a paddle board in slot 22R in addition to the front plane card.

**Note 2:** Beginning with MIP08/XPM08, the NTAX74 processor is supported in the MCI-ACD DTCI application with an XLI load.

**Note 3:** Beginning with MTX06/XPM08, the NTAX74 processor is supported in the 2-processor PDTC for MTX application with a WDT load.

**Note 4:** Beginning with NA011/XPM11, MMP/XPM12 (for Japan), the NTSX05AA processor is supported in the DTC with a QLI load.

## PM DTC major (continued)

---

### Clearing a PM DTC major alarm

#### At the MAP terminal

- 1** To access the PM level of the MAP terminal, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

---

**If**

**Do**

an audible alarm rings

step 2

no audible alarm rings

step 3

---

- 2** To silence the alarm, type

**>SIL**

and press the Enter key.

- 3** To display all the ISTb DTCs, type

**>DISP STATE ISTB DTC**

and press the Enter key.

*Example of a MAP response:*

ISTB DTC : 0

**Note:** If multiple DTCs are ISTb, select a DTC to work on. Record the number of the DTC.

- 4** Check the EXT header of the alarm banner for an FSP alarm.

---

**If an FSP alarm**

**Do**

is present

step 5

is not present

step 22

---

- 5** To locate the FSP alarm, type

**>EXT ; LIST FSP**

and press the Enter key.

*Example of a MAP response:*

## PM DTC major (continued)

### FSPAISD

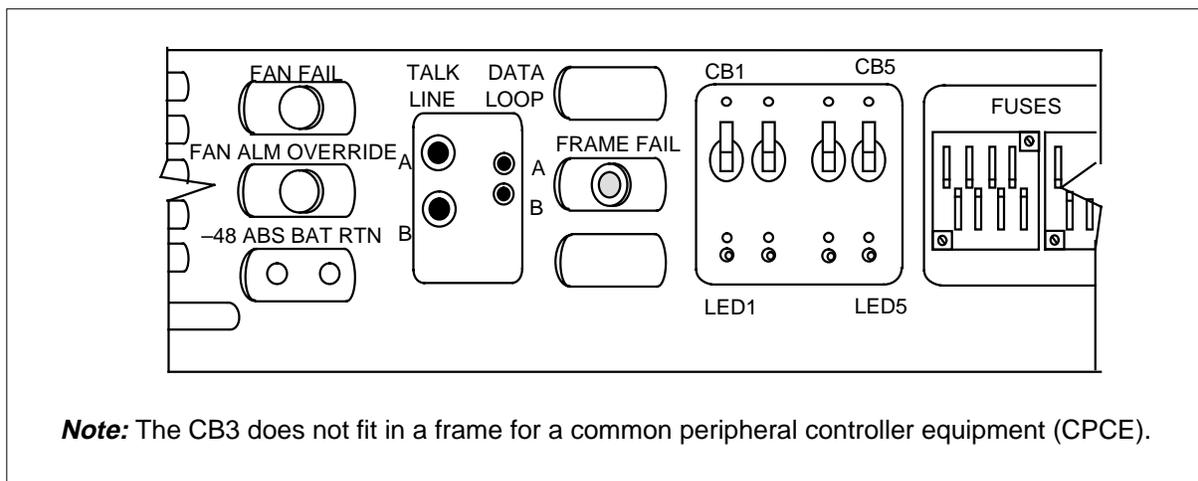
In this example, the alarm is an FSP alarm on Aisle D.

#### **At the equipment aisle**

- 6** Go to the aisle that you identified in step 5. A light identifies the end aisle alarm.

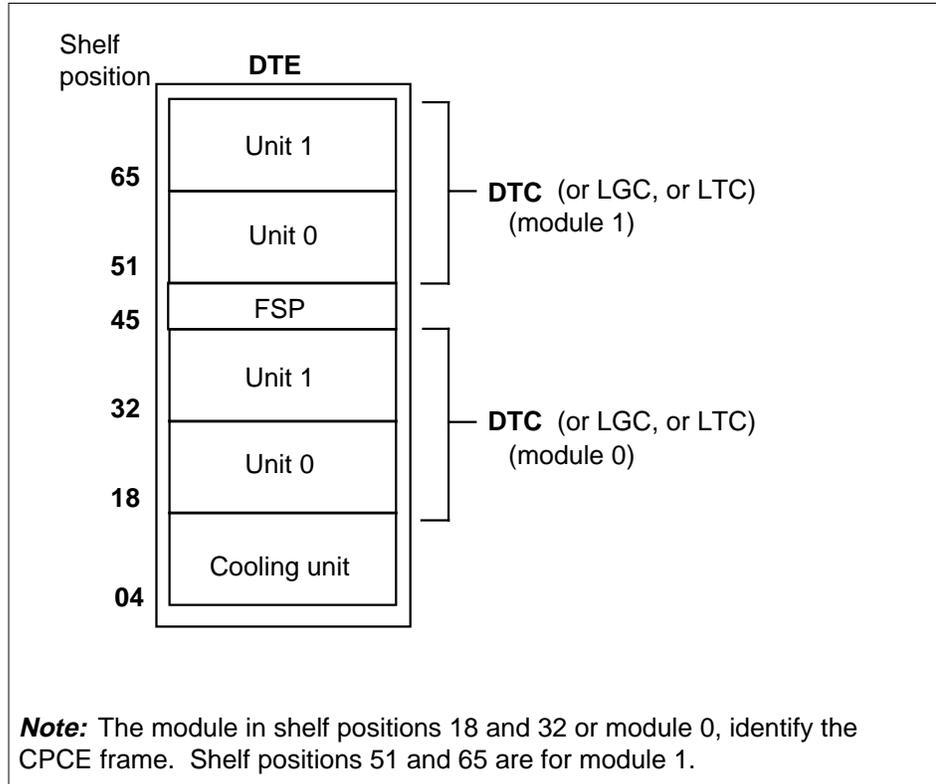
#### **At the equipment frame**

- 7** Identify the frame with the FSP alarm. Check the frame fail lamp on the frame supervisory panel (FSP) of the frame. The frame with the FSP alarm has an illuminated frame fail lamp. The following figure illustrates an FSP with an illuminated fail lamp.



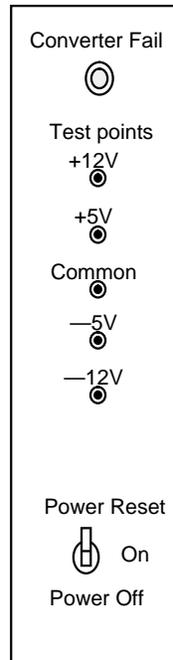
- 8** The EXT FSP alarm can appear in a digital trunk equipment (DTE) frame. The following diagram is a DTE frame. The frame houses a DTC. The FSP alarm can appear in LTE or LGE frames. Identify the PMs that the frame contains. Refer to the following diagram for help.

## PM DTC major (continued)



- 9 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure *Design of DTC shelf* for help to locate this card. Refer to the following figure of a NT2X70AE card for help to check the Converter Fail LED.

## PM DTC major (continued)



| If any LEDs | Do      |
|-------------|---------|
| are lit     | step 10 |
| are not lit | step 14 |

- 10** Note the DTC with the LED light on.

### At the MAP display

- 11** To post the DTC, type  
`>PM; POST DTC dtc_no`  
 and press the Enter key.  
 where

**dtc\_no**

is the number (0 to 255) of the DTC that you recorded in step 3

*Example of a MAP response:*

**PM DTC**  
**major** (continued)

DTC            0            ISTb   Links\_OOS:   CSide 17, PSide 0  
 Unit0:   Act            InSv  
 Unit1:   Inact        CBSy

- |           | <b>If a Mtce indicator</b>                                                                                                                                                   | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | displays next to either unit                                                                                                                                                 | step 12   |
|           | does not display                                                                                                                                                             | step 13   |
| <b>12</b> | Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step.                                                 |           |
|           | <b>If the major alarm</b>                                                                                                                                                    | <b>Do</b> |
|           | remains                                                                                                                                                                      | step 13   |
|           | changes                                                                                                                                                                      | step 47   |
|           | clears                                                                                                                                                                       | step 49   |
| <b>13</b> | Determine if the DTC is the same as the DTC that you identified in step 10.                                                                                                  |           |
|           | <b>If the DTC</b>                                                                                                                                                            | <b>Do</b> |
|           | is different                                                                                                                                                                 | step 14   |
|           | is the same                                                                                                                                                                  | step 15   |
| <b>14</b> | Clear the FSP alarm. Perform the correct procedure in this document. Complete the procedure and return to step 4.                                                            |           |
| <b>15</b> | To busy the SysB DTC unit, type<br><code>&gt;BSY UNIT unit_no</code><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number (0 to 1) of the DTC unit |           |

**At the equipment frame**

- 16**    Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this step.

**At the MAP terminal**

- 17**    The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local

## PM DTC major (continued)

load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is:  
Flash not datafilled. QueryPm files invalid

*Example of a MAP display for a DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:*

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for a DTC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 1:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

|           | If the PRL card or packet                                                         | Do      |
|-----------|-----------------------------------------------------------------------------------|---------|
|           | is present                                                                        | step 18 |
|           | is not present                                                                    | step 21 |
| <b>18</b> | Determine if the DTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. |         |
|           | If the DTC is equipped with an                                                    | Do      |
|           | NT7X05 PRL card                                                                   | step 19 |
|           | NTSX06 PRL packet                                                                 | step 20 |

## PM DTC major (continued)

---

- 19** To load the DTC from the local image, type  
`>LOADPDM UNIT unit_no LOCAL IMAGE`  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the DTC unit

---

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 20 |

---

- 20**



**DANGER**

**Possible service interruption**

The LOCAL LOADFILE option of the LOADPDM command has a parameter of [<file> string]. The LOADPDM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need the NOPATCH option of the loadfile.

- To load the DTC from the local loadfile, type  
`>LOADPDM UNIT unit_no LOCAL LOADFILE`  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the DTC unit

---

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 21 |

---

- 21** To load the DTC unit, type  
`>LOADPDM UNIT unit_no`  
and press the Enter key.

*where*

## PM DTC major (continued)

| <b>unit_no</b><br>is the number (0 to 1) of the DTC unit                                                         |                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If the load</b>                                                                                               | <b>Do</b>                                                                                                                                                                                                             |
| failed, and the system generated a card list                                                                     | step 37                                                                                                                                                                                                               |
| failed, and the system did not generate a card list                                                              | step 48                                                                                                                                                                                                               |
| passed                                                                                                           | step 36                                                                                                                                                                                                               |
| <b>22</b>                                                                                                        | To post the DTC, type<br>>POST DTC <b>dtc_no</b><br>and press the Enter key.<br><i>where</i><br><b>dtc_no</b><br>is the number (0 to 255) of the DTC that you recorded in step 3<br><i>Example of a MAP response:</i> |
| <pre>DTC      0          InSv Links_OOS: CSide 20, PSide 0 Unit0:   Act       InSv Unit1:   Inact     SysB</pre> |                                                                                                                                                                                                                       |
| <b>If an Mtce indicator</b>                                                                                      | <b>Do</b>                                                                                                                                                                                                             |
| displays next to either unit                                                                                     | step 23                                                                                                                                                                                                               |
| does not display                                                                                                 | step 24                                                                                                                                                                                                               |
| <b>23</b>                                                                                                        | Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this step.                                                                                     |
| <b>If the major alarm</b>                                                                                        | <b>Do</b>                                                                                                                                                                                                             |
| remains                                                                                                          | step 24                                                                                                                                                                                                               |
| changes                                                                                                          | step 47                                                                                                                                                                                                               |
| clears                                                                                                           | step 49                                                                                                                                                                                                               |
| <b>24</b>                                                                                                        | Determine the maintenance state of each DTC unit.                                                                                                                                                                     |
| <b>If one unit</b>                                                                                               | <b>Do</b>                                                                                                                                                                                                             |
| is CBSy and the other unit is InSv or ISTb                                                                       | step 25                                                                                                                                                                                                               |

## PM DTC major (continued)

|           | <b>If one unit</b>                                                                                                                      | <b>Do</b>                             |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
|           | is SysB and the other unit is InSv or ISTb                                                                                              | Work on the SysB unit. Go to step 26. |
| <b>25</b> | Go to the common procedure <i>Clearing PM C-side faults</i> in this document. Complete the procedure and return to this step.           |                                       |
|           | <b>If the DTC</b>                                                                                                                       | <b>Do</b>                             |
|           | remains ISTb because one unit is SysB and the other is InSv or ISTb                                                                     | Work on the SysB unit. Go to step 26. |
|           | returns to service                                                                                                                      | step 49                               |
| <b>26</b> | To query the DTC for fault indications, type<br><b>&gt;QUERYPM FLT</b><br>and press the Enter key.<br><i>Example of a MAP response:</i> |                                       |
|           | Activity dropped                                                                                                                        |                                       |
| <b>27</b> | Record the MAP response.                                                                                                                |                                       |
|           | <b>If the MAP response</b>                                                                                                              | <b>Do</b>                             |
|           | is SWACT In Progress                                                                                                                    | step 28                               |
|           | is Load Corruption                                                                                                                      | step 29                               |
|           | is Load Failed                                                                                                                          | step 29                               |
|           | is Distributed Data Loading Failed                                                                                                      | step 29                               |
|           | is Activity dropped                                                                                                                     | step 29                               |
|           | is other than listed here                                                                                                               | step 35                               |
| <b>28</b> | The system attempts to recover the DTC with a switch of activity between the two DTC units. Wait until system maintenance is complete.  |                                       |
|           | <b>If the DTC</b>                                                                                                                       | <b>Do</b>                             |
|           | does not return to service                                                                                                              | step 35                               |
|           | returns to service                                                                                                                      | step 49                               |

## PM DTC major (continued)

- 29** To busy the DTC unit, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.
- 30** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

**>QUERYPM FILES**

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is:  
Flash not datafilled. QueryPm files invalid

*Example of a MAP display for a DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:*

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for a DTC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If the PRL card or packet | Do      |
|---------------------------|---------|
| is provisioned            | step 31 |
| is not provisioned        | step 34 |

- 31** Determine if the DTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the DTC is equipped with an NTSX05 with an NTSX06 PRL, type

**>QUERYPM CONFIG**

## PM DTC major (continued)

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```
QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor
```

*Example of a MAP response if an SX05 processor is present*

```
QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
```

| If the DTC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 32 |
| NTSX06 PRL packlet             | step 33 |

- 32** To load the DTC from the local image, type  
>LOADPDM UNIT *unit\_no* LOCAL IMAGE  
and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the DTC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 33 |

**33**



### DANGER

#### Possible service interruption

The LOCAL LOADFILE option of the LOADPDM command has a parameter of [*<file>* string]. The LOADPDM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need the NOPATCH option of the loadfile.

---

**PM DTC**  
**major (continued)**


---

To load the DTC from the local loadfile, type  
**>LOADPDM UNIT unit\_no LOCAL LOADFILE**  
 and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the DTC unit

---

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 36   |
| failed             | step 34   |

---

- 34** To load the DTC unit, type  
**>LOADPDM UNIT unit\_no**  
 and press the Enter key.

---

| <b>If the load</b>                                  | <b>Do</b> |
|-----------------------------------------------------|-----------|
| failed, and the system generated a card list        | step 37   |
| failed, and the system did not generate a card list | step 48   |
| passed                                              | step 36   |

---

- 35** To busy the DTC unit that has faults, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the DTC unit

- 36** To return the DTC unit to service, type  
**>RTS UNIT unit\_no**  
 and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the DTC unit

---

| <b>If the DTC unit</b>                       | <b>Do</b> |
|----------------------------------------------|-----------|
| failed, and the system generated a card list | step 37   |

---

**PM DTC**  
**major** (continued)

| <b>If the DTC unit</b>                              | <b>Do</b> |
|-----------------------------------------------------|-----------|
| failed, and the system did not generate a card list | step 48   |
| passed                                              | step 49   |

**At the equipment frame**

- 37** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "Design of DTC shelf" in this procedure for help to locate this card.

The MAP response in step 11 (if you complete this step) or step 27 can help you isolate the card that has faults. Refer to the following table for help.

| <b>MAP response</b>             | <b>Suspect cards</b>                                           |
|---------------------------------|----------------------------------------------------------------|
| PM Audit                        | NT6X69, NTMX77, NTAX74, NTSX05                                 |
| Activity Dropped                | NTMX77, NTAX74, NTSX05                                         |
| No WAI Received                 | NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTMX77, NTAX74, NTSX05 |
| LINK Audit                      | NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTMX77, NTAX74, NTSX05 |
| Load Corruption                 | NT6X42, NTMX77, NTAX74, NTSX05                                 |
| Load Failed                     | NTMX77, NTAX74, NTSX05                                         |
| Distributed Data Loading Failed | NT6X69, NTMX77, NTAX74, NTSX05                                 |

| <b>If the card you</b>                               | <b>Do</b> |
|------------------------------------------------------|-----------|
| replace is an NT6X42, NTMX77, NTAX74, or NTSX05 card | step 38   |
| is other than listed here                            | step 45   |

## PM DTC major (continued)

### At the MAP terminal

- 38** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or NTAX74, or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is:  
Flash not datafilled. QueryPm files invalid

*Example of a MAP display for a DTC with an NTMX77 or NTAX74 processor with an NT7X05 PRL card:*

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for a DTC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 1:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If the PRL card or packlet | Do      |
|----------------------------|---------|
| is present                 | step 39 |
| is not present             | step 42 |

- 39** Determine if the DTC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card. To determine if the DTC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

## PM DTC major (continued)

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```
QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor
```

*Example of a MAP response if an SX05 processor is present*

```
QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
```

| If the DTC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 40 |
| NTSX06 PRL packlet             | step 41 |

- 40** Use the information recorded in step 11 to load the inactive DTC unit . To load the inactive DTC unit from the local image on the NT7X05 PRL card, type

```
>LOADPM UNIT unit_no LOCAL IMAGE
```

and press the Enter key.

*where*

**unit\_no**

is the number of the inactive DTC unit recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 41 |

- 41**



### DANGER

#### Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]]. When you use this parameter, the loadfile named in the parameter has not been patched. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

## PM DTC major (continued)

To load the inactive DTC unit from the local loadfile on the PRL card, type  
**>LOADPDM UNIT unit\_no LOCAL LOADFILE**  
 and press the Enter key.

where

**unit\_no**  
 is the number of the inactive DTC unit that you recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 42 |

- 42** To load the inactive DTC unit from the CM, type  
**>LOADPDM UNIT unit\_no**  
 and press the Enter key.

where

**unit\_no**  
 is the number of the inactive DTC unit recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 48 |

- 43** To query the DTC counters for the firmware load on the NTMX77, NTAX74, or NTSX05 type  
**>QUERYPM CNTRS**  
 and press the Enter key.

*Example of a MAP display for an NTMX77:*

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: ECL07BI
EPRom Version: AB02
EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03
UP:MX77AA
Unit 1:
Ram Load: ECL07BI
EPRom Version: AB02
EEPROM Load: Loadable: [MX77NG03], Executable: [MX77NG03]
UP:MX77AA

```

*Example of a MAP display for an NTAX74:*

## PM DTC major (continued)

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: XLI07BI1
EProm Version: AB02
EEPROM Load: Loadable: AX74XE0I, Executable: AX74XE0I
UP:AX74AA
Unit 1:
Ram Load: XLI07BI1
EProm Version: AB02
EEPROM Load: Loadable: [AX74XE0I], Executable: [AX74XE0I]
UP:AX74AA

```

*Example of a MAP display for a DTC equipped with an NTSX05:*

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLII10BG
EProm Version: AC01
EEPROM Load: Loadable: [SA01], Executable: [SA01]
UP: SX05AA
IP: BX01

```

| If firmware    | Do      |
|----------------|---------|
| is correct     | step 45 |
| is not correct | step 44 |

**44** To load the NTMX77, NTAX74, or NTSX05 firmware, type

**>LOADFW UNIT unit\_no**

and press the Enter key.

where

**unit\_no**

is the number of the inactive DTC unit that you recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 45 |
| failed      | step 48 |

**45** To return the DTC unit to service, type

**>RTS UNIT unit\_no**

and press the Enter key.

---

**PM DTC  
major (end)**


---

where

**unit\_no**

is the number of the inactive DTC unit that you recorded in step 11

| <b>If the unit</b>                                                                                     | <b>Do</b> |
|--------------------------------------------------------------------------------------------------------|-----------|
| does not return to service and you did not replace all the cards on the list of cards that have faults | step 46   |
| does not return to service and you replaced all the cards on the list of cards that have faults        | step 48   |
| fails, and the system does not generate a card list                                                    | step 48   |
| returns to service                                                                                     | step 49   |

**At the equipment frame**

- 46** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure *Design of DTC shelf* for help to locate this card.

| <b>If you</b>                                    | <b>Do</b> |
|--------------------------------------------------|-----------|
| replace an NTAX74, NTMX77, NTSX05 or NT6X42 card | step 38   |
| replace cards other than listed here             | step 45   |

- 47** The DTC major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 49.
- 48** For additional help, contact the next level of support.
- 49** The procedure is complete.

## PM DTC minor

---

### Alarm display



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

### Indication

DTC (preceded by a number) appears under the PM header of the alarm banner. The DTC indicates a minor alarm for a digital trunk controller (DTC). The number that precedes the DTC indicates the number of DTCs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with a DTC minor alarm.

### Meaning

The DTC is in-service trouble (ISTb) for one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in-service
- one unit is ISTb and one unit is manual busy
- one unit is in-service and one unit is manual busy
- both units are in-service with P-side links or C-side links out-of-service

### Result

The alarm does not affect service.

### Common procedures

The procedure refers to the following common procedures:

- "Monitoring system maintenance"
- "Clearing PM C-side faults"

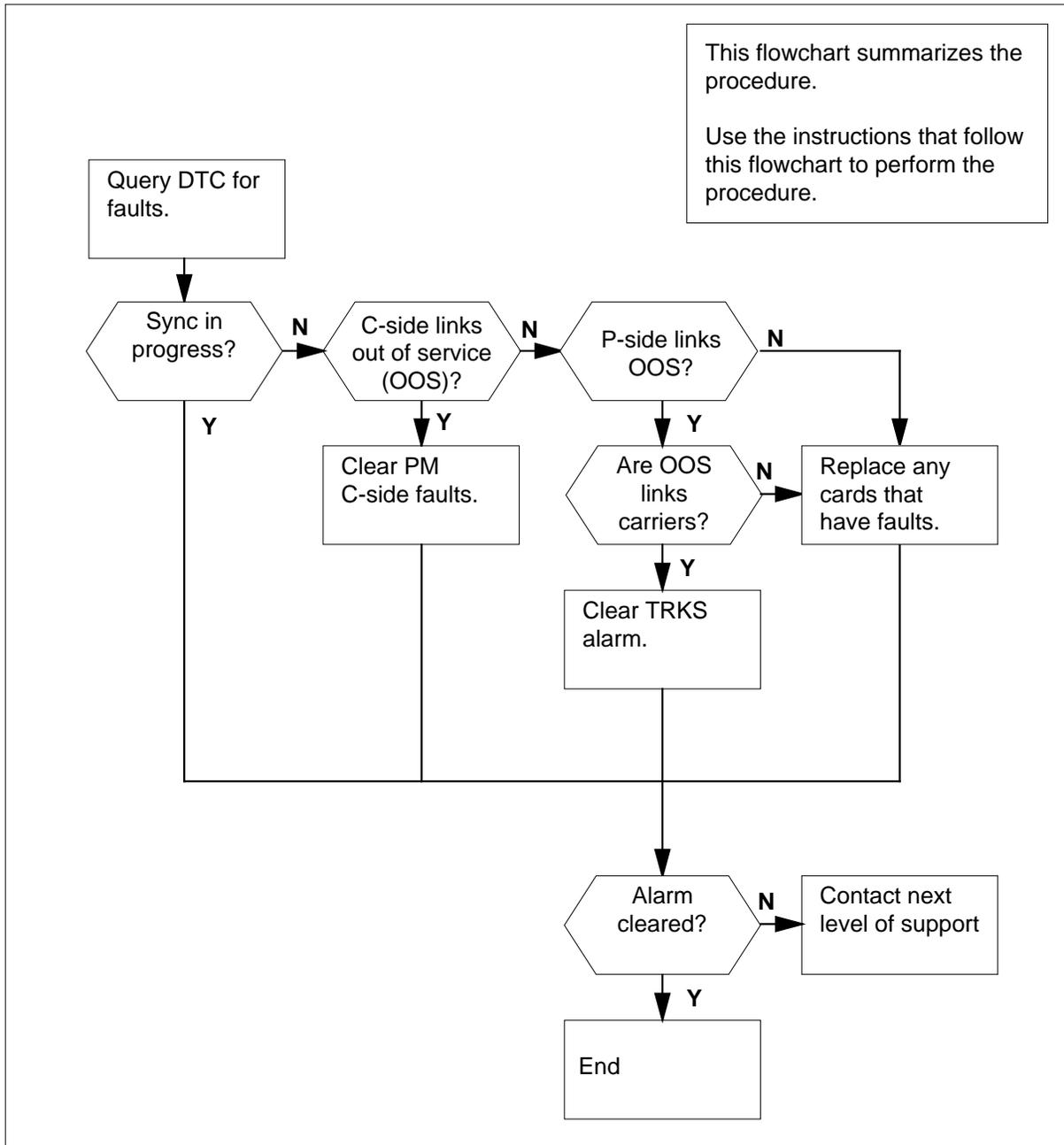
Do not go to the common procedures unless the step-action procedure directs you to go.

## PM DTC minor (continued)

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

#### Summary of clearing a PM DTC minor alarm



**PM DTC**  
**minor** (continued)

**Layout of a DTC shelf**

| Paddle boards |                           | Cards  |                                        |     |
|---------------|---------------------------|--------|----------------------------------------|-----|
| 25R           |                           | NT2X70 | Power converter card                   | 25F |
| 24R           |                           | NT0X50 | Filler faceplate                       | 24F |
| 23R           |                           | NT6X40 | DS30 C-side interface card             | 23F |
| 22R           |                           | NT6X40 | DS30 C-side interface card             | 22F |
| 21R           |                           | NT6X41 | Speech bus formatter card              | 21F |
| 20R           | NTMX71 XPM+ terminator PB | NT6X42 | Channel supervision message card       | 20F |
| 19R           |                           | NT0X50 | Filler Faceplate*                      | 19F |
| 18R           |                           | NT6X69 | Message protocol and Tone card*        | 18F |
| 17R           |                           | NT7X05 | Peripheral/Remote Loader-16 Card       | 17F |
| 16R           |                           | NT6X92 | Universal tone receiver card*          | 16F |
| 15R           |                           | NT6X92 | Universal tone receiver card*          | 15F |
| 14R           |                           | NT6X44 | Time switch card                       | 14F |
| 13R           |                           | NT6X70 | Continuity tone detector card*         | 13F |
| 12R           |                           | NTSX05 | SX05 processor card (Note 4) or        | 12F |
|               |                           | NTMX77 | Unified processor card or              |     |
|               |                           | NTAX74 | Cellular access processor (Note 2 & 3) |     |
| 11R           |                           | NT0X50 | Filler faceplate                       | 11F |
| 10R           |                           | NT0X50 | Filler faceplate                       | 10F |
| 09R           |                           | NT0X50 | Filler faceplate                       | 09F |
| 08R           |                           | NT0X50 | Filler faceplate                       | 08F |
| 07R           |                           | NT0X50 | Filler faceplate                       | 07F |
| 06R           |                           | NT0X50 | Filler faceplate                       | 06F |
| 05R           |                           | NT6X50 | DS1 interface card                     | 05F |
| 04R           |                           | NT6X50 | DS1 interface card                     | 04F |
| 03R           |                           | NT6X50 | DS1 interface card                     | 03F |
| 02R           |                           | NT6X50 | DS1 interface card                     | 02F |
| 01R           |                           | NT6X50 | DS1 interface card                     | 01F |

← Rear
Front →

**Note 1:** The NT6X40AA is provisioned in slots 22F and 23F for the “AA” version only. Subsequent versions are provisioned in slot 22F. Fiberized versions are provisioned as a paddle board in slot 22R in addition to the front plane card.

**Note 2:** Beginning with MIP08/XPM08, the NTAX74 processor is supported in the MCI-ACD DTCI application with an XLI load.

**Note 3:** Beginning with MTX06/XPM08, the NTAX74 processor is supported in the 2-processor PDTC for MTX application with a WDT load.

**Note 4:** Beginning with NA011/XPM11, MMP/XPM12 (for Japan), the NTSX05AA processor is supported in the DTC with a QLI load.

---

## PM DTC minor (continued)

---

### Clearing a PM DTC minor alarm

#### *At the MAP terminal*

- 1** To access the PM level of the MAP terminal, type

**>MAPCI ;MTC:PM**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBSy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

---

**If**

**Do**

an audible alarm rings

step 2

no audible alarm rings

step 3

---

- 2** To silence the alarm, type

**>SIL**

and press the Enter key.

- 3** To display all the ISTb DTCs, type

**>DISP STATE ISTB DTC**

and press the Enter key.

*Example of a MAP response:*

ISTb DTC : 0

**Note:** If multiple DTCs are ISTb select one DTC to work on. Repeat this procedure for each DTC that is ISTb.

Record the DTC number.

- 4** To post the DTC, type

**>POST DTC dtc\_no**

and press the Enter key.

*where*

**dtc\_no**

is the number (0 to 255) of the DTC you recorded in step 3.

*Example of a MAP response:*

**PM DTC**  
**minor** (continued)

DTC            0            ISTb   Links\_OOS:   CSide 0, PSide 0  
Unit0:   Act            InSv  
Unit1:   Inact        ISTb        Mtce

| <b>If a Mtce flag</b>                         |                                                                                                                                    | <b>Do</b> |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------|
| appears next to either unit                   |                                                                                                                                    | step 5    |
| does not appear                               |                                                                                                                                    | step 6    |
| <b>5</b>                                      | Perform the correct procedure in "Monitoring system maintenance" in this document. Complete the procedure and return to this step. |           |
| <b>If the DTC minor alarm</b>                 |                                                                                                                                    | <b>Do</b> |
| remains                                       |                                                                                                                                    | step 6    |
| changes                                       |                                                                                                                                    | step 35   |
| clears                                        |                                                                                                                                    | step 36   |
| <b>6</b>                                      | Select a DTC unit to recover.                                                                                                      |           |
| <b>If</b>                                     | <b>Do</b>                                                                                                                          |           |
| one unit is ISTb and one unit is InSv         | step 7                                                                                                                             |           |
| both units are ISTb                           | Work on the inactive unit and go to step 11.                                                                                       |           |
| one unit is ManB and one unit is ISTb or InSv | Work on the manual busy unit and go to step 11.                                                                                    |           |
| <b>7</b>                                      | Determine if the ISTb unit is active or inactive.                                                                                  |           |
| <b>If the ISTb unit</b>                       | <b>Do</b>                                                                                                                          |           |
| is active                                     | step 8                                                                                                                             |           |
| is inactive                                   | Work on the in-service trouble unit and go to step 11.                                                                             |           |

## PM DTC minor (continued)

8

**WARNING****Possible loss of service**

Confirm a cold SWACT during a period of low traffic. If you confirm a cold SWACT during a period of high traffic, the calls that the LCME handles will drop.

To switch the activity of the units, type

**>SWACT**

and press the Enter key.

The switch determines the requirement of a cold SWACT or a warm SWACT. The switch displays a confirmation prompt for the selected SWACT.

| If the switch of activity | Do      |
|---------------------------|---------|
| cannot continue           | step 9  |
| can continue              | step 10 |

9

To reject the prompt, type

**>NO**

and press the Enter key.

The system stops the switch of activity. Go to step 34.

10

To confirm the switch of activity, type

**>YES**

and press the Enter key.

The switch changes activity between the active unit and the inactive unit. An **MTCE** flag appears during the change of activity. Continue after the flag disappears.

| If the MAP response                      | Do                                           |
|------------------------------------------|----------------------------------------------|
| is SWACT Passed                          | Work on the inactive unit and go to step 11. |
| is SWACT failed Reason:<br>XPM SWACTback | step 34                                      |
| is SWACT refused by<br>SWACT controller  | step 34                                      |

**PM DTC**  
**minor** (continued)

---

- 11 To determine the cause of the in-service trouble condition, type  
**>QUERYPM FLT**  
 and press the Enter key.

**Note:** Multiple causes can be present for the in-service condition of a DTC. The DTC and the DTC units remain ISTb until all the in-service trouble conditions clear.

| If the MAP response                              | Do      |
|--------------------------------------------------|---------|
| is Dynamic data sync in progress                 | step 12 |
| is Superframe sync in progress                   | step 12 |
| is CLASS Modem Resource Card 6X78 out of service | step 13 |
| is CMR Load not present                          | step 16 |
| is Static data mismatch with CC                  | step 19 |
| is P-side links out of service                   | step 21 |
| is C-side links out of service                   | step 31 |
| is other than listed here                        | step 34 |

- 12 Wait 5 minutes for the system to return the DTC to service.

| If the DTC minor alarm | Do      |
|------------------------|---------|
| clears                 | step 36 |
| does not clear         | step 34 |

---

**PM DTC**  
**minor (continued)**


---

13

**CAUTION****Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the CMR unit, type

```
>BSY UNIT unit_no CMR
```

and press the Enter key.

where

**unit\_no**

is the number of the DTC unit (0 or 1) that contains the CMR card.

14 To test the CMR card, type

```
>TST UNIT unit_no CMR
```

and press the Enter key.

where

**unit\_no**

is the number of the DTC unit (0 or 1) that contains the CMR card.

| <b>If the TST command</b> | <b>Do</b> |
|---------------------------|-----------|
| fails                     | step 15   |
| passes                    | step 18   |

**At the equipment frame**

15 Perform the correct procedure in *Card Replacement Procedures* to replace the CMR card (NT6X78). Complete the procedure and go to step 17.

**At the MAP display**

16 To manually busy the CMR card, type

```
>BSY UNIT unit_no CMR
```

and press the Enter key.

where

**unit\_no**

is the number of the DTC unit (0 or 1) that contains the CMR card.

**PM DTC**  
**minor** (continued)

- 17** To load the CMR card, type  
`>LOADPDM UNIT unit_no CMR`  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the DTC unit (0 or 1) that contains the CMR card.

| <b>If the LOADPDM command</b>               | <b>Do</b> |
|---------------------------------------------|-----------|
| passes                                      | step 18   |
| fails, and you replaced the CMR card        | step 34   |
| fails, and you did not replace the CMR card | step 15   |

- 18** To return the CMR card to service, type  
`>RTS UNIT unit_no CMR`  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the DTC unit (0 or 1) that contains the CMR card.

| <b>If the RTS command</b>                      | <b>Do</b> |
|------------------------------------------------|-----------|
| passes, and the DTC returns to service         | step 36   |
| passes, and the DTC does not return to service | step 33   |
| fails                                          | step 34   |

**19**

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b><br/> <b>Possible loss of service</b><br/>                     The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.</p> |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

---

## PM DTC minor (continued)

---

To manually busy the inactive in-service trouble DTC unit, type

```
>BSY UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the DTC unit (0 or 1)

- 20** To return the DTC unit to service, type

```
>RTS UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the DTC unit (0 or 1)

---

| If the RTS command                             | Do      |
|------------------------------------------------|---------|
| passes, and the DTC returns to service         | step 36 |
| passes, and the DTC does not return to service | step 33 |
| fails                                          | step 34 |

---

- 21** To identify the out-of-service P-side links, type

```
>TRNSL P
```

and press the Enter key.

*Example of a MAP response:*

```
Link 0: Carrier of Class - Timing;Status:Offl
```

```
Link 1: Carrier of Class - Trunk ;Status:OK
```

```
Link 18: Carrier of Class - Trunk ;Status:OK
```

```
Link 19: Carrier of Class - Trunk ;Status:OK
```

**Note:** Links 2 to 17 do not appear in this example.

- 22** Record the number and state of each P-side link that is out-of-service.

**Note:** P-side links with the OK status are in-service. Any other status indicates a P-side link that is out-of-service. The system can identify P-side links in the MAP display as a CARRIER.

---

| If the out-of-service links are | Do      |
|---------------------------------|---------|
| carriers                        | step 23 |

---

**PM DTC**  
**minor** (continued)

|           | <b>If the out-of-service links are</b>                                                                                                                       | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | links                                                                                                                                                        | step 24   |
| <b>23</b> | Clear the TRKS alarm. Perform the correct procedure in this document. Complete the procedure and return to this step.                                        |           |
|           | <b>If the DTC minor alarm</b>                                                                                                                                | <b>Do</b> |
|           | clears                                                                                                                                                       | step 36   |
|           | does not clear                                                                                                                                               | step 34   |
| <b>24</b> | Choose a link to work on.                                                                                                                                    |           |
|           | <b>If the link</b>                                                                                                                                           | <b>Do</b> |
|           | is SysB                                                                                                                                                      | step 25   |
|           | is ManB                                                                                                                                                      | step 26   |
| <b>25</b> | To manually busy the link, type<br><b>&gt;BSY LINK link_no</b><br>and press the Enter key.<br>where<br><b>link_no</b><br>is the number of the link (0 to 19) |           |
| <b>26</b> | To test the link, type<br><b>&gt;TST LINK link_no</b><br>and press the Enter key.<br>where<br><b>link_no</b><br>is the number of the link (0 to 19 )         |           |
|           | <b>If the TST command</b>                                                                                                                                    | <b>Do</b> |
|           | passes                                                                                                                                                       | step 27   |
|           | fails, and the system generates a card list                                                                                                                  | step 28   |
|           | fails, and the system does not generate a card list                                                                                                          | step 34   |
| <b>27</b> | To return the link to service, type<br><b>&gt;RTS LINK link_no</b><br>and press the Enter key.<br>where                                                      |           |

---

**PM DTC  
minor** (continued)

---

**link\_no**  
is the number of the link (0 to 63)

| <b>If the RTS command</b>                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| fails, and the system generates a card list         | step 28   |
| fails, and the system does not generate a card list | step 34   |
| passes, and other out-of-service links are present  | step 24   |
| passes, and the DTC remains ISTb                    | step 34   |
| passes, and the DTC minor alarm clears              | step 36   |

**At the equipment frame**

- 28** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

**At the MAP**

- 29** To return the link to service, type

```
>RTS LINK link_no
```

and press the Enter key.

where

**link\_no**  
is the number of the link (0 to 63)

| <b>If the RTS command</b>                                | <b>Do</b> |
|----------------------------------------------------------|-----------|
| fails, and you did not replace all the cards on the list | step 30   |
| fails, and you replaced all the cards on the list        | step 34   |
| passes, and other out-of-service links are present       | step 24   |
| passes, and the DTC remains ISTb                         | step 34   |
| passes, and the DTC minor alarm clears                   | step 36   |

- 30** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

- 31** Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and go to step 32.

- 32** To post the DTC, type

```
>PM;POST DTC dtc_no
```

and press the Enter key.

where

**PM DTC**  
**minor** (end)

---

**dtc\_no**  
 is the number of the DTC (0 to 255)

| <b>If the DTC</b>                        | <b>Do</b> |
|------------------------------------------|-----------|
| is InSv                                  | step 36   |
| is ISTb, and one unit is ISTb or<br>CBSy | step 33   |
| is other than listed here                | step 34   |

**33** To determine the cause of the in-service trouble condition, type

**>QUERYPM FLT**

and press the Enter key.

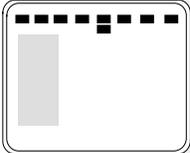
**Note:** Multiple causes can be present for the in-service trouble condition of a DTC. The DTC and the DTC units remain ISTb until all in-service trouble conditions clear.

| <b>If the MAP response</b>                                    | <b>Do</b> |
|---------------------------------------------------------------|-----------|
| is Dynamic data sync in progress                              | step 12   |
| is Superframe sync in progress                                | step 12   |
| is CLASS Modem Resource Card 6X78 out<br>of service           | step 13   |
| is CMR Load not present                                       | step 16   |
| is Static data mismatch with CC                               | step 19   |
| is P-side links out of service                                | step 21   |
| is C-side links out of service                                | step 31   |
| indicates a fault that you cleared during this proce-<br>dure | step 34   |
| is other than listed here                                     | step 34   |

**34** You need additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps you performed to clear this alarm. Go to step 36.

**35** The DTC minor alarm changed to a different type of alarm. Refer to the correct procedure in this document to clear the alarm.

**36** The procedure is complete.

**PM EIU  
critical****Alarm display**


| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1EIU<br>*C* | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, EIU (preceded by a number) appears under the PM header of the alarm banner. The EIU indicates a critical alarm for the Ethernet interface unit (EIU).

**Meaning**

A minimum of one EIU is system busy, system busy not accessible, or in-service trouble not accessible.

The number under the PM header of the alarm banner indicates the number of EIUs affected.

**Result**

Communication does not occur between the switch and the local area network (LAN) or wide area network (WAN) if each application has only one EIU. The EIU applications include the CCS7 message detail recording (MDR7) and the service management system (SMS). The presence of more than one EIU for each application does not affect service.

**Common procedures**

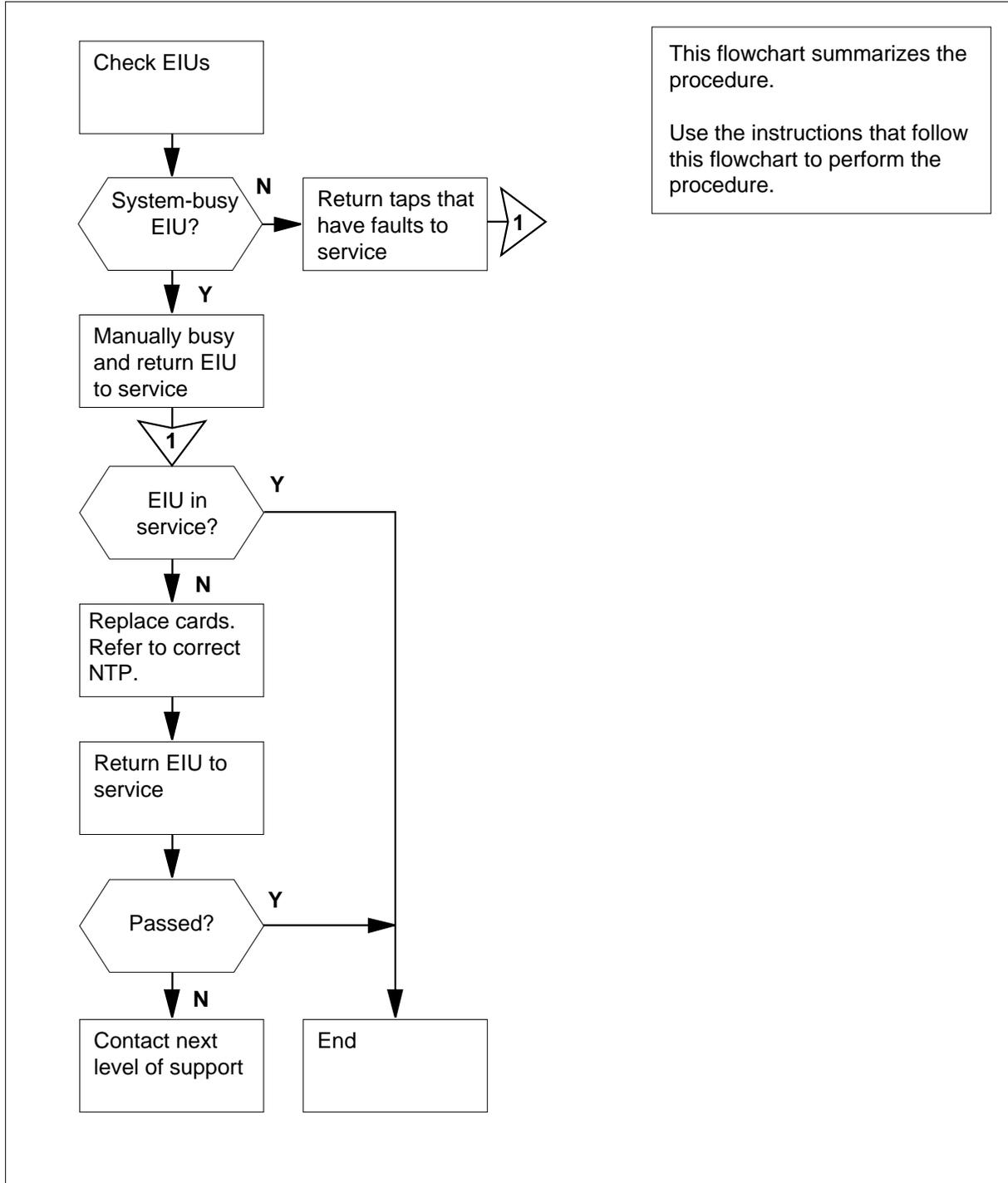
There are no common procedures.

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

# PM EIU critical (continued)

## Summary of clearing a PM EIU critical alarms



## PM EIU critical (continued)

### Clearing a PM EIU critical alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
 and press the Enter key.

*Example of a MAP display:*

|    | SysB | ManB | OffL | CBSy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 0    | 0    | 0    | 0    | 39   |

- 2 To post the EIUs that are system busy, type  
**>POST EIU SYSB**  
 and press the Enter key.

*Example of a MAP display:*

EIU 131 SysB Rsvd

**Note:** In the example of the EIU MAP display, the EIU state is SysB. The EIU state appears on the right of the number 131.

| If the posted set  | Do      |
|--------------------|---------|
| contains SysB EIUs | step 3  |
| is empty           | step 24 |

- 3 Record the number of the EIU.  
**Note:** In the example in step 2, the EIU number is 131.
- 4 Determine the state of the posted EIU.

| If the posted EIU | Do      |
|-------------------|---------|
| is SysB (NA)      | step 29 |
| is SysB           | step 5  |

- 5 To force the EIU to busy, type  
**>BSY FORCE**

**PM EIU**  
**critical** (continued)

and press the Enter key.

| If the response                                                                                                                 | Do     |
|---------------------------------------------------------------------------------------------------------------------------------|--------|
| is Bsy EIU eiu_no re-<br>quires confirmation<br>because the action may<br>isolate the SuperNode<br>from the nodes on the<br>LAN | step 6 |
| is EIU eiu_no BSY<br>Passed                                                                                                     | step 7 |

**6** To confirm the command, type  
**>YES**  
 and press the Enter key.

**7** To test the EIU, type  
**>TST UNIT unit\_no**  
 and press the Enter key.  
*where*

**unit\_no**  
 is the number of the EIU unit (0 or 1)

*Example of a MAP response:*

```
EIU 110 ManB Rsvd
 Tst
 EIU 110 TST Failed

 Site FLr RPos Bay_id Shf Description Slot EqPEC
 HOST 01 A02 LIM 1 02 IPF 13 EX22BB FRNT
```

| If the TST command                                     | Do      |
|--------------------------------------------------------|---------|
| passed                                                 | step 11 |
| failed, and the system generated<br>a card list        | step 8  |
| failed, and the system did not<br>generate a card list | step 18 |

**8** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.

---

**PM EIU**  
**critical** (continued)

---

- 9** To reset the EIU, type  
>**PMRESET**  
and press the Enter key.
- | If the <b>PMRESET</b> command                       | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 11 |
| failed, and the system generated a card list        | step 10 |
| failed, and the system did not generate a card list | step 10 |
- 
- 10** To load the EIU, type  
>**LOADPM**  
and press the Enter key.
- | If the <b>LOADPM</b> command                        | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 11 |
| failed, and the system generated a card list        | step 12 |
| failed, and the system did not generate a card list | step 97 |
- 
- 11** To return the EIU to service, type  
>**RTS**  
and press the Enter key.
- | If the <b>RTS</b> command                           | Do       |
|-----------------------------------------------------|----------|
| passed                                              | step 114 |
| failed, and the system generated a card list        | step 12  |
| failed, and the system did not generate a card list | step 97  |
- 
- 12** Replace the first card in the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 13** To reset the EIU, type  
>**PMRESET**

**PM EIU**  
**critical** (continued)

and press the Enter key.

| <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passed                        | step 17   |
| failed                        | step 14   |

- 14** To load the EIU, type  
**>LOADPM**  
 and press the Enter key.

| <b>If the LOADPM command</b>                                            | <b>Do</b> |
|-------------------------------------------------------------------------|-----------|
| passed                                                                  | step 17   |
| failed, and you did not replace all cards that you recorded on the list | step 15   |
| failed, and you replaced all cards you recorded on the list             | step 97   |

- 15** Replace the first card in the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 16** Go to step 13.

- 17** To return the EIU to service, type  
**>RTS**  
 and press the Enter key.

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 114  |
| failed                    | step 97   |

- 18** To reset the EIU, type  
**>PMRESET**  
 and press the Enter key.

| <b>If the PMRESET command</b>                | <b>Do</b> |
|----------------------------------------------|-----------|
| passed                                       | step 20   |
| failed, and the system generated a card list | step 19   |

---

**PM EIU**  
**critical** (continued)

---

|           | <b>If the PMRESET command</b>                                                                                                             | <b>Do</b> |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and the system did not generate a card list                                                                                       | step 22   |
| <b>19</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.<br>Go to step 10. |           |
| <b>20</b> | To return the EIU to service, type<br>>RTS<br>and press the Enter key.                                                                    |           |
|           | <b>If the RTS command</b>                                                                                                                 | <b>Do</b> |
|           | passed                                                                                                                                    | step 114  |
|           | failed, and the system generated a card list                                                                                              | step 21   |
|           | failed, and the system did not generate a card list                                                                                       | step 97   |
| <b>21</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.<br>Go to step 12. |           |
| <b>22</b> | To load the EIU, type<br>>LOADPM<br>and press the Enter key.                                                                              |           |
|           | <b>If the LOADPM command</b>                                                                                                              | <b>Do</b> |
|           | passed                                                                                                                                    | step 11   |
|           | failed, and the system generated a card list                                                                                              | step 23   |
|           | failed, and the system did not generate a card list                                                                                       | step 97   |
| <b>23</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.<br>Go to step 12. |           |
| <b>24</b> | To post the in-service trouble EIUs, type<br>>POST EIU ISTB<br>and press the Enter key.                                                   |           |

**PM EIU**  
**critical** (continued)

---

*Example of a MAP response:*

EIU 131 ISTb

|           | <b>If posted EIU</b>                                                                                                                                                               | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is ISTb (NA)                                                                                                                                                                       | step 28   |
|           | is ISTb                                                                                                                                                                            | step 25   |
| <b>25</b> | To scroll to the next in-service trouble EIU in the posted set, type<br><b>&gt;NEXT</b><br>and press the Enter key.                                                                |           |
| <b>26</b> | Determine if the posted EIU is in-service trouble not accessible (NA).                                                                                                             |           |
|           | <b>If the posted EIU</b>                                                                                                                                                           | <b>Do</b> |
|           | is ISTb (NA)                                                                                                                                                                       | step 28   |
|           | is ISTb                                                                                                                                                                            | step 27   |
| <b>27</b> | Determine if you reached the end of the posted set.                                                                                                                                |           |
|           | <b>If you</b>                                                                                                                                                                      | <b>Do</b> |
|           | reached the end of the posted set                                                                                                                                                  | step 113  |
|           | did not reach the end of the posted set                                                                                                                                            | step 25   |
| <b>28</b> | To determine which link interface module (LIM) associates with in-service trouble EIU, type<br><b>&gt;QUERYPM</b><br>and press the Enter key.<br><i>Example of a MAP response:</i> |           |

---

**PM EIU**  
**critical** (continued)

---

```

PM type:EIU PM No.:110 Status: ISTb(NA)
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
ISTB conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)

```

Go to step 30.

- 29** To determine which LIM associates with the system-busy not accessible EIU, type

```
>QUERYPM
```

and press the Enter key.

*Example of a MAP response:*

```

PM type:EIU PM No.:110 Status: SysB(NA)
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)

```

- 30** Record the number of the LIM that associates with the system-busy not accessible EIU.

**Note:** In the example in step 28 and step 29, the LIM number is 1. The LIM number appears on the second line of the response. The LIM number appears on the right of the LIM header.

- 31** To post the LIM for the EIU, type

```
>POST LIM lim_no
```

and press the Enter key.

*where*

**PM EIU**  
**critical** (continued)

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

- 32** To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.

*Example of a MAP display:*

```
LIM 1 ISTb
Unit0: ISTb Links_OOS Taps_OOS
Unit1: InSv . 19
Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ...M .I.. .S.. ---- ---- ---- ---- ...
```

**Note:** In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap also can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.

- 33** Determine the state of both LIM units and both F-buses (0 and 1).

**Note:** Make sure that both LIM units are in service or in-service trouble. Make sure that both F-buses are in service or in-service trouble.

**If the state of both LIM units and both F-buses Do**

|                           |         |
|---------------------------|---------|
| is InSv or ISTb           | step 36 |
| is other than listed here | step 34 |

- 34** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedures and return to this point.
- 35** Go to step 1.
- 36** To determine the F-bus taps that associate with the EIU, type

**>TRNSL fbus\_no**

and press the Enter key.

*where*

**fbus\_no**  
 is the number of the F-bus (0 or 1)

*Example of a MAP response:*

---

**PM EIU**  
**critical** (continued)

---

```
LIM 1 FBus 0 Tap 0 is on LIU7 101
LIM 1 FBus 0 Tap 1 is unequipped
LIM 1 FBus 0 Tap 2 is on EIU 110
LIM 1 FBus 0 Tap 3 is on LIU7 104
```

**37** Record the EIU tap number for the EIU.

**38** Determine the state of the F-bus for the EIU.

**Note:** The tap number that you recorded in step 37 applies to both F-bus 0 and F-bus 1.

---

| <b>If</b>                                       | <b>Do</b> |
|-------------------------------------------------|-----------|
| both F-bus taps are M                           | step 43   |
| both F-bus taps are S                           | step 39   |
| one F-bus tap is M and the other F-bus tap is S | step 41   |

---

**39** To quit from the F-bus level, type

```
>QUIT
```

and press the Enter key.

**40** To post the EIU, type

```
>POST EIU eiu_no
```

and press the Enter key.

where

**eiu\_no**

is the number of the EIU (0 to 215)

Go to step 5.

**41** Work on the manually-busy EIU tap first.

Go to step 44.

**42** To force the F-bus tap for the EIU to busy, type

```
>BSY FBUS fbus_no tap_no FORCE
```

and press the Enter key.

where

**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)

Go to step 45.

**43** Choose one of the manually-busy taps on F-bus 0 or 1 to work on.

**PM EIU**  
**critical** (continued)

- |                                                                        |                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>44</b>                                                              | Determine from office records or operating company personnel why the tap is manually busy.                                                                                                                                                                               |
| <b>If you</b> <span style="float: right;"><b>Do</b></span>             |                                                                                                                                                                                                                                                                          |
|                                                                        | can return the F-bus tap to service <span style="float: right;">step 45</span>                                                                                                                                                                                           |
|                                                                        | cannot return the F-bus tap to service <span style="float: right;">step 114</span>                                                                                                                                                                                       |
| <b>45</b>                                                              | To return the first F-bus tap for the EIU to service, type<br><code>&gt;RTS FBUS fbus_no tap_no</code><br>and press the Enter key.<br><i>where</i><br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35) |
| <b>If the RTS command</b> <span style="float: right;"><b>Do</b></span> |                                                                                                                                                                                                                                                                          |
|                                                                        | passed <span style="float: right;">step 85</span>                                                                                                                                                                                                                        |
|                                                                        | failed. The system generated a card list. Both EIU taps are out of service <span style="float: right;">step 54</span>                                                                                                                                                    |
|                                                                        | failed and the system did not generate a card list. <span style="float: right;">step 86</span>                                                                                                                                                                           |
|                                                                        | failed. The system did not generate a card list. The response is Return to Service failed - local maintenance not accessible. <span style="float: right;">step 86</span>                                                                                                 |
| <b>46</b>                                                              | Determine if you unseated and seated again the NTEX22 and NT9X84 EIU cards during this procedure.                                                                                                                                                                        |
| <b>If you</b> <span style="float: right;"><b>Do</b></span>             |                                                                                                                                                                                                                                                                          |
|                                                                        | unseated and seated again the two EIU cards <span style="float: right;">step 113</span>                                                                                                                                                                                  |

---

**PM EIU**  
**critical** (continued)

---

|           | <b>If you</b>                                                                                                                                                                                                                                                                | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | did not seat and unseat the two EIU cards                                                                                                                                                                                                                                    | step 93   |
| <b>47</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.                                                                                                                                                      |           |
| <b>48</b> | To quit from the F-bus level of the MAP display, type<br>>QUIT<br>and press the Enter key.                                                                                                                                                                                   |           |
| <b>49</b> | To post the EIU, type<br>>POST EIU eiu_no<br>and press the Enter key.<br><i>where</i><br><b>ei_u_no</b><br>is the number of the EIU (0 to 511)                                                                                                                               |           |
| <b>50</b> | To force the EIU to busy, type<br>>BSY FORCE<br>and press the Enter key.<br><i>Example of a MAP response:</i><br><br>Bsy EIU eiu_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN. Please confirm ("YES", "Y", "NO", or "N"): |           |
| <b>51</b> | To confirm the command, type<br>>YES<br>and press the Enter key.                                                                                                                                                                                                             |           |
| <b>52</b> | To reset the EIU, type<br>>PMRESET<br>and press the Enter key.                                                                                                                                                                                                               |           |
|           | <b>If the PMRESET command</b>                                                                                                                                                                                                                                                | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                                       | step 84   |
|           | failed                                                                                                                                                                                                                                                                       | step 53   |
| <b>53</b> | To load the EIU, type<br>>LOADPDM                                                                                                                                                                                                                                            |           |

## PM EIU critical (continued)

and press the Enter key.

|           | <b>If the LOADPM command</b>                                                                                                                                                                                                                                        | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                                                                                                                                              | step 84   |
|           | failed                                                                                                                                                                                                                                                              | step 76   |
| <b>54</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.                                                                                                                                             |           |
| <b>55</b> | Determine the state of the F-bus taps for the EIU.                                                                                                                                                                                                                  |           |
|           | <b>If</b>                                                                                                                                                                                                                                                           | <b>Do</b> |
|           | both EIU taps are M                                                                                                                                                                                                                                                 | step 56   |
|           | at least one EIU tap is S                                                                                                                                                                                                                                           | step 72   |
| <b>56</b> | Replace the first card in the list. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                         |           |
| <b>57</b> | To post the LIM associated for the EIU, type<br><pre>&gt;POST LIM lim_no</pre> and press the Enter key.<br><i>where</i><br><b>lim_no</b><br>is the number of the LIM (0 to 16)                                                                                      |           |
| <b>58</b> | To access the F-bus level of the MAP display, type<br><pre>&gt;FBUS</pre> and press the Enter key.                                                                                                                                                                  |           |
| <b>59</b> | To return the first F-bus tap for the EIU to service, type<br><pre>&gt;RTS FBUS fbus_no tap_no</pre> and press the Enter key.<br><i>where</i><br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35) |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                                                           | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                              | step 64   |

---

**PM EIU**  
**critical** (continued)

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| If the RTS command                                                                                                                                                                                                                                           | Do      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| failed, and you did not replace all cards that you recorded on the list                                                                                                                                                                                      | step 60 |
| failed, and you replaced all cards that you recorded on the list                                                                                                                                                                                             | step 83 |
| <b>60</b> Replace the first card in the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                         |         |
| <b>61</b> To post the LIM for the EIU, type<br>>POST LIM lim_no<br>and press the Enter key.<br>where<br><b>lim_no</b><br>is the number of the LIM (0 to 16)                                                                                                  |         |
| <b>62</b> To access the F-bus level of the MAP display, type<br>>FBUS<br>and press the Enter key.                                                                                                                                                            |         |
| <b>63</b> Go to step 59.                                                                                                                                                                                                                                     |         |
| <b>64</b> To return the second F-bus tap for the EIU to service, type<br>>RTS FBUS fbus_no tap_no<br>and press the Enter key.<br>where<br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35) |         |
| If the RTS command                                                                                                                                                                                                                                           | Do      |
| passed                                                                                                                                                                                                                                                       | step 65 |
| failed                                                                                                                                                                                                                                                       | step 65 |
| <b>65</b> To quit from the F-bus level, type<br>>QUIT<br>and press the Enter key.                                                                                                                                                                            |         |
| <b>66</b> To post the EIU, type<br>>POST EIU eiu_no<br>and press the Enter key.                                                                                                                                                                              |         |

**PM EIU**  
**critical** (continued)

where

**ei\_u\_no**  
 is the number of the EIU (0 to 511)

- 67** To reset the EIU, type  
**>PMRESET**  
 and press the Enter key.
- | If the <b>PMRESET</b> command | Do      |
|-------------------------------|---------|
| passed                        | step 69 |
| failed                        | step 68 |
- 68** To load the EIU, type  
**>LOADPM**  
 and press the Enter key.
- | If the <b>LOADPM</b> command                                            | Do      |
|-------------------------------------------------------------------------|---------|
| passed                                                                  | step 69 |
| failed, and you did not replace all cards that you recorded on the list | step 70 |
| failed, and you replaced all cards that you recorded on the list        | step 82 |
- 69** To return the EIU to service, type  
**>RTS**  
 and press the Enter key.
- | If the <b>RTS</b> command                                               | Do       |
|-------------------------------------------------------------------------|----------|
| passed                                                                  | step 114 |
| failed, and you did not replace all cards that you recorded on the list | step 70  |
| failed, and you replaced all cards that you recorded on the list        | step 97  |
- 70** Replace the first card in the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

---

**PM EIU**  
**critical** (continued)

---

**71** Go to step 67.

**72** To quit from the F-bus level of the MAP display, type  
**>QUIT**  
and press the Enter key.

**73** To post the EIU, type  
**>POST EIU eiu\_no**  
and press the Enter key.  
*where*  
**ei\_u\_no**  
is the number of the EIU (0 to 511)

**74** To force the EIU to busy, type  
**>BSY FORCE**  
and press the Enter key.

*Example of a MAP response:*

Bsy EIU eiu\_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN. Please confirm ("YES", "Y", "NO", or "N"):

**75** To confirm the command, type  
**>YES**  
and press the Enter key.

**76** Replace the first card in the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**77** To reset the EIU, type  
**>PMRESET**  
and press the Enter key.

| <b>If the PMRESET</b> | <b>Do</b> |
|-----------------------|-----------|
| passed                | step 84   |
| failed                | step 78   |

**78** To load the EIU, type  
**>LOADPM**  
and press the Enter key.

| <b>If the LOADM command</b> | <b>Do</b> |
|-----------------------------|-----------|
| passed                      | step 84   |

**PM EIU**  
**critical** (continued)

---

|           | <b>If the LOADM command</b>                                                                                                                                                                                                                                        | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and you did not replace all cards that you recorded on the list                                                                                                                                                                                            | step 79   |
|           | failed, and you replaced all cards that you recorded on the list                                                                                                                                                                                                   | step 83   |
| <b>79</b> | Replace the first card in the list. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                        |           |
| <b>80</b> | Go to step 77.                                                                                                                                                                                                                                                     |           |
| <b>81</b> | To return the second F-bus tap for the EIU to service, type<br><code>&gt;RTS FBUS fbus_no tap_no</code><br>and press the Enter key.<br>where<br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35) |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                                                          | <b>Do</b> |
|           | passed. The other tap for EIU is out of service                                                                                                                                                                                                                    | step 82   |
|           | passed. The other tap for the EIU is in service                                                                                                                                                                                                                    | step 88   |
|           | failed. The system generated a card list. Both EIU taps are out of service                                                                                                                                                                                         | step 54   |
|           | failed, the system generated a card list, and one EIU tap is in service                                                                                                                                                                                            | step 47   |
|           | failed. The system did not generate a card list.                                                                                                                                                                                                                   | step 46   |

---

**PM EIU**  
**critical** (continued)

|           | <b>If the RTS command</b>                                                                                                | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed. The system did not generate a card. The response is Return to Service failed - local maintenance not accessible. | step 46   |
| <b>82</b> | Determine if one EIU critical alarm cleared.                                                                             |           |
|           | <b>If one EIU critical alarm</b>                                                                                         | <b>Do</b> |
|           | cleared                                                                                                                  | step 114  |
|           | did not clear. You are working on an ISTb (NA) EIU                                                                       | step 93   |
|           | did not clear, and you are working on a SysB (NA) EIU is in progress                                                     | step 5    |
| <b>83</b> | Determine if you unseated and reseated the NTEX22 and NT9X84 EIU cards during this procedure.                            |           |
|           | <b>If you</b>                                                                                                            | <b>Do</b> |
|           | unseated and reseated the two EIU cards                                                                                  | step 113  |
|           | did not unseat and reseat the two EIU cards                                                                              | step 97   |
| <b>84</b> | To return the EIU to service, type<br>>RTS<br>and press the Enter key.                                                   |           |
|           | <b>If the RTS command</b>                                                                                                | <b>Do</b> |
|           | passed                                                                                                                   | step 114  |
|           | failed                                                                                                                   | step 83   |
| <b>85</b> | Determine if you worked on the other EIU tap.                                                                            |           |
|           | <b>If you</b>                                                                                                            | <b>Do</b> |
|           | worked on the other EIU tap before                                                                                       | step 97   |

**PM EIU**  
**critical** (continued)

|           | <b>If you</b>                                                                                                                                                                                                                                                                    | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | did not work on the other EIU tap before                                                                                                                                                                                                                                         | step 86   |
| <b>86</b> | Determine the state of the second EIU tap.                                                                                                                                                                                                                                       |           |
|           | <b>If the state of the second EIU tap</b>                                                                                                                                                                                                                                        | <b>Do</b> |
|           | is M                                                                                                                                                                                                                                                                             | step 81   |
|           | is S                                                                                                                                                                                                                                                                             | step 87   |
| <b>87</b> | To force the F-bus tap for the EIU to busy, type<br><b>&gt;BSY FBUS fbus_no tap_no FORCE</b><br>and press the Enter key.<br><i>where</i><br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)<br><b>tap_no</b><br>is the number of the F-bus tap (0 to 35)<br>Go to step 81. |           |
| <b>88</b> | Determine if one EIU critical alarm cleared.                                                                                                                                                                                                                                     |           |
|           | <b>If the EIU critical alarm</b>                                                                                                                                                                                                                                                 | <b>Do</b> |
|           | cleared                                                                                                                                                                                                                                                                          | step 114  |
|           | did not clear, and you are working on an <b>ISTb (NA)</b> EIU                                                                                                                                                                                                                    | step 93   |
|           | did not clear, and you are working on a <b>SysB (NA)</b> EIU                                                                                                                                                                                                                     | step 89   |
| <b>89</b> | To quit from the F-bus level, type<br><b>&gt;QUIT</b><br>and press the Enter key.                                                                                                                                                                                                |           |
| <b>90</b> | To post the system busy not accessible EIU, type<br><b>&gt;POST EIU eiu_no</b><br>and press the Enter key.<br><i>where</i><br><b>eiu_no</b><br>is the number of the EIU that you posted at step 2                                                                                |           |

---

**PM EIU**  
**critical** (continued)

---

91 Determine the state of the EIU.

| If the state of the EIU        | Do      |
|--------------------------------|---------|
| changed from SysB (NA) to SysB | step 92 |
| did not change                 | step 95 |

92 You are working on a system busy EIU. Note this information for future reference.

Go to step 5.

93 To quit from the F-bus level, type

>QUIT

and press the Enter key.

94 To post the EIU, type

>POST EIU eiu\_no

and press the Enter key.

where

**eiu\_no**

is the number of the EIU (0 to 215)

95 To force the EIU to busy, type

>BSY FORCE

and press the Enter key.

*Example of a MAP response:*

Bsy EIU eiu\_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN. Please confirm ("YES", "Y", "NO", or "N"):

96 To confirm the command, type

>YES

and press the Enter key.

97 To determine the location of the EIU, type

>QUERYPM

and press the Enter key.

**Note:** The QUERYPM command provides the LIM number, shelf number, and slot number of the far left card of the EIU.

## PM EIU critical (continued)

---

```
PM type:EIU PM No.:110 Status: ManB(NA)
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
```

### At the LPP

98



#### **DANGER**

##### **Static electricity damage**

Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.



#### **WARNING**

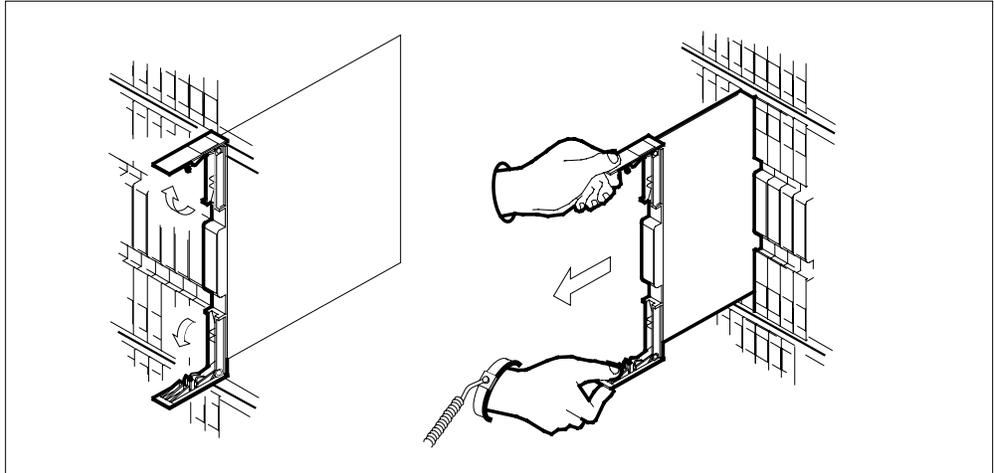
Wear a wrist strap that connects to the wrist-strap grounding point of the frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

99

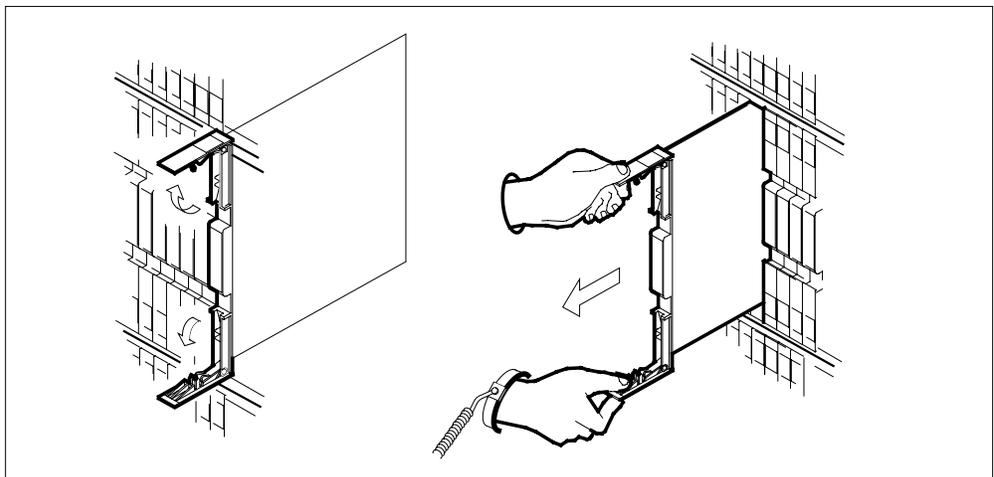
Locate the NT9X84 card associated with the EIU.

Open the locking levers on the card. Carefully pull the NT9X84 card toward you until you remove the card from the connector.

**PM EIU**  
**critical** (continued)



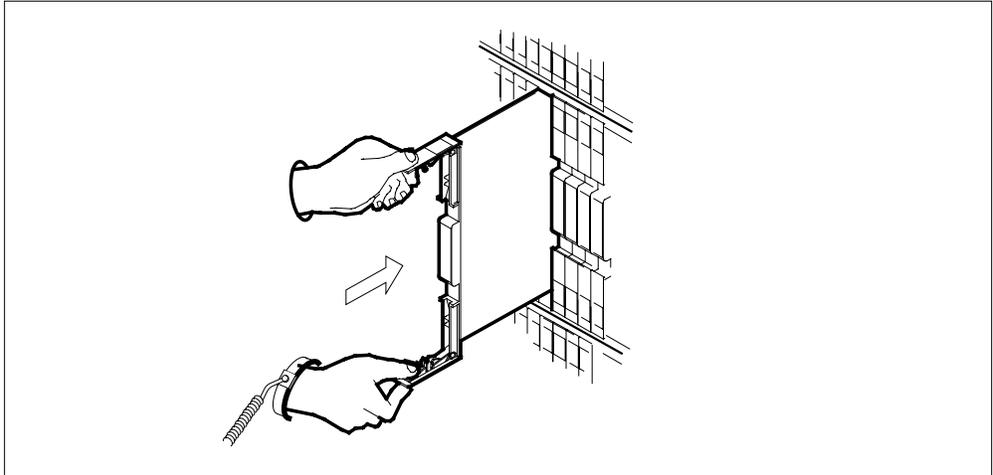
- 100** Leave the NT9X84 card in the slot on the link interface shelf (LIS).
- 101** Locate the NTEX22 card for the EIU.
- 102** Open the locking levers on the card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.



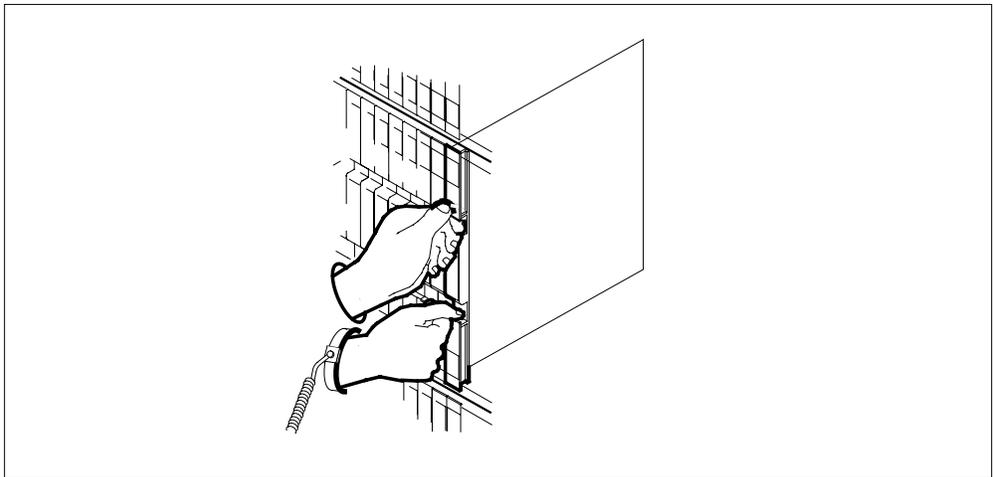
- 103** Carefully slide the NTEX22 card in the LIS.

**PM EIU**  
**critical** (continued)

---

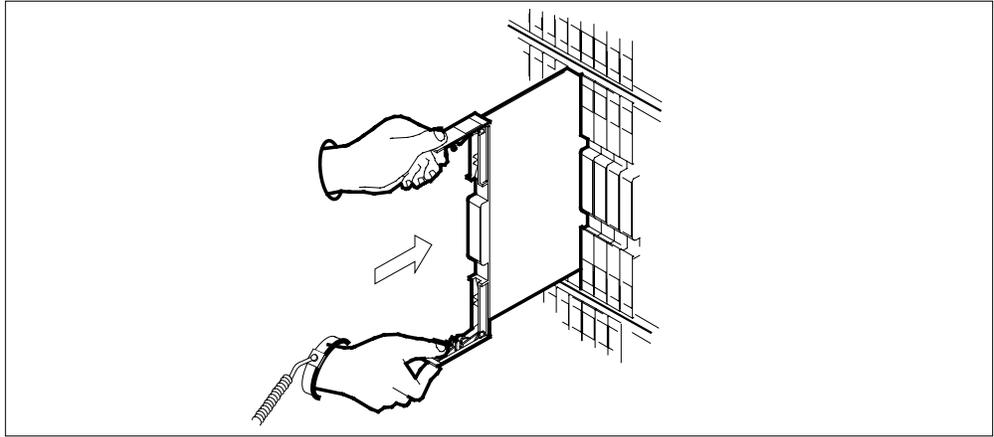


- 104** Seat and lock the NTEX22 card as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
  - b** Close the locking levers.

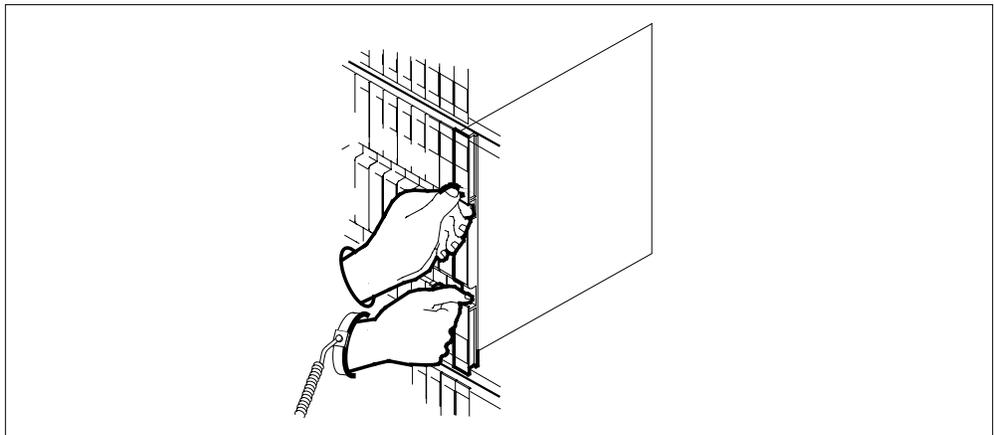


- 105** Carefully slide the NT9X84 card back into the LIS.

## PM EIU critical (continued)



- 106** Seat and lock the NT9X84 card as follows:
- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
  - b Close the locking levers.



### *At the MAP display*

- 107** To load the EIU, type  
>LOADPM  
and press the Enter key.

| If the LOADPM command | Do       |
|-----------------------|----------|
| passed                | step 108 |

**PM EIU**  
**critical** (continued)

|            | <b>If the LOADPM command</b>                                                                                                                                                       | <b>Do</b> |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | failed. A card list is present.<br>You did not replace any cards in the EIU.                                                                                                       | step 109  |
|            | failed. A card list is present.<br>You replaced cards in the EIU.                                                                                                                  | step 113  |
|            | failed. A card list is not present.                                                                                                                                                | step 113  |
| <b>108</b> | To return the EIU to service, type<br>>RTS<br>and press the Enter key.                                                                                                             |           |
|            | <b>If the RTS command</b>                                                                                                                                                          | <b>Do</b> |
|            | passed                                                                                                                                                                             | step 114  |
|            | failed. A card list is present. You did not replace cards in the EIU.                                                                                                              | step 109  |
|            | failed. A card list is present. You replaced cards in the EIU.                                                                                                                     | step 113  |
|            | failed. A card list is not present.                                                                                                                                                | step 113  |
| <b>109</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list.                                                            |           |
| <b>110</b> | To post the LIM for the EIU, type<br>>POST LIM <i>lim_no</i><br>and press the Enter key.<br><i>where</i><br><b>lim_no</b><br>is the number of the LIM that you recorded in step 30 |           |
| <b>111</b> | To access the F-bus level of the MAP display, type<br>>FBUS<br>and press the Enter key.                                                                                            |           |
| <b>112</b> | Determine the state of the F-bus for the EIU.                                                                                                                                      |           |
|            | <b>If</b>                                                                                                                                                                          | <b>Do</b> |
|            | a minimum of one of the EIU taps is in service                                                                                                                                     | step 48   |

---

**PM EIU  
critical (end)**

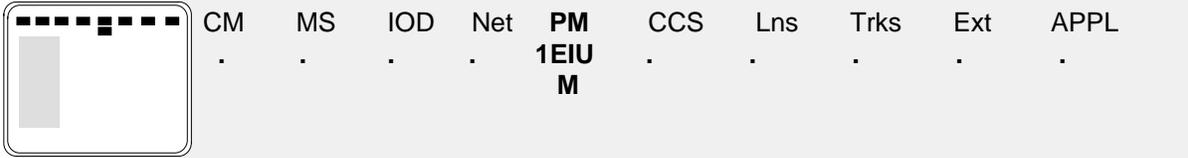
---

|            | <b>If</b>                                                             | <b>Do</b> |
|------------|-----------------------------------------------------------------------|-----------|
|            | both EIU taps are M                                                   | step 56   |
|            | both EIU taps are out of service and<br>a minimum of one EIU tap is S | step 72   |
| <b>113</b> | For additional help, contact the next level of support.               |           |
| <b>114</b> | The procedure is complete.                                            |           |

## PM EIU major

---

### Alarm display



| CM | MS | IOD | Net | PM        | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-----------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1EIU<br>M | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP display, EIU (preceded by a number) appears under the PM header of the alarm banner. The EIU indicates a major alarm for the Ethernet interface unit (EIU).

### Meaning

A minimum of one EIU is manual busy or manual busy not accessible.

The number under the PM header of the alarm banner indicates the number of affected EIUs.

### Result

Communication does not occur between the switch and the local area network (LAN) or wide area network (WAN). Communication does not occur if only one EIU is present for each application. The service management system (SMS) is an example of a EIU application. The presence of more than one EIU for each application does not affect service.

### Common procedures

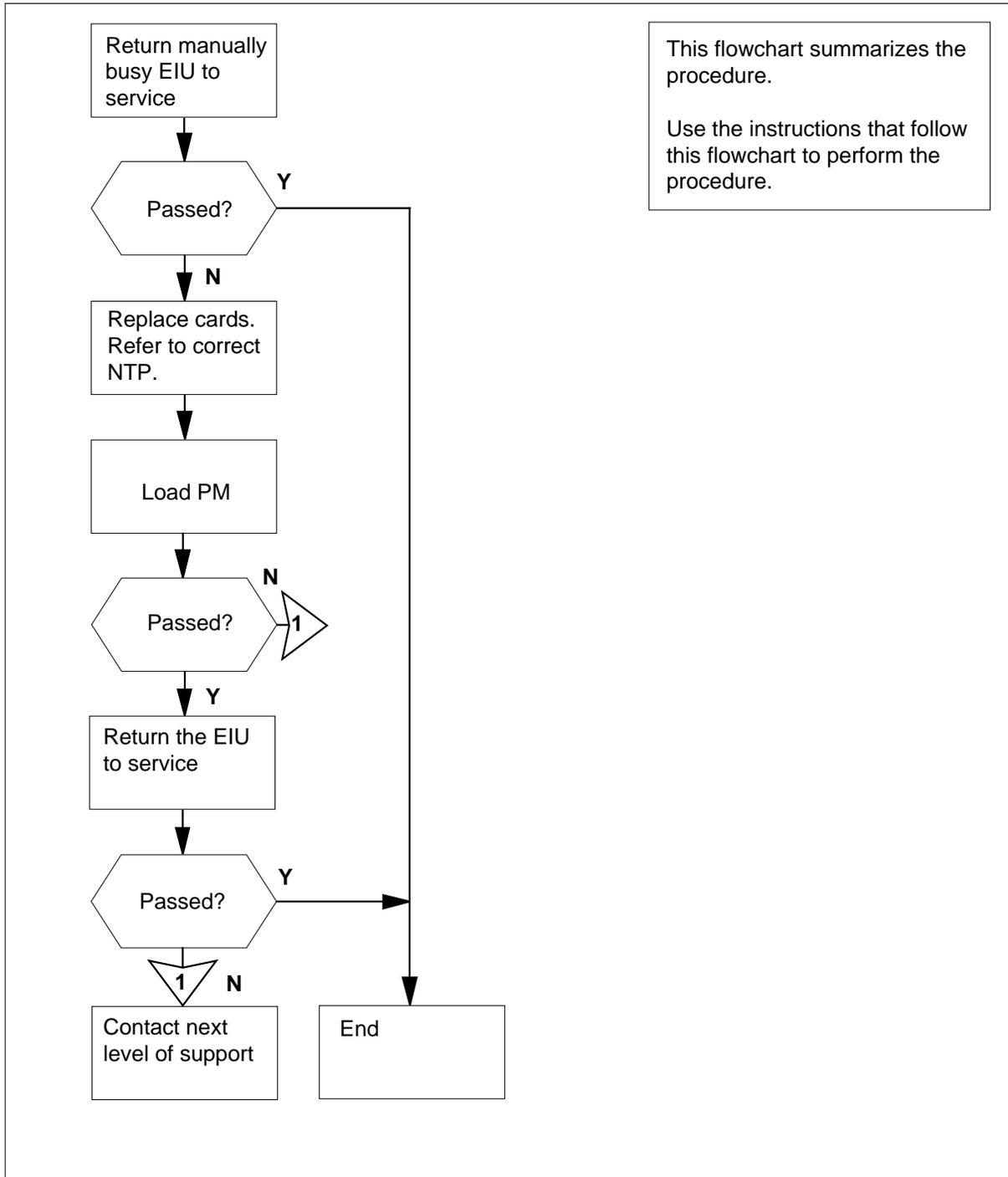
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM EIU  
major (continued)**

**Summary of clearing a PM EIU major alarm**



**PM EIU**  
**major** (continued)

---

**Clearing a PM EIU alarm**

**At the MAP terminal**

- 1** To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
 and press the Enter key.  
*Example of a MAPdisplay:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 0    | 1    | 0    | 0    | 0    | 39   |

- 2** To post the EIUs that are manually busy, type  
**>POST EIU MANB**  
 and press the Enter key.  
*Example of a MAP display:*

EIU 131 ManB Rsvd

**Note:** In the example of the EIU MAP display, the EIU state is ManB. The EIU state appears on the right side of the number 131.

- 3** Determine the state of the posted EIU.

| If the posted EIU | Do      |
|-------------------|---------|
| is ManB (NA)      | step 19 |
| is ManB           | step 4  |

- 4** Record the number of the EIU.

**Note:** In the example in step 2, the EIU number is 131.

- 5** To test the EIU, type  
**>TST**  
 and press the Enter key.

| If the TST command                           | Do     |
|----------------------------------------------|--------|
| passed                                       | step 9 |
| failed, and the system generated a card list | step 6 |

---

**PM EIU**  
**major (continued)**

---

|          | <b>If the TST command</b>                                                                                               | <b>Do</b> |
|----------|-------------------------------------------------------------------------------------------------------------------------|-----------|
|          | failed, and the system did not generate a card list                                                                     | step 16   |
| <b>6</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of each card on the list. |           |
| <b>7</b> | To reset the EIU, type<br>> <b>PMRESET</b><br>and press the Enter key.                                                  |           |
|          | <b>If the PMRESET command</b>                                                                                           | <b>Do</b> |
|          | passed                                                                                                                  | step 9    |
|          | failed, and the system generated a card list                                                                            | step 8    |
|          | failed, and the system did not generate a card list                                                                     | step 8    |
| <b>8</b> | To load the EIU, type<br>> <b>LOADPM</b><br>and press the Enter key.                                                    |           |
|          | <b>If the LOADPM command</b>                                                                                            | <b>Do</b> |
|          | passed                                                                                                                  | step 9    |
|          | failed, and the system generated a card list                                                                            | step 10   |
|          | failed, and the system did not generate a card list                                                                     | step 10   |
| <b>9</b> | To return the EIU to service, type<br>> <b>RTS</b><br>and press the Enter key.                                          |           |
|          | <b>If the RTS command</b>                                                                                               | <b>Do</b> |
|          | passed                                                                                                                  | step 98   |
|          | failed, and the system generated a card list                                                                            | step 10   |

**PM EIU**  
**major** (continued)

|           | <b>If the RTS command</b>                                                                                                                                                                                         | <b>Do</b> |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and the system did not generate a card list                                                                                                                                                               | step 81   |
| <b>10</b> | Replace the first card in the list that you recorded in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>11</b> | To reset the EIU, type<br>> <b>PMRESET</b><br>and press the Enter key.                                                                                                                                            |           |
|           | <b>If the PMRESET command</b>                                                                                                                                                                                     | <b>Do</b> |
|           | passed                                                                                                                                                                                                            | step 15   |
|           | failed                                                                                                                                                                                                            | step 12   |
| <b>12</b> | To load the EIU, type<br>> <b>LOADPM</b><br>and press the Enter key.                                                                                                                                              |           |
|           | <b>If the LOADPM command</b>                                                                                                                                                                                      | <b>Do</b> |
|           | passed                                                                                                                                                                                                            | step 15   |
|           | failed, and you did not replace all cards that you recorded on the list                                                                                                                                           | step 13   |
|           | failed, and you replaced all cards that you recorded on the list                                                                                                                                                  | step 81   |
| <b>13</b> | Replace the first card in the list that you recorded in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>14</b> | Go to step 11.                                                                                                                                                                                                    |           |
| <b>15</b> | To return the EIU to service, type<br>> <b>RTS</b><br>and press the Enter key.                                                                                                                                    |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                         | <b>Do</b> |
|           | passed                                                                                                                                                                                                            | step 98   |
|           | failed                                                                                                                                                                                                            | step 81   |

## PM EIU major (continued)

- 16** To reset the EIU, type  
>**PMRESET**  
and press the Enter key.
- | If the <b>PMRESET</b> command                       | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 9  |
| failed, and the system generated a card list        | step 17 |
| failed, and the system did not generate a card list | step 17 |
- 17** To load the EIU, type  
>**LOADPM**  
and press the Enter key.
- | If the <b>LOADPM</b> command                        | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 9  |
| failed, and the system generated a card list        | step 18 |
| failed, and the system did not generate a card list | step 81 |
- 18** Record the location, description, slot number, PEC, and PEC suffix of each card on the list.  
Go to step 10.
- 19** To determine the link interface module (LIM) that associates with the in-service trouble EIU, type  
>**QUERYPM**  
and press the Enter key.
- Note:** The QUERYPM command provides the LIM number, shelf number, and slot number for the left card of the EIU.
- Example of a MAP response:*

## PM EIU major (continued)

---

```
PM type:EIU PM No.:110 Status:
ManB(NA)
LIM: 1 Shelf:2 Slot: 12 EIU
FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting
conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
```

- 20** Record the number of the LIM that associates with the EIU.

**Note:** In the example in step 19, the LIM number is 1. The LIM number appears on the second line of the response. The LIM number appears on the right side of the LIM header.

- 21** To post the LIM that associates with the EIU, type

```
>POST LIM lim_no
```

and press the Enter key.

*where*

**lim\_no**

is the number of the LIM (0 to 16)

*Example of a MAP display:*

---

**PM EIU**  
**major (continued)**


---

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

```
PM type:EIU PM No.:110 Status:ManB
(NA)
```

```
LIM: 1 Shelf:2 Slot: 12 EIU
```

```
FTA:4249 1000
```

```
Default Load: LCC35BX
```

```
Running Load: LCC35BX
```

```
Potential service affecting
conditions:
```

```
Msg Channel #0 NA
```

```
Msg Channel #1 NA
```

```
TAP #0 OOS/NA
```

```
TAP #1 OOS/NA
```

```
LMS States: InSv InSv
```

```
Auditing : No No
```

```
Msg Channels: NA NA
```

```
TAP 2 : S(NA) M(NA)
```

## 22 To access the F-bus level of the MAP display, type

>**FBUS**

and press the Enter key.

*Example of a MAP display:*

```
LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb . 19
Unit1: InSv . 2
Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ...M .I...S... ---- ---- ---- ---...
```

**Note:** In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number indicates that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually busy tap. An I means an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates a tap that is not equipped.

**PM EIU**  
**major** (continued)

- 23** Determine the state of the LIM units and both F-buses (0 and 1).  
**Note:** Make sure that each LIM unit is in service or in-service trouble.  
 Make sure that each F-bus is in service or in-service trouble.

**If the state of both LIM units and- Do**  
**both F-buses**

|                           |         |
|---------------------------|---------|
| is InSv or ISTb           | step 26 |
| is other than listed here | step 24 |

- 24** An LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.

- 25** Go to step 1.

- 26** To determine the F-bus taps that associate with the EIU, type

>TRNSL fb<sub>us</sub>\_no

and press the Enter key.

where

**fb<sub>us</sub>\_no**

is the number of the F-bus (0 or 1)

*Example of a MAP response:*

```
LIM 1 FBus 0 Tap 0 is on LIU7 101
LIM 1 FBus 0 Tap 1 is unequipped
LIM 1 FBus 0 Tap 2 is on EIU 110
LIM 1 FBus 0 Tap 3 is on LIU7 104
```

- 27** Record the EIU tap number that associates with the EIU.

- 28** Determine the state of the F-bus taps that associate with the EIU.

**Note:** The tap number that you recorded in step 27 applies to both F-bus 0 and F-bus 1.

| <b>If</b>                                       | <b>Do</b> |
|-------------------------------------------------|-----------|
| both F-bus taps are M                           | step 34   |
| both F-bus taps are S                           | step 29   |
| one F-bus tap is M and the other F-bus tap is S | step 33   |

- 29** To quit from the F-bus level, type

>QUIT

and press the Enter key.

---

**PM EIU**  
**major (continued)**


---

- 30** To post the EIU, type  
**>POST EIU eiu\_no**  
 and press the Enter key.  
*where*  
**eiu\_no**  
 is the number of the EIU (0 to 215)
- 31** To return the EIU to service, type  
**>RTS**  
 and press the Enter key.
- | <b>If the RTS command</b>                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| passed                                              | step 98   |
| failed, and the system generated a card list        | step 32   |
| failed, and the system did not generate a card list | step 75   |
- 32** Record the location, description, slot number, PEC, and PEC suffix of each card on the list.  
 Go to step 10.
- 33** Work on the manually busy EIU tap first.  
 Go to step 35.
- 34** Choose one of the manual busy taps on F-bus 0 or 1 on which to work.
- 35** Consult office records or operating company personnel. Determine why the tap is manually busy.
- | <b>If you</b>                          | <b>Do</b> |
|----------------------------------------|-----------|
| can return the F-bus tap to service    | step 36   |
| cannot return the F-bus tap to service | step 98   |
- 36** To return the first F-bus tap that associates with the EIU to service, type  
**>RTS FBUS fbus\_no tap\_no**  
 and press the Enter key.  
*where*  
**fbus\_no**  
 is the number of the F-bus (0 or 1)

**PM EIU**  
**major** (continued)

|           |                                                                                                                                               | <b>tap_no</b><br>is the number of the F-bus tap (0 to 35)                                                                     |           |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------|
|           |                                                                                                                                               | <b>If the RTS command</b>                                                                                                     | <b>Do</b> |
|           |                                                                                                                                               | passed                                                                                                                        | step 77   |
|           |                                                                                                                                               | failed. The system generated a card list. Both EIU taps are out of service                                                    | step 43   |
|           |                                                                                                                                               | failed. The system did not generate a card list                                                                               | step 77   |
|           |                                                                                                                                               | failed. The system did not generate a card list. The response is Return to Service failed - local maintenance not accessible. | step 77   |
| <b>37</b> | Determine if you removed and replaced the NTEX22 and NT9X84 EIU cards during this procedure.                                                  |                                                                                                                               |           |
|           |                                                                                                                                               | <b>If you</b>                                                                                                                 | <b>Do</b> |
|           |                                                                                                                                               | removed and replaced the two EIU cards                                                                                        | step 97   |
|           |                                                                                                                                               | did not remove and replace the two EIU cards                                                                                  | step 79   |
| <b>38</b> | Record the location, description, slot number, PEC, and PEC suffix of each card on the list.                                                  |                                                                                                                               |           |
| <b>39</b> | To quit from the F-bus level of the MAP display, type<br>>QUIT<br>and press the Enter key.                                                    |                                                                                                                               |           |
| <b>40</b> | To post the EIU, type<br>>POST EIU eiu_no<br>and press the Enter key.<br><i>where</i><br><b>eiu_no</b><br>is the number of the EIU (0 to 215) |                                                                                                                               |           |
| <b>41</b> | To reset the EIU, type<br>>PMRESET<br>and press the Enter key.                                                                                |                                                                                                                               |           |
|           |                                                                                                                                               | <b>If the PMRESET command</b>                                                                                                 | <b>Do</b> |
|           |                                                                                                                                               | passed                                                                                                                        | step 76   |

---

**PM EIU**  
**major (continued)**


---

|           | <b>If the PMRESET command</b>                                                                                                                                                                                    | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed                                                                                                                                                                                                           | step 42   |
| <b>42</b> | To load the EIU, type<br>>LOADPM<br>and press the Enter key.                                                                                                                                                     |           |
|           | <b>If the LOADPM command</b>                                                                                                                                                                                     | <b>Do</b> |
|           | passed                                                                                                                                                                                                           | step 76   |
|           | failed                                                                                                                                                                                                           | step 63   |
| <b>43</b> | Record the location, description, slot number, PEC, and PEC suffix of each card on the list.                                                                                                                     |           |
| <b>44</b> | Determine the state of the F-bus taps that associates with the EIU.                                                                                                                                              |           |
|           | <b>If</b>                                                                                                                                                                                                        | <b>Do</b> |
|           | both EIU taps are M                                                                                                                                                                                              | step 45   |
|           | a minimum of one EIU tap is in service (.)                                                                                                                                                                       | step 61   |
|           | a minimum of one EIU tap is S                                                                                                                                                                                    | step 61   |
| <b>45</b> | Replace the first card in the list that you recorded in step 6,18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>46</b> | To post the LIM that associates with the EIU, type<br>>POST LIM lim_no<br>and press the Enter key.<br><i>where</i><br><b>lim_no</b><br>is the number of the LIM (0 to 16)                                        |           |
| <b>47</b> | To access the F-bus level of the MAP display, type<br>>FBUS<br>and press the Enter key.<br><i>Example of a MAP display:</i>                                                                                      |           |

**PM EIU**  
**major** (continued)

```
LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb . 19
Unit1: InSv . 2
 Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ...M .I.. .S.. ---- ---- ---- ---. ..--
```

**Note:** In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number indicates that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.

- 48 To return the first F-bus tap that associates with the EIU to service, type  
**>RTS FBUS fbus\_no tap\_no**  
 and press the Enter key.

where

**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)

| If the RTS command                                                      | Do      |
|-------------------------------------------------------------------------|---------|
| passed                                                                  | step 53 |
| failed, and you did not replace all cards that you recorded on the list | step 49 |
| failed, and you replaced all cards that you recorded on the list        | step 75 |

- 49 Replace the first card that you recorded in the list in step 6, 18 or 32. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 50 To post the LIM that associates with the EIU, type  
**>POST LIM lim\_no**  
 and press the Enter key.

where

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

- 51 To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.

---

**PM EIU**  
**major (continued)**


---

- 52** Go to step 48.
- 53** To return the second F-bus tap that associates with the EIU to service, type  
**>RTS FBUS fbus\_no tap\_no**  
 and press the Enter key.

*where*

**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)

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 54   |
| failed                    | step 54   |

- 54** To quit from the F-bus level, type  
**>QUIT**  
 and press the Enter key.

- 55** To post the EIU, type  
**>POST EIU eiu\_no**  
 and press the Enter key.

*where*

**eiu\_no**  
 is the number of the EIU (0 to 215)

- 56** To reset the EIU, type  
**>PMRESET**  
 and press the Enter key.

| <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passed                        | step 58   |
| failed                        | step 57   |

- 57** To load the EIU, type  
**>LOADPM**  
 and press the Enter key.

| <b>If the LOADPM command</b> | <b>Do</b> |
|------------------------------|-----------|
| passed                       | step 58   |

---

## PM EIU major (continued)

|           | <b>If the LOADPM command</b>                                                                                                                                                                                      | <b>Do</b> |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and you did not replace all cards that you recorded on the list                                                                                                                                           | step 59   |
|           | failed, and you replaced all cards that you recorded on the list                                                                                                                                                  | step 75   |
| <b>58</b> | To return the EIU to service, type<br>>RTS<br>and press the Enter key.                                                                                                                                            |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                         | <b>Do</b> |
|           | passed                                                                                                                                                                                                            | step 98   |
|           | failed, and you did not replace all the cards that you recorded on the list                                                                                                                                       | step 59   |
|           | failed, and you replaced all cards that you recorded on the list                                                                                                                                                  | step 75   |
| <b>59</b> | Replace the first card that you recorded on the list in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>60</b> | Go to step 56.                                                                                                                                                                                                    |           |
| <b>61</b> | To quit from the F-bus level of the MAP display, type<br>>QUIT<br>and press the Enter key.                                                                                                                        |           |
| <b>62</b> | To post the EIU, type<br>>POST EIU eiu_no<br>and press the Enter key.<br><i>where</i><br><b>eiu_no</b><br>is the number of the EIU (0 to 215)                                                                     |           |
| <b>63</b> | Replace the first card that you recorded on the list in step 6, 18 or 32. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>64</b> | To reset the EIU, type<br>>PMRESET                                                                                                                                                                                |           |

---

**PM EIU**  
**major (continued)**


---

and press the Enter key.

| If the PMRESET command | Do      |
|------------------------|---------|
| passed                 | step 76 |
| failed                 | step 65 |

- 65** To load the EIU, type  
>LOADPM  
and press the Enter key.

| If the LOADPM command                                                   | Do      |
|-------------------------------------------------------------------------|---------|
| passed                                                                  | step 76 |
| failed, and you did not replace all cards that you recorded on the list | step 66 |
| failed, and you replaced all cards that you recorded on the list        | step 75 |

- 66** Replace the first card that you recorded on the list in step 6, 18 or 32. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 67** Go to step 64.

- 68** To return the second F-bus tap that associates with the EIU to service, type  
>RTS FBUS fbus\_no tap\_no  
and press the Enter key.

where

**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)

| If the RTS command                                                         | Do      |
|----------------------------------------------------------------------------|---------|
| passed. The other tap that associates with the EIU is out of service       | step 69 |
| passed. The other tap that associates with the EIU is in service           | step 69 |
| failed. The system generated a card list. Both EIU taps are out of service | step 43 |

---

## PM EIU major (continued)

|    | If the RTS command                                                                                                                                                        | Do        |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|    | failed. The system generated a card list. One EIU tap is in service                                                                                                       | step 38   |
|    | failed. The system did not generate a card list                                                                                                                           | step 37   |
|    | failed. The system did not generate a card list. The response is Return to Service failed - local maintenance not accessible.                                             | step 37   |
| 69 | To quit from the F-bus level of the MAP display, type<br>>QUIT<br>and press the Enter key.                                                                                |           |
| 70 | To post the EIU, type<br>>POST EIU eiu_no<br>and press the Enter key.<br><i>where</i><br><b>eiu_no</b><br>is the number of the EIU (0 to 215)                             |           |
| 71 | To return the EIU to service, type<br>>RTS<br>and press the Enter key.                                                                                                    |           |
|    | <b>If the RTS command</b>                                                                                                                                                 | <b>Do</b> |
|    | passed                                                                                                                                                                    | step 98   |
|    | failed, and the system generated a card list                                                                                                                              | step 72   |
|    | failed, and the system did not generate a card list                                                                                                                       | step 75   |
| 72 | Record the location, description, slot number, PEC, and PEC suffix of each card on the list.                                                                              |           |
| 73 | To post the LIM that associates with the EIU, type<br>>POST LIM lim_no<br>and press the Enter key.<br><i>where</i><br><b>lim_no</b><br>is the number of the LIM (0 to 16) |           |

---

**PM EIU**  
**major (continued)**

---

- 74** To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.  
 Go to step 44.
- 75** Determine if you removed and replaced the NTEX22 and NT9X84 EIU cards during this procedure.
- | <b>If you</b>                                | <b>Do</b> |
|----------------------------------------------|-----------|
| removed and replaced the two EIU cards       | step 97   |
| did not remove and replace the two EIU cards | step 81   |
- 76** To return the EIU to service, type  
**>RTS**  
 and press the Enter key.
- | <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 98   |
| failed                    | step 75   |
- 77** Determine the state of the second EIU tap.
- | <b>If the state of the second EIU tap</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| is M                                      | step 68   |
| is S                                      | step 78   |
- 78** To force the F-bus tap that associates with the EIU to busy, type  
**>BSY FBUS fbus\_no tap\_no FORCE**  
 and press the Enter key.  
*where*  
**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)  
 Go to step 68.
- 79** To quit from the F-bus level, type  
**>QUIT**  
 and press the Enter key.

## PM EIU major (continued)

---

- 80** To post the EIU, type  
**>POST EIU eiu\_no**  
and press the Enter key.

where

**eiu\_no**  
is the number of the EIU (0 to 215)

- 81** To determine the location of the EIU, type  
**>QUERYPM**  
and press the Enter key.

**Note:** The QUERYPM command provides the LIM number, shelf number, and slot number for the left card of the EIU.

*Example of a MAP response:*

```
PM type:EIU PM No.:110 Status: ManB(NA)
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
```

### **At the LPP**

**82**



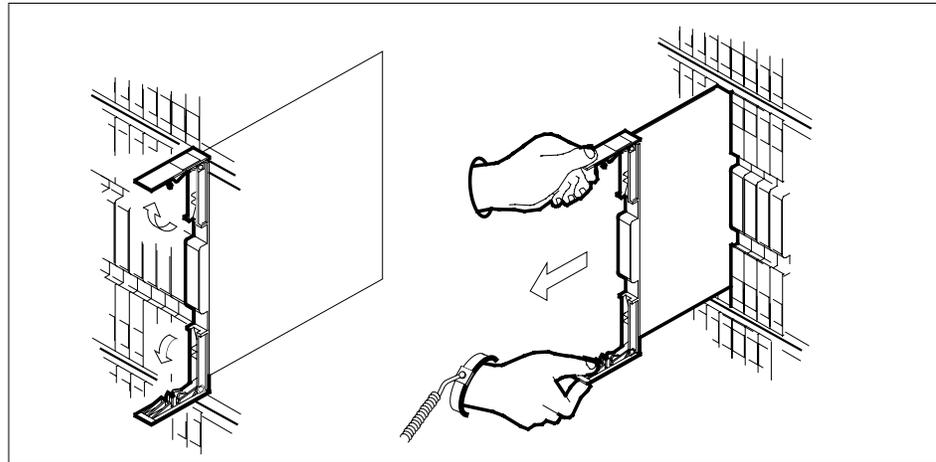
#### **WARNING**

##### **Static electricity damage**

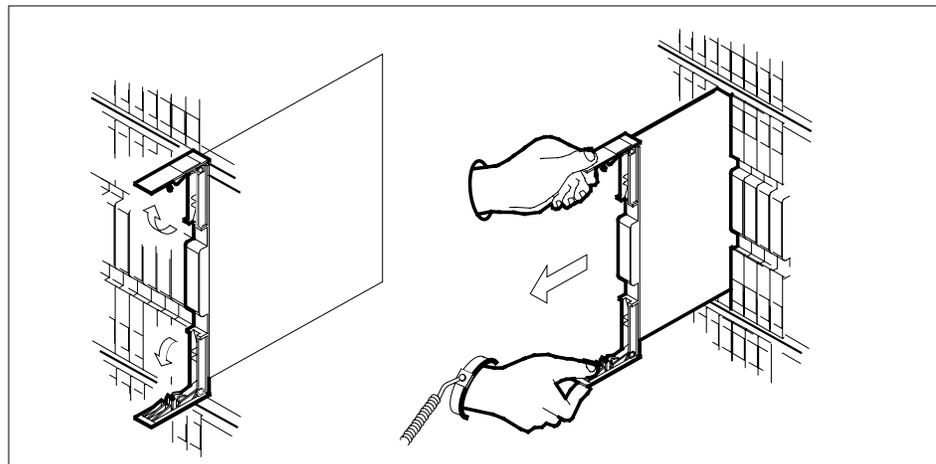
Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

- Locate the NT9X84 card that associates with the EIU.
- 83** Open the locking levers on the NT9X84 card. Carefully pull the NT9X84 card toward you until you remove the card from the connector.

**PM EIU**  
**major (continued)**



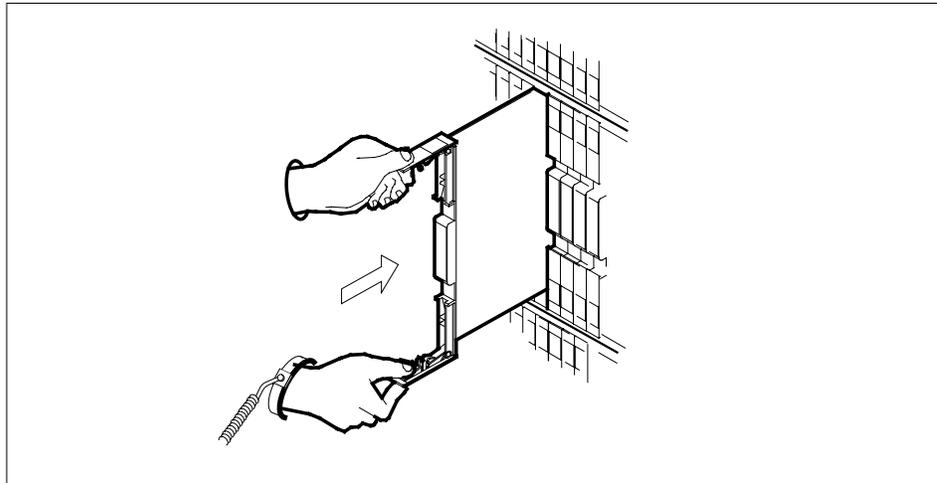
- 84 Leave the NT9X84 card in the slot on the link interface shelf (LIS).
- 85 Locate the NTEX22 card that associates with the EIU.
- 86 Open the locking levers on the NTEX22 card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.



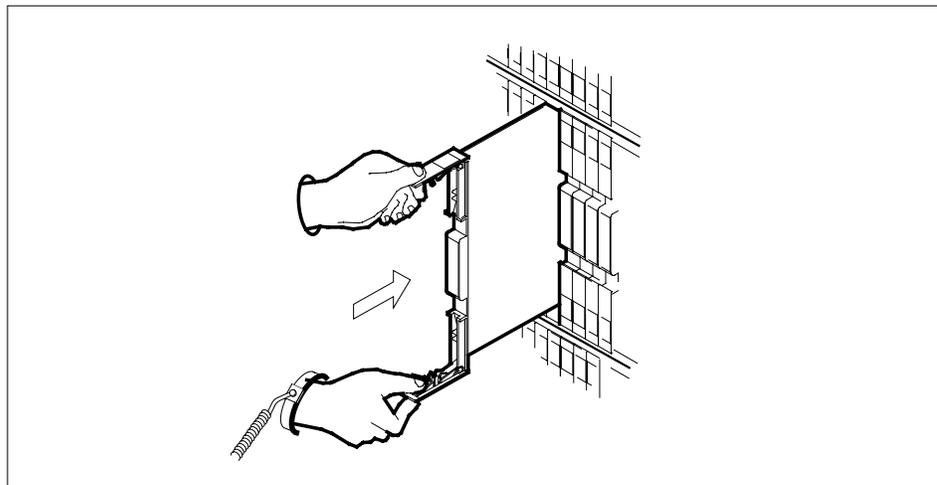
- 87 Carefully slide the NTEX22 card in the LIS.

## PM EIU major (continued)

---



- 88** Seat and lock the NTEX22 card as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
  - b** Close the locking levers.
- 89** Carefully slide the NT9X84 card in the LIS.

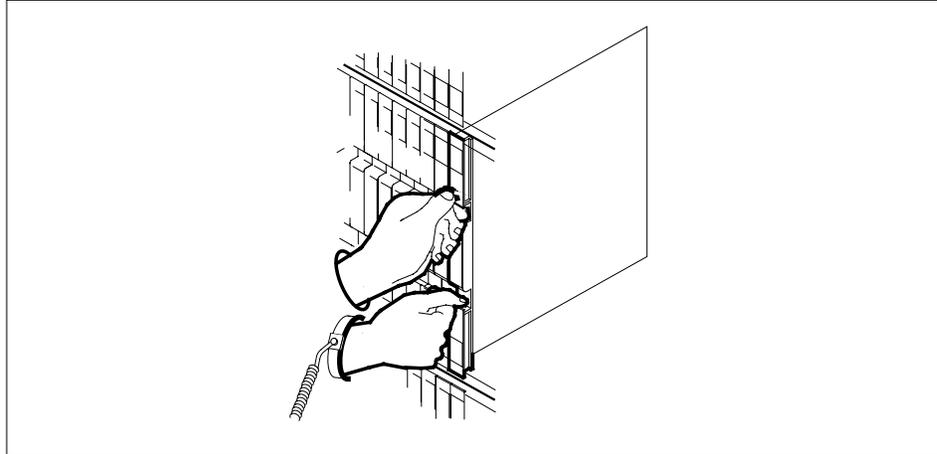


- 90** Seat and lock the NT9X84 card as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
  - b** Close the locking levers.

---

**PM EIU**  
**major (continued)**


---

**At the MAP terminal**

- 91** To load the EIU, type  
**>LOADPM**  
 and press the Enter key.

| <b>If the LOADPM command</b>                                                | <b>Do</b> |
|-----------------------------------------------------------------------------|-----------|
| passed                                                                      | step 92   |
| failed. A card list is present.<br>You did not replace any cards in the EIU | step 93   |
| failed. A card list is present.<br>You replaced cards in the EIU            | step 97   |
| failed. A card list is not present                                          | step 97   |

- 92** To return the EIU to service, type  
**>RTS**  
 and press the Enter key.

| <b>If the RTS command</b>                                               | <b>Do</b> |
|-------------------------------------------------------------------------|-----------|
| passed                                                                  | step 98   |
| failed. A card list is present.<br>You did not replace cards in the EIU | step 93   |

---

**PM EIU**  
**major** (continued)

|           | <b>If the RTS command</b>                                                                                                                                                                                                                                                                                                                                                                                               | <b>Do</b> |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed. A card list is present.<br>You replaced cards in the EIU                                                                                                                                                                                                                                                                                                                                                        | step 97   |
|           | failed. A card list is not present                                                                                                                                                                                                                                                                                                                                                                                      | step 97   |
| <b>93</b> | Record the location, description, slot number, PEC, and PEC suffix of each card on the list.                                                                                                                                                                                                                                                                                                                            |           |
| <b>94</b> | To post the LIM that associates with the EIU, type<br>>POST LIM lim_no<br>and press the Enter key.<br>where<br><b>lim_no</b><br>is the number of the LIM (0 to 16)                                                                                                                                                                                                                                                      |           |
| <b>95</b> | To access the F-bus level of the MAP display, type<br>>FBUS<br>and press the Enter key.<br><i>Example of a MAP display:</i>                                                                                                                                                                                                                                                                                             |           |
|           | <pre> LIM 1 ISTb                 Links_OOS  Taps_OOS Unit0:  ISTb      .           19 Unit1:  InSv     .           2                 Tap:  0   4   8  12  16  20  24  28  32 FBus0:  ManB    BBBB BBBB BBBB BBBB  ---  ---  ---  ---B BB-- FBus1:  InSv    ..M  .I.. .S.. ....  ---  ---  ---  ---.  ---                     </pre>                                                                                     |           |
|           | <p><b>Note:</b> In the example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.</p> |           |
| <b>96</b> | Determine the state of the F-bus taps that associate with the EIU.                                                                                                                                                                                                                                                                                                                                                      |           |
|           | <b>If</b>                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Do</b> |
|           | a minimum of one of the EIU taps is in service                                                                                                                                                                                                                                                                                                                                                                          | step 39   |
|           | both EIU taps are M                                                                                                                                                                                                                                                                                                                                                                                                     | step 45   |
|           | both EIU taps are out of service.<br>A minimum of one tap is S                                                                                                                                                                                                                                                                                                                                                          | step 61   |

**PM EIU**  
**major (end)**

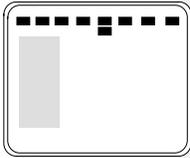
---

- 97** For additional help, contact the next level of support.
- 98** The procedure is complete.

## PM EIU minor

---

### Alarm display



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

### Indication

At the MTC level of the MAPdisplay, EIU (preceded by a number) appears under the PM header of the alarm banner. The EIU indicates a minor alarm for the Ethernet interface unit (EIU).

### Meaning

A minimum of one EIUs is in-service trouble. One of the F-bus taps that associates with the EIU is manually busy or system busy. The EIU can have a loadname mismatch. The local area network (LAN) or wide area network (WAN) can have a defect.

The number under the PM header of the alarm banner indicates the number of affected EIUs.

### Result

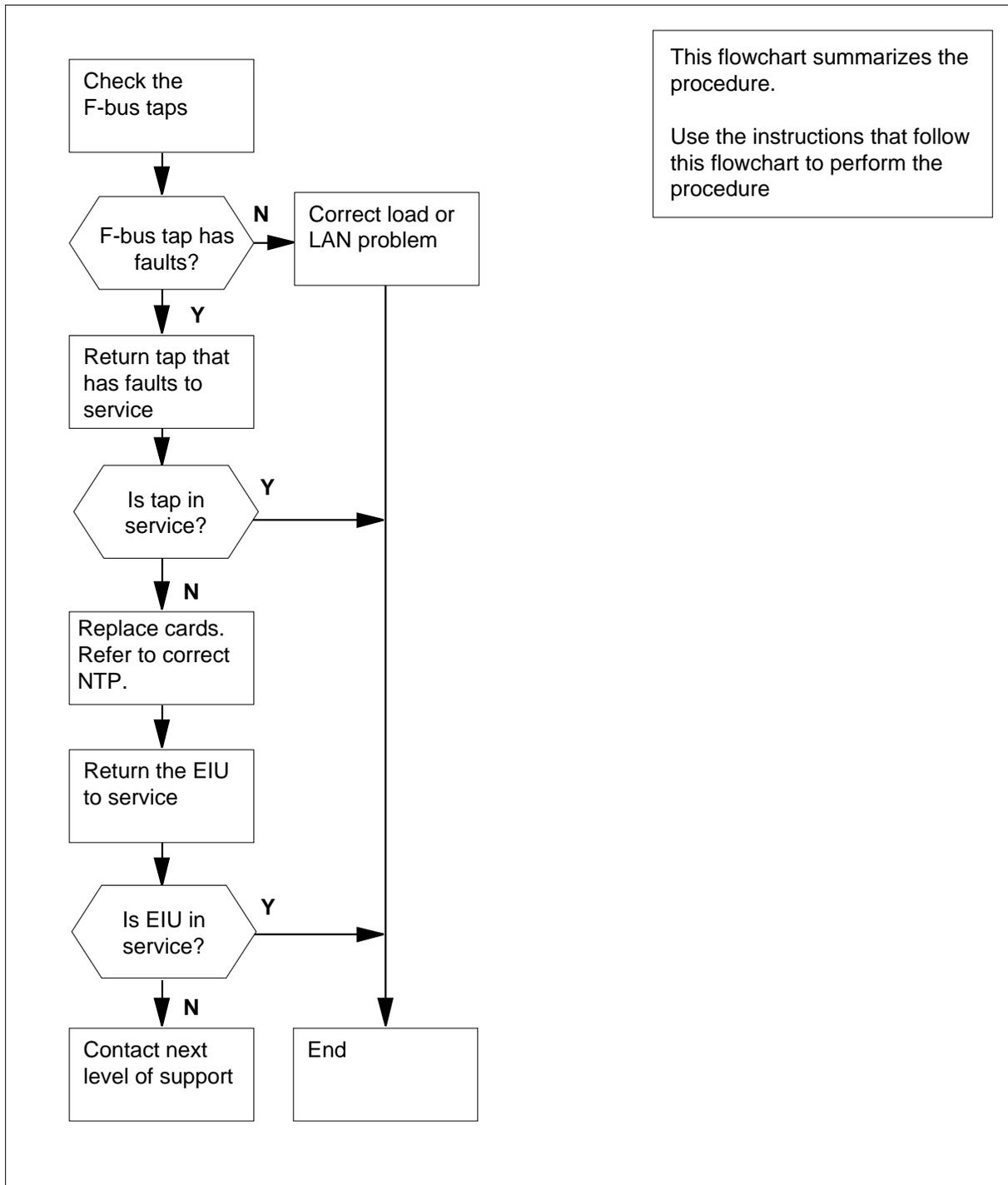
EIUs that are in-service trouble continue to function.

### Common procedures

There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM EIU  
minor** (continued)**Summary of clearing a PM EIU minor alarm**

## PM EIU minor (continued)

---

### Clearing a PM EIU alarm

#### At the MAP terminal

1



#### **WARNING**

##### **Possible loss of service**

Performance of the following procedure can require the removal of an EIU from service. Busy an EIU as instructed. Do not busy the EIU when communication is critical between the switch and the LAN or WAN that connects to the EIU. Communication stops when you busy the EIU.

To access the PM level of the MAPdisplay, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP display:*

| InSv | PM | SysB | ManB | OffL | CBsy | ISTb |
|------|----|------|------|------|------|------|
| 1    | 39 |      | 0    | 0    | 0    | 0    |

2 To post the EIUs that have in-service trouble, type

**>POST EIU ISTB**

and press the Enter key.

*Example of a MAP response:*

EIU 131 ISTb Rsvd

3 Record the EIU number of the posted EIU.

**Note:** In the example in step 2 , the EIU number is 131.

4 To display the faults that cause the in-service trouble condition, type

**>QUERYPM**

and press the Enter key.

*Example of a MAP response:*

---

**PM EIU**  
**minor** (continued)

---

```

PM type:EIU PM No.:110 Status: ISTb
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249
1000
Default Load: LCC35BX
Running Load: LCC35BX
ISTB conditions:
 Msg Channel #0 NA
 TAP #0 OOS/NA
LMS States: InSv InSv
Auditing : No Yes
Msg Channels: NA Acc
TAP 2 : M .

```

- 5** Determine the faults that cause the in-service trouble condition.

**Note:** The faults appear under the ISTB conditions header in the MAP response.

| If the response indicates                                                                                                                                                                                                                                       | Do       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Indicates one of the following faults under the ISTB conditions header:<br>rx framing errors<br><br>rx overflow errors<br><br>rx CRC errors<br><br>tx deferred errors<br><br>loss of carrier errors<br><br>late collision errors<br><br>retries exceeded errors | step 6   |
| Indicates F-bus tap is out of service (shown as Tap # n OOS or Tap # n OOS/NA)                                                                                                                                                                                  | step 8   |
| Indicates a loadname mismatch is present                                                                                                                                                                                                                        | step 65  |
| Indicates other than listed here                                                                                                                                                                                                                                | step 106 |

## PM EIU minor (continued)

- 6 A problem is present on the LAN. Wait five min for the system to clear the fault.

| If the state of the EIU   | Do       |
|---------------------------|----------|
| changes from ISTb to InSv | step 107 |
| does not change           | step 7   |

- 7 The LAN requires a diagnostic test.

Go to step 106.

- 8 Record the number of the F-bus that contains the out-of-service EIU tap.

**Note:** The F-bus number appears on the right side of TAP # on the response.

- 9 To post the LIM that associates with the EIU, type

```
>POST LIM lim_no
```

and press the Enter key.

where

**lim\_no**

is the number of the LIM that appears in step 4

*Example of a MAP display:*

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

- 10 To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

*Example of a MAP display:*

```
LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb . 19
Unit1: InSv . 2
Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ...M .I... .S... ---- ---- ---- ---. ...
```

**Note:** In the previous example, B under a tap number indicates that the F-bus is manually busy. The letter B under a tap number can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates a tap that is not equipped.

## PM EIU minor (continued)

- 11** Determine the state of the LIM units and both F-buses (0 and 1).  
**Note:** Make sure that each LIM unit is in service or in-service trouble. Make sure that each F-bus is in service or in-service trouble.
- 
- | <b>If the state of both LIM units and both F buses</b> | <b>Do</b> |
|--------------------------------------------------------|-----------|
| is InSv or ISTb                                        | step 14   |
| is other than listed here                              | step 12   |
- 12** A LIM or LIMF alarm is present. Perform the correct alarm clearing procedures in this document. Complete the procedure and return to this point.
- 13** Determine if one EIU minor alarm cleared.
- 
- | <b>If one EIU minor alarm</b> | <b>Do</b> |
|-------------------------------|-----------|
| cleared                       | step 105  |
| did not clear                 | step 1    |
- 14** To determine the F-bus taps that associate with the EIU, type  
**>TRNSL n**  
 and press the Enter key.  
*where*  
**n**  
 is the number of the F-bus that you recorded in step 8.  
*Example of a MAP response:*
- ```

LIM 1  FBus    0 Tap    0  is on LIU7 101
LIM 1  FBus    0 Tap    1  is unequipped
LIM 1  FBus    0 Tap    2  is on EIU 110
LIM 1  FBus    0 Tap    3  is on LIU7 104
  
```
- 15** Read through the response until you see the number of the EIU that you posted in step 2. Record the number of the tap that associates with the EIU.
- 16** Determine the state of the F-bus tap that associates with the EIU.
Note: The tap number applies to both F-buses. The tap state appears under the tap number.
-
- | If the state of the damaged F-bus tap | Do |
|--|-----------|
| is M | step 17 |
| is S | step 18 |

PM EIU
minor (continued)

- 17 Determine from office records or from operating company personnel why the F-bus tap is manually busy.

If you	Do
can return the F-bus tap to service	step 19
cannot return the F-bus tap to service	step 107

- 18 To force the F-bus tap that associates with the EIU to busy, type
>BSY FBUS fbus_no tap_no FORCE
 and press the Enter key.

where

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)

Example of a MAP response:

```
LIM 1 FBUS 0 Tap 0 Busy initiated.
LIM 1 FBUS 0 Tap 0 Busy passed.
```

- 19 Test the F-bus tap that associates with the EIU in use, type
>TST FBUS fbus_no tap_no
 and press the Enter key.

where

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)

If the TST command	Do
passed	step 46
failed, and the system generated a card list	step 47
failed, and the system did not generate a card list	step 82
failed with the response local maintenance not accessible	step 20

PM EIU minor (continued)

- 20** To perform an in-service test on the LIM unit that associates with the EIU, type
>TST UNIT unit_no
 and press the Enter key.

where

unit_no

is the number of the LIM unit that you recorded in step 4

Note: In step 8, you recorded the number of the F-bus that contains the out-of-service EIU tap. The LIM unit 0 associates with F-bus 0. The LIM unit 1 associates with F-bus 1.

If the TST command	Do
passed	step 46
failed, and the system generated a card list	step 21
failed, and the system did not generate a card list	step 106

- 21** Record the location, description, slot number, and product engineering code (PEC), and PEC suffix of each card on the list.

22



WARNING

Possible loss of service

Make sure that the mate LIM unit is in service before you manually busy the LIM unit. The LIM unit contains the card to replace. Failure to make sure that the unit is in service can result in isolation of nodes on link interface shelves (LIS) 1, 2, and 3.

Check the MAP display to determine the state of the mate LIM unit.

Note: If the out-of-service EIU tap is on F-bus 0, the LIM unit 1 is the mate. If the out-of-service EIU tap is on F-bus 1, LIM unit 0 is the mate.

If the state of the mate LIM unit	Do
is InSv or ISTb	step 25
is other than listed here	step 23

- 23** Perform the correct alarm clearing procedure in this document to return the LIM unit to service. Complete the procedure and return to this point.

- 24** Go to step 13.

PM EIU
minor (continued)

- 25 To access the F-bus level of the MAP display, type
>**FBUS**
and press the Enter key.

Example of a MAP display:

```

Tap:      0    4    8    12   16   20   24   28   32
FBus0: ManB      BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv      ...M .I.. .S.. .... ---- ---- ---- ---. ..--
    
```

Note: In the previous example, B under a tap number means that the F-bus is manually busy. The letter B under a tap number can indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates a tap that is not equipped.

- 26



WARNING
Possible loss of service
Make sure that the mate F-bus and taps for equipped and online nodes are in service. The F-bus and taps must be in service before you manually busy the LIM unit that contains the card to replace. Failure to make sure that the F-bus and taps are in service can result in isolation of nodes on LIS 1, 2, and 3.

Determine the state of the mate F-bus.

Note: If the out-of-service EIU tap is on F-bus 0, F-bus 1 is the mate. If the out-of-service EIU tap is on F-bus 1, F-bus 0 is the mate. The state of the F-bus appears on the right side of the words FBus0 or FBus1. The state of the F-bus appears in the example in step 25.

If the state of the mate F-bus	Do
is InSv or ISTb	step 29
is other than listed here	step 27

- 27 Perform the correct alarm clearing procedure in this document to return the mate F-bus to service. Complete the procedure and return to this point.
- 28 Go to step 13.
- 29 Determine the state of the taps on the mate F-bus.

Note: The tap states appear in the two rows of characters under the numbers 0 to 35 (or 0 to 23). The tap states appear in the example in step

PM EIU minor (continued)

10. If the out-of-service EIU tap is on F-bus 0, check the taps on F-bus 1.
If the out-of-service EIU tap is on F-bus 1, check the taps on F-bus 0.

If the taps on the mate F-bus	Do
are in service (.) or in-service trouble (I)	step 32
are manual busy (M) or system busy (S)	step 30

30 Perform the correct alarm clearing procedure in this document to return the taps to service. Complete the procedure and return to this point.

31 Go to step 13.

32

**WARNING****Loss of service**

Make sure that you manually busy the F-bus that associates with the LIM unit. The LIM unit contains the card to replace. Failure to manually busy the F-bus results in loss of CCS7 messaging. Loss of messaging occurs for all LIU7s in the LPP that currently carry traffic.

Manually busy the F-bus that associates with the LIM unit. The LIM unit contains the card to replace. To manually busy the F-bus, type

```
>BSY FBUS fbus_no
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

Note: F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

If the response	Do
is LIM x FBus y Busy initiated. LIM x FBus y Busy passed.	step 34

PM EIU
minor (continued)

If the response	Do
<p>is LIM x FBus y Busy requires confirmation because the following NIUs may be active on this bus: NIU xx unit 0 NIU xx unit 1 Please confirm ("YES", "Y", "NO", or "N"):</p>	step 33
<p>33 To confirm the command, type >YES and press the Enter key. <i>Example of a MAP display:</i></p>	
<pre> Tap: 0 4 8 12 16 20 24 28 32 FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB-- FBus1: InSv ---- ---- ---- ---. ... LIM 1 FBus 0 Busy initiated. LIM 1 FBus 0 Busy passed. </pre>	
<p>Note: In the example, you manually busied F-bus 0.</p>	
<p>34 To manually busy the LIM unit that contains the card that has faults, type >BSY UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)</p>	
If the response is	Do
<p>Imaging is currently in progress on LIM x UNIT y. Busy Action aborted. Use the force option if you wish to override the imaging of this unit.</p>	step 35
<p>Imaging is currently in progress on LIM x UNIT y and UNIT z. Busy Action aborted. Use the force option if you wish to override the imaging of this unit.</p>	step 36

PM EIU
minor (continued)

	If the response is	Do
	anything else	step 37
35	Imaging is being performed on the LIM unit you are working on. Contact the next level of support to determine if it is safe to proceed. Continue as directed.	
36	Imaging is being performed on the LIM unit you are working on and the mate LIM unit. Contact the next level of support to determine if it is safe to proceed. Continue as directed.	
37	To reset the LIM unit, type >PMRESET UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
	If the PMRESET command	Do
	passed	step 43
	failed	step 38
38	To load the LIM unit, type >LOADPMM UNIT unit_no and press the Enter key. <i>where</i> unit_no is the number of the LIM unit (0 or 1)	
	If the LOADPMM command	Do
	passed	step 43
	failed, and the system generated a card list	step 39
	failed, and the system did not generate a card list	step 106
39	Replace the first card on the list. Perform the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
40	To load the LIM unit, type >LOADPMM UNIT unit_no and press the Enter key.	

PM EIU
minor (continued)

where

unit_no
 is the number of the LIM unit (0 or 1)

If the LOADPM command	Do
passed	step 43
failed. You did not replace all cards on the list that you recorded in step 39.	step 41
failed. You replaced all cards on the list that you recorded in step 39.	step 106

41 Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

42 Go to step 40.

43 To return the LIM unit that associates with the EIU to service, type
>RTS UNIT unit_no
 and press the Enter key.

where

unit_no
 is the number of the LIM unit (0 or 1)

If the RTS command	Do
passed	step 44
failed	step 106

44 To access the F-bus level of the MAP display, type
>FBUS
 and press the Enter key.

45 To return the F-bus to service, type
>RTS FBUS fbus_no
 and press the Enter key.

where

fbus_no
 is the number of the F-bus (0 or 1)

**PM EIU
minor** (continued)

Note: F-bus 0 associates with LIM unit 0. F-bus 1 associates with LIM unit 1.

	If the RTS command	Do
	passed	step 46
	failed	step 106
46	To return the F-bus tap that associates with the EIU to service, type >RTS FBUS fbus_no tap_no and press the Enter key. where 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)	
	If the RTS command	Do
	passed	step 105
	failed, and the system generated a card list	step 47
	failed, and the system did not generate a card list	step 82
47	Record the location, description, slot number, PEC, and PEC suffix of each card on the list.	
48	To quit from the F-bus level, type >QUIT and press the Enter key.	
49	To post the EIU that you posted in step 2, type >POST EIU eiu_no and press the Enter key. where eiu_no is the number of the EIU that you posted in step 2	
50	To manually busy the EIU, type >BSY and press the Enter key. MAP response:	

PM EIU minor (continued)

Bsy EIU eiu_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN.
Please confirm ("YES", "Y", "NO", or "N"):

- 51** To confirm the command, type
>YES
and press the Enter key.
- 52** Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 53** To reset the EIU, type
>PMRESET
and press the Enter key.
- | If the PMRESET command | Do |
|------------------------|---------|
| passed | step 55 |
| failed | step 54 |
- 54** To load the EIU, type
>LOADPDM
and press the Enter key.
- | If the LOADPDM command | Do |
|---|---------|
| passed | step 55 |
| failed. You did not replace all cards that you recorded on the list | step 60 |
| failed. You replaced all cards that you recorded on the list | step 87 |
- 55** To post the LIM that associates with the EIU, type
>POST LIM lim_no
and press the Enter key.
where
 lim_no
 is the number of the LIM (0 to 16)
- 56** To access the F-bus level of the MAP display, type
>FBUS
and press the Enter key.

PM EIU
minor (continued)

- 57** To return the F-bus tap that associates with the EIU to service, type
>RTS FBUS fbus_no tap_no
 and press the Enter key.
where
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)
- 58** To quit from the F-bus level of the MAP display, type
>QUIT
 and press the Enter key.
- 59** To post the EIU, type
>POST EIU eiu_no
 and press the Enter key.
where
eiu_no
 is the number of the EIU (0 to 215)
- 60** Replace the first card on the list. Perform the correct card replacement procedure in the *Card Replacement Procedures*. Complete the procedure and return to this point.
- 61** Go to step 53.
- 62** To quit the F-bus level of the MAP display, type
>QUIT
 and press the Enter key.
- 63** To post the EIU for the F-bus tap, type
>POST EIU eiu_no
 and press the Enter key.
where
eiu_no
 is the number of the EIU (0 to 215)
- 64** To return the EIU to service, type
>RTS
 and press the Enter key.

If the RTS command	Do
passed	step 107
failed	step 87

PM EIU minor (continued)

- 65 Record the names of the default load and the running load.

Note: In the example, the default load is LCC35BX and the running load is LCC35BX.

Example of a MAP response:

```
PM type:EIU PM No.:110 Status: ISTb
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
ISTB conditions:
  Msg Channel #0 NA
  TAP #0 OOS/NA
LMS States:      InSv      InSv
Auditing :       No        Yes
Msg Channels:    NA        Acc
TAP 2 :          M         .
```

- 66

	<p>WARNING Possible loss of service Before you continue, contact the next level of support. Make sure that you can change the default load or the running load.</p>
---	---

The default load and the running load do not match. To correct this defect, change the default load or the running load.

If you	Do
must change the default load	step 67
must change the running load	step 73
must not take any action	step 107

- 67 To access table LIUINV, type

```
>TABLE LIUINV
```

and press the Enter key.

Example of a MAP response:
 TABLE:LIUINV

- 68 To position on the key value of the tuple that you must change, type

```
>POSITION EIU eiu_no
```

and press the Enter key.

PM EIU
minor (continued)

where

ei_u_no

is the number of the EIU that you recorded in step 3

69 To indicate the field in the tuple that you must change, type

>CHANGE LOAD

and press the Enter key.

70 To enter the new value of the field that you must change, type

>new_load_name

and press the Enter key.

where

new_load_name

is the name of the running load that you recorded in step 65

71 Make sure that the indicated changes are correct. To confirm the new value of the changed field, type

>Y

and press the Enter key.

MAP response:

TUPLE CHANGED

72 To quit from the table, type

>QUIT

and press the Enter key.

Go to step 105.

73 To manually busy the EIU, type

>BSY

and press the Enter key.

MAP response:

Bsy EIU ei_u_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN.

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

74 To confirm the command, type

>YES

and press the Enter key.

75 To load the EIU, type

>LOADPDM

PM EIU
minor (continued)

and press the Enter key.

If the LOADPM command	Do
passed	step 81
failed, and the system generated a card list	step 76
failed, and the system did not generate a card list	step 87

- 76** Record the location, description, slot number, PEC, and PEC suffix of each card on the list.
- 77** Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 78** To load the EIU, type
>LOADPM
 and press the Enter key.

If the LOADPM command	Do
passed	step 81
failed. You did not replace all cards on the list that you recorded in step 39.	step 79
failed. You replaced all cards on the list that you recorded in step 39	step 87

- 79** Replace the first card on the list. Perform the correct card replacement procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 80** Go to step 78.
- 81** To return the EIU to service, type
>RTS
 and press the Enter key.

If the RTS command	Do
passed	step 105
failed	step 88

PM EIU
minor (continued)

82 To quit from the F-bus level, type
>QUIT
 and press the Enter key.

83 To post the EIU, type
>POST EIU eiu_no
 and press the Enter key.
where
eiu_no
 is the number of the EIU (0 to 215)

84 Determine the state of the EIU.

If the state of the EIU	Do
is ManB	step 87
is not ManB	step 85

85 To manually busy the EIU, type
>BSY
 and press the Enter key.
MAP response:

Bsy EIU eiu_no requires confirmation because the action may isolate the SuperNode from the nodes on the LAN. Please confirm ("YES", "Y", "NO", or "N"):

86 To confirm the command, type
>YES
 and press the Enter key.

87 Determine if you removed and replaced the NTEX22 and NT9X84 EIU cards during this procedure.

If you	Do
removed and replaced the two EIU cards	step 106
did not remove and replace the two EIU cards	step 88

88 To determine the location of the EIU, type
>QUERYPM

PM EIU minor (continued)

and press the Enter key.

Note: The QUERYPM command provides the LIM number, shelf number, and slot number of the front left card of the EIU.

Example of a MAP response:

```
PM type:EIU PM No.:110 Status: MANb
LIM: 1 Shelf:2 Slot: 12 EIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
Msg Channel #0 NA
TAP #0 OOS/NA
LMS States:      InSv      InSv
Auditing :       No        Yes
Msg Channels:    NA        Acc
TAP 2 :          M         .
```

At the MAP terminal

89



CAUTION

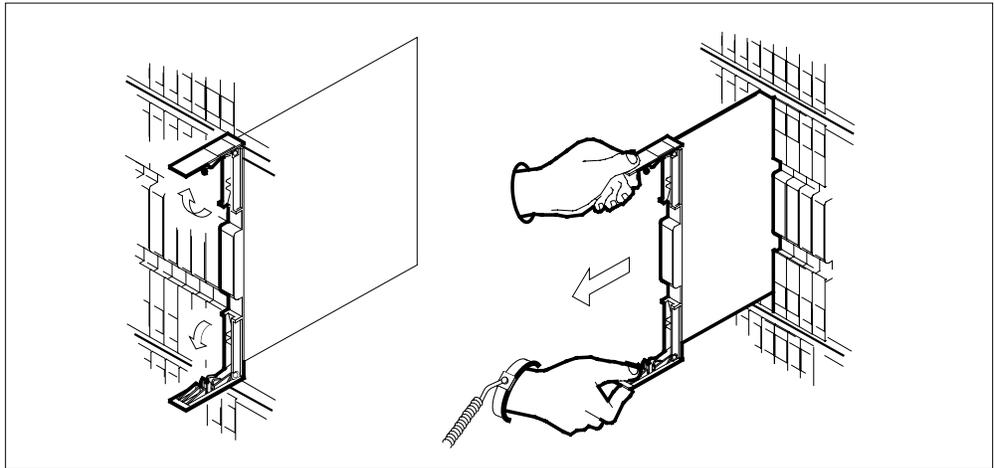
Static electricity damage

Wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NT9X84 card that associates with the EIU in use.

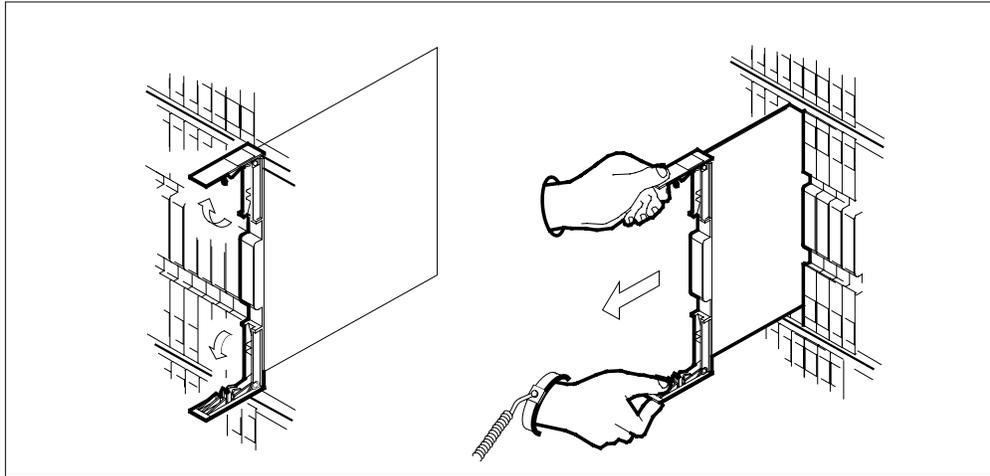
90

Open the locking levers on the NT9X84 card. Carefully pull the NT9X84 card toward you until you remove the card from the connector.

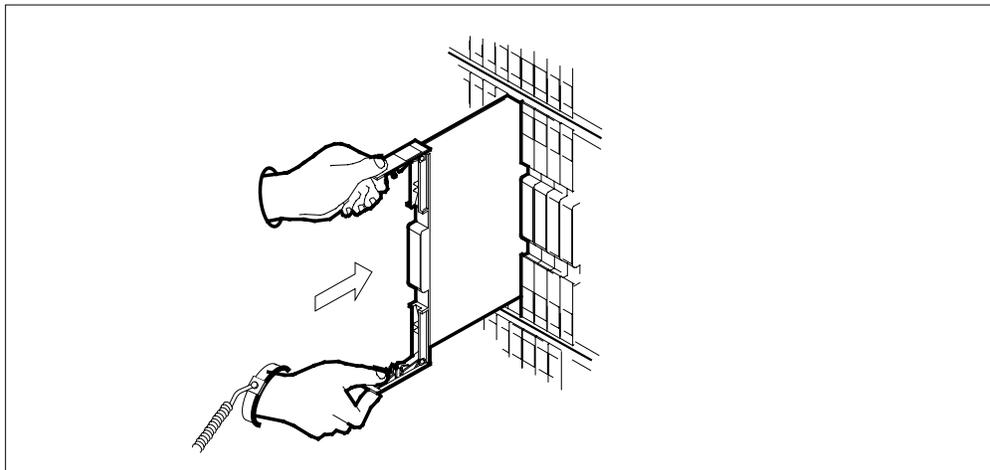


PM EIU
minor (continued)

- 91 Leave the NT9X84 card that sits in its slot on the LIS.
- 92 Locate the NTEX22 card that associates with the EIU.
- 93 Open the locking levers on the NTEX22 card. Carefully pull the NTEX22 card toward you until you remove the card from the connector.

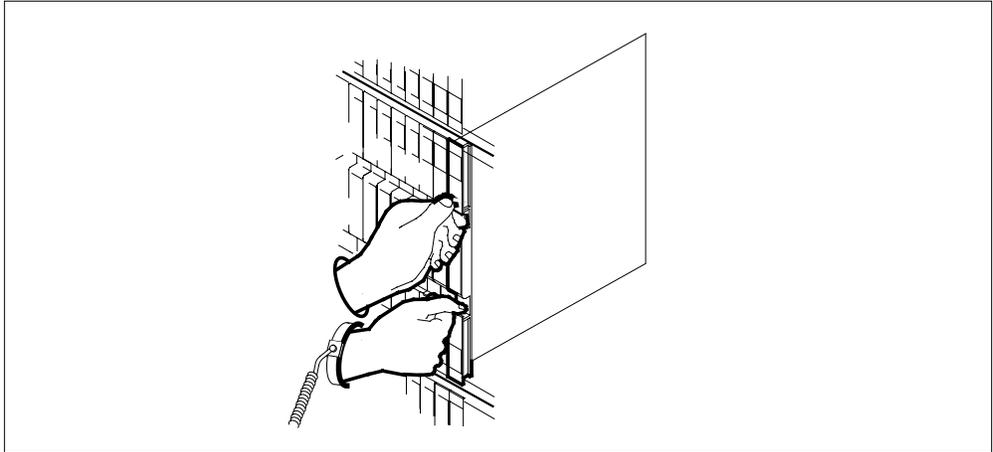


- 94 Carefully slide the NTEX22 card in the LIS.

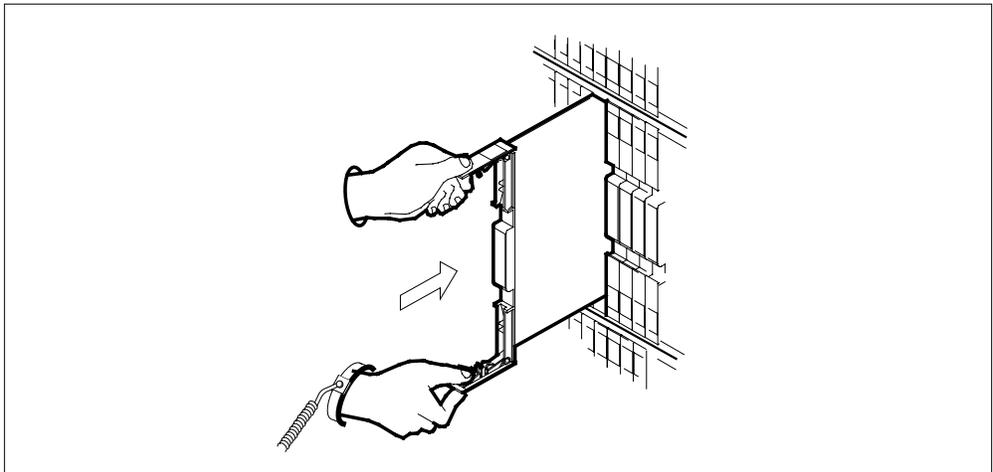


- 95 Seat and lock the NTEX22 card, as follows:
 - a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
 - b Close the locking levers.

PM EIU
minor (continued)

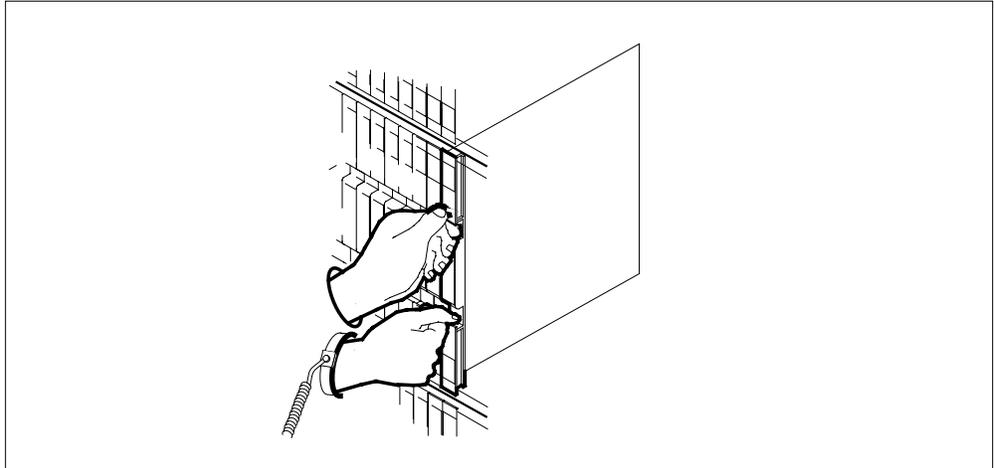


96 Carefully slide the NT9X84 card in the LIS.



- 97** Seat and lock the NT9X84 card, as follows:
- a** Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
 - b** Close the locking levers.

PM EIU minor (continued)



- 98** To load the EIU, type
>LOADPDM
and press the Enter key.

If the LOADPDM command	Do
passed	step 100
failed. The system generated a card list, and you did not replace any cards in the EIU.	step 99
failed. The system generated a card list, and you replaced cards in the EIU.	step 106
failed. The system did not generate a card list.	step 106

- 99** Record the location, description, slot number, PEC, and PEC suffix, of each card on the list.
Go to step 52.

- 100** To return the EIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 101

PM EIU
minor (continued)

	If the RTS command	Do
	failed. The system generated a card list, and you did not replace any cards in the EIU.	step 99
	failed. The system generated a card list, and you replaced cards in the EIU.	step 106
	failed. The system did not generate a card list.	step 106
101	fTo post the LIM that associates with the EIU, type >POST LIM lim_no and press the Enter key. where lim_no is the number of the LIM in use	
102	To access the F-bus level of the MAP display, type >FBUS and press the Enter key.	
103	To determine if one of the EIU taps is manually busy.	
	If an EIU tap	Do
	is manually busy	step 104
	is not manually busy	step 105
104	To return the tap that associates with the EIU to service, type >RTS FBUS fbus_no tap_no and press the Enter key. where 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)	
	If the RTS command	Do
	passed	step 105
	failed	step 106

**PM EIU
minor (end)**

105 Determine if one EIU minor alarm cleared.

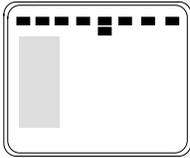
If one EIU minor alarm	Do
cleared	step 107
did not clear	step 106

106 For additional help, contact the next level of support.

107 The procedure is complete.

PM EXND minor

Alarm display



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

Indication

At the MTC level of the MAP display, EXND preceded by a number appears under the PM header of the alarm banner. The EXND indicates an external node (EXND) minor alarm.

Meaning

A minimum of one EXND on an Ethernet LAN failed to respond to a maintenance audit. Failure to respond resulted in a system busy. A problem is present on the external node. A problem can be present on an intermediate node between the external node and the DMS core. Intermediate nodes are Ethernet interface units (EIU) and link interface units (LIU).

The number under the PM header of the alarm banner indicates the number of affected EXNDs.

Result

The external node is out of service. The external node cannot receive and store message signaling units that the EIUs transmit.

Common procedures

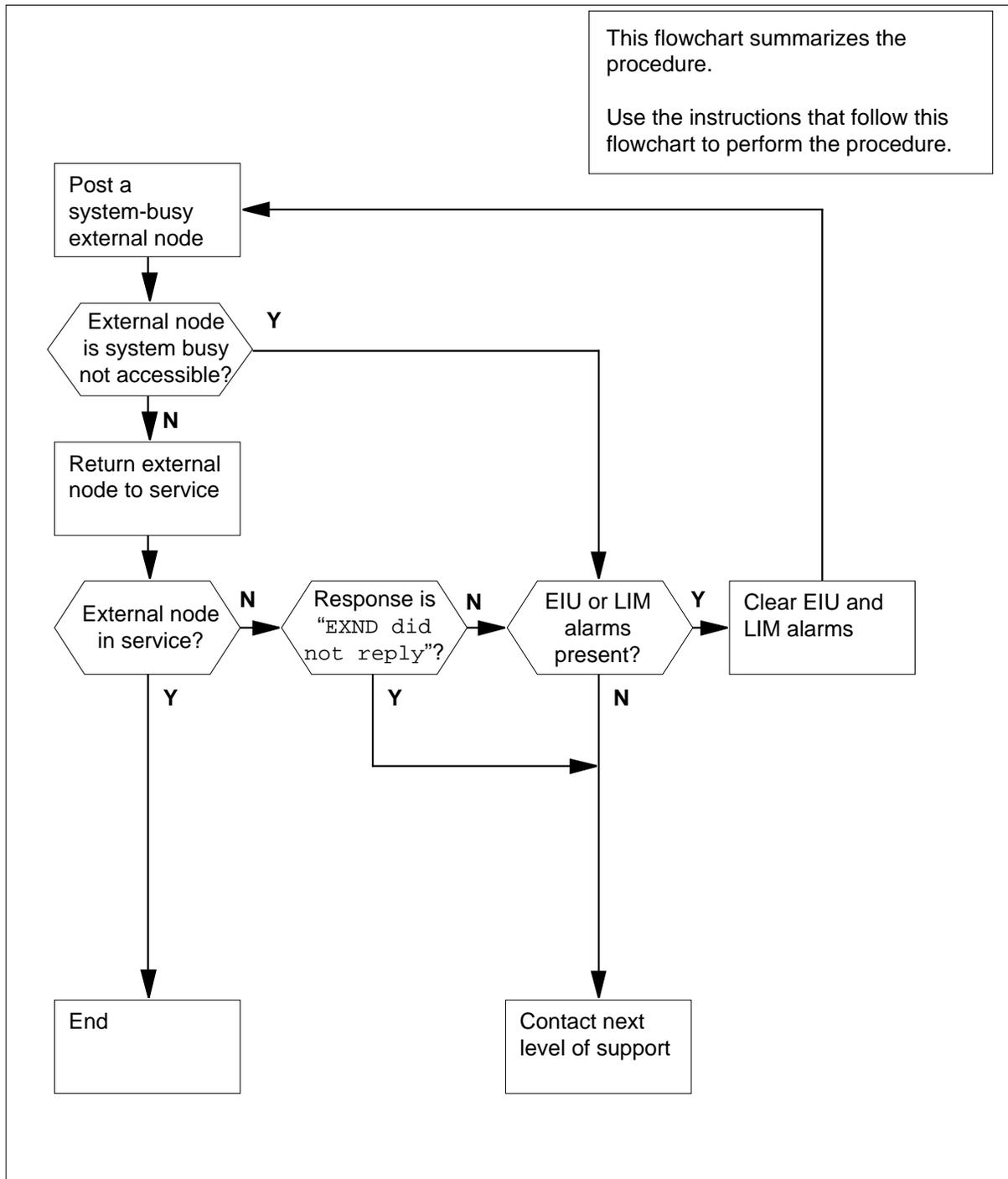
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM EXND minor (continued)

Summary of clearing a PM EXND minor alarm



PM EXND minor (continued)

Clearing a PM EXND minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP, type
> **MAPCI ;MTC ;PM**
and press the Enter key.
- 2 To post the system-busy external nodes, type
> **POST EXND SYSB**
and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTB	InSv
PM	1	0	0	0	0	30
EXND	1	0	0	-	0	0

```
EXND 0 BCARH388
ESTP
SysB
```

- 3 Determine the state of the external node.
Note: The state of the node appears under the EXND header.

If the external node	Do
is SysB (NA)	step 4
is SysB	step 5

- 4 To obtain more information about the system-busy external node, type
> **QUERYPM**
and press the Enter key.

Example of a MAP response:

```
ENTYPE      HP
ENSITE      CARLING
ENLOCN      2 H 11
EIUs        NOT AVAILABLE FOR REQUESTS
```

Note: In the MAP response, HP indicates a Hewlett Packard external node. CARLING is the site name of the building that contains the external node. The location of the external node-floor 2, row H and bay 11 is 2 H 11. EIUs NOT AVAILABLE FOR REQUEST indicates that the Ethernet interface units are not available for the transmission of message blocks. EIUs NOT AVAILABLE FOR REQUEST also indicates that the Ethernet

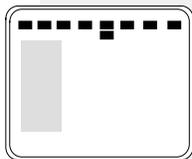
PM EXND minor (continued)

interface units are not available for the transmission of control messages. The Ethernet interface units communicate with the external node.

If the response indicates that the EIUs		Do
is available for requests		step 5
is not available for requests		step 10
5	Wait 2 m for the system to clear the fault. If the system does not clear the fault, manually busy the external node. To manually busy the external node, type > BSY and press the Enter key.	
6	To test the external node, type > TST and press the Enter key.	
If the TST command		Do
passed		step 7
failed		step 9
7	To return the external node to service, type > RTS and press the Enter key.	
If the RTS command		Do
passed		step 8
failed		step 9
8	To move the next system-busy external node into the control position, type > NEXT and press the Enter key. Go to step 3.	
9	Determine the MAP response that the command produces.	
If the response		Do
is EXND did not reply		step 13
is EIU not available for requests		step 10

PM EXND
minor (end)

	If the response	Do
	is SYSTEM ERROR	step 13
10	Determine if EIU or LIM alarms are present.	
	If EIU or LIM alarms	Do
	are present	step 11
	are not present	step 13
11	Clear the EIU or LIM alarms. Perform the correct alarm clearing procedures in this document. Complete the procedures and return to this point.	
12	Determine if the EXND minor alarm cleared.	
	If the EXND alarm	Do
	cleared	step 14
	did not clear	step 13
13	For additional help, contact the next level of support.	
14	The procedure is complete.	

**PM FP
critical****Alarm display**

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1 FP	.	.	.	.	.
.	.	.	.	*C*	.	.	.	.	.

Indication

At the MTC level of the MAP display, FP preceded by a number appears under the PM header of the MAP alarm banner. FP indicates a critical alarm for the file processor (FP).

Meaning

If the system removes an FP from service, the FP shows a critical alarm.

The number under the PM header in the alarm banner indicates the number of the affected FPs.

Result

The FP is separate from the rest of the system. This separation affects the performance of applications that use the FP.

Common procedures

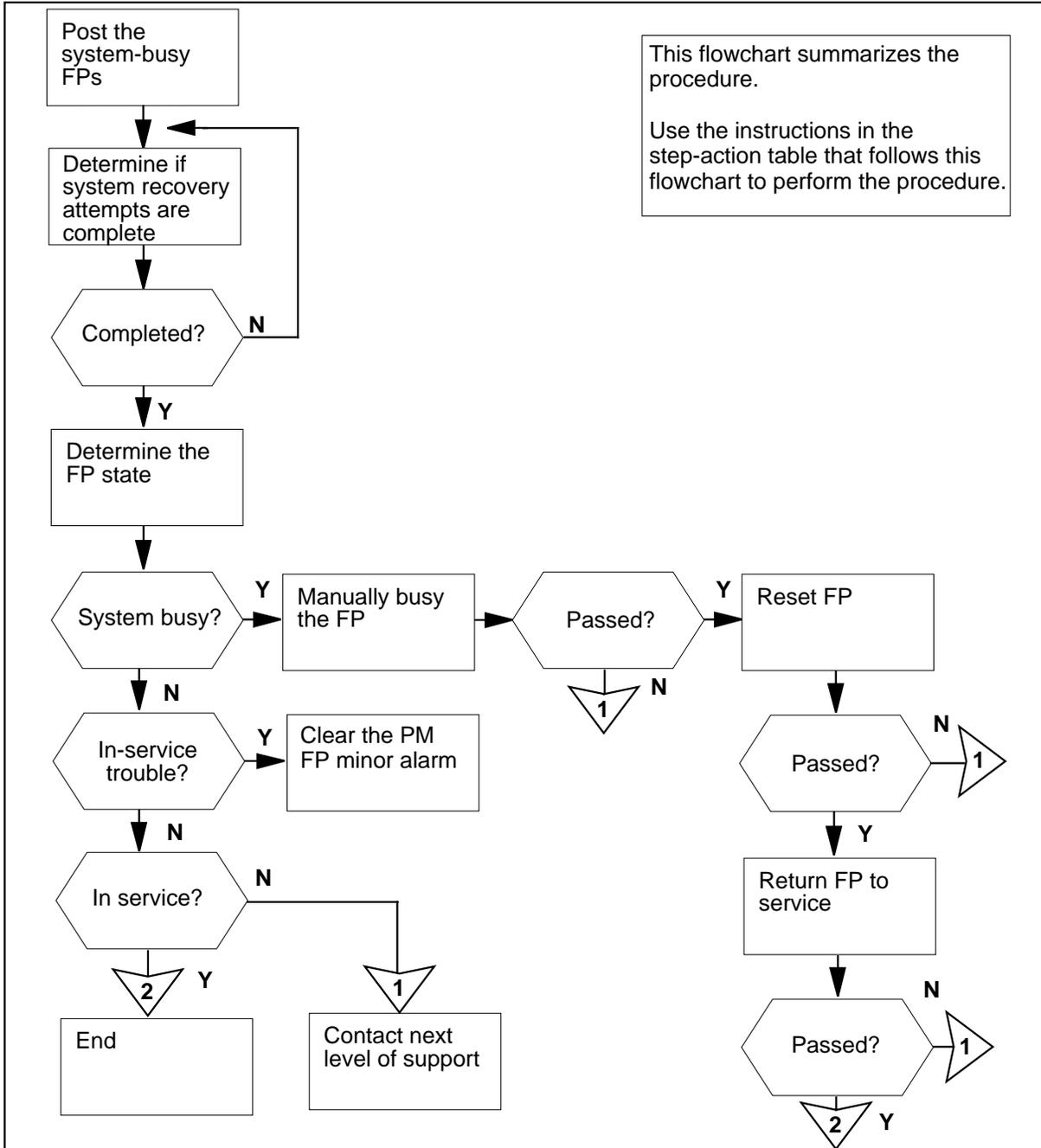
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP critical (continued)

Summary of clearing a PM FP critical alarm



PM FP critical (continued)

Clearing a PM FP critical alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

Example of a MAP response:

	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	1	0	0	0	0	39

- 2 To post the system-busy FPs, type

```
>POST FP SYSB
```

and press the Enter key.

Example of a MAP response:

	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	1	0	0	0	0	39
FP	3	0	0	0	0	7

FP 0:	FP0_256	Plane	Devices
SysB	/Mtce	.	.

Note: In this example of a MAP response, FP 0 is the first system busy FP in the posted set.

- 3 Determine if the /Mtce flag is present.

Note: On the right side of the FP state in the MAP display is a field that contains the flag /Mtce. The flag is present if a maintenance action occurs on the FP.

If the /Mtce flag	Do
is present	step 4
is not present	step 5

- 4 Wait 5 min for the system to complete recovery attempts. Go to step 3.

- 5 Determine the state of the FP.

Note: In the example of a MAP response in step 2, the FP state is SysB.

If the FP state	Do
is SysB	step 7

PM FP
critical (continued)

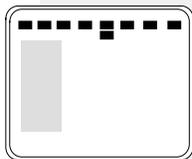
	If the FP state	Do
	is ISTb	step 6
	is InSv	step 15
6	Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.	
7	To manually busy the system busy FP, type >BSY and press the Enter key.	
	If the BSY command	Do
	passed	step 8
	failed	step 16
8	To set the manually-busy FP again, type >PMRESET and press the Enter key. <i>Example of a MAP response:</i> FP 0 Reset PM: Request has been submitted. FP 0 Reset PM: Command completed. Reload restart completed successfully.	
	If the PMRESET command	Do
	passed	step 9
	failed	step 16
9	To return the manually-busy FP to service, type >RTS and press the Enter key. <i>Example of a MAP response:</i> FP 0 RTS PM: Request has been submitted. FP 0 RTS PM: Command completed. The PM is in service.	
	If the RTS command	Do
	passed	step 15
	failed. The system generated a card list	step 10

PM FP
critical (continued)

If the RTS command	Do
	failed. The system did not generate a card list
10	Record the location, product engineering code, and PEC suffix of the first card on the card list.
11	To replace the card, use the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.
12	To post the FP, type <code>>MAPCI;MTC;PM;POST FP fp_no</code> and press the Enter key. <i>where</i> fp_no is the number of the FP (0 to 12)
13	To return the FP to service, type <code>>RTS</code> and press the Enter key.
If the RTS command	Do
	passed
	failed. You did not replace all cards on the list
	failed. You replaced all cards on the list
	failed. The system did not generate a card list
14	Record the location, product engineering code, and PEC suffix of the next card on the card list. Go to step 11.
15	To post the next system busy FP, type <code>>NEXT</code> and press the Enter key.
If more system busy FPs	Do
	are present
	are not present

PM FP
critical (end)

- 16 For additional help, contact the next level of support.
- 17 The procedure is complete.

**PM FP
major****Alarm display**

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

Indication

At the MTC level of the MAP display, FP preceded by a number appears under the PM header of the alarm banner. The FP indicates a major alarm for the file processor (FP).

Meaning

Manual removal of an FP from service causes the FP to display a major alarm.

The number under the PM header in the alarm banner indicates the number of affected FPs.

Result

The FPs are separate from the rest of the system. This separation affects the performance of applications that use the FP.

Common procedures

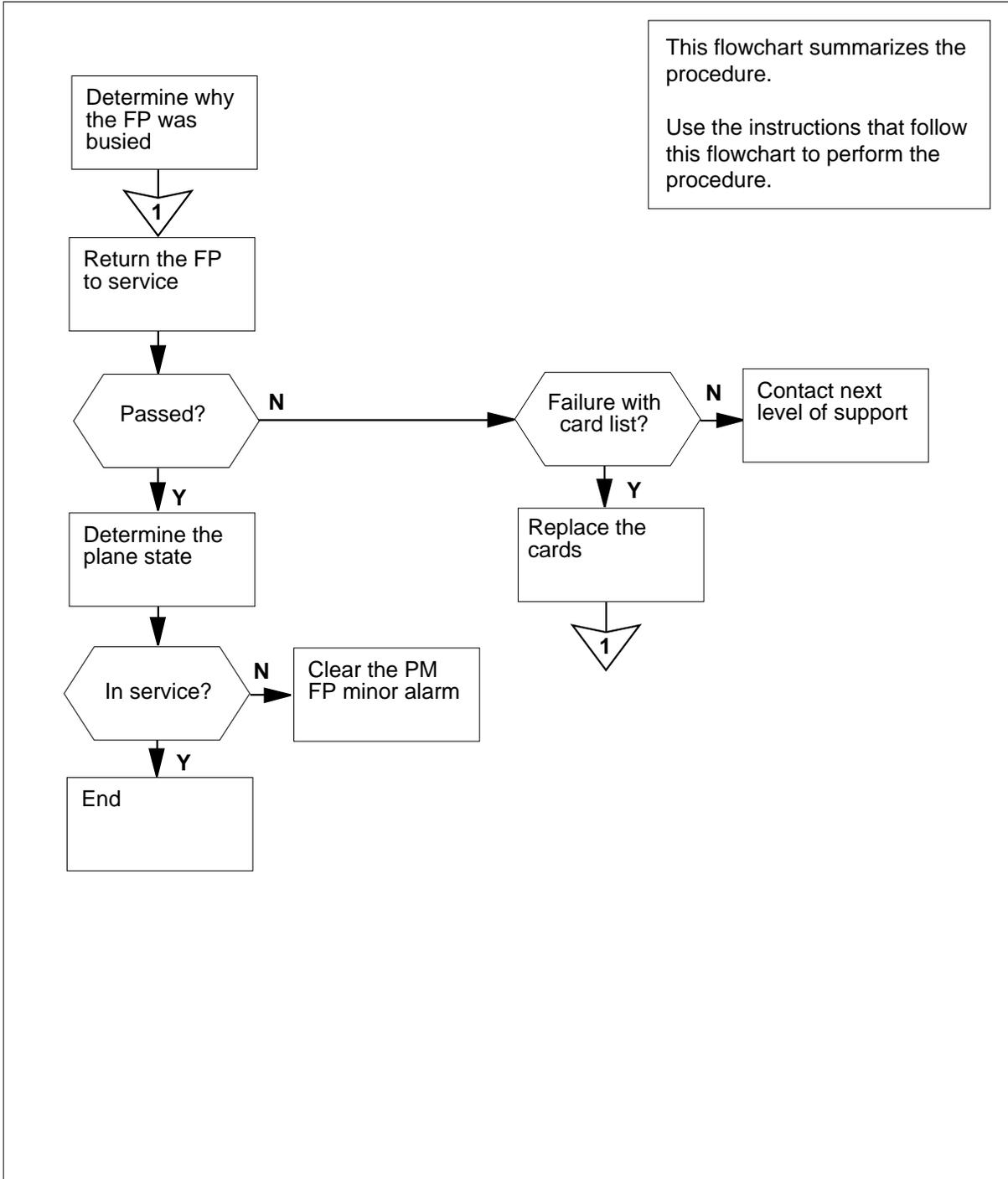
There are no common procedures.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM FP major (continued)

Summary of clearing a PM FP major alarm



PM FP
major (continued)

Clearing a PM FP major alarm**At the MAP display**

- 1** To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP response:

	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	0	2	6	0	1	32

- 2** To post the manually-busy FPs, type

>POST FP MANB

and press the Enter key.

Example of a MAP response:

	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	0	2	6	0	1	32
FP	0	2	0	0	1	7

FP 3:	FP3_256	Plane	Devices
ManB (NA)		.	.

Note: In the example of a preceding MAP response, FP 3 is the first manually-busy FP in the posted set.

- 3** Determine from office records or from operating company personnel why the FP is manually-busy.

If	Do
you can return the FP to service	step 4
you cannot return the FP to service	step 12

- 4** To return the FP to service, type

>RTS

and press the Enter key.

Example of a MAP response:

PM FP
major (continued)

FP 3 RTS PM: Request has been submitted.
 FP 3 RTS PM: Command completed. The PM is in service.

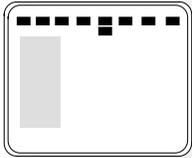
	If the RTS command	Do
	passed	step 10
	failed, and the system generated a card list	step 5
	failed, and the system generated a card list	step 13
5	Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.	
6	To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
7	To post the FP, type <code>>MAPCI;MTC;PM;POST FP fp_no</code> and press the Enter key. where fp_no is the number of the file processor (0 to 12)	
8	To return the FP to service, type <code>>RTS</code> and press the Enter key.	
	If the RTS command	Do
	passed	step 10
	failed, and you did not replace all cards on the list	step 9
	failed, and you replaced all cards on the list	step 13
	failed, and the system did not generate a card list	step 13
9	Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 6.	
10	Determine the Plane state of the posted FP. Note: A dot (.) under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault. In the example of a MAP display in step 2, the FP planes are . (in service).	
	If the Plane state	Do
	is .(in service)	step 12

PM FP
major (end)

	If the Plane state	Do
	is other than listed here	step 11
11	Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.	
12	To post the next manually-busy FP, type >NEXT and press the Enter key.	
	If more manually-busy FPs	Do
	are present	step 3
	are not present	step 14
13	For additional help, contact the next level of support.	
14	The procedure is complete.	

PM FP minor

Alarm display



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

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP).

Meaning

A minimum of one FP has in-service trouble.

The number under the PM header in the alarm banner indicates the number of affected FPs.

Result

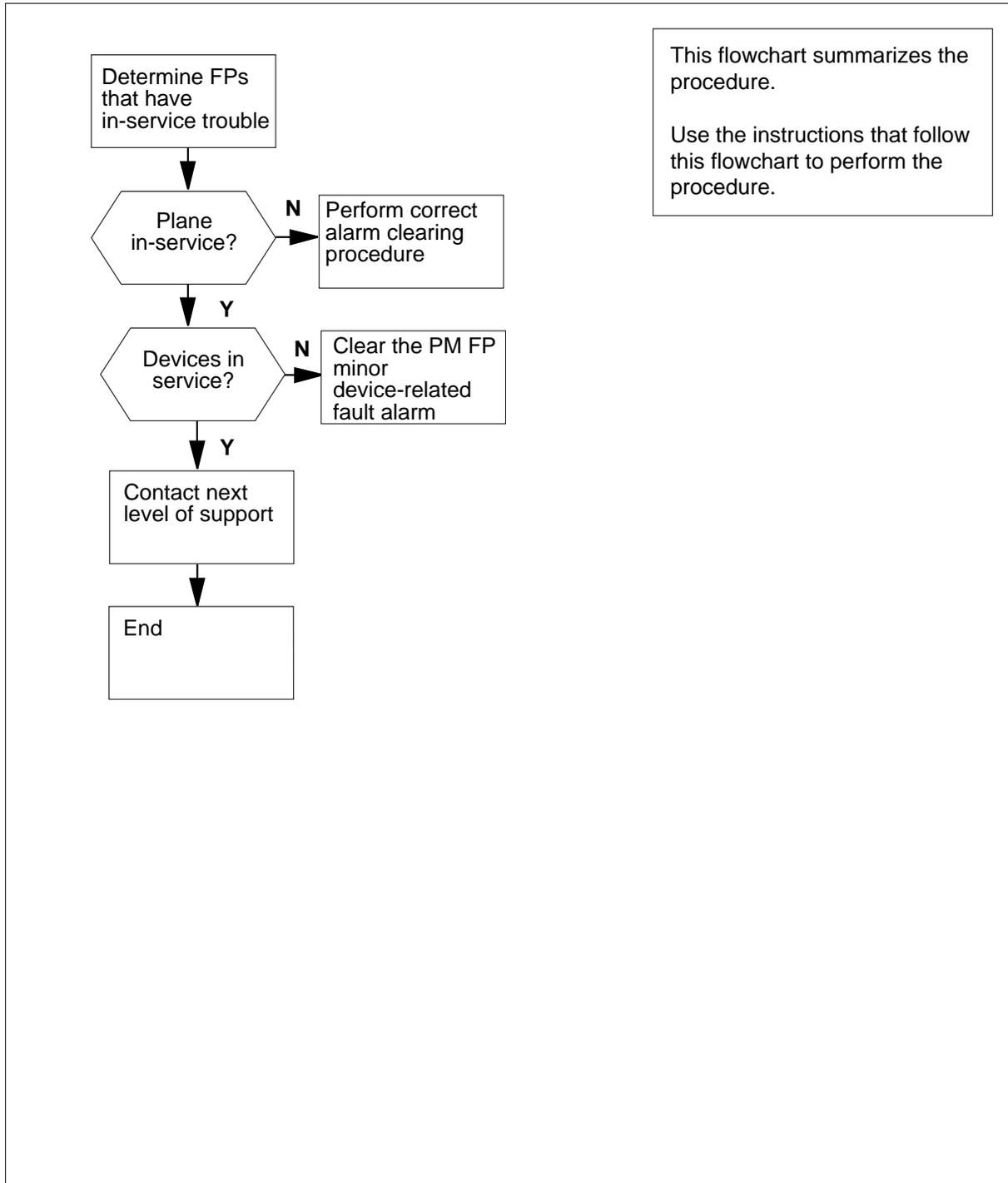
There is no result.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM FP
minor** (continued)**Summary of Clearing a PM FP minor alarm**

PM FP minor (continued)

Clearing a PM FP minor alarm

At the MAP terminal

- To access the PM level of the MAP display, type
>MAPCI ;MTC ;PM
 and press the Enter key.

Example of a MAP display:

```

          SysB  ManB  Offl  CBsy  ISTb  InSv
PM       0     0     0     0     2    39
    
```

- To post the FPs that have in-service trouble, type
>POST FP ISTB
 and press the Enter key.

Example of a MAP display:

```

          SysB  ManB  Offl  CBsy  ISTb  InSv
PM       1     0     0     0     0    39
FP       0     0     0     0     2     7
    
```

```

FP 3:   FP3_256   Plane   Devices
Istb           LowMem   .
    
```

Note: In the preceding MAP response, FP 3 is the first in-service trouble FP in the posted set.

- Determine the plane state of the posted FP.

Note: The symbol . under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

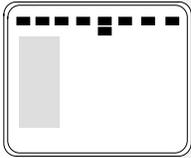
If the Plane state	Do
is . (in service)	step 4
is LowMem	step 5
is Trap	step 6
is CPUFlt	step 7
is PrtFlt	step 8
is NoSync	step 9
is PrtTbl	step 10
is MemFlt	step 11

**PM FP
minor (end)**

	If the Plane state	Do
	is MemCor	step 12
	is JInact	step 13
	is MMThrs	step 14
	is NoOvr	step 15
4	Determine the Devices state of the posted FP. Note: The symbol . under the Devices header indicates that the FP devices are in service. Any other symbol indicates a fault.	
	If the Devices state	Do
	is . (in service)	step 17
	is other than listed here	step 16
5	Perform the procedure <i>Clearing a PM FP LowMem minor alarm</i> in this document.	
6	Perform the procedure <i>Clearing a PM FP Trap minor alarm</i> in this document.	
7	Perform the procedure <i>Clearing a PM FP CPUFlt minor alarm</i> in this document.	
8	Perform the procedure <i>Clearing a PM FP PrtFlt minor alarm</i> in this document.	
9	Perform the procedure <i>Clearing a PM FP NoSync minor alarm</i> in this document.	
10	Perform the procedure <i>Clearing a PM FP PrtTbl minor alarm</i> in this document.	
11	Perform the procedure <i>Clearing a PM FP MemFlt minor alarm</i> in this document.	
12	Perform the procedure <i>Clearing a PM FP MemCor minor alarm</i> in this document.	
13	Perform the procedure <i>Clearing a PM FP JInact minor alarm</i> in this document.	
14	Perform the procedure <i>Clearing a PM FP MMThrs minor alarm</i> in this document.	
15	Perform the procedure <i>Clearing a PM FP NoOvr minor alarm</i> in this document.	
16	Perform the procedure <i>Clearing a PM FP device-related fault minor alarm</i> in this document.	
17	For additional help, contact the next level of support.	
18	The procedure is complete.	

PM FP CPUFlt minor

Alarm display



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

Indication

At the MTC level of the MAP display, FP preceded by a number appears under the PM header of the alarm banner. The FP indicates a minor alarm for the file processor (FP). The Plane state field of the posted FP displays CPUFlt.

Meaning

A fault is present on one of the CPUs in the FP.

The number under the PM header in the alarm banner indicates the number of FPs affected.

Result

The FP can run out of sync and the fault can occur on the active plane. When these problems occur, the system performs a cold restart on the FP.

Common procedures

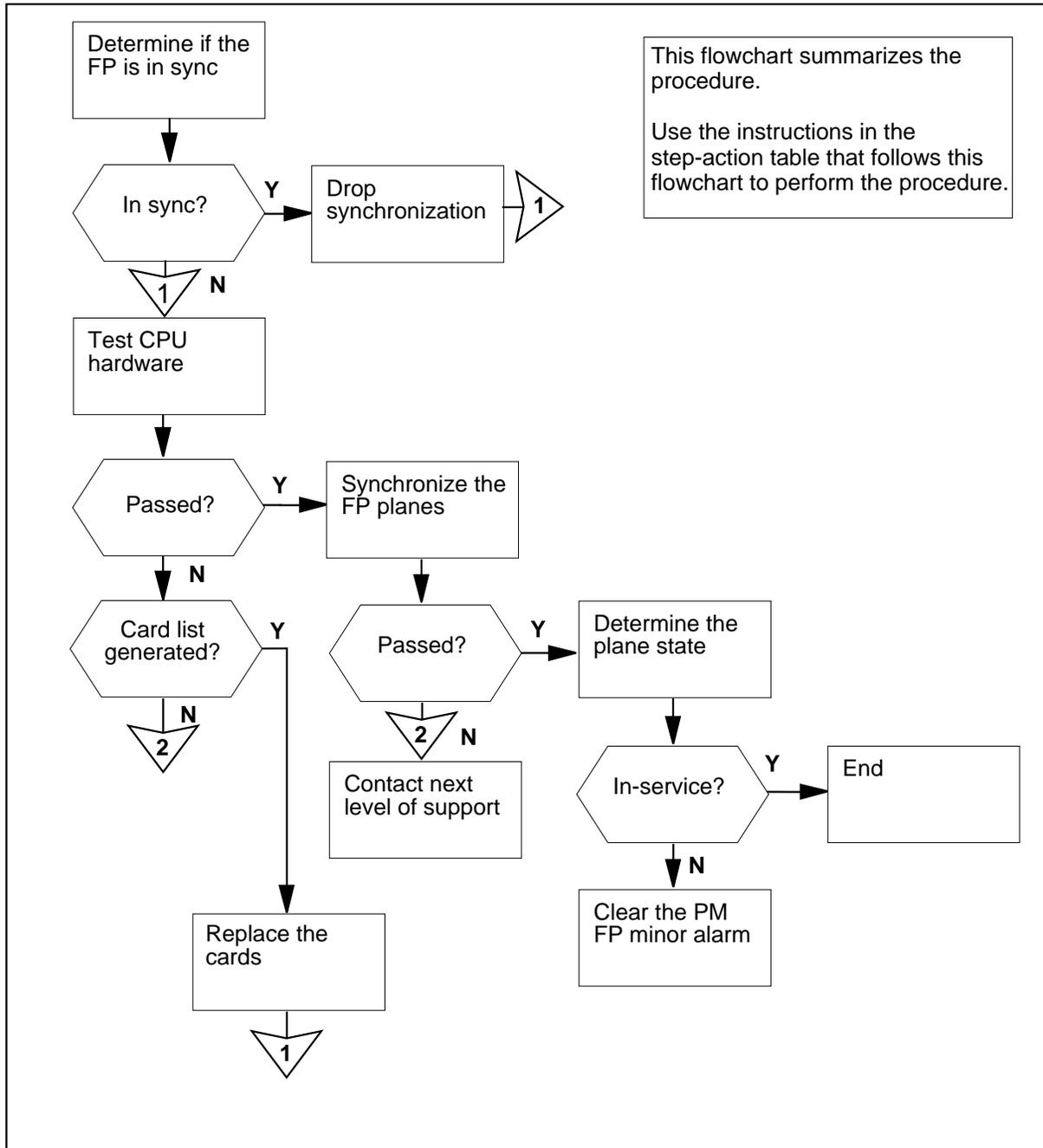
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM FP
CPUFit minor (continued)**

Summary of clearing a PM FP CPUFit minor alarm



PM FP CPUFit minor (continued)

Clearing a PM FP CPUFit minor alarm

At the MAP display

- 1 Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directed you to this procedure.
- 2 To access the Plane level of the MAP display of the FP that is in-service trouble, type

>PLANE

and press the Enter key.

Example of a MAP display:

```
FP 3:      FP1_SR256      Plane  Devices
ISTb                      CPUFit      .

Sync      CPU      Jam   DRAM  Port  MsgCh  PLink
No         state act      0123  Card  0  1   0  1
  Plane 0   .    A      -...   .   .   .   .
  Plane 1   F    I   No  -...   .   .   .   .
```

- 3 Determine if the CPU jammed.

Note: The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

If the CPU	Do
jammed	step 5
did not jam	step 4

- 4 To jam the inactive CPU, type

>MATEJAM SET

and press the Enter key.

Example of a MAP response:

```
FP 3 Jam Mate: Request has been submitted.
FP 3 Jam Mate Command completed.
The inactive CPU is jammed
```

PM FP
CPUFlt minor (continued)

- 5 Determine if the FP is in sync.

Note: The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.

If the FP	Do
is in sync	step 6
is not in sync	step 8

- 6 To drop the synchronization, type

>DPSYNC

and press the Enter key.

Example of a MAP response:

```
If you intend to jam the inactive CPU, Please do so
before dropping synchronization.
Please confirm ("YES" or "NO"):
```

- 7 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

```
FP 3 Drop synchronization: Request has been submitted.
FP 3 Drop synchronization: Command completed.
Now running in simplex mode with CPU 0 active.
```

- 8 To test the inactive CPU hardware in the FP, type

>TST CPU HW

and press the Enter key.

Example of a MAP response:

```
CPU test of Static Ram will corrupt the load in the
inactive CPU.
Please confirm ("YES", "Y", "NO", or "N"):
```

- 9 To confirm the command, type

>YES

and press the Enter key.

If the TST command	Do
passed	step 16

PM FP
CPUFit minor (continued)

	If the TST command	Do
	failed, and the system generated a card list	step 10
	failed, and the system did not generate a card list	step 25
10	Record the location, a product engineering code (PEC), and PEC suffix of the first card on the card list.	
11	To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
12	To access the Plane level of the MAP display of the FP that is in-service trouble, type >MAPCI ;MTC ;PM ;POST FP fp_no ;PLANE and press the Enter key. where fp_no is the number of the file processor (0 to 12) Example of a MAP display:	
	<pre> Sync CPU Jam DRAM Port MsgCh PLink No state act 0123 Card 0 1 0 1 Plane 0 . A -... Plane 1 F I No -... </pre>	
13	To test the inactive CPU hardware in the FP, type >TST CPU HW and press the Enter key. Example of a MAP response:	
	<pre> CPU test of Static Ram will corrupt the load in the inactive CPU. Please confirm ("YES", "Y", "NO", or "N"): </pre>	
14	To confirm the command, type >YES and press the Enter key.	
	If the TST command	Do
	passed	step 16

PM FP
CPUFlt minor (continued)

If the TST command	Do
failed. You did not replace all cards on the list	step 15
failed. You replaced all cards on the list	step 25
failed. The system did not generate a card list	step 25
15 Record the location, product engineering code (PEC), and PEC suffix of the next card on the list. Go to step 11.	
16 To synchronize the planes of the FP, type > SYNC and press the Enter key.	
If the SYNC command	Do
passed	step 22
failed, and the system generated a card list	step 17
failed, and the system did not generate a card list	step 25
17 Record the location, PEC, and PEC suffix of the first card on the card list.	
18 To replace the card, use the correct card replacement procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
19 To access the Plane level of the MAP display of the FP that is in-service trouble, type > MAPCI;MTC;PM;POST FP fp_no;PLANE and press the Enter key. <i>where</i> fp_no is the number of the file processor (0 to 12) <i>Example of a MAP display:</i>	
Sync	CPU Jam DRAM Port MsgCh PLink
No	state act 0123 Card 0 1 0 1
Plane 0	. A -...
Plane 1	. I No -...

PM FP
CPUFit minor (end)

- 20** To synchronize the planes of the FP, type
>SYNC
 and press the Enter key.

If the SYNC command	Do
passed	step 22
failed. You did not replace all cards on the list	step 21
failed. You replaced all cards on the list	step 25
failed. The system did not generate a card list	step 25

- 21** Record the location, product engineering code (PEC) and PEC suffix of the next card on the list.
 Go to step 18.

- 22** To release the jam on the inactive CPU, type
>MATEJAM RELEASE
 and press the Enter key.

Example of a MAP response:

```
FP 3 Jam Mate: Request has been submitted.
FP 3 Jam Mate Command completed.
The inactive CPU is jammed
```

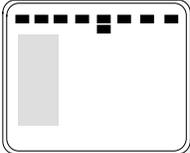
- 23** Determine the Plane state of the posted FP.
Note: The dot symbol (.) under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

If the Plane state	Do
is (in service)	step 26
is CPUFlt	step 25
is other than listed here	step 24

- 24** Perform the procedure *Clearing a PM FP minor alarm* in this document.
25 For additional help, contact the next level of support.
26 The procedure is complete.

PM FP device-related fault minor

Alarm display

	CM	MS	IOD	Net	PM 1FP	CCS	Lns	Trks	Ext	APPL

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for the file processor.

Meaning

A DABM, small computer system interface (SCSI), or device is out of service, or has in-service trouble. The Devices state field of the posted FP indicates the most severe fault present on the FP.

The number under the PM header in the alarm banner indicates the number of FPs affected.

Result

The out-of-service or in-service trouble state affects the performance of applications that use this FP.

Note: If a device that has faults is part of a shadow set, a drop in the performance of applications that use this FP occurs. This drop occurs for a period of time after the alarm clears. When the device is in sync with the rest of the shadow set, the performance becomes normal again.

Common procedures

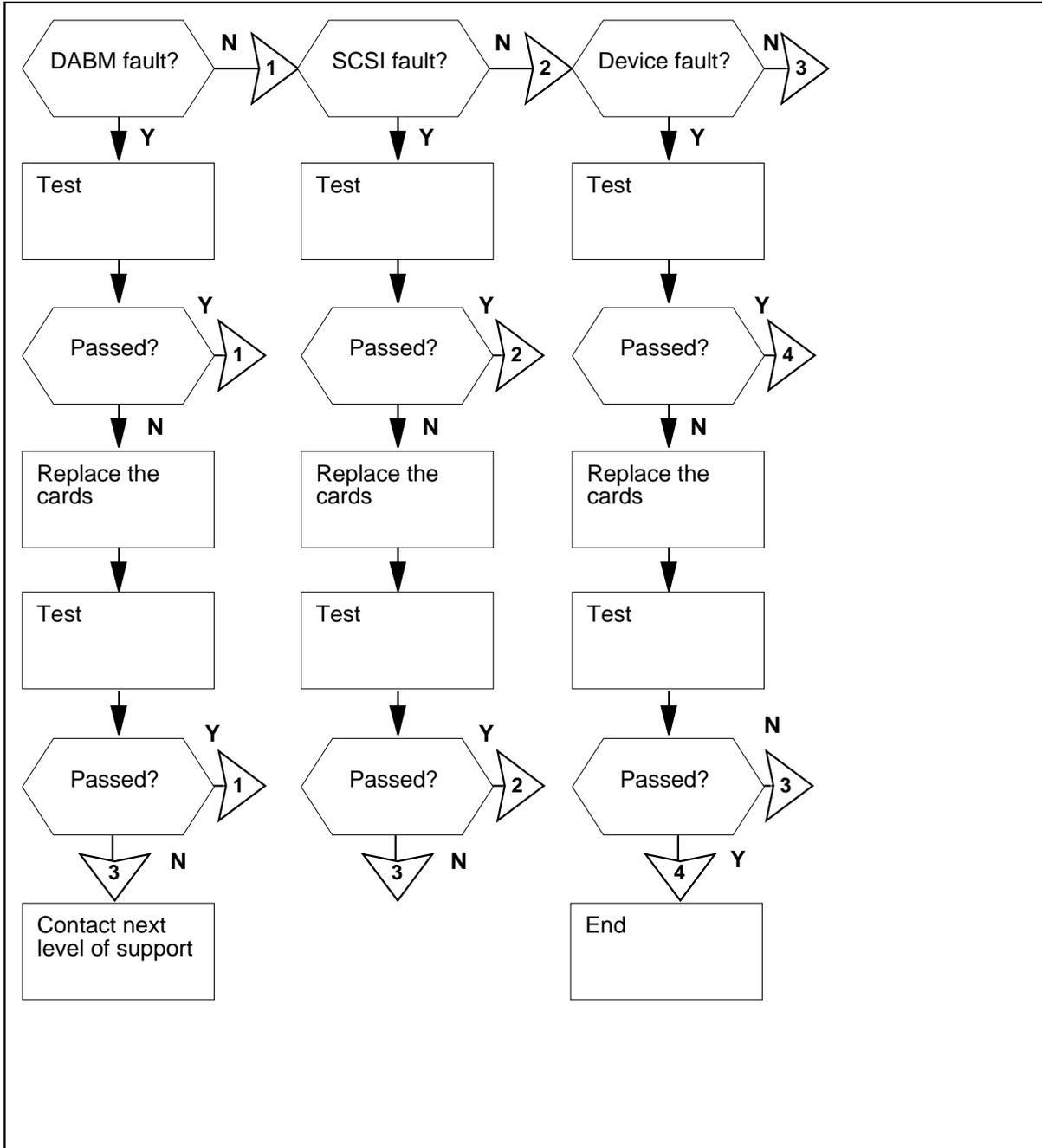
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP device-related fault minor (continued)

Summary of clearing a PM FP device-related fault minor alarm



PM FP

device-related fault minor (continued)

Clearing a PM FP device-related fault minor alarm

At the MAP terminal

- 1 Proceed only if the procedure *How to clear a PM FP minor alarm* in this document directed you to this procedure.
- 2 To access the Devices level of the MAP display of the FP that has a device-related fault, type

>DEVICES

and press the Enter key.

Example of a MAP display:

```

FP 1:   FP1_R256   Plane   Devices
ISTb   .          1SysB

          CTRL0          CTRL1          DEVICE
DABM    .            .            0 1 2 3 4 5
SCSI 0  . (EN)      . (DIS)      . . . . . -
SCSI 1  . (EN)      S (DIS)      . . . . . -

```

- 3 Determine the state of the DABMs. If more than one fault is present, clear the highest priority fault first. The order of fault priority, from highest to lowest, is:
 - faulty (F)
 - in-service trouble (I)

Note: In the example of a MAP display in step 2, the DABM for controller 1 has faults.

If the DABM state	Do
is F	step 4
is I	step 4
is . (in service)	step 10

- 4 To run a REx test on all the device components, type

>TST ALL REX

and press the Enter key.

If the TST command	Do
passed	step 10

PM FP
device-related fault minor (continued)

	If the TST command	Do
	failed, and the system generated a card list	step 5
	failed, and the system did not generate a card list	step 48
5	Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.	
6	To replace the card, use the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.	
7	To access the Devices level of the FP that has a device-related fault, type >MAPCI;MTC;PM;POST FP fp_no;DEVICES and press the Enter key. where fp_no is the number of the file processor (0 to 12) Example of a MAP display:	
	<pre> FP 1: FP1_R256 Plane Devices ISTb . 2SysB CTRL0 CTRL1 DEVICE DABM . F 0 1 2 3 4 5 SCSI 0 . (EN) . (DIS) - SCSI 1 . (EN) S (DIS) - </pre>	
8	To run a REx test on all the device components, type >TST ALL REX and press the Enter key.	
	If the TST command	Do
	passed	step 10
	failed, and you did not replace all cards on the list	step 9
	failed, and you replaced all cards on the list	step 48
	failed, and the system did not generate a card list	step 48

PM FP**device-related fault minor** (continued)

- 9** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.

Go to step 6.

- 10** Determine the state of the SCSI buses. If more than one fault is present, clear the highest priority fault first. The order of fault priority, from highest to lowest, is:

- system busy (S)
- manually busy (M)
- in-service trouble (I)

Note: In the example of a MAP display in step 2, SCSI bus 1 of controller 1 is system busy.

If the SCSI bus state	Do
is S	step 12
is M	step 11
is I	step 12
is . (in service)	step 22

- 11** Determine from office records or operating company personnel why the SCSI bus is manual busy.

If you	Do
can return the SCSI bus to service	step 15
cannot return the SCSI bus to service	step 22

- 12** Determine if the SCSI bus that has faults is enabled.

If the SCSI bus	Do
is enabled (EN)	step 13
is disabled (DIS)	step 14

- 13** To switch enable the SCSI bus, type

```
>SWEN scsi_no
```

and press the Enter key.

where

scsi_no

is the number of the SCSI bus (0 or 1) that has faults

PM FP device-related fault minor (continued)

- 14** To manually busy the SCSI bus, type
`>BSY SCSI scsi_no ctrl_no`
 and press the Enter key.
where
 scsi_no
 is the number of the disabled SCSI bus (0 or 1)
 ctrl_no
 is the number of the controller (0 or 1)

- 15** To return the SCSI bus to service, type
`>RTS SCSI scsi_no ctrl_no`
 and press the Enter key.
where
 scsi_no
 is the number of the disabled SCSI bus (0 or 1)
 ctrl_no
 is the number of the controller (0 or 1)

If the RTS command	Do
passed	step 21
failed, and the system generated a card list	step 16
failed, and the system did not generate a card list	step 48

- 16** Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.

- 17** To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 18** To access the Devices level of the FP that has a device-related fault, type
`>MAPCI;MTC;PM;POST FP fp_no;DEVICES`
 and press the Enter key.
where

fp_no
 is the number of the file processor (0 to 12)

Example of a MAP display:

PM FP
device-related fault minor (continued)

```

FP 1:   FP1_R256   Plane   Devices
ISTb   .          2SysB

          CTRL0      CTRL1      DEVICE
DABM    .          .          0 1 2 3 4 5
SCSI 0  . (EN)     . (DIS)     . . . . . -
SCSI 1  . (EN)     S (DIS)     S . . . . . -

```

- 19** To return the SCSI bus to service, type
>RTS SCSI scsi_no ctrl_no
 and press the Enter key.

where

scsi_no
is the number of the SCSI bus (0 or 1)

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

If the RTS command	Do
passed	step 21
failed, and you did not replace all cards on the list	step 20
failed, and you replaced all cards on the list	step 48
failed, and the system did not generate a card list	step 48

- 20** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.

Go to step 17.

- 21** Determine the SCSI bus states of the posted FP.

Note: In the example of a MAP display in step 18, all of the SCSI buses are in service except SCSI bus 1 of controller 1. The SCSI bus 1 of controller 1 is system busy.

If a SCSI bus field	Do
shows a value other than in service (.) or not equipped (-)	step 10
shows in service (.) or not equipped (-)	step 22

PM FP
device-related fault minor (continued)

- 22** Determine the DEVICE state of the posted FP. If more than one fault is present, clear the highest priority fault first. The order of fault priority, from highest to lowest, is:
- system busy (S)
 - manually busy (M)
 - in-service trouble (I)
 - not equipped (-)

Note: In the example of a MAP display in step 18, device 0 on SCSI bus 1 is system busy.

If the DEVICE state	Do
is S	step 24
is M	step 23
is I	step 24
is - (unequipped)	step 48
is . (in service)	step 49

- 23** Determine from office records or operating company personnel why the device is manual busy.

If	Do
you can return the device to service	step 24
you cannot return the device to service	step 49

- 24** To query all FP devices, type
>QUERYFP DEV ALL ALL
 and press the Enter key.
Example of a MAP response:

PM FP
device-related fault minor (continued)

Dev Name	SCSI	Dev	Type	Quad	Shelf	Slot	Status
DK00	0	0	dk	0	2	8	SysB
CT01	0	1	ct	2	2	20	InSv
DK02	0	2	dk	0	3	8	InSv
DK03	0	3	dk	2	3	20	InSv
DK10	1	0	dk	1	2	14	InSv
CT11	1	1	ct	3	2	26	InSv
DK12	1	2	dk	1	3	14	InSv
DK13	1	3	dk	3	3	26	InSv

- 25** Determine the type of device that is not in service.

Note: In the example of a MAP response in step 24, the system busy device DK00 is a disk drive (device type dk).

If the device	Do
is a disk drive (device type is dk)	step 26
is a tape drive (device type is ct)	step 40

- 26** Determine if the disk drive is a shadow set member.

If the disk drive	Do
is a member of a shadow set	step 27
is not a member of a shadow set	step 40

- 27** Determine from office records or operating company personnel the name of the shadow set.

- 28** To access the shadow utility of the FP that contains the disk drive, type

```
>SHADOWUT FP fp_no
```

and press the Enter key.

where

fp_no

is the number of the FP that contains the disk drive (0 to 12)

- 29** To stop the shadow set member, type

```
>STOPMEMBER ss_name device_name
```

and press the Enter key.

where

ss_name

is the name of the shadow set (SS00 or SS01)

device_name

is DK (disk drive) followed by two digits

PM FP device-related fault minor (continued)

Example input:

```
>STOPMEMBER SS00 DK00
```

Example of a MAP response:

```
*****  
*** WARNING: ***  
*** If this is the last in-service member then File ***  
*** Processing will no longer be available on the ***  
*** shadow set: SS00 ***  
*****
```

Do you wish to proceed?

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

- 30** To confirm the response, type

```
>YES
```

and press the Enter key.

Example of a MAP response:

```
Ok, Shadow Set Member stopped.  
Approximately 1 minute to complete.
```

- 31** To start the shadow set member, type

```
>STARTMEMBER ss_name device_name FORCE
```

and press the Enter key.

where

ss_name

is the name of the shadow set (SS00 or SS01)

device_name

is DK (disk drive) followed by two digits

Example input:

```
>STARTMEMBER SS00 DK00 FORCE
```

Example of a MAP response:

PM FP

device-related fault minor (continued)

The member will be started with the following parameter settings:

```
Node name       : FP1
Shadow set name: SS00
Device name     : DK00Transfer length: Optimal
Interval       : 0
Synchronization: Default
Force          : NO
```

Do you want to continue?
Please confirm ("YES", "Y", "NO", or "N"):

- 32** To confirm the command, type

>YES

and press the Enter key.

If the shadow set member	Do
returned to service	step 39
did not return to service, and the system generated a card list	step 33
did not return to service, and the system did not generate a card list	step 48

- 33** Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.

- 34** To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 35** To access the shadow utility of the FP that contains the disk drive, type

```
>SHADOWUT FP fp_no
```

and press the Enter key.

where

fp_no

is the number of the FP that contains the disk drive (0 to 12)

- 36** To start the shadow set member, type

```
>STARTMEMBER ss_name device_name FORCE
```

and press the Enter key.

where

PM FP device-related fault minor (continued)

ss_name

is the name of the shadow set (SS00 or SS01)

device_name

is DK (disk drive) followed by two digits

Example input:

```
>STARTMEMBER SS00 DK00 FORCE
```

Example of a MAP response:

The member will be started with the following parameter settings:

```
Node name      : FP1
Shadow set name: SS00
Device name    : DK00Transfer length: Optimal
Interval      : 0
Synchronization: Default
Force         : NO
```

Do you want to continue?

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

37 To confirm the command, type

```
>YES
```

and press the Enter key.

If the shadow set member	Do
returned to service	step 39
did not return to service, and you did not replace all cards on the list	step 38
did not return to service, and you replaced all cards on the list	step 48
did not return to service, and the system did not generate a card list	step 48

38 Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.

Go to step 34.

39 To quit the shadow utility, type

```
>QUIT
```

PM FP
device-related fault minor (continued)

and press the Enter key.

Go to step 47.

- 40** To manually busy the device, type
>**BSY DEV scsi_no dev_no**
and press the Enter key.

where

scsi_no
is the number of the SCSI bus (0 or 1)

dev_no
is the number of the device (0 to 5)

Example of a MAP response:

```
FP 1 Busy DEV 0 0: Command request has been submitted.
FP 1 Busy DEV 0 0: Command passed.
```

If the BSY command	Do
passed	step 41
failed	step 48

- 41** To return the device to service, type
>**RTS DEV scsi_no dev_no**
and press the Enter key.

where

scsi_no
is the number of the SCSI bus (0 or 1)

dev_no
is the number of the device (0 to 5)

If the RTS command	Do
passed	step 47
failed, and the system generated a card list	step 42
failed, and the system did not generate a card list	step 48

- 42** Record the location, PEC, and PEC suffix of the first card on the card list.

- 43** To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

PM FP device-related fault minor (continued)

- 44** To access the Devices level of the FP that has a device-related fault, type
>MAPCI;MTC;PM;POST FP fp_no;DEVICES
 and press the Enter key.

where

fp_no
 is the number of the file processor (0 to 12)

Example of a MAP response:

```

FP 1:   FP1_R256   Plane   Devices
ISTb           .   1SysB

          CTRL0          CTRL1          DEVICE
DABM           .           .           0 1 2 3 4 5
SCSI 0         . (EN)       . (DIS)       . . . . . -
SCSI 1         . (EN)       . (DIS)       S . . . . . -
    
```

- 45** To return the device to service, type
>RTS DEV scsi_no dev_no
 and press the Enter key.

where

scsi_no
 is the number of the SCSI bus (0 or 1)

dev_no
 is the number of the device (0 to 5)

If the RTS command	Do
passed	step 47
failed, and you did not replace all cards on the list	step 46
failed, and you replaced all cards on the list	step 48
failed, and the system did not generate a card list	step 48

- 46** Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list.
 Go to step 43.

PM FP
device-related fault minor (end)

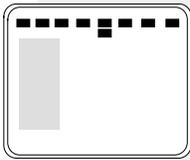
- 47** Determine the Devices state of the posted FP.
Note: A dot . under the Devices header indicates that the FP devices are in service. Any other symbol indicates a fault.

If the Devices state	Do
is . (in service)	step 49
is other than listed here	step 48

- 48** For additional help, contact the next level of support.
49 The procedure is complete.

PM FP JInact minor

Alarm display



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

Indication

At the MTC level of the MAP, FP preceded by a number appears under the PM header of the alarm banner. FP indicates a minor alarm for the file processor (FP). The Plane state field of the posted FP displays JInact.

Meaning

The FP runs in sync with the jammed CPU that is inactive. A jam on an FP is a result of manual action. Also the loss and start again of power for the inactive FP results in a jam on an FP.

The number under the PM header in the MAP banner indicates the number of FPs affected.

Result

The alarm does not affect service. While the inactive CPU jams, neither the system nor the user can initiate SWACTs.

Common procedures

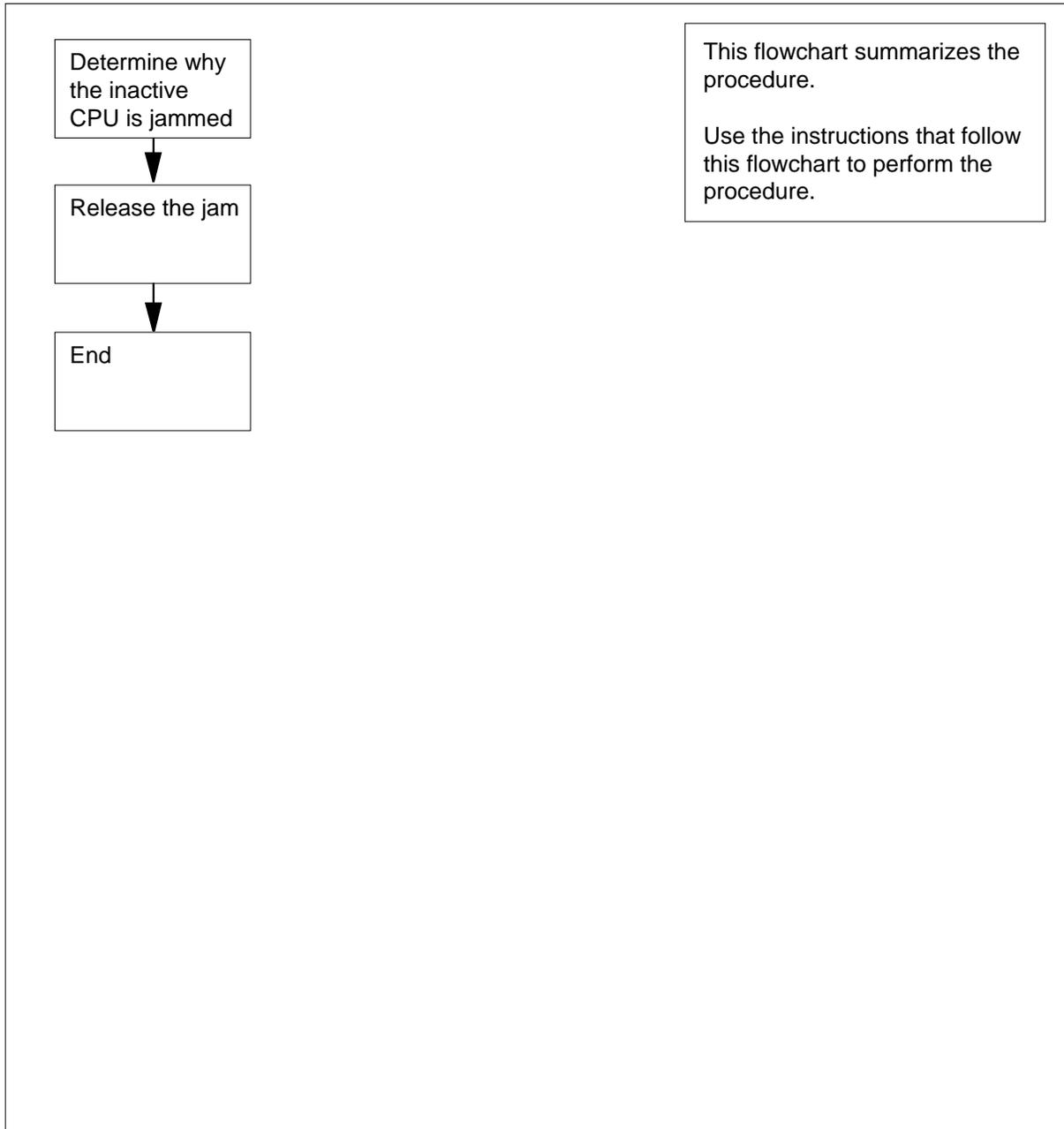
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP
Jlnact minor (continued)

Summary of clearing a PM FP Jlnact minor alarm



PM FP Jlnact minor (end)

Clearing a PM FP Jlnact minor alarm

At the MAP terminal

- 1 Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directed you to this procedure.
- 2 Determine from office records or operating company personnel if the jam is the result of manual action.

If the jam	Do
was the result of manual action	step 3
was not the result of manual action	step 4

- 3 Consult office records or operating company personnel. Determine the reason that the FP jammed.

If you	Do
can release the jam	step 4
cannot release the jam	step 6

At the MAP

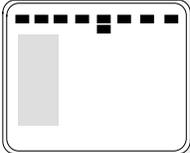
- 4 To release the jam on the inactive CPU, type
`>MATEJAM RELEASE`
and press the Enter key.

If the jam	Do
released	step 6
did not release	step 5

- 5 For additional help, contact the next level of support.
- 6 The procedure is complete.

PM FP LowMem minor

Alarm display

	CM	MS	IOD	Net	PM 1FP	CCS	Lns	Trks	Ext	APPL

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for the file processor (FP). The Plane state field of the posted FP shows LowMem.

Meaning

The FP runs low on available memory.

The number under the PM header in the alarm banner indicates the number of affected FPs.

Result

The alarm does not affect service. If a process requires the use of additional memory for any reason, a restart can occur on the FP. The restart disrupts applications that use the FP.

Common procedures

There are no common procedures.

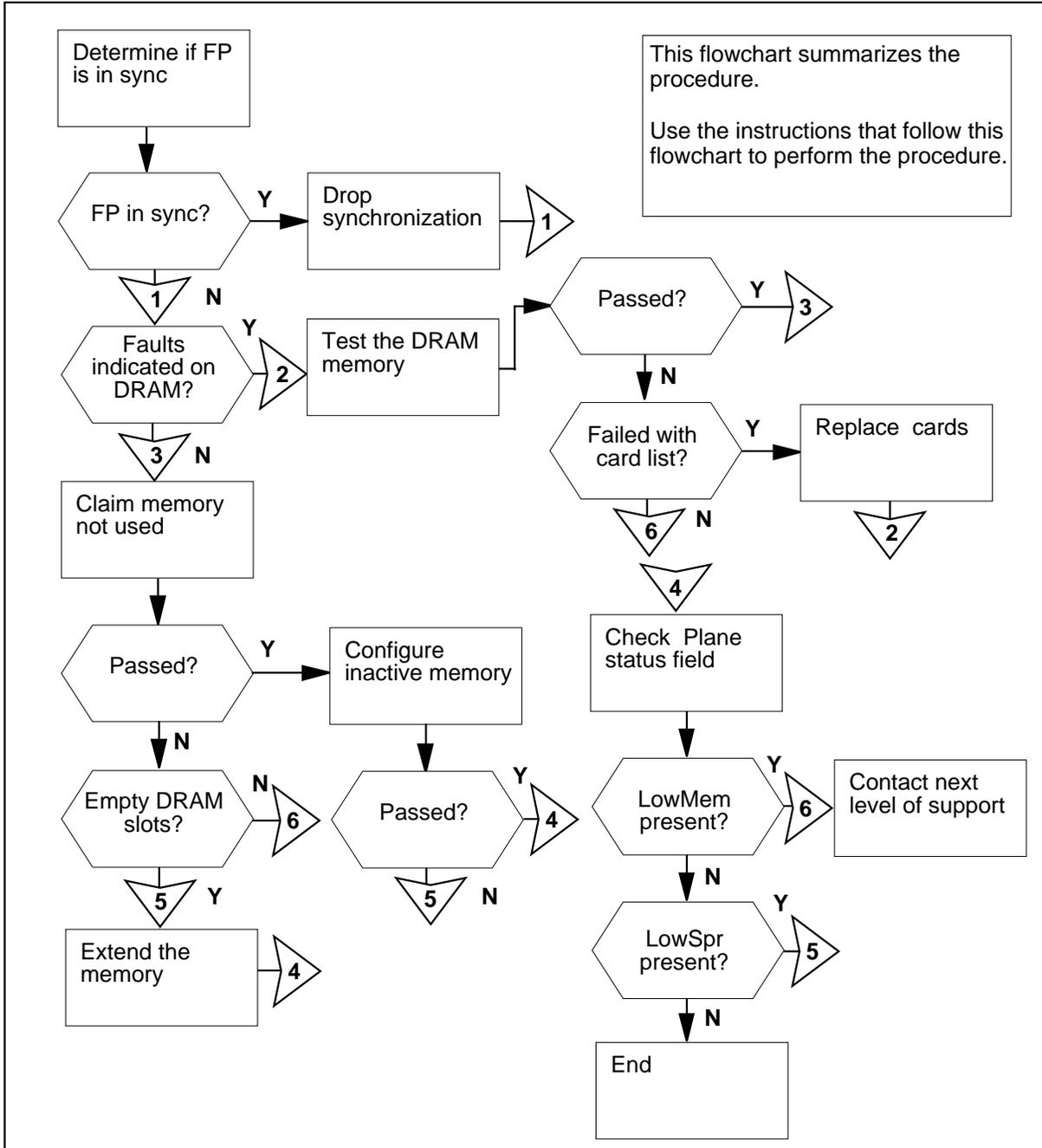
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP

LowMem minor (continued)

Summary of clearing a PM FP LowMem minor alarm



PM FP LowMem minor (continued)

Clearing a PM FP LowMem minor alarm



CAUTION

Proceed only if the procedure How to clear a PM FP minor alarm in this document directed you to this procedure.

At the MAP terminal

- To access the Plane level of the MAP display of the FP that has in service trouble, type

>PLANE

and press the Enter key.

Example of a MAP display:

```

Sync          CPU   Jam   DRAM  Port  MsgCh  PLink
No            state act   0123  Card  0  1   0  1
  Plane 0    .   A      -...   .   .   .   .
  Plane 1    .   I   No  -...   .   .   .   .

```

- Determine if the central processing unit (CPU) jammed.

Note: The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

If the CPU	Do
jammed	step 4
did not jam	step 3

- To jam the inactive CPU, type

>MATEJAM SET

and press the Enter key.

- Determine if the FP is in sync.

Note: The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.

If the FP	Do
is in sync	step 5
is not in sync	step 7

PM FP

LowMem minor (continued)

- 5 To drop synchronization, type
>**DPSYNC**
and press the Enter key.

Example of a MAP response:

If you intend to jam the inactive CPU, please do so before dropping synchronization.

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

- 6 To confirm the command, type
>**YES**
and press the Enter key.

Example of a MAP response:

FP 3 Drop synchronization: Request has been submitted.

FP 3 Drop synchronization: Command completed.

Now running in simplex mode with CPU 0 active.

- 7 Determine the state of the FP DRAMs.

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state	act	0123	Card	0 1	0 1
Plane 0	.	A	-F..	.	.	.
Plane 1	.	I	No	-...	.	.

Note: In the preceding example of a MAP display, all DRAMs are <> (in service) except DRAM card 1 on plane 1. The DRAM card 1 on plane 1 has faults.

If

Do

a DRAM field contains an F in either plane step 8

DRAM fields do not contain an F step 15

-
- 8 To perform a memory test on the slot of the DRAM that has faults, type
>**TST MEM dram_no**
and press the Enter key.
where

PM FP LowMem minor (continued)

dram_no

is the number of the DRAM (0 to 3) slot with the fault

If the TST command**Do**

passed	step 15
failed, and the system generated a card list	step 9
failed, and the system did not generate a card list	step 23

- 9** Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.
- 10** Determine if the system generated fault indicators (alarms or logs) for the card.

If the system**Do**

generated alarms or logs for the card	step 11
did not generate alarms or logs for the card	step 23

- 11** To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 12** To access the Plane level of the FP that has in service trouble, type
>MAPCI;MTC;PM;POST FP fp_no;PLANE
and press the Enter key.

*where***fp_no**

is the number of the FP (0 to 12)

Example of a MAP:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state act		0123	Card	0 1	0 1
Plane 0	. A		...	.	. .	. .
Plane 1	. I	No	...	.	. .	. .

- 13** To perform a memory test on the slot of the DRAM that has faults, type
>TST MEM dram_no
and press the Enter key.

where

PM FP

LowMem minor (continued)

dram_no
is the number of the DRAM slot (0 to 3) with the fault

	If the TST command	Do
	passed	step 15
	failed, and you did not replace all cards on the list	step 14
	failed, and you replaced all cards on the list	step 23
	failed, and the system did not generate a card list	step 23
14	Record the location, product engineering code (PEC), and PEC suffix of the next card on the card list. Go to step 10.	
15	To claim the memory that was not in use on the node, type > CLAIM and press the Enter key.	
16	To confirm the command, type > YES and press the Enter key. <i>Example of a MAP response:</i>	
	<pre>FP 0 Memory Reclaim: Request has been submitted. FP 0 Memory Reclaim: Command failed. All allocated memory modules are in use.</pre>	
	If the CLAIM command	Do
	passed	step 17
	failed	step 23
17	To configure the inactive CPU memory on the node, type > CONFIG and press the Enter key. <i>Example of a MAP response:</i>	

PM FP
LowMem minor (continued)

WARNING

Memory configuration maps the inactive plane DRAM memory into the same Data Store and Program Store ranges currently existing on the active plane. This action could destroy the load running on the inactive plane. It should only be performed following a DRAM memory test involving a memory extension, reduction, or replacement.

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

- 18** To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

FP 0 Configure: Request has been submitted.

FP 0 Configure: Command completed. Memory configuration completed.

If the CONFIG command	Do
passed	step 19
failed	step 23

- 19** To synchronize the node, type

>SYNC

and press the Enter key.

If the SYNC command	Do
passed	step 20
failed	step 23

- 20** To release the jam on the inactive CPU, type

>MATEJAM RELEASE

and press the Enter key.

- 21** Determine the Plane state of the posted FP.

Note: The symbol <> under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

If the Plane state	Do
is <> (in service)	step 24

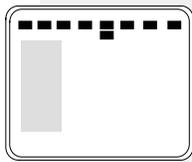
PM FP

LowMem minor (end)

	If the Plane state	Do
	isLowMem	step 23
	is other than listed here	step 22
22	Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.	
23	For additional help, contact the next level of support.	
24	The procedure is complete.	

PM FP MemCor minor

Alarm display



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

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a file processor (FP) minor alarm. The Plane state field of the posted FP displays MemCor.

Meaning

A memory fault occurred on an FP. Correct the memory fault.

The number under the PM header in the MAP banner indicates the number of affected FPs.

Result

There is no result.

Common procedures

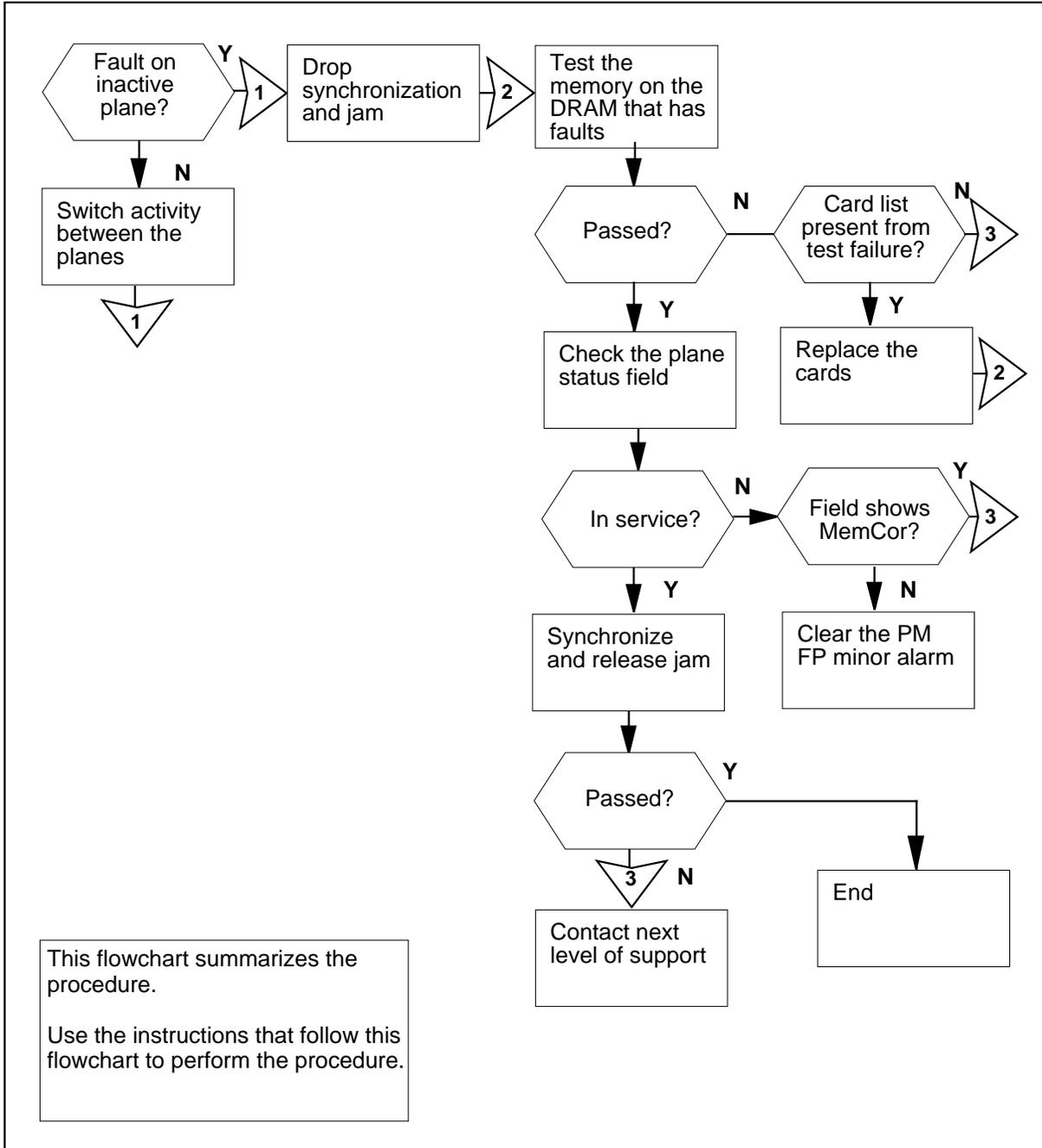
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP MemCor minor (continued)

Summary of clearing a PM FP MemCor minor alarm



PM FP
MemCor minor (continued)

Clearing a PM FP MemCor minor alarm**At the MAP terminal****1****ATTENTION**

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the plane level of the MAP display of the posted FP, type

>PLANE

and press the Enter key.

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state act		0123	Card	0 1	0 1
Plane 0	F I		-.F.	.	.	.
Plane 1	. A	Yes	-...	.	.	.

2 Determine if the fault is on the active or inactive plane. An F in the CPU state field indicates a fault.

Note: The letter A in the CPU act field indicates the active plane. An I in the CPU act field indicates the inactive plane.

If the fault	Do
is on the active plane	step 3
is on the inactive plane	step 6

3 Determine if the inactive CPU jammed.

Note: The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

If the inactive CPU	Do
jammed	step 4
did not jam	step 5

4 To release the jam on the inactive CPU, type

>MATEJAM RELEASE

and press the Enter key.

PM FP MemCor minor (continued)

Example of a MAP response:

FP 3 Jam Mate: Request has been submitted.
FP 3 Jam Mate: Command Completed.
The inactive CPU is not jammed.

- 5 To switch CPU activity on the FP, type
>SWACT
and press the Enter key.

If the SWACT command	Do
passed	step 6
failed	step 19

- 6 To jam the inactive CPU, type
>MATEJAM SET
and press the Enter key.

Example of a MAP response:

FP 3 Jam Mate: Request has been submitted.
FP 3 Jam Mate Command completed.
The inactive CPU is jammed

- 7 To drop the synchronization on the FP, type
>DPSYNC
and press the Enter key.

Example of a MAP response:

If you intend to jam the inactive CPU, please do so
before dropping synchronization.
Please confirm ("YES", "Y", "NO", or "N"):

- 8 To confirm the command, type
>YES
and press the Enter key.

Example of a MAP response:

FP 3 Drop synchronization: Request has been submitted.
FP 3 Drop synchronization: Command completed.

- 9 To test the DRAM card that has the fault, type
>TST MEM dram_no
and press the Enter key.

PM FP
MemCor minor (continued)

where

dram_no
is the number of the DRAM (0 to 3) slot that has the fault

If the TST command	Do
passed	step 15
failed, and the system generated a card list	step 10
failed, and the system did not generate a card list	step 19

10 Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.

11 To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

12 To access the plane level of the FP that has faults, type

```
>MAPCI;MTC;PM;POST FP fp_no;PLANE
```

and press the Enter key.

where

fp_no
is the file processor number (0 to 12)

Example of a MAP display:

```
Sync          CPU      Jam    DRAM   Port   MsgCh  PLink
No            state act          0123   Card   0  1   0  1
  Plane 0     F    I          -.F.    .   .   .   .
  Plane 1     .    A   Yes   -...    .   .   .   .
```

13 To test the DRAM card that has faults, type

```
>TST MEM dram_no
```

and press the Enter key.

where

dram_no
is the number of the DRAM (0 to 3) slot that has faults

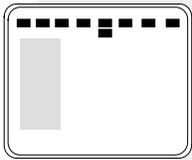
If the TST command	Do
passed	step 15
failed, and you did not replace all the cards on the list	step 14

PM FP
MemCor minor (end)

	If the TST command	Do
	failed, and you replaced all the cards on the list	step 19
	failed, and the system did not generate a card list	step 19
14	Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 11.	
15	To release the jam on the inactive CPU, type >MATEJAM RELEASE and press the Enter key. <i>Example of a MAP response:</i> FP 3 Jam Mate: Request has been submitted. FP 3 Jam Mate: Command Completed. The inactive CPU is not jammed.	
16	To synchronize the FP, type >SYNC and press the Enter key.	
	If the SYNC command	Do
	passed	step 17
	failed	step 19
17	Determine the plane state of the posted FP. Note: The symbol . under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.	
	If the plane state	Do
	is . (in service)	step 20
	is MemCor	step 19
	is other than listed here	step 18
18	Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.	
19	For additional help, contact the next level of support.	
20	The procedure is complete.	

PM FP
MemFlt minor

Alarm display

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

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The plane state field of the posted FP displays MemFlt.

Meaning

A memory fault that cannot be corrected occurred on an FP.

The number under the PM header in the alarm banner indicates the number of FPs affected.

Result

There is no result.

Common procedures

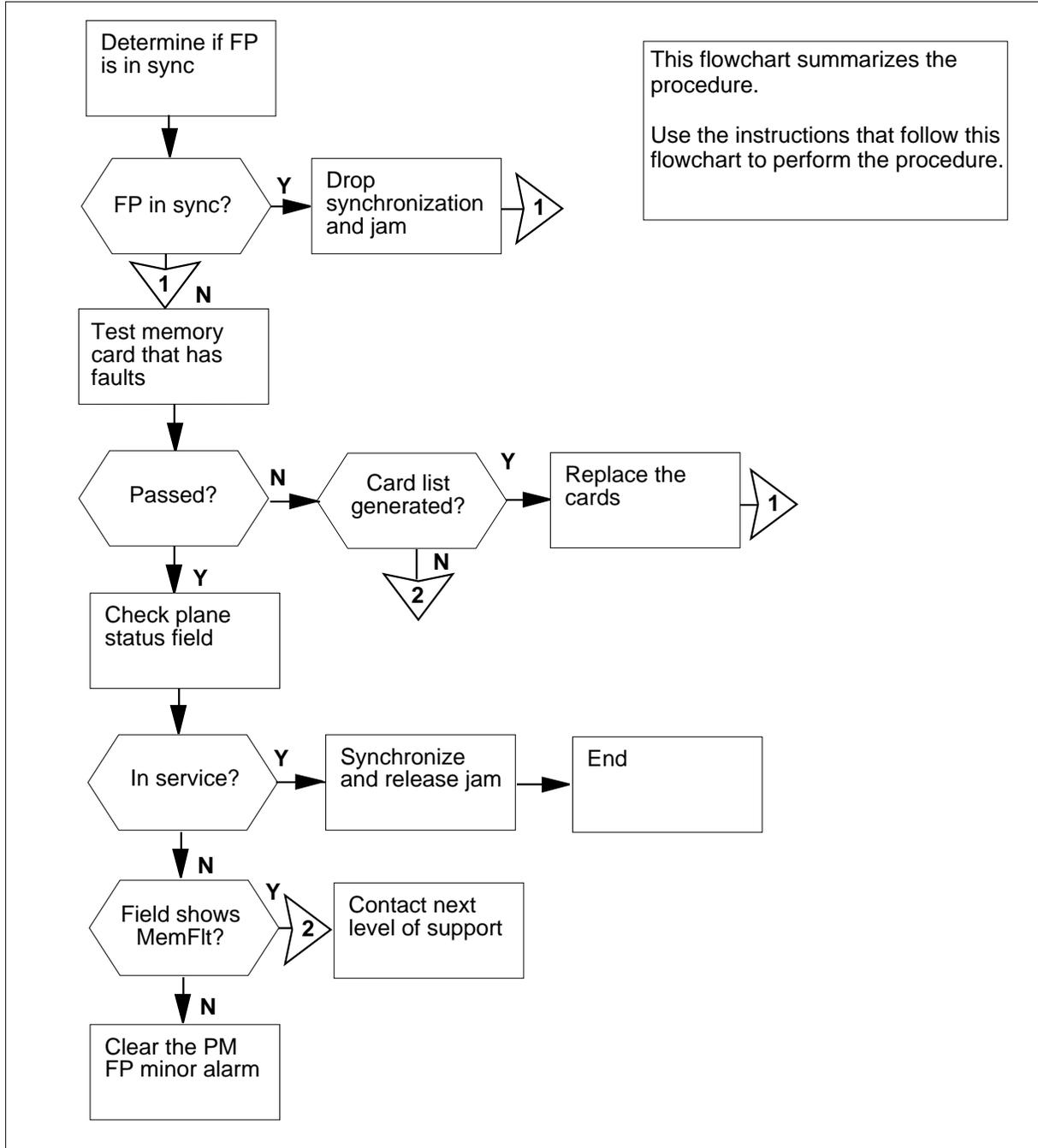
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP MemFit minor (continued)

Summary of clearing a PM FP MemFit minor alarm



PM FP MemFlt minor (continued)

Clearing a PM FP MemFlt minor alarm

At the MAP terminal

1

ATTENTION

Proceed only if the procedure *How to clear a PM FP minor alarm* in this document directs you to go.

To access the plane level of the MAP display of the posted FP, type

>PLANE

and press the Enter key.

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state	act	0123	Card	0 1	0 1
Plane 0	.	A	-...	.	.	.
Plane 1	F	I	-.F.	.	.	.

2 Determine if the FP is in sync.

Note: The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.

If the FP	Do
is in sync	step 3
is not in sync	step 6

3 To jam the inactive CPU, type

>MATEJAM SET

and press the Enter key.

Example of a MAP response:

```
FP 3 Jam Mate: Request has been submitted.
FP 3 Jam Mate Command completed.
The inactive CPU is jammed
```

4 To drop the synchronization on the node, type

>DPSYNC

and press the Enter key.

Example of a MAP response:

PM FP
MemFlt minor (continued)

If you intend to jam the inactive CPU, please do so before dropping synchronization.
 Please confirm ("YES", "Y", "NO", or "N"):

- 5 To confirm the command, type

>YES

and press the Enter key.

Example of a MAP response:

```
FP 3 Drop synchronization: Request has been submitted.
FP 3 Drop synchronization: Command completed.
```

- 6 The letter F in the DRAM state field on the plane indicates a fault. To test the DRAM card that has faults, type

>TST MEM dram_no

and press the Enter key.

where

dram_no

is the number of the DRAM slot (0 to 3) that has faults

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state act		0123	Card	0 1	0 1
Plane 0	. A		-. . .	.	.	.
Plane 1	F I	No	-.F.	.	.	.

If the TST command	Do
passed	step 11
failed, and the system generated a card list	step 7
failed, and the system did not generate a card list	step 15

- 7 Record the location, product equipment code (PEC), and PEC suffix of the first card on the card list.
- 8 To replace the card, use the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 9 The letter F in the DRAM status field in the inactive plane indicates a fault. To test the DRAM card that has faults, type
 >TST MEM dram_no
 and press the Enter key.

PM FP
MemFlt minor (continued)

where

dram_no
is the number of the DRAM slot (0 to 3) that has faults

If the TST command	Do
passed	step 11
failed, and you did not replace all the cards on the list	step 10
failed, and you replaced all the cards on the list	step 15
failed, and the system generated a card list	step 15
10 Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 8.	
11 To synchronize the FP, type > SYNC and press the Enter key.	
If the SYNC command	Do
passed	step 12
failed	step 15
12 To release the jam on the inactive CPU, type > MATEJAM RELEASE and press the Enter key. <i>Example of a MAP response:</i> FP 3 Jam Mate: Request has been submitted. FP 3 Jam Mate: Command completed, The inactive CPU is not jammed.	
13 Determine the plane state of the posted FP. Note: The symbol . under the plane header indicates that the FP planes are in service. Any other symbol indicates a fault.	
If the state	Do
is . (in service)	step 16
is MemFlt	step 15

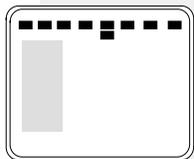
PM FP

MemFlt minor (end)

	If the state	Do
	is other than listed here	step 14
14	Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.	
15	For additional help, contact the next level of support.	
16	The procedure is complete.	

PM FP
MMThrs minor

Alarm display

	CM	MS	IOD	Net	PM 1FP	CCS	Lns	Trks	Ext	APPL

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The Plane state field of the posted FP displays MMThrs.

Meaning

A resource in the FP node exceeded a mismatch threshold.

The number under the PM header in the MAP banner indicates the number of FPs affected.

Result

There is no result.

Common procedures

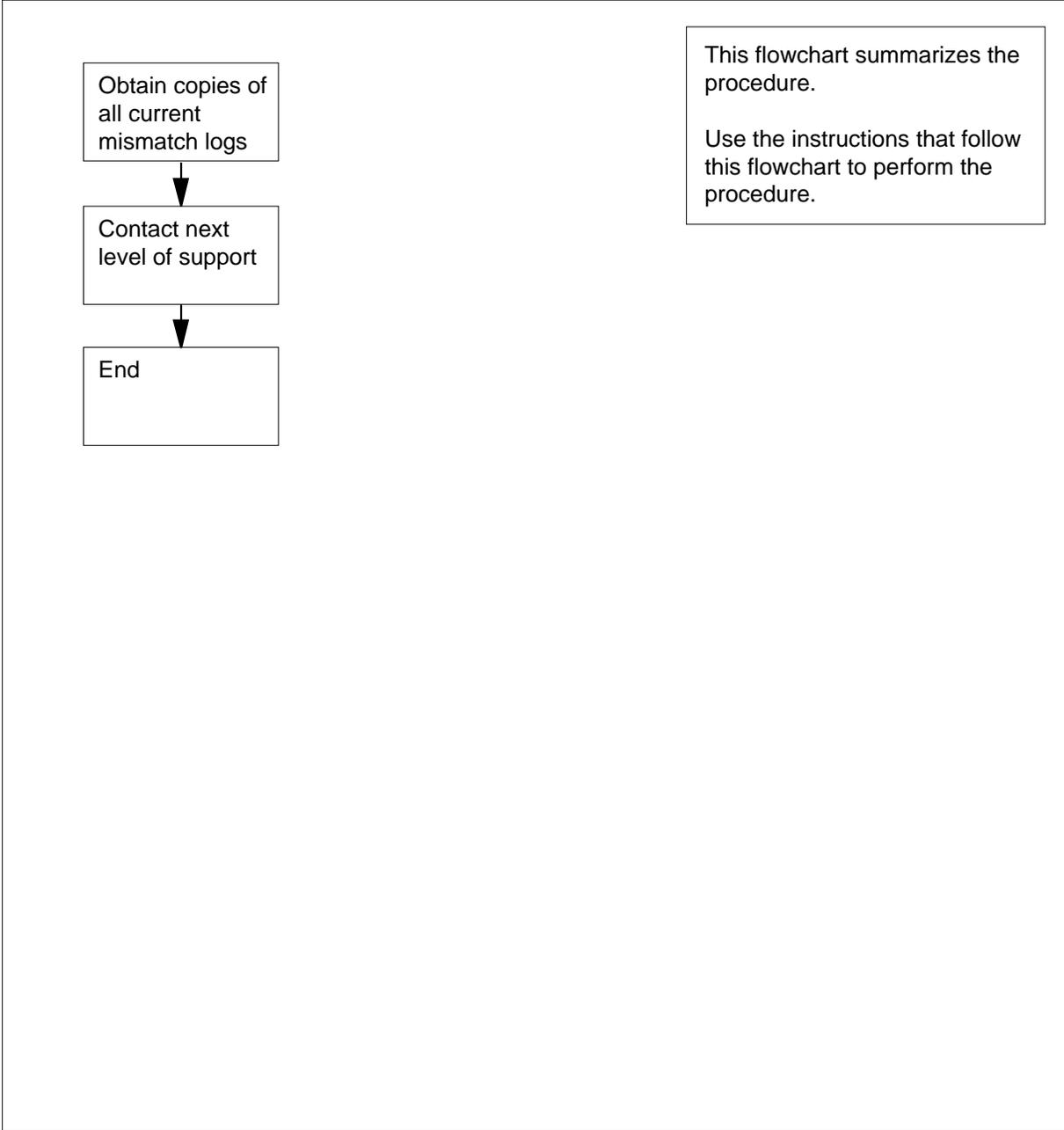
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP
MMThrs minor (continued)

Summary of Clearing a PM FP MMThrs minor alarm



PM FP
MMThrs minor (end)

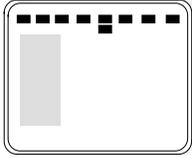
Clearing a PM FP MMThrs minor alarm

At your current location

- 1** Obtain copies of all current occurrences of the following logs:
 - AP317
 - AP318
 - FP354
- 2** For additional help, contact the next level of support.
- 3** The procedure is complete.

PM FP NoOvr minor

Alarm display



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

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The Plane state field of the posted FP displays NoOvr.

Meaning

The FP operates in sync with the handshake override turned off. The system or manual action can decommission the handshake override.

The number under the PM header in the MAP banner indicates the number of FPs affected.

Result

A loss of service does not occur. The processing speed of the FP decreases by 3% to 5%.

Common procedures

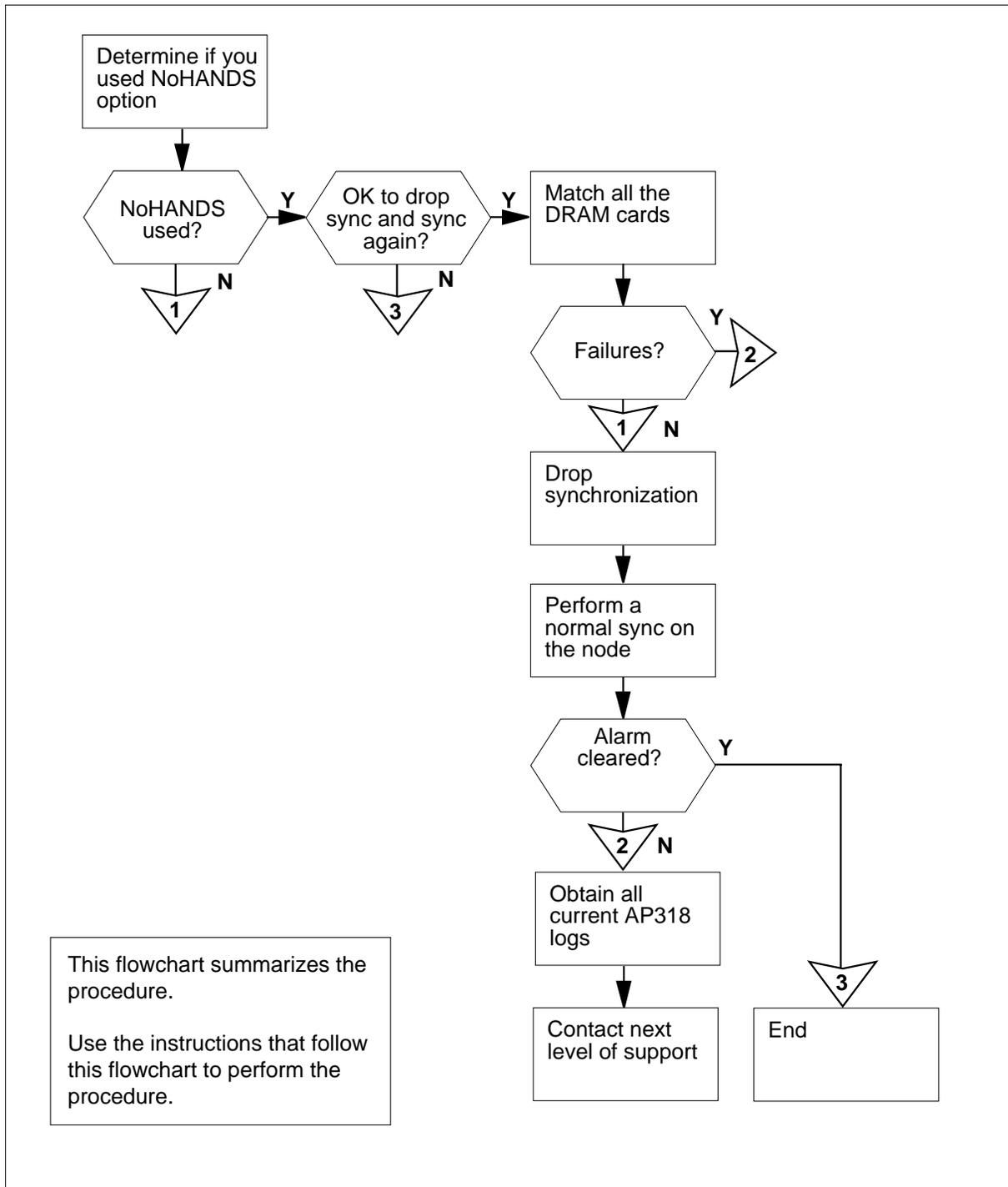
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP NoOvr minor (continued)

Summary of clearing a PM FP NoOvr minor alarm



PM FP
NoOvr minor (continued)

Clearing a PM FP NoOvr minor alarm

At the MAP terminal

1

ATTENTION
Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the plane level of the MAP display for the in-service trouble FP, type

>PLANE

and press the Enter key.

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
Yes	state	act	0123	Card	0 1	0 1
Plane 0	.	A	-...	.	.	.
Plane 1	F	I	No	-...	.	.

2 Determine from office records or operating company personnel if the user used the NoHANDS option to put the FP in sync.

If you	Do
entered the last SYNC command with the NoHANDS option	step 3
did not enter the last SYNC command with the NoHANDS option	step 4
cannot determine if you entered the last SYNC command with the NoHANDS option	step 14

3 Determine if you have permission to match the memories of the CPUs.

If you	Do
have permission to match CPU memories	step 4
do not have permission to match CPU memories	step 15

PM FP
NoOvr minor (continued)

- 4** To match the memories of the CPUs, type

>MATCH dram_no

and press the Enter key.

where

dram_no

is a number that represents a provisioned DRAM card.

Any value other than a dash (-) in the DRAM

status field (0 to 3) indicates a provisioned DRAM card.

If the MATCH command	Do
passed	step 5
failed	step 13

- 5** Determine from the Plane level MAP display if more DRAM card slots to match are present.

If more slots	Do
are present	step 4
are not present	step 6

- 6** To jam the inactive CPU, type

>MATEJAM SET

and press the Enter key.

Example of a MAP response:

FP 3 Jam Mate: Request has been submitted.

FP 3 Jam Mate: Command completed.

The inactive CPU is jammed

- 7** To drop the synchronization on the FP, type

>DPSYNC

and press the Enter key.

Example of a MAP response:

If you intend to jam the inactive CPU, please do so before dropping synchronization.

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

- 8** To confirm the command, type

>YES

PM FP
NoOvr minor (continued)

and press the Enter key.

Example of a MAP response:

```
FP 3 Drop synchronization: Request has been submitted.
FP 3 Drop synchronization: Command completed.
Now running in simplex mode with CPU 0 active.
```

- 9** To synchronize the FP, type

>SYNC

and press the Enter key.

Example of a MAP response:

```
FP 3 Synchronization: Request has been submitted.
FP 3 Synchronization: Command completed. The PM is now
running in SYNC.
```

If the SYNC command	Do
passed	step 10
failed	step 11

- 10** To release the jam on the inactive CPU, type

>MATEJAM RELEASE

and press the Enter key.

Example of a MAP response:

```
FP 3 Jam Mate: Request has been submitted.
FP 3 Jam Mate: Command completed, The inactive CPU is
not jammed.
```

- 11** Determine the Plane state of the posted FP.

Example of a MAP display:

```
FP 3:      FP3_256      Plane      Devices
InSv              .              .
```

Note: The symbol . under the plane header indicates that the FP surfaces are in service. Any other symbol indicates a fault.

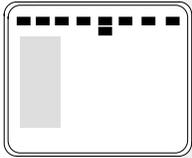
If the plane state	Do
is . (in service)	step 15
is NoOvr	step 13
is other than listed here	step 12

PM FP
NoOvr minor (end)

- 12 Perform the procedure *Clearing a PM FP minor alarm* in this document.
- 13 Obtain copies of all current AP318 logs.
- 14 For additional help, contact the next level of support.
- 15 The procedure is complete.

PM FP NoSync minor

Alarm display



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

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The Plane state field of the posted FP displays NoSync.

Meaning

The two planes of the FP did not synchronize.

The number under the PM header in the MAP banner indicates the number of FPs affected.

Result

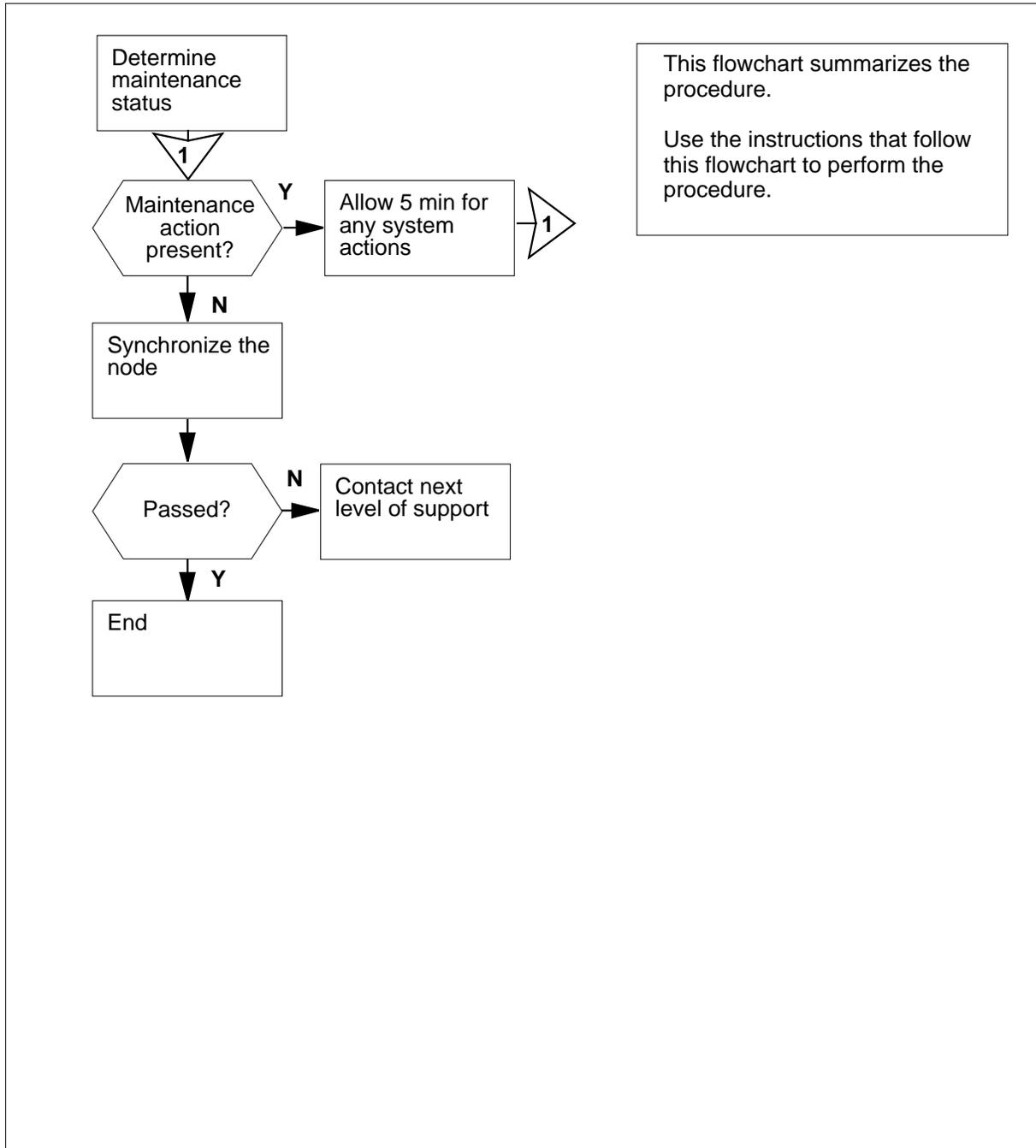
The active plane runs in simplex mode. The performance of applications that use this FP degrade while the FP is out of sync. The performance also degrades if synchronization occurs.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP
NoSync minor (continued)**Summary of clearing a PM FP NoSync minor alarm**

PM FP NoSync minor (continued)

Clearing a PM FP NoSync minor alarm

At the MAP terminal

1

ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

Determine if the /Mtce flag is present.

Note: Immediately to the right of the FP state in the MAP display is a maintenance status field. The field contains the /Mtce flag if a maintenance action occurs on the FP.

Example of a MAP display:

```
FP 0:      FP0_256      Plane      Devices
ISTb      /Mtce        .          .
```

If the /Mtce flag	Do
is present	step 3
is not present	step 4

2 Wait 5 min to 10 min for the system to complete recovery attempts.

If the /Mtce flag	Do
is present	step 16
is not present	step 4

3 To access the plane level of the MAP display of the posted FP, type

>PLANE

and press the Enter key.

Example of a MAP display:

```
Sync          CPU      Jam    DRAM  Port  MsgCh  PLink
No           state act      0123  Card  0  1    0  1
  Plane 0    .    A      -...  .   .   .   .
  Plane 1    N    I    No  -NNN  .   .   .   .
```

PM FP
NoSync minor (continued)

- 4** Determine if the CPUs are in sync.
Note: The word Yes under the Sync header indicates that the FP is in sync. The word No indicates that the FP is not in sync.
- | If the CPUs | Do |
|--------------------|-----------|
| are in sync | step 12 |
| are not in sync | step 5 |
- 5** Determine from office records or other operating company personnel if synchronization on the FP was dropped manually.
- | If FP synchronization | Do |
|------------------------------|-----------|
| was dropped manually | step 6 |
| was not dropped manually | step 7 |
- 6** Determine from office records or other operating company personnel why synchronization was dropped.
- | If you | Do |
|---------------------------------------|-----------|
| have permission to sync the FP | step 7 |
| do not have permission to sync the FP | step 17 |
- 7** To synchronize the FP, type
>SYNC
and press the Enter key.
- | If the SYNC command | Do |
|---|-----------|
| passed | step 12 |
| failed, and the system generated a card list | step 8 |
| failed, and the system did not generate a card list | step 16 |
- 8** Record the location, product engineering code (PEC), and PEC suffix of the first card on the card list.
- 9** To replace the card, use the appropriate procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 10** To synchronize the FP, type
>SYNC

PM FP
NoSync minor (continued)

and press the Enter key.

If the SYNC command	Do
passed	step 12
failed, and you did not replace all the cards on the list	step 11
failed, and you replaced all the cards on the list	step 16
failed, and the system did not generate a card list	step 16

11 Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 9.

12 Determine if the inactive side of the FP jammed.

Note: The word Yes under the Jam header indicates that the CPU jammed. The word No indicates that the CPU did not jam.

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state	act	0123	Card	0 1	0 1
Plane 0	.	A	-...	.	.	.
Plane 1	N	I	No	-NNN	.	.

If the inactive side of the FP	Do
is jammed	step 13
is not jammed	step 14

13 To release the jam on the inactive side of the FP, type **>MATEJAM RELEASE** and press the Enter key.

Example of a MAP response:

```
FP 0 Jam Mate: Request has been submitted.
FP 0 Jam Mate: Command completed.
The inactive CPU is not jammed.
```

14 Determine the plane state of the posted FP.

Note: The symbol <> under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

Example of a MAP display:

PM FP
NoSync minor (end)

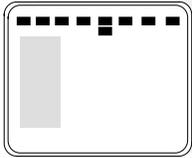
FP 0:	FP3_256	Plane	Devices
InSv		.	.

If the plane state	Do
is NoSync	step 16
is <> (in service)	step 17
is other than listed here	step 15

- 15** Perform the procedure *Clearing a PM FP minor alarm* in this document.
- 16** For additional help, contact the next level of support.
- 17** The procedure is complete.

PM FP PrtFlt minor

Alarm display



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

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The Plane state field of the posted FP displays PrtFlt.

Meaning

The port on the FP has two links. A fault on the FP causes the links to be out of service.

The number under the PM header in the MAP banner indicates the number of FPs.

Result

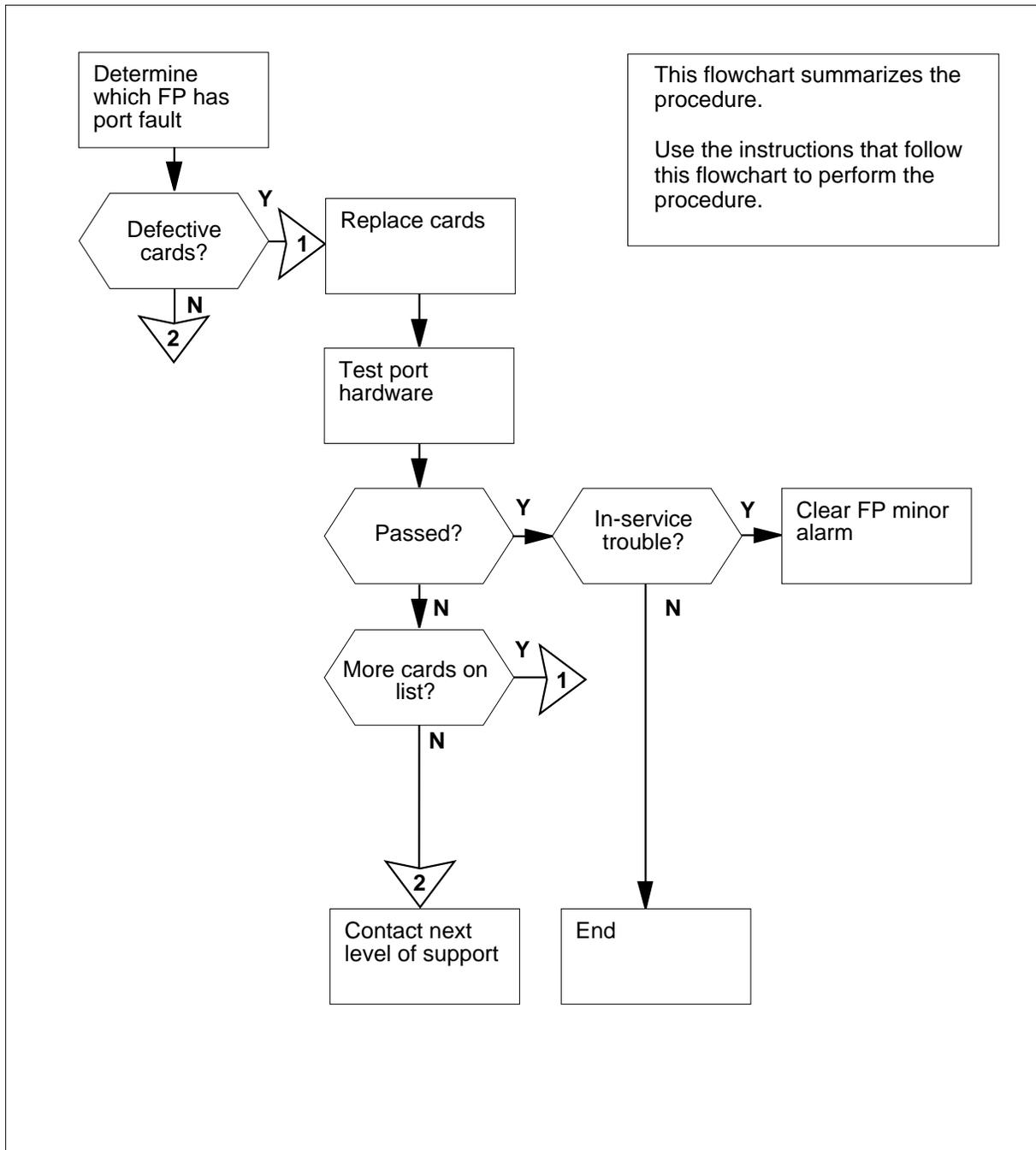
The alarm does not affect subscriber service. A single-plane fault on a port in the other plane can isolate the FP.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP
PrtFlt minor (continued)**Summary of clearing a PM FP PrtFlt minor alarm**

PM FP
PrtFlt minor (continued)

Clearing a PM FP PrtFlt minor alarm

At the MAP terminal

1

ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the Plane level of the MAP display of the in-service trouble FP, type

>PLANE
and press the Enter key.

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state	act	0123	Card	0 1	0 1
Plane 0	.	A	-...	.	.	.
Plane 1	.	I	No	-...	F	L L P P

2 To query the port that has the fault, type

>QUERYPL PORT plane_no FLT

and press the Enter key.

where

plane_no
is the number of the inactive plane (0 or 1)

If	Do
the response is TEST,TRAP and Split info : Okay	step 10
indication of a fault is present, and the system generated a card list	step 3
indication of a fault is present, and the system did not generate a card list	step 10

3 Record the location, product engineering code (PEC), and PEC suffix of the first card on the list.

4 Use the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

PM FP
PrtFlt minor (continued)

- 5** To test the port hardware on the inactive plane to service, type

>TST PORT plane_no

and press the Enter key.

where

surface_no

is the number of the inactive plane (0 or 1)

If the TST command

Do

passed

step 7

failed, and you did not replace
all the cards on the list

step 6

failed, and you replaced all the
cards on the list

step 10

failed, and the system did not
generate a card list

step 10

-
- 6** Record the location, PEC, and PEC suffix of the next card on the list.
Go to step 4.

- 7** To return the port hardware on the inactive plane to service, type

>RTS PORT plane_no

and press the Enter key.

where

plane_no

is the number of the inactive plane (0 or 1)

If the RTS command

Do

passed

step 8

failed, and you did not replace
all the cards on the list

step 10

-
- 8** Determine the port card state of the inactive plane of the posted FP.

Example of a MAP display:

PM FP

PrtFlt minor (end)

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state act		0123	Card	0 1	0 1
Plane 0	. A		-...	.	.	.
Plane 1	. I	No	-...	.	L L	P P

If the Port Card state

Do

is . (in service)

step 11

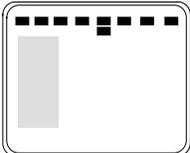
is other than listed here

step 9

- 9** Perform the procedure *Clearing a PM FP minor alarm* in this document.
- 10** For additional help, contact the next level of support.
- 11** The procedure is complete.

PM FP
PrtTbl minor

Alarm display

	CM	MS	IOD	Net	PM 1FP	CCS	Lns	Trks	Ext	APPL

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a file processor minor alarm. The Plane state field of the posted FP displays PrtTbl.

Meaning

A link on a port card in the FP is out of service or has in-service trouble.

The number under the PM header in the MAP banner indicates the number of FPs affected.

Result

There is no result.

Common procedures

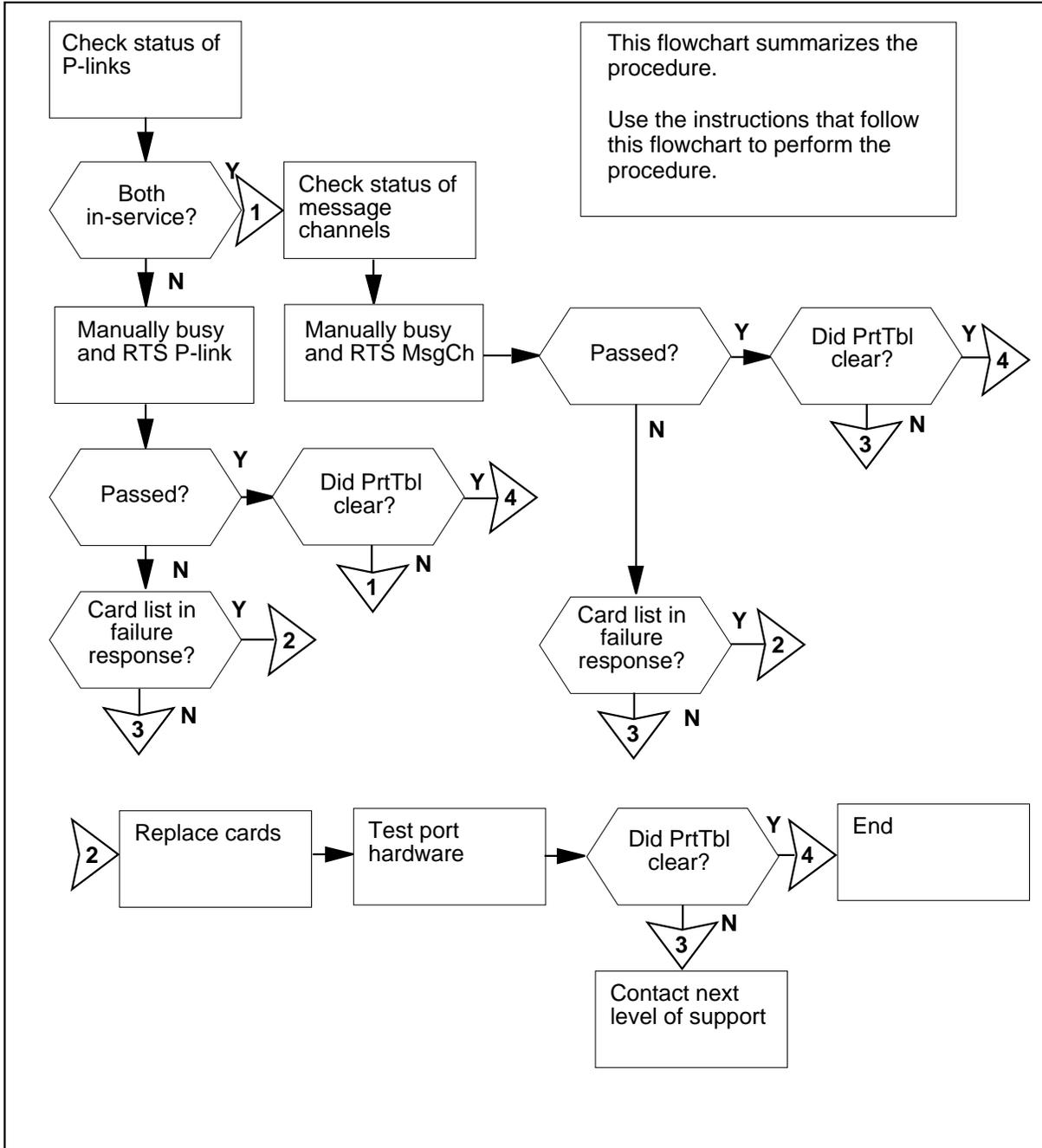
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP
PrtTbl minor (continued)

Summary of clearing a PM FP PrtTbl minor alarm



PM FP PrtTbl minor (continued)

Clearing a PM FP PrtTbl minor alarm

At the MAP terminal

1

ATTENTION

Proceed only if the procedure *Clearing a PM FP minor alarm* in this document directs you to go.

To access the Plane level of the MAP display of the FP that has port trouble, type

>PLANE

and press the Enter key.

Example of a MAP display:

Sync		CPU	Jam	DRAM	Port	MsgCh	PLink
No	state	act		0123	Card	0 1	0 1
Plane 0	.	A		-...	.	.	.
Plane 1	.	I	No	-...	1	R	R

2 Determine the PLink state. If more than one fault is present in the PLink fields, clear the highest priority fault first. The following faults are in order of priority:

- system busy (S)
- manual busy (M)
- resource not available (R)
- in-service trouble (I)

If the PLink state	Do
is S	step 5
is M	step 4
is R	step 3
is I	step 5
is . (in service)	step 13

3 Perform the appropriate MS procedure to clear the alarm. Complete the procedure and return to this point.

PM FP
PrtTbl minor (continued)

- Go to step 1.
- 4** Determine from office records or operating company personnel why the P-link is manual busy. When you have permission, return the link to service.
-
- | If | Do |
|--|-----------|
| you have permission, return the P-link to service | step 6 |
| you do not have permission to return the P-link to service | step 30 |
-
- 5** To manually busy the P-link, type
`>BSY PORT plane_no PLINK link_no`
 and press the Enter key.
where
 plane_no
 is the number of the inactive plane (0 or 1)
 link_no
 is the number of the link (0 or 1)
- 6** To return the P-link to service, type
`>RTS PORT plane_no PLINK link_no`
 and press the Enter key.
where
 plane_no
 is the number of the inactive plane (0 or 1)
 link_no
 is the number of the link (0 or 1)
-
- | If the RTS command | Do |
|---|-----------|
| passed | step 11 |
| failed, and the system generated a card | step 7 |
| failed, and the system did not generate a card list | step 29 |
-
- 7** Record the location, product engineering code (PEC), and PEC suffix of the first card on the list.
- 8** Use the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

PM FP
PrtTbl minor (continued)

- 9** To return the P-link to service, type
`>RTS PORT plane_no PLINK link_no`
 and press the Enter key.

where

plane_no
 is the number of the inactive plane (0 or 1)

link_no
 is the number of the link (0 or 1)

If the RTS command	Do
passed	step 11
failed, and you did not replace all the cards on the list	step 10
failed, and you replaced all the cards on the list	step 29
failed, and the system did not generate a card list	step 29

- 10** Record the location, PEC, and PEC suffix of the next card on the list.
 Go to step 8.

- 11** Determine the Plane state of the posted FP.

Example of a MAP response:

```
FP 3:      FP3_256      Plane      Devices
InSv      .             .
```

If the Plane state	Do
is . (in service)	step 30
is PrtTbl	step 13
is other than listed here	step 12

- 12** Perform the procedure *Clearing a PM FP minor alarm* in this document.

- 13** Determine the MsgCh state. The different field values appear below in order of priority. If more than one fault is present in the MsgCh fields, clear the highest priority fault first. The following faults are in order of priority:

- system busy (S)
- manual busy (M)

PM FP
PrtTbl minor (continued)

- resource not available (R)
- in-service trouble (I)

Example of a MAP display:

Sync	CPU	Jam	DRAM	Port	MsgCh	PLink
No	state	act	0123	Card	0 1	0 1
Plane 0	.	A	-...	.	.	.
Plane 1	.	I	No	1	R .	R .

If the MsgCh state	Do
is S	step 16
is M	step 15
is R	step 14
is I	step 16

- 14** Perform the correct MS procedure to clear the alarm. Complete the procedure and return to this point.
 Go to step 11.
- 15** Determine from office records or operating company personnel why the message channel is manual busy.

If	Do
you have permission to return the message channel to service	step 17
you do not have permission to return the message channel to service	step 30

- 16** To manually busy the message channel, type
>BSY PORT plane_no MSGCH link_no
 and press the Enter key.
where

plane_no
 is the number of the inactive plane (0 or 1)

link_no
 is the number of the link (0 or 1)

- 17** To return the message channel to service, type
>RTS PORT plane_no MSGCH link_no
 and press the Enter key.
where

PM FP
PrtTbl minor (continued)

plane_no
is the number of the inactive plane (0 or 1)

link_no
is the number of the link (0 or 1)

	If the RTS command	Do
	passed	step 11
	failed, and the system generated a card list	step 18
	failed, and the system did not generate a card list	step 29
18	Record the location, PEC, and PEC suffix of the first card on the list.	
19	Use the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.	
20	To return the message channel to service, type >RTS PORT plane_no MSGCH link_no and press the Enter key. <i>where</i> plane_no is the number of the inactive plane (0 or 1) link_no is the number of the link (0 or 1)	
	If the RTS command	Do
	passed	step 22
	failed, and you did not replace all the cards on the list	step 21
	failed, and you replaced all the cards on the list	step 29
	failed, and the system did not generate a card list	step 29
21	Record the location, PEC, and PEC suffix of the next card on the list. Go to step 19.	
22	To test the port hardware, type >TST PORT plane_no and press the Enter key. <i>where</i>	

PM FP
PrtTbl minor (continued)

plane_no
 is the number of the inactive plane (0 or 1)

If the TST command	Do
passed	step 27
failed, and the system generated a card list	step 23
failed, and the system did not generate a card list	step 29

- 23 Record the location, PEC, and PEC suffix of the first card on the card list.
- 24 Use the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 25 To test the port hardware, type
 >TST PORT plane_no
 and press the Enter key.
 where

plane_no
 is the number of the inactive plane (0 or 1)

If the TST command	Do
passed	step 27
failed, and you did not replace all the cards on the list	step 26
failed, and you replaced all the cards on the list	step 29
failed, and the system did not generate a card list	step 29

- 26 Record the location, PEC, and PEC suffix of the next card on the card list. Go to step 24.
- 27 Determine the Plane state of the posted FP.
Note: The symbol . under the Plane header indicates that the FP planes are in service. Any other symbol indicates a fault.

Example of a MAP response:

```
FP 3:   FP3_256   Plane   Devices
InSv           .       .
```

If the Plane state	Do
is . (in service)	step 30
is PrtTbl	step 29

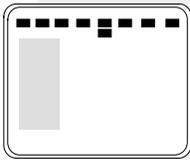
PM FP
PrtTbl minor (end)

	If the Plane state	Do
	is other than listed here	step 28
28	Perform the procedure <i>Clearing a PM FP minor alarm</i> in this document.	
29	For additional help, contact the next level of support.	
30	The procedure is complete.	

PM FP

Trap minor

Alarm display



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

Indication

At the MTC level of the MAP display, FP (preceded by a number) appears under the PM header of the alarm banner. The FP indicates a minor alarm for a file processor (FP). The trap appears on the Plane state field of the posted FP.

Meaning

The trap rate on the FP approaches a threshold that can initiate a warm restart.

The number under the PM header in the MAP banner indicates the number of FPs affected.

Result

The FP CPU takes time to correct faults. A real-time delay problem can occur, for example a slow system response.

Common procedures

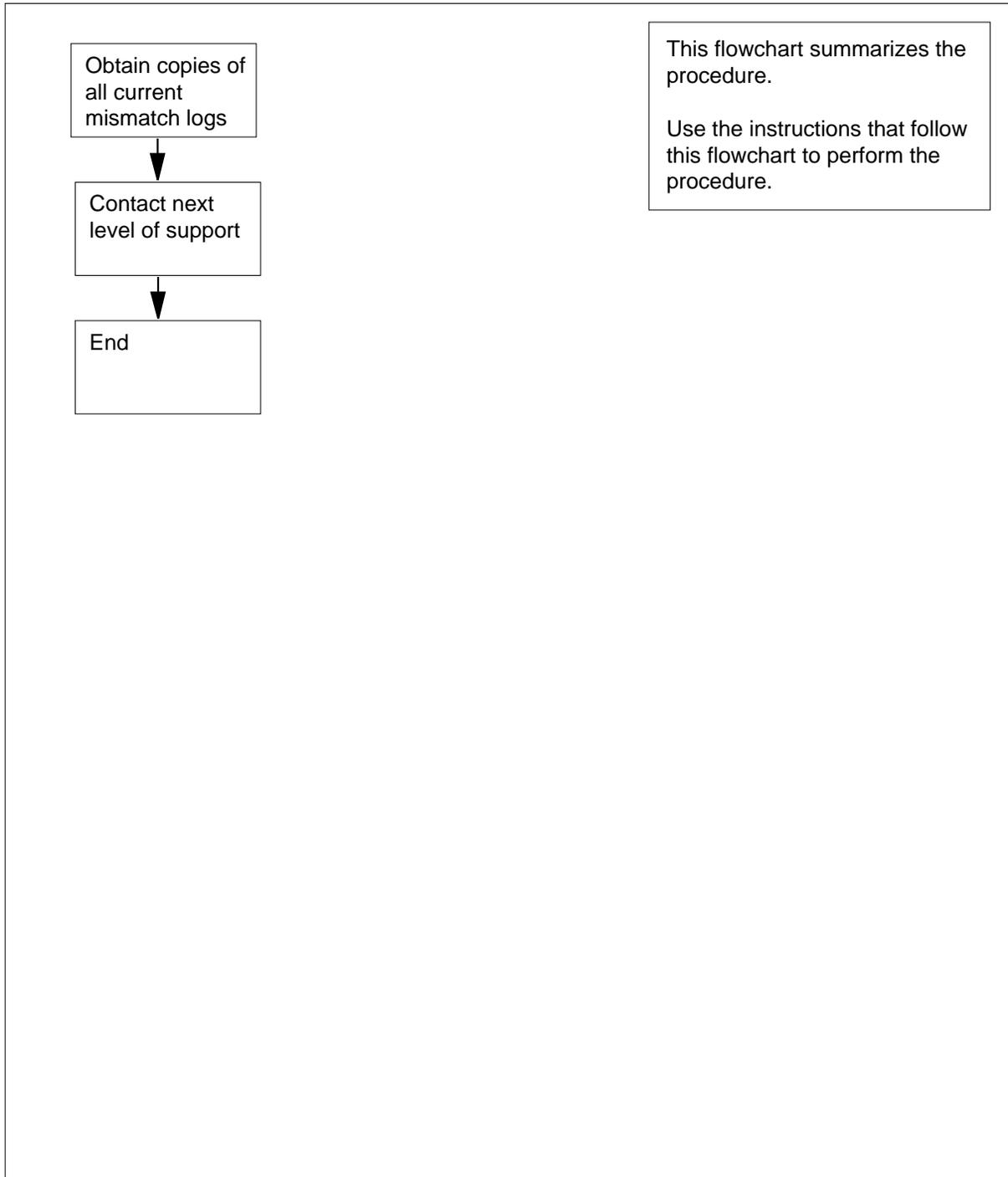
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FP
Trap minor (continued)

Summary of clearing a PM FP Trap minor alarm



PM FP

Trap minor (end)

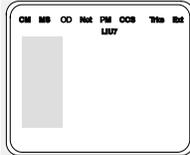
Clearing a PM FP Trap minor alarm

At your current location

- 1** Obtain copies of all current occurrences of the following logs:
 - AP317
 - AP318
 - FP354
- 2** For additional help, contact the next level of support.
- 3** The procedure is complete.

PM FRIU critical (on an LPP)

Alarm display



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

Indication

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

Meaning

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

- The FRIU error interrupts
- The FRIU does not respond to computing module (CM) due to faults. These faults are in the link interface module (LIM), message switch (MS), F-buses, or F-bus taps
- An in-service test fails

The number under the PM header in the alarm banner indicates the number of affected FRIUs.

Result

The indicated number of FRIUs are out-of-service. The T1 channels for the FRIUs cannot transmit traffic.

Common procedures

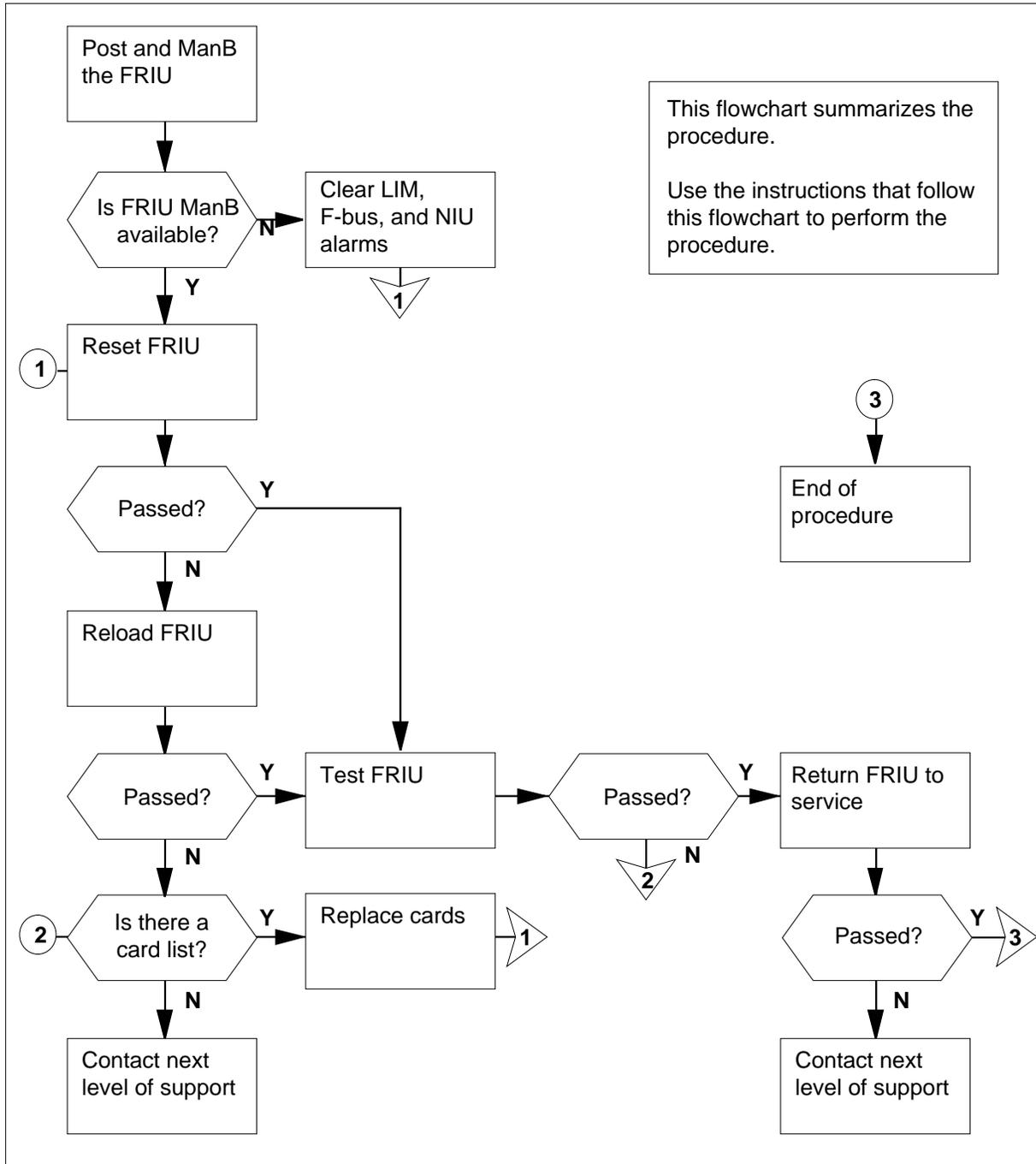
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM FRIU critical (on an LPP) (continued)

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



PM FRIU critical (on an LPP) (continued)

Clearing a PM FRIU alarm

At the MAP display

- 1 To access the peripheral module (PM) level of the MAP display, type
>MAPCI ;MTC ;PM
and press the Enter key.

Example of a MAP display

	SysB	ManB	Of fL	CBsy	ISTb	InSv
PM	2	0	0	0	0	70

- 2 To display the system busy FRIUs, type
>POST FRIU SYSB
and press the Enter key.

Example of a MAP display

FRIU	121 SysB	Rsvd
------	----------	------

If the MAP response	Do
indicates a SysB or SysB (NA) FRIU	step 6
indicates end of posted set	step 3

- 3 To display the in service problem FRIUs, type
>POST FRIU ISTB
and press the Enter key.

Example of a MAP display

FRIU	121 SysB (NA)	Rsvd
------	---------------	------

If the MAP response	Do
indicates an ISTb FRIU	step 4
indicates an ISTb (NA) FRIU	step 6
indicates end of posted set	step 43

- 4 To display the next in service problem FRIU, type
>NEXT
and press the Enter key.

Example of a MAP display

PM FRIU
critical (on an LPP) (continued)

FRIU 121 SysB Rsvd

If the MAP response	Do
indicates an ISTb FRIU	step 5
indicates an ISTb (NA) FRIU	step 6
indicates end of posted set	step 43

5 Repeat step 4 until an in-service problem not available FRIU appears and you reach the end of the posted set.

6 Record the number of the posted FRIU for use in this procedure.

7 To query the FRIU to determine the frame type, type

>QUERYPM

and press the Enter key.

Note: A link peripheral processor (LPP) supplies the FRIU, if the header LIM appears. The header for the link interface module (LIM) must appear on the far left of the second line in the response. An SSLPP supplies the FRIU, if the header MS appears. In the example, the header is LIM.

Example of a MAP response:

```
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: . .
```

If the code	Do
is LIM	step 9
is MIS	step 8

8 Perform the procedure *Clearing a PM FRIU critical alarm (on an SSLPP)*. Do not return to this procedure.

9 To manually busy the FRIU, type

>BSY FORCE

and press the Enter key.

Example of a MAP response:

PM FRIU critical (on an LPP) (continued)

FRIU carrier will be affected by this mtce action.
Please confirm ("YES", "Y", "NO", or "N"):

- 10** To confirm the command, type

>YES

and press the Enter key.

If the FRIU	Do
is ManB	step 29
is ManB (NA)	step 11

- 11** To query the FRIU to determine if any related C-side faults are present, type

>QUERYPM

and press 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 #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
```

- 12** Record the number of the LIM. You will now clear faults for the LIM and F-bus.

Note: The number of the LIM appears on the right side of the LIM header.
The LIM header is on the MAP response in step 11.

- 13** To post the LIM that associates with the FRIU, type

>POST LIM *lim_no*

and press the Enter key.

where

PM FRIU
critical (on an LPP) (continued)

lim_no
 is the number of the LIM (0 to 16)

Example of a MAP response:

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

- 14** To access the F-bus level of the MAP, type
>FBUS
 and press the Enter key.

Example of a MAP response:

```
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 .---- -
```

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

- B** F-bus is manually busy or the controlling LIM unit is system busy or manually busy
- S** system-busy tap
- M** manually busy tap
- I** in-service problem tap
- dot (.)** in-service tap
- tap that is not equipped

- 15** Determine the state of the LIM and both F-buses.

If the state of the LIM and both F-buses	Do
is InSv and ISTb	step 18
is other than listed here	step 16

- 16** Record the state of the LIM and F-buses that have faults.

PM FRIU
critical (on an LPP) (continued)

17 A problem with the LIM produces a PM LIM alarm. A problem with the F-bus produces a PM LIMF alarm. Perform the correct alarm clearing procedure in *Alarm and Performance Monitoring Procedures*. Complete the procedure and return to this point.

18 To determine the F-bus tap that associates with the FRIU, type

```
>TRNSL fbus_no
```

and press the Enter key.

where

fbus_no

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

Note: The number of the F-bus tap for the FRIU appears 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 . . .
```

19 Determine the state of the F-bus taps.

Note: The tap state appears on the right of the tap header. The tap header is in the MAP display in step 18. The tap number applies to both F-buses.

If the state of	Do
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 are S	step 20
both F-bus taps are I or dot (.)	step 26

20 Choose a system busy tap to work on.

21 To manually busy the system busy F-bus tap, type

```
>BSY FBUS fbus_no tap_no FORCE
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

PM FRIU
critical (on an LPP) (continued)

tap_no
 is the number of the F-bus tap (0 to 35)

Go to step 24.

- 22** Choose a manual busy tap to work on.
- 23** Consult office records or operating company personnel. Determine the reason that the tap is manually busy.

Continue this procedure when you receive permission.

- 24** To return the F-bus tap to service, type

>RTS FBUS fbus_no tap_no

and press the Enter key.

where

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)

If the RTS command	Do
passed	step 25
failed, and a card list generated	step 36
failed, and a card list did not generate	step 32
failed, with the response local maintenance not accessible	step 32
failed for a reason other than listed here, and you did not work on the other tap	step 25
failed for a reason other than listed here, and you worked on the other tap	step 43

- 25** Determine the state of the other tap.

Note: The tap state appears on the right of the tap header. The tap header is in the MAP in step 18. The tap number applies to both F-buses.

If the state of the other tap	Do
is dot (.) (in service) or I (in-service problem)	step 26

PM FRIU
critical (on an LPP) (continued)

	If the state of the other tap	Do
	is M (manually busy)	step 23
	is S (system busy)	step 21
26	To quit from the F-bus level of the MAP, type > QUIT and press the Enter key.	
27	To return to the PM level of the MAP, type > PM and press the Enter key.	
28	To post the FRIU, type > POST FRIU friu_no and press the Enter key. <i>where</i> friu_no is the number of the FRIU that you work on (0 to 500) <i>Example of a MAP response:</i> FRIU 121 ManB Rsvd	
	Go to step 29.	
29	To reset the FRIU, type > PMRESET and press the Enter key.	
	If the PMRESET command	Do
	passed	step 31
	failed	step 30
30	To load the FRIU, type > LOADPM and press the Enter key.	
	If the LOADPM command	Do
	passed	step 31

PM FRIU
critical (on an LPP) (continued)

If the LOADPM command	Do
failed, with a card list that contained NTEX22 as the first card on the list	step 39
failed, with a card list that contained NTEX30 or NTEX31 as the first card on the list	step 31
failed, with no card list, and you did not check for LIM or F-bus faults with this procedure	step 11
failed, with no card list, and you already cleared LIM and F-bus alarms	step 43

31 To test the FRIU, type
>TST
 and press the Enter key.

If the TST command	Do
passed	step 42
failed, with a card list	step 36
failed, with any other result	step 43

At the frame

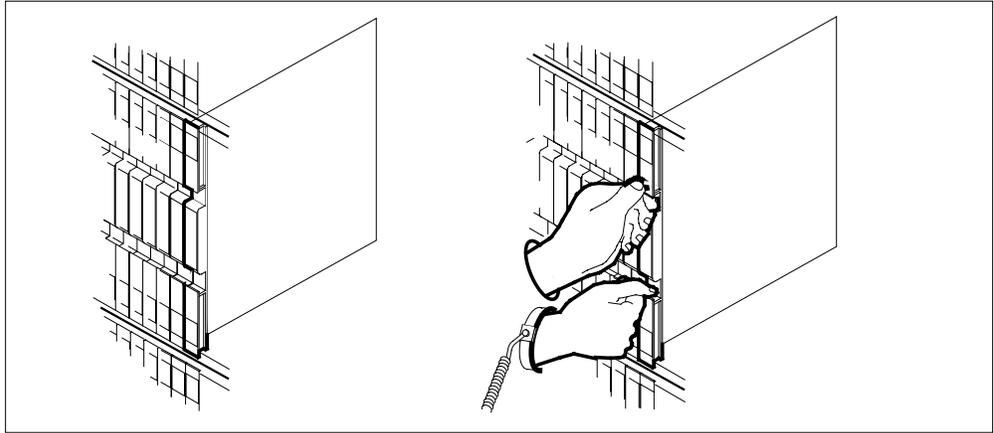
32



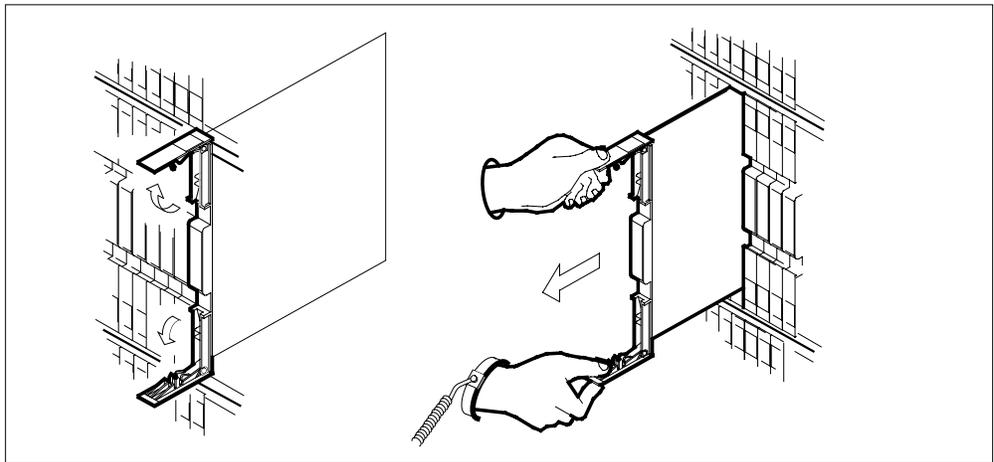
DANGER
Static electricity damage
 When you handle cards, wear a wrist-strap that connects to the wrist-strap grounding point. The grounding point is on the frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU that you tested. Seat the three cards for the FRIU again.

PM FRIU
critical (on an LPP) (continued)



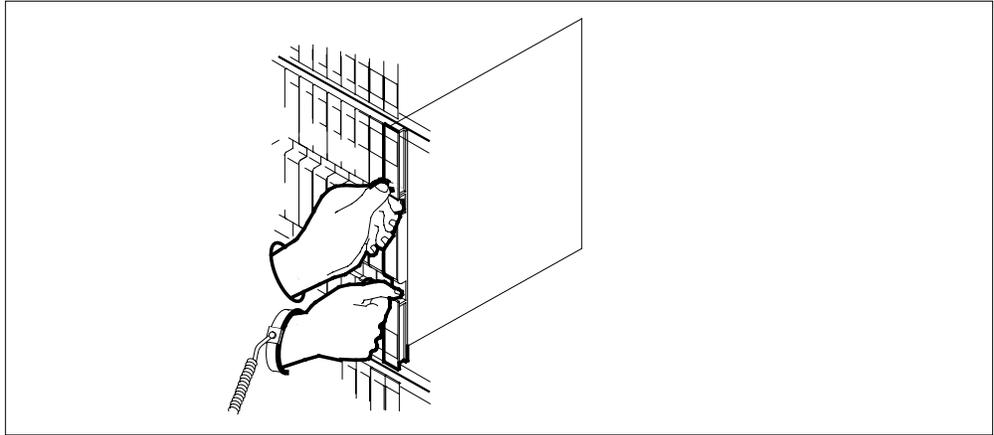
33 Carefully raise the locking levers. Pull the card 25 mm (1 in.) toward you.



34 Seat and lock the card, as follows:

- a** Push on the upper and lower edges of the faceplate with finger or thumb pressure. Perform this procedure to make sure that the card sits completely in the shelf.
- b** Close the locking levers.

PM FRIU critical (on an LPP) (continued)



- 35** Repeat steps 32 to 34 for the NTEX31 and NTEX30 cards for the FRIU that you tested.

Go to step 30.

- 36** Record the location, description, slot number, product engineering code (PEC), and PEC suffix, of the cards on the list. Replace cards on the list.

If you

Do

did not replace one or more of the cards on the list with this procedure

step 37

replaced all cards on the list with this procedure

step 41

-
- 37** Replace the first card that you did not replace on the list as a result of the alarm clearing procedure. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 38** Go to step 29.

- 39** Determine if you already replaced the NTEX22 card.

If you

Do

already replaced the NTEX22

step 43

did not replace the NTEX22

step 40

-
- 40** Replace the NTEX22 card. Perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 41** Go to step 30.

PM FRIU
critical (on an LPP) (end)

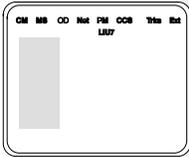
- 42** To return the FRIU to service, type
>RTS
and press the Enter key.

If the RTS command	Do
passed	step 44
failed	step 43

- 43** For additional help, contact the next level of support.
44 The procedure is complete.

PM FRIU major on an LPP

Alarm Display



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. The FRIU indicates a major alarm for a frame-relay interface unit (FRIU).

Meaning

A minimum of one FRIU is manual busy or manual busy not available for one of the following reasons:

- for maintenance purposes
- for maintenance purposes, and the FRIU does not respond to the computing module (CM)

The number under the PM header of the alarm banner indicates the number of FRIUs affected.

Result

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

Common procedures

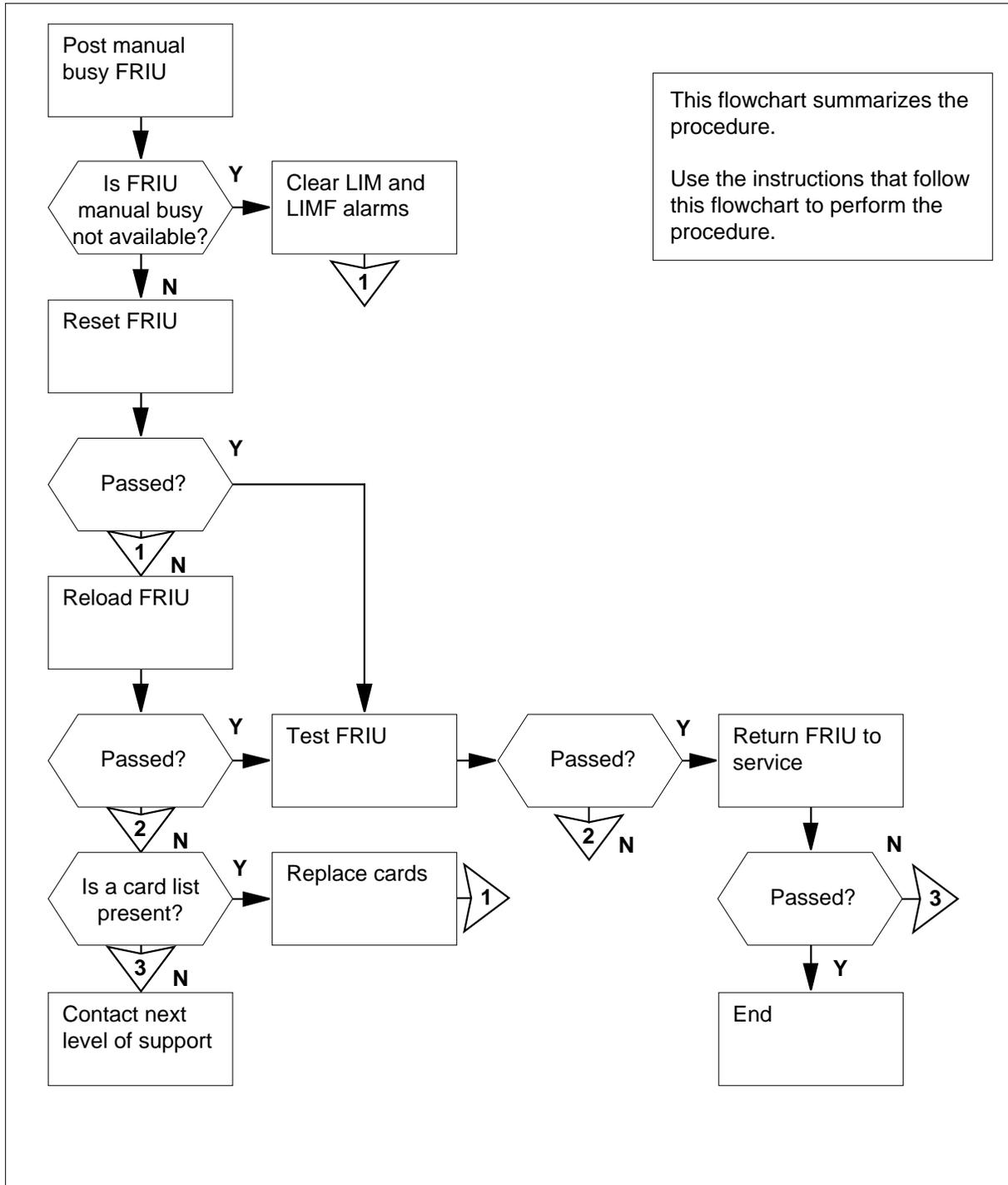
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps in the procedure.

PM FRIU major on an LPP (continued)

Summary of clearing a PM FRIU major alarm (on an LPP)



PM FRIU major on an LPP (continued)

Clearing a PM FRIU alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type
>MAPCI ;MTC ;PM
and press the Enter key.

Example of a MAP display:

```
                SysB   ManB   OffL   CBsy   ISTb   InSv
PM              0       2       0       0       0       70
```

- 2 To display the manual busy FRIUs, type
>POST FRIU MANB
and press the Enter key.

Example of a MAP response:

```
FRIU   121 ManB       Rsvd
```

If the MAP response	Do
indicates a ManB or ManB (NA) FRIU	step 3
indicates End of posted set	step 39

- 3 Record the number of the posted FRIU for use in this procedure.
- 4 To query the FRIU to determine the frame type, type
>QUERYPM
and press the Enter key.

Note: The FRIU is in an LPP if the code LIM appears. The code appears on the far left side of the second line in the response. The FRIU is in an SSLPP if the code MS appears. In the following example, the code is LIM.

Example of a MAP response:

PM FRIU major on an LPP (continued)

```

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:           .         .

```

If the code	Do
is LIM	step 6
is MS	step 5

- 5** Perform the procedure *Clearing an FRIU major alarm (on an SSLPP)*. Do not return to this procedure.
- 6** Determine the state of the FRIU from the response you obtained in step 2.

If the FRIU	Do
is ManB	step 25
is ManB (NA)	step 7

- 7** To query the FRIU to determine if any related C-side faults are present, type **>QUERYPM** and press the Enter key.
Example of a MAP response:

PM FRIU major on an LPP (continued)

```
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. Clear the faults associated with the LIM and F-bus.

Note: The number of the LIM appears on the right of the LIM header on the MAP response you obtained in step 7.

- 9** To post the LIM associated with the FRIU, type

```
>POST LIM lim_no
```

and press the Enter key.

where

lim_no
is the number of the LIM (0 to 16)

Example of a MAP response:

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

- 10** To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

Example of a MAP display:

PM FRIU major on an LPP (continued)

```

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.---- ---- ---- ---- ----

```

Note: The following example displays symbols under the tap numbers. 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

- 11** Determine the state of the LIM and both F-buses.

If the state of the LIM and both F-buses	Do
--	----

is InSv and ISTb	step 14
------------------	---------

is other than listed here	step 12
---------------------------	---------

- 12** Record the state of the LIM and F-buses that have faults.

- 13** A problem with the LIM produces a PM LIM alarm. A problem with the F-bus produces a PM LIMF alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 14** To determine the F-bus tap associated with the FRIU, type

```
>TRNSL fbus_no
```

and press 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 appears in the third column.

PM FRIU major on an LPP (continued)

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 appears on the right of the tap header in the MAP display you 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.
17 To manually busy the system busy F-bus tap, type
>BSY FBUS fbus_no tap_no FORCE
and press the Enter key.

where

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)

Go to step 20.

- 18** Choose a manual busy tap to work on.
19 Determine from office records or from operating company personnel why the tap is busy.
When you have permission, continue this procedure.

- 20** To return the F-bus tap to service, type
>RTS FBUS fbus_no tap_no
and press the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

PM FRIU
major on an LPP (continued)

tap_no
is the number of the F-bus tap (0 to 35)

If the RTS command	Do
passed	step 21
failed, and the system generated a card list	step 32
failed, and the system did not generate a card list	step 28
failed, with the responselocal maintenance not accessible	step 28
failed for any other reason, and you did not work on the other tap	step 21
failed for any other reason, and you worked on the other tap	step 39

21 Determine the state of the other tap.

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

If the state of the other tap	Do
is dot (.) (in service) or I (in-service trouble)	step 22
is M (manual busy)	step 20
is S (system busy)	step 16

22 To quit from the F-bus level of the MAP display, type

>QUIT

and press the Enter key.

23 To return to the PM level of the MAP display, type

>PM

and press the Enter key.

24 To post the FRIU, type

>POST FRIU friu_no

and press the Enter key.

where

friu_no
is the number of the FRIU (0 to 500)

PM FRIU
major on an LPP (continued)

FRIU 121 ManB Rsvd

Go to step 26.

- 25** To reset the FRIU, type
>PMRESET
 and press the Enter key.

If the PMRESET command	Do
passed	step 27
failed	step 26

- 26** To load the FRIU, type
>LOADPM
 and press the Enter key.

If	Do
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 did not use this procedure to check for LIM or F-bus faults	step 7
failed, with no card list and you cleared LIM and F-bus alarms	step 39

- 27** To test the FRIU, type
>TST
 and press the Enter key.

If the TST command	Do
passed	step 38
failed, with a card list	step 32
failed, with any other result	step 39

PM FRIU
major on an LPP (continued)

At the frame

28

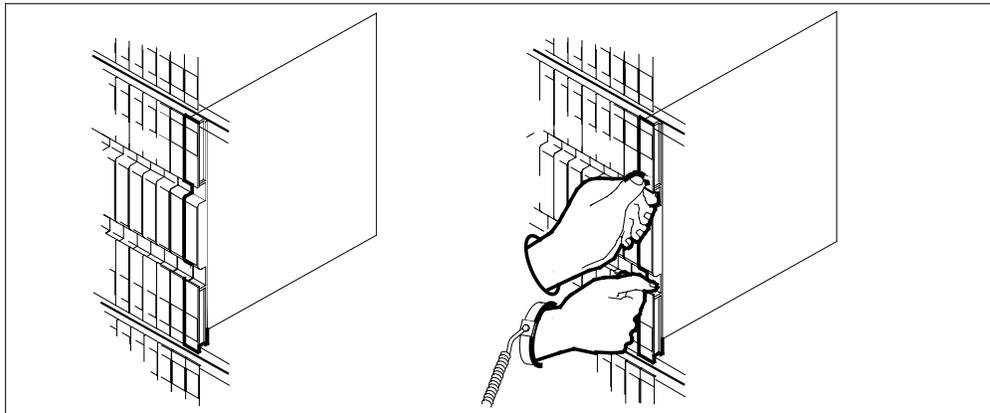


WARNING

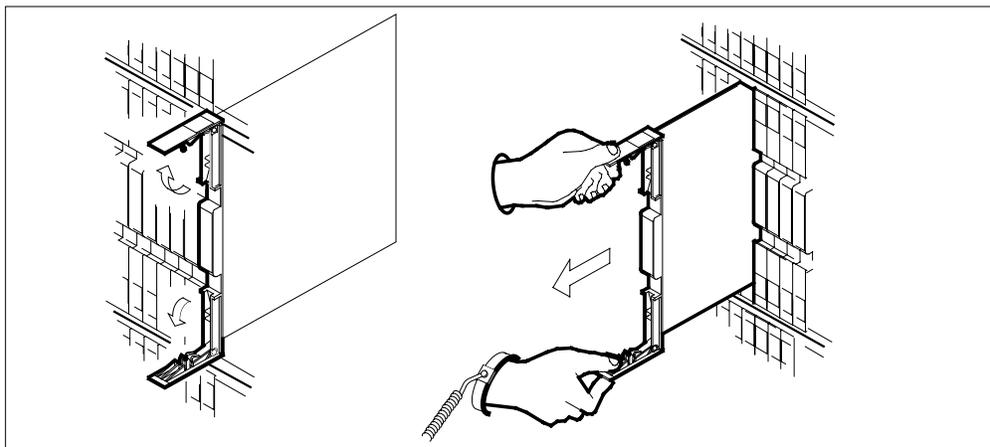
Static electricity damage

Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU. Put in correct position the three cards for the FRIU.



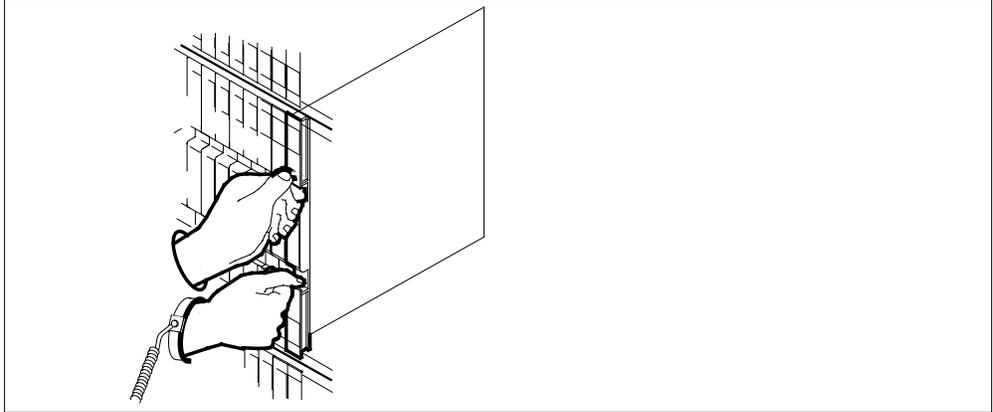
29 Lift the locking levers. Pull the card toward you 25 mm (1 in.).



30 Seat and lock the card as follows:

PM FRIU major on an LPP (continued)

- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- b Close the locking levers.



31 Repeat steps 28 to 30 for the NTEX30 and NTEX31 cards for the FRIU.
Go to step 26.

32 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.

If you	Do
do not replace a minimum of one card on the list using this procedure	step 33
replace all cards on the list using this procedure	step 39

33 Replace the first card on the list that you did not replace as a result of this alarm. Perform the correct procedure in *Card Replacement Procedures* to clear the alarm. Complete the procedure and return to this point.

34 Go to step 25.

35 Determine if replacement of the NTEX22 card occurred.

If replacement of the NTEX22	Do
occurred	step 39
did not occur	step 36

36 Perform the correct procedure in *Card Replacement Procedures* to replace the NTEX22 card. Complete the procedure and return to this point.

37 Go to step 36.

38 To return the FRIU to service, type
>RTS

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

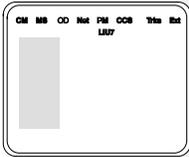
and press the Enter key.

If the RTS command	Do
passed	step 40
failed	step 39

- 39** For additional help, contact the next level of support.
- 40** The procedure is complete.

PM FRIU minor on an LPP

Alarm Display



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

Indication

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

Meaning

A minimum of one FRIU has in-service trouble for one of the following reasons:

- run 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 under the PM header of the alarm banner indicates the number of affected FRIUs.

Result

FRIUs with in-service trouble continue to function. The trouble does not affect the traffic on the DS-1 channels that associate with the FRIUs.

Common procedures

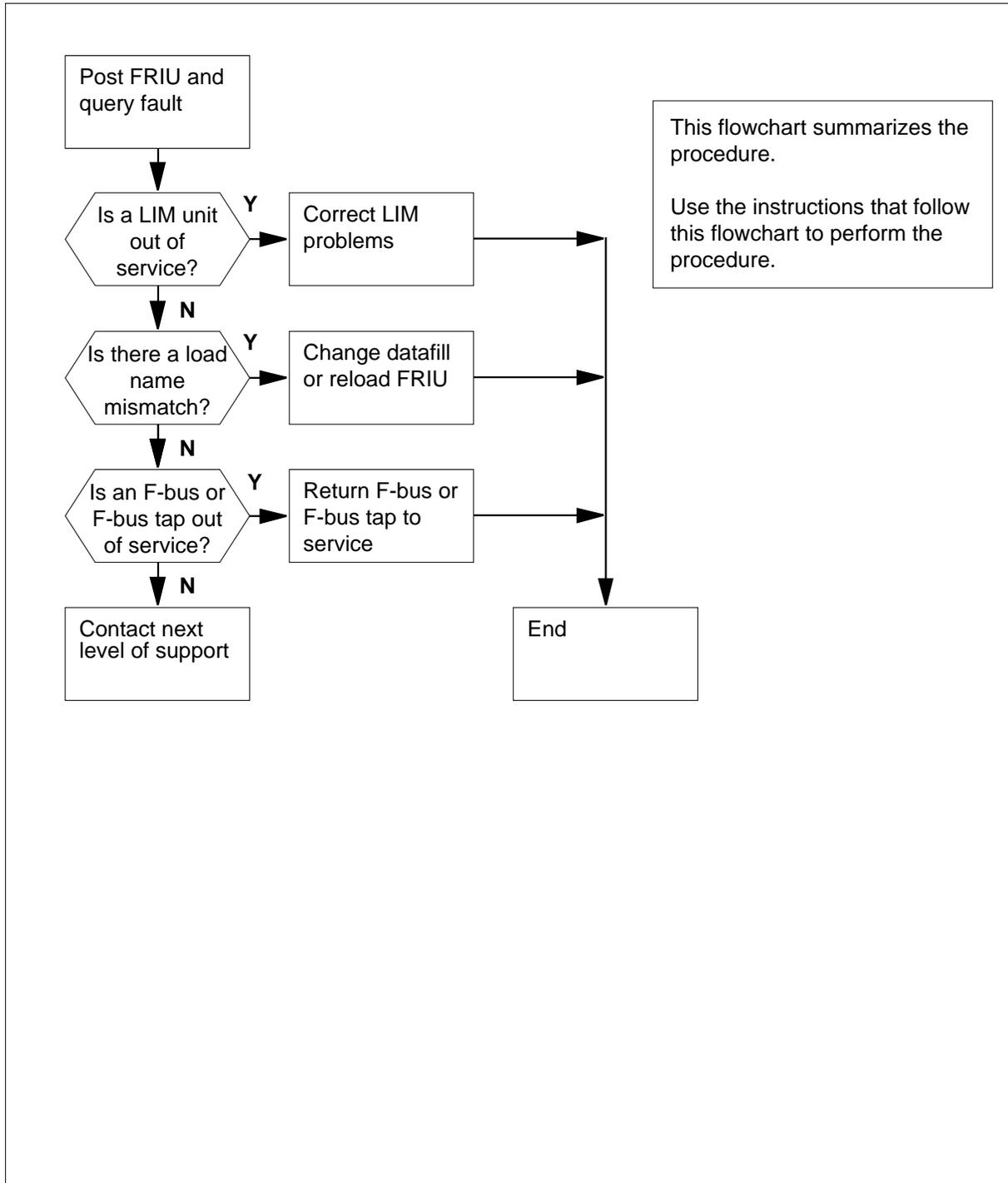
There are no common procedures.

Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM FRIU minor on an LPP (continued)

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



PM FRIU minor on an LPP (continued)

Clearing a PM FRIU alarm

At the MAP terminal

1



WARNING

Possible service-affecting action

Removal of an FRIU from service can be a requirement to complete the following procedure. When you take an FRIU out of service, loss of service can occur on the associated access or trunking DS-1 channels. When instructed, manually busy an FRIU during a period of low traffic.

To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	0	0	0	2	72

2 To post in-service trouble FRIUs, type

>POST FRIU ISTB

and press the Enter key.

Example of a MAP display:

FRIU	121	ISTb	Rsvd
------	-----	------	------

3 To query the FRIU to determine the frame type, type

>QUERYPM

and press the Enter key.

Note: The FRIU provisions in an LPP if the code LIM is shown to the far left of the second line in the response. The FRIU provisions in an SSLPP if the code MS is shown. In the example, the code is LIM.

Example of a MAP response:

PM FRIU minor on an LPP (continued)

```

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              .

```

If the code	Do
is LIM	step 5
is MS	step 4

- 4 Perform the procedure *Clearing a PM FRIU minor alarm (on an SSLPP)* in this document. Do not return to this procedure.
- 5 Determine the fault reason for the posted FRIU from the response you obtained in step 3.
If the response cleared from the MAP display and you want to obtain another query result, type
>QUERYPM
and press the Enter key.

Note: The fault reason appears under the ISTb conditions header in the response.

If the fault reason	Do
is Msg Channel #x NATAP #x OOS/NAHost Unit x is not inservice	step 6
is Loadname mismatch	step 14
is Msg Channel #x NATAP #x OOS/NA	step 25
switches repeatedly between more than one of the above reasons	step 58

- 6 Determine the number of the LIM associated with the FRIU from the MAP response you obtained in step 8. Clear faults associated with the LIM.

PM FRIU minor on an LPP (continued)

If the response cleared from the MAP display and you want to obtain another query result, type

>QUERYPM

and press the Enter key.

Note: The LIM number appears on the second line of the MAP response.

- 7 To post the LIM that associates with the in-service trouble FRIU, type

>POST LIM lim_no

and press the Enter key.

where

lim_no
is the LIM number (0 to 16)

Example of a MAP display:

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

- 8 Determine the state of both LIM units.

If	Do
the state of both LIM units is either InSv or ISTb	step 11
one LIM unit is in any other state	step 9

- 9 Record the number and the state of the LIM unit that has faults.

- 10 A problem with the LIM unit produces a PM LIM alarm. Perform the correct procedure in *Alarm and Performance Monitoring Procedures* to clear the alarm. Complete the procedure and return to this point.

- 11 To post the FRIU, type

>POST FRIU friu_no

and press the Enter key.

where

friu_no
is the number of the FRIU that you are working on (0 to 500)

Example of a MAP display:

```
FRIU  121  InSv      Rsvd
```

If the state of the FRIU	Do
is InSv	step 59

PM FRIU minor on an LPP (continued)

	If the state of the FRIU	Do
	is ISTb	step 12
	is other than listed here	step 13
12	To query the fault reason, type >QUERYPM FLT and press the Enter key.	
	If the fault reason	Do
	changed	step 5
	did not change	step 58
13	The state of the FRIU deteriorated, and alarm intensity increased. Perform the correct FRIU procedure in this document to clear the alarm. Do not return to this procedure.	
14	Determine the default load and the running load for the FRIU from the MAP response you obtained in step 8. If the response cleared from the MAP and you want to obtain another query result, type >QUERYPM and press the Enter key. Note: The name of the default load appears next to the Default Load header in the MAP response. The name of the running load appears to the right of the Running Load Header.	
15	Determine the correct name for the load from office records or from operating company personnel. Note: The datafilled load name in table PMLOADS must be correct.	
	If	Do
	both the default load name and the running load name do not match the load name you obtained from office records	step 16
	only the default load name does not match the load name you obtained from office records	step 16
	only the running load name does not match the load name you obtained from office records	step 24
16	To access table LIUINV, type >TABLE LIUINV	

PM FRIU minor on an LPP (continued)

and press the Enter key.

Example of a MAP response:

TABLE: LIUINV

- 17 To position on the datafill for the FRIU, type

>POSITION friu_no

and press the Enter key.

where

friu_no

is the number of the FRIU (0 to 500)

Example of a MAP response:

```
FRIU 121   LIM  0 2 12  XR35CJ      NTEX22BB
                                         NTEX30AA NTEX31BA
```

- 18 To change the load name datafilled for the FRIU to match the name you obtained from office records, type

>CHANGE LOAD

and press the Enter key.

Example of a MAP response:

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

- 19 To confirm the command, type

>Y

and press the Enter key.

- 20 To enter the correct load name, type

>loadname

and press the Enter key.

where

loadname

is the name of the correct load

Example of a MAP response:

```
TUPLE TO BE CHANGED:
FRIU 121   LIM  0 2 12  XR36CJ      NTEX22BB
                                         NTEX30AA NTEX31BA
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

- 21 To confirm the command, type

>Y

and press the Enter key.

PM FRIU minor on an LPP (continued)

- 22** To quit table LIUINV, type
>QUIT
 and press the Enter key.
- 23** Determine if the name of the running load matches the load name you obtained from office records.
- | If the running load name | Do |
|--|---------|
| does not match the name you obtained from office records | step 24 |
| matches the name you obtained from office records | step 59 |
- 24** To manually busy the FRIU, type
>BSY FORCE
 and press the Enter key.
 Go to step 55.
- 25** Determine the number of the LIM that associates with the FRIU and the tap number. Determine these numbers from the MAP response you obtained in step 8.
 If the response cleared from the MAP display and you want to obtain another query result, type
>QUERYPM
 and press the Enter key.
- Note:** The LIM number appears on the third line of the MAP response. The tap number appears to the right of the TAP header of the MAP response.
- 26** Record the number of the LIM and the number of the F-bus tap. Clear faults that associate with the LIM and the F-bus.
- Note:** The number of the LIM appears to the right of the LIM header on the MAP response you obtained in step 3. The number of the F-bus tap appears to the right of the TAP header.
- 27** To post the LIM that associates with the FRIU, type
>POST LIM lim_no
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
```

## PM FRIU minor on an LPP (continued)

- 28** To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press 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 previous example, symbols under the tap numbers indicate the following:

- B** F-bus is manual busy or 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

- 29** Determine the state of the F-buses.

**Note:** The state of the F-buses appears to the right of the F-bus header on the MAP display.

| If the state of                                                         | Do      |
|-------------------------------------------------------------------------|---------|
| 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 |

- 30** Record the state of the F-bus that has faults.
- 31** A problem with an F-bus produces a PM LIMF alarm. Perform the correct PM LIMF procedures in this document to clear the alarm. Complete the procedure and return to this point.
- 32** To post the FRIU, type  
**>PM;POST FRIU friu\_no**

## PM FRIU minor on an LPP (continued)

and press the Enter key.

where

**friu\_no**

is the number of the FRIU that you are working on (0 to 500)

Example of a MAP display:

```
FRIU 121 InSv Rsvd
```

| If the state of the FRIU  | Do      |
|---------------------------|---------|
| is InSv                   | step 59 |
| is ISTb                   | step 34 |
| is other than listed here | step 33 |

- 33** The state of the FRIU deteriorated, and the alarm intensity increased. Perform the correct FRIU procedure in this document to clear the alarm. Do not return to this procedure.

- 34** To query the fault reason, type

```
>QUERYPM FLT
```

and press the Enter key.

| If the fault reason | Do      |
|---------------------|---------|
| changed             | step 5  |
| did not change      | step 35 |

- 35** To post the LIM that associates with the FRIU, type

```
>POST LIM lim_no
```

and press 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
```

- 36** To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

Example of a MAP display:

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

```

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 -----

```

| <b>If the state of both F-buses</b> | <b>Do</b> |
|-------------------------------------|-----------|
| is InSv or ISTb                     | step 37   |
| is other than listed here           | step 58   |

- 37** Determine the state of the F-bus taps for the FRIU in use. Use the MAP response you obtained in the previous step.
- Note:** The tap state appears to the right of of the Tap header in the MAP response in the previous step. The tap number applies to both F-buses.

| <b>If the state of</b>                                                           | <b>Do</b> |
|----------------------------------------------------------------------------------|-----------|
| 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   |

- 38** To query the fault reason, type
- ```
>QUERYPM FLT
```
- and press the Enter key.

If the fault reason	Do
changed	step 5
did not change	step 58

- 39** The system corrected the cause of the FRIU minor alarm and the alarm cleared.
- Go to step 59.

- 40** To manually busy the system busy F-bus tap, type
- ```
>BSY FBUS fbus_no tap_no FORCE
```
- and press the Enter key.

---

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

---

*where*

**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)

Go to step 42.

- 41** Determine the cause of the busied tap from office records or from operating company personnel.

When you have permission, continue the procedure.

- 42** To return the F-bus tap to service, type

```
>RTS FBUS fbus_no tap_no
```

and press the Enter key.

*where*

**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)

| If the command                                                                           | Do      |
|------------------------------------------------------------------------------------------|---------|
| passed                                                                                   | step 43 |
| failed, and the system generates a card list that includes the NTEX22, NTEX30, or NTEX31 | step 51 |
| failed, and the system did not generate a card list                                      | step 46 |
| failed, with the responselocal maintenance not accessible                                | step 46 |
| failed, with a response that is other than listed here                                   | step 58 |

- 43** To post the FRIU, type

```
>PM;POST FRIU friu_no
```

and press the Enter key.

*where*

**friu\_no**  
is the number of the FRIU that you are working on (0 to 500)

*Example of a MAP display:*

## PM FRIU minor on an LPP (continued)

---

FRIU 121 InSv Rsvd

---

| If the state of the FRIU  | Do      |
|---------------------------|---------|
| is InSv                   | step 59 |
| is ISTb                   | step 44 |
| is other than listed here | step 45 |

---

- 44** To query the fault reason, type  
`>QUERYPM FLT`  
and press the Enter key.
- 

| If the fault reason | Do      |
|---------------------|---------|
| changed             | step 5  |
| did not change      | step 58 |

---

- 45** The state of the FRIU deteriorated, and the alarm intensity increased. Perform the correct FRIU procedure in this document to clear the alarm. Do not return to this procedure.

- 46** To post the FRIU, type  
`PM;POST FRIU friu_no`  
and press the Enter key.  
*where*  
**friu\_no**  
is the number of the FRIU (0 to 500)

*Example of a MAP display:*

FRIU 121 ISTb Rsvd

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

**At the frame**

47

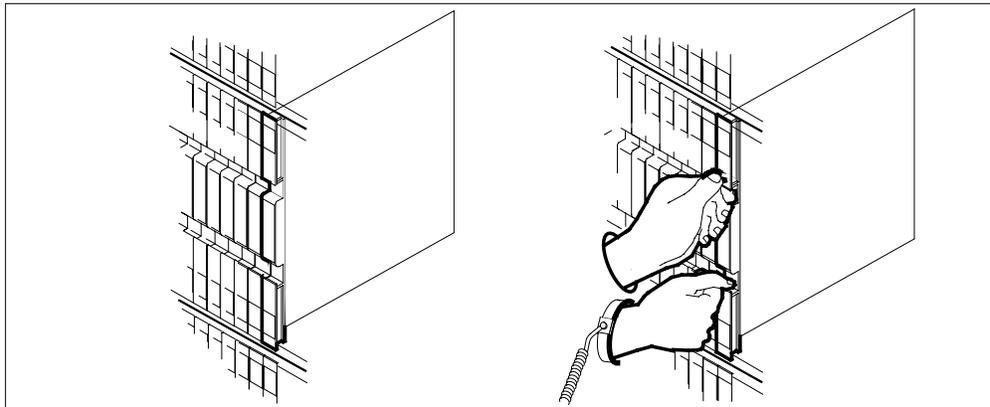


**WARNING**

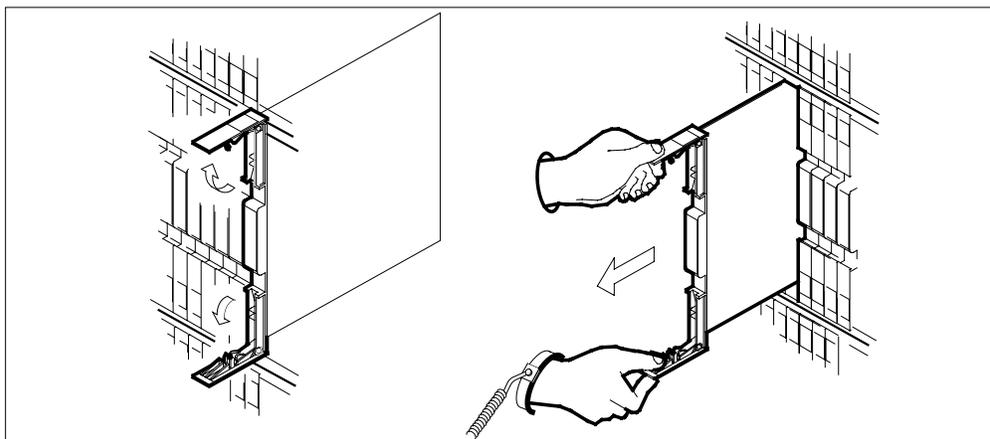
**Static electricity damage**

Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU. Put into correct position the three cards for the FRIU.



**48** Lift the locking levers. Pull the card toward you 25 mm (1 in.).

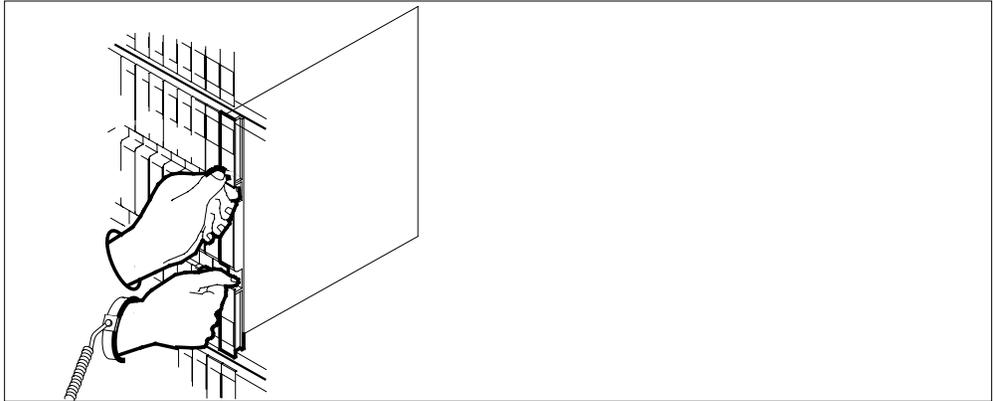


**49** Seat and lock the card as follows:

## PM FRIU minor on an LPP (continued)

---

- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Push on the edges of the faceplate to make sure that the card sits completely in the shelf.
- b Close the locking levers.



- 50 Repeat steps 47 to 49 for the NTEX30 and NTEX31 card for the FRIU.  
Go to step 55.
- 51 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.
- 52 To post the FRIU, type  

```
>PM;POST FRIU friu_no
```

and press the Enter key.  
*where*  
**friu\_no**  
is the number of the FRIU (0 to 500)  
*Example of a MAP display:*  

```
FRIU 121 ISTb Rsvd
```
- 53 To manually busy the FRIU, type  

```
>BSY FORCE
```

and press the Enter key.
- 54 Replace the first card on the list that you did not replace as a result of this alarm clearing procedure. Perform the correct procedure in *Card Replacement Procedures* to replace the cards. Complete the procedure and return to this point.
- 55 To load the FRIU, type  

```
>LOADPM
```

---

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

---

and press the Enter key.

| <b>If the LOADPM command</b>                                                       | <b>Do</b> |
|------------------------------------------------------------------------------------|-----------|
| passed                                                                             | step 56   |
| failed, without a card list and you put into correct position all cards            | step 58   |
| failed, without a card list and you did not put into correct position all cards    | step 47   |
| failed, with a card list and you did not replace a minimum of one card on the list | step 54   |
| failed, with a card list and you replaced all cards on the list                    | step 58   |

- 56** To test the FRIU, type  
>**TST**  
and press the Enter key.

| <b>If the TST command</b>                                                          | <b>Do</b> |
|------------------------------------------------------------------------------------|-----------|
| passed                                                                             | step 57   |
| failed, with a card list and you did not replace a minimum of one card on the list | step 54   |
| failed, with a card list and you replaced all cards on the list                    | step 58   |

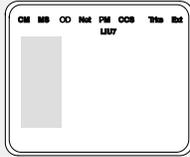
- 57** To return the FRIU to service, type  
>**RTS**  
and press the Enter key.

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 59   |
| failed                    | step 58   |

- 58** For additional help, contact the next level of support.  
**59** The procedure is complete.

## PM FRIU critical (on an SSLPP)

### Alarm display



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

### Indication

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

### Meaning

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

- The FRIU error interrupts
- The FRIU does not respond to computing module (CM) due to faults in the message switch (MS), F-buses, or F-bus taps
- An in-service test fails

The number under the peripheral module (PM) header in the alarm banner indicates the number of affected FRIUs.

### Result

The indicated FRIUs are out-of-service. The DS-1 channels for the FRIUs cannot carry traffic.

### Common procedures

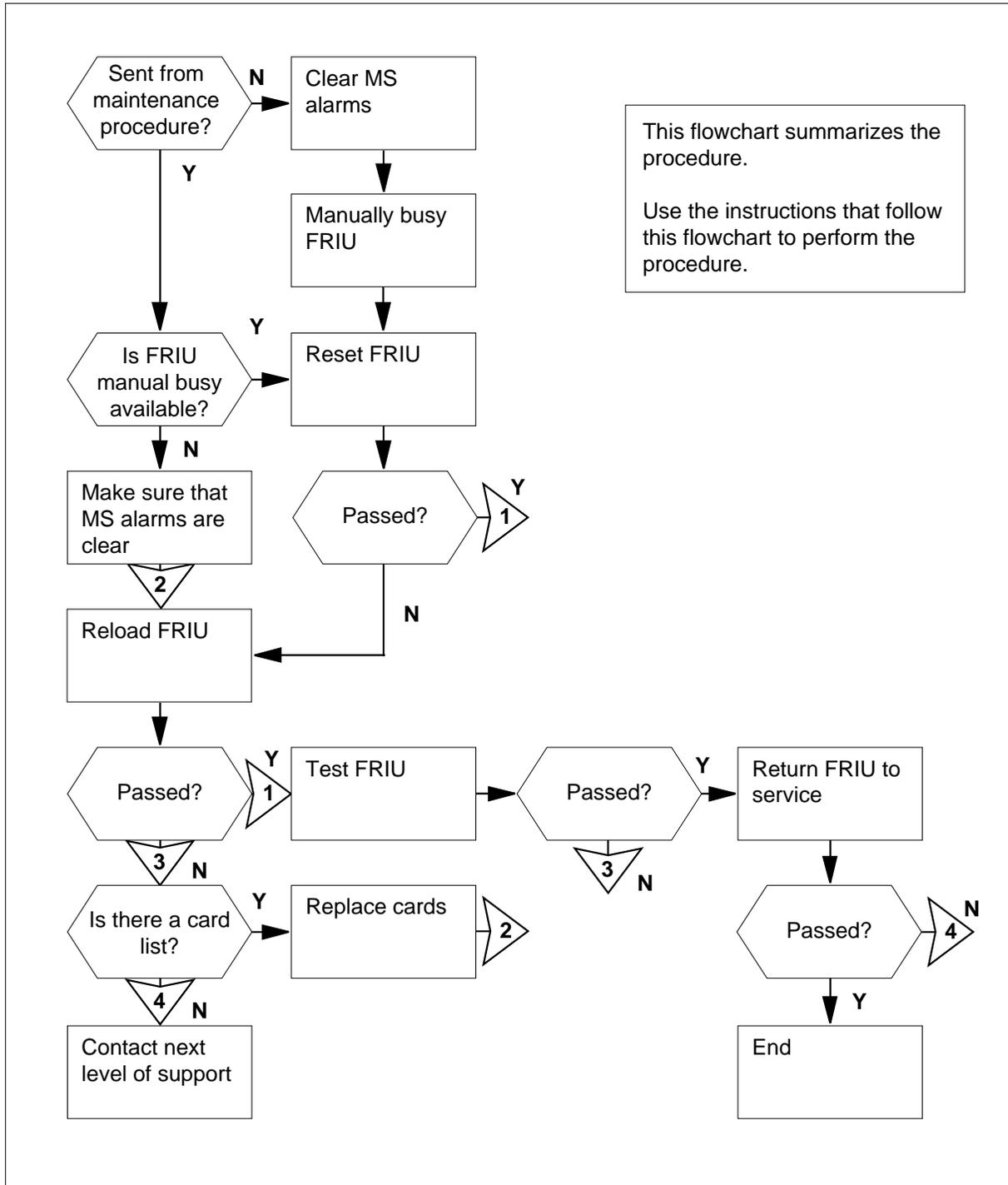
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

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

### Summary of Clearing a PM FRIU critical alarm (on an SSLPP)



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

### Clearing a PM FRIU alarm

#### At the MAP display

- 1 Determine your next step.

| If you                                                    | Do     |
|-----------------------------------------------------------|--------|
| came to this procedure from another maintenance procedure | step 7 |
| came to this procedure from other than listed here        | step 2 |

- 2 To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
and press the Enter key.

*Example of a MAP display:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 0    | 0    | 0    | 0    | 71   |

- 3 To display the system busy FRIUs, type  
**>POST FRIU SYSB**  
and press the Enter key.

*Example of a MAP display:*

|      |     |      |      |
|------|-----|------|------|
| FRIU | 121 | SysB | Rsvd |
|------|-----|------|------|

| If the MAP response                | Do     |
|------------------------------------|--------|
| indicates a SysB or SysB (NA) FRIU | step 7 |
| indicates End of posted set        | step 4 |

- 4 To check if in service trouble not available FRIUs are present, display the in service trouble FRIUs. To display the in service trouble FRIUs, type  
**>POST FRIU ISTB**  
and press the Enter key.

*Example of a MAP display:*

|      |     |           |      |
|------|-----|-----------|------|
| FRIU | 121 | ISTb (NA) | Rsvd |
|------|-----|-----------|------|

---

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

---

*Example of a MAP display:*

| If the MAP response                                          | Do      |
|--------------------------------------------------------------|---------|
| indicates an ISTb FRIU                                       | step 5  |
| indicates an ISTb (NA) FRIU                                  | step 7  |
| Text CharFormat="Mono">in-<br>dicates End of posted setText> | step 34 |

- 5** To display the next in service trouble FRIU, type  
**>NEXT**  
and press the Enter key.

*Example of a MAP display:*

```
FRIU 121 ISTb Rsvd
```

| If the MAP response                                          | Do     |
|--------------------------------------------------------------|--------|
| indicates an ISTb FRIU                                       | step 6 |
| indicates an ISTb (NA) FRIU                                  | step 7 |
| Text CharFormat="Mono">in-<br>dicates End of posted setText> | step35 |

- 6** Repeat step 4 until an in service trouble not available FRIU appears. Repeat step 4 until you reach the end of the posted set.
- 7** To manually busy the FRIU, type  
**>BSY FORCE**  
and press the Enter key.

*Example of a MAP display:*

```
FRIU carrier will be affected by this mtce action.
Please confirm ("YES", "Y", "NO", or "N"):
```

- 8** To confirm the command, type  
**>YES**  
and press the Enter key.

| If the FRIU  | Do      |
|--------------|---------|
| is ManB      | step 21 |
| is ManB (NA) | step 9  |

---

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

---

- 9 Access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card. To access table MSCDINV, type

```
>TABLE MSCDINV;FORMAT PACK
```

and press 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
```

- 10 To list all entries in the table, type

```
>LIST ALL
```

and press the Enter key.

*Example of a MAP response:*

```
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
```

**Note:** The example above shows a list that is not complete.

- 11 To determine the card number of the NT9X17AD MS 4-post universal card, use the response in step 10.

**Note:** The card number appears in the third column of the MAP response to the LIST ALL command. In the example in step 10, the NT9X17AD appears on the last line of the listing. The NT9X17AD is card number 17.

- 12 To quit table MSCDINV, type

```
>QUIT
```

and press the Enter key.

- 13 To search for MS-related faults that affect the FRIU, access the MS level of the MAP. To access the MS level of the MAP, type

```
>MS
```

and press the Enter key.

*Example of a MAP response:*

```
Message Switch Clock Shelf 0 Inter-MS Link 0 1
MS 0 . M Free . . 2 MS 1 . Slave
.
```

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

- 14 To access shelf 0, type

>**SHELF 0**

and press 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 To post the NT9X17AD card identified in step 11, type

>**CARD card\_no**

and press the Enter key.

*where*

**card\_no**

is the number of the card identified in step 11

*Example of a MAP response:*

```
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 -
```

- 16 Determine if the NT9X17AD card identified in step 11 has any defects.

**Note:** Locate the state of the card under the card number that appears on the MAP.

| If the card, taps, or F-bus | Do     |
|-----------------------------|--------|
| have defects                | step17 |
| do not have defects         | step18 |

- 17 To clear all MS alarms that relate to the NT9X17AD card, perform the correct MS alarm clearing procedure. The procedure is in *Alarm and Performance Monitoring Procedures*. Complete the procedure and return to this point.

- 18 To return to the PM level of the MAP display, type

>**PM**

and press the Enter key.

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

---

- 19** To post the FRIU, type  
>POST FRIU friu\_no  
and press the Enter key.  
*where*  
    **friu\_no**  
        is the number of the FRIU that you worked on (0 to 500)

*Example of a MAP display:*

```
FRIU 121 ManB Rsvd
```

Go to step 21.

- 20** To reset the FRIU, type  
>PMRESET  
and press the Enter key.

---

| <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passed                        | step 22   |
| failed                        | step 21   |

---

- 21** To load the FRIU, type  
>LOADPM  
and press the Enter key.

- 22** To test the FRIU, type  
>TST  
and press the Enter key.

---

| <b>If the TST command</b>                                                                   | <b>Do</b> |
|---------------------------------------------------------------------------------------------|-----------|
| passed                                                                                      | step 33   |
| failed, with a card list that<br>contains NTEX22 as the first<br>card on the list           | step 30   |
| failed, with a card list that<br>contains NTEX31 or NTEX30<br>as the first card on the list | step 27   |

---

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

**At the frame**

23

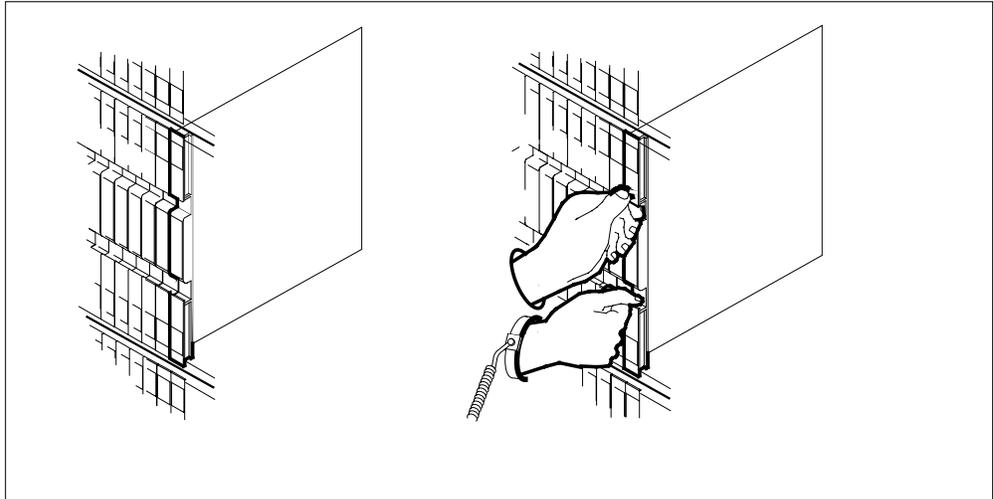


**DANGER**

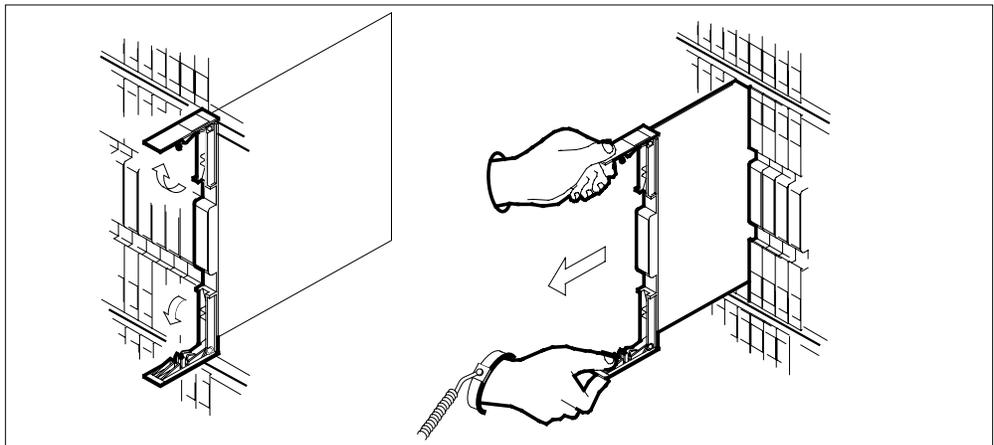
**Static electricity damage**

Wear a wrist strap that connects to a wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU that you tested. Seat the three cards for the FRIU again.



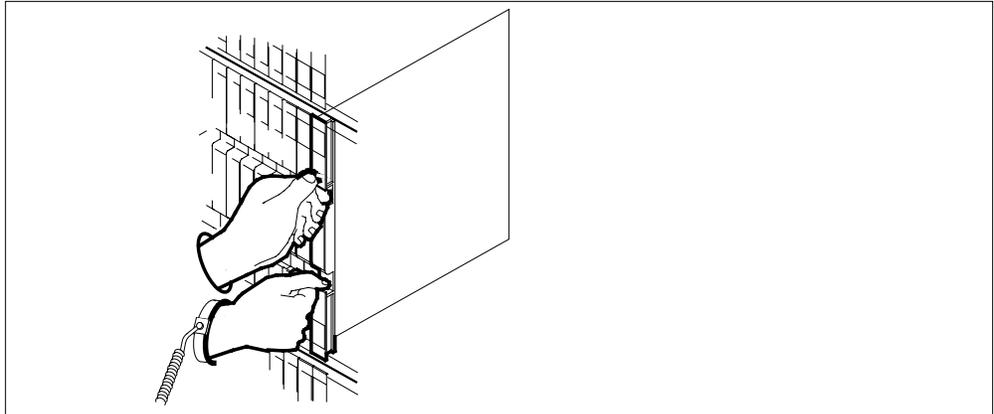
24 Carefully lift the locking levers. Pull the card 25 mm (1 in.) toward you.



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

---

- 25 Seat and lock the card as follows:
- a Use finger or thumb pressure to push on the upper and lower edges of the faceplate. Perform this procedure to make sure that the card sits completely in the shelf.
  - b Close the locking levers.



- 26 Repeat steps 23 to 25 for the NTEX31 and NTEX30 cards for the FRIU that you tested.  
Go to step 21.
- 27 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.

---

| <b>If you</b>                                                             | <b>Do</b> |
|---------------------------------------------------------------------------|-----------|
| did not replace one a minimum of one card on the list with this procedure | step 28   |
| replaced all cards on the list with this procedure                        | step 34   |

---

- 28 Replace the first card on the list that you did not replace as a result of this alarm clearing procedure. To replace the first card, perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 29 Go to step 33.
- 30 Determine if you already replaced the NTEX22 card.

---

| <b>If you</b>               | <b>Do</b> |
|-----------------------------|-----------|
| already replaced the NTEX22 | step 34   |
| did not replace the NTEX22  | step 31   |

---

---

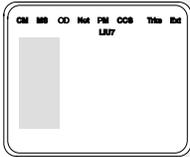
**PM FRIU**  
**critical (on an SSLPP) (end)**

---

- 31** To replace the NTEX22 card, perform the correct card replacement procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 32** Go to step 33.
- 33** To turn the FRIU to service, type  
>RTS  
and press the Enter key.
- | <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 35   |
| failed                    | step 34   |
- 34** For additional help, contact the next level of support.
- 35** The procedure is complete.

## 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. The FRIU indicates a major alarm for a frame relay interface unit (FRIU).

### Meaning

A minimum of one FRIU is manual busy or manual busy not available for one of the following reasons:

- for maintenance purposes
- for maintenance purposes, and the FRIU does not respond to the computing module (CM)

The number under the PM header of the alarm banner indicates the number of FRIUs affected.

### Result

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

### Common procedures

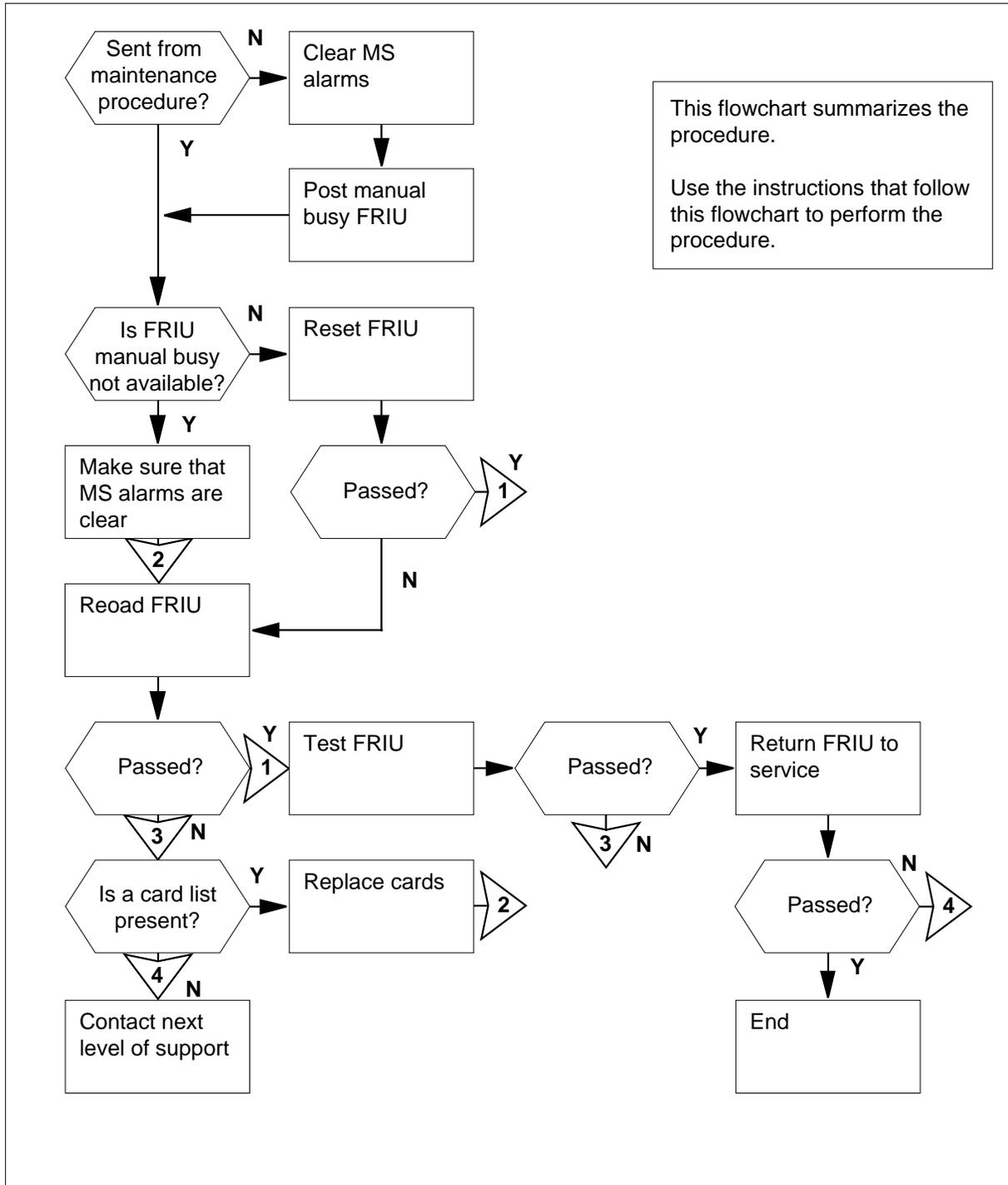
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM FRIU major on an SSLPP (continued)

### Summary of clearing a PM FRIU critical alarm (on an SLPP)



## PM FRIU major on an SSLPP (continued)

---

### Clearing a PM FRIU alarm

#### At the MAP terminal

- 1 Determine your next step.

---

| <b>If you came to this procedure<br/>from another maintenance<br/>procedure and the posted FRIU</b> | <b>Do</b> |
|-----------------------------------------------------------------------------------------------------|-----------|
|-----------------------------------------------------------------------------------------------------|-----------|

---

|                           |         |
|---------------------------|---------|
| is ManB (NA)              | step 4  |
| is ManB                   | step 16 |
| is other than listed here | step 2  |

---

- 2 To access the PM level of the MAP display, type  
>MAPCI ;MTC ;PM  
and press the Enter key.

*Example of a MAP display:*

```

 SysB ManB OffL CBsy ISTb InSv
PM 0 1 0 0 0 71

```

- 3 To display the system busy FRIUs, type  
>POST FRIU MANB  
and press the Enter key.

*Example of a MAP display:*

```

FRIU 121 ManB Rsvd

```

*Example of a MAP display:*

---

| <b>If the MAP response</b> | <b>Do</b> |
|----------------------------|-----------|
|----------------------------|-----------|

---

|                                 |         |
|---------------------------------|---------|
| indicates the FRIU is ManB      | step 16 |
| indicates the FRIU is ManB (NA) | step 4  |
| indicates End of posted set     | step 29 |

---

- 4 To access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card, type  
>TABLE MSCDINV ;FORMAT PACK  
and press the Enter key.

*Example of a MAP response:*



## PM FRIU major on an SSLPP (continued)

```

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 - - - - -

```

- 10 To post the NT9X17AD card you identified in step 1, type

>CARD **card\_no**

and press the Enter key.

where

**card\_no**

is the number of the card you 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 -

```

- 11 Determine if the NT9X17AD card you identified in step 11 has faults.

**Note:** Locate the state of the card under the card number shown on the MAP display.

| If the card, taps or F-bus | Do      |
|----------------------------|---------|
| have faults                | step 12 |
| do not have faults         | step 13 |

- 12 Make sure that the alarms you identified in step 11 are clear. Perform the correct MS procedure in *Alarm and Performance Monitoring Procedures* to clear the alarms. Complete the procedure and return to this point.

- 13 To return to the PM level of the MAP display, type

>PM

and press the Enter key.

- 14 To post the FRIU, type

>POST FRIU **friu\_no**

and press the Enter key.

where

---

## PM FRIU major on an SSLPP (continued)

---

**friu\_no**

is the number of the FRIU(0 to 500)

*Example of a MAP response:*

```
FRIU 121 ManB Rsvd
```

Go to step16.

- 15** To reset the FRIU, type  
>**PMRESET**  
and press the Enter key.

| If the <b>PMRESET</b> command | Do      |
|-------------------------------|---------|
| passed                        | step 17 |
| failed                        | step 16 |

- 16** To load the FRIU, type  
>**LOADPM**  
and press the Enter key.

- 17** To test the FRIU, type  
>**TST**  
and press the Enter key.

| If the <b>TST</b> command                                                             | Do      |
|---------------------------------------------------------------------------------------|---------|
| 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 |

---

## PM FRIU major on an SSLPP (continued)

### At the frame

18

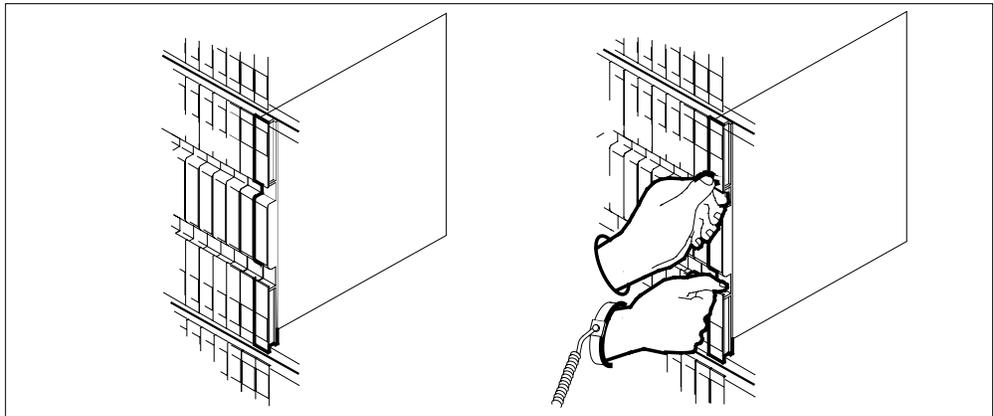


#### WARNING

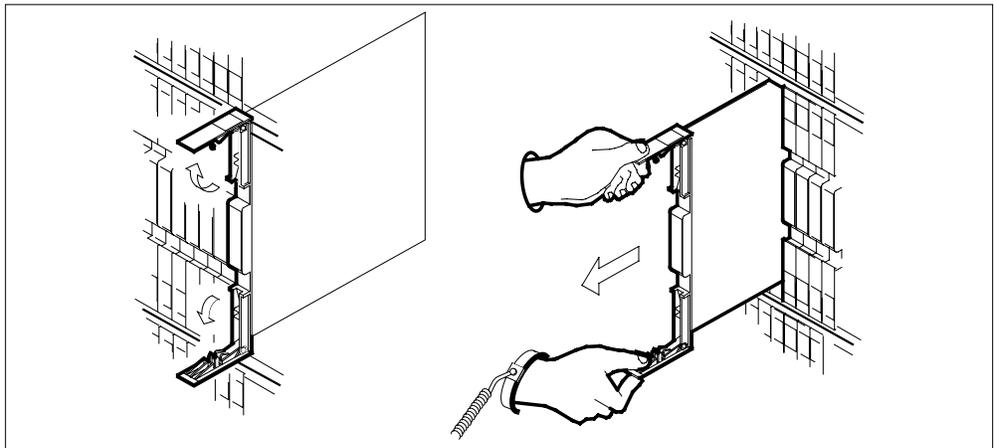
##### Static electricity damage

Wear a wrist strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The grounding point is on a frame supervisory panel (FSP). The wrist strap protects the cards against static electricity damage.

Locate the NTEX22 card for the FRIU. Put in correct position the three cards for the FRIU.



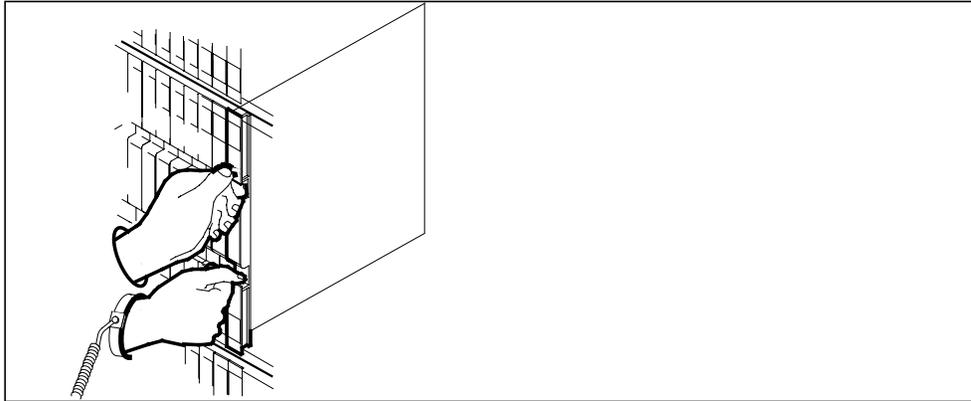
19 Lift the locking levers. Pull the card toward you 25 mm (1 in.).



20 Seat and lock the card as follows:

## PM FRIU major on an SSLPP (continued)

- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
- b Close the locking levers.



- 21 Repeat steps 18 to 20 for the NTEX31 and NTEX30 card for the FRIU. Go to step 16.
- 22 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.

| If you                                                                 | Do      |
|------------------------------------------------------------------------|---------|
| do not use this procedure to replace a minimum of one card on the list | step 23 |
| use this procedure to replace all cards on the list                    | step 29 |

- 23 Replace the first card on the list that you did not replace as a result of this alarm. Perform the correct procedure in *Card Replacement Procedures* to clear the alarm. Complete the procedure and return to this point.
- 24 Go to step 15.
- 25 Determine if replacement of the NTEX22 card occurred.

| If the replacement of the NTEX22 card | Do      |
|---------------------------------------|---------|
| occured                               | step 29 |
| did not occur                         | step 26 |

- 26 Perform the correct procedure in *Card Replacement Procedures* to replace the NTEX22 card. Complete the procedure and return to this point.
- 27 Go to step 16.

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

---

- 28** To return the FRIU to service, type  
>**RTS**  
and press the Enter key.

---

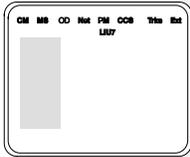
| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 30   |
| failed                    | step 29   |

---

- 29** For additional help, contact the next level of support.  
**30** The procedure is complete.

## PM FRIU minor (on an SSLPP)

### Alarm Display



| CM | MS | IOD | Net | PM           | 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. The FRIU indicates a minor alarm for a frame relay interface unit (FRIU).

### Meaning

A minimum of one FRIU is in-service trouble for one of the following reasons:

- run 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 under the PM header of the alarm banner indicates the number of affected FRIUs.

### Result

The FRIUs with in-service trouble continue to function. The trouble does not affect traffic on the DS-1 channels associated with the FRIUs.

### Common procedures

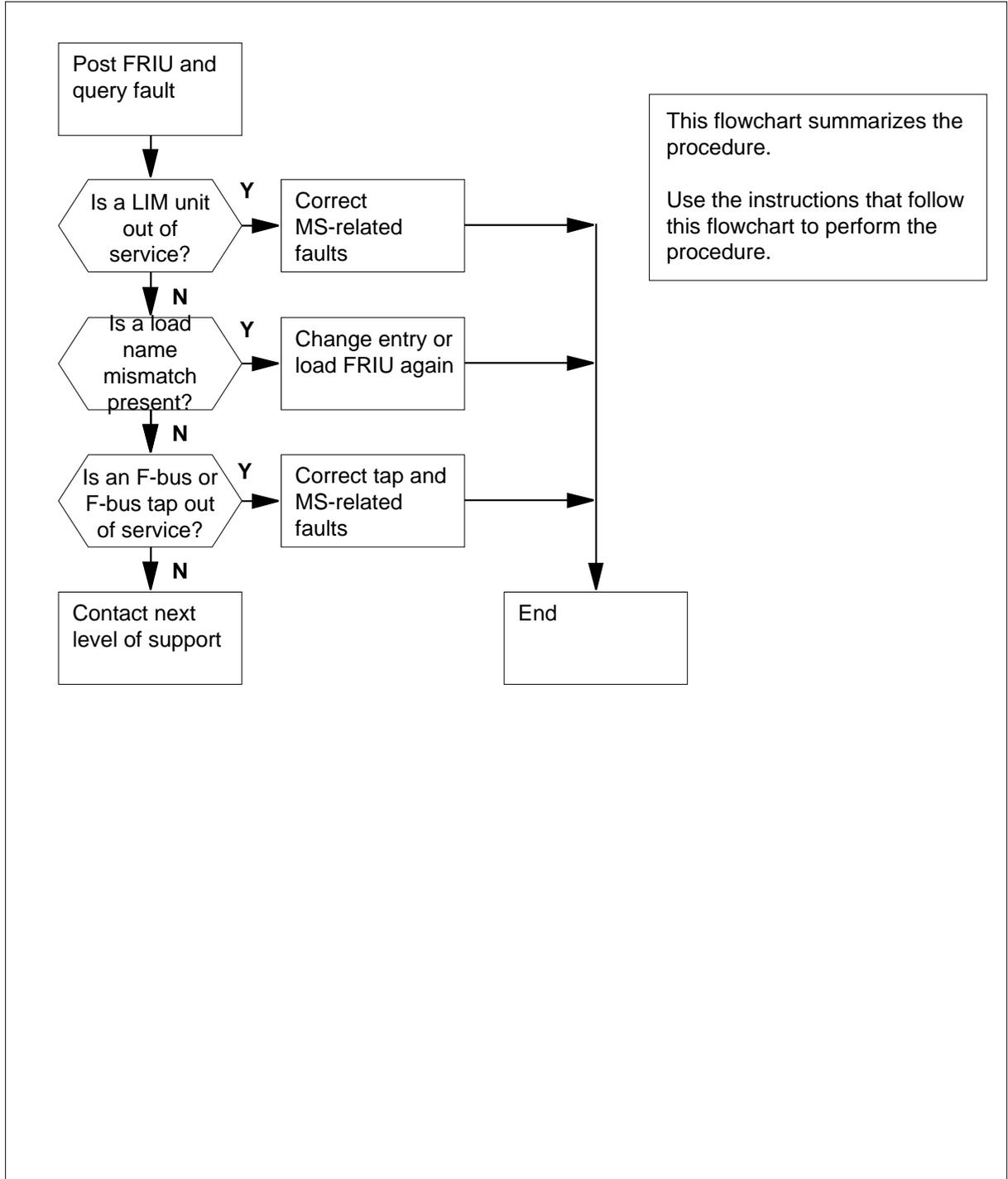
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

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

## Summary of clearing a PM FRIU minor alarm (on an SSLPP)



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

### Clearing a PM FRIU alarm

#### At the MAP terminal

- 1 Determine your next step.

| If you                                                    | Do     |
|-----------------------------------------------------------|--------|
| came to this procedure from another maintenance procedure | step 4 |
| came to this procedure from another position              | step 2 |

#### At the MAP terminal

- 2



#### **WARNING**

##### **Possible service-affecting action**

Removal of an FRIU from service can be a requirement to complete the following procedure. When you take an FRIU out of service, loss of service can occur on the associated access or trunking DS-1 channels. When instructed, manually busy an FRIU during a period of low traffic.

To access the PM level of the MAP display, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP display:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 0    | 0    | 0    | 0    | 2    | 72   |

- 3 To post in-service trouble FRIUs, type

**>POST FRIU ISTB**

and press the Enter key.

*Example of a MAP display:*

|      |     |      |      |
|------|-----|------|------|
| FRIU | 121 | ISTb | Rsvd |
|------|-----|------|------|

- 4 To query the FRIU to determine the type of the fault, type

**>QUERYPM**

and press the Enter key.

*Example of a MAP response:*

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

---

```
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 .
```

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

To obtain another query result when the response clears from the MAP display, type

>QUERYPM

and press the Enter key.

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

---

| If the fault reason                                            | Do      |
|----------------------------------------------------------------|---------|
| is Msg Channel #x NATAP #x OOS/NAHost Unit x is not inservice  | step 6  |
| is Loadname mismatch                                           | step 17 |
| is Msg Channel #x NATAP #x OOS/NA                              | step 6  |
| switches repeatedly between more than one of the above reasons | step 39 |

---

- 6 To access table MSCDINV to obtain the card number of the NT9X17AD MS 4-port universal card, type

>TABLE MSCDINV;FORMAT PACK

and press 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
```

---

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

---

- 7 To list all entries in the table, type

>LIST ALL

and press the Enter key.

*Example of a MAP response:*

```
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
```

**Note:** Part of a list appears in the preceding example.

- 8 Use the response you obtained in step 10 to determine the card number of the NT9X17AD MS 4-post universal card.

**Note:** The card number appears in the third column of the MAP response. The MAP response is a result of the LIST ALL command. In step 10, the NT9X17A appears on the last line of the listing and is card number 17.

- 9 To quit table MSCDINV, type

>QUIT

and press the Enter key.

- 10 To access the MS level of the MAP display to begin the search for MS-related faults that affect the FRIU, type

>MS

and press the Enter key.

*Example of a MAP display:*

```
Message Switch Clock Shelf 0 Inter-MS Link 0 1
MS 0 . M Free . . . 2 MS 1
 . Slave . . .
```

- 11 To access shelf 0, type

>SHELF 0

and press the Enter key.

*Example of a MAP display:*



---

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

---

where

**friu\_no**

is the number of the FRIU in use (0 to 500)

*Example of a MAP response:*

```
FRIU 121 ManB Rsvd
```

Go to step 36.

- 17** Determine the default load and the running load for the FRIU from the MAP response that you obtained in step 8.

To obtain another query result if the response cleared from the MAP, type

**>QUERYPM**

and press the Enter key.

**Note:** The name of the default load appears next to the Default Load header in the MAP response. The name of the running load appears to the right of the Running Load header.

- 18** Determine from office records or operating company personnel the correct name for the load.

**Note:** You must enter the correct load name in table PMLOADS for this procedure.

| If                                                                                                               | Do      |
|------------------------------------------------------------------------------------------------------------------|---------|
| both the default load name and the running load name do not match the load name you obtained from office records | step 19 |
| only the default load name does not match the load name you obtained from office records                         | step 19 |
| only the running load name does not match the load name you obtained from office records                         | step 27 |

- 19** To access table LIUINV, type

**>TABLE LIUINV**

and press the Enter key.

*Example of a MAP response:*

```
TABLE: LIUINV
```

- 20** To position on the datafill for the FRIU, type

**>POSITION friu\_no**

and press the Enter key.

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

---

where

**friu\_no**

is the number of the FRIU that was in use (0 to 500)

*Example of a MAP response:*

```
FRIU 121 LIM 0 2 12 F8X35CJ NTEX22BB
 NTEX30AA NTEX31BA
```

- 21** To change the load name datafilled for the FRIU to match the name you obtained from office records, type

**>CHANGE LOAD**

and press the Enter key.

*Example of a MAP response:*

```
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
```

- 22** To confirm the command, type

**>Y**

and press the Enter key.

- 23** To enter the correct load name, type

**>loadname**

and press the Enter key.

where

**loadname**

is the name of the correct load

*Example of a MAP response:*

```
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.
```

- 24** To confirm the command, type

**>Y**

and press the Enter key.

- 25** To quit table LIUINV, type

**>QUIT**

and press the Enter key.

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

- 26** Determine if the name of the running load matches the load name you obtained from office records.

| If the running load name                                 | Do      |
|----------------------------------------------------------|---------|
| does not match the name you obtained from office records | step 27 |
| matches the name you obtained from office records        | step 40 |

- 27** To manually busy the FRIU, type  
**>BSY FORCE**  
 and press the Enter key.  
 Go to step 36.

### *At the frame*

**28**

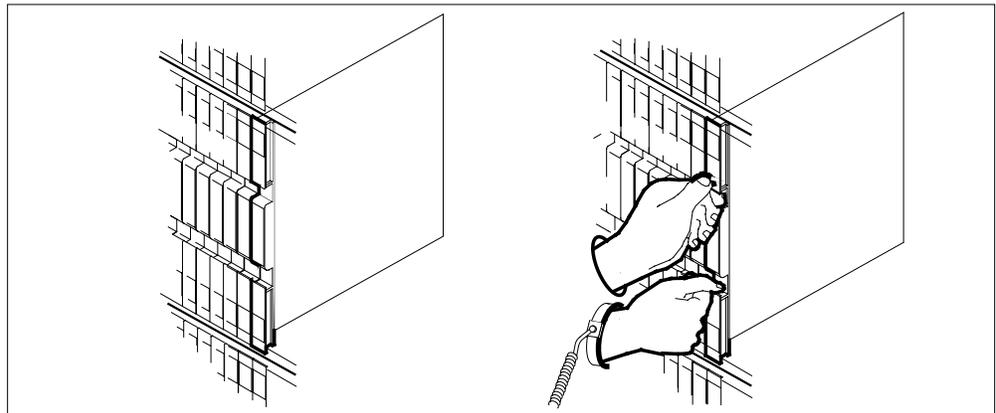


#### **WARNING**

##### **Static electricity damage**

Wear a wrist strap that connects with the wrist-strap grounding point of a frame supervisory panel (FSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

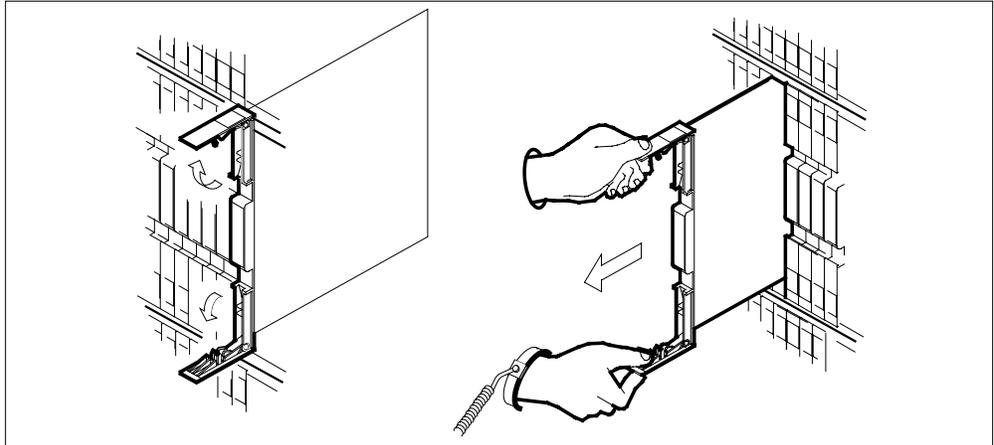
Locate the NTEX22 card for the FRIU. Put in correct position the three cards for the FRIU.



- 29** Lift the locking levers and pull the card towards you 25 mm (1 in.).

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

---



- 30** Seat and lock the card as follows:
- Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
  - Close the locking levers.
- 31** Repeat steps 28 to 30 for the NTEX30 and NTEX31 cards for the FRIU. Go to step 36.
- 32** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list. Replace cards on the list.
- 33** To post the FRIU, type
- ```
>PM;POST FRIU friu_no
```
- and press the Enter key.
- where
- friu_no**
is the number of the FRIU (0 to 500)
- Example of a MAP display:*
- ```
FRIU 121 ISTb Rsvd
```
- 34** To manually busy the FRIU, type
- ```
>BSY FORCE
```
- and press the Enter key.
- 35** Replace the first card on the list that you did not replace as a result of this alarm procedure. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 36** To load the FRIU, type
- ```
>LOADPM
```

---

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

---

and press the Enter key.

| <b>If the LOADPM command</b>                                                       | <b>Do</b> |
|------------------------------------------------------------------------------------|-----------|
| passed                                                                             | step 37   |
| failed, with no card list and you replaced all cards                               | step 39   |
| failed, with no card list and you did not put in correct position all cards        | step 28   |
| failed, with a card list and you did not replace a minimum of one card on the list | step 35   |
| failed, with a card list and you replaced all cards on the list                    | step 39   |

- 37** To test the FRIU, type  
>**TST**  
and press the Enter key.

| <b>If the TST command</b>                                                          | <b>Do</b> |
|------------------------------------------------------------------------------------|-----------|
| passed                                                                             | step 38   |
| failed, with a card list and you did not replace a minimum of one card on the list | step 35   |
| failed, with a card list and you replaced all cards on the list                    | step 39   |

- 38** To return the FRIU to service, type  
>**RTS**  
and press the Enter key.

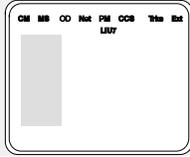
| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 40   |
| failed                    | step 39   |

- 39** For additional help, contact the next level of support.  
**40** The procedure is complete.

## PM HLIU critical

---

### Alarm display



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

### Indication

The HLIU alarm indicates a high-speed link interface unit (HLIU) critical alarm. The alarm appears at the MTC level of the MAP display under the PM header of the alarm banner. The alarm consists of a number followed by HLIU. The number indicates the number of affected HLIUs.

### Meaning

One or more HLIUs are system busy (SysB) or system busy not accessible. The service maintenance system attempts to recover the HLIUs automatically.

This alarm may be caused by a hardware fault. If a hardware fault exists, operating company personnel must replace the faulty cards.

### Impact

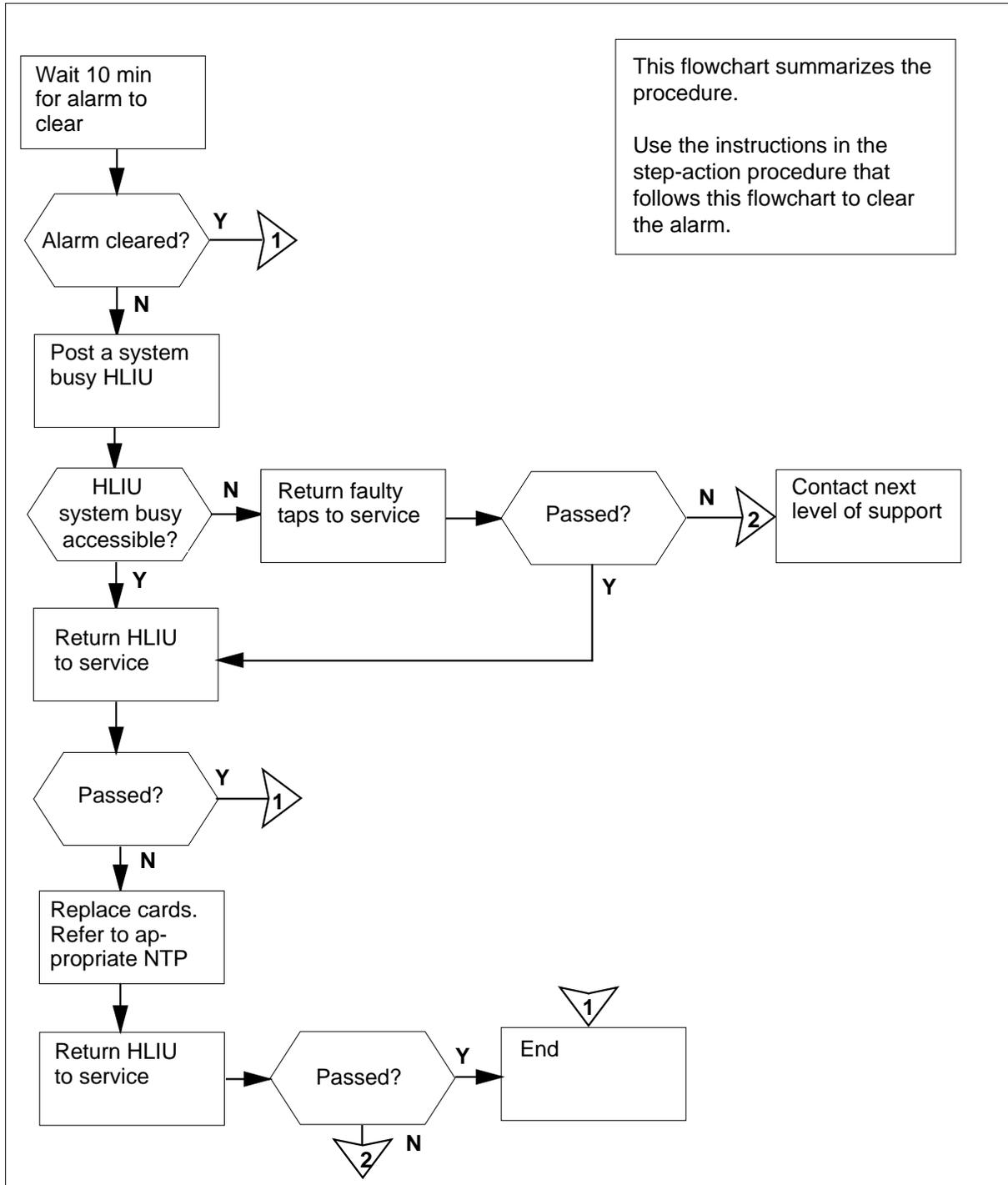
HLIUs and their associated signaling links are out of service.

### Common procedures

*Activating CCS7 links* is referenced in this procedure.

### Action

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

**PM HLIU critical** (continued)**Summary of clearing a PM HLIU critical alarm**

**PM HLIU critical** (continued)

---

**Clearing a PM HLIU critical alarm**

**At the MAP terminal**

1

|                                                                                   |                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b><br/> <b>Possible service-affecting action</b><br/>                 Do not POST, RTS, and LOAD multiple sets of HLIUs.<br/>                 Finish working on one set of HLIUs before working on another set.</p> |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The system will automatically attempt to reload the system-busy HLIUs and return them to service. Monitor PM181 logs to determine if the system has attempted three autorecovery attempts.

**Note:** After three unsuccessful autorecovery attempts, a forced autoloading pending maintenance flag will appear for the posted HLIU. When the system is in a forced autoloading pending state, approximately 5 min will elapse before another autorecovery attempt is performed.

|          | <b>If PM181 logs indicate</b>                                                                                                      | <b>Do</b> |
|----------|------------------------------------------------------------------------------------------------------------------------------------|-----------|
|          | an HLIU has failed three autorecovery attempts and is in a forced autoloading pending state                                        | step 2    |
|          | the system-busy HLIUs have successfully recovered automatically                                                                    | step 55   |
| <b>2</b> | Determine if all the MS alarms have been cleared.                                                                                  |           |
|          | <b>If the MS alarm</b>                                                                                                             | <b>Do</b> |
|          | cleared                                                                                                                            | step 4    |
|          | did not clear                                                                                                                      | step 3    |
| <b>3</b> | Perform the appropriate MS alarm clearing procedure in this document. When you have completed the procedure, return to this point. |           |
| <b>4</b> | Determine if the HLIU critical alarm cleared.                                                                                      |           |
|          | <b>If the HLIU alarm</b>                                                                                                           | <b>Do</b> |
|          | cleared                                                                                                                            | step 55   |
|          | did not clear                                                                                                                      | step 5    |

**PM HLIU critical** (continued)

- 5 Access the PM level of the MAP display by typing  
>**MAPCI;MTC;PM**  
and pressing the Enter key.
- 6 Display all system-busy HLIUs by typing  
>**DISP STATE SYSB HLIU**  
and pressing the Enter key.
- 7 Post the first system-busy HLIU on the list by typing  
>**POST HLIU liu\_no**  
and pressing the Enter key.  
*where*  
**liu\_no**  
is the number of the selected HLIU (0 to 511)
- 8 Determine the state of the posted HLIU.
- | <b>If the state of the posted HLIU is</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| SysB (NA)                                 | step 9    |
| SysB                                      | step 39   |
- 9 Determine if there is an FSP alarm under the EXT header of the MAP display.
- | <b>If an FSP alarm is</b> | <b>Do</b> |
|---------------------------|-----------|
| present                   | step 10   |
| not present               | step 11   |
- 10 Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.
- 11 Determine if a service-affecting condition is present by typing  
>**QUERYPM**  
and pressing the Enter key.  
**Note:** In the example, service-affecting conditions appear under the heading *Potential service affecting conditions*.  
*Example of a MAP response:*

**PM HLIU critical** (continued)

```

PM type:HLIU PM No.:110 Status: SysB(NA)
LIM: 1 Shelf:2 Slot: 12 LIU FTA:4249 1000
Default Load: HCA04CX
Running Load: HCA04CX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
Reserved HLIU forms part of CCS7 Linkset: LSCAP1
SLC: 5 LIU is allocated

```

- 12** Determine the number of the link interface module (LIM), link interface shelf (LIS), and tap and the name of the linkset associated with the HLIU.

**Note:** The numbers of the LIM and LIS associated with the HLIU appear in the second line of the MAP response. The number of the tap and linkset name associated with the HLIU appear at the bottom of the MAP response.

- 13** Post the LIM associated with the HLIU 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 1 ISTb OOS OOS_Taps
 Links LIS1 LIS2 LIS3
Unit0: ISTb 2 . . .
Unit1: ManB 2 8 8 8

```

- 14** Determine the state of the LIM.

| If the LIM is                                                              | Do      |
|----------------------------------------------------------------------------|---------|
| InSv or ISTb and the LIM is located on the link peripheral processor (LPP) | step 17 |
| InSv or ISTb and the LIM is located on the enhanced LPP (ELPP)             | step 18 |

**PM HLIU critical** (continued)

| <b>If the LIM is</b> | <b>Do</b> |
|----------------------|-----------|
| anything else        | step 15   |

**15** A problem with the LIM produces a PM LIM alarm. Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.

**16** Determine if the HLIU alarm cleared.

| <b>If the HLIU alarm</b> | <b>Do</b> |
|--------------------------|-----------|
| cleared                  | step 55   |
| did not clear            | step 18   |

**17** Access the FBus level of the MAP display by typing

**>FBUS**

and pressing the Enter key.

*Example of a MAP display:*

```
LIM 0 InSv
Unit0: InSv Links_OOS Taps_OOS
Unit1: InSv Links_OOS Taps_OOS
Tap: 0 4 8 12 16 20 24
FBus0: ManB --BB --BB --BB
FBus1: InSv --IM ---S ----
```

**Note:** In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

Go to step 19.

**18** Access the LIS level of the MAP display by typing

**>LIS lis\_no**

and pressing the Enter key.

*where*

**lis\_no**

is the number of the LIS that corresponds to the LIS number in step 12.

*Example of a MAP display:*

**PM HLIU critical** (continued)

```

LIM 8 InSv OOS OOS_Taps
 Links LIS1 LIS2 LIS3
Unit0: InSv 2 . . .
Unit1: InSv 2 . . .
LIS1 1 Tap: 0 4 8
FBus0: ManB --BB --BB --BB
FBus1: InSv --IM ---S ----

```

**Note:** In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

**19** Determine the state of the F-buses.

| If the F-buses are both | Do      |
|-------------------------|---------|
| InSv or ISTb            | step 22 |
| anything else           | step 20 |

**20** 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.

**21** Determine if the HLIU alarm cleared.

| If the HLIU alarm | Do      |
|-------------------|---------|
| cleared           | step 55 |
| did not clear     | step 22 |

**22** Determine which F-bus taps are associated with the HLIU by typing

```
>TRNSL fbus_no
```

and pressing the Enter key.

where

**fbus\_no**

is the number of either F-bus (0 or 1)

*Example of a MAP response:*

```

LIM 8 LIS 2 FBus 0 Tap 0 is on HLIU 101
LIM 8 LIS 2 FBus 0 Tap 1 is on HSLR 101
LIM 8 LIS 2 FBus 0 Tap 2 is on HLIU 102
LIM 8 LIS 2 FBus 0 Tap 3 is on HSLR 102

```

**PM HLIU critical** (continued)

- 23** From the MAP display generated in step 18, determine the state of the F-bus taps associated with the system-busy HLIU.

**Note:** The tap number shown in the MAP response in step 22 applies to both F-buses.

| <b>If the state of</b>                               | <b>Do</b> |
|------------------------------------------------------|-----------|
| either F-bus tap is fluctuating from I to S, or is S | step 28   |
| either F-bus tap is M                                | step 24   |
| both taps are in service                             | step 54   |

- 24** Determine from office records or other office personnel why the tap was taken out of service. When permitted, go to step 25.

- 25** Return the F-bus tap to service by typing

```
>RTS FBUS fbus_no tap_no
```

and pressing the Enter key.

where

**fbus\_no**  
is the number of the F-bus (0 or 1)

**tap\_no**  
is the number of the F-bus tap (0 to 11)

| <b>If the RTS command</b>               | <b>Do</b> |
|-----------------------------------------|-----------|
| passed, and the other tap is M          | step 23   |
| passed, and the other tap is in service | step 26   |
| failed                                  | step 54   |

- 26** Quit from the LIS level of the MAP display by typing

```
>QUIT
```

and pressing the Enter key.

- 27** Determine if the HLIU alarm cleared.

| <b>If the HLIU alarm</b> | <b>Do</b> |
|--------------------------|-----------|
| cleared                  | step 55   |
| did not clear            | step 36   |

- 28** Manually busy the tap on F-bus 0 by typing

```
>BSY FBUS 0 tap_no
```

and pressing the Enter key.

**PM HLIU critical** (continued)

*where*

**tap\_no**  
is the number of the F-bus tap (0 to 11)

| <b>If the BSY command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 30   |
| failed                    | step 29   |

- 29** Force the F-bus tap to busy by typing  
`>BSY FBUS 0 tap_no FORCE`  
 and pressing the Enter key.

*where*

**tap\_no**  
is the number of the F-bus tap (0 to 11)

- 30** Manually busy the tap on F-bus 1 by typing  
`>BSY FBUS 1 tap_no`  
 and pressing the Enter key.

*where*

**tap\_no**  
is the number of the F-bus tap (0 to 11)

| <b>If the BSY command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 32   |
| failed                    | step 31   |

- 31** Force the F-bus tap to busy by typing  
`>BSY FBUS 1 tap_no FORCE`  
 and pressing the Enter key.

*where*

**tap\_no**  
is the number of the F-bus tap (0 to 11)

- 32** Replace the NTEX22CA card by performing the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.

- 33** Return the tap on F-bus 0 to service by typing  
`>RTS FBUS 0 tap_no`  
 and pressing the Enter key.

*where*

**PM HLIU critical** (continued)

| <b>tap_no</b><br>is the number of the F-bus tap (0 to 11) |                                                                                                                                                                                  |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If the RTS command</b>                                 | <b>Do</b>                                                                                                                                                                        |
| passed                                                    | step 34                                                                                                                                                                          |
| failed                                                    | step 54                                                                                                                                                                          |
| <b>34</b>                                                 | Return the tap on F-bus 1 to service by typing<br>>RTS FBUS 1 tap_no<br>and pressing the Enter key.<br><i>where</i><br><b>tap_no</b><br>is the number of the F-bus tap (0 to 11) |
| <b>If the RTS command</b>                                 | <b>Do</b>                                                                                                                                                                        |
| passed                                                    | step 35                                                                                                                                                                          |
| failed                                                    | step 54                                                                                                                                                                          |
| <b>35</b>                                                 | Quit from the F-bus level of the MAP display by typing<br>>QUIT<br>and pressing the Enter key.                                                                                   |
| <b>36</b>                                                 | Post the system busy HLIU by typing<br>>POST HLIU liu_no<br>and pressing the Enter key.<br><i>where</i><br><b>liu_no</b><br>is the number of the HLIU (0 to 511)                 |
| <b>37</b>                                                 | Manually busy the HLIU by typing<br>>BSY<br>and pressing the Enter key.                                                                                                          |
| <b>If the response is</b>                                 | <b>Do</b>                                                                                                                                                                        |
| HLIU liu_no BSY Passed                                    | step 41                                                                                                                                                                          |

**PM HLIU critical** (continued)

|           | <b>If the response is</b>                                                                                                             | <b>Do</b>          |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|           | Busying HLIU liu_no will take a CCS7 resource out of service<br>Please confirm ("YES", "Y", "NO", or "N") :                           | step 38            |
|           | Anything else (apart from "failed"), including additional messages with above response<br>HLIU liu_no BSY Failed                      | step 54<br>step 39 |
| <b>38</b> | Confirm the command by typing<br>>YES<br>and pressing the Enter key.<br>Go to step 41                                                 |                    |
| <b>39</b> | Force the HLIU to busy by typing<br>>BSY FORCE<br>and pressing the Enter key.                                                         |                    |
|           | <b>If the response is</b>                                                                                                             | <b>Do</b>          |
|           | HLIU liu_no BSY Passed<br>Busying HLIU liu_no will take a CCS7 resource out of service<br>Please confirm ("YES", "Y", "NO", or "N") : | step 40<br>step 40 |
|           | Anything else, including additional messages with above response                                                                      | step 54            |
| <b>40</b> | Confirm the command by typing<br>>YES<br>and pressing the Enter key.                                                                  |                    |
| <b>41</b> | Reset the HLIU by typing<br>>PMRESET                                                                                                  |                    |

**PM HLIU critical** (continued)

and pressing the Enter key.

| <b>If the PMRESET command</b> | <b>Do</b> |
|-------------------------------|-----------|
| passed                        | step 43   |
| failed                        | step 42   |

**42** Load the HLIU by typing

>LOADPDM

and pressing the Enter key.

**43** Test the HLIU by typing

>TST

and pressing the Enter key.

| <b>If the TST command</b>                                                                   | <b>Do</b> |
|---------------------------------------------------------------------------------------------|-----------|
| passed                                                                                      | step 46   |
| failed, and a card list is generated that contains cards that have not already been changed | step 44   |
| anything else                                                                               | step 54   |

**44** Record the location, description, slot number, and the product engineering code (PEC), including suffix, of the first card on the list.

**45** Replace the card by performing the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, go to step 37.

**46** Return the HLIU to service by typing

>RTS

and pressing the Enter key.

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 47   |
| failed                    | step 54   |

**47** Access the C7LKSET level of the MAP display to determine whether the CCS7 link on the HLIU is in service by typing

>CCS ;CCS7 ;C7LKSET

and pressing the Enter key.

**48** Post the linkset associated with the HLIU by typing

>POST C linkset\_name

and pressing the Enter key.

**PM HLIU critical** (continued)

---

where

**linkset\_name**  
is the linkset name

Example of a MAP display:

```
Linkset TR000002 InSv
 Traf Sync
LK Stat Stat Resource Stat Physical Access
1 InSv Sync DLIU 8 InSv DS1
2 InSv Sync DLIU 7 InSv DS1
```

- 49** Determine the traffic state of the CCS7 link for the HLIU you are working on.

**Note:** The number of the HLIU you are working on is shown under the Resource header on the MAP display. The traffic state of the CCS7 link is shown under the Traf Stat header.

| If the state of the CCS7 link is | Do      |
|----------------------------------|---------|
| InSv                             | step 55 |
| anything else                    | step 50 |

- 50** Wait 8 min to see if the CCS7 link recovers when the HLIU re-establishes itself.

| If the state of the link is | Do      |
|-----------------------------|---------|
| InSv                        | step 55 |
| anything else               | step 51 |

- 51** Perform the procedure *Activating CCS7 links* in this document. When you have completed the procedure, return to this point.

- 52** Determine if the link activated.

| If the link activation | Do      |
|------------------------|---------|
| passed                 | step 53 |
| failed                 | step 54 |

- 53** Determine if the HLIU alarm cleared.

| If the alarm                                                   | Do      |
|----------------------------------------------------------------|---------|
| cleared                                                        | step 55 |
| decreased in number (for example, changed from 2HLIU to 1HLIU) | step 5  |

---

**PM HLIU critical** (end)

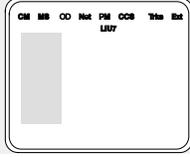
---

|           | <b>If the alarm</b>                                                                      | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------|-----------|
|           | did not clear                                                                            | step 54   |
| <b>54</b> | For further assistance, contact the personnel responsible for the next level of support. |           |
| <b>55</b> | You have completed this procedure.                                                       |           |

## PM HSLR critical

---

### Alarm display



| CM | MS | IOD | Net | PM           | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|--------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1HSLR<br>*C* | .   | .   | .    | .   | .    |

### Indication

The HSLR alarm indicates a high-speed link router (HSLR) critical alarm. The alarm appears at the MTC level of the MAP display under the PM header of the alarm banner. The alarm consists of a number followed by HSLR. The number indicates the number of affected HSLRs.

### Meaning

One or more HSLRs are system busy (SysB) or system busy not accessible. The service maintenance system attempts to recover the HSLRs automatically.

This alarm may indicate a hardware fault. If a hardware fault exists, operating company personnel must replace the faulty cards.

### Impact

HSLRs and their associated signaling links are out of service.

### Common procedures

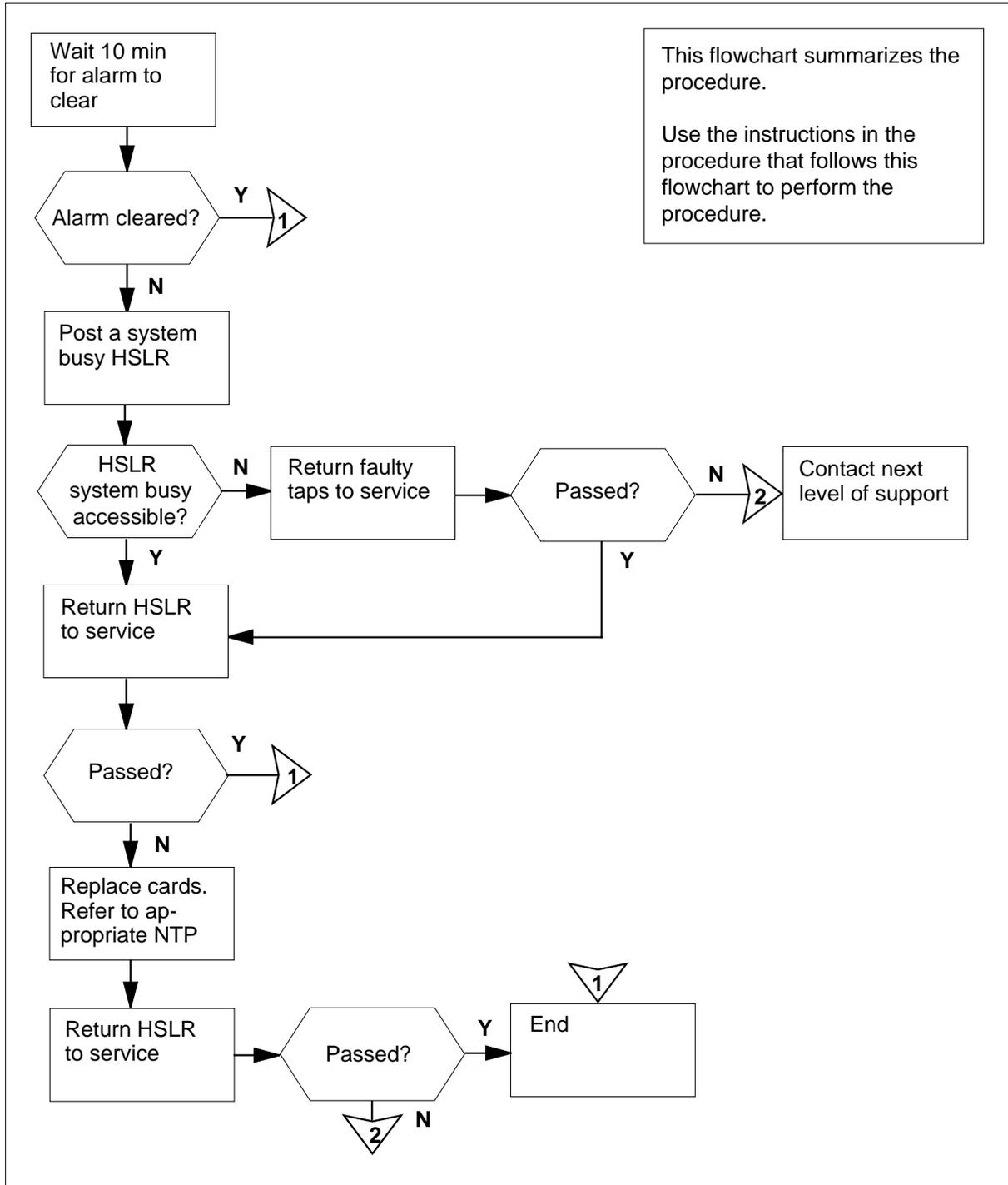
*Activating CCS7 links* is referenced in this procedure.

### Action

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

**PM HSLR critical** (continued)

**Summary of Clearing a PM HSLR critical alarm**



**PM HSLR critical** (continued)

---

**Clearing a PM HSLR critical alarm**

**At the MAP terminal**

1

|                                                                                   |                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b><br/> <b>Possible service-affecting action</b><br/>                 Do not POST, RTS, and LOAD multiple sets of HSLRs. Finish working on one set of HSLRs before working on another set.</p> |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The system will automatically attempt to reload the system-busy HSLRs and return them to service. Monitor PM181 logs to determine if the system has attempted three autorecovery attempts.

**Note:** After three unsuccessful autorecovery attempts, a forced autoloading pending maintenance flag will appear for the posted HSLR. When the system is in a forced autoloading pending state, approximately 5 min will elapse before another autorecovery attempt is performed.

|          | <b>If PM181 logs indicate</b>                                                                                                      | <b>Do</b> |
|----------|------------------------------------------------------------------------------------------------------------------------------------|-----------|
|          | an HSLR has failed three autorecovery attempts and is in a forced autoloading pending state                                        | step 2    |
|          | the system-busy HSLRs have successfully recovered automatically                                                                    | step 55   |
| <b>2</b> | Determine if all the MS alarms have been cleared.                                                                                  |           |
|          | <b>If the MS alarm cleared</b>                                                                                                     | <b>Do</b> |
|          | cleared                                                                                                                            | step 4    |
|          | did not clear                                                                                                                      | step 3    |
| <b>3</b> | Perform the appropriate MS alarm clearing procedure in this document. When you have completed the procedure, return to this point. |           |
| <b>4</b> | Determine if the HSLR critical alarm cleared.                                                                                      |           |
|          | <b>If the HSLR alarm</b>                                                                                                           | <b>Do</b> |
|          | cleared                                                                                                                            | step 55   |
|          | did not clear                                                                                                                      | step 5    |

**PM HSLR critical** (continued)

- 5 Access the PM level of the MAP display by typing  
>**MAPCI;MTC;PM**  
and pressing the Enter key.
- 6 Display all system-busy HSLRs by typing  
>**DISP STATE SYSB HSLR**  
and pressing the Enter key.
- 7 Post the first system-busy HSLR on the list by typing  
>**POST HSLR liu\_no**  
and pressing the Enter key.  
*where*  
**liu\_no**  
is the number of the selected HSLR (0 to 511)
- 8 Determine the state of the posted HSLR.
- | <b>If the state of the posted HSLR is</b> | <b>Do</b> |
|-------------------------------------------|-----------|
| SysB (NA)                                 | step 9    |
| SysB                                      | step 39   |
- 9 Determine if there is an FSP alarm under the EXT header of the MAP display.
- | <b>If an FSP alarm is</b> | <b>Do</b> |
|---------------------------|-----------|
| present                   | step 10   |
| not present               | step 11   |
- 10 Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.
- 11 Determine if a service-affecting condition is present by typing  
>**QUERYPM**  
and pressing the Enter key.  
**Note:** In the example, service-affecting conditions appear under the heading *Potential service affecting conditions*.  
*Example of a MAP response:*

**PM HSLR critical** (continued)

---

```

PM type:HSLR PM No.:110 Status: SysB(NA)
LIM: 1 Shelf:2 Slot: 12 LIU FTA:4249 1000
Default Load: HCA04CX
Running Load: HCA04CX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
Reserved HSLR forms part of CCS7 Linkset: LSCAP1
SLC: 5 LIU is allocated

```

- 12** Determine the number of the link interface module (LIM), link interface shelf (LIS), and tap and the name of the linkset associated with the HSLR.

**Note:** The numbers of the LIM and LIS associated with the HSLR appear in the second line of the MAP response. The number of the tap and linkset name associated with the HSLR appear at the bottom of the MAP response.

- 13** Post the LIM associated with the HSLR 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 1 ISTb OOS OOS_Taps
 Links LIS1 LIS2 LIS3
Unit0: ISTb 2 . . .
Unit1: ManB 2 8 8 8

```

- 14** Determine the state of the LIM.

---

| <b>If the LIM is</b>                                                       | <b>Do</b> |
|----------------------------------------------------------------------------|-----------|
| InSv or ISTb and the LIM is located on the link peripheral processor (LPP) | step 17   |
| InSv or ISTb and the LIM is located on the enhanced LPP (ELPP)             | step 18   |

---

**PM HSLR critical** (continued)

- |  | <b>If the LIM is</b> | <b>Do</b> |
|--|----------------------|-----------|
|  | anything else        | step 15   |
- 15** A problem with the LIM produces a PM LIM alarm. Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, return to this point.
- 16** Determine if the HSLR alarm cleared.
- |  | <b>If the HSLR alarm</b> | <b>Do</b> |
|--|--------------------------|-----------|
|  | cleared                  | step 55   |
|  | did not clear            | step 18   |
- 17** Access the FBus level of the MAP display by typing  
**>FBUS**  
and pressing the Enter key.  
*Example of a MAP display:*
- ```
LIM 0 InSv
          Links_OOS   Taps_OOS
Unit0:  InSv         2       .
Unit1:  InSv         2       .
          Tap:  0     4     8    12    16    20    24
FBus0:  ManB        --BB  --BB  --BB  ....  ....  ....  ....
FBus1:  InSv        --IM  ---S  ----  ....  ....  ....  ....
```
- Note:** In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.
- Go to step 19.
- 18** Access the LIS level of the MAP display by typing
>LIS lis_no
and pressing the Enter key.
where
lis_no
is the number of the LIS that corresponds to the LIS number in step 12.
Example of a MAP display:

PM HSLR critical (continued)

```

LIM 8 InSv                OOS    OOS_Taps
                          Links LIS1 LIS2 LIS3
Unit0: InSv                2      .   .   .
Unit1: InSv                2      .   .   .
LIS1 1 Tap: 0             4   8
FBus0: ManB  --BB  --BB  --BB
FBus1: InSv  --IM  ---S  ----
    
```

Note: In the example, B under a tap number indicates that the F-bus is manual busy or that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. An M indicates a manual-busy tap. An I indicates an in-service trouble tap. An S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

19 Determine the state of the F-buses.

If the F-buses are both	Do
InSv or ISTb	step 22
anything else	step 20

20 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.

21 Determine if the HSLR alarm cleared.

If the HSLR alarm	Do
cleared	step 55
did not clear	step 22

22 Determine which F-bus taps are associated with the HSLR by typing

```
>TRNSL fbus_no
```

and pressing the Enter key.

where

fbus_no

is the number of either F-bus (0 or 1)

Example of a MAP response:

```

LIM 8 LIS 2 FBus 0 Tap 0 is on HLIU 101
LIM 8 LIS 2 FBus 0 Tap 1 is on HSLR 101
LIM 8 LIS 2 FBus 0 Tap 2 is on HLIU 102
LIM 8 LIS 2 FBus 0 Tap 3 is on HSLR 102
    
```

PM HSLR critical (continued)

- 23** From the MAP display generated in step 18, determine the state of the F-bus taps associated with the system-busy HSLR.

Note: The tap number shown in the MAP response in step 22 applies to both F-buses.

If the state of	Do
either F-bus tap is fluctuating from I to S, or is S	step 28
either F-bus tap is M	step 24
both F-bus taps are in service	step 54

- 24** Determine from office records or other office personnel why the tap was taken out of service. When permitted, go to step 25.

- 25** Return the F-bus tap to service by typing

```
>RTS FBUS fbus_no tap_no
```

and pressing the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

tap_no
is the number of the F-bus tap (0 to 11)

If the RTS command	Do
passed, and the other tap is M	step 23
passed, and the other tap is in service	step 26
failed	step 54

- 26** Quit from the LIS level of the MAP display by typing

```
>QUIT
```

and pressing the Enter key.

- 27** Determine if the HSLR alarm cleared.

If the HSLR alarm	Do
cleared	step 55
did not clear	step 36

- 28** Manually busy the tap on F-bus 0 by typing

```
>BSY FBUS 0 tap_no
```

and pressing the Enter key.

PM HSLR critical (continued)

where

tap_no
is the number of the F-bus tap (0 to 11)

If the BSY command	Do
passed	step 30
failed	step 29

- 29** Force the F-bus tap to busy by typing
`>BSY FBUS 0 tap_no FORCE`
 and pressing the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 11)

- 30** Manually busy the tap on F-bus 1 by typing
`>BSY FBUS 1 tap_no`
 and pressing the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 11)

If the BSY command	Do
passed	step 32
failed	step 31

- 31** Force the F-bus tap to busy by typing
`>BSY FBUS 1 tap_no FORCE`
 and pressing the Enter key.

where

tap_no
is the number of the F-bus tap (0 to 11)

- 32** Replace the NTEX22CA card by performing the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.

- 33** Return the tap on F-bus 0 to service by typing
`>RTS FBUS 0 tap_no`
 and pressing the Enter key.

where

PM HSLR critical (continued)

tap_no is the number of the F-bus tap (0 to 11)	
If the RTS command	Do
passed	step 34
failed	step 54
34	Return the tap on F-bus 1 to service by typing >RTS FBUS 1 tap_no and pressing the Enter key. <i>where</i> tap_no is the number of the F-bus tap (0 to 11)
If the RTS command	Do
passed	step 35
failed	step 54
35	Quit from the F-bus level of the MAP display by typing >QUIT and pressing the Enter key.
36	Post the system busy HSLR by typing >POST HSLR liu_no and pressing the Enter key. <i>where</i> liu_no is the number of the HSLR (0 to 511)
37	Manually busy the HSLR by typing >BSY and pressing the Enter key.
If the response is	Do
HSLR liu_no BSY Passed	step 40
Busying HSLR liu_no will take a CCS7 resource out of ser- vice Please confirm ("YES" , "Y" , "NO" , or "N") :	step 38

PM HSLR critical (continued)

	If the response is	Do
	Anything else (apart from "failed"), including additional messages with above response	step 54
	HSLR liu_no BSY Failed	step 39
38	Confirm the command by typing >YES and pressing the Enter key. Go to step 40	
39	Force the HSLR to busy by typing >BSY FORCE and pressing the Enter key.	
	If the response is	Do
	HSLR liu_no BSY Passed	step 40
	Busying HSLR liu_no will take a CCS7 resource out of service Please confirm ("YES", "Y", "NO", or "N"):	step 40
	Anything else, including additional messages with above response	step 54
40	Confirm the command by typing >YES and pressing the Enter key.	
41	Reset the HSLR by typing >PMRESET and pressing the Enter key.	
	If the PMRESET command	Do
	passed	step 42
	failed	step 42

PM HSLR critical (continued)

42 Load the HSLR by typing
>LOADPDM
and pressing the Enter key.

43 Test the HSLR by typing
>TST
and pressing the Enter key.

If the TST command	Do
passed	step 46
failed, and a card list is generated that contains cards that have not already been changed	step 44
anything else	step 54

44 Record the location, description, slot number, and the product engineering code (PEC), including suffix, of the first card on the list.

45 There is a hardware fault in the card. Replace the card by performing the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, go to step 37.

46 Return the HSLR to service by typing
>RTS
and pressing the Enter key.

If the RTS command	Do
passed	step 47
failed	step 54

47 Access the C7LKSET level of the MAP display to determine if the CCS7 link on the HSLR is in service by typing

>CCS ; CCS7 ; C7LKSET

and pressing the Enter key.

48 Post the linkset associated with the HSLR by typing

>POST C linkset_name

and pressing the Enter key.

where

linkset_name

is the linkset name

Example of a MAP display:

PM HSLR critical (end)

```

Linkset TR000002    InSv
  Traf  Sync
LK Stat  Stat      Resource    Stat Physical Access
1  InSv   Sync      DLIU 8      InSv  DS1
2  InSv   Sync      DLIU 7      InSv  DS1
    
```

49 Determine the traffic state of the CCS7 link for the HSLR you are working on.

Note: The number of the HSLR you are working on is shown under the Resource header on the MAP display. The traffic state of the CCS7 link is shown under the Traf Stat header.

If the state of the CCS7 link is	Do
InSv	step 55
anything else	step 50

50 Wait 8 min to see if the CCS7 link recovers when the HSLR re-establishes itself.

If the state of the link is	Do
InSv	step 55
anything else	step 51

51 Perform the procedure *Activating CCS7 links* in this document. When you have completed the procedure, return to this point.

52 Determine if the link activated.

If the link activation	Do
passed	step 53
failed	step 54

53 Determine if the HSLR alarm cleared.

If the alarm	Do
cleared	step 55
decreased in number (for example, changed from 2HSLR to 1HSLR)	step 5
did not clear	step 54

54 For further assistance, contact the personnel responsible for the next level of support.

55 You have completed this procedure.

PM IPGW Major

Alarm display

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

Indication

The alarm code IPG appears under the PM header at the IPGW level of the MAP display. This code indicates an Internet Protocol Gateway (IPGW) alarm. A number precedes the code, and an M appears below the code. The number preceding the alarm code indicates the number of IPGWs affected. The M indicates that the alarm class is major.

Meaning

An IPGW is system busy (SysB) or C-side busy (CBsy). The IPGW resides in an IP-ready line trunk controller (LTCI). A SysB or CBsy IPGW causes the LTCI to go in-service trouble (ISTb). The following conditions trigger a major alarm on the IPGW:

- transition of the IPGW node state to SysB
- transition of the IPGW node state to CBsy

Impact

The affected IPGW cannot support Centrex IP service.

Common procedures

This procedure does not refer to any common procedures.

Next level of maintenance

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

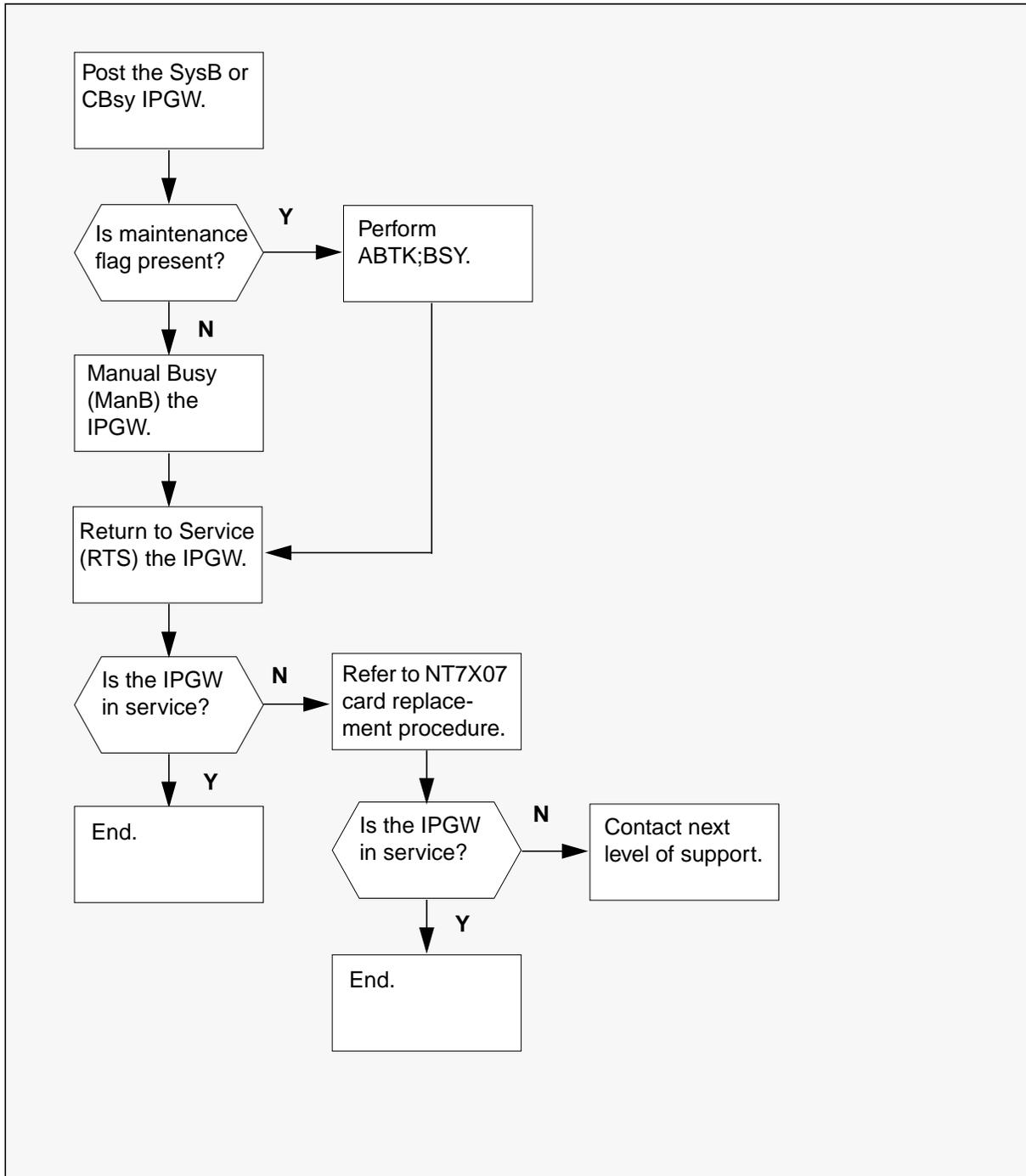
A problem can occur that requires the help of the local maintenance personnel. Gather all important logs, reports, and system information (that is, product type and current software load) for analysis. The related logs, maintenance notes, and system information help make sure that the next level of maintenance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

PM IPGW

Major (continued)

Action

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

PM IPGW
Major (continued)**Summary of clearing a PM IPGW alarm**

PM IPGW

Major (continued)

Clearing a PM IPGW major alarm

At the MAP display

- 1 Go to the PM level of the MAP display and check for SysB or CBsy Gateway cards. Type

```
>MAPCI;MTC;PM;POST IPGW SYSB
```

If there are no SysB Gateway cards, type

```
>MAPCI;MTC;PM;POST IPGW CBSY
```

and press the Enter key.

Example of MAP response

```

CM   MS   IOD   Net  PM  CCS  Lns  Trks  Ext  APPL
.    .    .    .    1IPG .    .    .    .    .
      M
IPGW          SysB  ManB  OffL  CBsy  ISTb  InSv
0 Quit      PM      1      4      4      0      1      10
2 Post_    IPGW    1      4      1      0      0      3
3
4          IPGW GWIP 06 1  SysB  Links_OOS: CSide 0
5 Trnsl_
6 Tst_
7 Bsy_
8 RTS_
9 OffL
10 LoadPMQ
11
12 Next
13
14 QueryPM
15 PMReset
16 Spares
17
18

```

- 2 Determine your next step.

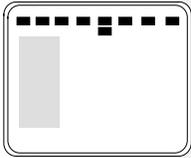
If	Do
the system recovery controller automatically clears the alarm	step 6
the system recovery controller does not automatically clear the alarm	step 3

PM IPGW
Major (end)

- 3** Manually busy the Gateway card. Type
>**BSY**
and press the Enter key.
Note: If the maintenance flag is up, type **ABTK;BSY** to clear.
- 4** Bring the Gateway card into service. Type
>**RTS**
and press the Enter key.
- 5** Determine your next step.
- | If | Do |
|---|--|
| the Gateway card does not return to service | refer to the NT7X07 card replacement procedure |
- 6** The procedure is complete.

PM IPML major or minor

Alarm display



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

Indication

At the MTC level of the MAP terminal, IPML (preceded by a number) appears under the PM header of the alarm banner. The IPML indicates an alarm for an interperipheral message link (IPML).

Meaning

A major (M) alarm occurs when an IPML is system busy (SysB), C-side busy (CBsy), or P-side busy (PBsy).

A minor alarm occurs when an IPML is in-service trouble (ISTb) or manual busy (ManB).

The number that precedes IPML is the number of IPMLs with an alarm.

Note: The IPMLs do not require manual maintenance. A problem can occur at the C-side or the P-side of the link. The problem occurs when an IPML is in a state other than InSv or ManB. You must clear the problem at the Net or PM level of the MAP terminal.

Result

You cannot establish or disassemble common channel signaling (CCS) when an IPML is SysB, CBsy, ManB, or PBsy. An IPML is ISTb and does not affect service.

Common procedures

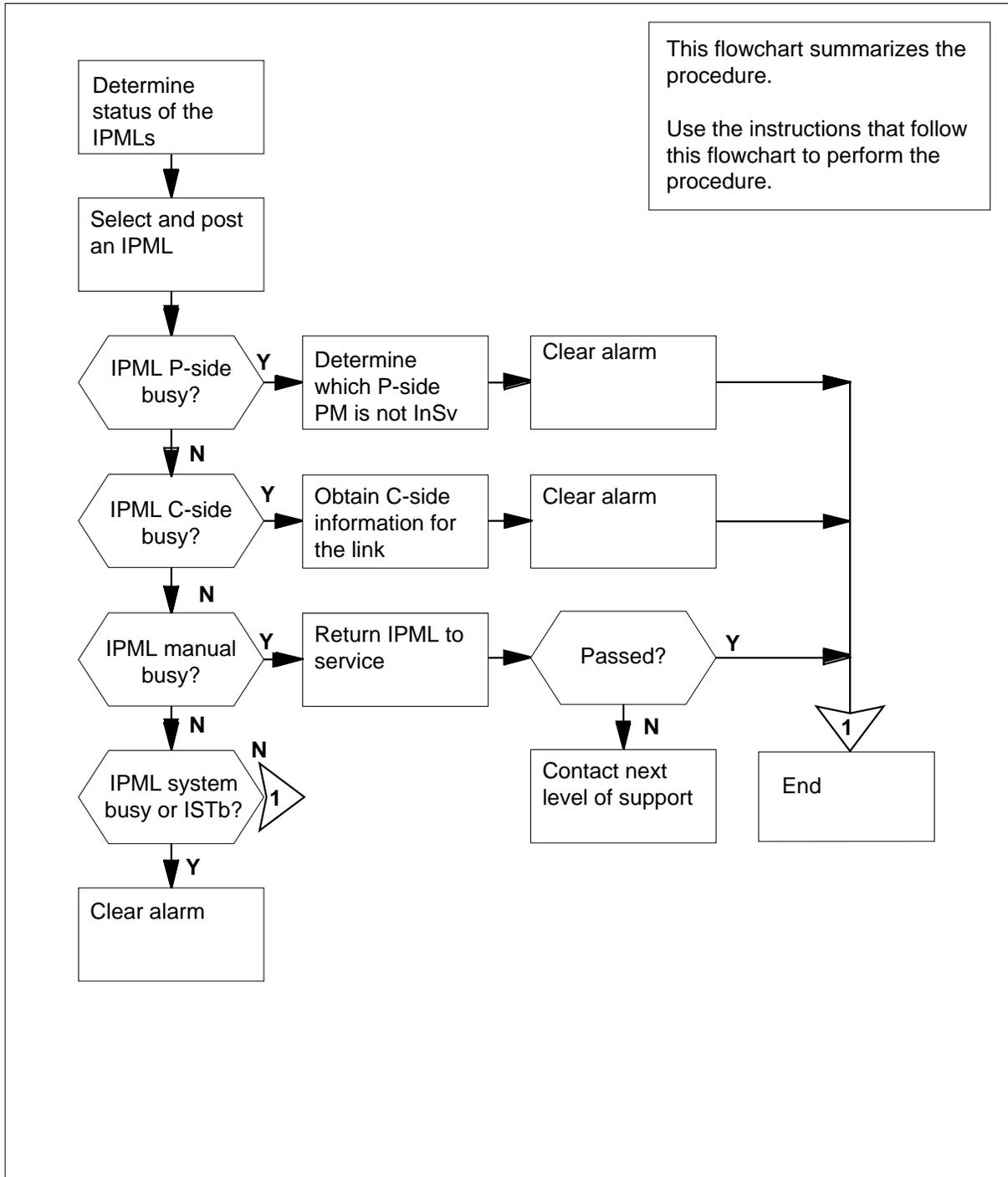
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM IPML
major or minor** (continued)

Summary of clearing a PM IPML major or minor alarm



PM IPML major or minor (continued)

Clearing a PM IPML major or minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP terminal, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	3	5	7	6	12

- 2 Determine if an alarm appears under the Ext header of the MAP display.

If an Ext alarm	Do
appears	step 3
does not appear	step 4

- 3 Perform the correct procedure in this document.

- 4 Determine if an audible alarm rings.

If an alarm	Do
rings	step 5
does not ring	step 6

- 5 To silence the alarm, type

>SIL

and press the Enter key.

- 6 To access the IPML level of the MAP terminal, type

>IPML

and press the Enter key.

Example of a MAP response:

IPML	PBsy	SysB	ManB	OffL	CBsy	ISTb	InSv
	3	0	0	0	0	0	0

IPML	P0	P1	Port	Ch	Port	Ch
IPC0						
IPC1						

PM IPML
major or minor (continued)

- 7 From the MAP display, determine the status of the IPMLs.

If the status of the IPMLs	Do
is SysB	step 9
is ISTb	step 8
is Cbsy	step 20
is Pbsy	step 25
is ManB	step 27

- 8 To post the in-service trouble IPML, type
>POST ISTb
and press the Enter key.

If an IPC	Do
is SysB or ISTb	step 10
is ManB	step 29
is Cbsy	step 21

- 9 To post the system busy IPML, type
>POST SYSB
and press the Enter key.

Note: A problem is present at the C-side or the P-side of the link.

- 10 From the MAP display, record the type of PM that connects to the P-side of the link. Record the PM number.

- 11 To obtain the network, plane, and link numbers, type
>TRNSL
and press the Enter key.

Example of a MAP response:

PM IPML
major or minor (continued)

```

Link 0: NET 0 0 5;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 1: NET 1 0 5;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 0: NET 0 0 3;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 1: NET 1 0 3;Cap MS;Status:OK ,C
;MsgCond:CLS,Unrestrict
Link 2: NET 0 0 13;Cap S;Status:OK ,C,P
Link 3: NET 1 0 13;Cap S;Status:OK ,C,P
Link 2: NET 0 0 6;Cap S;Status:OK ,C,P
Link 3: NET 1 0 6;Cap S;Status:OK ,C,P
    
```

- 12** To post one of the two PMs that connect to the P-side of the link, type

>POST **pm_type** **pm_no**

and press the Enter key.

where

pm_type

is the type of PM that is not posted (MSB, DTC, LTC)

pm_no

is the number of the PM (0 to 255)

- 13** Check the status of the PM.

If the status of the PM	Do
is InSv	step 14
is not InSv	step 16

- 14** To post the other PM that connects to the P-side of the link, type

>POST **pm_type** **pm_no**

and press the Enter key.

where

pm_type

is the type of PM that is not posted (MSB, DTC, LTC)

pm_no

is the number of the PM (0 to 255)

- 15** Check the status of the PM.

If the status of the PM	Do
is InSv	step 23
is not InSv	step 16

PM IPML
major or minor (continued)

- 16** Determine the PM type.
- | If the PM | Do |
|-----------|---------|
| is an MSB | step 17 |
| is a DTC | step 18 |
| is an LTC | step 19 |
- 17** Perform the procedure *Clearing a PM MSB6, MSB7, critical, major, or minor alarm* in this document. This procedure returns the PM to service.
- 18** Perform the procedure *Clearing a PM DTC, critical, major, or minor alarm* in this document. This procedure returns the PM to service.
- 19** Perform the procedure *Clearing a PM LTC, critical, major, or minor alarm* in this document. This procedure returns the PM to service.
- 20** To post the C-side busy IPML, type
>POST CBSY
 and press the Enter key.
Note: A problem is present at the C-side or the P-side of the link.
- 21** The problem is present at the Net level.
 To obtain the network, plane, and link numbers, type
>TRNSL
 and press the Enter key.
- 22** Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.
- 23** The next action depends on your reason to perform this procedure.
- | If another procedure | Do |
|--------------------------------------|---------|
| did not direct you to this procedure | step 36 |
| directed you to this procedure | step 24 |
- 24** Return to the procedure that sent you to this procedure and continue as directed by the step-action procedure.
- 25** To post the P-side busy IPML, type
>POST PBSY
 and press the Enter key.
Note: A fault is present at the C-side or the P-side of the link.

PM IPML
major or minor (continued)

26	The PM that connects to the peripheral side of the link is out of service. Record the type of PM and the PM number.												
	<table border="1"> <thead> <tr> <th style="text-align: left;">If the PM</th> <th style="text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>is an MSB</td> <td>step 17</td> </tr> <tr> <td>is a DTC</td> <td>step 18</td> </tr> <tr> <td>is an LTC</td> <td>step 19</td> </tr> </tbody> </table>	If the PM	Do	is an MSB	step 17	is a DTC	step 18	is an LTC	step 19				
If the PM	Do												
is an MSB	step 17												
is a DTC	step 18												
is an LTC	step 19												
27	To post the manually-busy IPML, type >POST MANB and press the Enter key.												
28	Choose an interperipheral connection (IPC) to use (0 or 1).												
29	Determine from office records or operating company personnel why the IPC is manual busy. When you have permission, continue the procedure.												
30	To return the IPC to service, type >RTS ipc_no and press the Enter key. <i>where</i> ipc_no is the number of the IPC that has not returned to service (0 or 1) <i>Example of a MAP response:</i> This will temporarily remove IPML ipml_no IPC ipc_no from service Please confirm ("YES", or "NO")												
31	To confirm the command, type >YES and press the Enter key.												
	<table border="1"> <thead> <tr> <th style="text-align: left;">If the RTS command</th> <th style="text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>passes, the IPC is InSv, and the other IPC is ManB</td> <td>step 29</td> </tr> <tr> <td>passes, both IPCs are InSv, and no other IPMLs are ManB</td> <td>step 36</td> </tr> <tr> <td>passes, both IPCs are InSv, and other IPMLs are ManB</td> <td>step 33</td> </tr> <tr> <td>passes, and the IPML is not InSv</td> <td>step 32</td> </tr> <tr> <td>fails, and the IPML is not InSv</td> <td>step 35</td> </tr> </tbody> </table>	If the RTS command	Do	passes, the IPC is InSv, and the other IPC is ManB	step 29	passes, both IPCs are InSv, and no other IPMLs are ManB	step 36	passes, both IPCs are InSv, and other IPMLs are ManB	step 33	passes, and the IPML is not InSv	step 32	fails, and the IPML is not InSv	step 35
If the RTS command	Do												
passes, the IPC is InSv, and the other IPC is ManB	step 29												
passes, both IPCs are InSv, and no other IPMLs are ManB	step 36												
passes, both IPCs are InSv, and other IPMLs are ManB	step 33												
passes, and the IPML is not InSv	step 32												
fails, and the IPML is not InSv	step 35												

PM IPML
major or minor (end)

- 32** Go to step 7 and continue as directed by the step-action procedure according to the state of the IPML.
- 33** To display the next IPML in the posted set, type
>NEXT
and press the Enter key.
- 34** Repeat steps 28 to 31 for each ManB IPML.
- 35** For additional help, contact the next level of support.
- 36** The procedure is complete.

PM ISTb minor

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1ISTb				

Indication

At the MTC level of the MAP display, ISTb (preceded by a number) appears under the PM header of the alarm banner. The ISTb indicates a minor alarm for an in-service trouble (ISTb).

This alarm applies to the following PMs:

- maintenance trunk module (MTM)
- service trunk module (STM)
- trunk module 8 (TM8)

Meaning

The indicated number of PMs are ISTb.

Result

The alarm does not affect service.

Common procedures

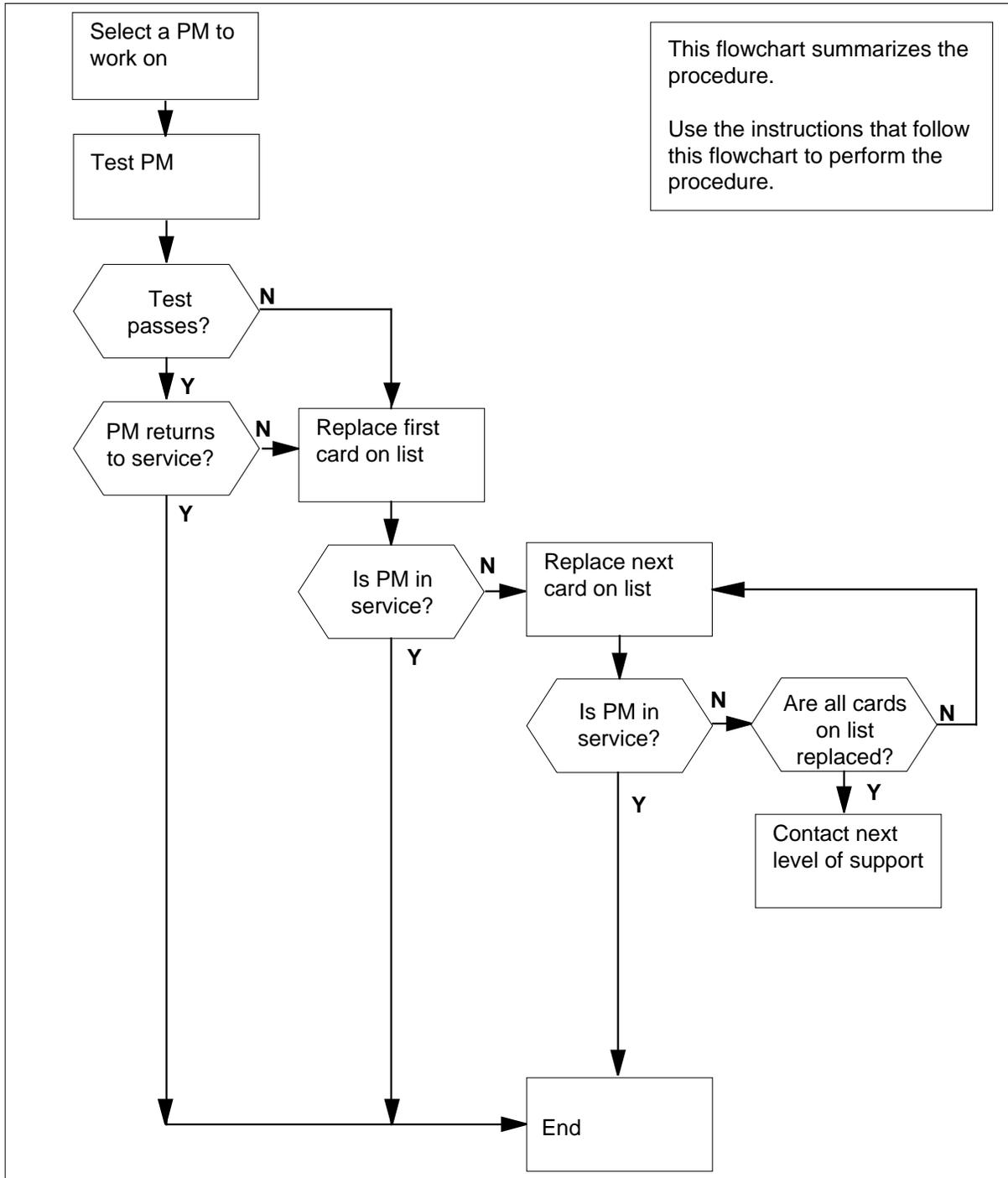
This procedure refers to *Monitoring system maintenance*.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM ISTb minor (continued)

Summary of clearing a PM ISTb minor alarm



PM ISTb
minor (continued)

Layout of a TM shelf

		21
NT2X09	Power converter card	20
	Trunk interface circuit	19
	Trunk interface circuit	18
	Trunk interface circuit	17
	Trunk interface circuit	16
	Trunk interface circuit	15
	Trunk interface circuit	14
	Trunk interface circuit	13
	Trunk interface circuit	12
	Trunk interface circuit	11
	Trunk interface circuit	10
	Trunk interface circuit	09
	Trunk interface circuit	08
	Trunk interface circuit	07
	Trunk interface circuit	06
	Trunk interface circuit	05
NT2X59	Codec and tone card	04
NT2X53	Control card	03
NT0X70	Processor card	02
NT2X45	Network interface card	01

PM ISTb
minor (continued)

Layout of an MTM shelf

NT2X06	Power converter card	21
-OR-		
NT2X70	Power converter card	20
NT0X50	Filler card	19
		18
NT2X09	Power converter card	17
	Trunk interface circuit	16
	Trunk interface circuit	15
	Trunk interface circuit	14
	Trunk interface circuit	13
	Trunk interface circuit	12
	Trunk interface circuit	11
	Trunk interface circuit	10
	Trunk interface circuit	09
	Trunk interface circuit	08
	Trunk interface circuit	07
	Trunk interface circuit	06
	Trunk interface circuit	05
NT2X59	Codec and tone card	04
NT2X53	Control card	03
NT0X70	Processor card	02
NT2X45	Network interface card	01

PM ISTb minor (continued)

Clearing a PM ISTb minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP terminal, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	3	5	7	6	12

If an audible alarm

Do

rings

step 2

does not ring

step 3

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb PMs, type

>DISP STATE ISTb

and press the Enter key.

Example of a MAP response:

MTM 4 ISTb

Note: If multiple types of PMs are ISTb, work on MTMs first. If multiple PMs of the same type are ISTb, select one to use.

Record the number for the PM.

At the MAP terminal

- 4 To post the PM, type

>POST pm pm_no

and press the Enter key.

where

pm

is the type of PM (MTM, STM, or TM8)

PM ISTb minor (continued)

	pm_no is the number (0 to 2047) of the PM	
	If a Mtce flag	Do
	appears next to the PM	step 5
	does not appear	step 6
5	Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.	
	If the minor alarm	Do
	changes	step 22
	remains	step 6
	clears	step 24
6	To test the PM, type > TST and press the Enter key.	
	If the TST command	Do
	fails, a card list is generated, and the PM type is neither an MTM or TM8	step 1
	fails, a card list is generated, the PM type is an MTM or TM8, and the office is not a TOPS office (that is, a DMS-100 office, or a DMS-200 or DMS-100/200 office without the TOPS functionality)	step 1
	fails, a card list is generated, the PM type is either an MTM or TM8, and the office is a TOPS office (that is, a DMS-200 or DMS-100/200 office with the TOPS functionality)	step 7
	fails and a card list is not generated	step 23
	passes and the alarm clears	step 24
7	Check the PM module (MTM or TM8) posted in step 4 for any associated TOPS positions in table TOPSPOS by typing > table TOPSPOS > list 20 and pressing the Enter key.	

PM ISTb minor (continued)

The following figure shows sample datafill for table TOPSPOS.

MAP display example for table TOPSPOS

POSNO	VCCKT	VCPDGRP	CARDCODE	DATAPATH	POSAREA
110	TM8 2 10	NPDGP	2X72AA		
	DMODEM BP ASCII	TM8	2 11 NPDGP	BELL108	
			IC 1	DASERV	INTCSERV \$
370	TM8 0 26	NPDGP	2X72AA		
	DMODEM SP ASCII	TM8	0 27 NPDGP	BELL108	
			OPR 3	TOPSACD	TASERV \$ GEN \$
570	TM8 8 20	NPDGP	2X88AA		
	DMODEM MP ASCII	TM8	8 21 NPDGP	BELL202	

In the above example, the first tuple is for TOPS position 110 that uses TM8 number 2, circuit 10, for a BP (basic purpose) type position. The other tuples show position types SP (single purpose) and MP (multi-purpose). A TM8 is only used on these position types (BP, SP, and MP). Additional information on these position types follows:

- An SP position refers to a TOPS 04 position. The TM8 is connected to the position either directly (on older systems with the TOPS 04 ASCII protocol) or through a TOPS 04 Controller (using the newer AOSS ASCII protocol). For further information on a TOPS 04 Controller (PEC NT4X73), refer to documents PLN-2281-001, *TOPS MP/04 Technical Specification*, and NED-297-0003, *DMS-100F Maintenance and Operations Manual*.
- A BP position is a dedicated directory assistance/intercept terminal. The TM8 connects to the position through a TOPS 04 Controller using AOSS ASCII protocol.
- An MP position connects to the TM8 through a standalone TOPS Position Controller (sTPC). An sTPC cannot be posted on the MAP display and does not generate alarms on the DMS switch. The sTPC is accessed through the TPC Maintenance and Administration Interface (TAMI). For more information, refer to the *TOPS MP TAMI User Guide*, 297-2281-530.

Check the remaining tuples in table TOPSPOS for any other associated positions and note the position numbers. Repeatedly, type the following command and check the displayed tuples until all tuples are examined

```
>list 20
```

and pressing the Enter key.

If any TOPS positions are supported by the posted PM in step 4, check with an operator Force Management supervisor to see if these TOPS positions are

**PM ISTb
minor** (continued)

actively processing calls. This is possible since a PM could fail the test in step 6 and still be handling calls.

If Are associated positions handling calls?	Do
no	step 1
yes (note, it is important not to continue with step 1; otherwise, active positions would be disabled and lose calls)	step 22

- 8** To busy the PM, type
>BSY
and press the Enter key.

At the equipment frame

- 9** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figures *Layout of a TM shelf* and *Layout of an MTM shelf* for help to locate the card.

If the card	Do
is an NT0X70, NT2X06, NT2X09, NT2X45, NT2X53, or NT2X70	step 10
is other than listed here	step 16

At the MAP terminal

- 10** To load the PM, type
>LOADPM
and press the Enter key.

where

pm
is the type of PM (MTM, STM, or TM8)

pm_no
is the number (0 to 2047) of the PM

If the LOADPM	Do
fails, the system generates a card list, and you have not replaced all the cards that have faults	step 9
fails, the system generates a card list, and you replaced all the cards that have faults on the list	step 23

PM ISTb minor (continued)

	If the LOADPM	Do
	fails, and the system does not generate a card list	step 23
	fails, and the response is loadfile not found in directory	step 11
	passes	step 16
11	Check office records to determine the device and volume that contains the PM load files.	
	If your device	Do
	is an SLM	step 12
	is a DDU	step 14
12	To access the DISKUT level, type >DISKUT and press the Enter key.	
13	To list the PM load file to the user directory, type >LF device_volume_name and press the Enter key. <i>where</i> device_volume_name is the location and name of the PM load file <i>Example of input:</i> LF S00DPMLOADS Go to step 10.	
14	To access the DSKUT level, type >DSKUT and press the Enter key.	
15	To list the PM load file to the user directory, type >LIV device_volume_name and press the Enter key. <i>where</i> device_volume_name is the location and name of the PM load file <i>Example of input:</i> LIV D01PMLOADS Go to step 10.	
16	To return the PM to service, type >RTS	

PM ISTb
minor (continued)

and press the Enter key.

	If the PM	Do
	does not return to service, the system generates a card list, and you did not replace all the cards that have faults on the list	step 9
	does not return to service, the system generates a card list, and you replaced all the cards that have faults on the list	step 23
	does not return to service and the system does not generate a card list	step 23
	returns to service	step 17
17	To access the TTP level, type >TRKS ;TTP and press the Enter key.	
18	To post the PM, type >POST P pm pm_no and press the Enter key. <i>where</i> pm is the type of PM (MTM, STM, or TM8) pm_no is the number (0 to 2047) of the PM	
19	To busy all trunk circuits, type >BSY ALL and press the Enter key.	
20	To post the PM again, type >POST P pm pm_no and press the Enter key. <i>where</i> pm is the type of PM (MTM, STM, or TM8) pm_no is the number (0 to 2047) of the PM	
21	To return to service all trunk circuits, type >RTS ALL	

PM ISTb
minor (end)

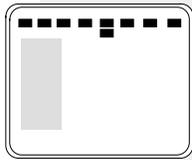
and press the Enter key.

Go to step 24.

- 22** The ISTb minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Go to step 24.
- 23** You require additional help to clear this alarm. Contact the next level of support. Describe in detail the steps that you performed to attempt to clear this alarm.
- 24** The procedure is complete.

PM ISTb (OSNM) minor

Alarm display



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

Indication

At the MTC level of the MAP display, a 1ISTb can appear under the PM header of the alarm banner. This condition indicates an inservice trouble minor alarm.

Meaning

A peripheral module is inservice trouble. An Operator Service Node Maintained (OSNM) module is inservice trouble.

One of the following conditions is present:

- A user manually busies (ManB) an OSNM
- A user manually busies (ManB) a Session Pools
- Session Pools are system busy (SysB)

Result

Session pools on the OSNM are out of service. Limited call processing can occur on the OSNM.

Common procedures

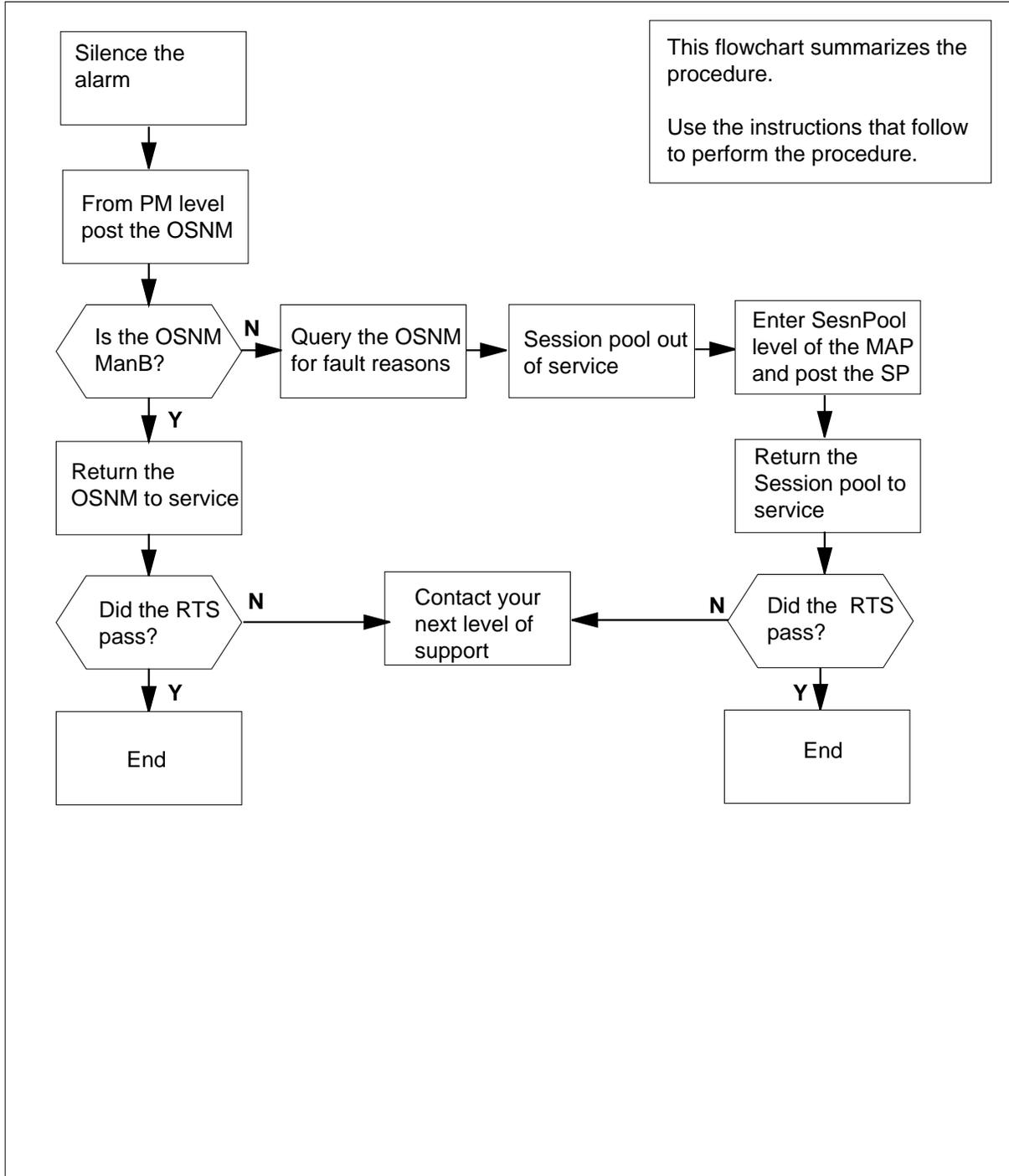
Does not apply

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM ISTb (OSNM) minor (continued)

Summary of clearing an OSNM SysB minor alarm



**PM ISTb (OSNM)
minor** (continued)

Clearing an OSBN SysB alarm**At the MAP**

- 1 To silence the alarm, type
>MAPCI ;MTC ;SIL
and press the Enter key.
- 2 To access the PM level of the MAP display, type
>PM
and press the Enter key.

Example of a MAP display:

```

          SysB      ManB      OffL      CBsy      ISTb      InSv
            0         0         0         0         1         50

```

PM

- 3 To post the in service trouble OSNM, type
>POST OSNM ISTb
and press the Enter key.

Example of a MAP display:

```

          SysB      ManB      OffL      CBsy      ISTb      InSv
            0         0         0         0         1         10

```

PM

OSNM

OSNM 0

NONE

ISTb

- 4 Check the status of the OSNM

If the OSNM	Do
is ManB	step 5
is ISTb	step 7

- 5 To return the OSNM to service, type
>RTS

PM ISTb (OSNM) minor (continued)

- and press the Enter key.
- 6 Proceed according to the following table:

If the RTS	Do
passes	step 19
fails	step 18

- 7 To query the PM for fault reason, type

>QUERYPM FLT

and press the Enter key.

Example of a MAP display:

```
          SysB   ManB   OffL   Cbsy       ISTb   InSv
          0       0       0       0         1     10
```

```
PM
OSNM
```

```
OSNM  0
NONE
ISTb
```

```
Session pool out of service
```

- 8 Note the OSNM in service trouble reason

If the ISTb reason	Do
is session pool out of service	step 9
is anything else	step 18

- 9 To enter the SesnPool level of the MAP, type

>SESNPOOL

and press the Enter key.

Example of a MAP display:

**PM ISTb (OSNM)
minor (continued)**

```

          SysB   ManB   OffL   CBsy           ISTb   InSv
            0     0     0     0             1     10

```

```

PM
OSNM

```

```

OSNM  0
NONE
ISTb

```

```

Status SysB   ManB   OffL   CBsy           InSv
SP      1     0     0     0             14

```

```

SESNPOOL:

```

- 10** Observe the session pool status display

If the session pools	Do
are system busy	step 11
are manual busy	step 15

- 11** To post the system busy session pool, type

```
>POST SP SysB
```

and press the Enter key.

Example of a MAP display:

```

          SysB   ManB   OffL   CBsy           ISTb   InSv
            0     0     0     0             1     10

```

```

PM
OSNM

```

```

OSNM  0
NONE
ISTb

```

```

Status SysB   ManB   OffL   CBsy           InSv
SP      1     0     0     0             14

```

```

OSNM  1 SP  5 SysB
Size of Post set:  1

```

- 12** To manually busy the session pool, type

```
>BSY
```

**PM ISTb (OSNM)
minor (end)**

and press the Enter key.
13 To return the session pool to service by type

>RTS

and press the Enter key.

14 Proceed according to the following table:

If the RTS	Do
passes	step 19
fails	step 18

15 To post the manual busy session pool, type

>POST SP ManB

and press the Enter key.

Example of a MAP display:

```

                SysB   ManB   OffL   CBsy           ISTb   InSv
                0       0       0       0             1       0

    PM
    OSNM

    OSNM  0
    NONE
    ISTb

    Status SysB   ManB   OffL   CBsy           InSv
    SP      1       0       0       0             14

    OSNM  1 SP    5  MANB
    Size of Post set:  1
    
```

16 To return the session pool to service, type

>RTS

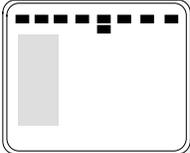
and press the Enter key.

17 Proceed according to the following table:

If the RTS	Do
passes	step 19
fails	step 18

18 For additional help, contact the next level of support.

19 The procedure is complete.

**PM LCM
critical****Alarm display**


CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext
.	.	.	.	1LCM	.	.	.	.
				C				

Indication

At the MTC level of the MAP terminal, LCM (preceded by a number) appears under the PM header of the alarm banner. A *C* follows the LCM. The LCM indicates a critical alarm for a line concentrating module (LCM). The number that precedes the LCM indicates the number of LCMs that the alarm affects. The preceding figure illustrates an alarm banner with an LCM critical alarm.

Meaning

The LCM is system busy (SysB) or C-side busy. An LCM is SysB if both units are SysB. An LCM is SysB if one unit is SysB and the other unit is manual busy (ManB). An LCM is C-side busy if both units are C-side busy.

Result

Service stops when an LCM is SysB or C-side busy.

Common procedures

This procedure refers to the following common procedures:

- *Clearing PM C-side links*
- *Monitoring system maintenance*
- *Clearing ringing generator faults*

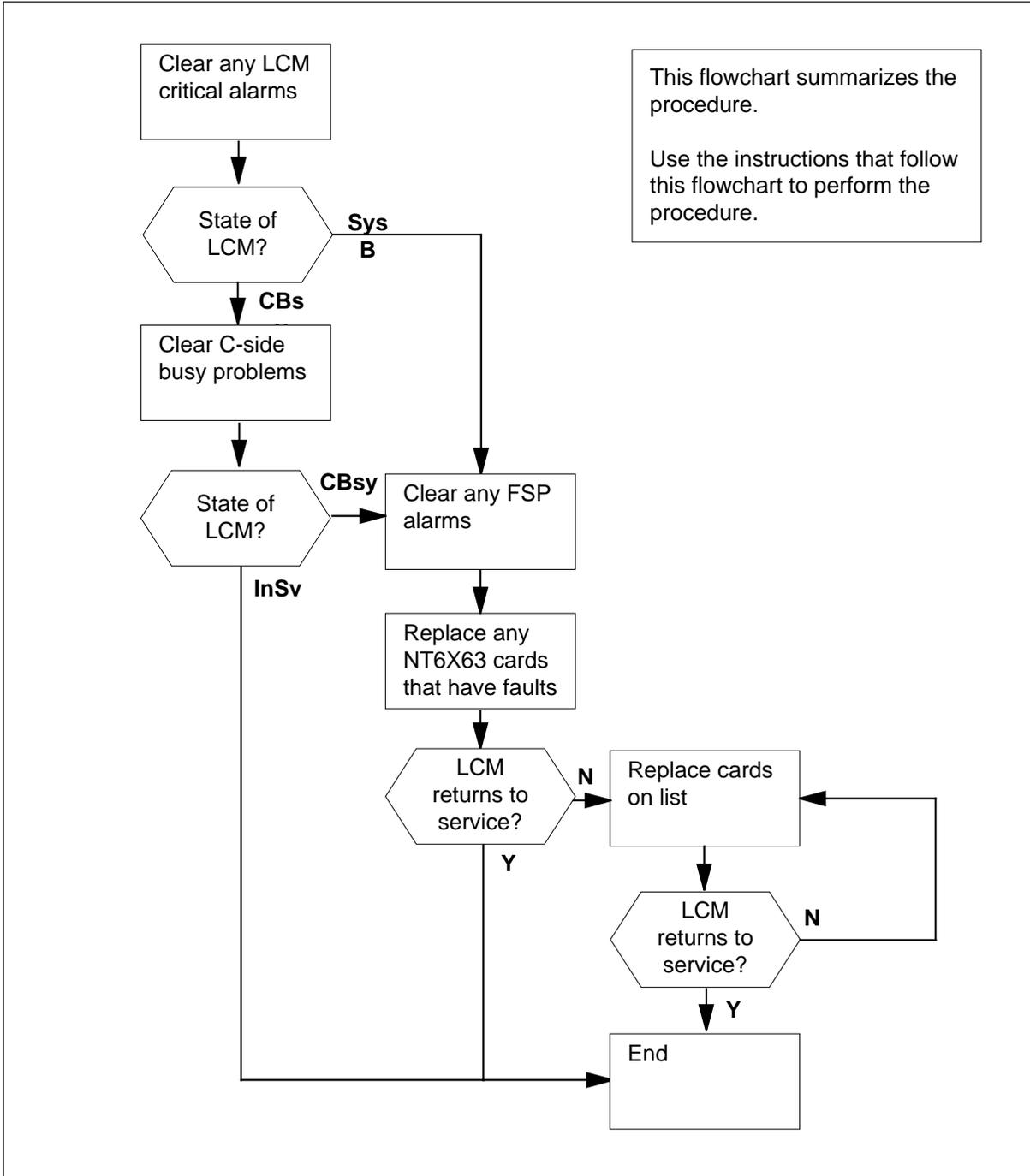
Do not go to the common procedures unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LCM critical (continued)

Summary of clearing a PM LCM critical alarm



PM LCM
critical (continued)

Clearing a PM LCM critical alarm**At the MAP terminal**

- 1** To access the PM level of the MAP terminal, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	3	5	7	6	12

If

Do

an audible alarm rings

step 2

the *C* indicator at the alarm banner flashes

step 2

the response is other than listed here

step 3

- 2** To silence the alarm, type

>SIL

and press the Enter key.

- 3** To determine the status of all LCMs and line group controllers (LGCs), type

>STATUS

and press the Enter key.

Example of a MAP response:

PM LCM
critical (continued)

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	2	0	0	2	0	25
TM8	0	0	0	0	0	2
MTM	0	0	0	0	0	3
LGC	1	0	0	0	0	3
LCM	1	0	0	2	0	0
DTC	0	0	0	0	0	1
LIM	0	0	0	0	0	1
LIU7	0	0	0	0	0	1
FRIU	0	0	0	0	0	1
DTCI	0	0	0	0	0	1
LCME	0	0	0	0	0	1

MORE . . .

Note: If LCMs are SysB and CBsy, work on the SysB LCMs first.

- | | If | Do |
|----------|---|---|
| | a minimum of one LGC is SysB or CBsy | step 4 |
| | none of the LGCs are SysB or CBsy | step 5 |
| 4 | A minimum of one LGC critical alarm is present. To clear all LGC critical alarms, perform the correct procedure in this document. Wait for the system to clear related LCM alarms. | |
| | the system clears all LCM alarms | step 42 |
| | the LCM critical alarm remains | step 5 |
| | the LCM critical alarm changes to an LCM major alarm or an LCM minor alarm | the correct alarm clearing procedure in this document. Go to step 42. |
| 5 | To display all the CBsy or SysB LCMs, type
>DISP STATE state LCM
and press the Enter key.
<i>where</i>
state
is CBsy or SysB, as determined in step 3 | |

PM LCM critical (continued)

Example of a MAP response:
SYSB LCM:HOST 00 0

Note: If multiple LCMs are `CBsy` or `SysB`, select an LCM to use. Record the number of the LCM.

If you	Do
recover a <code>CBsy</code> LCM	step 6
recover a <code>SysB</code> LCM	step 7
6 Go to the common procedure <i>Clearing PM C-side faults</i> in this document. Complete the procedure and return to this point.	
If	Do
the LCM remains <code>CBsy</code>	Treat the <code>CBsy</code> LCM as a <code>SysB</code> LCM and go to step 7.
the LCM changes to <code>SysB</code>	step 7
one LCM unit returns to service	step 41
both LCM units return to service	step 42
7 Check the EXT header of the alarm banner.	
If an FSP alarm	Do
is present	step 8
is not present	step 23
8 To locate the FSP alarm, type <code>>EXT; LIST FSP</code> and press the Enter key. <i>Example of a MAP response:</i> FSPAISD In this example, the alarm is an FSP alarm on Aisle D.	

At the equipment aisle

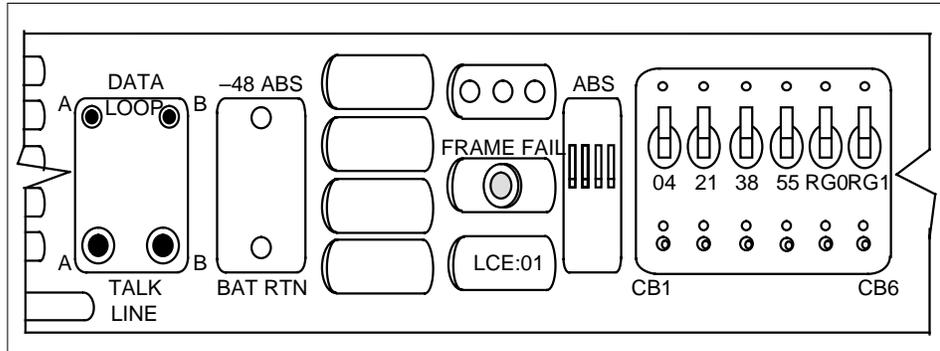
- 9** Go to the aisle identified in step 8. The end aisle alarm is lit.

At the equipment frame

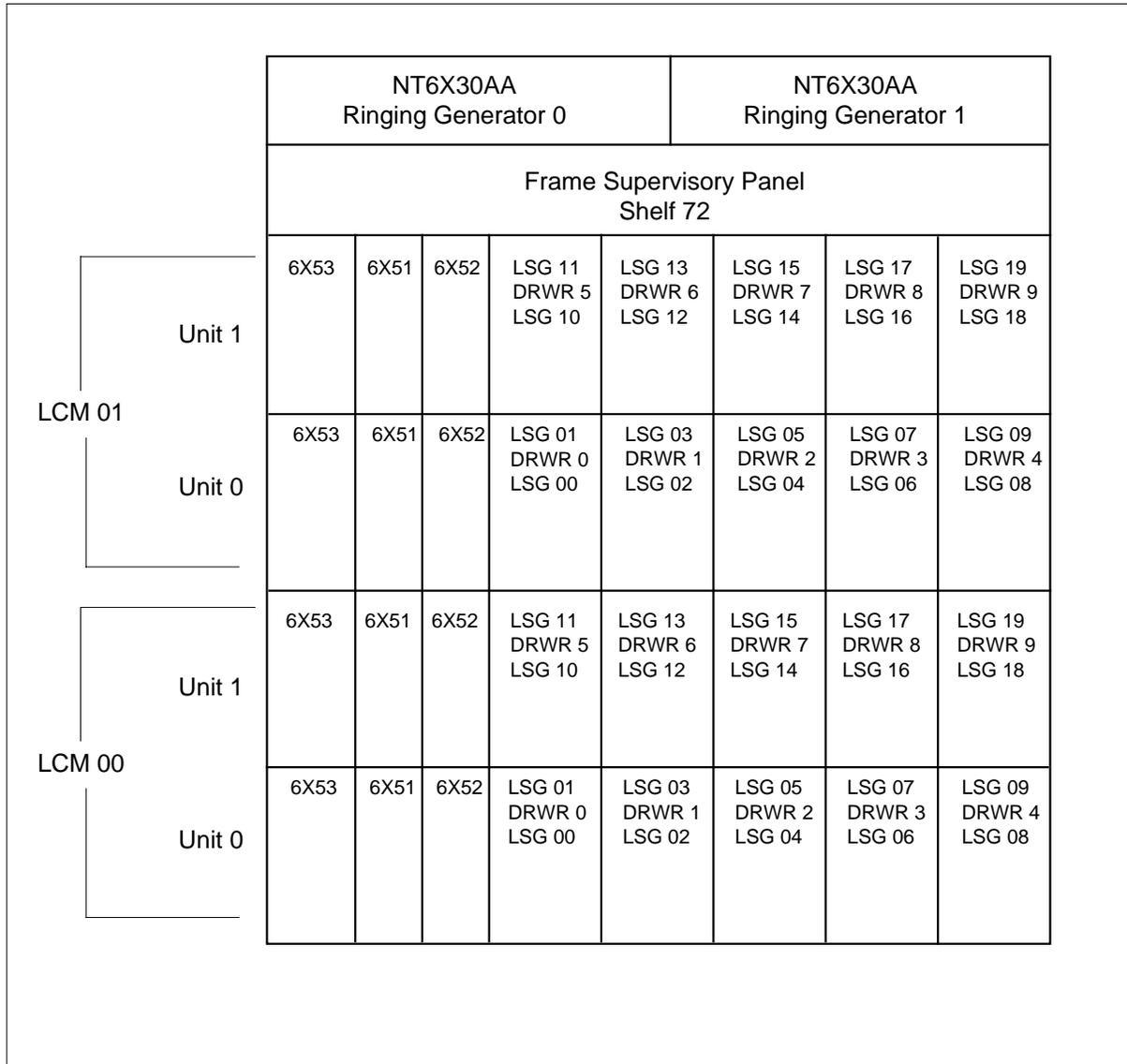
- 10** Identify the frame with the FSP alarm. Check the frame fail lamp on the frame of each frame supervisory panel (FSP). The frame with the FSP alarm will have a lit frame fail lamp. The following figure shows an FSP with a lit fail lamp.

PM LCM

critical (continued)

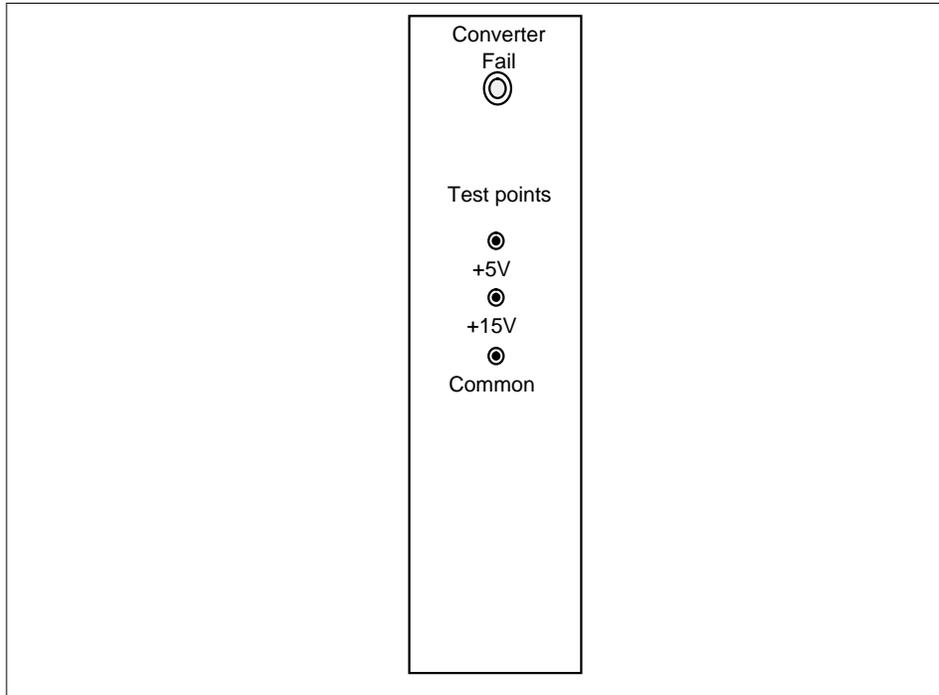


- 11 Identify the LCMs in the frame. Refer to the figure *LCE frame* on page for help.

PM LCM
critical (continued)**LCE frame**

- 12** Check the Converter Fail LED on each 6X53 power converter card in the frame. Refer to the figure *LCE frame* for help to locate this card. Refer to the following figure for help to check the Converter Fail LED.

PM LCM
critical (continued)



If any LEDs	Do
are lit	step 13
are not lit	step 17

- 13** Note the LCM with the LED light on.
- 14** To post the system busy LCM and identify the location of the system busy LCM, type
- ```
>PM; POST LCM lcm_no;QUERYPM
```
- and press the Enter key.
- where
- lcm\_no**  
is the number (0 to 255) of the LCM that you recorded in step 5
- Example of a MAP response:*

---

**PM LCM**  
**critical** (continued)

---

```

LCM HOST 00 0 SysB Links_OOS: CSide 17 PSide 0
Unit0: Act SysB /RG 0
Unit1: Inact SysB /RG 0
 11 11 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv
 .. -- -- -- -- .. -- -- -- --
QueryPM
PM Type: LCM Int. No: 0 Status index: 0 Node_No: 13
Memory Size - Unit 0: 64k , Unit 1: 64K
Loadnames: LCMINV - LCM01D , Unit0: LCM01D , Unit1: LCM01D
LCM HOST 00 0 is included in the list of LCM types
 scheduled for a REX test.
Last REX test was TUE. 1994/10/18 at 1:08:58; FAILED.
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 C05 LCE 00 04 LCM 00 0 6X04AA
Services: NEUTRAL
Next LCM for REX

```

|           |                                                                                                                                      |           |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | <b>If a Mtce indicator</b>                                                                                                           | <b>Do</b> |
|           | appears next to either unit                                                                                                          | step 15   |
|           | does not appear                                                                                                                      | step 16   |
| <b>15</b> | Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.   |           |
|           | <b>If the critical alarm</b>                                                                                                         | <b>Do</b> |
|           | remains                                                                                                                              | step 16   |
|           | changes                                                                                                                              | step 41   |
|           | clears                                                                                                                               | step 42   |
| <b>16</b> | Determine if the LCM is the same as the LCM identified in step 13.                                                                   |           |
|           | <b>If the LCM</b>                                                                                                                    | <b>Do</b> |
|           | is different                                                                                                                         | step 17   |
|           | is the same                                                                                                                          | step 18   |
| <b>17</b> | Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point. |           |

**PM LCM**  
**critical** (continued)

- 18** To busy the LCM, type  
**>BSY PM**  
 and press the Enter key.

**At the equipment frame**

- 19** Power down the 6X53 power converter card in the LCM unit in use. To power down the 6X53 power converter card, switch off the circuit breaker that supports the shelf. Refer to the figure in step 10 for help.
- 20** Change the 6X53 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 21** Power up the 6X53 power converter card in the LCM unit in use. To power up the 6X53 power converter card, switch on the circuit breaker that supports the shelf. Refer to the figure in step 10 for help.
- 22** To load the LCM unit, type  
**>LOADPM UNIT unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCM unit

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passes             | step 33   |
| fails              | step 40   |

- 23** To post the LCM, type  
**>POST LCM lcm\_no**  
 and press the Enter key.  
*where*  
**lcm\_no**  
 is the number (0 to 255) of the LCM that you recorded in step 5.

*Example of a MAP response:*

```
LCM HOST 01 1 SysB Links_OOS: CSide 17, PSide 0
Unit0: Act SysB /RG 0
Unit1: Inact SysB /RG 1
```

| <b>If a Mtce flag</b>       | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 24   |
| does not appear             | step 25   |

**PM LCM**  
**critical** (continued)

- 24** Go to the common procedure *Monitoring system maintenance* in this document. Complete the procedure and return to this point.
- | <b>If the critical alarm</b> | <b>Do</b> |
|------------------------------|-----------|
| remains                      | step 25   |
| changes                      | step 41   |
| clears                       | step 42   |
- 25** To query the LCM for indications that have faults, type  
>QUERYPM FLT  
and press the Enter key.  
*Example of a MAP response:*  
PM Audit
- 26** Record the MAP response.
- | <b>If the MAP response</b>               | <b>Do</b> |
|------------------------------------------|-----------|
| is REx Test Aborted                      | step 27   |
| is Load Corruption                       | step 29   |
| is Load Failed                           | step 29   |
| is any type of ringing generator failure | step 28   |
| is other than listed here                | step 31   |
- 27** The LCMs C-side PM runs a routine exercise (REx) test. Wait until the REx test for the PM is complete. The REx test for the PM must finish before the REx test for the LCM can begin. If the REx test continues to abort, go to step 31.
- 28** Refer to the procedure *Clearing ringing generator problems* in this document. Complete the procedure and return to this step.
- | <b>If</b>                        | <b>Do</b> |
|----------------------------------|-----------|
| the LCM critical alarm remains   | step 31   |
| one LCM unit returns to service  | step 41   |
| both LCM units return to service | step 42   |
- 29** To busy the LCM, type  
>BSY PM  
and press the Enter key.

## PM LCM

### critical (continued)

|           |                                                                                                                                                                                    |                                                             |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| <b>30</b> | To load the LCM, type<br>>LOADPM PM<br>and press the Enter key.                                                                                                                    |                                                             |
|           | <b>If the load</b>                                                                                                                                                                 | <b>Do</b>                                                   |
|           | fails                                                                                                                                                                              | step 35                                                     |
|           | passes                                                                                                                                                                             | step 32                                                     |
| <b>31</b> | To busy the LCM, type<br>>BSY PM<br>and press the Enter key.                                                                                                                       |                                                             |
| <b>32</b> | To return the LCM to service, type<br>>RTS PM<br>and press the Enter key.                                                                                                          |                                                             |
|           | <b>If</b>                                                                                                                                                                          | <b>Do</b>                                                   |
|           | the LCM does not return to service                                                                                                                                                 | Follow the instructions in the MAP response. Go to step 33. |
|           | one LCM unit returns to service                                                                                                                                                    | step 41                                                     |
|           | both LCM units return to service                                                                                                                                                   | step 42                                                     |
| <b>33</b> | To return the active LCM unit to service, type<br>>RTS UNIT <i>unit_no</i><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number (0 to 1) of the LCM unit |                                                             |
|           | <b>If the unit</b>                                                                                                                                                                 | <b>Do</b>                                                   |
|           | does not recover and the system generates a card list                                                                                                                              | step 34                                                     |
|           | does not recover and the system does not generate a card list                                                                                                                      | step 40                                                     |
|           | recovers                                                                                                                                                                           | step 42                                                     |

---

**PM LCM**  
**critical** (continued)

---

**At the equipment frame**

- 34** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure *LCE frame* for help to locate the card.

| <b>If the card</b>        | <b>Do</b> |
|---------------------------|-----------|
| is a 6X51, 6X52, or 6X53  | step 35   |
| is other than listed here | step 36   |

**At the MAP terminal**

- 35** To load the LCM unit, type  
`>LOADPM UNIT unit_no`  
and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LCM unit

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passes             | step 36   |
| fails              | step 40   |

- 36** To return the LCM unit to service, type  
`>RTS UNIT unit_no`  
and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LCM unit

| <b>If the unit</b>                                                                             | <b>Do</b> |
|------------------------------------------------------------------------------------------------|-----------|
| does not return to service, and you did not replace all the cards that have faults on the list | step 37   |
| does not return to service, and you replaced all the cards that have faults on the list        | step 40   |
| returns to service                                                                             | step 42   |

---

---

## PM LCM

### critical (continued)

---

#### *At the equipment frame*

- 37** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure *LCE frame* to help locate the card.

| <b>If the card</b>            | <b>Do</b> |
|-------------------------------|-----------|
| is a 6X51, 6X52, or 6X53 card | step 38   |
| is other than listed here     | step 39   |

#### *At the MAP terminal*

- 38** To load the LCM unit, type  
>LOADPM UNIT **unit\_no**  
and press the Enter key.

*where*

**unit\_no**

is the number (0 to 1) of the LCM unit in use in step 37

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passes             | step 39   |
| fails              | step 40   |

- 39** To return the LCM unit to service, type  
>RTS UNIT **unit\_no**  
and press the Enter key.

*where*

**unit\_no**

is the number (0 to 1) of the LCM unit

| <b>If the unit</b>                                                                            | <b>Do</b> |
|-----------------------------------------------------------------------------------------------|-----------|
| does not return to service and you did not replace all the cards that have faults on the list | step 37   |
| does not return to service and you replaced all the cards that have faults on the list        | step 40   |
| returns to service                                                                            | step 42   |

- 40** For additional help, contact the next level of support.

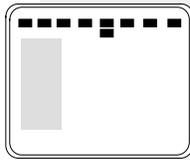
**PM LCM**  
**critical** (end)

---

- 41 The LCM critical alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.
- 42 The procedure is complete.

## PM LCM major

### Alarm display



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext |
|----|----|-----|-----|-------------|-----|-----|------|-----|
| .  | .  | .   | .   | <b>1LCM</b> | .   | .   | .    | .   |
|    |    |     |     | <b>M</b>    |     |     |      |     |

### Indication

At the MTC level of the MAP display, an LCM (preceded by a number) appears under the PM header of the alarm banner. An M follows the LCM. The LCM indicates a major alarm for a line concentrating module (LCM). The number that precedes the LCM indicates the number of LCMs affected by the alarm. The alarm banner appears at the MTC level of the MAP. The preceding figure shows an alarm banner with an LCM major alarm.

### Meaning

The LCM is in-service trouble (ISTb) because of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in-service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in-service

### Result

Line drawers that are out of service affect call processing. Line drawers that are not out of service do not affect call processing.

### Common procedures

Refer to the following common procedures:

- *Monitoring system maintenance*
- *Clearing ringing generator faults*

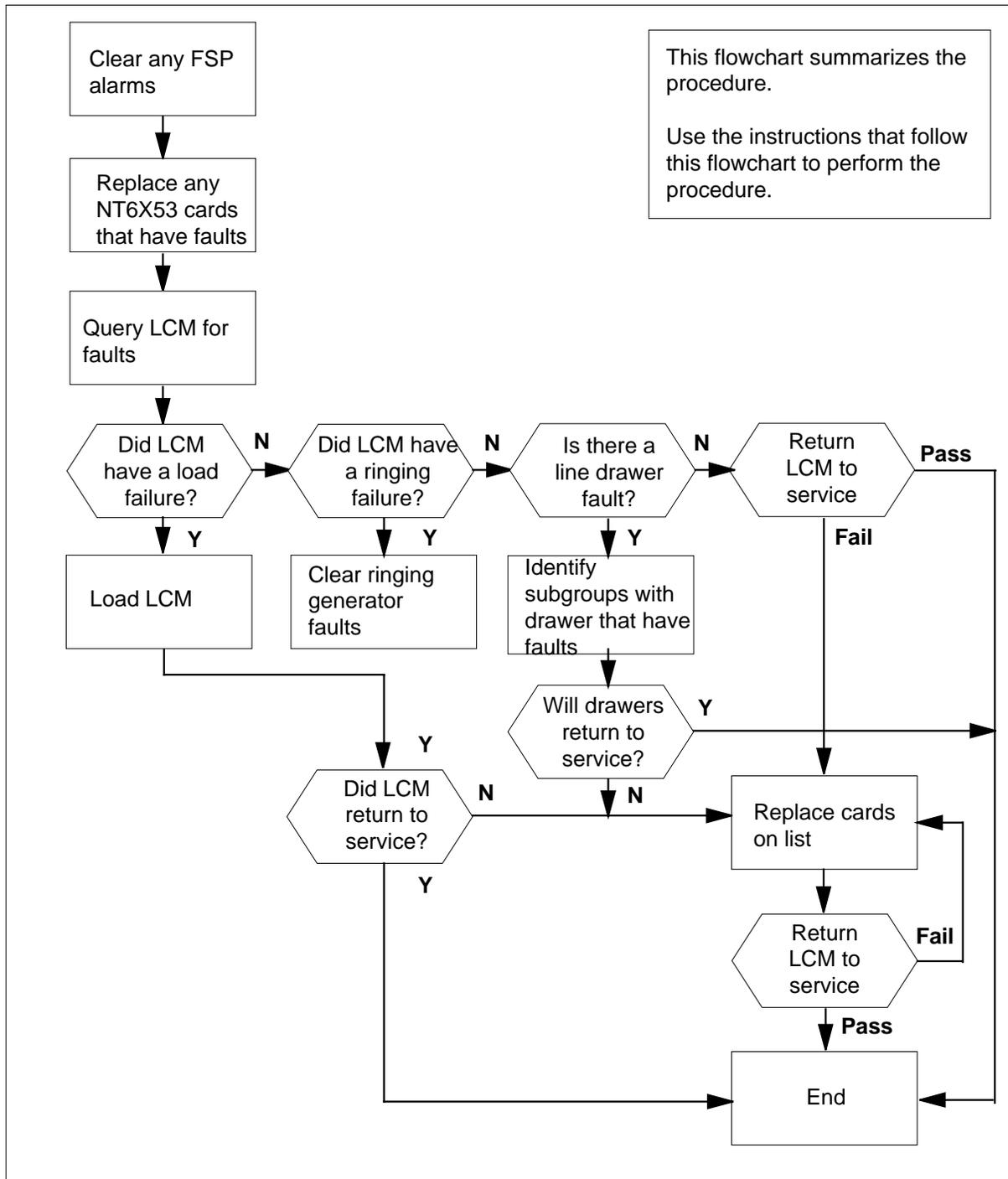
Do not go to the common procedures unless the step-action procedure directs you to go.

### Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

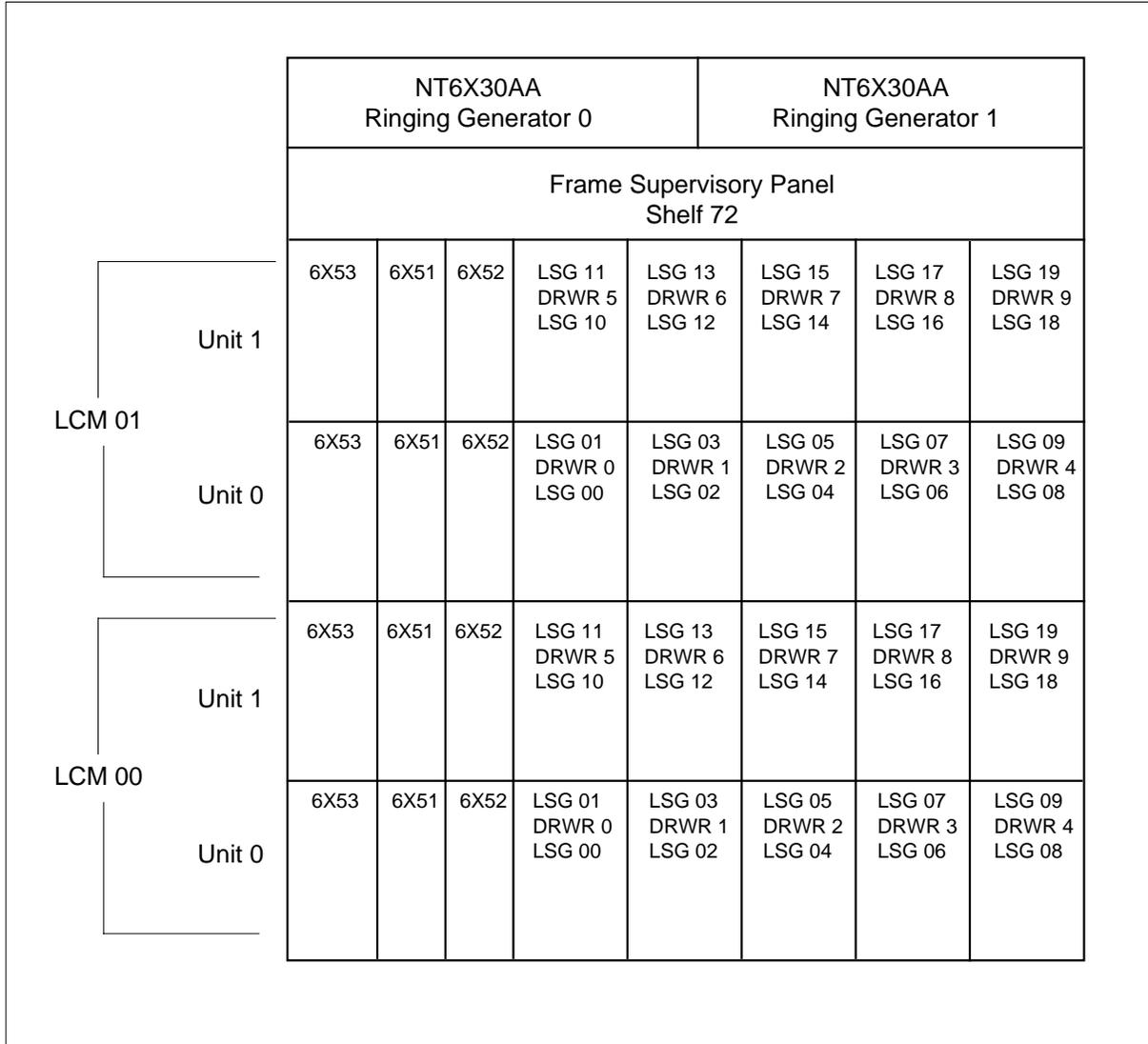
## PM LCM major (continued)

### Summary of clearing a PM LCM major alarm



**PM LCM**  
**major** (continued)

**LCE frame**



---

## PM LCM major (continued)

---

### Clearing a PM LCM major alarm

#### *At the MAP terminal*

- 1** To access the PM level of the MAP display, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |       |      |      |      |
|----|------|------|-------|------|------|------|
|    | SysB | ManB | Of fL | CBSy | ISTb | InSv |
| PM | 1    | 3    | 5     | 7    | 6    | 12   |

---

**If**

**Do**

an audible alarm rings

step 2

the M indicator at the alarm banner flashes

step 2

neither of the above conditions occur

step 3

- 
- 2** To silence the alarm, type

**>SIL**

and press the Enter key.

- 3** To display all the ISTb LCMs, type

**>DISP STATE ISTB LCM**

and press the Enter key.

*Example of a MAP response:*

ISTb LCM: HOST 0 0

**Note:** If multiple LCMs are ISTb, select an LCM to work on.

Record the name and number of the ISTb LCMs.

- 4** Check the EXT header of the alarm banner.

---

**If an FSP alarm**

**Do**

is present

step 5

is not present

step 19

- 
- 5** To locate the FSP alarm, type

**>EXT; LIST FSP**

## PM LCM major (continued)

and press the Enter key.

*Example of a MAP display:*  
FSPAISD

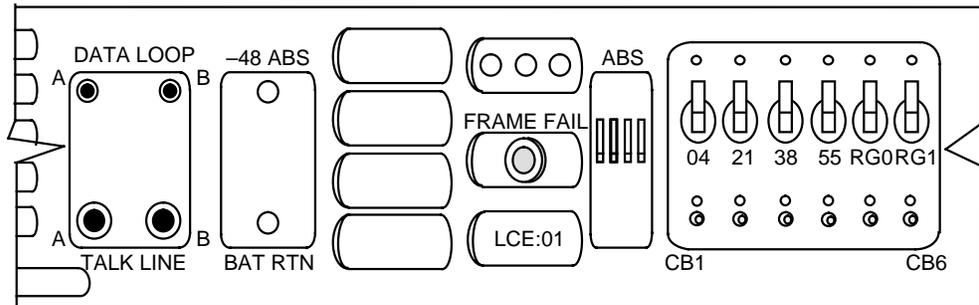
In this example, the alarm is an FSP alarm on Aisle D.

### **At the equipment aisle**

- 6 Go to the aisle identified in step 5. The end aisle alarm is lit.

### **At the equipment frame**

- 7 To identify the frame with the FSP alarm, check the frame fail lamp on the frame supervisory panel (FSP) of each frame. The frame with the FSP alarm has a lit frame fail lamp. The following figure shows an FSP with a lit fail lamp.

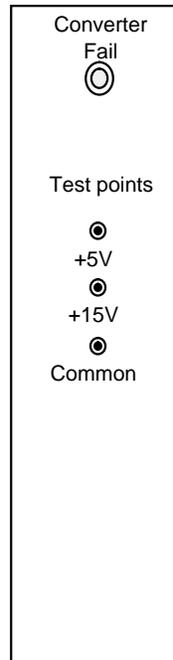


- 8 Identify the LCMs in the frame. Refer to the figure *LCE frame* for help.
- 9 Check the converter fail LED on each NT6X53 power converter card in the frame. Refer to the figure *LCE frame* for help. For help in checking the Converter Fail LED, refer to the following figure;

---

## PM LCM major (continued)

---




---

| If any LEDs | Do      |
|-------------|---------|
| are lit     | step 10 |
| are not lit | step 13 |

---

- 10** Note the LCM and LCM unit with the LED light on.
- 11** To post the in-service trouble LCM and identify the location of this LCM, type  
`>POST LCM site frame_no lcm_no;QUERYPM`  
 and press the Enter key.

*where*

**site**

is <string> of the LCM you recorded in step 3

**frame\_no**

is the number (00 to 511) of the LCM you recorded in step 3

**lcm\_no**

is the number (00 to 255) of the LCM you recorded in step 3

*Example of a MAP display:*

## PM LCM major (continued)

```

LCM HOST 00 0 ISTb Links_OOS: CSide 1 PSide 0
Unit0: SysB /RG 0
Unit1: InSv /RG 0
 11 11 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv
..
QueryPM
PM Type: LCM Int. No: 0 Status index: 0 Node_No: 13
Memory Size - Unit 0: 64k , Unit 1: 64K
Loadnames: LCMINV - LCM01D , Unit0: LCM01D , Unit1: LCM01D
LCM HOST 00 0 is included in the list of LCM types
 scheduled for a REX test.
ast REX test was TUE. 1994/10/18 at 1:08:58; FAILED.
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 C05 LCE 00 04 LCM 00 0 6X04AA
Services: NEUTRAL
Next LCM for REX

```

- 12** Determine if the LCM is the same as the LCM you identified in step 10.

| If the LCM   | Do      |
|--------------|---------|
| is different | step 13 |
| is the same  | step 14 |

- 13** Clear the FSP alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this step.

- 14** To busy the LCM unit, type

```
>BSY UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number (0 to 1) of the LCM unit

**At the equipment frame**

- 15** Power down the NT6X53 power converter card in the LCM unit that you are working on. Switch off the circuit breaker that supports the shelf. For help, refer to the figure "LCE frame".

- 16** Change the NT6X53 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 17** Turn on NT6X53 power converter card in the LCM unit. Switch on the circuit breaker that supports the shelf. For help, refer to the figure *LCE frame*.

- 18** To load the LCM unit, type

```
>LOADPM UNIT unit_no
```

---

**PM LCM**  
**major (continued)**


---

and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LCM unit

| <b>If the load</b>                                 | <b>Do</b> |
|----------------------------------------------------|-----------|
| fails, and the system generates a card list        | step 34   |
| fails, and the system did not generate a card list | step 38   |
| passes                                             | step 33   |

- 19** To post the LCM, type  
>POST LCM site frame\_no lcm\_no  
and press the Enter key.

where

**site**  
is <string> of the LCM you recorded in step 3

**frame\_no**  
is the number (00 to 511) of the LCM you recorded in step 3

**lcm\_no**  
is the number of the LCM you recorded in step 3

*Example of a MAP display:*

```
LCM HOST 01 1 ISTb Links_OOS: CSide 1, PSide 0
Unit0: SysB /RG 0
Unit1: InSv /RG 1
```

| <b>If a Mtce flag</b>        | <b>Do</b> |
|------------------------------|-----------|
| appeared next to either unit | step 20   |
| did not appear               | step 21   |

- 20** Proceed to the common procedure *Monitoring system maintenance* in this document. Complete the procedure and return to this point.

| <b>If the major alarm</b> | <b>Do</b> |
|---------------------------|-----------|
| remains                   | step 21   |
| changes                   | step 37   |
| clears                    | step 39   |

---

**PM LCM**  
**major** (continued)

- 21** To query the LCM for fault indications, type  
**>QUERYPM FLT**  
 and press the Enter key.

*Example of a MAP response:*

```
PM Audit
```

- 22** Record the MAP response.

| If the MAP response                      | Do      |
|------------------------------------------|---------|
| is REx Test Aborted                      | step 23 |
| is Load Corruption                       | step 30 |
| is Load Failed                           | step 30 |
| is Drawer Fault                          | step 25 |
| is any type of ringing generator failure | step 24 |
| is other than listed here                | step 32 |

- 23** The C-side PM of the LCM also runs an REx test. Wait until the REx test of the PM is complete. The REx test of the PM must finish before the REx test of the LCM can begin. If the REx test continues to abort, go to step 32.

- 24** Refer to the procedure "How to clear ringing generator faults" in this document. Complete the procedure and return to this point.

| If the LCM            | Do      |
|-----------------------|---------|
| major alarm continues | step 32 |
| returns to service    | step 39 |

- 25** Check the MAP display for a line drawer that has faults. Letters that appear under the line subgroup numbers that associate with a physical drawer indicate a drawer that has faults.

*Example of a MAP display:*

```
LCM HOST 00 0 ISTb Links_OOS: CSide 0 PSide 0
Unit0: InSv /RG 0
Unit1: ISTb /RG 0
 11 11 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv
 .. SS
```

---

**PM LCM**  
**major (continued)**


---

- 26** To busy one line subgroup that associates with the drawer that has faults, type  
`>BSY DRWR lsg_no`  
 and press the Enter key.

*where*

**lsg\_no**

is the number of the line subgroup you identified in step 25.

- 27** To return the line subgroup to service, type  
`>RTS DRWR lsg_no`  
 and press the Enter key.

*where*

**lsg\_no**

is the number of the line subgroup

---

| <b>If the RTS command</b>                                                            | <b>Do</b>                                          |
|--------------------------------------------------------------------------------------|----------------------------------------------------|
| fails and the system generates a card list                                           | step 28                                            |
| fails and the system does not generate a card list                                   | step 38                                            |
| passes, the LCM major alarm remains, and you worked on both line subgroups           | step 21                                            |
| passes, the LCM major alarm remains, and you did not work on the other line subgroup | Go to step 26 and work on the other line subgroup. |
| passes and the LCM major alarm clears                                                | step 39                                            |

---

***At the equipment frame***

- 28** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

- 29** To return the line subgroup to service, type  
`>RTS DRWR lsg_no`  
 and press the Enter key.

*where*

**PM LCM**  
**major** (continued)

---

**lsg\_no**  
 is the number of the line subgroup

|           | <b>If the RTS command</b>                                                                                                                             | <b>Do</b>                                          |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
|           | fails and you did not replace all the cards on the list                                                                                               | step 28                                            |
|           | fails and you replaced all the cards on the list, or the system does not generate a card list                                                         | step 38                                            |
|           | passes, the LCM major alarm remains, and you worked on both line subgroups                                                                            | step 21                                            |
|           | passes, the LCM major alarm remains, and you did not work on the other line subgroup                                                                  | Go to step 26 and work on the other line subgroup. |
|           | passes and the LCM major alarm clears                                                                                                                 | step 39                                            |
| <b>30</b> | To busy the LCM, type<br>>BSY UNIT <b>unit_no</b><br>and press the Enter key.<br>where<br><b>unit_no</b><br>is the number (0 to 1) of the LCM unit    |                                                    |
| <b>31</b> | To load the LCM, type<br>>LOADPM UNIT <b>unit_no</b><br>and press the Enter key.<br>where<br><b>unit_no</b><br>is the number (0 to 1) of the LCM unit |                                                    |
|           | <b>If the load</b>                                                                                                                                    | <b>Do</b>                                          |
|           | fails, and the system generates a card list                                                                                                           | step 34                                            |
|           | fails, and the system does not generate a card list                                                                                                   | step 38                                            |
|           | passes                                                                                                                                                | step 33                                            |

---

**PM LCM**  
**major (continued)**


---

**32** To busy the LCM, type  
 >BSY UNIT **unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCM unit

**33** To return the LCM to service, type  
 >RTS UNIT **unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCM unit

---

| <b>If the RTS command</b>                          | <b>Do</b> |
|----------------------------------------------------|-----------|
| fails and the system generates a card list         | step 34   |
| fails and the system does not generate a card list | step 38   |
| succeeds and the LCM alarm clears                  | step 39   |

---

**At the equipment frame**

**34** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. For help, refer to figure *LCE frame* at the start of this module.

---

| <b>If you</b>                            | <b>Do</b> |
|------------------------------------------|-----------|
| replace a NT6X51, NT6X52, or NT6X53 card | step 35   |
| replace any other card                   | step 36   |

---

**At the MAP terminal**

**35** To load the LCM unit, type  
 >LOADPM UNIT **unit\_no**  
 and press the Enter key.  
*where*

**PM LCM**  
**major (end)**

---

**unit\_no**  
 is the number (0 to 1) of the LCM unit

| <b>If the load</b>                                                                                                  | <b>Do</b> |
|---------------------------------------------------------------------------------------------------------------------|-----------|
| fails, the system generates a card list, and you do not replace all the cards on the list of cards that have faults | step 34   |
| fails, the system generates a card list, and you replace all the cards on the list of cards that have faults        | step 38   |
| fails and the system did not generate a card list                                                                   | step 38   |
| passes                                                                                                              | step 36   |

**36** To return the LCM unit to service, type

**>RTS UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the LCM unit

| <b>If the RTS command</b>                                                                                            | <b>Do</b> |
|----------------------------------------------------------------------------------------------------------------------|-----------|
| fails, the system generates a card list, and you did not replace all the cards on the list of cards that have faults | step 34   |
| fails, and the system generates a card list, and you replaced all the cards on the list of cards that have faults    | step 38   |
| fails and the system did not generate a card list                                                                    | step 38   |
| succeed and the LCM major alarm clears                                                                               | step 39   |

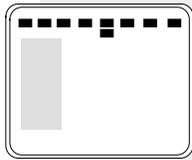
**37** The LCM major alarm changed to another type of alarm. Refer to the correct procedure to clear the alarm. Go to step 39.

**38** For additional help, contact the next level of support.

**39** The procedure is complete.

## PM LCM minor

### Alarm display



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

### Indication

At the MTC level of the MAP terminal, LCM appears under the PM header of the alarm banner. The LCM indicates a minor alarm for a line concentrating module (LCM). The number that precedes LCM indicates the number of LCMs that the alarm affects. The preceding figure shows an alarm banner with an LCM minor alarm.

### Meaning

The LCM is in-service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb.
- one unit is ISTb and one unit is in service.
- one unit is ISTb and one unit is manual busy.
- one unit is in service and one unit is manual busy.
- both units are in service with some C-side links out of service.

### Result

The alarm does not affect service.

### Common procedures

This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing PM C-side faults*
- *Clearing ringing generator faults*

Do not go to the common procedure unless the step-action procedure directs you to go.

**PM LCM**

**minor** (continued)

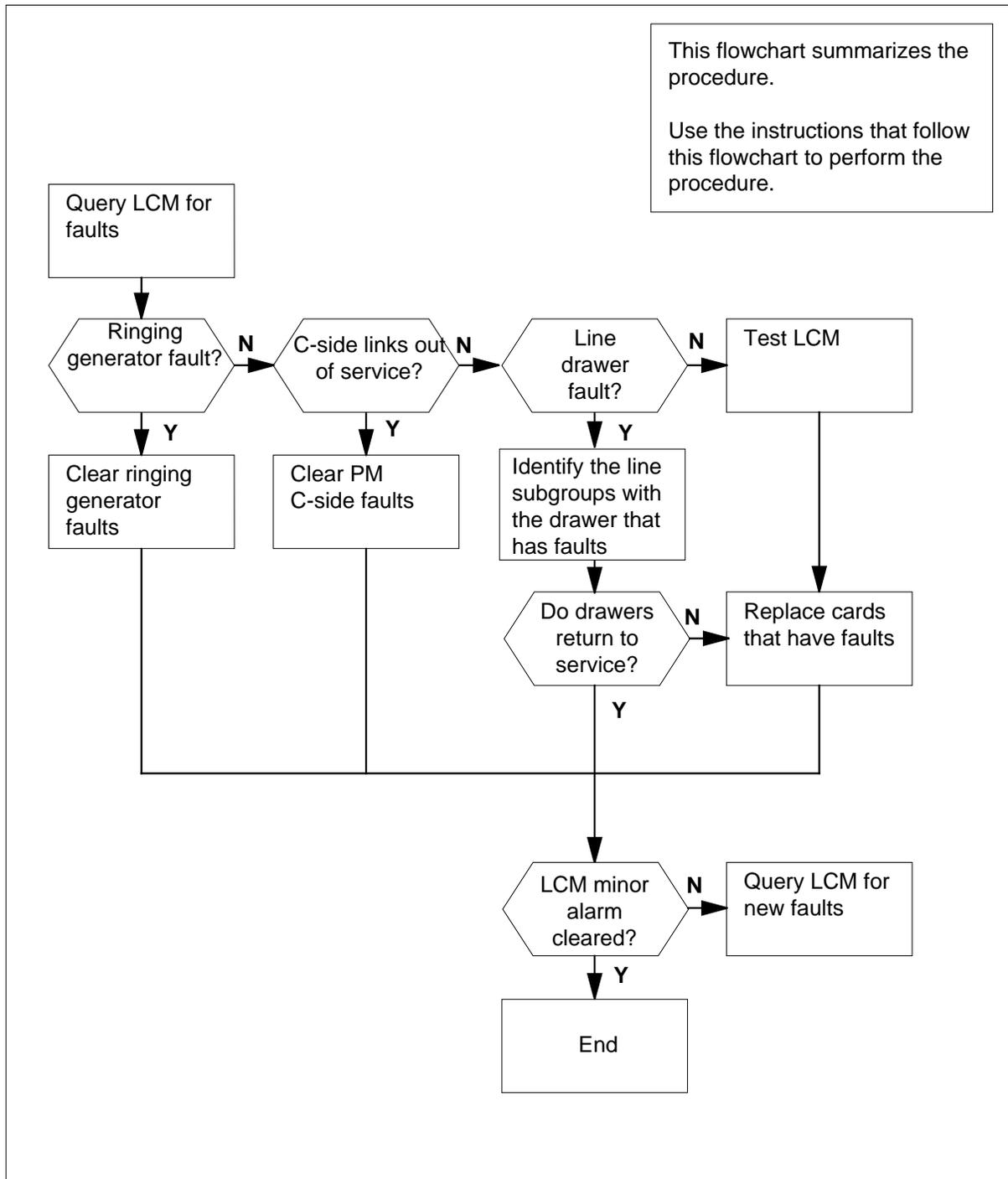
---

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

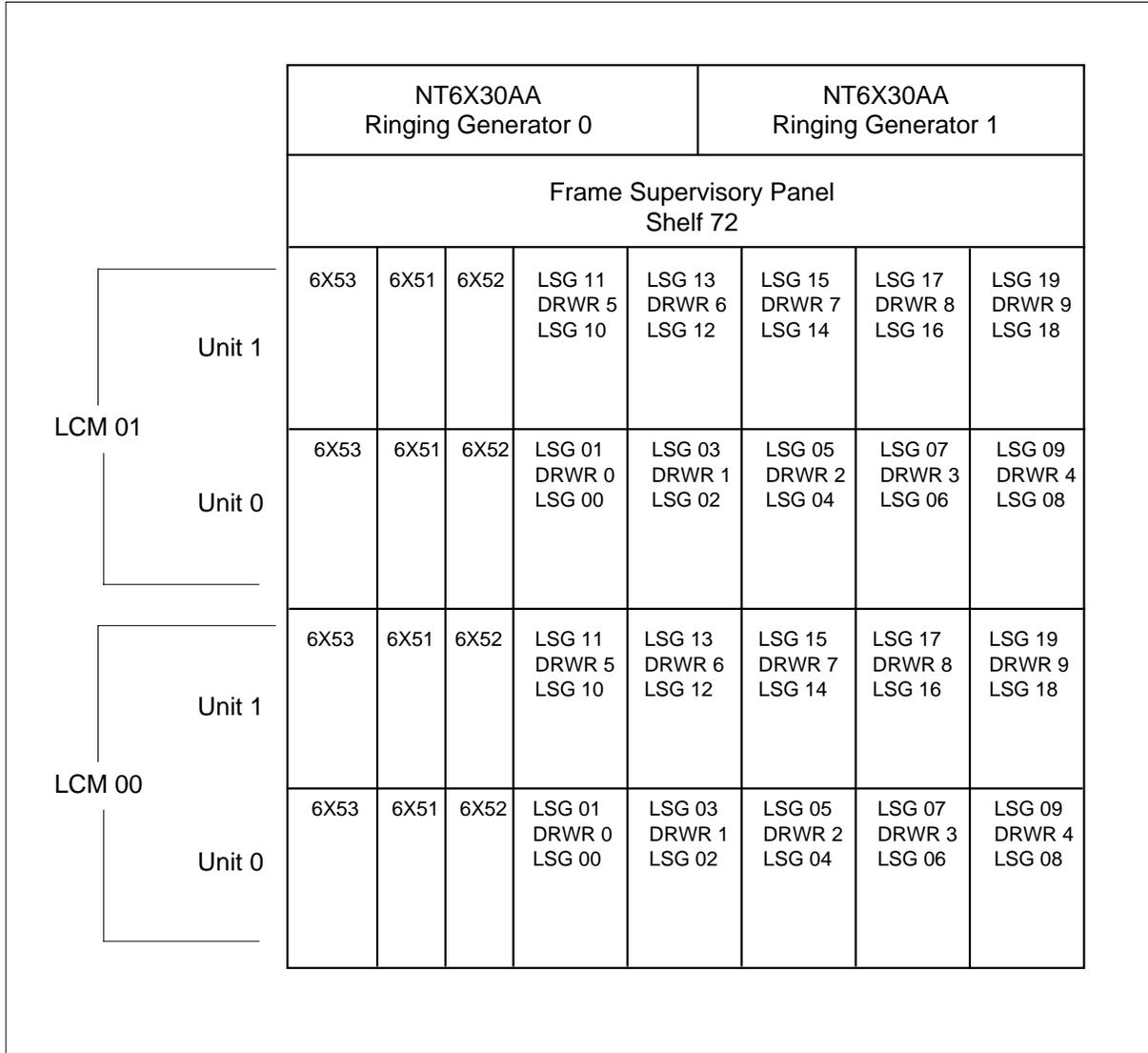
## PM LCM minor (continued)

### Summary of clearing a PM LCM minor alarm



**PM LCM**  
**minor** (continued)

**LCE frame**



---

## PM LCM minor (continued)

---

### Clearing a PM LCM minor alarm

#### *At the MAP display.*

- 1 To access the PM level of the MAP display, type

```
>MAPCI; MTC; PM
```

and press the Enter key.

*Example MAP response:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

---

**If an audible alarm**

**Do**

rings

step 2

does not ring

step 3

---

- 2 To silence the alarm, type

```
>SIL
```

and press the Enter key.

- 3 To display all the ISTb LCMs, type

```
>DISP STATE ISTB LCM
```

and press the Enter key.

*Example MAP response:*

```
ISTb LCM: HOST 0 0
```

**Note:** If multiple LCMs are ISTb, select an LCM on which to work. Repeat this procedure for each LCM that is ISTb.

Record the name and number of the ISTb LCMs.

- 4 To post the LCM, type

```
>POST LCM site frame_no lcm_no
```

and press the Enter key.

*where*

**site**

is <string> of the LCM that you recorded in step 3

**frame\_no**

is the number (00 to 511) of the LCM that you recorded in

step 3

**PM LCM**  
**minor** (continued)

**lcm\_no**

is the number (0 to 255) of the LCM that you recorded in step 3

*Example of a MAP display:*

```
LCM HOST 00 0 ISTb Links_OOS: CSide 1 PSide 0
Unit0: ISTb /RG 0
Unit1: InSv /RG 0
 11 11 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv
 .. -- -- -- -- .. -- -- -- --
```

| <b>If a Mtce flag</b>       | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 5    |
| does not appear             | step 6    |

- 5** Go to the common procedure *Monitoring system maintenance* in this document. Complete the procedure and return to this point.

| <b>If the LCM minor alarm</b> | <b>Do</b> |
|-------------------------------|-----------|
| remains                       | step 6    |
| changes                       | step 20   |
| clears                        | step 22   |

- 6** To determine the cause of the in-service trouble condition, type

>QUERYPM FLT

and press the Enter key.

**Note:** Multiple causes are possible for the in-service trouble condition of an LCM. The LCM and the LCM units remain ISTb until all the in-service trouble conditions clear.

| <b>If the MAP response</b>             | <b>Do</b> |
|----------------------------------------|-----------|
| is any type of ringing generator fault | step 7    |
| is REx Test Aborted                    | step 8    |
| is C-side links out of service         | step 9    |
| is Drawer Fault                        | step 10   |
| is Diagnostic Failed                   | step 16   |



**PM LCM**  
**minor** (continued)

---

- 12** To confirm the command, type  
**>YES**  
 and press the Enter key.
- 13** To return the line subgroup to service, type  
**>RTS DRWR lsg\_no**  
 and press the Enter key.  
*where*  
     **lsg\_no**  
         is the number of the line subgroup

| <b>If the RTS command</b>                                                            | <b>Do</b>                                          |
|--------------------------------------------------------------------------------------|----------------------------------------------------|
| fails and the system generates a card list                                           | step14                                             |
| fails and the system does not generate a card list                                   | step21                                             |
| passes, the LCM minor alarm remains, and you worked on both line subgroups           | step 6                                             |
| passes, the LCM minor alarm remains, and you did not work on the other line subgroup | Go to step 11 and work on the other line subgroup. |
| passes and the LCM minor alarm clears                                                | step 22                                            |

***At the equipment frame***

- 14** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 15.
- 15** To return the line subgroup to service, type  
**>RTS DRWR lsg\_no**  
 and press the Enter key.  
*where*  
     **lsg\_no**  
         is the number of the line subgroup

| <b>If the RTS command</b>                               | <b>Do</b> |
|---------------------------------------------------------|-----------|
| fails and you did not replace all the cards on the list | step 14   |

---

**PM LCM**  
**minor (continued)**


---

|           | <b>If the RTS command</b>                                                                                                                                                     | <b>Do</b>                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
|           | fails and you replaced all the cards on the list, or the system did not generate a card list                                                                                  | step 21                                           |
|           | passes, the LCM minor alarm remains, and you worked on both line subgroups                                                                                                    | step 6                                            |
|           | passes, the LCM minor alarm remains, and you did not work on the other line subgroup                                                                                          | Go to step 11 and work on the other line subgroup |
|           | passes and the LCM minor alarm clears                                                                                                                                         | step 22                                           |
| <b>16</b> | To test the LCM unit, type<br>> <b>TST UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number (0 to 1) of the LCM unit               |                                                   |
|           | <b>If the TST command</b>                                                                                                                                                     | <b>Do</b>                                         |
|           | fails, and the system generates a card list                                                                                                                                   | step 17                                           |
|           | fails, and the system does not generate a card list                                                                                                                           | step 21                                           |
|           | passes and the alarm clears                                                                                                                                                   | step 22                                           |
| <b>17</b> | To busy the LCM unit for the alarm, type<br>> <b>BSY UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number (0 to 1) of the LCM unit |                                                   |
| <b>18</b> | Replace the first or next card on the list. Refer to the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and go to step 19.                  |                                                   |
| <b>19</b> | To return the LCM unit to service, type<br>> <b>RTS UNIT unit_no</b><br>and press the Enter key.<br><i>where</i>                                                              |                                                   |

**PM LCM**  
**minor** (end)

---

**unit\_no**  
is the number (0 to 1) of the LCM unit

---

| <b>If the RTS command</b>                                | <b>Do</b> |
|----------------------------------------------------------|-----------|
| fails, and you did not replace all the cards on the list | step 18   |
| fails, and you replaced all the cards on the list        | step 21   |
| passes                                                   | step 22   |

---

- 20** The LCM minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Complete the procedure and go to step 22.
- 21** You need additional help to clear this alarm. Contact the next level of maintenance. Describe in detail the steps you performed to clear this alarm.
- 22** The procedure is complete. If additional alarms appear, proceed to the correct alarm clearing procedure.

## PM LCM ringing generator (LRG) critical

### Alarm display

| CM | MS | IOD | Net | PM                        | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|---------------------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1LRG</b><br><b>*C*</b> | .   | .   | .    | .   | .    |

### Indication

An nLRG indicates a critical alarm that involves a line concentrating module (LCM) ringing generator (RG). The MAP display lists nLRG under the PM subsystem with a \*C\* beneath the nLRG at the MTC level. The \*C\* indicates a critical alarm class.

### Meaning

Both ringing generator units are in the in-service trouble (ISTb) state.

### Result

If both ringing generator units fail, automatic switching to an active ringing generator (SwRG) unit will not occur. The result is that the system cannot generate ringing. This problem affects subscriber service.

### Common procedures

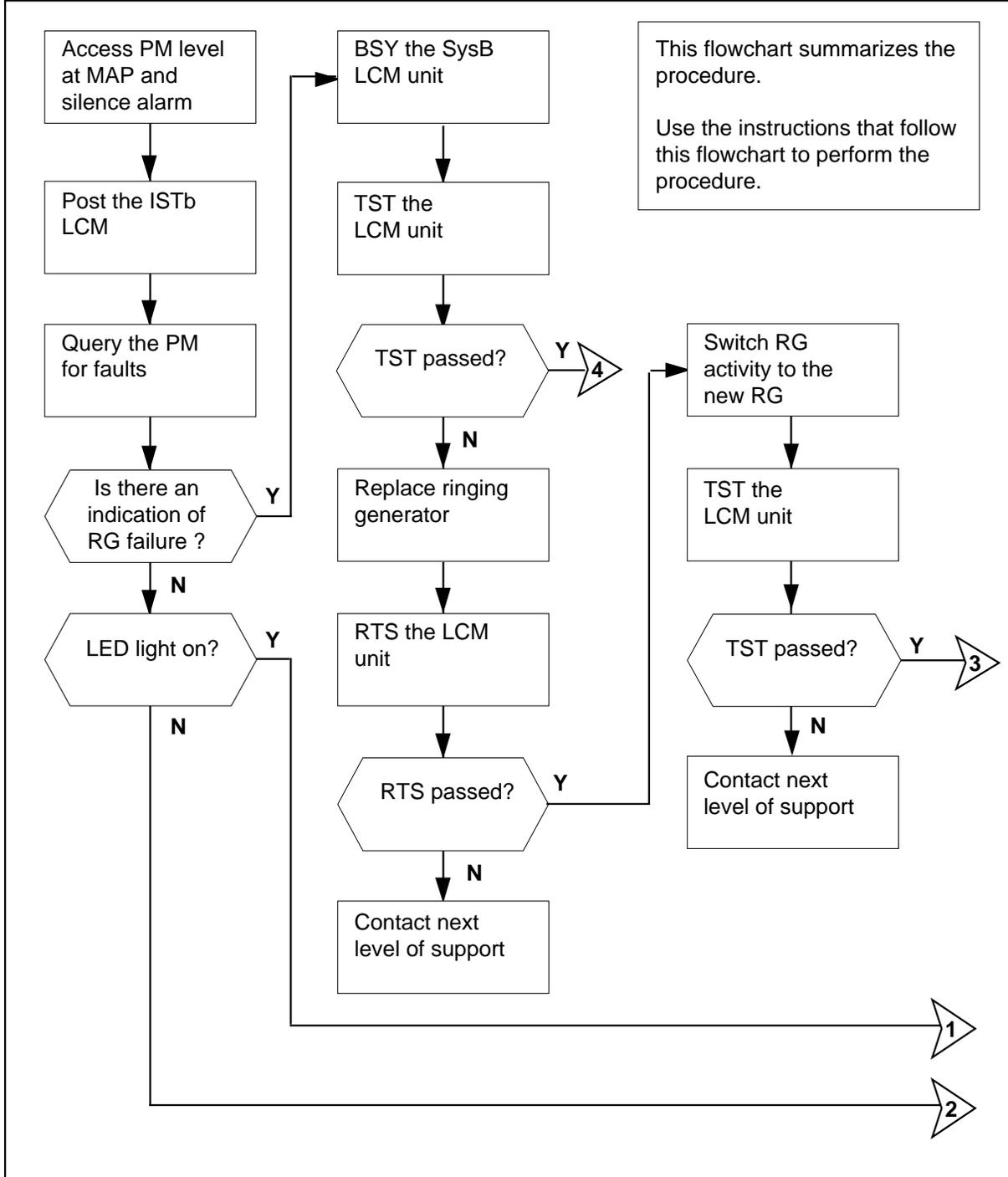
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

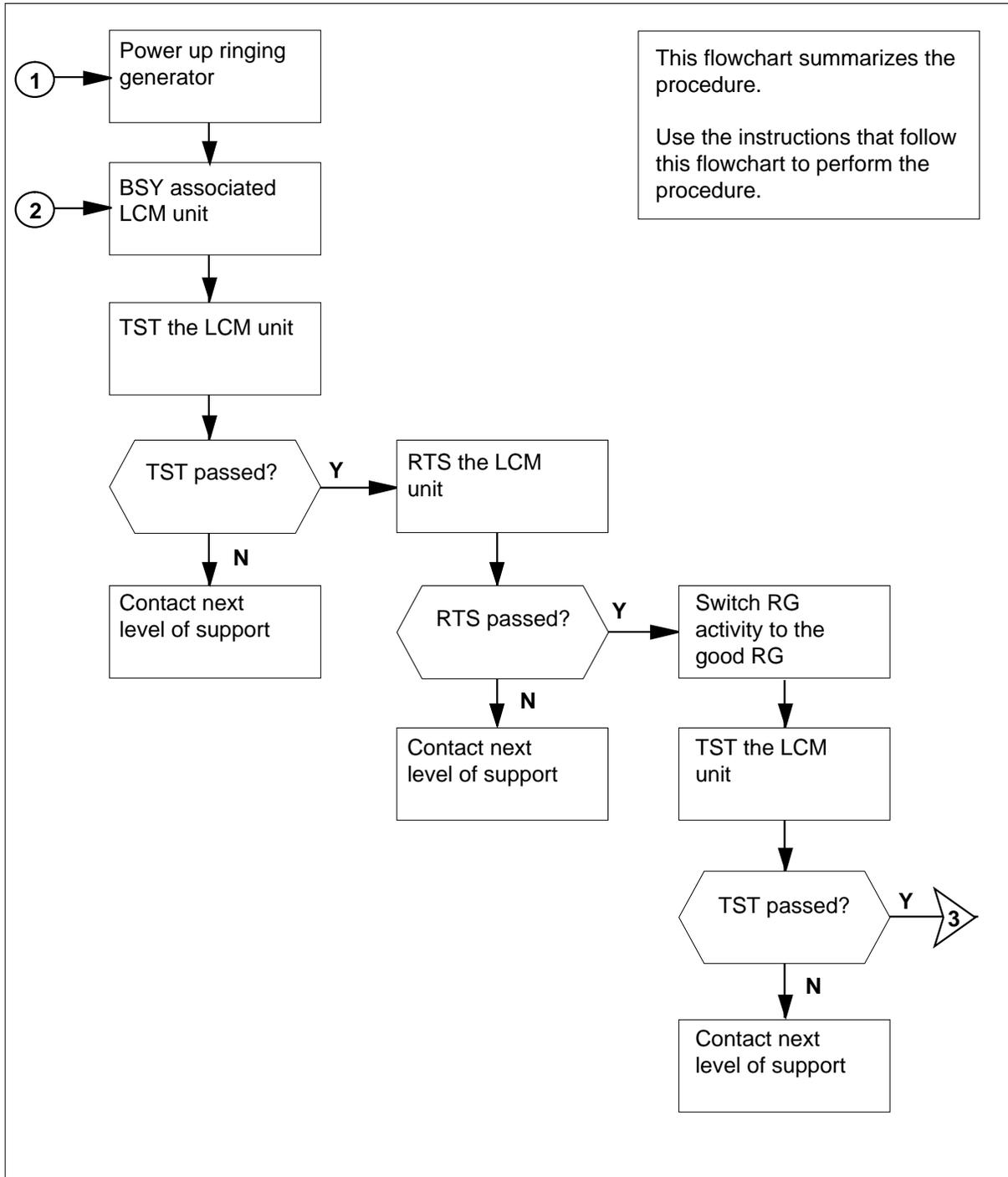
# PM LCM ringing generator (LRG) critical (continued)

## Summary of clearing an PM LCM ringing generator (LRG) critical



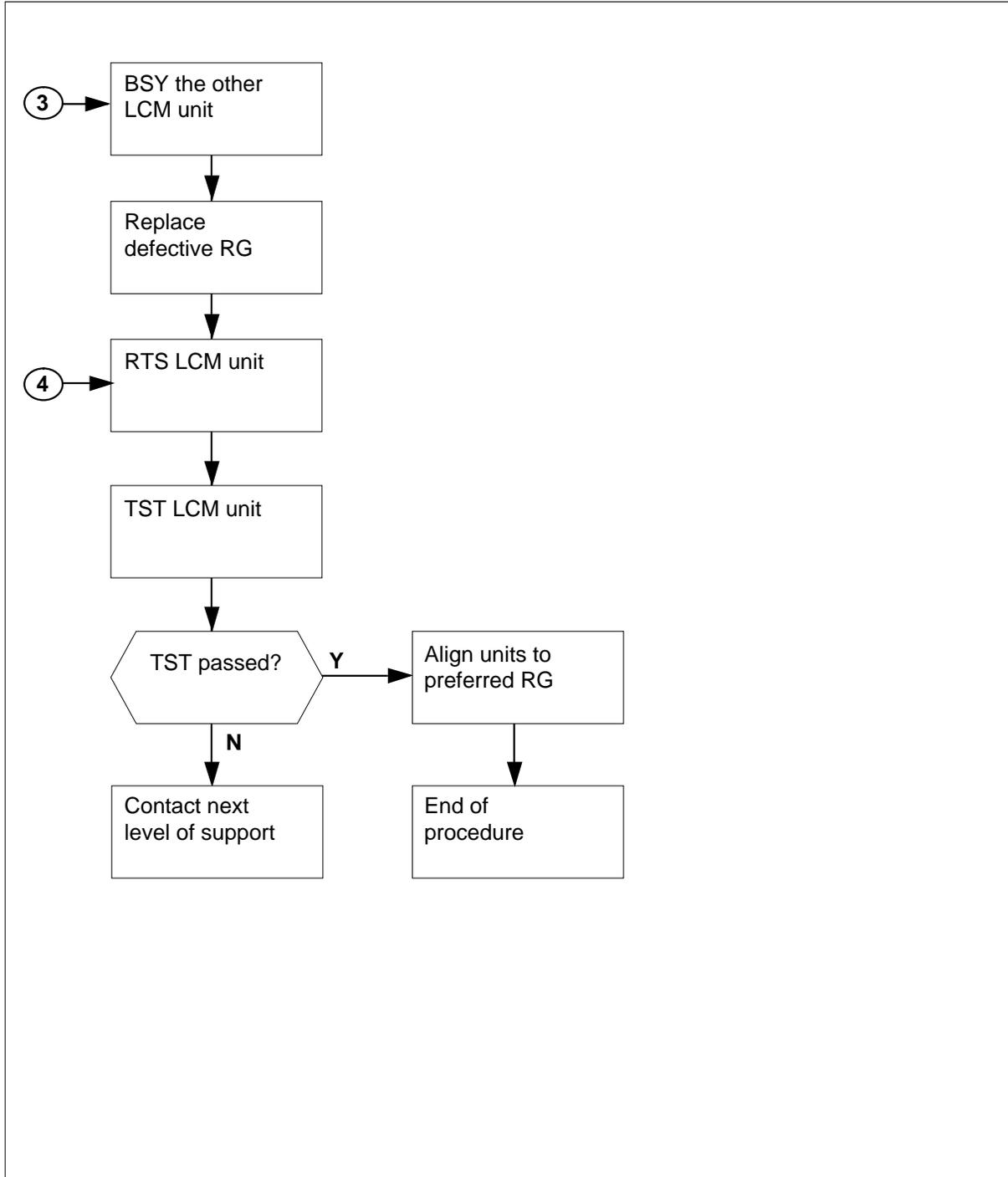
## PM LCM ringing generator (LRG) critical (continued)

### Summary of clearing an PM LCM ringing generator (LRG) critical (continued)



## PM LCM ringing generator (LRG) critical (continued)

### Summary of How to clear PM LCM ringing generator (LRG) critical (continued)



## PM LCM ringing generator (LRG) critical (continued)

### Clearing an PM LCM ringing generator (LRG) critical

#### ATTENTION

You enter this procedure only from a PM system level alarm clearing procedure. You enter this procedure from the step of the procedure that identified a PM alarm for an LCM ringing generator fault.

#### *At the MAP terminal*

- 1 To silence the alarm, type  
**>MAPCI ;MTC ;PM ;SIL**  
and press the Enter key.
- 2 To identify the damaged line concentrating module (LCM) or enhanced LCM (LCME), type  
**>DISP STATE LCM ISTB**  
and press the Enter key.

or

**>DISP STATE ISTB LCME**  
and press the Enter key.

*Example of an LCM MAP response:*

```
ISTb: HOST 00 0
```

- 3 To post the ISTb LCM(E) identified in step 2, type  
**>POST LCM(E) ISTB**  
and press the Enter key.

*Example of an LCM MAP response:*

|     |      |      |      |      |      |      |  |
|-----|------|------|------|------|------|------|--|
|     | SysB | ManB | OffL | CBsy | ISTb | InSv |  |
| PM  | 0    | 0    | 2    | 0    | 1    | 12   |  |
| LCM | 0    | 0    | 2    | 0    | 1    | 9    |  |

|        |      |    |    |      |            |       |    |       |    |
|--------|------|----|----|------|------------|-------|----|-------|----|
| LCM    | HOST | 00 | 0  | ISTb | Links_OOS: | CSide | 0  | PSide | 0  |
| Unit0: | SysB |    |    |      | /RG:       | 0     |    |       |    |
| Unit1: | ISTb |    |    |      | /RG:       | 0     |    |       |    |
|        |      |    |    |      | 11         | 11    | 11 | 11    | 11 |
| Drwr:  | 01   | 23 | 45 | 67   | 89         | 01    | 23 | 45    | 67 |
|        | ..   | .. | .. | ..   | ..         | ..    | .. | ..    | .. |
|        |      |    |    |      |            |       |    |       |    |
|        |      |    |    |      |            |       |    |       |    |

## PM LCM ringing generator (LRG) critical (continued)

---

- 4 To check for fault indicators, type  
>QUERYPM FLT  
and press the Enter key.

*Example of a MAP response:*

```
LCM UNIT 0 Inservice troubles Exist:
Ringing Generator Failure:Ring Generator ANI/COIN Fault
LCM UNIT 1 Inservice Troubles Exist:
Ringing Generator Failure:Ring Generator in Excess load
```

### **At the LCE frame/LCME cabinet**

- 5 Make a visual inspection of the ringing generators. Check to see if the LED light is ON.

---

| <b>If the LED light</b> | <b>Do</b> |
|-------------------------|-----------|
| is ON                   | step 6    |
| is OFF                  | step 10   |

---

- 6 Power on the ringing generator.

- 7 Use the following table to determine the next step in the power-on procedure.

---

| <b>If the equipment housing</b> | <b>Do</b> |
|---------------------------------|-----------|
| is in an LCE frame              | step 8    |
| is in an LCME cabinet           | step 9    |

---

### **At the LCE frame**

- 8 To power on the ringing generators, set the following circuit breakers (CBs) to the ON position.

RG 0 corresponds to LCM unit 0 (CB5)

RG 1 corresponds to LCM unit 1 (CB6)

### **At the LCME cabinet**

- 9 To power on the ringing generators, set the following CB to the ON position.

RG 0 corresponds to LCME unit 0 (CB1)

RG 1 corresponds to LCME unit 1 (CB10)

## PM LCM ringing generator (LRG) critical (continued)

### At the MAP terminal

- 10** To manually busy the system busy (SysB) LCM(E) unit identified in step 2, type

```
>BSY UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the SysB LCM(E) unit (0 or 1)

- 11** To test the manual busy (ManB) LCM(E) unit, type

```
>TST UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the ManB LCM(E) unit (0 or 1)

| If a generated card list | Do      |
|--------------------------|---------|
| is present               | step 12 |
| is not present           | step 23 |

- 12** Check the card list that results from step 11.

*Example of a MAP response:*

| SITE | FLR | RPOS | BAY_ID | SHF | DESCRIPTION | SLOT | EQPEC |
|------|-----|------|--------|-----|-------------|------|-------|
| HOST | 01  | A00  | LCE 00 | 72  | LCM:00 0    | 01   | 6X60  |
| HOST | 01  | A00  | LCE 00 | 21  | LCM:00 0    | 04   | 6X51  |
| HOST | 01  | A00  | LCE 00 | 72  | LCM:00 0    | 11   | 6X60  |
| HOST | 01  | A00  | LCE 00 | 04  | LCM:00 0    | 04   | 6X51  |

- 13** Go to step 22 to replace the card that has faults.

- 14** To return the LCM(E) unit to service, type

```
>RTS UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the LCM(E) unit (0 or 1) you want to RTS

| If the RTS command | Do      |
|--------------------|---------|
| passed             | step 17 |
| failed             | step 15 |

## PM LCM ringing generator (LRG) critical (continued)

- 15** To load the LCM(E) from the CM again, type  
>LOADPDM UNIT *unit\_no* CC  
and press the Enter key.

*where*

**unit\_no**  
is the LCM(E) unit (0 or 1) you want to load

| If the LOADPDM command | Do      |
|------------------------|---------|
| passed                 | step 16 |
| failed                 | step 23 |

- 16** To return the LCM(E) unit to service, type  
>RTS UNIT *unit\_no*  
and press Enter.

*where*

**unit\_no**  
is the number of the LCM(E) unit (0 or 1) you want to return to service (RTS)

| If the RTS command | Do      |
|--------------------|---------|
| passed             | step 17 |
| failed             | step 23 |

- 17** To align RG activity to the new RG, type  
>SWRG UNIT *unit\_no*  
and press the Enter key.

*where*

**unit\_no**  
is the LCM(E) unit (0 or 1) for the new RG

*Example of an LCM MAP response:*  
LCM HOST 00 1 Unit 1 SWRG Passed

| If the SWRG command                                    | Do      |
|--------------------------------------------------------|---------|
| passed, and RG activity must change for the other unit | step 18 |
| passed, and RG activity is acceptable for both units   | step 19 |
| failed                                                 | step 23 |

## PM LCM ringing generator (LRG) critical (continued)

**18** Repeat step 17 for the other LCM(E) unit.

**19** To test the new RG, type

```
>TST UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the LCM(E) unit (0 or 1) for the new RG.

*Example of an LCM MAP response:*

```
LCM HOST 00 0 Unit 1 InSvce Tests Initiated
LCM HOST 00 0 Unit 1 Tst Passed
```

| If the TST command | Do      |
|--------------------|---------|
| passed             | step 20 |
| failed             | step 23 |

**20** Repeat step 10 through step 19 for the other LCM(E) unit. Go to step 21.

**21** To align RG activity to the preferred RG, type

```
>SWRG UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the LCM(E) unit (0 or 1) for the new RG

*Example of an LCM MAP response:*

```
LCM HOST 00 0
InSv Links OOS: Cside 0 Pside 0
Unit 0: InSv /RG:0Unit 1:
InSv /
RG:0 11 11 11 11 11
RG: Pref 0 InSvDrwr: 01 23 45 67 89 01 23 45 67 89
Stby 1 InSv
```

**Note:** Repeat this step until both units of the LCM are on the preferred RG.

| If the SWRG command | Do      |
|---------------------|---------|
| passed              | step 24 |
| failed              | step 23 |

**22** Go to *Card Replacement Procedures*. Replace the first card on the list. Complete the card replacement procedures. Go to step 14 of this procedure.

**23** For additional help, contact the next level of support.

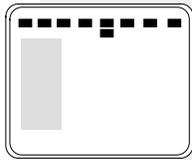
**PM LCM ringing generator (LRG)**  
**critical** (end)

---

- 24** The procedure is complete.  
If other alarms appear, refer to the correct alarm clearing procedures for the indicated alarms.

## PM LCME major

### Alarm display



| CM | MS | IOD | Net | PM           | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|--------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1LCME</b> | .   | .   | .    | .   | .    |
|    |    |     |     | <b>M</b>     |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, LCME appears under the PM header of the alarm banner. An M follows the LCME. The LCME indicates a line concentrating module enhanced (LCME) major alarm. The number that precedes the LCME indicates the number of LCMEs that the alarm affects. The previous figure shows an alarm banner with an LCME major alarm.

### Meaning

The LCME is in-service trouble (ISTb) as a result of one of the following conditions:

- one unit is system busy and one unit is ISTb.
- one unit is system busy and one unit is in service.
- one unit is C-side busy and one unit is ISTb.
- one unit is C-side busy and one unit is in service.

### Result

The alarm does not affect service.

### Common procedures

This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing ringing generator faults*

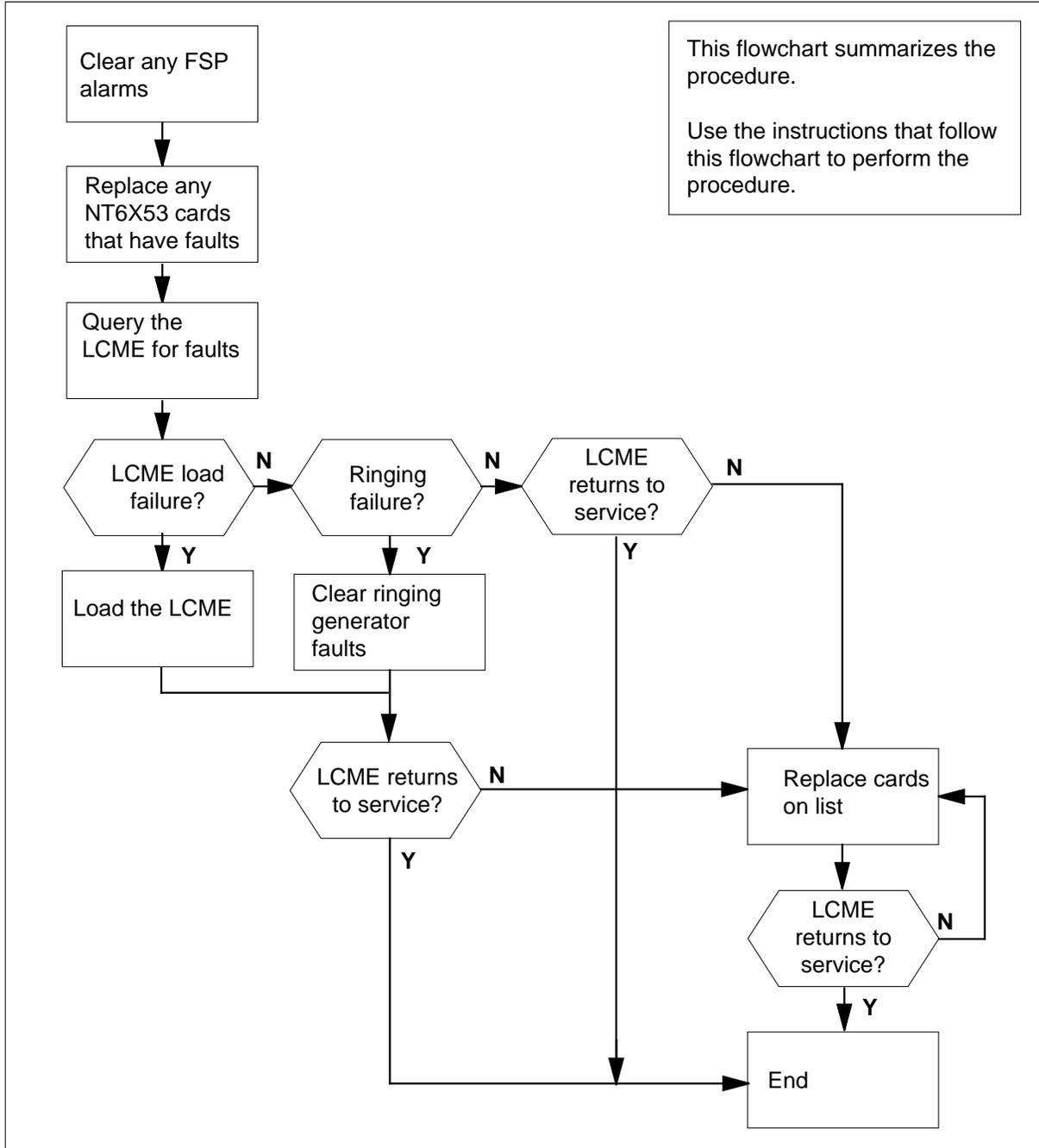
Do not go to the common procedures unless the step-action procedure directs you to go.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

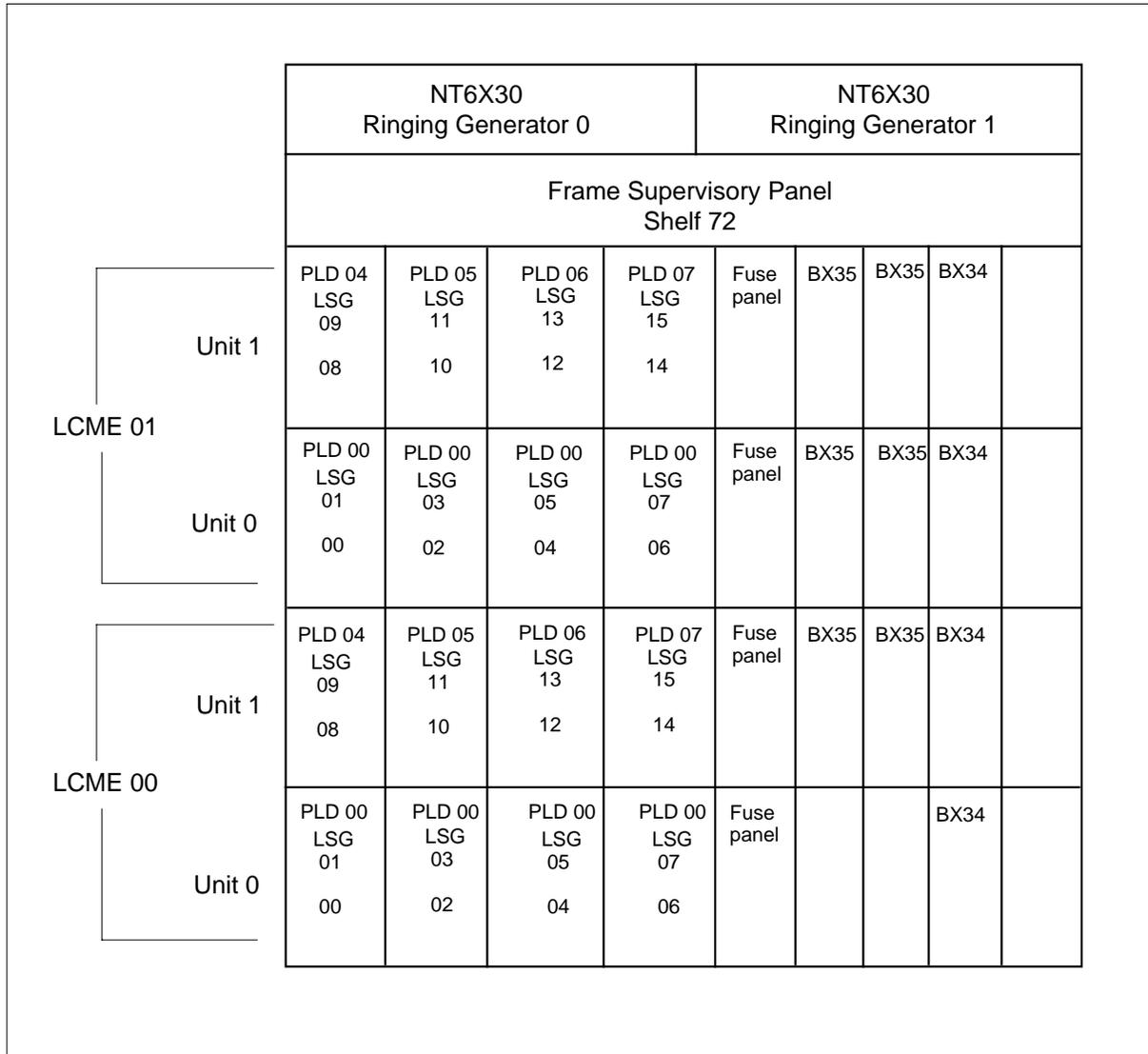
# PM LCME major (continued)

## Summary of Clearing a PM LCME major alarm



**PM LCME**  
**major (continued)**

**LCME frame**



**PM LCME**  
**major** (continued)

---

**Clearing a PM LCME major alarm**

**At the MAP display**

- 1** To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
 and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBSy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

| <b>If</b>                                   | <b>Do</b> |
|---------------------------------------------|-----------|
| an audible alarm rings                      | step 2    |
| the M indicator at the alarm banner flashes | step 2    |
| other than listed here                      | step 3    |

- 2** To silence the alarm, type  
**>SIL**  
 and press the Enter key.
- 3** To display all the ISTb LCMEs, type  
**>DISP STATE ISTB LCME**  
 and press the Enter key.

*Example of a MAP:*  
 ISTb LCME: HOST 0 0

**Note:** If multiple LCMEs are ISTb, select an LCME to work on.  
 Record the number of the LCMEs.

- 4** Check the EXT header of the alarm banner.

| <b>If an FSP alarm</b> | <b>Do</b> |
|------------------------|-----------|
| is present             | step 5    |
| is not present         | step 20   |

- 5** To locate the FSP alarm, type  
**>EXT; LIST FSP**  
 and press the Enter key.

## PM LCME major (continued)

*Example of a MAP response:*  
FSPAISD

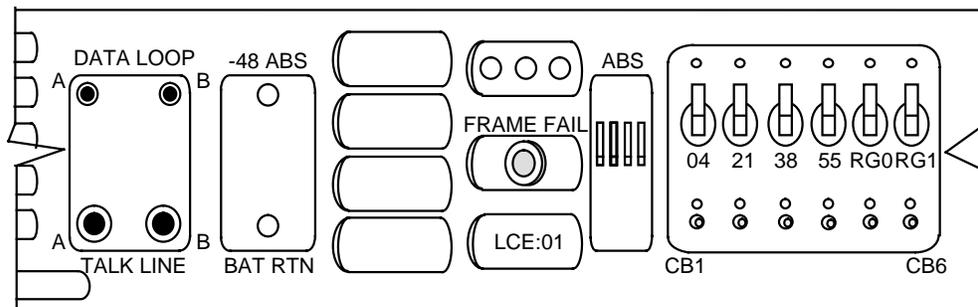
In this example, the alarm is an FSP alarm on aisle D.

### **At the equipment aisle**

- 6** Go to the aisle that you identified in step 5. The end aisle alarm is lit.

### **At the equipment frame**

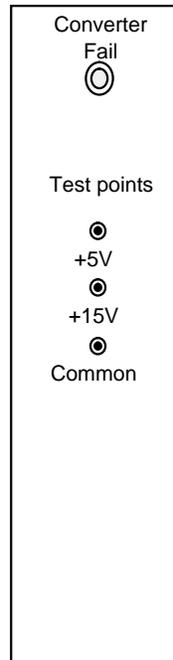
- 7** Identify the frame with the FSP alarm. To identify this frame, check the frame fail lamp on the frame of each frame supervisory panel (FSP). The frame with the FSP alarm has a lit frame fail lamp. The following figure shows an FSP with a lit fail lamp.



- 8** Identify the LCMEs in the frame. Refer to the "LCME frame" figure for help.
- 9** Check the converter fail LED on each 6X53 power converter card in the frame. Refer to the "LCME frame" figure for help. Refer to the following figure for help to check the converter fail LED.

## PM LCME major (continued)

---



---

| If any LEDs | Do      |
|-------------|---------|
| are lit     | step 10 |
| are not lit | step 14 |

---

- 10** Note the LCME with the LED light on.
- 11** To post the system busy LCME and identify the location of the LCME, type  
>PM; POST LCME site frame\_no lcme\_no;QUERYPM  
and press the Enter key.

where

**site**

is <string> of the LCM you recorded in step 3

**frame\_no**

is the number (00 to 511) of the LCM you recorded in step 3

**lcm\_no**

is the number (00 to 255) of the LCM you recorded in step 3

*Example of a MAP response:*

## PM LCME major (continued)

```

LCME HOST 00 0 ISTb Links_OOS: CSide 17 PSide 0
Unit0: Act SysB /RG 0
Unit1: Inact InSv /RG 0
 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 Stby 1 InSv
 .. -- -- -- -- .. -- --
QueryPM
PM Type: LCME Int. No: 0 Status index: 0 Node_No: 13
Memory Size - Unit 0: 256k , Unit 1: 256K
Loadnames: LCMEINV - CCC , Unit0: LCME01D , Unit1: LCME01D
LCME HOST 00 0 is included in the list of LCME types
 scheduled for a REX test.
Last REX test was TUE. 1994/10/18 at 1:08:58; FAILED.
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 C05 LCE 00 04 LCME 00 0 6X04AA
Services: NEUTRAL
Next LCME for REX

```

|           | <b>If a Mtce flag</b>                                                                                                                | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | appears next to either unit                                                                                                          | step 12   |
|           | does not appear                                                                                                                      | step 13   |
| <b>12</b> | Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.   |           |
|           | <b>If the major alarm</b>                                                                                                            | <b>Do</b> |
|           | remains                                                                                                                              | step 13   |
|           | changes                                                                                                                              | step 36   |
|           | clears                                                                                                                               | step 38   |
| <b>13</b> | Determine if the LCME is the same as the LCME that you identified in step 10.                                                        |           |
|           | <b>If the LCME 7</b>                                                                                                                 | <b>Do</b> |
|           | is different                                                                                                                         | step 14   |
|           | is the same                                                                                                                          | step 15   |
| <b>14</b> | Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point. |           |

**PM LCME**  
**major** (continued)

- 15** To busy the LCME, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCME unit

**At the equipment frame**

- 16** Power down the 6X53 power converter card in the LCME unit that you are working on. Switch off the circuit breaker that supports the shelf of this LCME. Refer to the diagram in step 7 for help.
- 17** Change the 6X53 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 18** Power up the 6X53 power converter card in the LCME unit that is in use. To power up the card, switch on the circuit breaker that supports the shelf of the LCME unit. Refer to the diagram in step 7 for help.
- 19** To load the LCME unit, type  
**>LOADPM UNIT unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCME unit

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passes             | step 29   |
| fails              | step 37   |

- 20** To post the LCME, type  
**>POST LCME lcme\_no**  
 and press the Enter key.  
*where*  
**lcme\_no**  
 is the number (0 to 255) of the LCME that you recorded in step 3

*Example of a MAP response:*

```
LCME HOST 01 1 SysB Links_OOS: CSide 17, PSide 0
Unit0: Act SysB /RG 0
Unit1: Inact InSv /RG 1
```

| <b>If a Mtce flag</b>       | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 21   |

---

**PM LCME**  
**major (continued)**


---

|           | <b>If a Mtce flag</b>                                                                                                                                                                                                          | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | does not appear                                                                                                                                                                                                                | step 22   |
| <b>21</b> | Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.                                                                                             |           |
|           | <b>If the major alarm</b>                                                                                                                                                                                                      | <b>Do</b> |
|           | remains                                                                                                                                                                                                                        | step 22   |
|           | changes                                                                                                                                                                                                                        | step 36   |
|           | clears                                                                                                                                                                                                                         | step 38   |
| <b>22</b> | To query the LCME for fault indications, type<br>>QUERYPM FLT<br>and press the Enter key.<br><i>Example of a MAP response:</i><br>PM Audit                                                                                     |           |
| <b>23</b> | Record the MAP response.                                                                                                                                                                                                       |           |
|           | <b>If the MAP response</b>                                                                                                                                                                                                     | <b>Do</b> |
|           | is REx Test Aborted                                                                                                                                                                                                            | step 24   |
|           | is Load Corruption                                                                                                                                                                                                             | step 26   |
|           | is Load Failed                                                                                                                                                                                                                 | step 26   |
|           | is any type of ringing generator failure                                                                                                                                                                                       | step 25   |
|           | is other than listed here                                                                                                                                                                                                      | step 28   |
| <b>24</b> | The C-side PM for the LCME runs a REx test. Wait until the REx test for the PM is complete. The REx test for the PM must finish before the REx test for the LCME can start. If the REx test continues to abort, go to step 26. |           |
| <b>25</b> | Refer to the procedure <i>Clearing ringing generator faults</i> in this document. Complete the procedure and return to this point.                                                                                             |           |
|           | <b>If the LCME</b>                                                                                                                                                                                                             | <b>Do</b> |
|           | major alarm continues                                                                                                                                                                                                          | step 28   |
|           | returns to service                                                                                                                                                                                                             | step 38   |
| <b>26</b> | To busy the LCME unit, type<br>>BSY UNIT unit_no                                                                                                                                                                               |           |

**PM LCME**  
**major** (continued)

- and press the Enter key.
- 27** To load the LCME, type  
**>LOADPMT UNIT unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCME unit

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| fails              | step 37   |
| passes             | step 29   |

- 28** To busy the LCME unit, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCME unit

- 29** To return the LCME unit to service, type  
**>RTS UNIT unit\_no**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number (0 to 1) of the LCME unit

| <b>If the RTS command</b>                         | <b>Do</b> |
|---------------------------------------------------|-----------|
| fails and the system generates a card list        | step 30   |
| fails and the system did not generate a card list | step 37   |
| passes and the LCME major alarm clears            | step 38   |

**At the equipment frame**

- 30** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LCME frame" for help.

| <b>If you</b>                      | <b>Do</b> |
|------------------------------------|-----------|
| replace a BX35, BX34, or 6X53 card | step 31   |

---

**PM LCME  
major (continued)**

---

| If you                         | Do      |
|--------------------------------|---------|
| replace other than listed here | step 32 |

**At the MAP display**

- 31** To load the LCME unit, type  
>LOADPDM UNIT *unit\_no*  
and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LCME unit

| If the load | Do      |
|-------------|---------|
| passes      | step 32 |
| fails       | step 37 |

- 32** To return the LCME unit to service, type  
>RTS UNIT *unit\_no*  
and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LCME unit

| If the RTS command                                                                | Do      |
|-----------------------------------------------------------------------------------|---------|
| fails and you did not replace all the cards on the list of cards that have faults | step 33 |
| fails and you replaced all the cards on the list of cards that have faults        | step 37 |
| passes and the LCME major alarm clears                                            | step 38 |

**At the equipment frame**

- 33** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LCME frame" for help.

| If you replace                     | Do      |
|------------------------------------|---------|
| replace a BX35, BX34, or 6X53 card | step 34 |
| replace other than listed here     | step 35 |

---

## PM LCME major (end)

---

**At the MAP display**

- 34** To load the LCME unit, type  
>LOADPDM UNIT **unit\_no**  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the LCME unit

---

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passes             | step 35   |
| fails              | step 37   |

---

- 35** To return the LCME unit to service, type  
>RTS UNIT **unit\_no**  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the LCME unit

---

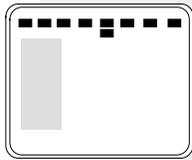
| <b>If the RTS command</b>                                                         | <b>Do</b> |
|-----------------------------------------------------------------------------------|-----------|
| fails and you did not replace all the cards on the list of cards that have faults | step 33   |
| fails and you replaced all the cards on the list of cards that have faults        | step 37   |
| succeeds and the LCME major alarm clears                                          | step 38   |

---

- 36** The LCME major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 38.
- 37** For additional help, contact the next level of support.
- 38** The procedure is complete.

## PM LCME minor

### Alarm display



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

### Indication

LCME (preceded by a number) appears under the PM header of the alarm banner. The LCME indicates minor alarm for a line concentrating module enhanced (LCME). The number that precedes the LCME indicates the number of LCMEs affected by the alarm. The alarm banner appears at the MTC level of the MAP display. The previous figure illustrates an alarm banner with an LCME minor alarm.

### Meaning

The LCME has in-service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in-service
- one unit is ISTb and one unit is manual busy
- one unit is in-service and one unit is manual busy
- both units are in-service with some C-side links out of service

### Result

The alarm does not affect service.

### Common procedures

This procedure refers to the following common procedures:

- *Monitoring system maintenance*
- *Clearing PM C-side faults*
- *Clearing ringing generator faults*

Do not go to the common procedures unless the step-action procedure directs you to go.

**PM LCME**

**minor** (continued)

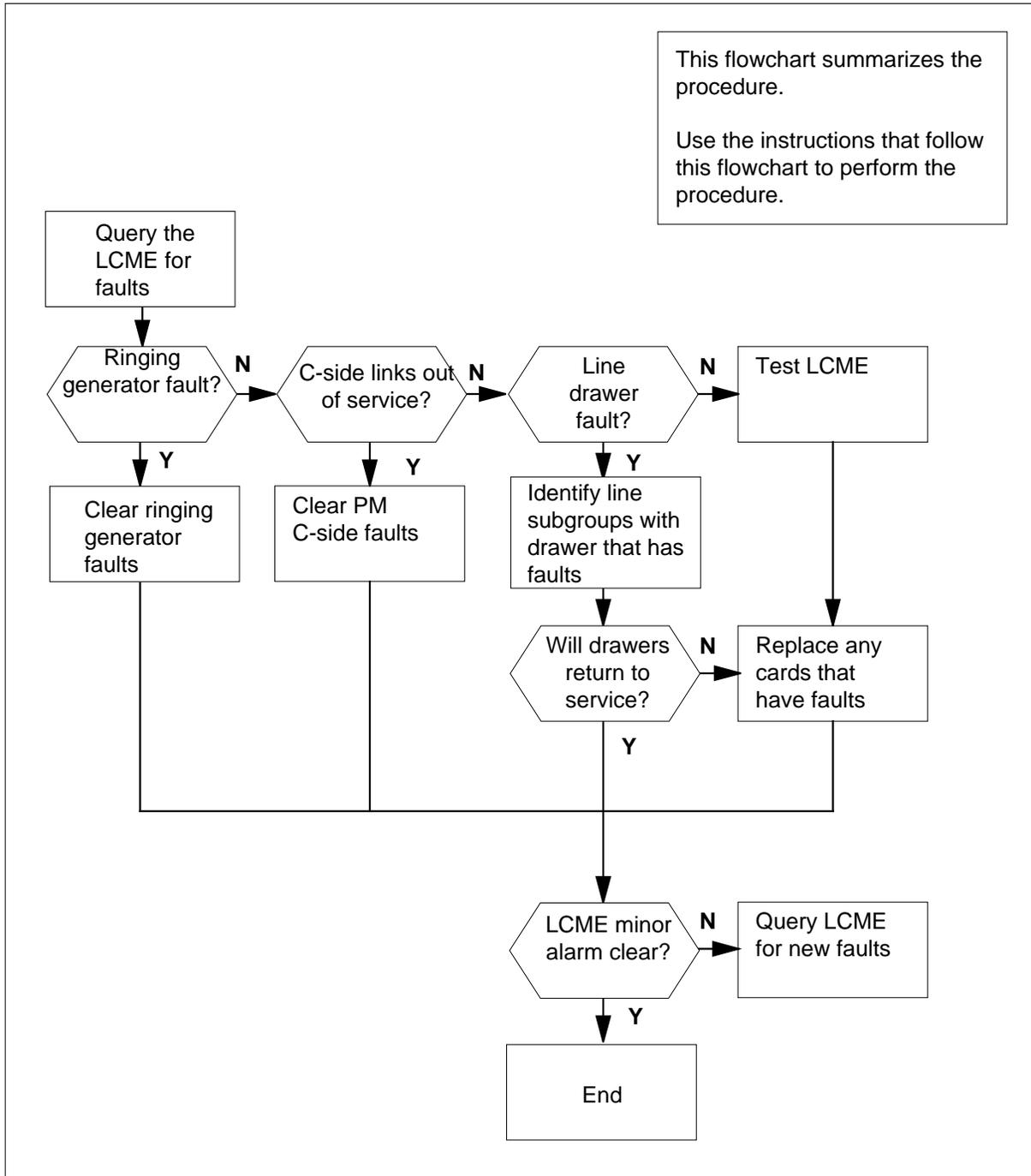
---

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

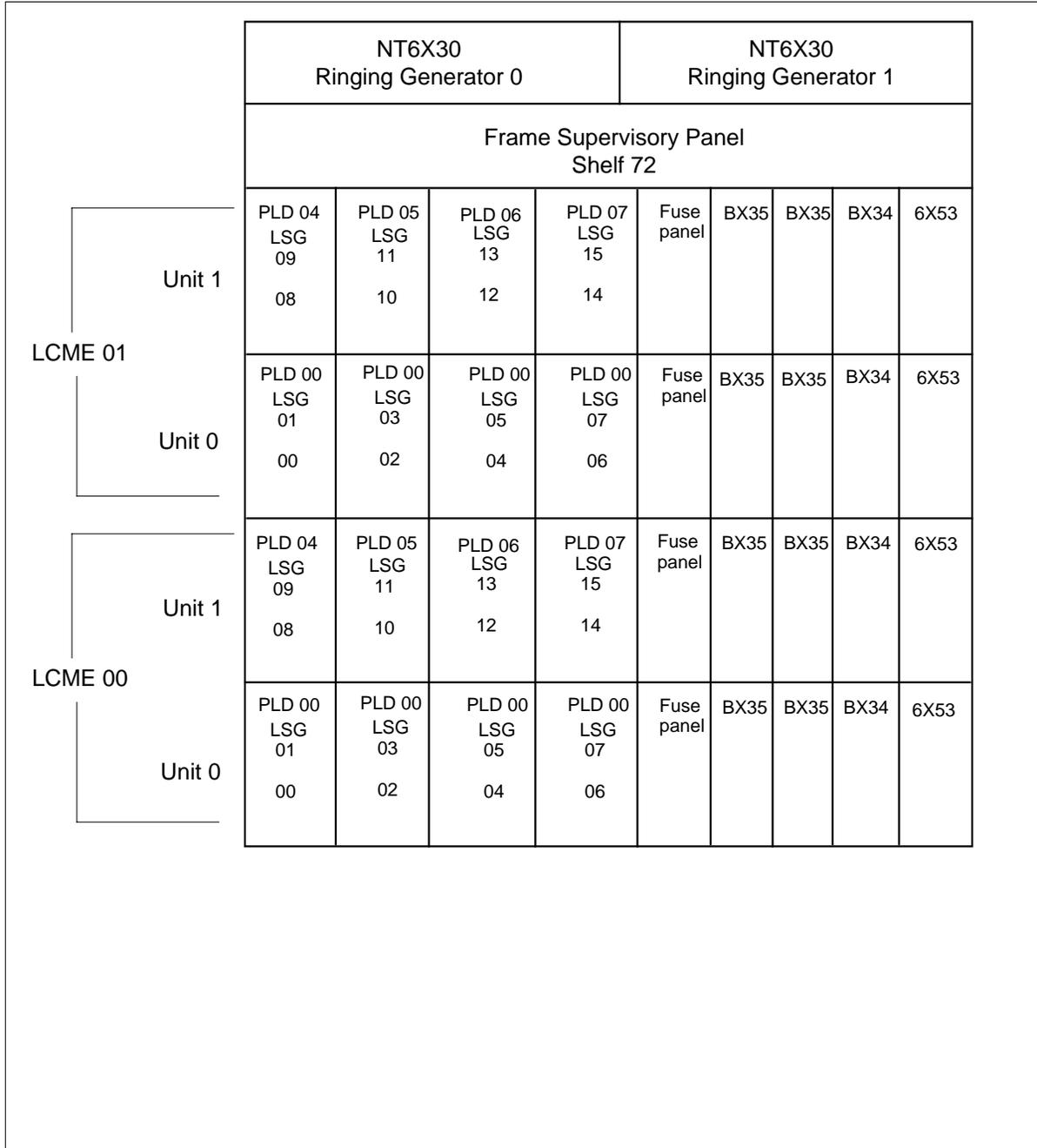
## PM LCME minor (continued)

### Summary of clearing a PM LCME minor alarm



**PM LCME**  
**minor** (continued)

**LCME frame**



---

## PM LCME minor (continued)

---

### Clearing a PM LCME minor alarm

#### *At the MAP terminal*

- 1** To access the PM level of the MAP terminal, type

**>MAPCI; MTC; PM**

and press the Enter key.

*Example of a MAP response:*

|      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|
|      | SysB | ManB | OffL | CBSy | ISTb | InSv |
| LCME | 1    | 3    | 5    | 7    | 6    | 12   |

---

**If an audible alarm**

**Do**

rings

step 2

does not ring

step 3

---

- 2** To silence the alarm, type

**>SIL**

and press the Enter key.

- 3** To display all the ISTb LCMEs, type

**>DISP STATE ISTB LCME**

and press the Enter key.

*Example of a MAP response:*

ISTb LCME: HOST 0 0

**Note:** If multiple LCMEs are ISTb, select an LCME to use. Repeat this procedure for each LCME that is ISTb.

Record the number of the LCMEs.

- 4** To post the LCME, type

**>POST LCME lcme\_no**

and press the Enter key.

*where*

**lcme\_no**

is the number (0 to 255) of the LCME identified in step 3

*Example of a MAP response:*

**PM LCME**  
**minor** (continued)

```
LCME HOST 00 0 ISTb Links_OOS: CSide 17 PSide 0
Unit0: Act ISTb /RG 0
Unit1: Inact InSv /RG 0
 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 Stby 1 InSv
 .. -- -- -- -- .. -- --
```

| <b>If an MTCE flag</b>      | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 5    |
| does not appear             | step 6    |

**5** Go to the common procedure "Monitoring system maintenance" in this document. Complete this procedure and return to this step.

| <b>If the LCME minor alarm</b> | <b>Do</b> |
|--------------------------------|-----------|
| remains                        | step 6    |
| changes                        | step 25   |
| clears                         | step 27   |

**6** To determine the cause of the in-service trouble condition, type  
**>QUERYPM FLT**  
and press the Enter key.

**Note:** There can be multiple causes for an in-service trouble condition for the LCME. The LCME and the LCME units remain ISTb until all the in-service trouble conditions clear.

| <b>If</b>                                               | <b>Do</b> |
|---------------------------------------------------------|-----------|
| the MAP response is any type of ringing generator fault | step 7    |
| the MAP response is REx Test Aborted                    | step 8    |
| the MAP response is C-side links out of service         | step 9    |
| the MAP response is Drawer Fault                        | step 10   |
| the MAP response is Diagnostic Failed                   | step 18   |
| other than listed here                                  | step 18   |

## PM LCME minor (continued)

- 7** Go to the common procedure "Clearing ringing generator faults" in this document. Complete the procedure and return to this step.

| If the LCME minor alarm | Do      |
|-------------------------|---------|
| continues               | step 23 |
| clears                  | step 27 |

- 8** The C-side PM of the LCME runs a routine exercise (REx) test. Wait until the REx test of the PM is complete. The REx test of the PM must finish before the REx test of the LCME can begin. If the REx test continues to abort, go to step 26.

- 9** Go to the common procedure "Clearing PM C-side faults" in this document. Complete this procedure and return to this step.

| If the LCME minor alarm | Do      |
|-------------------------|---------|
| continues               | step 23 |
| clears                  | step 27 |

- 10** Check the MAP display for a line drawer that has faults. Letters that appear under the line subgroup numbers indicates a drawer has faults. The line subgroup numbers associate with a drawer.

*Example of a MAP response:*

```
LCME HOST 00 0 ISTb Links_OOS: CSide 0 PSide 0
Unit0: Act InSv /RG 0
Unit1: Inact ISTb /RG 0
 11 11 11 RG: Pref 0 InSv
Drwr: 01 23 45 67 89 01 23 45 Stby 1 InSv
 .. SS
```

- 11** To busy one line subgroup associated with the drawer that has faults, type

**>BSY DRWR lsg\_no**

and press the Enter key.

*where*

**lsg\_no**

is the number of the line subgroup that you identified in step 10

*Example of a MAP response:*

```
LCME HOST 00 0 Drwr 2 will be taken out of service.
Please confirm ("YES" or "NO"):
```

- 12** To confirm the command, type

**>YES**

and press the Enter key.

**PM LCME  
minor** (continued)

---

**13** To test the line subgroup, type

**>TST DRWR lsg\_no**

and press the Enter key.

where

**lsg\_no**

is the number of the line subgroup

| <b>If the TST command</b>                         | <b>Do</b> |
|---------------------------------------------------|-----------|
| passes                                            | step 14   |
| fails and the system generates a card list        | step 15   |
| fails and the system did not generate a card list | step 26   |

**14** To return the line subgroup to service, type

**>RTS DRWR lsg\_no**

and press the Enter key.

where

**lsg\_no**

is the number of the line subgroup

| <b>If the RTS command</b>                                                             | <b>Do</b>                                          |
|---------------------------------------------------------------------------------------|----------------------------------------------------|
| passes and the LCME minor alarm clears                                                | step 27                                            |
| passes, the LCME minor alarm remains, and you did not work on the other line subgroup | Go to step 11 and work on the other line subgroup. |
| passes, the LCME minor alarm remains, and you worked on both line subgroups           | step 24                                            |
| fails and the system generates a card list                                            | step 15                                            |
| fails and the system did not generate a card list                                     | step 26                                            |

**15** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 16.

**16** To return the line subgroup to service, type

**>RTS DRWR lsg\_no**

and press the Enter key.

where

---

**PM LCME  
minor** (continued)

---

**lsg\_no**  
is the number of the line subgroup

| <b>If the RTS command</b>                                                             | <b>Do</b>                                          |
|---------------------------------------------------------------------------------------|----------------------------------------------------|
| passes and the LCME minor alarm clears                                                | step 27                                            |
| passes, the LCME minor alarm remains, and you did not work on the other line subgroup | Go to step 11 and work on the other line subgroup. |
| passes, the LCME minor alarm remains, and you have worked on both line subgroups      | step 24                                            |
| fails and you did not replace all the cards on the list                               | step 17                                            |
| fails and you replaced all the cards on the list                                      | step 26                                            |

**17** Replace the next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 16.

**18** To test the LCME unit, type

>TST UNIT **unit\_no**

and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LCME unit

| <b>If the TST command</b>                         | <b>Do</b> |
|---------------------------------------------------|-----------|
| passes and the alarm clears                       | step 27   |
| fails and the system generates a card list        | step 19   |
| fails and the system did not generate a card list | step 26   |

**19** To busy the LCME unit associated with the alarm, type

>BSY UNIT **unit\_no**

and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LCME unit

**PM LCME**  
**minor** (continued)

- 20 Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 21.
- 21 To return the LCME unit to service, type  
 >RTS UNIT **unit\_no**  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number (0 to 1) of the LCME unit

| If the RTS command                                      | Do      |
|---------------------------------------------------------|---------|
| passes                                                  | step 27 |
| fails and you did not replace all the cards on the list | step 22 |
| fails and you replaced all the cards on the list        | step 26 |

- 22 Replace the next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 21.
- 23 To post the LCME, type  
 >POST LCME **lcme\_no**  
 and press the Enter key.  
*where*  
     **lcme\_no**  
     is the number (0 to 255) of the LCME

- 24 To determine the cause of the in-service trouble condition, type  
 >QUERYPM **FLT**  
 and press the Enter key.

**Note:** An LCME can have multiple causes for the in-service trouble condition. The LCME and the LCME units remain ISTb until all the in-service trouble conditions clear.

| If the MAP response            | Do      |
|--------------------------------|---------|
| is C-side links out of service | step 9  |
| is Drawer Fault                | step 10 |
| is Diagnostic Failed           | step 18 |
| is other than listed here      | step 26 |

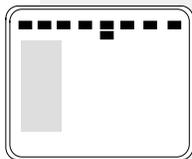
**PM LCME  
minor (end)**

---

- 25** The LCME minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Complete the procedure and go to step 27.
- 26** You will require additional maintenance action to clear this alarm. Contact the next level of maintenance. Describe in detail the steps you performed to clear this alarm.
- 27** This procedure is complete. If the system displays additional alarms, proceed to the correct procedure to clear the alarm.

## PM LGC critical

### Alarm display



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1LGC<br>*C* | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP display, LGC appears under the PM header of the alarm banner. A \*C\* follows the LGC. An LGC indicates a critical alarm for a line group controller (LGC). The number that precedes the LGC indicates the number of LGCs that the alarm affects. The preceding figure shows an alarm banner with an LGC critical alarm.

### Meaning

The LGC is system busy (SysB) or C-side busy (CBsy). An LGC is C-side busy if both units are C-side busy. An LGC is system busy if

- both LGC units are system busy or
- one LGC unit is system busy and the other LGC unit is manually busy (ManB)

### Result

Service stops when an LGC is system busy or C-side busy. Each subtending peripheral module (PM) is also without service unless the PM has emergency stand-alone (ESA). An example of a subtending PM is the line concentrating module (LCM).

### Common procedures

This procedure refers to the following common procedures:

- "Clearing PM C-side faults"
- "Monitoring system maintenance"

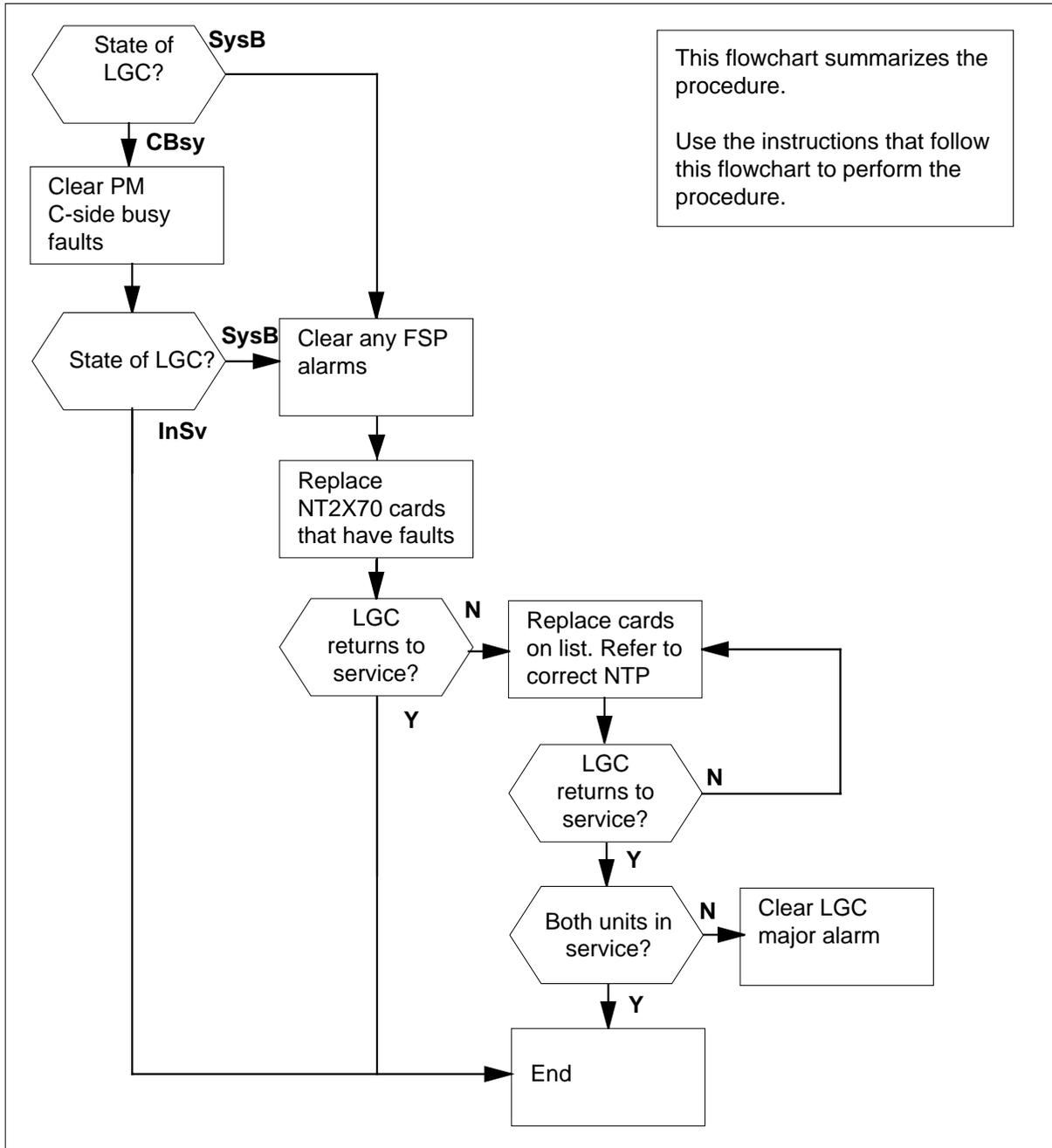
Do not go to the common procedure unless the step-action procedure directs you to go.

### Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action follows the flowchart.

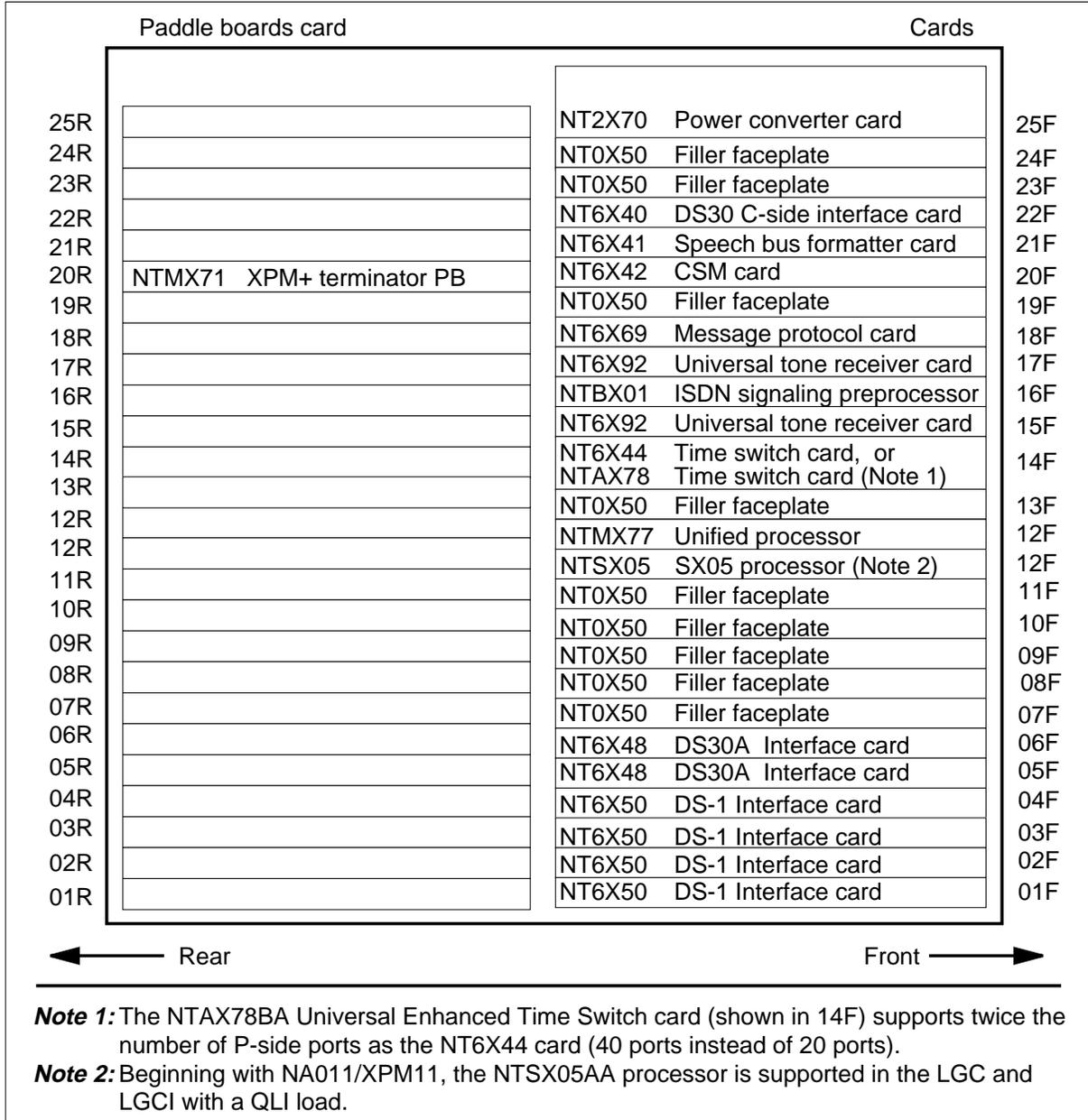
**PM LGC**  
**critical** (continued)

**Summary of clearing a PM LGC critical alarm**



**PM LGC**  
**critical** (continued)

**LGC shelf layout**



---

## PM LGC critical (continued)

---

### Clearing a PM LGC critical alarm

#### At the MAP display

- 1 To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP response:

| PM | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
|    | 1    | 3    | 5    | 7    | 6    | 12   |

| If                     | Do     |
|------------------------|--------|
| an audible alarm rings | step 2 |
| no audible alarm rings | step 3 |

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To determine if system busy or C-side busy LGCs cause the critical alarm, type

>STATUS

and press the Enter key.

Example of a MAP response:

|      | SysB | ManB | OffL | CBsy | ISTb | InSv       |
|------|------|------|------|------|------|------------|
| PM   | 1    | 0    | 0    | 2    | 0    | 25         |
| TM8  | 0    | 0    | 0    | 0    | 0    | 2          |
| MTC  | 0    | 0    | 0    | 0    | 0    | 3          |
| LGC  | 1    | 0    | 0    | 0    | 0    | 3          |
| LCM  | 0    | 0    | 0    | 2    | 0    | 0          |
| DTC  | 0    | 0    | 0    | 0    | 0    | 1          |
| LIM  | 0    | 0    | 0    | 0    | 0    | 1          |
| LIU7 | 0    | 0    | 0    | 0    | 0    | 1          |
| FRIU | 0    | 0    | 0    | 0    | 0    | 1          |
| DTCI | 0    | 0    | 0    | 0    | 0    | 1          |
| LCME | 0    | 0    | 0    | 0    | 0    | 1          |
|      |      |      |      |      |      | MORE . . . |

**Note 1:** An LGC critical alarm can cause LCM alarms. If an LGC is SysB, the associated LCMs of the LGC are CBsy.

## PM LGC critical (continued)

---

**Note 2:** If LGCs are both SysB and CBsy, work on the SysB LGCs first.

- 4 To display all CBsy or SysB LGCs, type

**>DISP STATE state LGC**

and press the Enter key.

where

**state**

is CBsy or SysB, as you determined in step 3

*Example of a MAP response:*

SysB LGC : 0

**Note:** If multiple LGCs are CBsy or SysB, select an LGC to work on.  
Record the number of the LGC.

| If you             | Do     |
|--------------------|--------|
| recover a CBsy LGC | step 5 |
| recover a SysB LGC | step 6 |

- 5 Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and return to this step.

| If                               | Do                                                 |
|----------------------------------|----------------------------------------------------|
| the LGC remains CBsy             | Treat the CBsy LGC as a SysB LGC and go to step 25 |
| the LGC changes to SysB          | step 6                                             |
| one LGC unit returns to service  | step 46                                            |
| both LGC units return to service | step 48                                            |

- 6 Check the EXT header of the alarm banner for a frame supervisory panel (FSP) alarm.

| If an FSP alarm | Do      |
|-----------------|---------|
| is present      | step 7  |
| is not present  | step 25 |

- 7 To locate the FSP alarm, type

**>EXT; LIST FSP**

and press the Enter key.

*Example of a MAP response:*

FSPAISD

In this example, the alarm is an FSP alarm on Aisle D.

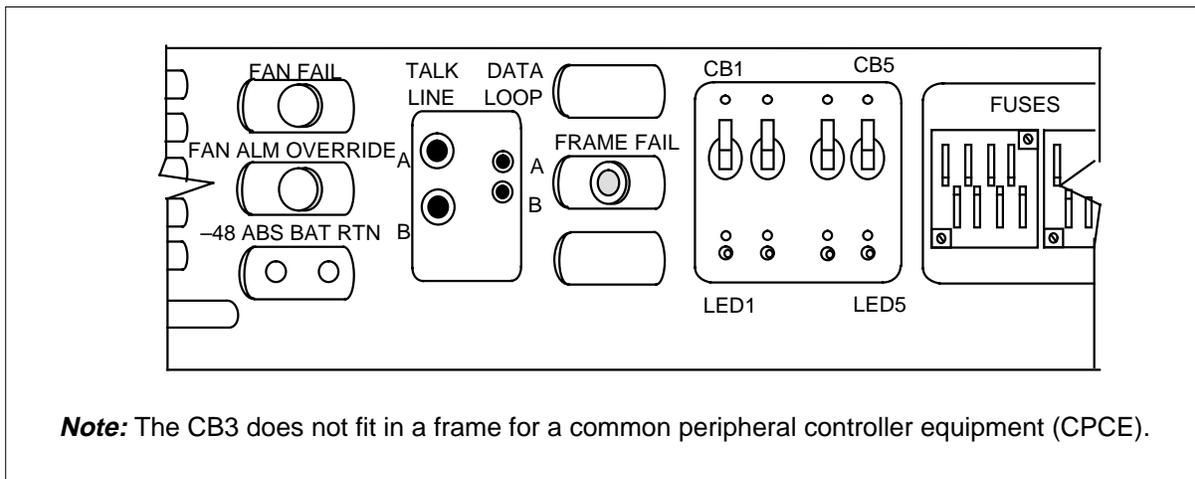
## PM LGC critical (continued)

### At the equipment aisle

- 8 Go to the aisle that you identified in step 7. The end aisle alarm is lit.

### At the equipment frame

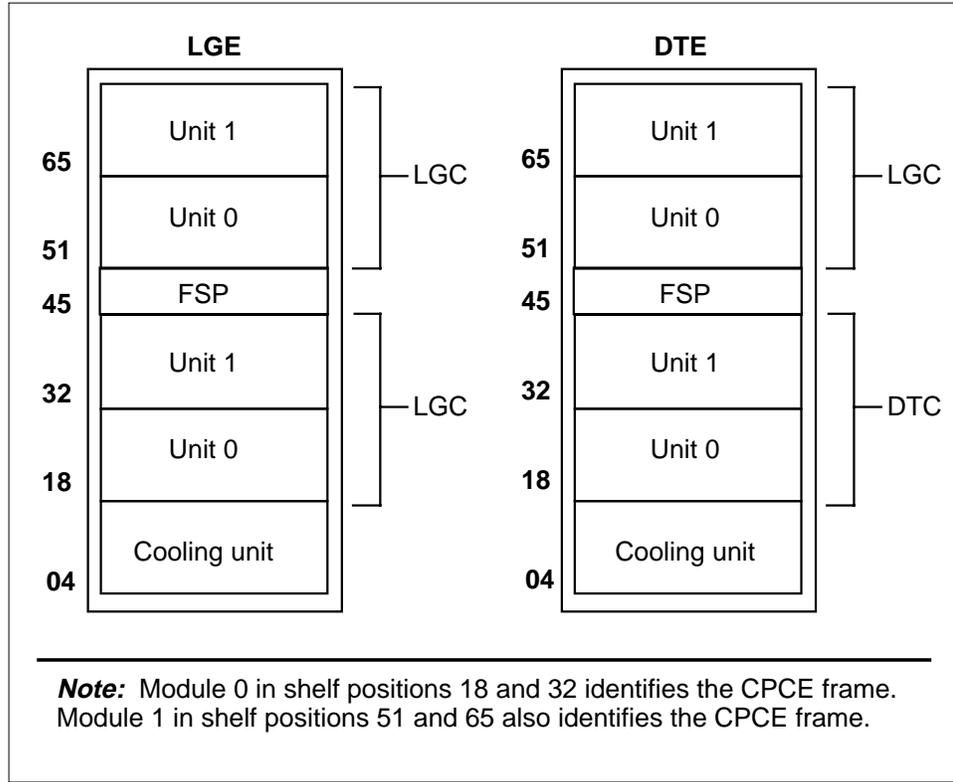
- 9 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP of each frame. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit FRAME FAIL lamp.



- 10 The following figure illustrates an LGC critical alarm. The frame that contains the LGC is a CPCE type. This frame can be a line group equipment (LGE) frame, line trunk equipment (LTE) frame, or digital trunk equipment (DTE) frame. Identify the PMs that are in the frame. Refer to the following figure for help.

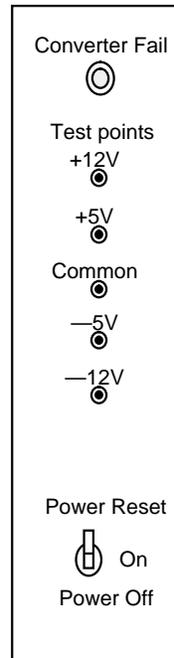
## PM LGC

**critical** (continued)



- 11 Check the Converter Fail LED on each 2X70 power converter card in the frame. Refer to the figure "LGC shelf layout" for help to locate this card. Refer to the following figure of a 2X70AE card for help to check the Converter Fail LED.

## PM LGC critical (continued)



| If any LEDs | Do      |
|-------------|---------|
| are lit     | step 12 |
| are not lit | step 16 |

**12** Note the LGC with the LED light on.

### ***At the MAP display***

**13**

#### **ATTENTION**

Record the active unit (0 or 1) to use later in this procedure. When you manual busy the LGC, unit activity will not display.

To post the system busy LGC, type

```
>PM; POST LGC lgc_no
```

and press the Enter key.

where

**lgc\_no**

is the number (0 to 255) of the LGC that you recorded in step 4

*Example of a MAP response:*

## PM LGC critical (continued)

---

PM Type: LGC PM No.: 0 PM Int. No: 0 Node\_No.: 21  
PMs Equipped: 38 Loadname: ECL07BI  
Unit 0 is patched  
Unit 1 is patched

- |  | <b>If a Mtce indicator</b>  | <b>Do</b> |
|--|-----------------------------|-----------|
|  | appears next to either unit | step 14   |
|  | does not appear             | step 15   |
- 14** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.
- |  | <b>If the critical alarm</b> | <b>Do</b> |
|--|------------------------------|-----------|
|  | remains                      | step 15   |
|  | changes                      | step 46   |
|  | clears                       | step 48   |
- 15** Determine if the LGC is the same as the LGC that you identified in step 12.
- |  | <b>If the LGC</b> | <b>Do</b> |
|--|-------------------|-----------|
|  | is different      | step 16   |
|  | is the same       | step 17   |
- 16** Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to step 6.
- 17** To busy the LGC, type  
>BSY PM  
and press the Enter key.  
**Note:** When you busy the whole LGC, the system generates a critical LCM alarm.
- 18** Choose the active unit to work on, that you recorded in step 13.
- At the equipment frame**
- 19** Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- At the MAP display**
- 20** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

## PM LGC critical (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is:  
Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:*

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

|           | If the PRL card or packet                                                         | Do      |
|-----------|-----------------------------------------------------------------------------------|---------|
|           | is present                                                                        | step 21 |
|           | is not present                                                                    | step 24 |
| <b>21</b> | Determine if the LGC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. |         |
|           | If the LGC is equipped with an                                                    | Do      |
|           | NT7X05 PRL card                                                                   | step 22 |
|           | NTSX06 PRL packet                                                                 | step 23 |

**PM LGC**  
**critical** (continued)

---

- 22** To load the LGC from the local image, type  
**>LOADPM PM LOCAL IMAGE**  
 and press the Enter key.

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 37   |
| failed             | step 23   |

- 23**



**DANGER**

**Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LGC from the local loadfile, type  
**>LOADPM PM LOCAL LOADFILE**  
 and press the Enter key.

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 37   |
| failed             | step 24   |

- 24** To load the LGC that you worked on in step 19, type  
**>LOADPM PM**  
 and press the Enter key.

| <b>If the load</b>                                  | <b>Do</b> |
|-----------------------------------------------------|-----------|
| failed, and the system generated a card list        | step 38   |
| failed, and the system did not generate a card list | step 47   |
| passed                                              | step 37   |

---

**PM LGC**  
**critical** (continued)

---

- 25** To post the LGC, type  
**>POST LGC lgc\_no**  
 and press the Enter key.  
 where  
**lgc\_no**  
 is the number (0 to 255) of the LGC that you recorded in step 4

*Example of a MAP display response:*

```
LGC 0 SysB Links_OOS: CSide 20, PSide 0
Unit0: Act SysB
Unit1: Inact SysB
```

---

| <b>If a Mtce indicator</b>  | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 26   |
| does not appear             | step 27   |

---

- 26** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step.

---

| <b>If the critical alarm</b> | <b>Do</b> |
|------------------------------|-----------|
| remains                      | step 27   |
| changes                      | step 46   |
| clears                       | step 48   |

---

- 27** To query the LGC for fault indications, type  
**>QUERYPM FLT**  
 and press the Enter key.

*Example of a MAP display response:*  
 Activity dropped

- 28** Record the MAP response.

---

| <b>If the MAP response</b>         | <b>Do</b> |
|------------------------------------|-----------|
| is SWACT In Progress               | step 29   |
| is Load Corruption                 | step 30   |
| is Load Failed                     | step 30   |
| is Distributed Data Loading Failed | step 30   |

---

**PM LGC**  
**critical** (continued)

|           | <b>If the MAP response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is Activity dropped                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | step 30   |
|           | is Not loaded since power up                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | step 30   |
|           | is other than listed here                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | step 36   |
| <b>29</b> | In an attempt to recover the LGC, the system switches the activity between the two LGC units. Wait until system maintenance is complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |
|           | <b>If</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Do</b> |
|           | the LGC units do not return to service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | step 36   |
|           | one LGC unit returns to service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | step 46   |
|           | both LGC units return to service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | step 48   |
| <b>30</b> | To busy the LGC, type<br><b>&gt;BSY PM</b><br>and press the Enter key.<br><b>Note:</b> When you busy a the whole LGC, the system generates a critical LCM alarm for each associated LCM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |
| <b>31</b> | The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type<br><b>&gt;QUERYPM FILES</b><br>and press the Enter key.<br><b>Note:</b> If PRL cards are not present, the MAP response is:<br>Flash not datafilled. QueryPm files invalid<br><i>Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:</i><br><pre> Unit 0: Flash load File: [ECL07BI] ← (Processor load file name) Flash Image File: ECL07BI Flash Image Timestamp: 1996/01/17 16:01:52.944 WED. Unit 1: Flash load File: ECL07BI Flash Image File: ECL07BI Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.                     </pre> <i>Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:</i> |           |

## PM LGC critical (continued)

```

Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A

```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If the PRL card or packetlet | Do      |
|------------------------------|---------|
| is present                   | step 32 |
| is not present               | step 35 |

- 32** Determine if the LGC is equipped with an NTSX06 PRL packetlet or an NT7X05 PRL card. To determine if the LGC is equipped with an NTSX05 with an NTSX06 PRL, type

>QUERYPM CONFIG

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```

QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor

```

*Example of a MAP response if an SX05 processor is present*

```

QueryPM config
UNIT 0 Slot 12: SX05AA
PCMCIA Slotlet 0: SX06CA
PCMCIA Slotlet 1: No packetlet
UNIT 1 Slot 12: SX05AA
PCMCIA Slotlet 0: SX06CA
PCMCIA Slotlet 1: No packetlet

```

| If the LGC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 33 |
| NTSX06 PRL packetlet           | step 34 |

## PM LGC

### critical (continued)

---

- 33** To load the LGC from the local image, type  
**>LOADPM PM LOCAL IMAGE**  
 and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 34 |

- 34**



**DANGER**

**Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LGC from the local loadfile, type  
**>LOADPM PM LOCAL LOADFILE**  
 and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 35 |

- 35** To load the LGC from the computing module (CM) at the front end, type  
**>LOADPM PM**  
 and press the Enter key.

| If the load                                         | Do      |
|-----------------------------------------------------|---------|
| failed, and the system generated a card list        | step 38 |
| failed, and the system did not generate a card list | step 47 |
| passed                                              | step 37 |

---

**PM LGC**  
**critical** (continued)

---

- 36** To busy the LGC, type  
>BSY PM  
and press the Enter key.  
**Note:** When you busy the whole LGC, the system generates a critical LCM alarm for each associated LCM.

- 37** To return the LGC to service, type  
>RTS PM  
and press the Enter key.

---

| If                                                                        | Do      |
|---------------------------------------------------------------------------|---------|
| the LGC failed to return to service, and the system generated a card list | step 38 |
| one LGC unit returns to service                                           | step 46 |
| both LGC units return to service                                          | step 48 |

---

**At the equipment frame**

- 38** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" for help to locate this card.  
  
The MAP response in step 13 (if you completed this step) or step 28 can help you isolate the card that has faults. Refer to the following table for help.

(Sheet 1 of 2)

| MAP response     | Suspect cards                                                  |
|------------------|----------------------------------------------------------------|
| PM Audit         | NT6X69, NTMX77, NTSX05                                         |
| Activity Dropped | NTMX77, NTSX05                                                 |
| No WAI Received  | NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05 |
| LINK Audit       | NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05 |
| Load Corruption  | NT6X42, NTMX77, NTSX05                                         |

**PM LGC**  
**critical** (continued)

(Sheet 2 of 2)

| MAP response                    | Suspect cards          |
|---------------------------------|------------------------|
| Load Failed                     | NTMX77, NTSX05         |
| Distributed Data Loading Failed | NT6X69, NTMX77, NTSX05 |

| If you replace           | Do      |
|--------------------------|---------|
| an NT6X42 or NTMX77 card | step 39 |
| an NTSX05 card           | step 40 |
| other than listed here   | step 44 |

**At the MAP display**

**39** Use the information that you recorded in step 13 to load the active LGC unit. To load the active LGC unit from the local image on the NT7X05 card, type  
**>LOADPM ACTIVE LOCAL IMAGE**  
 and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 42 |
| failed      | step 40 |

**40**

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>DANGER</b><br/> <b>Possible service interruption</b><br/>                     The LOCAL LOADFILE option of the LOADPM command has a parameter of [&lt;file&gt; string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.</p> |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

To load the active LGC unit from the local loadfile on the PRL card, type  
**>LOADPM ACTIVE LOCAL LOADFILE**

## PM LGC critical (continued)

and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 42 |
| failed      | step 41 |

- 41** To load the active LGC unit from the CM, type  
>LOADPDM ACTIVE  
and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passes      | step 42 |
| fails       | step 47 |

- 42** To query the LGC counters for the firmware load on the NTMX77 or NTSX05 type

>QUERYPM CNTRS  
and press the Enter key.

*Example of a MAP display for an LGC equipped with an NTMX77:*

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: ECL07BI
EProm Version: AB02
EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03
UP:MX77AA
Unit 1:
Ram Load: ECL07BI
EProm Version: AB02
EEPROM Load: Loadable: [MX77NG03], Executable: [MX77NG03],
UP:MX77AA

```

*Example of a MAP display for an LGC equipped with an NTSX05:*

**PM LGC**  
**critical** (continued)

```

QueryPM cntrs
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EPROM Version: AC01
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01

```

NTSX05 Firmware  
loadname version

| If firmware | Do      |
|-------------|---------|
| is valid    | step 44 |
| is invalid  | step 43 |

**43** To load the NTMX77 or NTSX05 firmware, type  
**>LOADFW ACTIVE**  
 and press the Enter key.

| If load | Do      |
|---------|---------|
| passed  | step 44 |
| failed  | step 47 |

**44** To return the LGC unit to service, type  
**>RTS ACTIVE**  
 and press the Enter key.

| If the unit                                                                                         | Do      |
|-----------------------------------------------------------------------------------------------------|---------|
| does not return to service, and you did not replace all cards on the list of cards that have faults | step 45 |
| does not return to service, and you replaced all cards on the list of cards that have faults        | step 47 |
| fails, and the system did not generate a card list                                                  | step 47 |

---

**PM LGC  
critical (end)**

---

| <b>If the unit</b> | <b>Do</b> |
|--------------------|-----------|
| returns to service | step 46   |

**At the equipment frame**

- 45** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" in this procedure for help in how to locate this card.

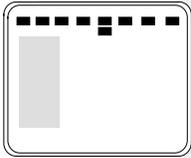
| <b>If you replace</b>    | <b>Do</b> |
|--------------------------|-----------|
| an NTMX77 or NT6X42 card | step 39   |
| an NTSX05 card           | step 40   |
| other cards              | step 44   |

- 46** The LGC critical alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 48.
- 47** You need additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps that you performed to clear this alarm.
- 48** The procedure is complete.

## PM LGC major

---

### Alarm display



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>1LGC</b> | .   | .   | .    | .   | .    |
|    |    |     |     | <b>M</b>    |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, LGC (preceded by a number and followed by an M) appears under the PM header of the alarm banner. The LGC indicates a major alarm for a line group controller (LGC). The number that precedes the LGC indicates the number of LGCs that the alarm affects. The preceding figure shows an alarm banner with an LGC major alarm.

### Meaning

The LGC is in-service trouble (ISTb) as a result of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in service

### Result

The alarm does not affect service. A backup unit is not available in the LGC.

### Common procedures

This procedure refers to the following common procedures:

- "Clearing PM C-side faults"
- "Monitoring system maintenance"

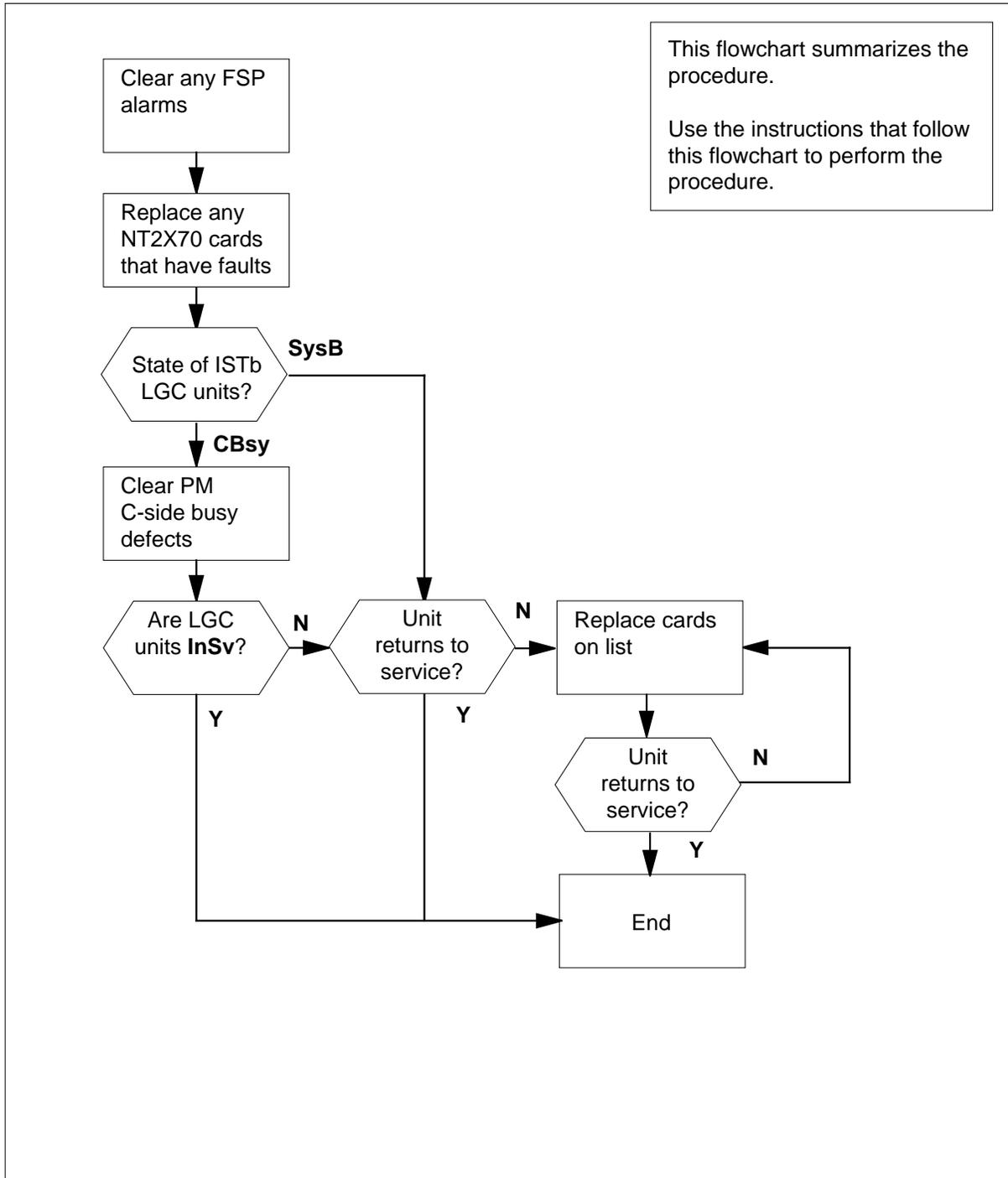
Do not go to the common procedures unless the step-action procedure directs you to go.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

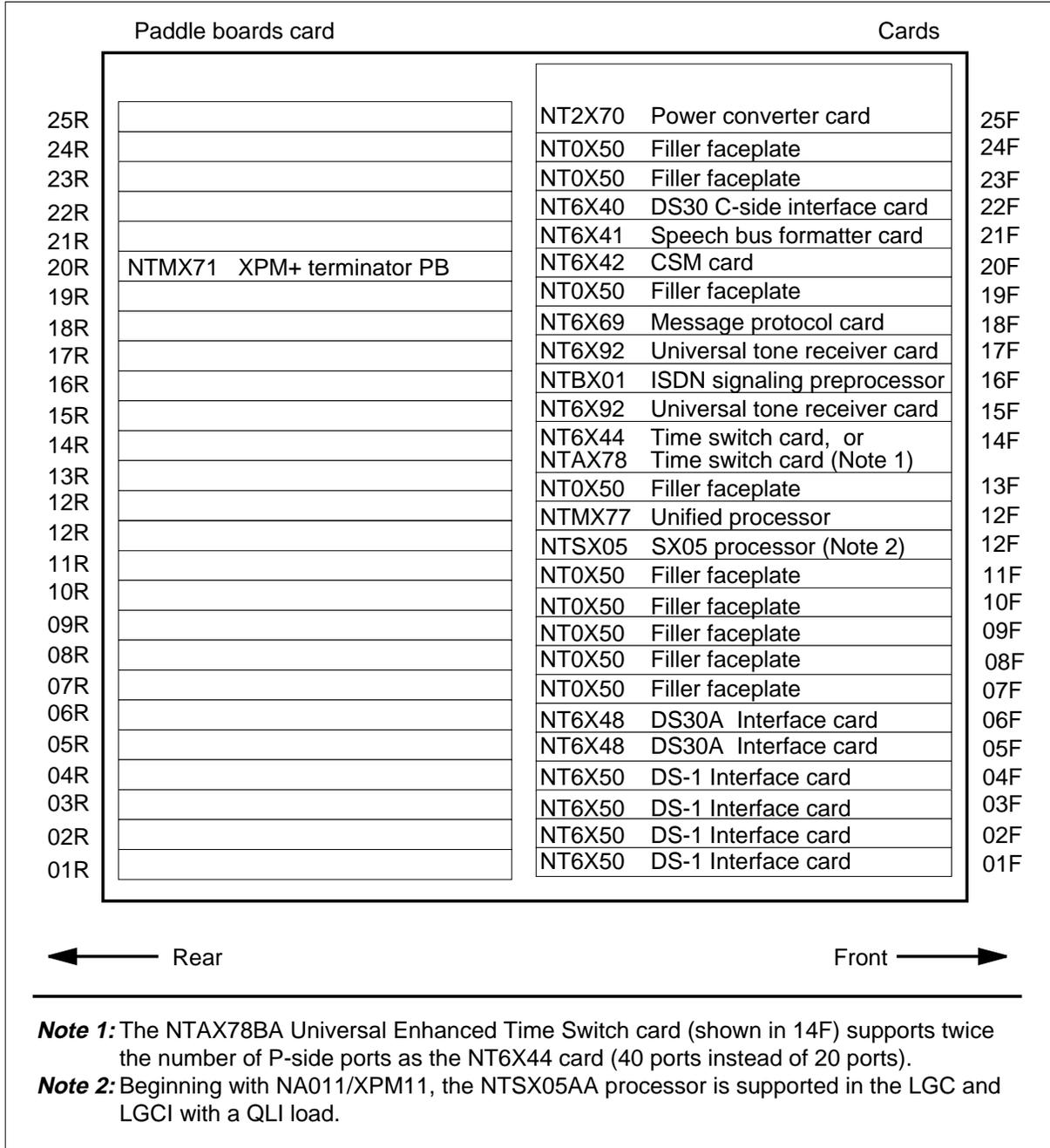
## PM LGC major (continued)

### Summary of clearing a PM LGC major alarm



**PM LGC**  
**major** (continued)

**LGC shelf layout**



---

## PM LGC major (continued)

---

### Clearing a PM LGC major alarm

#### *At the MAP display*

- 1** To access the PM level of the MAP display, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

| If                     | Do     |
|------------------------|--------|
| an audible alarm rings | step 2 |
| no audible alarm rings | step 3 |

- 2** To silence the alarm, type

**>SIL**

and press the Enter key.

- 3** To display all the ISTb LGCs, type

**>DISP STATE ISTB LGC**

and press the Enter key.

*Example of a MAP response:*

ISTB LGC : 0

**Note:** If multiple LGCs are ISTb, select an LGC to work on. Record the number of the LGC.

- 4** Check the EXT header of the alarm banner for a frame supervisory panel (FSP) alarm.

| If an FSP alarm | Do      |
|-----------------|---------|
| is present      | step 5  |
| is not present  | step 22 |

- 5** To locate the FSP alarm, type

**>EXT; LIST FSP**

and press the Enter key.

*Example of a MAP response:*

## PM LGC major (continued)

### FSPAID

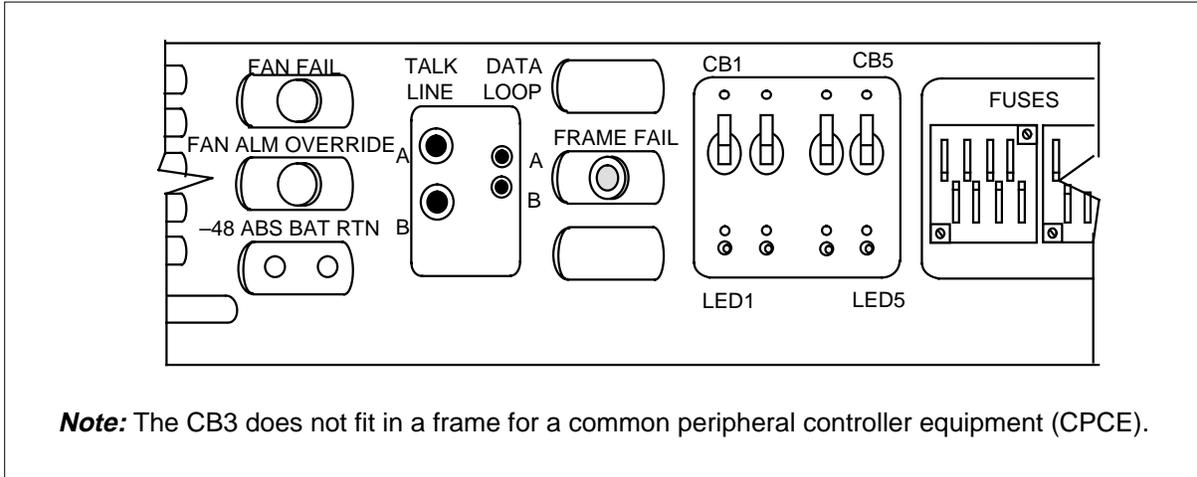
In this example, the alarm is an FSP alarm on Aisle D.

#### **At the equipment aisle**

- 6 Go to the aisle that you identified in step 5. The end aisle alarm is lit.

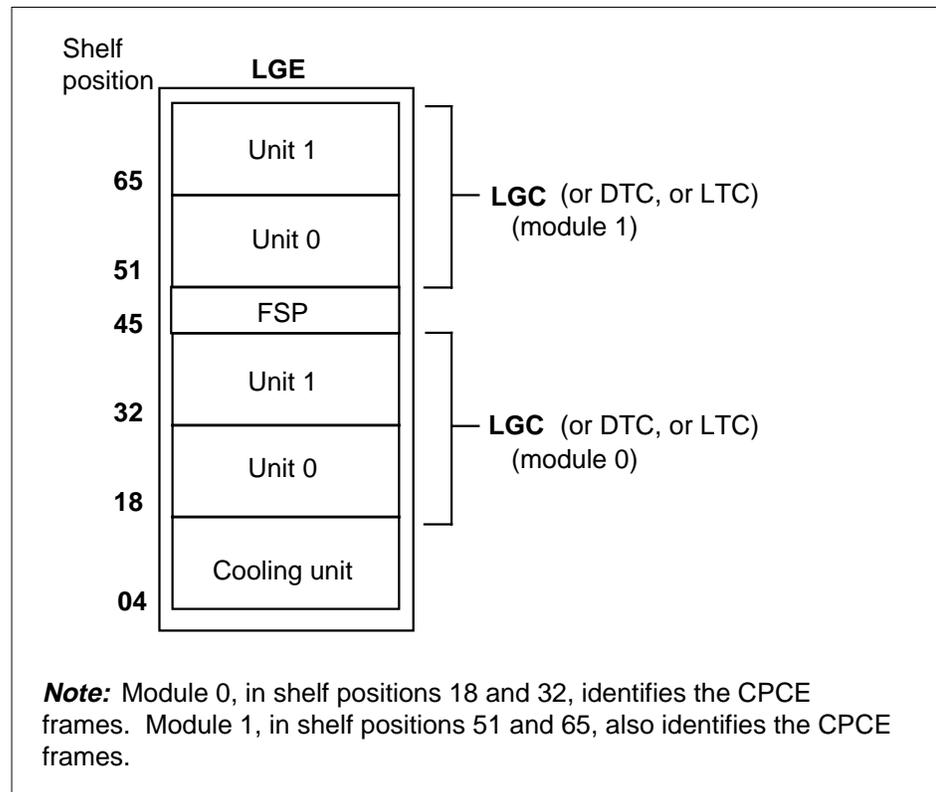
#### **At the equipment frame**

- 7 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP of each frame. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit FRAME FAIL lamp.



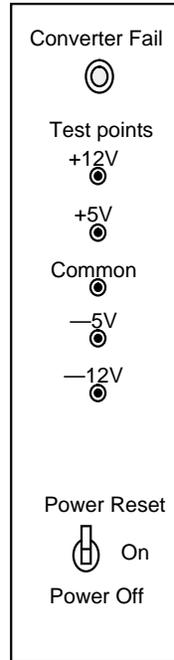
- 8 The following diagram shows a line group equipment (LGE) frame. Because this is an EXT FSP alarm, the frame that contains LGC can be a line group equipment (LGE) frame. The FSP alarm can appear in line trunk equipment (LTE) frames or digital trunk equipment (DTE) frames. Identify the PMs in the frame. Refer to the following diagram for help.

## PM LGC major (continued)



- 9 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "LGC shelf layout" in this procedure for help to locate this card. Refer to the following figure of a NT2X70AE card for help to check the Converter Fail LED.

## PM LGC major (continued)



| If any LEDs | Do      |
|-------------|---------|
| are lit     | step 10 |
| are not lit | step 14 |

- 10** Note the LGC with the LED lamp on.

**At the MAP display**

- 11** To post the LGC, type  
>PM; POST LGC lgc\_no  
and press the Enter key.  
where

**lgc\_no**

is the number (0 to 255) of the LGC that you recorded in step 3

*Example of a MAP response:*

---

**PM LGC**  
**major (continued)**

---

```
LGC 0 ISTb Links_OOS: CSide 17, PSide 0
Unit0: Act InSv
Unit1: Inact CBSy
```

- |                               | <b>If a Mtce indicator</b>                                                                                                                            | <b>Do</b> |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                               | appears next to either unit                                                                                                                           | step 12   |
|                               | does not appear                                                                                                                                       | step 13   |
| <b>12</b>                     | Go to the common procedure <i>Monitoring system maintenance</i> in this document. Complete the procedure and return to this point.                    |           |
|                               | <b>If the major alarm</b>                                                                                                                             | <b>Do</b> |
|                               | remains                                                                                                                                               | step 13   |
|                               | changes                                                                                                                                               | step 47   |
|                               | clears                                                                                                                                                | step 49   |
| <b>13</b>                     | Determine if the LGC is the same as the LGC that you identified in step 10.                                                                           |           |
|                               | <b>If the LGC</b>                                                                                                                                     | <b>Do</b> |
|                               | is different                                                                                                                                          | step 14   |
|                               | is the same                                                                                                                                           | step 15   |
| <b>14</b>                     | Clear the FSP alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to step 4.                      |           |
| <b>15</b>                     | To busy the SysB LGC unit, type<br>>BSY UNIT unit_no<br>and press the Enter key.<br>where<br><b>unit_no</b><br>is the number (0 to 1) of the LGC unit |           |
| <b>At the equipment frame</b> |                                                                                                                                                       |           |
| <b>16</b>                     | Change the NT2X70 card. Refer to the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this step.        |           |
| <b>At the MAP display</b>     |                                                                                                                                                       |           |
| <b>17</b>                     | The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM        |           |

## PM LGC major (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is: Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:*

```
Unit 0:
 Flash load File: ECL07BI ← (Processor load file name)
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
 Flash load File: ECL07BI
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
 Slotlet 0:
 Flash Load File: QLI10BI ← (Processor load file name)
 Flash Image File: QLI10BI
 Flash CMR File: CMR07A
Unit 1
 Slotlet 1:
 Flash Load File: QLI10BG ** Mismatch **
 Flash Image File: QLI10BG ** Mismatch **
 Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

|           | <b>If the PRL card or packet</b>                                                  | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------|-----------|
|           | is present                                                                        | step 18   |
|           | is not present                                                                    | step 21   |
| <b>18</b> | Determine if the LGC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. |           |
|           | <b>If the LGC is equipped with an</b>                                             | <b>Do</b> |
|           | NT7X05 PRL card                                                                   | step 19   |
|           | NTSX06 PRL packet                                                                 | step 20   |

## PM LGC major (continued)

- 19** To load the LGC unit from the local image, type  
`>LOADPDM UNIT unit_no LOCAL IMAGE`  
 and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the LGC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 20 |

- 20**



### DANGER

#### Possible service interruption

The LOCAL LOADFILE option of the LOADPDM command has a parameter of [`<file>` string]. The LOADPDM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you want to use the NOPATCH option of the loadfile.

- To load the LGC unit from the local loadfile, type  
`>LOADPDM UNIT unit_no LOCAL LOADFILE`  
 and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the LGC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 21 |

- 21** To load the LGC unit, type  
`>LOADPDM UNIT unit_no`  
 and press the Enter key.

*where*

**PM LGC**  
**major** (continued)

**unit\_no**  
 is the number (0 to 1) of the LGC unit

|           | <b>If the load</b>                                                                                                                                                                                                                                                                                                       | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and the system generated a card list                                                                                                                                                                                                                                                                             | step 37   |
|           | failed, and the system did not generate the card list                                                                                                                                                                                                                                                                    | step 48   |
|           | passed                                                                                                                                                                                                                                                                                                                   | step 36   |
| <b>22</b> | To post the LGC, type<br>>POST LGC lgc_no<br>and press the Enter key.<br>where<br><b>lgc_no</b><br>is the number (0 to 255) of the LGC that you recorded in step 3<br>Example of a MAP response:<br><br><pre>LGC      0          InSv Links_OOS: CSide 20, PSide 0 Unit0:   Act       InSv Unit1:   Inact     SysB</pre> |           |
|           | <b>If a Mtce indicator</b>                                                                                                                                                                                                                                                                                               | <b>Do</b> |
|           | appears next to either unit                                                                                                                                                                                                                                                                                              | step 23   |
|           | does not appear                                                                                                                                                                                                                                                                                                          | step 24   |
| <b>23</b> | Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.                                                                                                                                                                                            |           |
|           | <b>If the alarm</b>                                                                                                                                                                                                                                                                                                      | <b>Do</b> |
|           | remains                                                                                                                                                                                                                                                                                                                  | step 24   |
|           | changes                                                                                                                                                                                                                                                                                                                  | step 47   |
|           | clears                                                                                                                                                                                                                                                                                                                   | step 49   |
| <b>24</b> | Determine the maintenance state of each LGC unit.                                                                                                                                                                                                                                                                        |           |
|           | <b>If</b>                                                                                                                                                                                                                                                                                                                | <b>Do</b> |
|           | one unit is CBSy and the other unit is InSv or ISTb                                                                                                                                                                                                                                                                      | step 25   |

---

**PM LGC**  
**major** (continued)

---

|           | <b>If</b>                                                                                                                                                   | <b>Do</b>                             |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
|           | one unit is SysB and the other unit is InSv or ISTb                                                                                                         | Work on the SysB unit. Go to step 26. |
| <b>25</b> | Go to the common procedure "Clear PM C-side faults" in this document. Complete the procedure and return to this point.                                      |                                       |
|           | <b>If</b>                                                                                                                                                   | <b>Do</b>                             |
|           | the LGC remains ISTb because one unit is SysB and the other is InSv or ISTb                                                                                 | Work on the SysB unit. Go to step 26. |
|           | the LGC returns to service                                                                                                                                  | step 49                               |
| <b>26</b> | To query the LGC for fault indications, type<br><b>&gt;QUERYPM FLT</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br>Activity dropped |                                       |
| <b>27</b> | Record the MAP response.                                                                                                                                    |                                       |
|           | <b>If the MAP response is</b>                                                                                                                               | <b>Do</b>                             |
|           | SWACT In Progress                                                                                                                                           | step 28                               |
|           | Load Corruption                                                                                                                                             | step 29                               |
|           | Load Failed                                                                                                                                                 | step 29                               |
|           | Distributed Data Loading Failed                                                                                                                             | step 29                               |
|           | Activity dropped                                                                                                                                            | step 29                               |
|           | other than listed here                                                                                                                                      | step 35                               |
| <b>28</b> | In an attempt to recover the LGC, the system switches the activity between the two LGC units. Wait until system maintenance is complete.                    |                                       |
|           | <b>If the LGC</b>                                                                                                                                           | <b>Do</b>                             |
|           | does not return to service                                                                                                                                  | step 35                               |
|           | returns to service                                                                                                                                          | step 49                               |

---

## PM LGC major (continued)

- 29** To busy the LGC unit, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.  
*where*

**unit\_no**  
 is the number of the inactive LGC unit

- 30** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

**>QUERYPM FILES**  
 and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is:  
 Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:*

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If the PRL card or packet | Do      |
|---------------------------|---------|
| is present                | step 31 |
| is not present            | step 34 |

## PM LGC major (continued)

- 31** Determine if the LGC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LGC is equipped with an NTSX05 with an NTSX06 PRL, type

**>QUERYPM CONFIG**

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```
QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor
```

*Example of a MAP response if an SX05 processor is present*

```
QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packet
```

| If the LGC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 32 |
| NTSX06 PRL packet              | step 33 |

- 32** To load the LGC unit from the local image, type

**>LOADPM UNIT unit\_no LOCAL IMAGE**

and press the Enter key.

*where*

**unit\_no**

is the number (0 to 1) of the LGC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 33 |

**PM LGC**  
**major** (continued)

33



**DANGER**

**Possible service interruption**

The LOCAL LOADFILE option of the LOADPDM command has a parameter of [<file> string]. The LOADPDM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you want the NOPATCH option of the loadfile.

To load the LGC unit from the local loadfile, type  
>LOADPDM UNIT **unit\_no** LOCAL LOADFILE  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the LGC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 34 |

34 To load the LGC unit, type  
>LOADPDM UNIT **unit\_no**  
and press the Enter key.

*where*

**unit\_no**  
is the number of the inactive LGC unit

| If the load                                           | Do      |
|-------------------------------------------------------|---------|
| failed, and the system generated a card list          | step 37 |
| failed, and the system did not generate the card list | step 48 |
| passed                                                | step 36 |

35 To busy the LGC unit that has faults, type  
>BSY UNIT **unit\_no**  
and press the Enter key.

*where*

## PM LGC major (continued)

- unit\_no**  
is the number (0 to 1) of the LGC unit
- 36** To return the LGC unit to service, type  
>RTS UNIT **unit\_no**  
and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LGC unit

| If the LGC unit                                       | Do      |
|-------------------------------------------------------|---------|
| failed, and the system generated a card list          | step 37 |
| failed, and the system did not generate the card list | step 48 |
| passed                                                | step 49 |

### **At the equipment frame**

- 37** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" in this procedure for help to locate this card.

The MAP response in step 11 (if you completed this step) or step 27 can help you isolate the card that has faults. Refer to the following table for help.

### **(Sheet 1 of 2)**

| MAP response     | Suspect cards                                                        |
|------------------|----------------------------------------------------------------------|
| PM Audit         | NT6X69, NTMX77, NTSX05                                               |
| Activity Dropped | NTMX77, NTSX05                                                       |
| No WAI Received  | NT6X40, NT6X41, NT6X42,<br>NT6X44, NT6X69, NTAX78,<br>NTMX77, NTSX05 |
| LINK Audit       | NT6X40, NT6X41, NT6X42,<br>NT6X44, NT6X69, NTAX78,<br>NTMX77, NTSX05 |
| Load Corruption  | NTMX77, NTSX05                                                       |

# PM LGC major (continued)

(Sheet 2 of 2)

| MAP response                    | Suspect cards          |
|---------------------------------|------------------------|
| Load Failed                     | NTMX77, NTSX05         |
| Distributed Data Loading Failed | NT6X69, NTMX77, NTSX05 |

| If you replace                    | Do      |
|-----------------------------------|---------|
| an NT6X42, NTMX77, or NTSX05 card | step 38 |
| other than listed here            | step 45 |

**At the MAP display**

**38** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is:  
Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LGC with an NTMX77 processor with an NT7X05 PRL card:*

```
Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File:ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File:ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for an LGC with an NTSX05 processor with an NTSX06 PRL card:*

## PM LGC major (continued)

```

Unit 0:
Slotlet 0:
 Flash Load File: QLI10BI ← (Processor load file name)
 Flash Image File: QLI10BI
 Flash CMR File: CMR07A
Unit 1
Slotlet 1:
 Flash Load File: QLI10BG ** Mismatch **
 Flash Image File: QLI10BG ** Mismatch **
 Flash CMR File: CMR07A

```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If the PRL card or packlet | Do      |
|----------------------------|---------|
| is present                 | step 39 |
| is not present             | step 42 |

- 39** Determine if the LGC is equipped with an NTSX06 PRL packlet or an NT7X05 PRL card. To determine if the LGC is equipped with an NTSX05 with an NTSX06 PRL, type

**>QUERYPM CONFIG**

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```

QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor

```

*Example of a MAP response if an SX05 processor is present*

```

QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet

```

| If the LGC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 40 |
| NTSX06 PRL packlet             | step 41 |

## PM LGC major (continued)

---

- 40** To load the inactive LGC unit from the local image on the NT7X05 card, type  
`>LOADPDM UNIT unit_no LOCAL IMAGE`  
and press the Enter key.

*where*

**unit\_no**  
is the number of the inactive LGC unit

---

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 41 |

---

**41**



### **DANGER**

#### **Possible service interruption**

The LOCAL LOADFILE option of the LOADPDM command has a parameter of [`<file>` string]. The LOADPDM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you want the NOPATCH option of the loadfile.

- To load the inactive LGC unit from the local loadfile on the NT7X05 card, type  
`>LOADPDM UNIT unit_no LOCAL LOADFILE`  
and press the Enter key.

*where*

**unit\_no**  
is the number of the inactive LGC unit

---

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 42 |

---

- 42** To load the inactive LGC unit from the CM, type  
`>LOADPDM UNIT unit_no`  
and press the Enter key.

*where*



## PM LGC major (continued)

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EPRom Version: AC01
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01

```

NTSX05 Firmware  
loadname version

| If firmware | Do      |
|-------------|---------|
| is valid    | step 45 |
| is invalid  | step 44 |

- 44** To load the NTMX77 or NTSX05 firmware in the inactive unit, type  
**>LOADFW UNIT unit\_no**  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the inactive LGC unit

| If load | Do      |
|---------|---------|
| passed  | step 45 |
| failed  | step 48 |

- 45** To return the LGC unit to service, type  
**>RTS UNIT unit\_no**  
 and press the Enter key.  
*where*

---

**PM LGC  
major (end)**


---

**unit\_no**  
is the number of the inactive LGC unit

| <b>If the LGC unit</b>                                                                              | <b>Do</b> |
|-----------------------------------------------------------------------------------------------------|-----------|
| does not return to service, and you did not replace all cards on the list of cards that have faults | step 46   |
| does not return to service, and you replaced all cards on the list of cards that have faults        | step 48   |
| fails and the system does not generate a card list                                                  | step 48   |
| returns to service                                                                                  | step 49   |

**At the equipment frame**

- 46** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LGC shelf layout" in this procedure for help to locate this card.

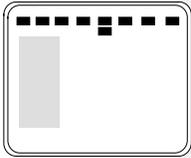
| <b>If you replace</b>             | <b>Do</b> |
|-----------------------------------|-----------|
| an NTMX77, NTSX05, or NT6X42 card | step 38   |
| replace any other cards           | step 45   |

- 47** The LGC major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 49.
- 48** For additional help, contact the next level of support.
- 49** The procedure is complete.

## PM LGC minor

---

### Alarm display



| CM | MS | IOD | Net | PM          | CCS | Lns | Trks | Ext |
|----|----|-----|-----|-------------|-----|-----|------|-----|
| .  | .  | .   | .   | <b>1LGC</b> | .   | .   | .    | .   |

### Indication

At the MTC level of the display, LGC (preceded by a number) appears under the PM header of the alarm banner. The LGC indicates a minor alarm for a line group controller (LGC). The number that precedes the LGC indicates the number of LGCs that the alarm affects. The preceding figure shows an alarm banner with an LGC minor alarm.

### Meaning

The LGC is in service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in service
- one unit is ISTb and one unit is manually busy
- one unit is in service and one unit is manually busy
- both units are in service with some P-side links or C-side links out of service

### Result

The alarm does not affect service.

### Common procedures

This procedure refers to the following common procedures:

- "Monitoring system maintenance"
- "Clearing PM C-side faults"

Do not go to the common procedure unless the step-action procedure directs you to go.

**PM LGC**  
**minor** (continued)

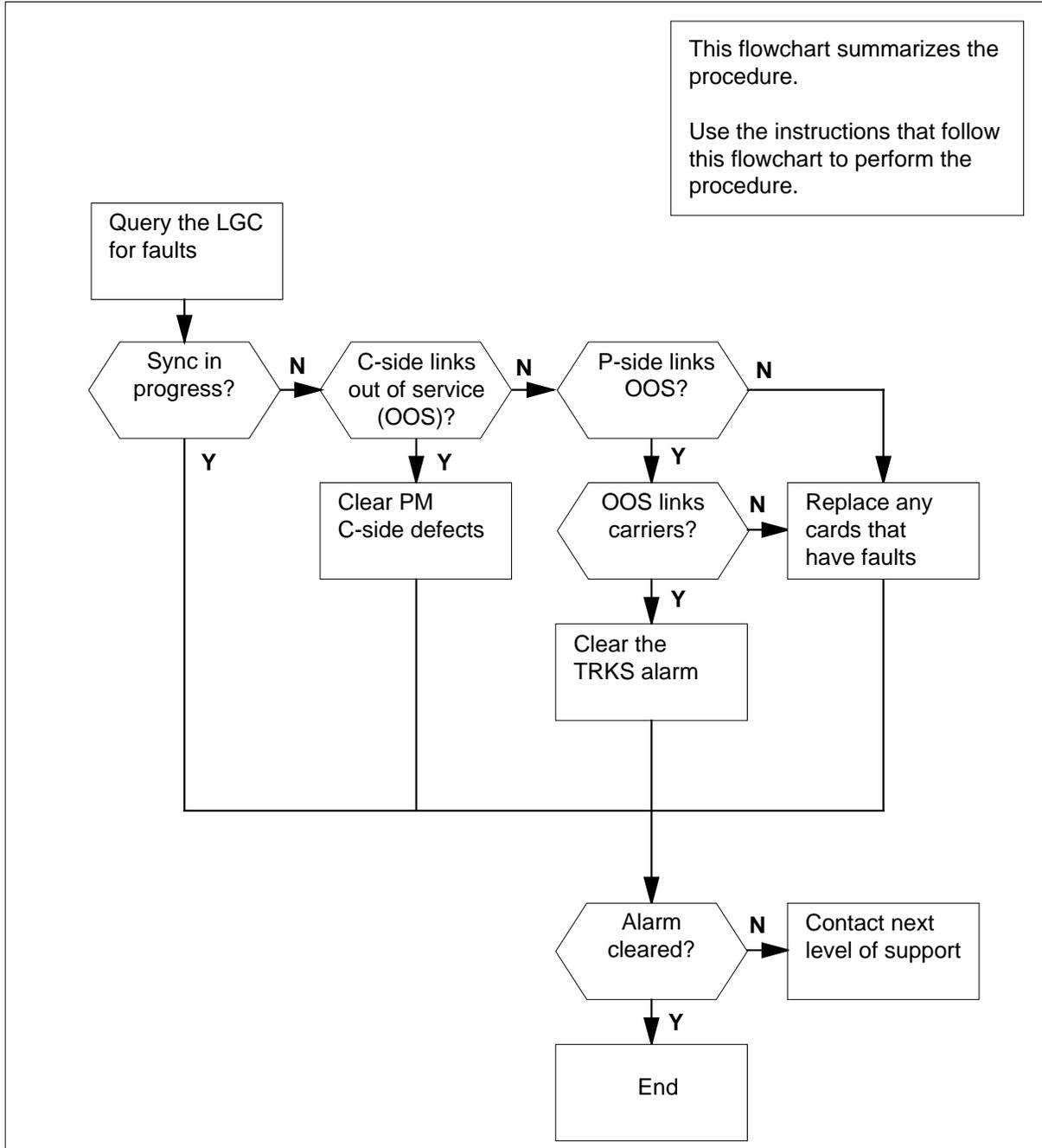
---

**Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review procedure. Follow the steps to perform the procedure.

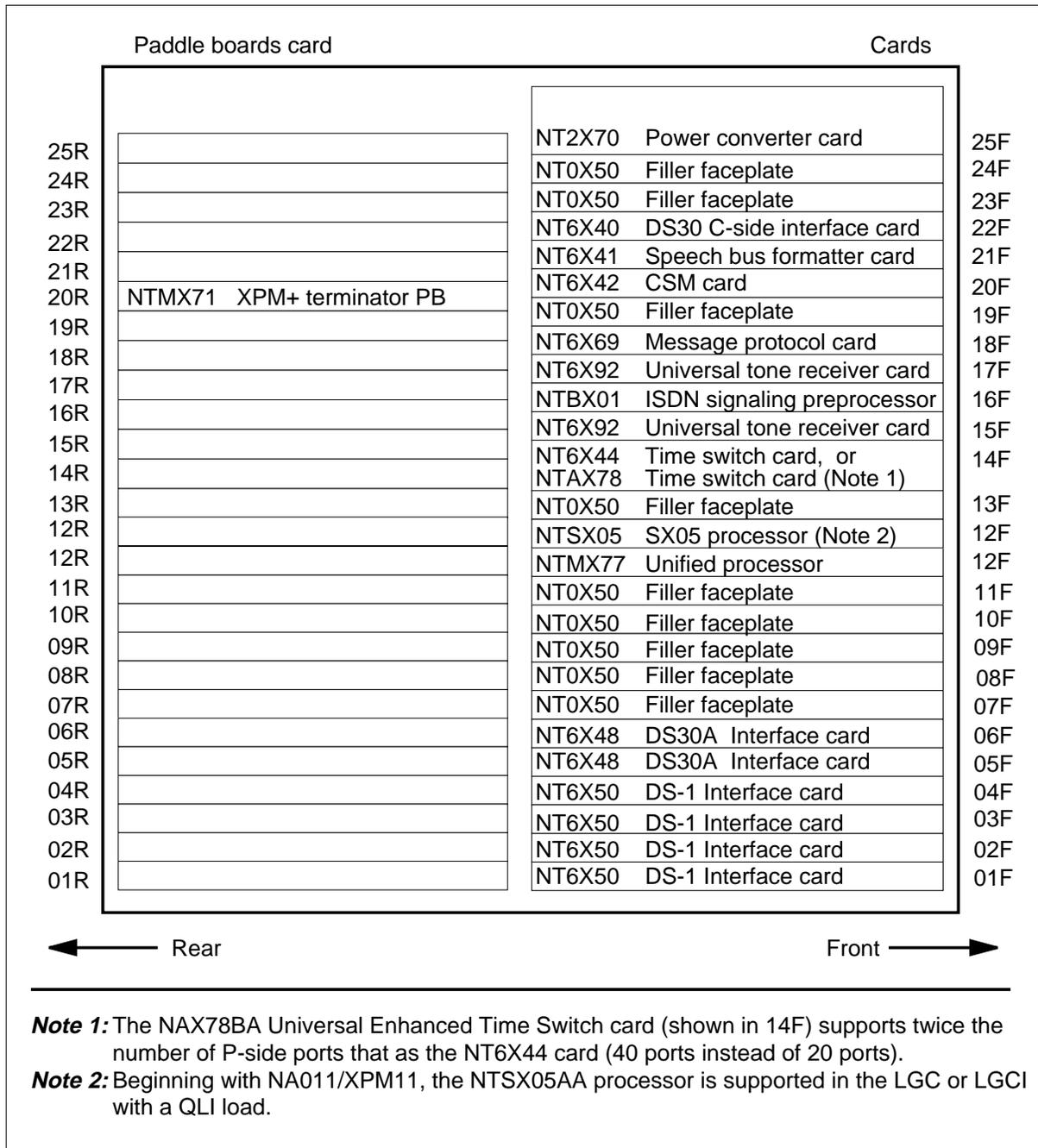
# PM LGC minor (continued)

## Summary of clearing a PM LGC minor alarm



## PM LGC minor (continued)

### LGC shelf design



## PM LGC minor (continued)

---

### Clearing a PM LGC minor alarm

#### At the MAP display

- 1 To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
and press the Enter key.

*Example of a MAP display response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

---

| If                     | Do     |
|------------------------|--------|
| an audible alarm rings | step 2 |
| no audible alarm rings | step 3 |

---

- 2 To silence the alarm, type  
**>SIL**  
and press the Enter key.
- 3 To display all the ISTb LGCs, type  
**>DISP STATE ISTB LGC**  
and press the Enter key.

*Example of a MAP display:*

ISTb LGC : 0

**Note:** If multiple LGCs are ISTb, select an LGC to work on. Repeat this procedure for each LGC that is ISTb.

Record the number of the LGC.

- 4 To post the LGC, type  
**>POST LGC lgc\_no**  
and press the Enter key.

where

**lgc\_no**

is the number (0 to 255) of the LGC that you recorded in step 3

*Example of a MAP display response:*

---

**PM LGC**  
**minor** (continued)

---

```
LGC 0 ISTb Links_OOS: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact ISTb Mtce
```

|          | <b>If a Mtce flag</b>                                                                                                      | <b>Do</b>                                              |
|----------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
|          | appears next to either unit                                                                                                | step 5                                                 |
|          | does not appear                                                                                                            | step 6                                                 |
| <b>5</b> | Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point. |                                                        |
|          | <b>If the LGC minor alarm</b>                                                                                              | <b>Do</b>                                              |
|          | remains                                                                                                                    | step 6                                                 |
|          | changes                                                                                                                    | step 35                                                |
|          | clears                                                                                                                     | step 36                                                |
| <b>6</b> | Select an LGC unit to recover.                                                                                             |                                                        |
|          | <b>If</b>                                                                                                                  | <b>Do</b>                                              |
|          | one unit is ISTb and one unit is InSv                                                                                      | step 7                                                 |
|          | both units are ISTb                                                                                                        | Work on the inactive unit and go to step 11.           |
|          | one unit is ManB and one unit is ISTb or InSv                                                                              | Work on the manually busy unit and go to step 11.      |
| <b>7</b> | Determine if the ISTb unit is active or inactive.                                                                          |                                                        |
|          | <b>If the ISTb unit</b>                                                                                                    | <b>Do</b>                                              |
|          | is active                                                                                                                  | step 8                                                 |
|          | is inactive                                                                                                                | Work on the in-service trouble unit and go to step 11. |

**PM LGC**  
**minor** (continued)

8

|                                                                                   |                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b><br/> <b>Possible loss of service</b><br/>         If the procedure directs you to perform a cold SWACT, perform this activity during a period of low traffic. If you perform a cold SWACT during other periods of traffic, the system drops all calls that the LGC handles.</p> |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

To switch the activity of the units, type

**>SWACT**

and press the Enter key.

The switch determines if you must perform a cold SWACT or a warm SWACT. The switch shows a confirmation prompt for the selected SWACT.

| If the SWACT    | Do      |
|-----------------|---------|
| cannot continue | step 9  |
| can continue    | step 10 |

9

To reject the prompt, type

**>NO**

and press the Enter key.

The system discontinues the SWACT. Go to step 34.

10

To confirm the SWACT, type

**>YES**

and press the Enter key.

The switch switches the activity between the active unit and the inactive unit. A Mtce flag appears during the switch of activity. Wait until the flag disappears before you proceed.

| If the MAP response                      | Do                                           |
|------------------------------------------|----------------------------------------------|
| is SWACT Passed                          | Work on the inactive unit and go to step 11. |
| is SWACT failed<br>Reason: XPM SWACTback | step 34                                      |
| is SWACT refused by<br>SWACT controller  | step 34                                      |

---

**PM LGC**  
**minor** (continued)

---

- 11 To determine the cause of the `ISTb` condition, type

`>QUERYPM FLT`

and press the Enter key.

**Note:** An in-service trouble condition for an LGC can be the result of multiple causes. The LGC and LGC units remain `ISTb` until all the in-service trouble conditions clear.

| If the MAP response                              | Do      |
|--------------------------------------------------|---------|
| is Dynamic data sync in progress                 | step 12 |
| is Superframe sync in progress                   | step 12 |
| is CLASS Modem Resource Card 6X78 out of service | step 13 |
| is CMR Load not present                          | step 16 |
| is Static data mismatch with CC                  | step 19 |
| is P-side links out of service                   | step 21 |
| is C-side links out of service                   | step 31 |
| is other than listed here                        | step 34 |

- 12 Wait 5 min for the system to return the LGC to service.

| If the LGC minor alarm | Do      |
|------------------------|---------|
| clears                 | step 36 |
| does not clear         | step 34 |

---

## PM LGC minor (continued)

---

13



**CAUTION**

**Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the CMR card, type

```
>BSY UNIT unit_no CMR
```

and press the Enter key.

where

**unit\_no**

is the number of the LGC unit (0 or 1) that contains the CMR card

14 To test the CMR card, type

```
>TST UNIT unit_no CMR
```

and press the Enter key.

where

**unit\_no**

is the number of the LGC unit (0 or 1) that contains the CMR card

---

| <b>If the TST command</b> | <b>Do</b> |
|---------------------------|-----------|
| fails                     | step 15   |
| passes                    | step 18   |

---

**At the equipment frame**

15 Replace the CMR card (NT6X78). Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 17.

**At the MAP display**

16 To manually busy the CMR card, type

```
>BSY UNIT unit_no CMR
```

and press the Enter key.

where

**unit\_no**

is the number of the LGC unit (0 or 1) that contains the CMR card

---

**PM LGC**  
**minor (continued)**


---

- 17** To load the CMR card, type  
`>LOADPM UNIT unit_no CMR`  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LGC unit (0 or 1) that contains the CMR card

| <b>If the LOADPM command</b>                | <b>Do</b> |
|---------------------------------------------|-----------|
| passes                                      | step 18   |
| fails, and you replaced the CMR card        | step 34   |
| fails, and you did not replace the CMR card | step 15   |

- 18** To return the LGC unit to service, type  
`>RTS UNIT unit_no`  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LGC unit (0 or 1)

| <b>If the RTS command</b>                      | <b>Do</b> |
|------------------------------------------------|-----------|
| passes, and the LGC returns to service         | step 36   |
| passes, and the LGC does not return to service | step 33   |
| fails                                          | step 34   |

**19**



**CAUTION**

**Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize traffic interruption.

## PM LGC minor (continued)

---

To manually busy the inactive in-service trouble LGC unit, type

**>BSY UNIT unit\_no**

and press the Enter key.

where

**unit\_no**

is the number of the LGC unit (0 or 1)

**20** To return the LGC unit to service, type

**>RTS UNIT unit\_no**

and press the Enter key.

where

**unit\_no**

is the number of the LGC unit (0 or 1)

---

**If the RTS command**

**Do**

passes, and the LGC returns to service step 36

passes, and the LGC does not return to service step 33

fails step 34

---

**21** To identify the out-of-service P-side links, type

**>TRNSL P**

and press the Enter key.

*Example of a MAP display response:*

```
Link 0; LCM HOST 05 0 0;Cap MS;Status:ok ;MsgCond:OPN
Link 1; LCM HOST 05 0 0;Cap S;Status:ok
Link 2; LCM HOST 05 0 0;Cap MS;Status:ok ;MsgCond:OPN
Link 3; LCM HOST 05 0 0;Cap S;Status:ok
Link 4; LCM HOST 05 1 0;Cap MS;Status:ok ;MsgCond:OPN
Link 5; LCM HOST 05 1 0;Cap S;Status:ok
Link 18; LCM HOST 05 4 0;Cap MS;Status:ok ;MsgCond:OPN
Link 19; LCM HOST 05 4 0;Cap S;Status:ok
```

**Note:** Links 6 to 17 do not appear in this example.

---

**PM LGC  
minor (continued)**


---

- 22** Record the number and state of each out-of-service P-side link.  
**Note:** P-side links with the status OK are in service. Any other status indicates an out-of-service P-side link. The MAP display can identify the P-side links as a CARRIER.

| <b>If the out-of-service links</b> | <b>Do</b> |
|------------------------------------|-----------|
| are carriers                       | step 23   |
| are links                          | step 24   |

- 23** Clear the Trks alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

| <b>If the LGC minor alarm</b> | <b>Do</b> |
|-------------------------------|-----------|
| clears                        | step 36   |
| does not clear                | step 34   |

- 24** Choose a link on which to work.

| <b>If the link</b> | <b>Do</b> |
|--------------------|-----------|
| is SysB            | step 25   |
| is ManB            | step 26   |

- 25** To manually busy the link, type

```
>BSY LINK link_no
```

and press the Enter key.

where

**link\_no**

is the number of the link (0 to 19)

- 26** To test the link, type

```
>TST LINK link_no
```

and press the Enter key.

where

**link\_no**

is the number of the link (0 to 19 )

| <b>If the TST command</b>                   | <b>Do</b> |
|---------------------------------------------|-----------|
| passes                                      | step 27   |
| fails, and the system generates a card list | step 28   |

---

**PM LGC**  
**minor** (continued)

|           | <b>If the TST command</b>                                                                                                                                     | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | fails, and the system does not generate a card list                                                                                                           | step 34   |
| <b>27</b> | To return the link to service, type<br>>RTS LINK link_no<br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 19) |           |
|           | <b>If the RTS command</b>                                                                                                                                     | <b>Do</b> |
|           | fails, and the system generates a card list                                                                                                                   | step 28   |
|           | fails, and the system does not generate a card list                                                                                                           | step 34   |
|           | passes, and other out-of-service links are present                                                                                                            | step 24   |
|           | passes and the LGC remains ISTb                                                                                                                               | step 34   |
|           | passes and the LGC is InSv                                                                                                                                    | step 36   |

**At the equipment frame**

- 28** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

**At the MAP display**

**29** To return the link to service, type  
 >RTS LINK link\_no  
 and press the Enter key.  
*where*  
     **link\_no**  
     is the number of the link (0 to 19)

|  | <b>If the RTS command</b>                            | <b>Do</b> |
|--|------------------------------------------------------|-----------|
|  | fails, and you did not replace all cards on the list | step 30   |
|  | fails, and you replaced all cards on the list        | step 34   |
|  | passes, and other out-of-service links are present   | step 24   |
|  | passes, and the LGC remains ISTb                     | step 34   |

---

**PM LGC  
minor** (continued)

---

|           | <b>If the RTS command</b>                                                                                                                                                                                                                                                                          | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passes, and the LGC minor alarm clears                                                                                                                                                                                                                                                             | step 36   |
| <b>30</b> | Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and go to step 29.                                                                                                                                                 |           |
| <b>31</b> | Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and go to step 32.                                                                                                                                                                                 |           |
| <b>32</b> | To post the LGC, type<br><pre>&gt;PM;POST LGC lgc_no</pre> and press the Enter key.<br><i>where</i><br><b>lgc_no</b><br>is the number of the LGC (0 to 255)                                                                                                                                        |           |
|           | <b>If</b>                                                                                                                                                                                                                                                                                          | <b>Do</b> |
|           | the LGC minor alarm clears                                                                                                                                                                                                                                                                         | step 36   |
|           | the LGC is ISTb because one unit is ISTb or CBSy                                                                                                                                                                                                                                                   | step 33   |
|           | other than listed here                                                                                                                                                                                                                                                                             | step 34   |
| <b>33</b> | To determine the cause of the ISTb condition, type<br><pre>&gt;QUERYPM FLT</pre> and press the Enter key.<br><b>Note:</b> In-service trouble condition for an LGC can be the result of a multiple causes. The LGC and the LGC units remain ISTb until all the in-service trouble conditions clear. |           |
|           | <b>If the MAP response</b>                                                                                                                                                                                                                                                                         | <b>Do</b> |
|           | is Dynamic data sync in progress                                                                                                                                                                                                                                                                   | step 12   |
|           | is Superframe sync in progress                                                                                                                                                                                                                                                                     | step 12   |
|           | is CLASS Modem Resource Card 6X78 out of service                                                                                                                                                                                                                                                   | step 13   |
|           | is CMR Load not present                                                                                                                                                                                                                                                                            | step 16   |
|           | is Static data mismatch with CC                                                                                                                                                                                                                                                                    | step 19   |
|           | is P-side links out of service                                                                                                                                                                                                                                                                     | step 21   |
|           | is C-side links out of service                                                                                                                                                                                                                                                                     | step 31   |

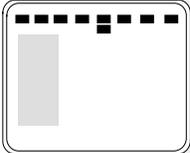
---

**PM LGC**  
**minor** (end)

---

|           | <b>If the MAP response</b>                                                                                                                                                             | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | indicates a fault you cleared during this procedure                                                                                                                                    | step 34   |
|           | is other than listed here                                                                                                                                                              | step 34   |
| <b>34</b> | You need additional maintenance action to clear this alarm. Contact the next level of maintenance. Describe in detail the steps that you performed to clear this alarm. Go to step 36. |           |
| <b>35</b> | The LGC minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.                                                              |           |
| <b>36</b> | The procedure is complete.                                                                                                                                                             |           |

**PM LIM  
critical****Alarm display**

|                                                                                   | CM | MS | IOD | Net | PM                        | CCS | Lns | Trks | Ext | APPL |
|-----------------------------------------------------------------------------------|----|----|-----|-----|---------------------------|-----|-----|------|-----|------|
|  | .  | .  | .   | .   | <b>1LIM</b><br><b>*C*</b> | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP display, LIM (preceded by a number) appears under the PM header of the alarm banner. The LIM indicates a critical alarm for a link interface module (LIM).

**Meaning**

A minimum of one LIM is either system busy (SysB) or system busy resource not available (SysB RU). An LIM is system busy when both LIM units are out of service, and a minimum of one unit is system busy.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

**Result**

All application specific units (ASUs) and all signaling links associated with this LIM are out of service.

**Common procedures**

The following common procedures are referenced in this procedure:

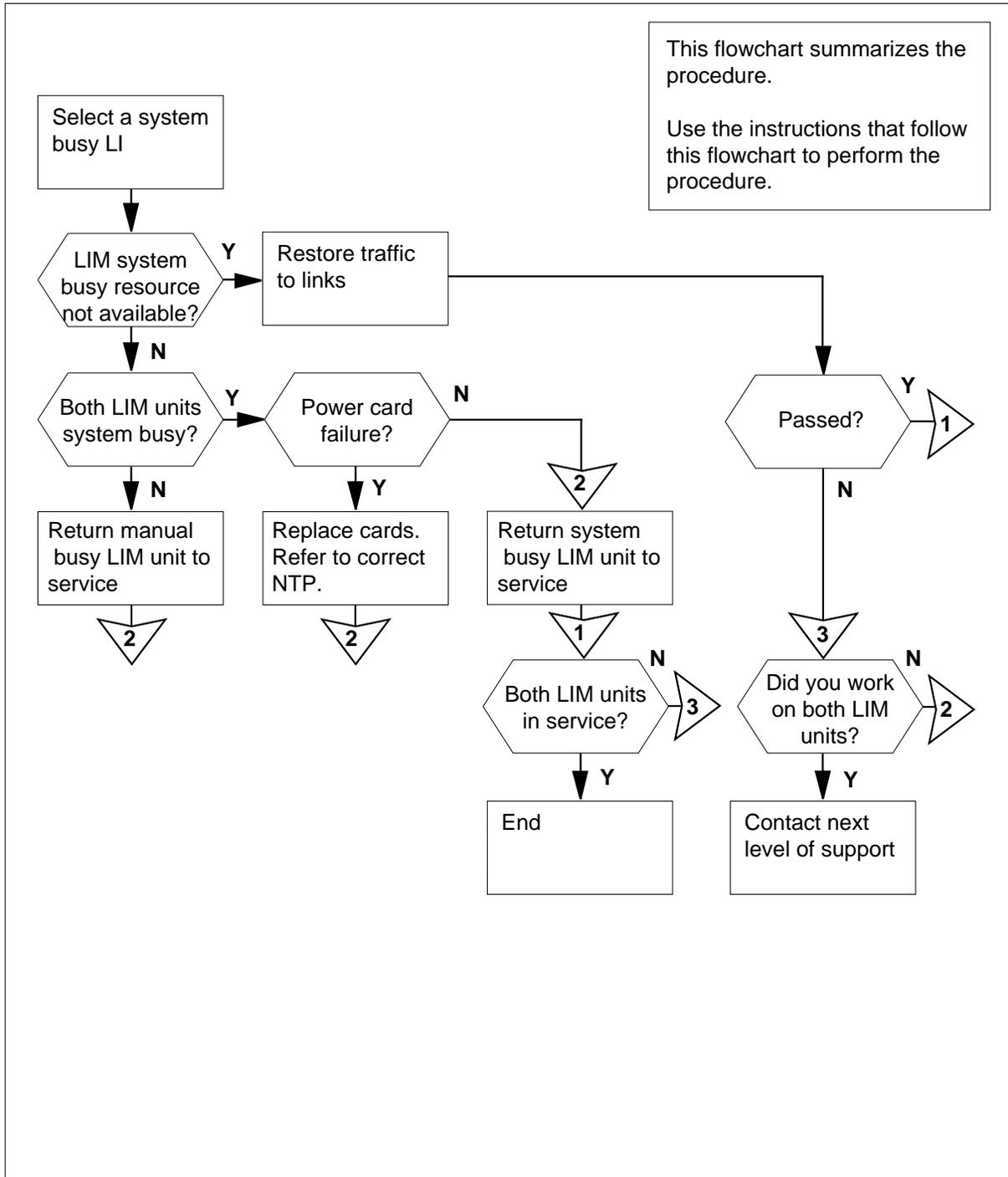
- *Returning LIM-to-MS links to service*
- *Restoring LIM unit cross-links*
- *Recovering link peripheral processors*

**Action**

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

# PM LIM critical (continued)

## Summary of clearing a PM LIM critical alarm



## PM LIM critical (continued)

### Clearing a PM LIM critical alarm



#### **CAUTION**

##### **Loss of service**

Do not use this procedure to recover LIM units that are system busy due to a loss of A and B power feeds to the LPP. Refer instead to the procedure *Recovering link peripheral processors* in *Recovery Procedures*.



#### **WARNING**

##### **Loss of service**

Do not use this procedure to recover LIM units that are system busy caused by loss of power. Loss of A and B power feeds to the LPP cause the LIM units to be system busy. Refer to the procedure *Recovering link peripheral processors* in *Recovery Procedures*.



#### **WARNING**

##### **Delay in returning equipment to service**

If the system generates a minimum of two card lists, replace all cards on the short card list. Replace the cards on the short card list before you replace any cards in a following full card list.

#### **At the MAP terminal**

- 1 To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
 and press the Enter key.

Example of a MAP display:

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 0    | 0    | 0    | 0    | 39   |

- 2 To display all system busy LIMs, type  
**>DISP STATE SYSB LIM**  
 and press the Enter key.

**PM LIM**  
**critical** (continued)

---

*Example of a MAP response:*

SysB LIM: 1

- 3 To post a system busy LIM, type  
**>POST LIM lim\_no**  
 and press the Enter key.

*where*

**lim\_no**

is the number of a system busy LIM (0 to 16)

*Example of a MAP display:*

```
LIM 1 SysB (RU)
Unit0: SysB (RU) Links_OOS Taps_OOS
Unit1: SysB (RU) 2 5
```

- 4 Determine if the system busy LIM is resource not available (RU).  
**Note:** The RU status appears to the right of the LIM state in the MAP display.

| If the state of the LIM | Do      |
|-------------------------|---------|
| is SysB (RU)            | step 29 |
| is SysB                 | step 5  |

- 5 Determine the state of each unit of the system busy LIM.  
**Note:** The unit state appears to the right of Unit0 and Unit1 on the MAP display.

| If                                                  | Do      |
|-----------------------------------------------------|---------|
| one LIM unit is ManB and the other LIM unit is SysB | step 17 |
| both LIM units are SysB                             | step 1  |

**At the LPP cabinet**

- 6 An entire local message switch (LMS) shelf may have lost power due to the failure of both NT9X30 power converter cards. Check for a power fault at the

---

**PM LIM**  
**critical** (continued)

---

link peripheral processor (LPP) by examining the fail lamps of the two NT9X30 cards on the LMS shelf.

**Note:** A failed NT9X30 card on the left side of the LMS shelf is associated with LIM unit 0. A failed NT9X30 card on the right side of the LMS shelf is associated with LIM unit 1.

| If                                               | Do      |
|--------------------------------------------------|---------|
| the fail lamp of at least one NT9X30 card is lit | step 7  |
| the fail lamp of neither NT9X30 card is lit      | step 16 |

- 7 To force a LIM unit that has a failed power converter to busy, type

```
>BSY UNIT unit_no FORCE
```

and press the Enter key.

where

**unit\_no**

is the number of the system busy LIM unit (0 or 1)

- 8 Replace the NT9X30 power converter card in the LIM unit. Perform the correct card procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

Replace the NT9X30 or NT9X31 power converter card in the LIM unit. Perform the correct card procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

- 9 To load the LIM unit, type

```
>LOADPM UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the manual busy LIM unit (0 or 1)

| If the LOADPM command                               | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 14 |
| failed and the system generates a card list         | step 10 |
| failed and the system does not generate a card list | step 40 |

---

**PM LIM**  
**critical** (continued)

- 10 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
- 11 Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 12 To load the LIM unit, type  
`>LOADPM UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the manual busy LIM unit (0 or 1)

| If the LOADPM command                                     | Do      |
|-----------------------------------------------------------|---------|
| passed                                                    | step 14 |
| failed, and you did not replace all the cards on the list | step 13 |
| failed, and you replaced all the cards on the list        | step 40 |

- 13 Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.  
 Go to step 12.
- 14 To return the LIM unit to service, type  
`>RTS UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the manual busy LIM unit (0 or 1)

| If the RTS command | Do      |
|--------------------|---------|
| passed             | step 15 |
| failed             | step 40 |

- 15 Determine if a power fault is present on the mate LIM unit.  

| If the fail lamp of the NT9X30 power converter card of the mate LIM unit | Do     |
|--------------------------------------------------------------------------|--------|
| is lit                                                                   | step 7 |

---

**PM LIM**  
**critical** (continued)

---

|           | <b>If the fail lamp of the NT9X30 power converter card of the mate LIM unit</b>                                                                                                                                       | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is not lit                                                                                                                                                                                                            | step 16   |
| <b>16</b> | To manually busy a system busy LIM unit, type<br>>BSY UNIT <i>unit_no</i> FORCE<br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the system busy LIM unit (0 or 1)<br>Go to step 19. |           |
| <b>17</b> | Work on the manual busy LIM unit first.                                                                                                                                                                               |           |
| <b>18</b> | Determine why the LIM unit is manual busy from office records or from operating company personnel.<br><br>When you have permission, continue with this procedure to return the LIM unit to service.                   |           |
| <b>19</b> | To test the manual busy LIM unit, type<br>>TST UNIT <i>unit_no</i><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the manual busy LIM unit (0 or 1)                                |           |
|           | <b>If the TST command</b>                                                                                                                                                                                             | <b>Do</b> |
|           | passed                                                                                                                                                                                                                | step 39   |
|           | failed, and the system generates a card list                                                                                                                                                                          | step 20   |
|           | failed, and the system does not generate a card list                                                                                                                                                                  | step 21   |
| <b>20</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.                                                                                               |           |
| <b>21</b> | To set the LIM units again, type<br>>PMRESET UNIT <i>unit_no</i><br>and press the Enter key.<br><i>where</i>                                                                                                          |           |

## PM LIM critical (continued)

| <b>unit_no</b><br>is the number of the LIM unit (0 or 1) |                                                                                                                                                                                                                                                             |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If the PMRESET command</b>                            | <b>Do</b>                                                                                                                                                                                                                                                   |
| passed                                                   | step 28                                                                                                                                                                                                                                                     |
| failed and the system generates a card list              | step 22                                                                                                                                                                                                                                                     |
| failed and the system does not generate a card list      | step 23                                                                                                                                                                                                                                                     |
| <b>22</b>                                                | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.<br><br><b>Note:</b> If the system generates a card list at any previous step, make sure you record the listed cards at these steps. |
| <b>23</b>                                                | To load the LIM unit, type<br><code>&gt;LOADPDM UNIT unit_no</code><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                                 |
| <b>If the LOADPDM command</b>                            | <b>Do</b>                                                                                                                                                                                                                                                   |
| passed                                                   | step 28                                                                                                                                                                                                                                                     |
| failed and the system generates a card list              | step 24                                                                                                                                                                                                                                                     |
| failed and the system did not generate a card list       | step 42                                                                                                                                                                                                                                                     |
| <b>24</b>                                                | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.<br><br><b>Note:</b> If the system generates a card list at any previous step, make sure you record the listed cards at these steps. |
| <b>25</b>                                                | Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.                                                                               |
| <b>26</b>                                                | To load the LIM unit, type<br><code>&gt;LOADPDM UNIT unit_no</code><br>and press the Enter key.<br><i>where</i>                                                                                                                                             |

---

**PM LIM**  
**critical** (continued)

---

**unit\_no**  
is the number of the LIM unit (0 or 1)

| <b>If the LOADPM command</b>                                           | <b>Do</b> |
|------------------------------------------------------------------------|-----------|
| passed                                                                 | step 28   |
| failed, and you did not replace all the cards on the list you recorded | step 27   |
| failed, and you replaced all the cards on the list you recorded        | step 42   |

- 27** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

Go to step 26.

- 28** To return the LIM unit to service, type

```
>RTS UNIT unit_no
```

and press the Enter key.

where

**unit\_no**  
is the number of the manual busy LIM unit (0 or 1)

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 40   |
| failed                    | step 42   |

- 29** Determine the state of the LIM units.

| <b>If</b>                    | <b>Do</b> |
|------------------------------|-----------|
| one LIM unit is SysB (RU)    | step 30   |
| both LIM units are SysB (RU) | step 31   |

- 30** To manually busy the LIM unit, type

```
>BSY UNIT unit_no
```

and press the Enter key.

where

**unit\_no**  
is the number of the SysB (RU) LIM unit (0 or 1)

Go to step 32.

**PM LIM**  
**critical** (continued)

---

- 31 To manually busy LIM unit 0, type  
`>BSY UNIT 0`  
 and press the Enter key.
- 32 To display more information about the fault, type  
`>QUERYPM UNIT unit_no FLT`  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the manual busy LIM unit (0 or 1)

---

| If the response                       | Do      |
|---------------------------------------|---------|
| is LIM UNIT HAS NO HOST LINKS.        | step 33 |
| is LIM UNIT HAS NO CLOCKING LINKS.    | step 33 |
| is LIM UNIT HAS NO MS CONNECTIVITY.   | step 33 |
| is LIM UNIT IS ISOLATED FROM INSV MS. | step 33 |
| is LIM UNIT CROSS-LINKS OOS.          | step 37 |
| is LIM UNIT COMMUNICATION FAILURE.    | step 38 |
| is LIM UNIT NOT RESPONDING.           | step 38 |
| is LIM unit data sync failure         | step 40 |
| is other than listed here             | step 40 |

---

- 33 To access the MS level of the MAP display, type  
`>MS`  
 and press the Enter key.

*Example of a MAP display:*

```

 Message Switch Clock Shelf 0 Inter-MS Link 0 1
MS 0 . M Free . .
MS 1 . Slave . .

```

**Note:** In the previous example, a dot (.) under the Message Switch header indicates an in-service MS plane. The letter S indicates a system busy MS. The letter M indicates a manual busy MS. The letter L indicates an in-service trouble MS. The letter O indicates an offline MS.

---

**PM LIM**  
**critical** (continued)

---

- 34** Determine the state of both MS plane 0 and 1.
- | If both MS 0 and 1                               | Do      |
|--------------------------------------------------|---------|
| are in service (.) or are in-service trouble (I) | step 36 |
| are other than listed here                       | step 35 |
- 35** Perform the appropriate alarm clearing procedure in this document. When you have completed the procedure, go to step 40.
- 36** Perform the procedure *Returning LIM-to-MS links to service* in this document. When you have completed the procedure, return to this point.
- 37** Perform the procedure *Restoring LIM unit cross-links* in this document. When you have completed the procedure, return to this point. Go to step 40.
- 38** To test the LIM unit through the mate unit, type
- ```
>TST UNIT unit_no VIAMATE
```
- and press the Enter key.
- where
- unit_no**
is the number of the manual busy LIM unit (0 or 1)
- | If the TST command | Do |
|--------------------|---------|
| passed | step 39 |
| failed | step 42 |
- 39** To return the LIM unit to service, type
- ```
>RTS UNIT unit_no
```
- and press the Enter key.
- where
- unit\_no**  
is the number of the manual busy LIM unit (0 or 1)
- | If the RTS command | Do      |
|--------------------|---------|
| passed             | step 40 |
| failed             | step 42 |

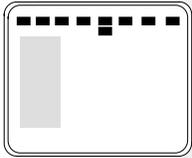
**PM LIM**  
**critical** (end)

---

- 40** Determine the state of the LIM units.
- | <b>If</b>                     | <b>Do</b> |
|-------------------------------|-----------|
| both LIM units are in service | step 41   |
| either LIM unit is SysB.      | step 16   |
| one LIM unit is SysB RU.      | step 30   |
| either LIM unit is SysB RU.   | step 31   |
- 41** The procedure is complete.
- 42** For additional help, contact the next level of support.

## PM LIM major

### Alarm display

|                                                                                   |    |    |     |     |                                      |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|--------------------------------------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | <b>PM</b><br><b>1LIM</b><br><b>M</b> | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | .                                    | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP display, LIM (preceded by a number) appears under the PM header of the alarm banner. The display indicates a major alarm for a link interface module (LIM).

### Meaning

A minimum of one LIM is either manual busy (ManB), manual busy resource not available (ManB RU), or in-service trouble (ISTb) with one unit system busy (SysB) and the other unit in-service trouble. A LIM becomes manual busy (Man B) when both LIM units are manual busy.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

### Result

A manual busy LIM interrupts service. An LIM with in-service trouble does not interrupt service. A backup LIM unit is not present.

### Common procedures

The following common procedures are referenced in this procedure:

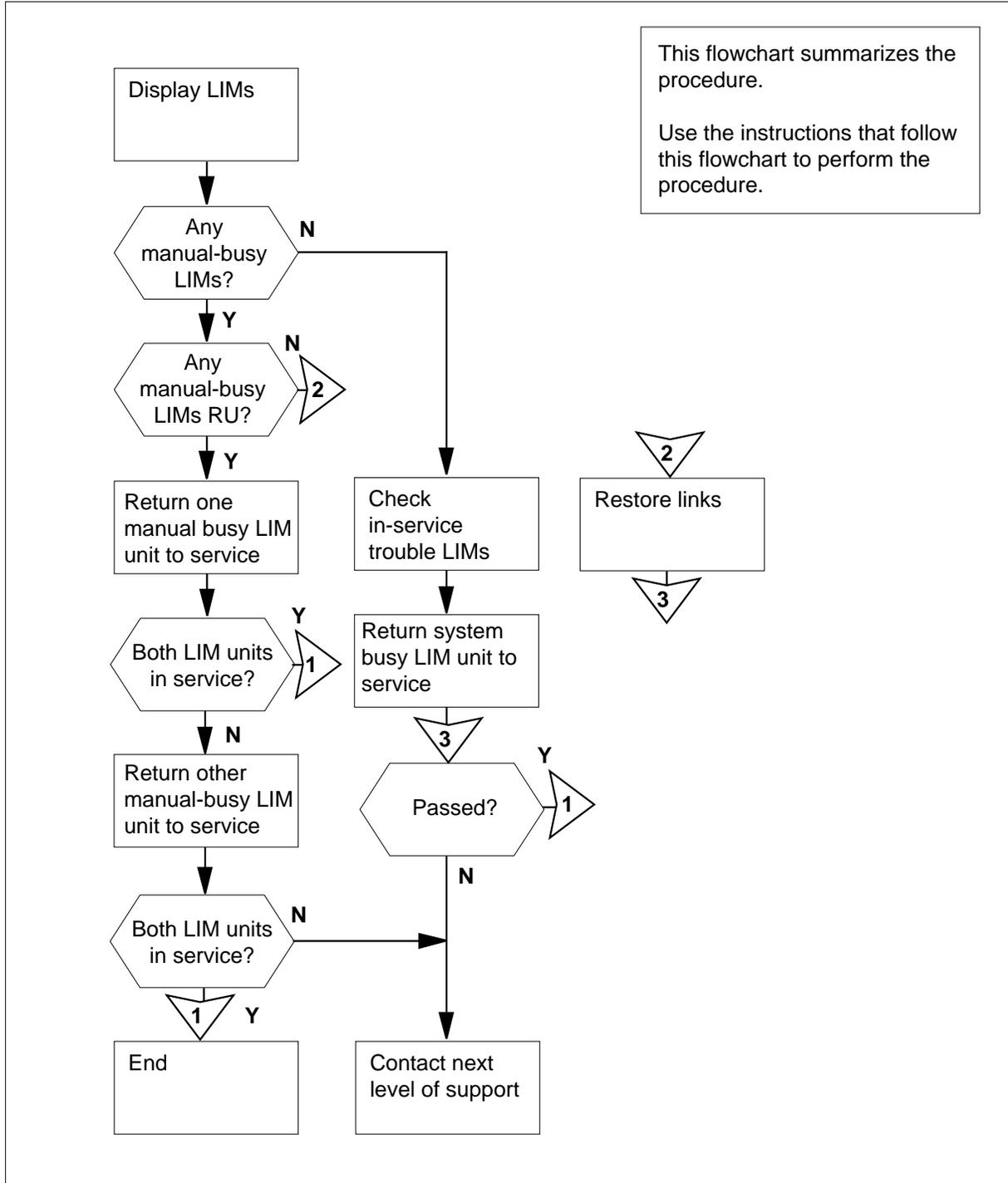
- *Returning LIM-to-MS links to service*
- *Returning LIM-to-MS links to service for an ELPP*
- *Restoring LIM unit cross-links*
- *Recovering link peripheral processors*

### Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

# PM LIM major (continued)

## Summary of clearing a PM LIM major alarm



## PM LIM major (continued)

### Clearing a PM LIM major alarm



#### WARNING

##### Loss of service

Do not use this procedure to recover LIM units that are out of service caused by a loss of A and B power feeds to the link peripheral processor (LPP) or enhanced LPP (ELPP). Refer instead, to the procedure *Recovering link peripheral processors* or *Recovering enhanced link peripheral processors* in the *Recovery Procedures*.



#### WARNING

##### Delay in returning equipment to service

If the system generates more than one card list, replace all cards on the short card list. Replace the cards on the short list before you replace any cards in a following full card list.

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

*Example of a MAP:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 0    | 1    | 0    | 0    | 0    | 39   |

- 2 To display all the manual-busy LIMs, type

```
>DISP STATE MANB LIM
```

and press the Enter key.

| If                   | Do      |
|----------------------|---------|
| ManB LIMs appear     | step 3  |
| the response is None | step 26 |

- 3 To post a manual busy LIM, type

```
>POST LIM lim_no
```

and press the Enter key.

**PM LIM**  
**major** (continued)

---

where

**lim\_no**

is the number of the manual-busy LIM (0 to 16)

Example of a MAP display:

```
LIM 1 ManB (RU)
 Links_OOS Taps_OOS
Unit0: ManB (RU) 6 5
Unit1: ManB (RU) 6 5
```

- 4 Determine if the manual-busy LIM is resource unavailable (RU).

**Note:** The RU status appears to the right of the LIM state in the MAP display.

| If the state of the LIM is | Do      |
|----------------------------|---------|
| ManB (RU)                  | step 42 |
| ManB                       | step 5  |

- 5 Determine from office records or from office personnel why the LIM unit is manual busy.

When you have permission, continue with this procedure to return the LIM to service.

- 6 To test LIM unit 0, type

```
>TST UNIT 0
```

and press the Enter key.

| If the TST command                                   | Do      |
|------------------------------------------------------|---------|
| passed                                               | step 15 |
| failed, and the system generates a card list         | step 7  |
| failed, and the system does not generate a card list | step 8  |

- 7 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

- 8 To reset the LIM unit, type

```
>PMRESET UNIT unit_no
```

and press the Enter key.

where

## PM LIM major (continued)

| <b>unit_no</b><br>is the number of the LIM unit (0 or 1) |                                                                                                                                                                                                                                                           |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If the PMRESET command</b>                            | <b>Do</b>                                                                                                                                                                                                                                                 |
| passed                                                   | step 15                                                                                                                                                                                                                                                   |
| failed, and the system generates a card list             | step 9                                                                                                                                                                                                                                                    |
| anything else                                            | step 10                                                                                                                                                                                                                                                   |
| <b>9</b>                                                 | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.<br><br><b>Note:</b> If the system generates a card list at any previous step, make sure you record all cards listed in all steps. |
| <b>10</b>                                                | To load the LIM unit, type<br><code>&gt;LOADPDM UNIT unit_no</code><br>and press the Enter key.<br><i>where</i><br><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                           |
| <b>If the LOADPDM command</b>                            | <b>Do</b>                                                                                                                                                                                                                                                 |
| passed                                                   | step 15                                                                                                                                                                                                                                                   |
| failed, and the system generates a card list             | step 11                                                                                                                                                                                                                                                   |
| anything else                                            | step 52                                                                                                                                                                                                                                                   |
| <b>11</b>                                                | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.<br><br><b>Note:</b> If the system generates a card list at any previous step, make sure you record all cards listed in all steps. |
| <b>12</b>                                                | Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.                                                                             |
| <b>13</b>                                                | To load the LIM unit, type<br><code>&gt;LOADPDM UNIT unit_no</code><br>and press the Enter key.<br><i>where</i>                                                                                                                                           |

**PM LIM**  
**major** (continued)

---

**unit\_no**  
 is the number of the LIM unit (0 or 1)

| <b>If the LOADPM command</b>                                           | <b>Do</b> |
|------------------------------------------------------------------------|-----------|
| passed                                                                 | step 15   |
| failed, and you did not replace all the cards on the list you recorded | step 14   |
| failed, and you replaced all the cards on the list you recorded        | step 52   |

**14** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

Go to step 13.

**15** To return the LIM unit to service, type

**>RTS UNIT unit\_no**

and press the Enter key.

where

**unit\_no**  
 is the number of the manual-busy LIM unit (0 or 1)

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 16   |
| failed                    | step 52   |

**16** To test LIM unit, type

**>TST UNIT**

and press the Enter key.

| <b>If the TST command</b>                            | <b>Do</b> |
|------------------------------------------------------|-----------|
| passed                                               | step 25   |
| failed, and the system generates a card list         | step 17   |
| failed, and the system does not generate a card list | step 18   |

**17** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

---

**PM LIM**  
**major (continued)**


---

- 18** To reset the LIM unit, type  
`>PMRESET UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the LIM unit (0 or 1)
- | If the PMRESET command                       | Do      |
|----------------------------------------------|---------|
| passed                                       | step 25 |
| failed, and the system generates a card list | step 19 |
| anything else                                | step 20 |
- 
- 19** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.  
**Note:** If the system generates a card list at any previous step, make sure you record all cards listed in all steps.
- 20** To load the LIM unit, type  
`>LOADPM UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the LIM unit (0 or 1)
- | If the LOADPM command                        | Do      |
|----------------------------------------------|---------|
| passed                                       | step 25 |
| failed, and the system generates a card list | step 21 |
| anything else                                | step 52 |
- 
- 21** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.  
**Note:** If the system generates a card list at any previous step, make sure you record all cards listed in all steps.
- 22** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 23** To load the LIM unit, type  
`>LOADPM UNIT unit_no`

**PM LIM**  
**major** (continued)

---

and press the Enter key.

where

**unit\_no**  
 is the number of the LIM unit (0 or 1)

| If the LOADPDM command                                                 | Do      |
|------------------------------------------------------------------------|---------|
| passed                                                                 | step 25 |
| failed, and you did not replace all the cards on the list you recorded | step 24 |
| failed, and you replaced all the cards on the list you recorded        | step 52 |

**24** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

Go to step 23.

**25** To return the LIM unit to service, type

>RTS UNIT unit\_no

and press the Enter key.

where

**unit\_no**  
 is the number of the manual busy LIM unit (0 or 1)

| If the RTS command | Do      |
|--------------------|---------|
| passed             | step 53 |
| failed             | step 52 |

**26** To post the set of in-service trouble LIMs, type

>POST LIM ISTB

and press the Enter key.

*Example of a MAP display:*

```
LIM 1 IsTb
 Links_OOS Taps_OOS
Unit0: SysB (RU) 6 5
Unit1: IsTb 2 0
```

## PM LIM major (continued)

- 
- 27** Determine the state of the LIM units.
- | <b>If</b>                                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| one LIM unit is SysB RU and the other unit is ISTb  | step 40   |
| one LIM unit is SysB and the other unit is ISTb     | step 29   |
| the state of the LIM units is not SysB and not ISTb | step 28   |
- 
- 28** To display the next LIM in the posted set of in-service trouble LIMs, type **>NEXT** and press the Enter key. Go to step 27.
- 29** Work on the system busy LIM unit.
- 30** To force the LIM unit with a failed NT9X30 card to busy, type **>BSY UNIT unit\_no FORCE** and press the Enter key.
- where*
- unit\_no**  
is the number of the system busy LIM unit (0 or 1)
- 31** Failure of the NT9X30 or NT9X31 power converter can cause the LIM unit to be system busy. To check for a power fault at the LPP or ELPP, examine the fail lamp of the NT9X30 or NT9X31 card. This card powers the system busy LIM unit that you are working on.
- Note 1:** An NT9X30 card in slot 04F powers LIM unit 0. An NT9X30 card in slot 36F powers LIM unit 1.
- Note 2:** An NT9X31 card in slot 1 powers LIM unit 0. An NT9X31 card in slot 33 powers LIM unit 1.
- 
- | <b>If</b>                                                  | <b>Do</b> |
|------------------------------------------------------------|-----------|
| the fail lamp of at least one NT9X30 or NT9X31 card is lit | step 32   |
| no NT9X30 or NT9X31 card fail lamps are lit                | step 33   |
- 
- 32** Replace the NT9X30 or NT9X31 power converter card in the LIM unit. Perform the correct card replacement procedures in *Card Replacement Procedures*. Complete the procedure and return to this point.

**PM LIM**  
**major** (continued)

---

- 33** To load the LIM unit, type  
`>LOADPDM UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the manual busy LIM unit (0 or 1)
- 

| <b>If the LOADPDM command</b>                        | <b>Do</b> |
|------------------------------------------------------|-----------|
| passed                                               | step 34   |
| failed, and the system generates a card              | step 35   |
| failed, and the system does not generate a card list | step 52   |

---

- 34** To return the LIM unit to service, type  
`>RTS UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the manual busy LIM unit (0 or 1)
- 

| <b>If the RTS command</b>                            | <b>Do</b> |
|------------------------------------------------------|-----------|
| passed                                               | step 50   |
| failed, and the system generates a card list         | step 35   |
| failed, and the system does not generate a card list | step 52   |

---

- 35** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
- 36** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.
- 37** To load the LIM unit, type  
`>LOADPDM UNIT unit_no`  
 and press the Enter key.  
*where*

---

**PM LIM**  
**major (continued)**


---

**unit\_no**  
is the number of the manual busy LIM unit (0 or 1)

| <b>If the LOADPM command</b>                              | <b>Do</b> |
|-----------------------------------------------------------|-----------|
| passed                                                    | step 39   |
| failed, and you did not replace all the cards on the list | step 38   |
| failed, and you replaced all the cards on the list        | step 52   |

**38** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

Go to step 37.

**39** To return the LIM unit to service, type

```
>RTS UNIT unit_no
```

and press the Enter key.

where

**unit\_no**  
is the number of the manual busy LIM unit (0 or 1)

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 50   |
| failed                    | step 52   |

**40** Work on the system-busy RU LIM unit.

**41** To force the system-busy RU LIM unit to busy, type

```
>BSY UNIT unit_no FORCE
```

and press the Enter key.

where

**unit\_no**  
is the number of the LIM unit (0 or 1)

**42** To display more information about the fault, type

```
>QUERYPM UNIT unit_no FLT
```

and press the Enter key.

where

## PM LIM major (continued)

**unit\_no**  
is the number of the LIM unit (0 or 1)

| If the response is                  | Do      |
|-------------------------------------|---------|
| LIM UNIT HAS NO HOST LINKS .        | step 43 |
| LIM UNIT HAS NO CLOCKING LINKS .    | step 43 |
| LIM UNIT HAS NO MS CONNECTIVITY .   | step 43 |
| LIM UNIT IS ISOLATED FROM INSV MS . | step 43 |
| LIM UNIT CROSS-LINKS OOS .          | step 47 |
| LIM UNIT COMMUNICATION FAILURE .    | step 48 |
| LIM UNIT NOT RESPONDING .           | step 48 |
| LIM UNIT DATA SYNC FAILURE .        | step 52 |
| other than listed here              | step 52 |

- 43** To access the MS level of the MAP display, type

>MS

and press the Enter key.

*Example of a MAP display:*

```

 Message Switch Clock Shelf 0 Inter-MS Link 0 1
MS 0 . M Free . . .
MS 1 . Slave . . .

```

**Note:** In the previous example, (.) under the Message Switch header indicates an in-service MS plane. The letter S indicates a system busy MS. The letter M indicates a manual busy MS. The letter L indicates an in-service trouble MS. The letter O indicates an offline MS.

- 44** Determine the state of both MS plane 0 and 1.

| If both MS 0 and 1 are                      | Do      |
|---------------------------------------------|---------|
| in service (.) or<br>in-service trouble (I) | step 46 |
| other than listed here                      | step 45 |

- 45** Return the MS to service. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point. Go to step 50.

- 46** For LPPs and LPPs with fiber links perform the procedure *Returning LIM-to-MS links to service* in this document. For ELPPs, perform the

## PM LIM major (continued)

procedure *Returning LIM-to-MS links to service for an ELPP* in this document. Complete the procedure and return to this point.

Go to step 50.

- 47** Perform the procedure *Restoring LIM unit cross-links* in this document. Complete the procedure and return to this point.

Go to step 50.

- 48** To test the LIM unit through the mate unit, type

```
>TST UNIT unit_no VIAMATE
```

and press the Enter key.

where

**unit\_no**

is the number of the LIM unit (0 or 1)

Example of a MAP response:

```
LIM lim_no UNIT unit_no test initiated
```

| If the TST command | Do      |
|--------------------|---------|
| passed             | step 49 |
| failed             | step 52 |

- 49** To return the LIM unit to service, type

```
>RTS UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the LIM unit (0 or 1)

| If the RTS command | Do      |
|--------------------|---------|
| passed             | step 50 |
| failed             | step 52 |

- 50** Determine the state of the mate LIM unit.

| If the mate LIM unit is | Do      |
|-------------------------|---------|
| ManB                    | step 16 |
| ManB (RU)               | step 42 |
| ISTb                    | step 51 |

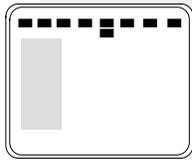
**PM LIM**  
**major (end)**

---

|           | <b>If the mate LIM unit is</b>                                                                                                    | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | InSv                                                                                                                              | step 52   |
| <b>51</b> | Perform the procedure <i>Clearing a PM LIM minor alarm</i> in this document to return the in-service trouble LIM unit to service. |           |
| <b>52</b> | For additional help, contact the next level of support.                                                                           |           |
| <b>53</b> | The procedure is complete.                                                                                                        |           |

## PM LIM minor

### Alarm display



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

### Indication

At the MTC level of the MAP display, LIM preceded by a number appears under the PM header of the alarm banner, and indicates a link interface module (LIM) minor alarm.

### Meaning

One or more LIMs are in-service trouble. A LIM becomes in-service trouble when one of its units is manual busy or in-service trouble, both of its units are in-service trouble, one or more of its F-buses are in-service trouble, or when a minimum of one of its F-buses is manually busy and the other is in-service trouble.

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

### Impact

There is no impact on service.

### Common procedures

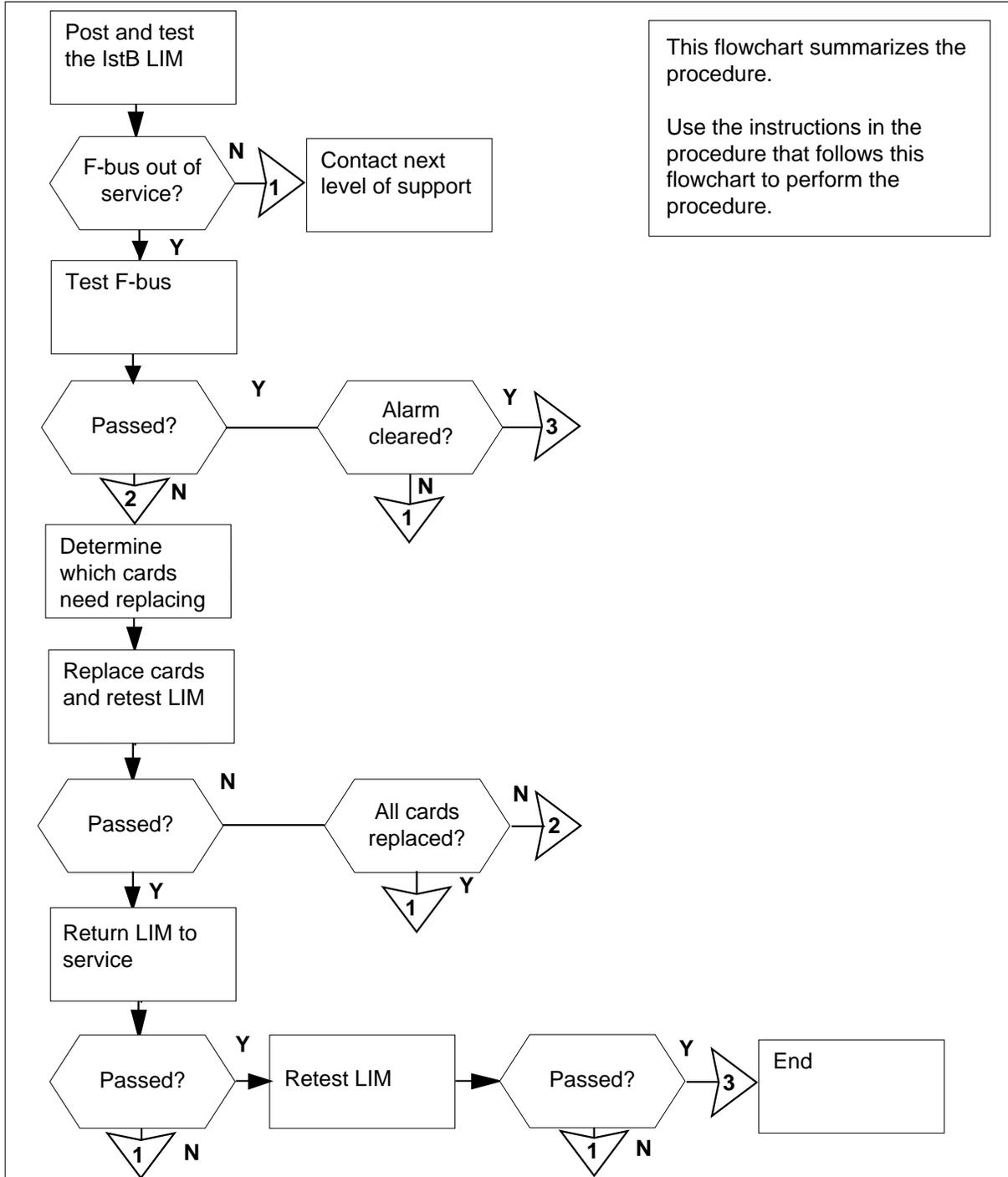
*Restoring LIM unit cross links* is referenced in this procedure.

### Action

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

**PM LIM**  
**minor** (continued)

**Summary of Clearing a PM LIM minor alarm**



---

## PM LIM minor (continued)

---

### Clearing a PM LIM minor alarm

#### At the MAP terminal

- 1 Access the PM level of the MAP display by typing

```
>MAPCI ;MTC ;PM
```

and pressing the Enter key.

*Example of a MAP display:*

| PM | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
|    | 0    | 1    | 0    | 0    | 2    | 39   |

- 2 Display all in-service trouble LIMs by typing

```
>DISP STATE ISTB LIM
```

and pressing the Enter key.

- 3 Post the first in-service trouble LIM by typing

```
>POST LIM lim_no
```

and pressing the Enter key.

*where*

**lim\_no**

is the number of the in-service trouble LIM (0 to 16)

*Example of a MAP display for link peripheral processors (LPP):*

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

- 4 Determine the state of the LIM units.

---

**If**

**Do**

a LIM unit is ManB

step 8

a LIM unit is ISTb

step 5

---

- 5 Display more information about the fault by typing

```
>QUERYPM UNIT unit_no FLT
```

and pressing the Enter key.

*where*

**PM LIM**  
**minor** (continued)

---

**unit\_no**  
 is the number of the LIM unit (0 or 1)

| <b>If the response</b>                                      | <b>Do</b> |
|-------------------------------------------------------------|-----------|
| indicates that the LIM unit crosslinks are out of service   | step 6    |
| indicates that a fault exists, and a card list is generated | step 10   |
| indicates that the F-bus is ISTb                            | step 25   |
| indicates anything else                                     | step 7    |

**6** Perform the procedure *Restoring LIM unit cross-links*. When you have completed the procedure, return to this point.  
 Go to step 29.

**7** Test the in-service trouble LIM unit by typing  
**>TST UNIT unit\_no**  
 and pressing the Enter key.  
*where*

**unit\_no**  
 is the number of the in-service trouble LIM unit (0 or 1)

| <b>If the TST command</b>              | <b>Do</b> |
|----------------------------------------|-----------|
| passed, and the LIM unit is INsv       | step 29   |
| passed, and the LIM unit is still ISTb | step 30   |
| failed, and a card list is generated   | step 10   |
| failed, and no card list is generated  | step 30   |

**8** Determine from office records or from office personnel why the unit is manual busy.  
 When permitted, return to this point.

**9** Test the manual-busy LIM unit by typing  
**>TST UNIT unit\_no**  
 and pressing the Enter key.  
*where*

## PM LIM minor (continued)

**unit\_no**  
is the number of the manual-busy LIM unit (0 or 1)

| If the TST command                    | Do                                                                                                                                                                                                                                                   |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| passed                                | step 19                                                                                                                                                                                                                                              |
| failed, and a card list is generated  | step 11                                                                                                                                                                                                                                              |
| failed, and no card list is generated | step 30                                                                                                                                                                                                                                              |
| <hr/>                                 |                                                                                                                                                                                                                                                      |
| <b>10</b>                             | Manually busy the LIM unit by typing<br>>BSY UNIT <b>unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                          |
| <b>11</b>                             | Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list.<br><b>Note:</b> If a card list was generated in another step, ensure that all cards listed in all steps are recorded. |
| <b>12</b>                             | Reset the LIM unit by typing<br>>PMRESET UNIT <b>unit_no</b><br>and pressing the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                              |
| If the PMRESET command                | Do                                                                                                                                                                                                                                                   |
| passed                                | step 19                                                                                                                                                                                                                                              |
| failed, and a card list is generated  | step 13                                                                                                                                                                                                                                              |
| failed, and no card list is generated | step 14                                                                                                                                                                                                                                              |
| <hr/>                                 |                                                                                                                                                                                                                                                      |
| <b>13</b>                             | Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list.<br><b>Note:</b> If a card list was generated in another step, ensure that all cards listed in all steps are recorded. |

**PM LIM**  
**minor** (continued)

---

- 14** Load the LIM unit by typing  
`>LOADPDM UNIT unit_no`  
 and pressing the Enter key.  
*where*  
     **unit\_no**  
         is the number of the LIM unit (0 or 1)
- 
- | If the LOADPDM command                | Do      |
|---------------------------------------|---------|
| passed                                | step 19 |
| failed, and a card list is generated  | step 15 |
| failed, and no card list is generated | step 30 |
- 
- 15** Record the location, description, slot number, and product engineering code (PEC), including suffix, of the cards on the list.  
     **Note:** If a card list was generated in another step, ensure that all cards listed in all steps are recorded.
- 16** Replace the first card on the list. Perform the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.
- 17** Load the LIM unit by typing  
`>LOADPDM UNIT unit_no`  
 and pressing the Enter key.  
*where*  
     **unit\_no**  
         is the number of the LIM unit (0 or 1)
- 
- | If the LOADPDM command                                      | Do      |
|-------------------------------------------------------------|---------|
| passed                                                      | step 19 |
| failed, and you have not replaced all the cards on the list | step 18 |
| failed, and you have replaced all the cards on the list     | step 30 |
- 
- 18** Replace the next card on the list. Perform the appropriate card replacement procedure in *Card Replacement Procedures*. When you have completed the procedure, return to this point.  
 Go to step 17.

## PM LIM minor (continued)

- 19** Return the LIM unit to service by typing

```
>RTS UNIT unit_no
```

and pressing the Enter key.

where

**unit\_no**

is the number of the manual-busy LIM unit (0 or 1)

| If the RTS command                    | Do      |
|---------------------------------------|---------|
| passed                                | step 25 |
| failed, and a card list is generated  | step 20 |
| failed, and no card list is generated | step 30 |

- 20** Determine if there are any cards on the list that have not been replaced as a result of performing this procedure.

| If                                                                                                   | Do      |
|------------------------------------------------------------------------------------------------------|---------|
| there are cards on the list that have not yet been replaced as a result of performing this procedure | step 16 |
| all cards on the list have been replaced as a result of performing this procedure                    | step 30 |

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

```
>FBUS
```

and pressing the Enter key.

*Example of a MAP display:*

```
LIM 1 ISTb
Unit0: ISTb Links_OOS Taps_OOS
Unit1: InSv . 19
Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ---- ---- ---- ----
```

**PM LIM**  
**minor** (continued)

---

- 22** Determine the state of the F-bus that is associated with the LIM unit you are working on.

**Note:** F-bus 1 is associated with LIM unit 1. F-bus 0 is associated with LIM unit 0. The F-bus state is displayed to the right of the words FBus0 or FBus1 in the MAP display.

| If the F-bus state is | Do      |
|-----------------------|---------|
| InSv                  | step 29 |
| ManB                  | step 23 |
| ISTb                  | step 24 |
| anything else         | step 29 |

- 23** Return the F-bus to service by typing

`>RTS FBUS fbus_no`

and pressing the Enter key.

where

**fbus\_no**  
 is the number of the F-bus (0 or 1)

| If the RTS command            | Do      |
|-------------------------------|---------|
| passed                        | step 29 |
| passed, but the F-bus is ISTb | step 24 |
| anything else                 | step 30 |

- 24** Determine the state of the taps on the F-bus.

**Note:** The tap states are displayed in the two rows of characters beneath the numbers 0 to 35, 0 to 23, or 0 to 11, as shown in the example MAP display in step 21.

| If the taps on the F-bus are                                                         | Do      |
|--------------------------------------------------------------------------------------|---------|
| in service ( <i>.</i> ), in-service trouble, or ( <i>I</i> )manual busy ( <i>M</i> ) | step 25 |
| system busy ( <i>S</i> )                                                             | step 30 |

## PM LIM minor (continued)

25

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

Manually busy the F-bus associated with the in-service trouble LIM unit you are working on. Failure to do so results in a loss of service.

**CAUTION****Possible loss of service**

If the *BSY FBUS* command requires confirmation, do not confirm the command. Cancel the command and contact your next level of support.

Manually busy the F-bus associated with the LIM unit you are working on by typing

```
>BSY FBUS fbus_no
```

and pressing the Enter key.

where

**fbus\_no**

is the number of the F-bus (0 or 1)

| If the response is                           | Do      |
|----------------------------------------------|---------|
| LIM x LIS Y FBus Z                           | step 27 |
| Busy initiated. LIM x<br>FBus y Busy passed. | step 27 |
| requires confirmation                        | step 26 |

**26** Cancel the command by typing

```
>NO
```

and pressing the Enter key.

Go to step 30.

**27** Test the F-bus by typing

```
>TST FBUS fbus_no
```

and pressing the Enter key.

where

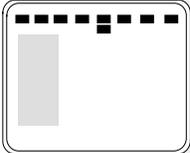
**PM LIM**  
**minor** (end)

---

**fbus\_no**  
 is the number of the F-bus

|           | <b>If the TST command</b>                                                                                                                            | <b>Do</b> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed                                                                                                                                               | step 28   |
|           | failed and a card list is generated                                                                                                                  | step 15   |
|           | failed and no card list is generated                                                                                                                 | step 30   |
| <b>28</b> | Return the F-bus to service by typing<br>>RTS FBUS fbus_no<br>and pressing the enter key.<br>where<br>fbus_no<br>is the number of the F-bus (0 or 1) |           |
|           | <b>If the RTS command</b>                                                                                                                            | <b>Do</b> |
|           | passed                                                                                                                                               | step 29   |
|           | failed and a card list is generated                                                                                                                  | step 15   |
|           | failed and no card list is generated                                                                                                                 | step 30   |
| <b>29</b> | Determine the state of the LIM units.                                                                                                                |           |
|           | <b>If</b>                                                                                                                                            | <b>Do</b> |
|           | both LIM units are INsv                                                                                                                              | step 31   |
|           | either LIM unit is ManB or ISTb                                                                                                                      | step 4    |
|           | neither of the above conditions are met                                                                                                              | step 30   |
| <b>30</b> | For further assistance, contact the personnel responsible for the next level of support.                                                             |           |
| <b>31</b> | You have completed this procedure.                                                                                                                   |           |

**PM LIMF  
critical****Alarm display**

|                                                                                   | CM | MS | IOD | Net | PM                         | CCS | Lns | Trks | Ext | APPL |
|-----------------------------------------------------------------------------------|----|----|-----|-----|----------------------------|-----|-----|------|-----|------|
|  | .  | .  | .   | .   | <b>1LIMF</b><br><b>*C*</b> | .   | .   | .    | .   | .    |

**Indication**

At the MTC level of the MAP, LIMF (preceded by a number) appears under the PM header of the alarm banner. The LIMF indicates a critical alarm for a link interface module (LIM) F-bus.

**Meaning**

An LIMF critical alarm indicates that both F-buses of a LIM are system busy or manual busy. This condition causes the LIM to be in-service trouble.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

**Result**

All application specific units (ASU) on the F-buses and the associated signaling links are out of service.

**Common procedures**

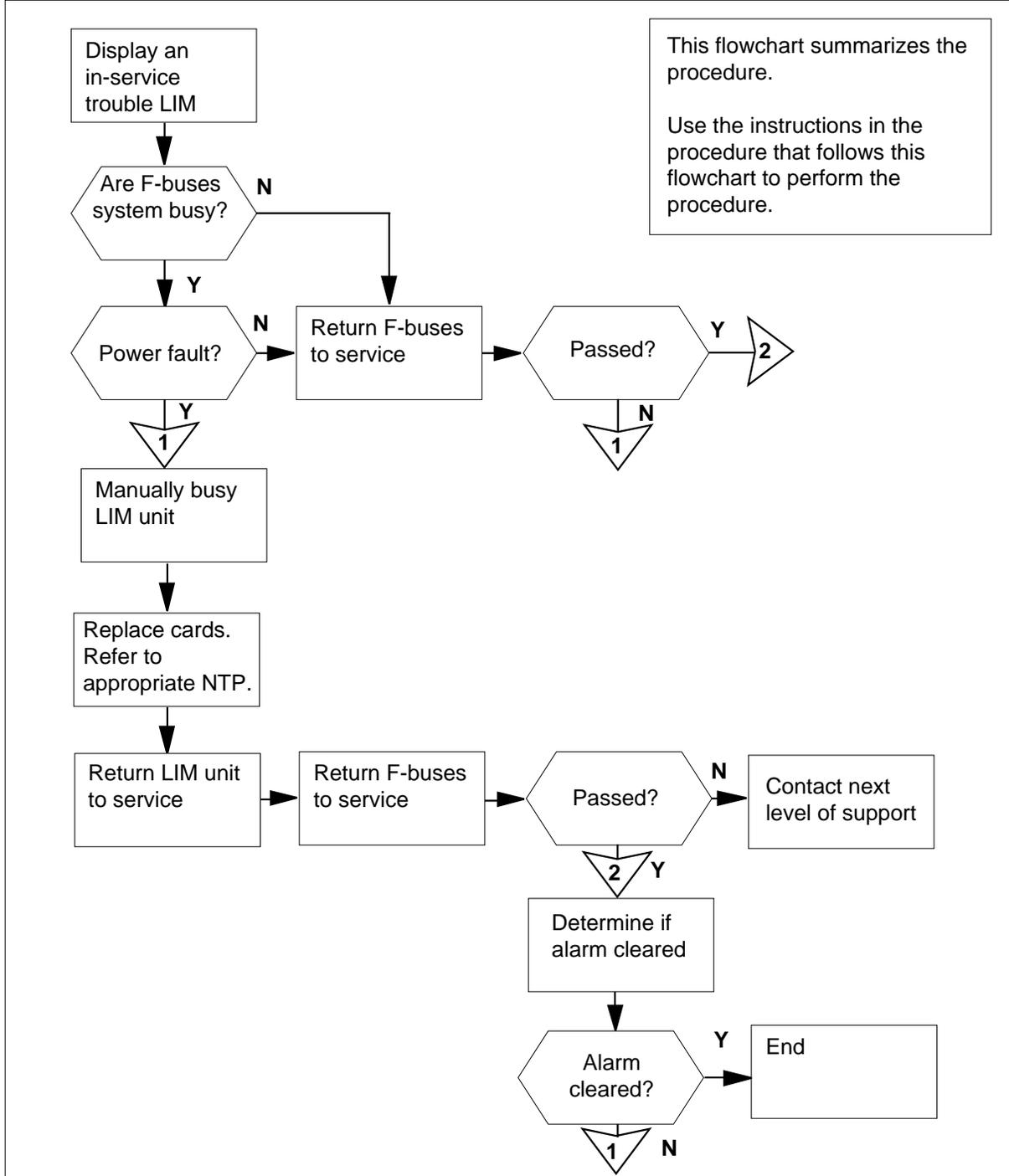
There are no common procedures.

**Action**

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

# PM LIMF critical (continued)

## Summary of clearing a PM LIMF critical alarm



---

## PM LIMF critical (continued)

---

### Clearing a PM LIMF critical alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

*Example of a MAP display:*

| PM | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
|    | 0    | 1    | 0    | 0    | 2    | 39   |

- 2 To display all in-service trouble LIMs, type

```
>DISP STATE ISTB LIM
```

and press the Enter key.

- 3 To post the first in-service trouble LIM, type

```
>POST LIM lim_no
```

and press the Enter key.

*where*

**lim\_no**

is the number of the LIM (0 to 16)

*Example of a MAP response for LPPs:*

```
LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb 0 36
Unit1: ISTb 0 36
```

- 4 To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

*Example of a MAP display:*

```
LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb . 19
Unit1: InSv . 2
Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ...M .I.. .S.. ---- ---- ---- ---. ...
```

**PM LIMF**  
**critical** (continued)

---

**Note:** In the previous example, B under a tap number indicates that the F-bus is out of service. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual busy tap. The letter I indicates an in-service trouble tap. The letter S indicates a system busy tap. A dash (-) indicates an unequipped tap.

- 5 Determine the state of the F-buses.

| If the state of           | Do      |
|---------------------------|---------|
| one F-bus is ManB         | step 13 |
| both F-buses is ManB      | step 11 |
| either F-bus is SysB (RU) | step 16 |
| either F-bus is SysB (NA) | step 16 |
| both F-buses is SysB      | step 6  |

- 6 To manually busy the system busy F-buses, type  
`>BSY FBUS 0; BSY FBUS 1`  
 and press the Enter key.

**At the LPP**

- 7 Determine the type of power converters used in the LPP.

| If the power converters | Do      |
|-------------------------|---------|
| are NTDX16s             | step 12 |
| are NT9X30s             | step 8  |

- 8 Failure of NT9X30 cards on both sides of the link interface shelf (LIS) can cause both F-buses to be system busy. Check for a power fault at the link peripheral processor (LPP). Examine the fail lamps of the NT9X30 power converters.

**Note:** A failed NT9X30 power converter in slot 4 of the LIS associates with F-bus 0 and LIM unit 0. A failed NT9X30 power converter in slot 36 of the LIS associates with F-bus 1 and LIM unit 1.

| If fail lamps of the NT9X30 power converters | Do      |
|----------------------------------------------|---------|
| are lit                                      | step 9  |
| are not lit                                  | step 12 |

- 9 Replace the NT9X30 card. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.

---

**PM LIMF**  
**critical** (continued)

---

- 10** Determine if other failed NT9X30 power converter cards are present.
- | <b>If another lit fail lamp on an NT9X30 power converter</b> | <b>Do</b> |
|--------------------------------------------------------------|-----------|
| is present                                                   | step 9    |
| is not present                                               | step 12   |
- 11** Determine from office records or from operating company personnel why the F-buses are manual busy.  
When you have permission, continue this procedure to return the F-buses to service.
- At the MAP terminal**
- 12** To test F-bus 0, type  
>TST FBUS 0  
and press the Enter key.
- | <b>If the TST command</b>                            | <b>Do</b> |
|------------------------------------------------------|-----------|
| passed                                               | step 27   |
| failed, and the system generates a card list         | step 15   |
| failed, and the system does not generate a card list | step 16   |
- 13** Determine from office records or from operating company personnel why the F-bus is manual busy.  
When you have permission, continue this procedure to return the F-bus to service.
- 14** To test the manual busy F-bus, type  
>TST FBUS fbus\_no  
and press the Enter key.  
where  
    **fbus\_no**  
        is the number of the F-bus (0 or 1)
- | <b>If the TST command</b>                   | <b>Do</b> |
|---------------------------------------------|-----------|
| passed                                      | step 27   |
| failed and the system generates a card list | step 15   |
-

**PM LIMF**  
**critical** (continued)

---

|  | <b>If the TST command</b>                           | <b>Do</b> |
|--|-----------------------------------------------------|-----------|
|  | failed and the system does not generate a card list | step 16   |

---

**15** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

**16**

|                                                                                   |                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b><br/><b>Possible loss of service</b><br/>If the attempt to busy a unit produces a warning of possible isolation, do not confirm the command. Cancel the command.</p> |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

To manually busy the LIM unit that associates with the F-bus that you are working on, type

`>BSY UNIT unit_no`

and press the Enter key.

where

**unit\_no**  
is the number of the LIM unit (0 or 1)

---

|  | <b>If the command</b>  | <b>Do</b> |
|--|------------------------|-----------|
|  | passed                 | step 19   |
|  | requested confirmation | step 17   |

---

**17** To cancel the command type

`>NO`

and press the Enter key.

**18** Choose a different F-bus to work on.

---

|  | <b>If you have</b>      | <b>Do</b> |
|--|-------------------------|-----------|
|  | tested both F-buses     | step 30   |
|  | not tested both F-buses | step 14   |

---

**19** To reset the LIM unit, type

`>PMRESET UNIT unit_no`

and press the Enter key.

where

---

**PM LIMF**  
**critical** (continued)

---

|                                                     |                                                                                                                                                                                                                                                                                                                                                                                     |                               |           |        |         |                                             |         |                                                     |         |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------|--------|---------|---------------------------------------------|---------|-----------------------------------------------------|---------|
|                                                     | <b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                                                                                                                                                                                                                                                                            |                               |           |        |         |                                             |         |                                                     |         |
|                                                     | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><b>If the PMRESET command</b></td> <td style="width: 50%;"><b>Do</b></td> </tr> <tr> <td>passed</td> <td>step 26</td> </tr> <tr> <td>failed and the system generates a card list</td> <td>step 20</td> </tr> <tr> <td>failed and the system does not generate a card list</td> <td>step 21</td> </tr> </table> | <b>If the PMRESET command</b> | <b>Do</b> | passed | step 26 | failed and the system generates a card list | step 20 | failed and the system does not generate a card list | step 21 |
| <b>If the PMRESET command</b>                       | <b>Do</b>                                                                                                                                                                                                                                                                                                                                                                           |                               |           |        |         |                                             |         |                                                     |         |
| passed                                              | step 26                                                                                                                                                                                                                                                                                                                                                                             |                               |           |        |         |                                             |         |                                                     |         |
| failed and the system generates a card list         | step 20                                                                                                                                                                                                                                                                                                                                                                             |                               |           |        |         |                                             |         |                                                     |         |
| failed and the system does not generate a card list | step 21                                                                                                                                                                                                                                                                                                                                                                             |                               |           |        |         |                                             |         |                                                     |         |
| <b>20</b>                                           | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.<br><br><b>Note:</b> If the system generates a card list at any previous step, make sure you record the listed cards at these steps.                                                                                                                         |                               |           |        |         |                                             |         |                                                     |         |
| <b>21</b>                                           | To load the LIM unit, type<br><b>&gt;LOADPM UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                                                                                                                                                            |                               |           |        |         |                                             |         |                                                     |         |
|                                                     | <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><b>If the LOADPM command</b></td> <td style="width: 50%;"><b>Do</b></td> </tr> <tr> <td>passed</td> <td>step 26</td> </tr> <tr> <td>failed and the system generates a card list</td> <td>step 22</td> </tr> <tr> <td>failed and the system does not generate a card list</td> <td>step 30</td> </tr> </table>  | <b>If the LOADPM command</b>  | <b>Do</b> | passed | step 26 | failed and the system generates a card list | step 22 | failed and the system does not generate a card list | step 30 |
| <b>If the LOADPM command</b>                        | <b>Do</b>                                                                                                                                                                                                                                                                                                                                                                           |                               |           |        |         |                                             |         |                                                     |         |
| passed                                              | step 26                                                                                                                                                                                                                                                                                                                                                                             |                               |           |        |         |                                             |         |                                                     |         |
| failed and the system generates a card list         | step 22                                                                                                                                                                                                                                                                                                                                                                             |                               |           |        |         |                                             |         |                                                     |         |
| failed and the system does not generate a card list | step 30                                                                                                                                                                                                                                                                                                                                                                             |                               |           |        |         |                                             |         |                                                     |         |
| <b>22</b>                                           | Record the location, description, slot number, product engineering code (PEC), and PE suffix of the cards on the list.<br><br><b>Note:</b> If the system generates a card list at any previous step, make sure you record the listed cards at these steps.                                                                                                                          |                               |           |        |         |                                             |         |                                                     |         |
| <b>23</b>                                           | Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the card. Complete the procedure and return to this point.                                                                                                                                                                                                       |                               |           |        |         |                                             |         |                                                     |         |
| <b>24</b>                                           | To test the manual busy F-bus, type<br><b>&gt;TST FBUS fbus_no</b><br>and press the Enter key.<br><i>where</i>                                                                                                                                                                                                                                                                      |                               |           |        |         |                                             |         |                                                     |         |

**PM LIMF**  
**critical** (continued)

**fbus\_no**  
 is the number of the F-bus (0 or 1)

| <b>If the TST command</b>                                 | <b>Do</b> |
|-----------------------------------------------------------|-----------|
| passed                                                    | step 26   |
| failed, and you did not replace all the cards on the list | step 25   |
| failed, and you replaced all the cards on the list        | step 30   |

**25** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures* to replace the card. Complete the procedure and return to this point.  
 Go to step 24.

**26** To return the LIM unit to service, type  
**>RTS UNIT unit\_no**  
 and press the Enter key.  
*where*

**unit\_no**  
 is the number of the LIM unit (0 or 1)

| <b>If the RTS command</b>                       | <b>Do</b> |
|-------------------------------------------------|-----------|
| passed, and the associated F-bus is manual busy | step 27   |
| passed, and the associated F-bus is in service  | step 28   |
| failed                                          | step 30   |

**27** To return the F-bus to service, type  
**>RTS FBUS fbus\_no**  
 and press the Enter key.  
*where*

**fbus\_no**  
 is the number of the F-bus (0 or 1)

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
| passed                    | step 28   |
| failed                    | step 30   |

---

**PM LIMF**  
**critical (end)**

---

- 28** Determine the state of the mate F-bus.

---

| <b>If the mate F-bus is</b> | <b>Do</b> |
|-----------------------------|-----------|
| SysB                        | step 29   |
| SysB (RU)                   | step 16   |
| SysB (NA)                   | step 16   |
| ManB                        | step 14   |
| InSv                        | step 31   |
| other than listed here      | step 30   |

---

- 29** To manually busy the system busy F-bus, type

**>BSY FBUS fbus\_no**

and press the Enter key.

*where*

**fbus\_no**

is the number of the F-bus (0 or 1)

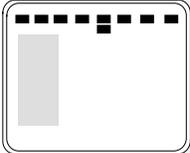
Go to step 14.

- 30** For additional help, contact the next level of support.
- 31** The procedure is complete.

## PM LIMF major

---

### Alarm display



| CM | MS | IOD | Net | PM    | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|-------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1LIMF | .   | .   | .    | .   | .    |
|    |    |     |     | M     |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, LIMF appears under the PM header of the alarm banner. The LIMF indicates an F-bus major alarm for a link interface module (LIM).

### Meaning

A LIMF major alarm indicates one of the following:

- one F-bus associated with a LIM is system busy and the other F-bus is in service. All taps on the system busy F-bus are busy.
- one F-bus associated with a LIM is in service and the other is in service trouble due to problems with the composite clock.

The number under the PM header of the alarm banner indicates the number of LIMs affected.

### Result

The alarm does not affect service.

### Common procedures

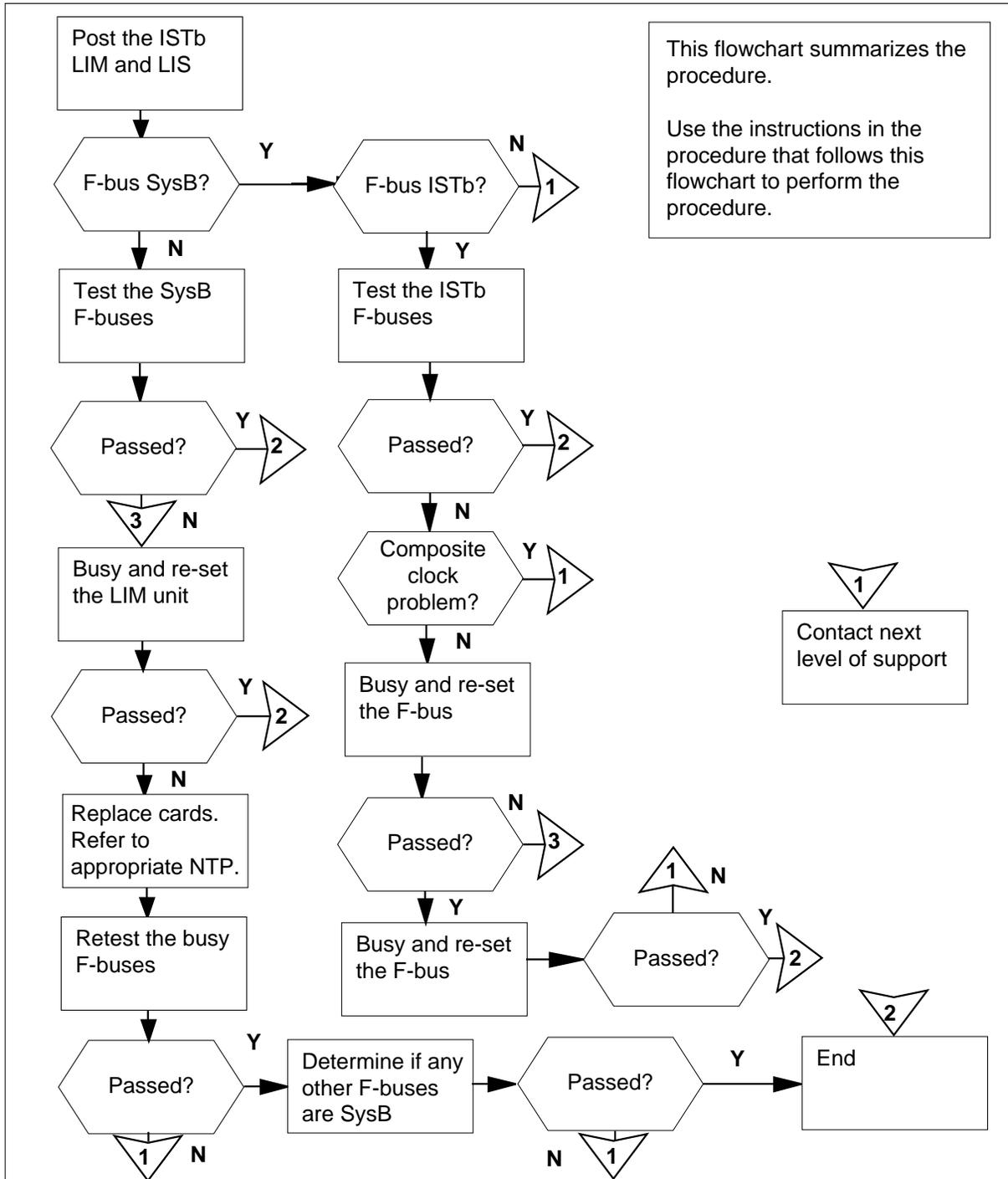
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM LIMF  
major (continued)**

**Summary of clearing a PM LIMF major alarm**



## PM LIMF major (continued)

---

### Clearing a PM LIMF major alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
 and press the Enter key.

*Example of a MAP display:*

```

 SysB ManB OffL CBsy ISTb InSv
PM 0 1 0 0 0 39

```

- 2 To display all in-service trouble LIMs, type  
**>DISP STATE ISTB LIM**  
 and press the Enter key.

- 3 To post the first in-service trouble LIM, type  
**>POST LIM lim\_no**  
 and press the Enter key.

*where*

**lim\_no**

is the number of the LIM (0 to 16)

*Example of a MAP display for LPPs:*

```

LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb 0 0
Unit1: InSv 0 0

```

- 4 To access the F-bus level of the MAP display, type  
**>FBUS**  
 and press the Enter key.

*Example of a MAP display:*

```

LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb . 19
Unit1: InSv . 2
 Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ...M .I.. .S.. ---- ---- ---. ...-

```

## PM LIMF major (continued)

**Note:** In the example, B under a tap number indicates that the F-bus is out of service. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manually busy. A dot (.) indicates an in-service tap. An M indicates a manually busy tap. An I indicates an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates an unequipped tap.

- 5 Determine the state of the F-buses.

| If either F-bus | Do      |
|-----------------|---------|
| is SysB         | step 7  |
| is SysB (RU)    | step 12 |
| is SysB (NA)    | step 12 |
| is ManB         | step 8  |
| is ISTb         | step 6  |

- 6 To test the in-service F-bus, type

```
>TST FBUS fbus_no
```

and press the Enter key.

where

**fbus\_no**

is the number of the F-bus (0 or 1)

| If the TST command                                         | Do      |
|------------------------------------------------------------|---------|
| passed                                                     | step 23 |
| failed, and indicates a problem with the DS-0 clock signal | step 22 |
| failed with any other response                             | step 7  |

- 7 To manually busy the F-bus, type

```
>BSY FBUS fbus_no
```

and press the Enter key.

where

**fbus\_no**

is the number of the system busy F-bus (0 or 1)

Go to step 9.

- 8 Determine from office records or from operating company personnel why the F-bus is manually busy.

When you have permission, continue this procedure to return the F-bus to service.

## PM LIMF major (continued)

- 9 To test the manually-busy F-bus, type

```
>TST FBUS fbus_no
```

and press the Enter key.

*where*

**fbus\_no**

is the number of the F-bus (0 or 1)

| If the TST command                                  | Do      |
|-----------------------------------------------------|---------|
| passed                                              | step 21 |
| failed, and the system generated a card list        | step 10 |
| failed, and the system did not generate a card list | step 12 |

- 10 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

| If the processor is an | Do      |
|------------------------|---------|
| LPP                    | step 12 |
| ELPP                   | step 5  |

- 11 To busy the F-bus associated with the unit you are working on, type

```
>BSY FBUS fbus_no
```

and press the Enter key.

*where*

- 12



### CAUTION

#### Possible loss of service

Make sure that the mate LIM unit is in service before you busy this LIM unit. If you busy an LIM unit when the other LIM unit has faults, a loss of service occurs.

To manually busy the LIM unit for the F-bus, type

```
>BSY UNIT unit_no
```

and press the Enter key.

*where*

---

**PM LIMF**  
**major (continued)**


---

| <b>unit_no</b><br>is the number of the LIM unit (0 or 1) |                                                                                                                                                                                                                                                  |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If the command</b>                                    | <b>Do</b>                                                                                                                                                                                                                                        |
| passed                                                   | step 13                                                                                                                                                                                                                                          |
| failed                                                   | step 22                                                                                                                                                                                                                                          |
| requests confirmation                                    | step 22                                                                                                                                                                                                                                          |
| <b>13</b>                                                | To reset the LIM unit, type<br>> <b>PMRESET UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                             |
| <b>If the PMRESET command</b>                            | <b>Do</b>                                                                                                                                                                                                                                        |
| passed                                                   | step 20                                                                                                                                                                                                                                          |
| failed, and the system generated a card list             | step 14                                                                                                                                                                                                                                          |
| failed, and the system did not generate a card list      | step 15                                                                                                                                                                                                                                          |
| <b>14</b>                                                | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.<br><b>Note:</b> If the system generated a card list in another step, make sure you record all cards listed in all steps. |
| <b>15</b>                                                | To load the LIM unit, type<br>> <b>LOADPM UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                               |
| <b>If the LOADPM command</b>                             | <b>Do</b>                                                                                                                                                                                                                                        |
| passed                                                   | step 20                                                                                                                                                                                                                                          |
| failed, and the system generated a card list             | step 16                                                                                                                                                                                                                                          |

---

**PM LIMF**  
**major** (continued)

|           | <b>If the LOADPM command</b>                                                                                                                                                                                                                              | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | failed, and the system did not generate a card list                                                                                                                                                                                                       | step 22   |
| <b>16</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.<br><br><b>Note:</b> If the system generated a card list in another step, make sure that you record all cards listed in all steps. |           |
| <b>17</b> | Replace the first card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                                                |           |
| <b>18</b> | To test the manually-busy F-bus, type<br><code>&gt;TST FBUS fbus_no</code><br>and press the Enter key.<br>where<br><b>fbus_no</b><br>is the number of the F-bus (0 or 1)                                                                                  |           |
|           | <b>If the TST command</b>                                                                                                                                                                                                                                 | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                    | step 20   |
|           | failed, and you did not replace all the cards on the list                                                                                                                                                                                                 | step 19   |
|           | failed, and you replaced all the cards on the list                                                                                                                                                                                                        | step 22   |
| <b>19</b> | Replace the next card on the list. Perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.<br>Go to step 18.                                                                               |           |
| <b>20</b> | To return the LIM unit to service, type<br><code>&gt;RTS UNIT unit_no</code><br>and press the Enter key.<br>where<br><b>unit_no</b><br>is the number of the LIM unit (0 or 1)                                                                             |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                                                 | <b>Do</b> |
|           | passed                                                                                                                                                                                                                                                    | step 21   |
|           | failed, and the system did not generate a card list                                                                                                                                                                                                       | step 22   |

---

**PM LIMF  
major (end)**

---

- 21** To return the F-bus to service, type

**>RTS FBUS fbus\_no**

and press the Enter key.

*where*

**fbus\_no**

is the number of the F-bus (0 or 1)

---

| <b>If the RTS command</b> | <b>Do</b> |
|---------------------------|-----------|
|---------------------------|-----------|

---

|        |         |
|--------|---------|
| passed | step 23 |
|--------|---------|

|        |         |
|--------|---------|
| failed | step 22 |
|--------|---------|

---

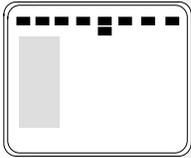
- 22** For additional help, contact the next level of support.

- 23** The procedure is complete.

## PM LIMREX minor

---

### Alarm display



| CM | MS | IOD | Net | PM            | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|---------------|-----|-----|------|-----|------|
| .  | .  | .   | .   | <b>LIMREX</b> | .   | .   | .    | .   | .    |

### Indication

At the MTC level of the MAP display, LIMREX appears under the PM header of the alarm banner. The LIMREX indicates that an LIM unit executes a routine exercise (REx) test.

### Meaning

One unit of a LIM executes an REx test. The mate LIM unit is in service. The mate unit provides messaging and other LIM functions for all application specific units (ASU) in the link peripheral processor (LPP). The LIMREX alarm disappears when the LIM REx tests are complete.

### Result

Service is not affected.

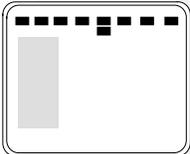
### Common procedures

There are no common procedures.

### Action

There is no action required.

**PM LIU7  
critical****Alarm display**

|                                                                                   | CM | MS | IOD | Net | PM           | CCS | Lns | Trks | Ext | APPL |
|-----------------------------------------------------------------------------------|----|----|-----|-----|--------------|-----|-----|------|-----|------|
|  | .  | .  | .   | .   | <b>1LIU7</b> | .   | .   | .    | .   | .    |
|                                                                                   |    |    |     |     | <b>*C*</b>   |     |     |      |     |      |

**Indication**

At the MTC level of the MAP display, LIU7 (preceded by a number) appears under the PM header of the alarm banner. The LIU7 indicates a critical alarm for a CCS7 link interface unit (LIU7).

**Meaning**

A minimum of one LIU7 is system busy or system busy not accessible.

**Result**

Out of service LIU7s cause signaling links that associate with the LIU7s to be out of service.

The number under the PM header in the alarm banner indicates the number of LIU7s affected.

**Common procedures**

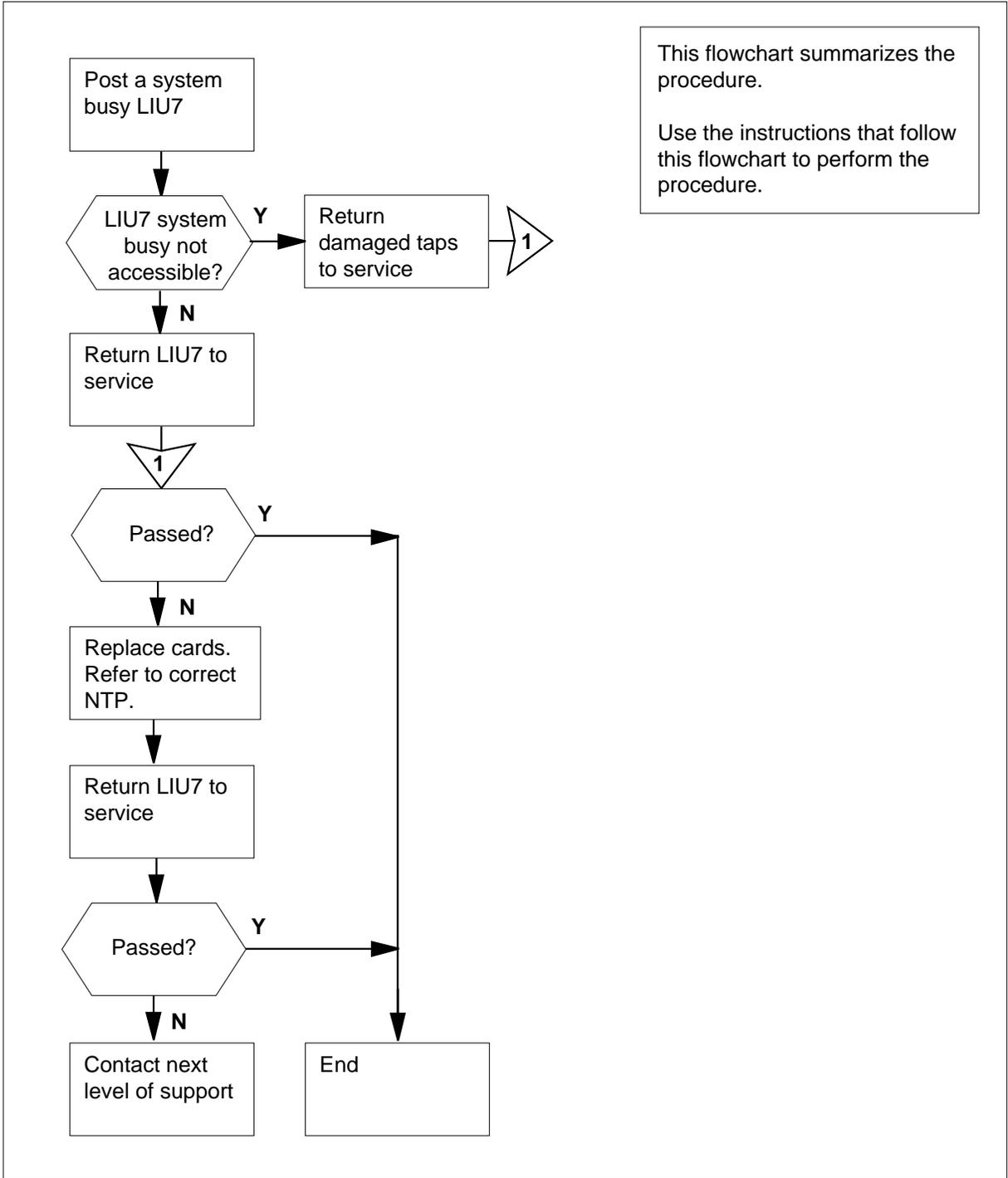
This procedure refers to *Activating CCS7 links*.

**Action**

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

# PM LIU7 critical (continued)

## Summary of clearing a PM LIU7 critical alarm



## PM LIU7 critical (continued)

### Clearing a PM LIU7 critical alarm

#### At the MAP terminal

1



#### **WARNING**

##### **Possible action that affects service**

Do not POST, RTS, and LOAD multiple sets of LIU7s.  
Finish work on one set of LIU7s before you work on another set.

The system automatically attempts to reload the system busy LIU7s and return the LIU7s to service. Monitor PM181 logs to determine if the system performed three autorecovery attempts.

**Note:** After three failed autorecovery attempts, a forced autoloading pending maintenance flag appears for the posted LIU7. When the system is in a forced autoloading pending state, five minutes pass before another autorecovery attempt occurs.

| <b>If PM181 logs</b>                                                                                                            | <b>Do</b> |
|---------------------------------------------------------------------------------------------------------------------------------|-----------|
| indicate an LIU7 failed three autorecovery attempts and is in a forced autoloading pending state                                | step 4    |
| indicate the system busy LIU7s performed a correct automatic recovery                                                           | step 66   |
| <b>2</b> Determine if all the MS alarms cleared.                                                                                |           |
| <b>If all the MS alarms</b>                                                                                                     | <b>Do</b> |
| did clear                                                                                                                       | step 10   |
| did not clear                                                                                                                   | step 3    |
| <b>3</b> Perform the correct MS procedure in this document to clear the alarm. Complete the procedure and return to this point. |           |
| <b>4</b> Determine if the LIU7 critical alarm cleared.                                                                          |           |
| <b>If the LIU7 alarm</b>                                                                                                        | <b>Do</b> |
| did clear                                                                                                                       | step 66   |
| did not clear                                                                                                                   | step 5    |

**PM LIU7**  
**critical** (continued)

- 5 To access table SUSHELF, type  
**>TABLE SUSHELF**  
and press the Enter key.
- 6 To list the contents of the table, type  
**>LIST ALL**  
and press the Enter key.

*Example of a MAP response:*

```
TOP
 SHELFKEY FLOOR ROW FRAMPOS FRAMETYP FRAMENUM
 SHELFPOS SHELFPEC CARDINFO

MS NIL 15 0 1 1 A 1 EMC 1
 0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $

MS NIL 15 2 1 1 A 1 EMC 1
 0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $
```

- 7 Record the frame type information.  
**Note:** The frame type appears under the FRAMETYP header of the MAP display. The example in step 6 indicates that the frame type is EMC.
- 8 Determine the frame type recorded in step 7.

| <b>If the frame type</b> | <b>Do</b> |
|--------------------------|-----------|
| is LIM                   | step 9    |
| is SC or EMC             | step 65   |

- 9 To quit from table SUSHELF, type  
**>QUIT**  
and press the Enter key.
- 10 To access the PM level of the MAP display, type  
**>MAPCI ;MTC ;PM**  
and press the Enter key.
- 11 To display all system busy LIU7s, type  
**>DISP STATE SYSB LIU7**  
and press the Enter key.

---

**PM LIU7**  
**critical** (continued)

---

- 12** To post the first system busy LIU7 on the list, type  
`>POST LIU7 liu_no`  
 and press the Enter key.  
*where*  
     **liu\_no**  
     is the number of the selected LIU7 (0 to 511)
- 13** Determine the state of the posted LIU7.
- | <b>If the state of the posted LIU7</b> | <b>Do</b> |
|----------------------------------------|-----------|
| is SysB (NA)                           | step 14   |
| is SysB                                | step 48   |
- 14** Determine if an FSP alarm under the EXT header of the MAP display is present.
- | <b>If an FSP alarm</b> | <b>Do</b> |
|------------------------|-----------|
| is present             | step 15   |
| is not present         | step 16   |
- 15** Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.  
 Go to step 50.
- 16** To determine if a condition that affects service for an NIU is present, type  
`>QUERYPM`  
 and press the Enter key.
- Note:** In the following example, conditions that affect service appear under the heading Potential service affecting conditions .
- Example of a MAP response:*

## PM LIU7 critical (continued)

---

```
PM type:LIU PM No.:110 Status: SysB(NA)
LIM: 1 Shelf:2 Slot: 12 LIU FTA:4249 1000
Default Load: LCC36BX
Running Load: LCC36BX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
NIU Unit 1 is not inservice
CBUS PORT for NIU Unit 1 is not inservice
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
Reserved LIU7 forms part of CCS7 Linkset: LSCAP1
SLC: 5 LIU is allocated
```

---

| <b>If an NIU condition that affects service</b> | <b>Do</b> |
|-------------------------------------------------|-----------|
|-------------------------------------------------|-----------|

---

|                |         |
|----------------|---------|
| is present     | step 17 |
| is not present | step 18 |

---

- 17** Perform the correct NIU alarm procedure in this document to clear the alarm. Complete the procedure and return to this point.

Go to step 64.

- 18** Determine the number of the link interface module (LIM) that associates with the LIU7.

**Note:** The number of the LIM that associates with the LIU7 appears in the second line of the MAP response.

- 19** To post the LIM that associates with the LIU7, type

```
>POST LIM lim_no
```

and press the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 16)

*Example of a MAP display:*

```
LIM 1 ISTb
 Links_OOS Taps_OOS
Unit0: ISTb 2 .
Unit1: ManB 2 18
```

## PM LIU7 critical (continued)

- 20** Determine the state of the LIM.

| If the LIM                | Do      |
|---------------------------|---------|
| is InSv or ISTb           | step 23 |
| is other than listed here | step 21 |

- 21** A problem with the LIM produces a PM LIM alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 22** Determine if the LIU7 alarm cleared.

| If the LIU7 alarm | Do      |
|-------------------|---------|
| cleared           | step 66 |
| did not clear     | step 23 |

- 23** To access the F-bus level of the MAP display, type

>FBUS

and press the Enter key.

*Example of a MAP display:*

```
LIM 1 ISTb
Unit0: ISTb Links_OOS Taps_OOS
Unit1: InSv . 19
Tap: 0 4 8 12 16 20 24 28 32
FBus0: ManB BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1: InSv ...M .I.. .S.. ---- ---- ---- ---. ...
```

**Note:** In the previous example, B under a tap number indicates that the F-bus is out of service. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual-busy tap. The letter I indicates an in-service trouble tap. The letter S indicates a system-busy tap. A dash (-) indicates an unequipped tap.

- 24** Determine the state of the F-buses.

| If the F-buses                  | Do      |
|---------------------------------|---------|
| are both InSv or ISTb           | step 27 |
| are both other than listed here | step 25 |

- 25** A problem with the F-bus produces a PM LIMF alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

**PM LIU7**  
**critical** (continued)

**26** Determine if the LIU7 alarm cleared.

| <b>If the LIU7 alarm</b> | <b>Do</b> |
|--------------------------|-----------|
| cleared                  | step 66   |
| did not clear            | step 27   |

**27** To determine the F-bus taps that associate with the LIU7, type  
 >TRNSL fbus\_no  
 and press the Enter key.

where

**fbus\_no**  
 is the number of either F-bus (0 or 1)

Example of a MAP response:

```
LIM 1 FBus 0 Tap 0 is on LIU7 101
LIM 1 FBus 0 Tap 1 is unequipped
LIM 1 FBus 0 Tap 2 is on LIU7 110
LIM 1 FBus 0 Tap 3 is on LIU7 104
```

**28** The system generated a MAP display in step 23. Use this MAP display to determine the state of the F-bus taps that associate with the system busy LIU7.

**Note:** The tap number shown in the MAP response in step 27 applies to both F-buses.

| <b>If the state of</b>                           | <b>Do</b> |
|--------------------------------------------------|-----------|
| either F-bus tap fluctuates from I to S, or is S | step 34   |
| either F-bus tap is M                            | step 29   |
| both taps are in service                         | step 65   |

**29** Determine from office records or from operating company personnel why the removal of the tap from service occurred. When you have permission, continue the procedure to return the tap to service.

**30** To return the F-bus tap to service, type  
 >RTS FBUS fbus\_no tap\_no  
 and press the Enter key.

where

**fbus\_no**  
 is the number of the F-bus (0 or 1)

---

**PM LIU7**  
**critical** (continued)

---

**tap\_no**  
is the number of the F-bus tap (0 to 23 or 0 to 35)

|           | <b>If the RTS command</b>                                                                                                                                                           | <b>Do</b> |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passed, and the other tap is M                                                                                                                                                      | step 28   |
|           | passed, and the other tap is in service                                                                                                                                             | step 31   |
|           | failed                                                                                                                                                                              | step 65   |
| <b>31</b> | To quit from the F-bus level of the MAP display, type<br>>QUIT<br>and press the Enter key.                                                                                          |           |
| <b>32</b> | To post the system busy LIU7, type<br>>POST LIU7 liu_no<br>and press the Enter key.<br><i>where</i><br><b>liu_no</b><br>is the number of the LIU7 (0 to 511)                        |           |
| <b>33</b> | To return the LIU7 to service, type<br>>RTS<br>and press the Enter key.                                                                                                             |           |
|           | <b>If the RTS command</b>                                                                                                                                                           | <b>Do</b> |
|           | passed                                                                                                                                                                              | step 58   |
|           | failed                                                                                                                                                                              | step 65   |
| <b>34</b> | To manually busy the tap on F-bus 0, type<br>>BSY FBUS 0 tap_no<br>and press the Enter key.<br><i>where</i><br><b>tap_no</b><br>is the number of the F-bus tap (0 to 23 or 0 to 35) |           |
|           | <b>If the BSY command</b>                                                                                                                                                           | <b>Do</b> |
|           | passed                                                                                                                                                                              | step 36   |
|           | failed                                                                                                                                                                              | step 35   |

## PM LIU7

### critical (continued)

---

**35** To force the F-bus tap to busy, type  
**>BSY FBUS 0 tap\_no FORCE**  
 and press the Enter key.  
*where*  
**tap\_no**  
 is the number of the tap (0 to 23 or 0 to 35)

**36** To manually busy the tap on F-bus 1, type  
**>BSY FBUS 1 tap\_no**  
 and press the Enter key.  
*where*  
**tap\_no**  
 is the number of the F-bus tap (0 to 23 or 0 to 35)

---

| If the BSY command | Do      |
|--------------------|---------|
| passed             | step 38 |
| failed             | step 37 |

---

**37** To force the F-bus tap to busy, type  
**>BSY FBUS 1 tap\_no FORCE**  
 and press the Enter key.  
*where*  
**tap\_no**  
 is the number of the tap (0 or 23 or 0 to 35)

**38** To access table LIUINV to determine if the system busy LIU7 is a two-slot or a three-slot LIU, type  
**>TABLE LIUINV**  
 and press the Enter key.  
*MAP response:*

TABLE: LIUINV

**39** To display the tuple in table LIUINV for the system busy LIU7, type  
**>POSITION LIU7 liu\_no**  
 and press the Enter key.  
*where*  
**liu\_no**  
 is the number of the LIU7 (0 to 511)

*Example of a MAP response:*

---

**PM LIU7**  
**critical** (continued)

---

LIU7 101 LIM 0 1 8 LCC36CH NT9X13CA NT9X75AA  
NT9X76AA NT9X78AA FBUS

**Note:** The tuple in table LIUINV contains the card number NTEX22 if the LIU7 is a two-slot LIU. The tuple contains the card number NT9X13 if the LIU7 is a three-slot LIU.

|           | <b>If the tuple</b>                                                                                                                                                                     | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | contains NTEX22                                                                                                                                                                         | step 40   |
|           | contains NT9X13                                                                                                                                                                         | step 42   |
| <b>40</b> | Replace the NTEX22 card. To replace the card, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                    |           |
| <b>41</b> | Go to step 43.                                                                                                                                                                          |           |
| <b>42</b> | Replace the NT9X13 card. To replace the card, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                    |           |
| <b>43</b> | To return the tap on F-bus 0 to service, type<br>>RTS FBUS 0 tap_no<br>and press the Enter key.<br><i>where</i><br><b>tap_no</b><br>is the number of the F-bus tap (0 to 23 or 0 to 35) |           |
|           | <b>If the RTS command</b>                                                                                                                                                               | <b>Do</b> |
|           | passed                                                                                                                                                                                  | step 44   |
|           | failed                                                                                                                                                                                  | step 65   |
| <b>44</b> | To return the tap on F-bus 1 to service, type<br>>RTS FBUS 1 tap_no<br>and press the Enter key.<br><i>where</i><br><b>tap_no</b><br>is the number of the F-bus tap (0 to 23 or 0 to 35) |           |
|           | <b>If the RTS command</b>                                                                                                                                                               | <b>Do</b> |
|           | passed                                                                                                                                                                                  | step 50   |
|           | failed                                                                                                                                                                                  | step 65   |

---

## PM LIU7

### critical (continued)

---

- 45** To reset the LIU7, type  
>**PMRESET**  
and press the Enter key.

---

| If the <b>PMRESET</b> command | Do      |
|-------------------------------|---------|
| passed                        | step 57 |
| failed                        | step 50 |

---

- 46** To manually busy the LIU7, type  
>**BSY**  
and press the Enter key.

---

| If the response                                                                                              | Do      |
|--------------------------------------------------------------------------------------------------------------|---------|
| is LIU7 liu_no BSY Passed                                                                                    | step 50 |
| is Busyng LIU7 liu_no will take a CCS7 resource out of service<br>Please confirm ("YES", "Y", "NO", or "N"): | step 47 |
| is other than listed here (apart from "failed"), including additional messages with the above response       | step 65 |
| is LIU7 liu_no BSY Failed                                                                                    | step 48 |

---

- 47** To confirm the command, type  
>**YES**  
and press the Enter key.  
Go to step 50

- 48** To force the LIU7 to busy, type  
>**BSY FORCE**  
and press the Enter key.

---

| If the response           | Do      |
|---------------------------|---------|
| is LIU7 liu_no BSY Passed | step 50 |

---

---

**PM LIU7**  
**critical** (continued)

---

|           | <b>If the response</b>                                                                                                                                                | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is Busyng LIU7 liu_no<br>will take a CCS7 resource<br>out of service<br>Please confirm<br>( "YES", "Y", "NO", or "N" ):                                               | step 49   |
|           | is other than listed here, including<br>additional messages with the above<br>response                                                                                | step 65   |
| <b>49</b> | To confirm the command, type<br>>YES<br>and press the Enter key.<br>Go to step 50                                                                                     |           |
| <b>50</b> | To load the LIU7, type<br>>LOADPM<br>and press the Enter key.                                                                                                         |           |
|           | <b>If the LOADPM command</b>                                                                                                                                          | <b>Do</b> |
|           | passed                                                                                                                                                                | step 57   |
|           | failed                                                                                                                                                                | step 51   |
| <b>51</b> | To test the LIU7, type<br>>TST<br>and press the Enter key.                                                                                                            |           |
|           | <b>If the TST command</b>                                                                                                                                             | <b>Do</b> |
|           | passed                                                                                                                                                                | step 57   |
|           | fails, and the system generates a<br>card list that contains cards that<br>are not changed                                                                            | step 52   |
|           | is other than listed here                                                                                                                                             | step 65   |
| <b>52</b> | Record the location, description, slot number, product engineering code<br>(PEC), and PEC suffix of the first card on the list.                                       |           |
| <b>53</b> | To replace the card, perform the correct procedure in <i>Card Replacement<br/>Procedures</i> to replace the card. Complete the procedure and return to this<br>point. |           |

## PM LIU7

### critical (continued)

---

- 54** To load the LIU7, type  
**>LOADPM**  
 and press the Enter key.
- | If the <b>LOADPM</b> command | Do      |
|------------------------------|---------|
| passed                       | step 55 |
| failed                       | step 65 |
- 
- 55** To test the LIU7, type  
**>TST**  
 and press the Enter key.
- | If the <b>TST</b> command                             | Do      |
|-------------------------------------------------------|---------|
| passed                                                | step 57 |
| fails, and you did not replace more cards on the list | step 56 |
| is other than listed here                             | step 65 |
- 
- 56** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the next card on the list.  
 Go to step 53.
- 57** To return the LIU7 to service, type  
**>RTS**  
 and press the Enter key.
- | If the <b>RTS</b> command | Do      |
|---------------------------|---------|
| passed                    | step 58 |
| failed                    | step 65 |
- 
- 58** To access the C7LKSET level of the MAP display to determine that the CCS7 link on the LIU7 is in service, type  
**>CCS ; CCS7 ; C7LKSET**  
 and press the Enter key.
- 59** To post the linkset that associates with the LIU7, type  
**>POST C linkset\_name**  
 and press the Enter key.  
*where*

---

**PM LIU7**  
**critical** (continued)

---

**linkset\_name**  
is the linkset name

*Example of a MAP display:*

```
Linkset TR000002 InSv
 Traf Sync
LK Stat Stat Resource Stat Physical Access
1 InSv Sync LIU7 8 InSv DS0A
2 InSv Sync LIU7 7 InSv DS0A
```

- 60** Determine the traffic state of the CCS7 link for the LIU7 in use.

**Note:** The number of the LIU7 in use appears under the Resource header on the MAP display. The traffic state of the CCS7 link appears under the Traf Stat header.

| If the state of the CCS7 link | Do      |
|-------------------------------|---------|
| is InSv                       | step 66 |
| is other than listed here     | step 61 |

- 61** Wait eight minutes to see if the CCS7 link terminated on the LIU7 establishes again.

| If the state of the link  | Do      |
|---------------------------|---------|
| is InSv                   | step 66 |
| is other than listed here | step 62 |

- 62** Perform the procedure *Activating CCS7 links* in this document. Complete the procedure and return to this point.

- 63** Determine if the link activated.

| If the link activation | Do      |
|------------------------|---------|
| passed                 | step 64 |
| failed                 | step 65 |

- 64** Determine if the LIU7 alarm cleared.

| If the alarm                                                         | Do      |
|----------------------------------------------------------------------|---------|
| cleared                                                              | step 66 |
| decreased in number<br>(for example, changed from<br>2LIU7 to 1LIU7) | step 10 |

---

**PM LIU7**  
**critical** (end)

---

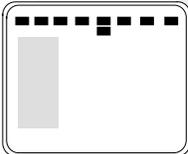
|           | <b>If the alarm</b>                                     | <b>Do</b> |
|-----------|---------------------------------------------------------|-----------|
|           | did not clear                                           | step 65   |
| <b>65</b> | For additional help, contact the next level of support. |           |
| <b>66</b> | The procedure is complete.                              |           |

---

## PM LIU7 major

---

### Alarm display

|                                                                                   | CM | MS | IOD | Net | PM                       | CCS | Lns | Trks | Ext |
|-----------------------------------------------------------------------------------|----|----|-----|-----|--------------------------|-----|-----|------|-----|
|  | .  | .  | .   | .   | <b>1LIU7</b><br><b>M</b> | .   | .   | .    | .   |

### Indication

At the MTC level of the MAP display, LIU7 (preceded by a number) appears under the PM header of the alarm banner. The LIU7 indicates a major alarm for a CCS7 link interface unit (LIU7).

### Meaning

A minimum of one LIU7 is manual busy or manual busy not accessible.

The number under the PM header of the alarm banner indicates the number of LIU7s affected.

### Result

The indicated number of LIU7s that are out of service cause signaling links that associate with the LIU7s to be out of service.

### Common procedures

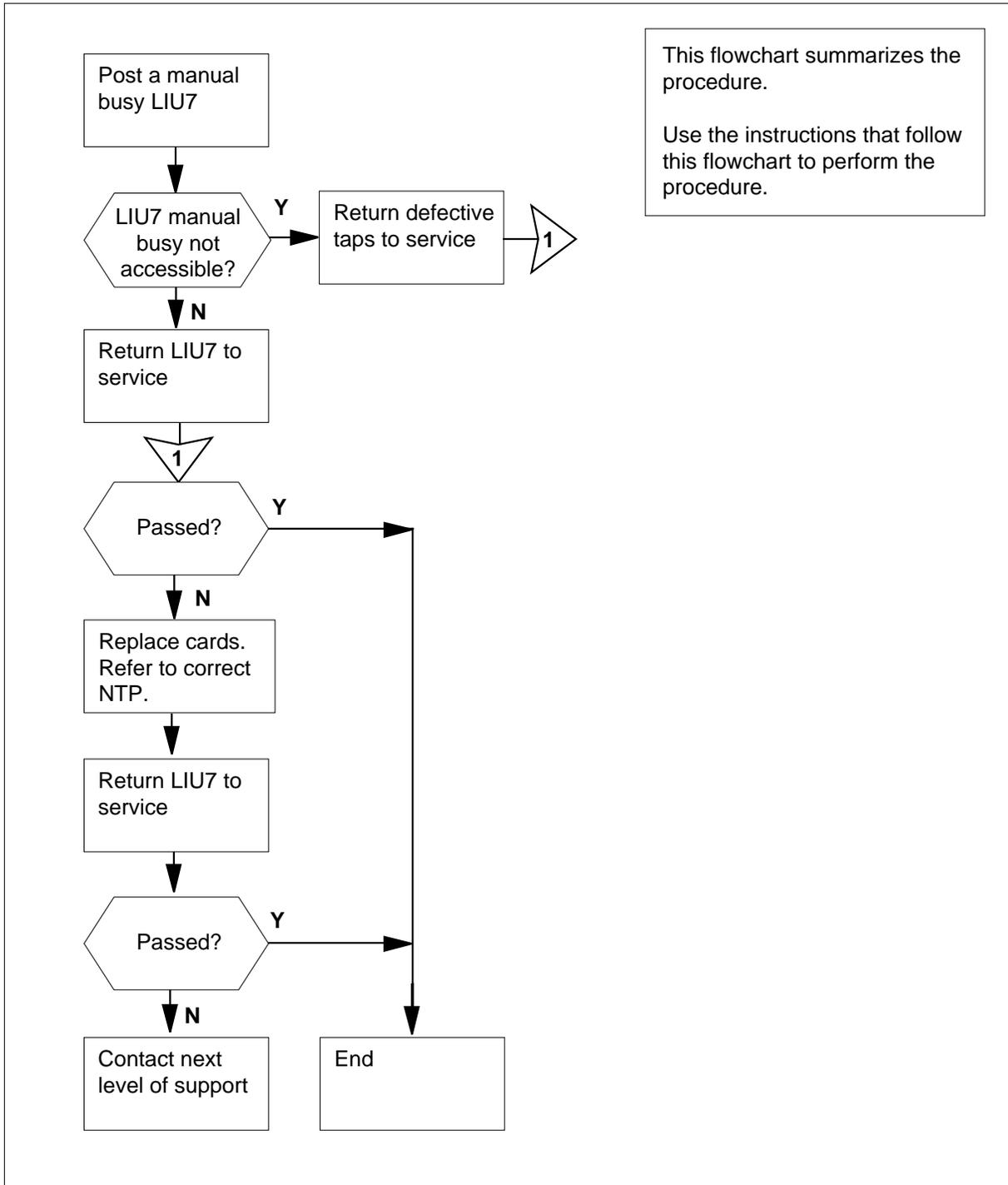
This procedure refers to *Activating CCS7 links*.

### Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

## PM LIU7 major (continued)

### Summary of clearing a PM LIU7 major alarm



## PM LIU7 major (continued)

### Clearing a PM LIU7 major alarm



#### WARNING

##### Possible service-affecting action

Do not POST, RTS and LOAD multiple sets of LIU7s. Finish work on one set of LIU7s before you work on another set.

#### At the MAP terminal

1 Determine from office records or from operating company personnel why the LIU7 is manual busy. When you have permission, continue this procedure.

2 Determine if all the MS alarms cleared.

| If all the MS alarms | Do      |
|----------------------|---------|
| cleared              | step 10 |
| did not clear        | step 3  |

3 To clear the alarm, perform the correct MS procedure in this document to clear the alarm. Complete the procedure and return to this point.

4 Determine if the LIU7 major alarm cleared.

| If the LIU7 alarm | Do      |
|-------------------|---------|
| cleared           | step 61 |
| did not clear     | step 5  |

5 To access table SUSHELF, type

```
>TABLE SUSHELF
```

and press the Enter key.

6 To list the contents of the table, type

```
>LIST ALL
```

and press the Enter key.

*Example of a MAP response:*

**PM LIU7**  
**major** (continued)

---

```

TOP
 SHELFKEY FLOOR ROW FRAMPOS FRAMETYP FRAMENUM
 SHELFPOS SHELFPEC CARDINFO

MS NIL 15 0 1 1 A 1 EMC 1
 0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $

MS NIL 15 2 1 1 A 1 EMC 1
 0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $

```

**7** Record the frame type information.

**Note:** In the previous example, find the frame type under the FRAMETYP header in the MAP display. The example in step 6 indicates the frame type is EMC.

**8** Determine the frame type recorded in step 7.

| If the frame type | Do      |
|-------------------|---------|
| is LIM            | step 9  |
| is SCC or EMC     | step 60 |

**9** To quit from table SUSHELF, type

>QUIT

and press the Enter key.

**10** To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

**11** To display all manual busy LIU7s, type

>DISP STATE MANB LIU7

and press the Enter key.

**12** To post the first manual busy LIU7 on the list, type

>POST LIU7 liu\_no

and press the Enter key.

where

**liu\_no**

is the number of the selected LIU7 (0 to 511)

---

**PM LIU7**  
**major** (continued)

---

- 13** Determine the state of the posted LIU7.
- | If the state of the posted LIU7 | Do      |
|---------------------------------|---------|
| is ManB (NA)                    | step 14 |
| is ManB                         | step 44 |
- 14** Determine if an FSP alarm is present under the EXT header of the MAP display.
- | If an FSP alarm | Do      |
|-----------------|---------|
| is present      | step 15 |
| is not present  | step 16 |
- 15** To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point.  
Go to step 45.
- 16** To determine if a condition that affects service for an NIU is present, type **>QUERYPM** and press the Enter key.
- Note:** In the following example, conditions that affect service appear under the header Potential service affecting conditions.
- Example of a MAP response:*

## PM LIU7 major (continued)

---

```
PM type:LIU PM No.:110 Status: SysB(NA)
LIM: 1 Shelf:2 Slot: 12 LIU FTA:4249 1000
Default Load: LCC36BX
Running Load: LCC36BX
Potential service affecting conditions:
 Msg Channel #0 NA
 Msg Channel #1 NA
 TAP #0 OOS/NA
 TAP #1 OOS/NA
NIU Unit 1 is not inservice
CBUS PORT for NIU Unit 1 is not inservice
LMS States: InSv InSv
Auditing : No No
Msg Channels: NA NA
TAP 2 : S(NA) M(NA)
Reserved LIU7 forms part of CCS7 Linkset: LSCAP1
SLC: 5 LIU is allocated
```

---

| <b>If an NIU condition that affects service</b> | <b>Do</b> |
|-------------------------------------------------|-----------|
|-------------------------------------------------|-----------|

---

|                |         |
|----------------|---------|
| is present     | step 17 |
| is not present | step 18 |

---

- 17** To clear the alarm, perform the correct NIU procedure in this document. Complete the procedure and return to this point.  
Go to step 59.

- 18** Determine the number of the link interface module (LIM) that associates with the LIU7.

**Note:** The number of the LIM that associates with the LIU7 appears in the second line of the MAP response.

- 19** To post the LIM that associates with the LIU7, type

```
>POST LIM lim_no
```

and press the Enter key.

where

**lim\_no**

is the number of the LIM (0 to 16)

Example of a MAP display:

```
LIM 1 ISTb
Unit0: ISTb Links_OOS Taps_OOS
Unit1: ManB 2 .
 2 18
```

## PM LIU7 major (continued)

- 20** Determine the state of the LIM.
- | If the LIM                | Do      |
|---------------------------|---------|
| is Insv or ISTb           | step 23 |
| is other than listed here | step 21 |
- 21** A problem with the LIM produces a PM LIM alarm. To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point
- 22** Determine the state of the posted LIU7.
- | If the state of the posted LIU7 | Do      |
|---------------------------------|---------|
| is ManB (NA)                    | step 23 |
| is ManB                         | step 44 |
- 23** To access the F-bus level of the MAP display, type  
>FBUS  
and press the Enter key.  
*Example of a MAP display:*
- ```
LIM 1 ISTb
Unit0:  ISTb          Links_OOS  Taps_OOS
Unit1:  InSv          .            19
Tap:    0  4  8  12  16  20  24  28  32
FBus0:  ManB          BBBB BBBB BBBB BBBB ---- ---- ---- ---B BB--
FBus1:  InSv          ...M .I.. .S.. .... ---- ---- ---- ---- ..--
```
- Note:** In the example, B under a tap number indicates that the F-bus is manual busy. The letter B under a tap number can also indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual busy tap. The letter I indicates an in-service trouble tap. The letter S indicates a system busy tap. A dash (-) indicates an unequipped tap.
- 24** Determine the state of the F-buses.
- | If both F-buses | Do |
|----------------------------|---------|
| are InSv or ISTb | step 27 |
| are other than listed here | step 25 |
- 25** A problem with the F-bus produces a PM LIMF alarm. To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point.

PM LIU7 major (continued)

- 26 Determine the state of the posted LIU7.

If the state of the posted LIU7	Do
is ManB (NA)	step 27
is ManB	step 44

- 27 To determine the F-bus taps that associate with the LIU7, type
>TRNSL fbus_no
and press the Enter key.

where

fbus_no
is the number of either F-bus (0 or 1)

Example of a MAP response:

```
LIM 1  FBus  0 Tap  0  is on LIU7 101
LIM 1  FBus  0 Tap  1  is unequipped
LIM 1  FBus  0 Tap  2  is on LIU7 110
LIM 1  FBus  0 Tap  3  is on LIU7 104
```

- 28 The system generated a MAP display in step 23. Use this display to determine the state of the F-bus taps that associate with the system-busy LIU7.

Note: The tap number that appears in the MAP response in step 27 applies to both F-buses.

If the state of either F-bus tap	Do
fluctuates from I to S or is S	step 34
is M	step 29
is I	step 60

- 29 Determine from office records or from operating company personnel what caused the tap to be out of service. When you have permission, continue this procedure to return the tap to service.

- 30 To return the F-bus tap to service, type
>RTS FBUS fbus_no tap_no
and press the Enter key.

where

fbus_no
is the number of the F-bus (0 or 1)

PM LIU7
major (continued)

tap_no
is the number of the F-bus tap (0 to 23 or 0 to 35)

	If the RTS command	Do
	passed, and the other tap is M	step 28
	passed, and the other tap is in service	step 52
	failed	step 60
31	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
32	To post the LIU7, type >POST LIU7 liu_no and press the Enter key. <i>where</i> liu_no is the number of the selected LIU7 (0 to 511)	
33	To return the LIU7 to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 53
	failed	step 60
34	To manually busy the tap on F-bus 0, type >BSY FBUS 0 tap_no and press the Enter key. <i>where</i> tap_no is the number of the F-bus tap (0 to 23 or 0 to 35)	
	If the BSY command	Do
	passed	step 36
	failed	step 35

PM LIU7 major (continued)

- 35** To force the F-bus tap to busy, type
>BSY FBUS 0 tap_no FORCE
 and press the Enter key.
where
 tap_no
 is the number of the tap (0 or 23 or 0 to 35)
- 36** To manually busy the tap on F-bus 1, type
>BSY FBUS 1 tap_no
 and press the Enter key.
where
 tap_no
 is the number of the F-bus tap (0 to 23 or 0 to 35)
- | If the BSY command | Do |
|--------------------|---------|
| passed | step 38 |
| failed | step 37 |
-
- 37** To force the F-bus tap to busy, type
>BSY FBUS 1 tap_no FORCE
 and press the Enter key.
where
 tap_no
 is the number of the tap (0 or 23 or 0 to 35)
- 38** To access table LIUINV to determine if the system busy LIU7 is a two-slot LIU or a three-slot LIU, type
>TABLE LIUINV
 and press the Enter key.
MAP response:

 TABLE: LIUINV
- 39** To display the tuple in table LIUINV for the system busy LIU7, type
>POSITION LIU7 liu_no
 and press the Enter key.
where
 liu_no
 is the number of the LIU7 (0 to 511)
Example of a MAP response:

PM LIU7 major (continued)

```
LIU7 101 LIM 0 1 8 LCC36CH NT9X13CA NT9X75AA
                                NT9X76AA NT9X78AA FBUS
```

Note: The tuple in table LIUINV contains the card number NTEX22.

- 40** Replace the NTEX22 card. To clear the alarm, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 41** To return the tap on F-bus 0 to service, type

```
>RTS FBUS 0 tap_no
```

and press the Enter key.

where

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the RTS command	Do
passed	step 42
failed	step 60

- 42** To return the tap on F-bus 1 to service, type

```
>RTS FBUS 1 tap_no
```

and press the Enter key.

where

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the RTS command	Do
passed	step 45
failed	step 60

- 43** To post the manual busy LIU7, type

```
>POST LIU7 liu_no
```

and press the Enter key.

where

liu_no

is the number of the selected LIU7 (0 to 511)

- 44** To reset the LIU7, type

```
>PMRESET
```

PM LIU7
major (continued)

and press the Enter key.

If the PMRESET command	Do
passed	step 52
failed	step 45

- 45** To load the LIU7, type
>LOADPM
 and press the Enter key.

If the LOADPM command	Do
passed	step 52
failed	step 46

- 46** To test the LIU7, type
>TST
 and press the Enter key.

If the TST command	Do
passed	step 52
failed, and the system generates a card list that contains cards that you did not change	step 47
is other than listed here	step 60

- 47** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the first card on the list.

- 48** To replace the card, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 49** To load the LIU7, type
>LOADPM
 and press the Enter key.

If the LOADPM command	Do
passed	step 50
failed	step 60

- 50** To test the LIU7, type
>TST

PM LIU7
major (continued)

and press the Enter key.

If the TST command	Do
passed	step 52
failed, and more cards on the list that are not replaced are present	step 51
is other than listed here	step 60

- 51** Record the location, description, slot number, product engineering code (PEC), and PEC suffix, of the next card on the list.

Go to step 48.

- 52** To return the LIU7 to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 53
failed	step 60

- 53** To access the C7LKSET level of the MAP display to determine that the CCS7 link on the LIU7 is in service, type

>CCS ; CCS7 ; C7LKSET

and press the Enter key.

- 54** To post the linkset that associates with the LIU7

>POST C linkset_name

and press the Enter key.

where

linkset_name
is the linkset name

Example of a MAP display:

```
Linkset TR000002      InSv
  Traf  Sync
LK Stat  Stat  Resource  Stat Physical Access
1  InSv  Sync   LIU7 8    InSv  DS0A
2  InSv  Sync   LIU7 7    InSv  DS0A
```

PM LIU7
major (end)

- 55** Determine the traffic state of the CCS7 link for the LIU7 you are working on.
Note: The number of the LIU7 appears under the Resource header on the MAP display. The traffic state of the CCS7 link appears under the Traf Stat header.

If the state of the CCS7 link	Do
is InSv	step 61
is other than listed here	step 56

- 56** Wait eight minutes to determine if the CCS7 link terminated on the LIU7 establishes again.

If the state of the link	Do
is InSv	step 61
is other than listed here	step 57

- 57** Perform the procedure *Activating CCS7 links* in this document. Complete the procedure and return to this point.

- 58** Determine if the link activated.

If the link activation	Do
passed	step 59
failed	step 60

- 59** Determine if the LIU7 alarm cleared.

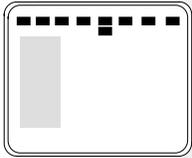
If the alarm	Do
cleared	step 61
decreased in number (for example, changed from 2LIU7 to 1LIU7)	step 10
did not clear	step 60

- 60** For additional help, contact the next level of support.

- 61** The procedure is complete.

PM LIU7 minor

Alarm display



CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LIU7	.	.	.	.	.

Indication

At the MTC level of the MAP display, LIU7 (preceded by a number) appears under the PM header of the alarm banner. The LIU7 indicates a minor alarm for a CCS7 link interface unit (LIU7).

Meaning

A minimum of one LIU7 has in-service trouble.

The number under the PM header of the alarm banner indicates the number of LIU7s affected.

Result

LIU7s with in-service trouble continue to function. Traffic is not affected on CCS7 links that connect to LIU7s with minor alarms.

Common procedures

This procedure refers to *Activating CCS7 links*.

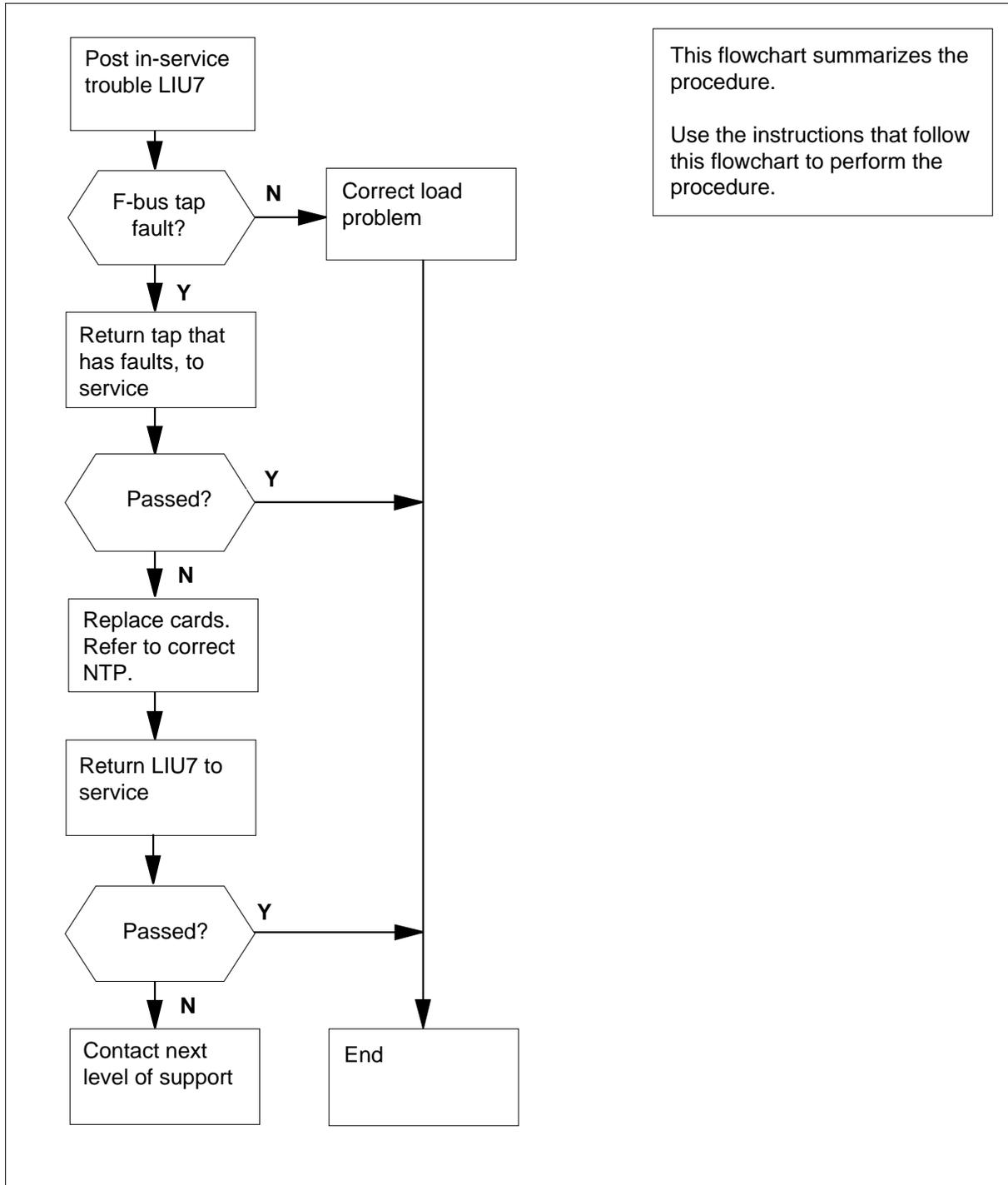
Action

This section provides a summary flowchart of the procedure and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

PM LIU7

minor (continued)

Summary of clearing a PM LIU7 minor alarm



PM LIU7 minor (continued)

Clearing a PM LIU7 minor alarm



WARNING

Possible service-affecting action

The following procedure can require that you take an LIU7 out of service. If instructions require you to busy an LIU7, busy the LIU7 during a period of low traffic to prevent service interruption.



WARNING

Possible service-affecting action

Do not POST, RTS and LOAD multiple sets of LIU7s. Finish work on one set of LIU7s before you work on another set.

At the MAP terminal

- 1 Determine if all the MS alarms cleared.

If all the MS alarms	Do
cleared	step 9
did not clear	step 2

- 2 Perform the correct MS procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 3 Determine if the LIU7 minor alarm cleared.

If the LIU7 minor alarm	Do
cleared	step 83
did not clear	step 4

- 4 To access table SUSHELF, type

>TABLE SUSHELF

and press the Enter key.

- 5 To list the contents of the table, type

>LIST ALL

and press the Enter key.

Example of a MAP response:

PM LIU7
minor (continued)

```

TOP
      SHELFKEY FLOOR ROW FRAMPOS FRAMETYP FRAMENUM
                        SHELFPOS SHELFPEC CARDINFO
-----
MS NIL 15 0 1 1 A      1      EMC      1
                        0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $

MS NIL 15 2 1 1 A      1      EMC      1
                        0 NT9X72CA
(7 NT9X96AA NT9X98AA) (30 NIL NTEX20AA) $
(32 NT9X96AA NT9X98AA) (8 NIL NTEX20BA) $
    
```

- 6 Record the frame type information.
Note: Find the frame type under the FRAMETYP header in the MAP display. The example in step 5 indicates that the frame type is EMC.
- 7 Determine the frame type recorded in step 6.

If the frame type	Do
is LIM	step 8
is SSC or EMC	step 82

- 8 To quit from table SUSHELF, type
>QUIT
 and press the Enter key.
- 9 To access the PM level of the MAP display, type
>MAPCI ;MTC ;PM
 and press the Enter key.
- 10 To display all in-service trouble LIU7s, type
>DISP STATE ISTB LIU7
 and press the Enter key.
- 11 To post the first in-service trouble LIU7 on the list, type
>POST LIU7 liu_no
 and press the Enter key.
where
 liu_no
 is the number of the selected LIU7 (0 to 511)
- 12 To query the state of the LIU7 , type
>QUERYPM

PM LIU7 minor (continued)

and press the Enter key.

Example of a MAP response:

```
PM type:LIU7      PM No.:110  Status:ISTb
LIM: 1  Shelf:2  Slot: 12  LIU FTA:4249 1000
Default Load: LCC36BX
Running Load: LCC36BX
ISTB conditions:
  Msg Channel #0 NA
  TAP #0 OOS/NA
LMS States: INSV      INSV
Auditing?: No  Yes
Msg Channels:  NA  Acc
TAPs:         M      .
Reserved LIU7 forms part of CCS7 Linkset: LSCAP1 SLC:
5 LIU is allocated
```

- 13** Record the following information from the response that the system generated in step 12.

- LIM number
- default load name
- running load name
- ISTb conditions
- CCS7 linkset name

- 14** Determine if an F-bus tap problem causes the in-service trouble condition.

Note: F-bus tap problems appear next to the TAP # header. The TAP # header appears under the ISTB conditions header of the MAP response. When a tap is out of service, the associated MSG channel is out of service, as displayed in the previous example.

If an F-bus tap	Do
is OOS/NA	step 16
is OOS	step 25
fault is not listed	step 15

- 15** Determine if a mismatch between the name of the default load and the running load is present.

Note: The names of the default and running loads appear in the third and fourth lines of the response. The system generates the response in step 12.

If a load name mismatch	Do
is present	step 54

PM LIU7
minor (continued)

- | | If a load name mismatch | Do |
|-----------|--|-----------|
| | is not present | step 82 |
| 16 | Determine the number of the LIM that associates with the LIU7.
Note: The number of the associated LIM appears in the second line of the response that the system generated in step 12. | |
| 17 | To post the LIM that associates with the in-service trouble LIU7, type
>POST LIM lim_no
and press the Enter key.
where
lim_no
is the LIM number (0 to 16)
Example of a MAP display: | |
| | <pre>LIM 1 ISTb Unit0: ISTb Links_OOS Taps_OOS Unit1: ManB 2 . 2 18</pre> | |
| 18 | Determine the state of the LIM. | |
| | If the LIM | Do |
| | is InSv | step 21 |
| | is other than listed here | step 19 |
| 19 | A problem with the LIM produces a PM LIM alarm. To clear the alarm, perform the correct procedure in this document. Complete the procedure and return to this point. | |
| 20 | Determine if the LIU7 alarm cleared. | |
| | If the alarm | Do |
| | cleared | step 83 |
| | did not clear | step 21 |
| 21 | To access the F-bus level of the MAP display, type
>FBUS
and press the Enter key.
Example of a MAP display: | |

PM LIU7 minor (continued)

```

LIM 1 Insv
Unit0: Insv          Links_OOS  Taps_OOS
Unit1: InSv          .           1
Tap: 0 4 8 12 16 20 24 28 32
FBus0: Insv         BBBB ..S. ....
FBus1: InSv         ...M .I.. .S.. ....

```

Note: In the previous example, B under a tap number indicates that the F-bus is manual busy. The letter B also can indicate that the controlling LIM unit is system busy or manual busy. A dot (.) indicates an in-service tap. The letter M indicates a manual busy tap. An I indicates an in-service trouble tap. An S indicates a system busy tap. A dash (-) indicates an unequipped tap.

- 22** Determine the state of the F-buses.

If both F-buses	Do
are InSv	step 25
are other than listed here	step 23

- 23** A problem with the F-bus produces a PM LIMF alarm. Perform the correct procedure in this document to clear the alarm. Complete the procedure and return to this point.

- 24** Determine if the LIU7 alarm cleared.

If the alarm	Do
cleared	step 83
did not clear	step 25

- 25** To determine that the F-bus taps associated with the in-service trouble LIU7, type

```
>TRNSL fbus_no
```

and press the Enter key.

where

fbus_no

is the number of the F-bus that contains the out-of-service tap (determined in step 12)

Note: The number of the F-bus tap associates with the LIU7 you are working on. The number of the F-bus appears to the left of the LIU7 number on the MAP. In the following example, LIU7 110 associates with tap 2 on F-bus 0.

Example of a MAP response:

PM LIU7
minor (continued)

```
LIM 1  FBus    0 Tap   0   is on LIU7 101
LIM 1  FBus    0 Tap   1   is unequipped
LIM 1  FBus    0 Tap   2   is on LIU7 110
LIM 1  FBus    0 Tap   3   is on LIU7 104
```

- 26** From the MAP display that the system generated in step 21, determine the state of the F-bus taps. The F-bus taps associate with the in-service trouble LIU7.

Note: The tap number that appears in the MAP display applies to both F-buses.

If either tap	Do
is M	step 29
is S	step 27
is other than listed here	step 82

- 27** To manually busy the F-bus tap that associates with the in-service trouble LIU7, type

```
>BSY FBUS fbus_no tap_no
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the BSY command	Do
passed	step 30
failed	step 28

- 28** To force the F-bus tap to busy, type

```
>BSY FBUS fbus_no tap_no FORCE
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the tap (0 to 23 or 0 to 35)

Go to step 30.

PM LIU7
minor (continued)

29 Determine from office records or from operating company personnel why the F-bus tap is manual busy. When you have permission, continue this procedure to return the tap to service.

30 To return the F-bus tap that associates with the in-service trouble LIU7 to service, type

```
>RTS FBUS fbus_no tap_no
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

If the RTS command

Do

passed, and the other tap is not in service step 31

passed, and the other tap is in service step 81

failed, and the system generates a card list step 32

is other than listed here step 82

31 Determine the state of the other F-bus tap for the same LIU7.

If the state of the other F-bus tap

Do

is M step 29

is S step 27

32 Record the location, description, slot number, product engineering code (PEC), and PEC suffix of all the cards on the list.

33 To access the C7LKSET level of the MAP display, type

```
>CCS ;CCS7 ;C7LKSET
```

and press the Enter key.

34 To post the linkset that associates with the LIU7, type

```
>POST C linkset_name
```

and press the Enter key.

where

linkset_name

is the name of the linkset

PM LIU7 minor (continued)

Note: The name of the linkset that associates with the in-service trouble LIU7 appears in the second last line of the response. The system generated this response in step 12.

- 35** To inhibit the link that associates with the LIU7, type

>INH link_no

and press the Enter key.

where

link_no

is the number of the link (0 to 15)

If the INH command

Do

passed

step 36

failed

step 82

- 36** To manually busy the link that associates with the LIU7, type

>BSY link_no

and press the Enter key.

where

link_no

is the number of the link (0 to 7 or 0 to 15)

If the response

Do

is Link link_no:Traffic
is running on that
link Please confirm
("YES", "Y", "NO", or
"N") :

step 37

is other than listed here, includ-
ing additional messages with
above response

step 82

- 37** To confirm the command, type

>YES

and press the Enter key

Go to step 38

- 38** To return to the PM level of the MAP display, type

>PM

and press the Enter key.

PM LIU7 minor (continued)

- 39** To post the LIU7, type
`>POST LIU7 liu_no`
 and press the Enter key.
 where
 liu_no
 is the number of the LIU7 (0 to 511)

40



WARNING

Risk of service interruption

To perform the next step, remove an LIU7 from service. Manually busy the LIU7 during a period of low traffic to prevent service interruption.

To manually busy the LIU7, type

`>BSY`

and press the Enter key.

If the response	Do
is Busyng LIU7 liu_no will take a CCS7 resource out of service Please confirm ("YES", "Y", "NO", or "N"):	step 41
is other than listed here, including additional messages with above response	step 82

- 41** To confirm the command, type
`>YES`
 and press the Enter key
- 42** Replace the first card on the list recorded in step 32. To replace the card, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 43** To set the LIU7 again, type
`>PMRESET`

PM LIU7

minor (continued)

and press the Enter key.

If the PMRESET command	Do
passed	step 47
failed	step 44

- 44** To load the LIU7, type
>LOADPM
and press the Enter key.

If the LOADPM command	Do
passed	step 47
failed, and you did not replace all the cards on the list recorded in step 32	step 45
is other than listed here	step 82

- 45** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

- 46** Go to step 43.

- 47** To post the LIM that associates with the LIU7, type

```
>POST LIM lim_no
```

and press the Enter key.

where

lim_no

is the number of the LIM (0 to 16)

- 48** To access the F-bus level of the MAP display, type

```
>FBUS
```

and press the Enter key.

- 49** To return the F-bus tap to service, type

```
>RTS FBUS fbus_no tap_no
```

and press the Enter key.

where

fbus_no

is the number of the F-bus (0 or 1)

PM LIU7
minor (continued)

tap_no

is the number of the F-bus tap (0 to 23 or 0 to 35)

	If the RTS command	Do
	passed	step 50
	failed	step 82
50	Determine the state of the other F-bus tap that associates with the LIU7.	
	If the other F-bus tap	Do
	is M	step 29
	is S	step 27
	is in service	step 51
51	To quit from the F-bus level of the MAP display, type >QUIT and press the Enter key.	
52	To post the LIU7, type >POST LIU7 liu_no and press the Enter key. <i>where</i> liu_no is the number of the LIU7 (0 to 511)	
53	To return the LIU7 to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 74
	failed	step 82
54	Determine from office records or from operating company personnel the name of the load that runs in the switch.	
55	Determine if the default load name matches the correct load name determined in step 54.	
	If the default load name	Do
	matches the correct load name	step 62

PM LIU7
minor (continued)

	If the default load name	Do
	does not match the correct load name	step 56
56	To access table LIUINV, type >TABLE LIUINV and press the Enter key.	
57	To position on the key value of the tuple to change, type >POSITION LIU7 liu_no and press the Enter key. <i>where</i> liu_no is the number of the in-service trouble LIU7 (0 to 511) <i>Example of a MAP response:</i>	
		LIU7 102 LIM 1 1 12 LRC36CV NTEX22BB NT9X76AA NT9X78AA FBUS
58	To specify the field in the tuple to change, type >CHANGE LOAD and press the Enter key.	
59	To enter the new value of the field that you want to change, type >new_value and press the Enter key. <i>where</i> new_value is the new value for the field <i>Example of a MAP response:</i>	
		TUPLE TO BE CHANGED: LIU7 102 LIM 1 1 12 LCC36BX NTEX22BB NT9X76AA NT9X78AA FBUS ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
60	To confirm the new value of the changed field, type >Y and press the Enter key. <i>MAP response:</i> TUPLE CHANGED	

PM LIU7
minor (continued)

- 61** To quit from the table, type
>QUIT
 and press the Enter key.
- 62** Determine if the running load name matches the correct load name that you determined in step 54.
- | If the running load | Do |
|----------------------------|-----------|
| is correct | step 74 |
| is not correct | step 63 |
- 63** To access the C7LKSET level of the MAP display, type
>CCS ;CCS7 ;C7LKSET
 and press the Enter key.
- 64** To post the linkset that associates with the LIU7, type
>POST C linkset_name
 and press the Enter key.
where
linkset_name
 is the name of the linkset
- 65** To inhibit the link, type
>INH link_no
 and press the Enter key.
where
link_no
 is the number of the link (0 to 15)
- | If the INH command | Do |
|---------------------------|-----------|
| passed | step 66 |
| failed | step 82 |
- 66** To manually busy the link, type
>BSY link_no
 and press the Enter key.
where

PM LIU7 minor (continued)

link_no
is the number of the link (0 to 7 or 0 to 15)

If the response	Do
is Link <code>link_no</code> :Traffic is running on that link Please confirm ("YES", "Y", "NO", or "N"):	step 67
is other than listed here, including additional messages with above response	step 82

- 67** To confirm the command, type
>YES
and press the Enter key
- 68** To return to the PM level of the MAP display, type
>PM
and press the Enter key.
- 69** To post the in-service trouble LIU7, type
>POST LIU7 `liu_no`
and press the Enter key.
where

liu_no
is the number of the LIU7 (0 to 511)

70



WARNING

Risk of service interruption

If you perform the next step, you will take an LIU7 out of service. Manually busy the LIU7 during a period of low traffic to prevent service interruption.

- To manually busy the LIU7, type
>BSY

PM LIU7 minor (continued)

and press the Enter key.

	If the response	Do
	is Busyng LIU7 liu_no will take a CCS7 resource out of ser- vice Please confirm ("YES", "Y", "NO", or "N") :	step 71
	is other than listed here, includ- ing additional messages with above response	step 82
71	To confirm the command, type >YES and press the Enter key.	
72	To load the LIU7, type >LOADPDM and press the Enter key.	
	If the LOADPDM command	Do
	passed	step 73
	is other than listed here	step 82
73	To return the LIU7 to service, type >RTS and press the Enter key.	
	If the RTS command	Do
	passed	step 74
	failed	step 82
74	To access the C7LKSET level of the MAP display, type >CCS ; CCS7 ; C7LKSET and press the Enter key.	
75	To post the linkset that associates with the LIU7, type >POST C linkset_name	

PM LIU7 minor (continued)

and press the Enter key.

where

linkset_name
is the linkset name

Example of a MAP display:

```
Linkset TR000002      InSv
  Traf  Sync
LK Stat  Stat  Resource  Stat Physical Access
1  InSv  Sync  LIU7 110  InSv  DS0A
2  InSv  Sync  LIU7 104  InSv  DS0A
```

- 76** Determine the traffic state of the CCS7 link that associates with the LIU7.

Note: The LIU7 numbers appear under the Resource header in the display in step 75. The traffic state of the CCS7 links appear under the Traf Stat header.

If the state of the CCS7 link	Do
is InSv	step 81
is ManB	step 77
is other than listed here	step 79

- 77** To return the link to service, type

>RTS link_no

and press the Enter key.

where

link_no
is the number of the link (0 to 7 or 0 to 15)

If the RTS command	Do
passed	step 78
passed	step 79
failed	step 82

- 78** To restore traffic to the link that associates with the LIU7, type

>UINH link_no

and press the Enter key.

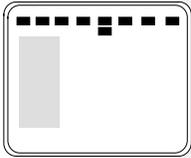
where

**PM LIU7
minor (end)**

link_no is the number of the link (0 to 15)									
	<table border="1"> <thead> <tr> <th>If the UINH command</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 81</td> </tr> <tr> <td>failed</td> <td>step 82</td> </tr> </tbody> </table>	If the UINH command	Do	passed	step 81	failed	step 82		
If the UINH command	Do								
passed	step 81								
failed	step 82								
79	Wait eight minutes to see if the CCS7 link terminated on the LIU7 establishes again.								
	<table border="1"> <thead> <tr> <th>If, after eight minutes, the link</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>is InSv</td> <td>step 81</td> </tr> <tr> <td>is other than listed here</td> <td>step 80</td> </tr> </tbody> </table>	If, after eight minutes, the link	Do	is InSv	step 81	is other than listed here	step 80		
If, after eight minutes, the link	Do								
is InSv	step 81								
is other than listed here	step 80								
80	Perform the procedure <i>How to activate CCS7 links</i> in this document. Complete the procedure and return to this point.								
	<table border="1"> <thead> <tr> <th>If the link activation</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>passed</td> <td>step 81</td> </tr> <tr> <td>failed</td> <td>step 82</td> </tr> </tbody> </table>	If the link activation	Do	passed	step 81	failed	step 82		
If the link activation	Do								
passed	step 81								
failed	step 82								
81	Determine if the LIU7 minor alarm cleared.								
	<table border="1"> <thead> <tr> <th>If the LIU7 minor alarm</th> <th>Do</th> </tr> </thead> <tbody> <tr> <td>cleared</td> <td>step 83</td> </tr> <tr> <td>reduced in number (for example, changed from 4LIU7 to 3LIU7)</td> <td>step 9</td> </tr> <tr> <td>did not clear</td> <td>step 82</td> </tr> </tbody> </table>	If the LIU7 minor alarm	Do	cleared	step 83	reduced in number (for example, changed from 4LIU7 to 3LIU7)	step 9	did not clear	step 82
If the LIU7 minor alarm	Do								
cleared	step 83								
reduced in number (for example, changed from 4LIU7 to 3LIU7)	step 9								
did not clear	step 82								
82	For additional help, contact the next level of support.								
83	The procedure is complete.								

PM LMDrwr major or minor

Alarm display



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

Indication

At the MTC level of the MAP display, LMDrwr (preceded by a number) appears under the PM header of the alarm banner. The LMDrwr indicates a major or minor fault for a line module drawer.

Meaning

The system generates a major (M) alarm when one or more drawers in an LM are system busy (SysB). The system also generates a major alarm when the LM is in-service trouble (ISTb).

The number that precedes LMDrwr is the number of LMs with a drawer fault.

Result

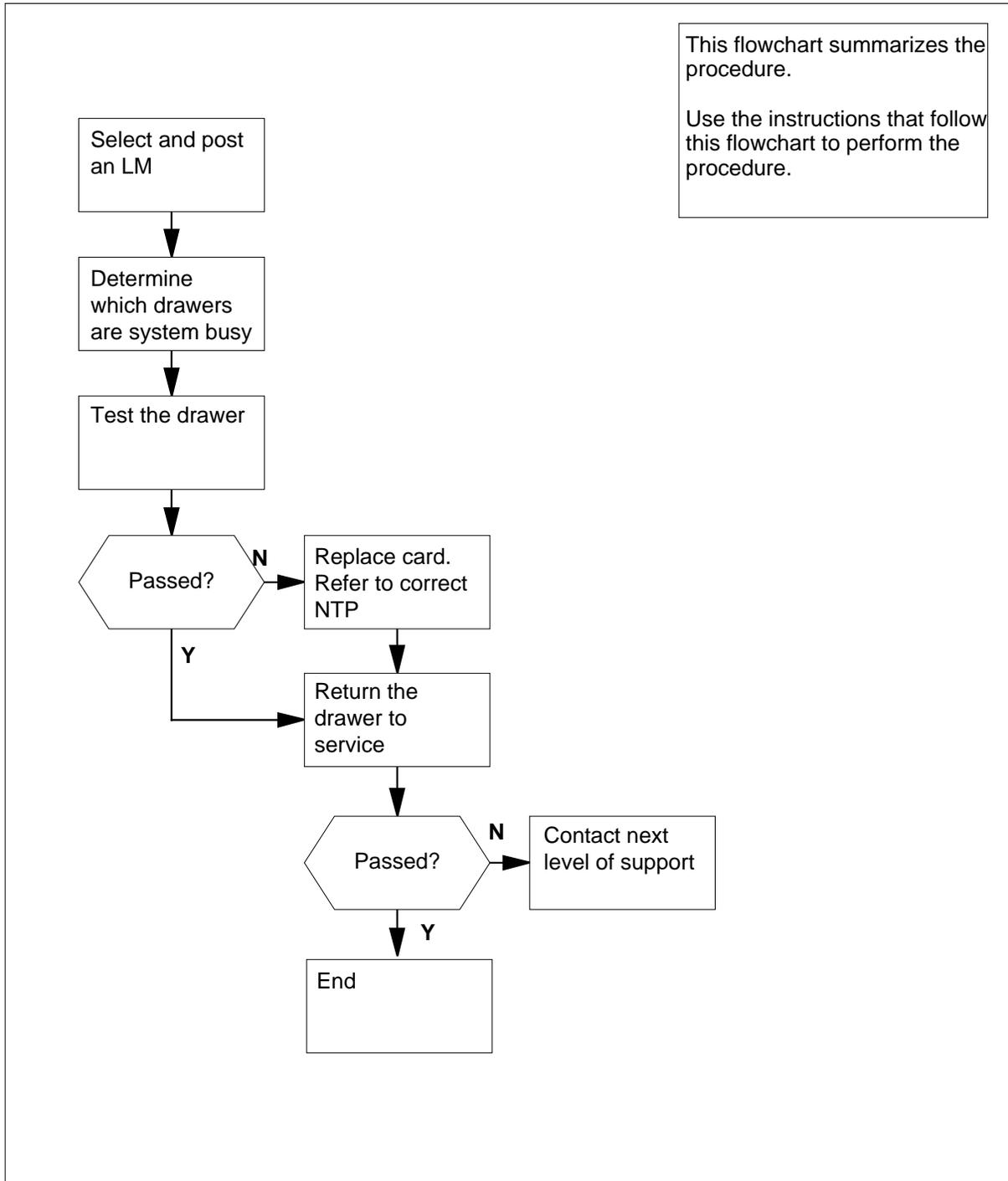
All lines in a system busy drawer are without service.

Common procedures

There are no common procedures.

Action

This procedure contains a summary flowchart of the procedure. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM LMDrwr
major or minor (continued)****Summary of clearing a PM LMDrwr major or minor alarm**

PM LMDrwr major or minor (continued)

Clearing a PM LMDrwr major or minor alarm

At the MAP terminal

- 1 To access the PM level of the MAP display, type
>MAPCI ;MTC ;PM
and press the Enter key.

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	1	3	5	7	6	12

- 2 Determine if an alarm is present under the Ext header of the MAP display.

If an Ext alarm	Do
is present	step 3
is not present	step 4

- 3 Perform the correct alarm clearing procedure in this document.

- 4 Determine if an audible alarm rings.

If an alarm	Do
rings	step 5
does not ring	step 6

- 5 To silence the alarm, type

>SIL

and press the Enter key.

- 6 To display all the in-service trouble LMs, type

>DISP STATE ISTB LM

and press the Enter key.

Example of a MAP display response:

ISTb LM : HOST 01 0,HOST 01 1

- 7 Record the number of each in-service trouble LM.

- 8 Choose an in-service trouble LM on which to work.

- 9 To post the selected LM, type

>POST LM site frame_no bay_no

PM LMDrwr
major or minor (continued)

and press the Enter key.

where

site

is the four character string that indicates the location of the LM

frame_no

is the number of the LM frame (0 to 511)

bay_no

is the number of the LM bay (0 or 1)

Example of a MAP display:

```
LM HOST 01 1 ISTb
RGen : 0 Standby      1 Standby
```

- 10** To determine which drawers are system busy, type

>QUERYPM DRWR

and press the Enter key.

Example of a MAP display response:

```
Line drawer status:
Bay LM HOST 01 1 controlled via LM HOST 01 1 is inactive
status: .---- .---- .---- ----.
Bay LM HOST 01 1 controlled via LM HOST 01 0 is inactive
status: .---- .---- .---- ----.
Bay LM HOST 01 0 controlled via LM HOST 01 1 is inactive
status: .---- ----. .---- ----.
```

- 11** Record the number of each system busy drawer.

- 12** Choose a system busy drawer on which to work.

- 13** To test the drawer, type

>TST DRWR drwr_no

and press the Enter key.

where

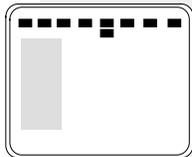
drwr_no

is the number of the drawer (0 to 19)

If the TST command	Do
passes	step 16
fails, and the system generated a card list	step 14
fails, and the system did not generate a card list	step 19

PM LMDrwr major or minor (end)

- 14** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
- 15** Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 16** To return the drawer to service, type
`>RTS DRWR drwr_no`
and press the Enter key.
where
drwr_no
is the number of the drawer (0 to 19)
-
- | If the RTS command | Do |
|---|-----------|
| passes, and the drawer is in service, but you recorded other system busy drawers in step 11 | step 13 |
| passes, and all drawers are in service | step 20 |
| fails, and you did not replace all cards in the list that you recorded in step 14 | step 17 |
| fails, and you replaced all cards in the list that you recorded in step 14 | step 19 |
-
- 17** Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 18** Go to step 16.
- 19** For additional help, contact the next level of support.
- 20** The procedure is complete.

**PM LMPr
critical****Alarm display**

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1LMPr *C*	.	.	.	.	.

Indication

At the MTC level of the MAP display, LMPr (preceded by a number) appears under the PM header of the alarm banner. The LMPr indicates a line module pair alarm. The number under the PM header in the alarm banner indicates the number of LMPrs affected.

Meaning

The system generates a critical (*C*) alarm when an LM pair is system busy, C-side busy, or manually busy.

Result

Service stops when an LM pair is system busy, C-side busy, or manually busy.

Common procedures

The procedure refers to *Loading a PM*.

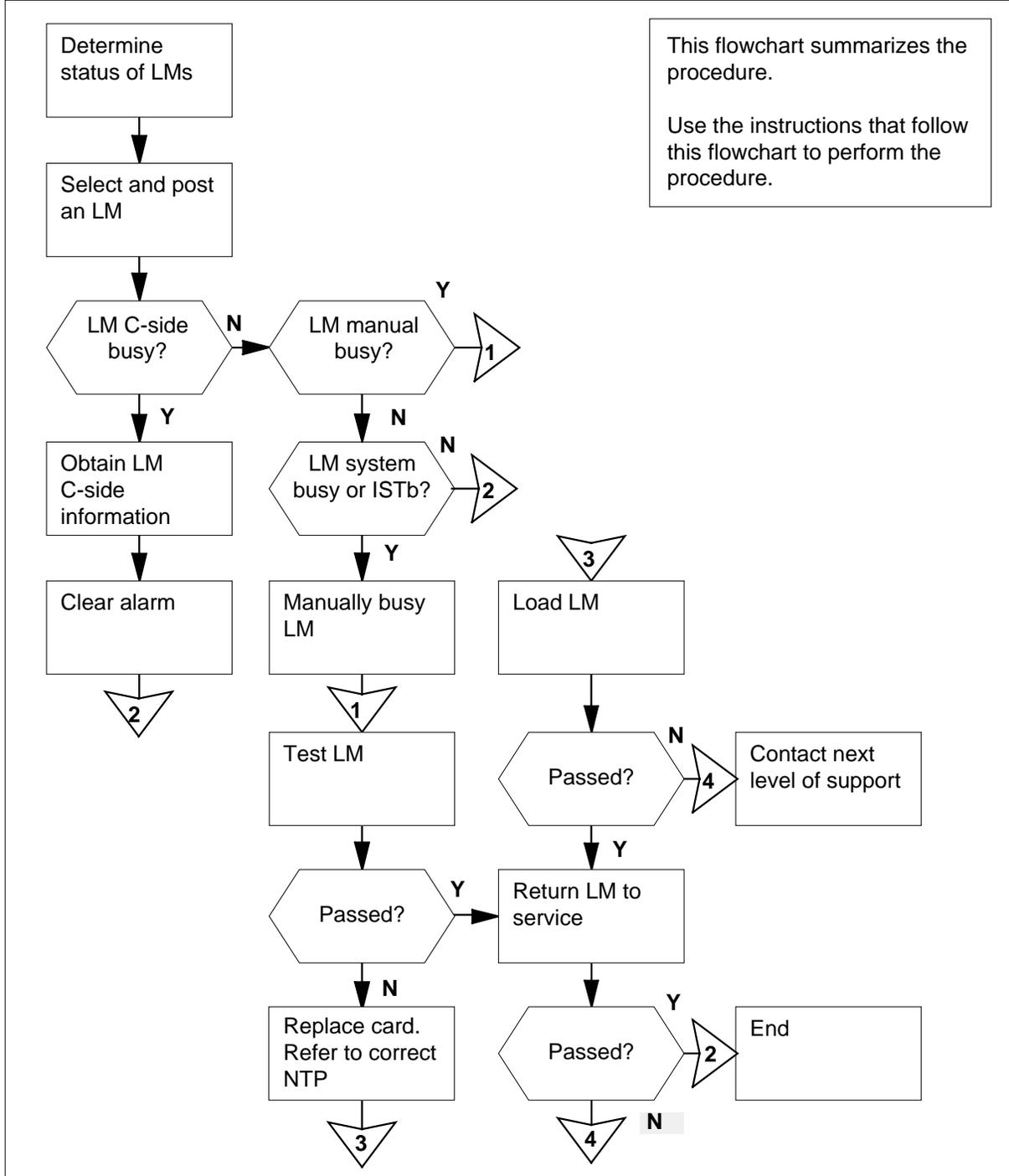
Do not go to the common procedure unless the step-action procedure directs you to go.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

PM LMPr critical (continued)

Summary of clearing a PM LMPr critical alarm



PM LMPr
critical (continued)

Clearing a PM LMPr critical alarm**At the MAP display**

- 1** To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP display response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	15	0	0	1	3	5

- 2** Determine if an alarm is present under the Ext header of the MAP display.

If an Ext alarm

Do

is present

step 3

is not present

step 4

- 3** Perform the correct alarm clearing procedure in this document.

- 4** Determine if an audible alarm rings.

If an alarm

Do

rings

step 5

does not ring

step 6

- 5** To silence the alarm, type

>SIL

and press the Enter key.

- 6** To display the status of all the PMs, type

>STATUS

and press the Enter key.

Example of a MAP display response:

TM8	2	0	0	0	0	1
MTM	7	0	0	0	0	4
STM	4	0	0	0	0	0
LM	2	0	0	0	3	0
LGC	0	0	0	1	0	0

PM LMP
critical (continued)

- 7 Determine the status of the LMs.
- | If one of the LMs | Do |
|-------------------|---------|
| is SysB | step 8 |
| is CBsy | step 20 |
| is ManB | step 27 |
-
- 8 To display all the system busy LMs, type
>DISP STATE SYSB LM
 and press the Enter key.
Example of a MAP display response:
 SysB LM : HOST 01 0,HOST 01 1
- 9 Record the number of each system busy LM.
- 10 Choose a system busy LM on which to work.
- 11 To post the LM, type
>POST LM site frame_no bay_no
 and press the Enter key.
where
- site**
is the four-character string that indicates the location of the LM
 - frame_no**
is the number of the frame (0 to 511) that contains the LM
 - bay_no**
is the number of the LM bay (0 to 1)
- Example of a MAP display response:*
- ```
LM HOST 01 0 SysB NoTakeover
RGen : 0 Standby 1 Standby
```
- 12 To busy the LM, type  
**>BSY**  
 and press the Enter key.
- 13 To test the LM, type  
**>TST**  
 and press the Enter key.
- | If the TST command | Do      |
|--------------------|---------|
| passes             | step 14 |
-

---

**PM LMP**  
**critical** (continued)

---

|           | <b>If the TST command</b>                                                                                                                              | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | fails, and the system generated a card list                                                                                                            | step 15   |
|           | fails, and the system did not generate a card list                                                                                                     | step 17   |
| <b>14</b> | To return the LM to service, type<br>>RTS<br>and press the Enter key.                                                                                  |           |
|           | <b>If the RTS command</b>                                                                                                                              | <b>Do</b> |
|           | passes, the LM is InSv, but you recorded other SysB LMs in step 9                                                                                      | step 11   |
|           | fails, and the MAP response is: Invalid firmware Load                                                                                                  | step 17   |
|           | fails, and the system generated a card list                                                                                                            | step 15   |
|           | fails, and the system did not generate a card list                                                                                                     | step 17   |
| <b>15</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.                                |           |
| <b>16</b> | Perform correct procedure in <i>Card Replacement Procedures</i> to change the first card on the list. Complete the procedure and return to this point. |           |
| <b>17</b> | To load the LM, type<br>>LOADPDM<br>and press the Enter key.                                                                                           |           |
|           | <b>If the LOADPDM command</b>                                                                                                                          | <b>Do</b> |
|           | passes                                                                                                                                                 | step 19   |
|           | fails                                                                                                                                                  | step 18   |
| <b>18</b> | Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                           |           |
| <b>19</b> | To return the LM to service, type<br>>RTS                                                                                                              |           |

**PM LMP**  
**critical** (continued)

and press the Enter key.

| <b>If the RTS command</b>                                                        | <b>Do</b> |
|----------------------------------------------------------------------------------|-----------|
| passes, the LM is InSv, but you recorded other SysB LMs in step 9                | step 11   |
| passes, the LM is InSv, and no other LMs are SysB                                | step 41   |
| fails and you did not replace all cards in the list that you recorded in step 15 | step 11   |
| fails and you replaced all cards in the list that you recorded in step 15        | step 40   |

**20** To display all the C-side busy LMs, type

```
>DISP STATE CBSY LM
```

and press the Enter key.

*Example of a MAP display response:*

```
SysB LM : HOST 02 0,HOST 02 1
```

**21** Record the number of each C-side busy LM.

**22** Choose a C-side busy LM on which to work.

**23** To post the LM, type

```
>POST LM site frame_no pair_no
```

and press the Enter key.

*where*

**site**

is the four-character string that indicates the location of the LM

**frame\_no**

is the number of the frame (0 to 511) that contains the LM

**pair\_no**

is the number of the LM (0 to 1)

*Example of a MAP display response:*

```
LM HOST 02 0 CBSy NoTakeover
RGen : 0 Standby 1 Standby
```

**24** The fault is present on the C-side of the LM.

To obtain the network, plane, and link numbers, type

```
>TRNSL
```

and press the Enter key.

*Example of a MAP display response:*

---

**PM LMP**  
**critical** (continued)

---

```
LINK 0: NET 0 0 33;CAP:MS;STATUS:OK ,C,P;MsgCond:CLS
LINK 0: NET 1 0 33;CAP:MS;STATUS:OK ,C,P;MsgCond:CLS
LINK 1: NET 0 0 41;CAP: S;STATUS:OK ,C,P
LINK 1: NET 1 0 41;CAP: S;STATUS:OK ,C,P
```

**25** Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

**26** To post the LM that was C-side busy, type

```
>PM;POST LM site frame_no bay_no
```

and press the Enter key.

where

**site**

is the four-character string that indicates the location of the LM

**frame\_no**

is the number of the frame (0 to 511) that contains the LM

**pair\_no**

is the number of the LM (0 to 1)

| If the LM                                           | Do      |
|-----------------------------------------------------|---------|
| is InSv, but you recorded other CBSy LMs in step 21 | step 23 |
| is InSv, and no other LMs are CBSy                  | step 41 |
| remains CBSy                                        | step 40 |

**27** To display all the manual busy LMs, type

```
>DISP STATE MANB LM
```

and press the Enter key.

*Example of a MAP display response:*

```
SysB LM : HOST 03 0,HOST 03 1
```

**28** Record the number of each manual busy LM.

**29** Choose a manual busy LM to work on.

**30** To post the selected LM, type

```
>POST LM site frame_no bay_no
```

and press the Enter key.

where

**site**

is the four-character string that indicates the location of the LM

**frame\_no**

is the number of the frame (0 to 511) that contains the LM

**PM LMP**  
**critical** (continued)

---

**pair\_no**  
 is the number of the LM (0 to 1)

*Example of a MAP display response:*

```
LM HOST 03 0 ManB NoTakeover
RGen : 0 Standby 1 Standby
```

**31** Determine from office records or operating company office personnel why the LM is manual busy. Continue this procedure.

**32** To return the LM to service, type

**>RTS**

and press the Enter key.

| If the RTS command                                                 | Do      |
|--------------------------------------------------------------------|---------|
| passes, the LM is InSv, and no other LMs are ManB                  | step 41 |
| passes, the LM is InSv, but you recorded other ManB LMs in step 28 | step 30 |
| fails, and the system generates a card list                        | step 33 |
| fails, and the system does not generate a card list                | step 35 |

**33** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

**34** Perform the correct procedure in *Card Replacement Procedures* to change the first card on the list. Complete the procedure and return to this point.

**35** To load the LM, type

**>LOADPM**

and press the Enter key.

| If the LOADPM command | Do      |
|-----------------------|---------|
| passes                | step 37 |
| fails                 | step 36 |

**36** Perform the procedure "Loading a PM" in this document. Complete the procedure and return to this point.

**37** To return the LM to service, type

**>RTS**

and press the Enter key.

| If the RTS command                                | Do      |
|---------------------------------------------------|---------|
| passes, the LM is InSv, and no other LMs are ManB | step 41 |

---

**PM LMP**  
**critical (end)**

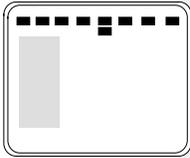

---

| If the RTS command                                                                                                                                                  | Do      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| passes, the LM is InSv, but you recorded other ManB LMs in step 28                                                                                                  | step 30 |
| fails, and you did not replace all cards in the list that you recorded in step 33                                                                                   | step 38 |
| fails, and you replaced all cards in the list that you recorded in step 33                                                                                          | step 40 |
| <b>38</b> Perform the correct procedure in <i>Card Replacement Procedures</i> to change the next card on the list. Complete the procedure and return to this point. |         |
| <b>39</b> Go to step 35.                                                                                                                                            |         |
| <b>40</b> For additional help, contact the next level of support.                                                                                                   |         |
| <b>41</b> The procedure is complete.                                                                                                                                |         |

## PM LMRex minor

---

### Alarm display



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

### Indication

At the MTC level of the MAP display, LMRex (preceded by a number) appears under the PM header of the alarm banner. The LMRex indicates a line module (LM) routine exercise (REx) test failure. The number that precedes the LMRex indicates the number of LMs that failed the REx test.

### Meaning

The system generates a minor alarm when an LM fails a REx test. When an LM fails a REx test, the LM is in-service trouble (ISTb).

### Result

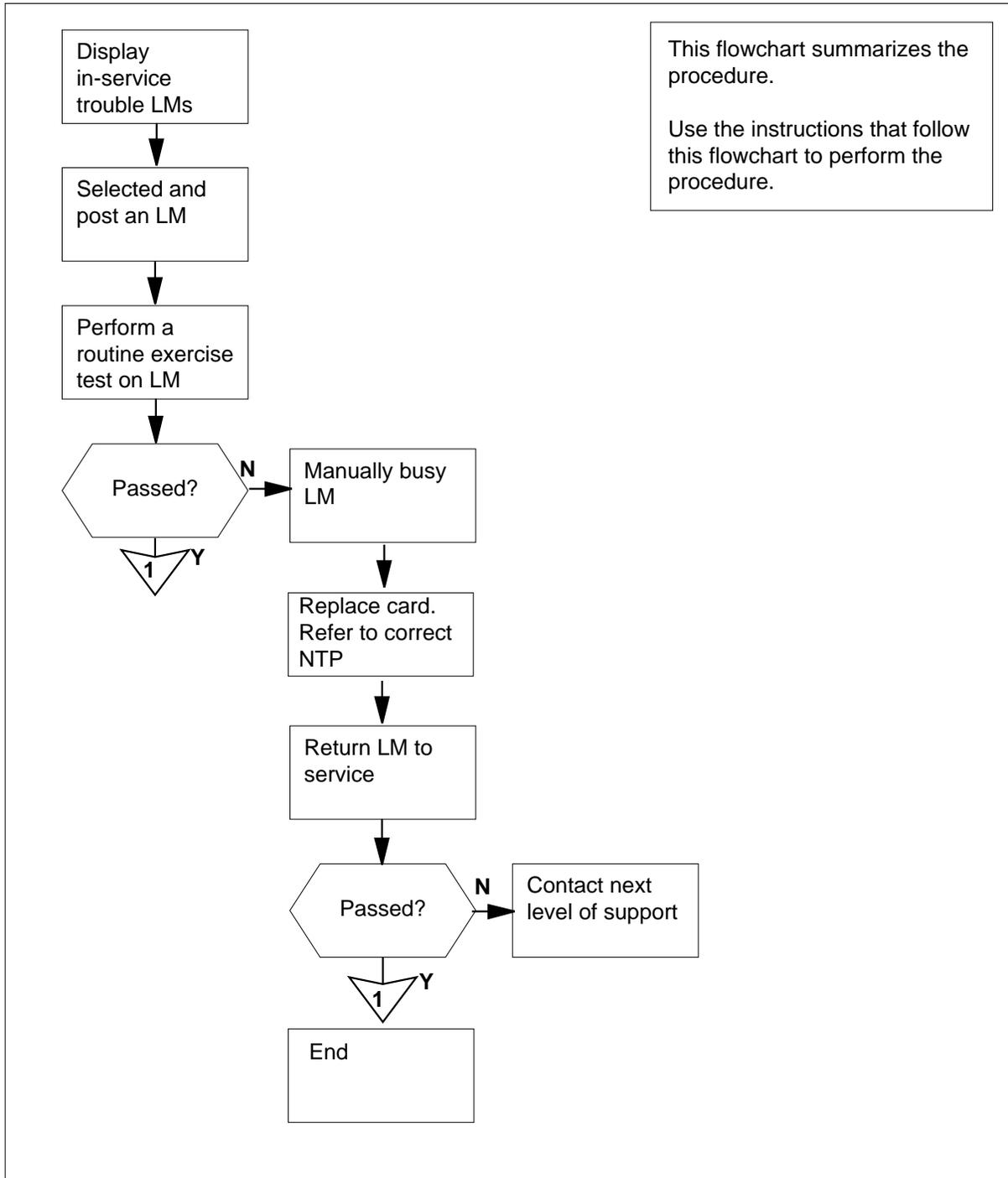
The alarm does not affect subscriber service when an LM is ISTb.

### Common procedures

There are no common procedures.

### Action

This procedure contains a summary flowchart of the procedure and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

**PM LMRex  
minor** (continued)**Summary of clearing a PM LMRex minor alarm**

## PM LMRex minor (continued)

---

### Clearing a PM LMRex minor alarm

#### At the MAP terminal

- 1 To access the PM level of the MAP display, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

*Example of a MAP display response:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 15   | 0    | 0    | 1    | 0    | 5    |

- 2 Determine if an alarm is present under the Ext header of the MAP display.

---

| If an Ext alarm | Do     |
|-----------------|--------|
| is present      | step 3 |
| is not present  | step 4 |

---

- 3 Perform the correct procedure in this document.

- 4 To display all the in-service trouble LMs, type

```
>DISP STATE ISTB LM
```

and press the Enter key.

*Example of a MAP display response:*

```
ISTb LM : HOST 01 0,HOST 01 1
```

- 5 Record the number of each in-service trouble LM.

- 6 Choose an in-service trouble LM on which to work.

- 7 To post the LM, type

```
>POST LM site frame_no bay_no
```

and press the Enter key.

*where*

**site**

is the four-character string that indicates the location of the LM

**frame\_no**

is the number of the frame (0 to 511) that contains the LM

**bay\_no**

is the number of the LM bay (0 or 1)

*Example of a MAP display response:*

---

**PM LMRex  
minor (end)**


---

```
LM HOST 01 0 ISTb NoTakeover
RGen : 0 Standby 1 Standby
```

- 8** To run a routine exercise test on the LM, type  
>**TST LM REX**  
and press the Enter key.

| <b>If the LM REX test</b>                          | <b>Do</b> |
|----------------------------------------------------|-----------|
| passes, and the LM is InSv                         | step 14   |
| fails, and the system generated a card list        | step 9    |
| fails, and the system did not generate a card list | step 13   |

- 9** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

- 10** To manually busy the LM, type  
>**BSY**  
and press the Enter key.

- 11** Perform the correct procedure in *Card Replacement Procedures* to change the first card on the list. Complete the procedure and return to this point.

- 12** To return the LM to service, type  
>**RTS**  
and press the Enter key.

| <b>If the RTS command</b>  | <b>Do</b> |
|----------------------------|-----------|
| passes, and the LM is InSv | step 14   |
| fails                      | step 13   |

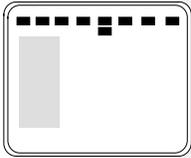
- 13** For additional help, contact the next level of support.

- 14** The procedure is complete.

## PM LMRGen major or minor

---

### Alarm display



| CM | MS | IOD | Net | PM      | CCS | Lns | Trks | Ext | APPL |
|----|----|-----|-----|---------|-----|-----|------|-----|------|
| .  | .  | .   | .   | 1LMRGen | .   | .   | .    | .   |      |
|    |    |     |     | M       |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, LMRGen (preceded by a number) appears under the PM header of the alarm banner. The LMRGen indicates a fault with the line module (LM) ringing generator (RG). The number that precedes the LMRGen indicates the number of LMRGen faults.

### Meaning

For a major alarm, an M appears under the alarm indicator. The system generates a major alarm when one of the two LM ringing generators is system busy.

For a minor alarm, information does not appear under the alarm indicator. The system generates a minor alarm when one of the two LMRGs is manually busy or in service trouble (ISTb).

### Result

A system busy or manually-busy RG causes the loss of calls on this RG. When the other RG is in service, this RG takes over the load of the system busy or manually-busy RG.

### Common procedures

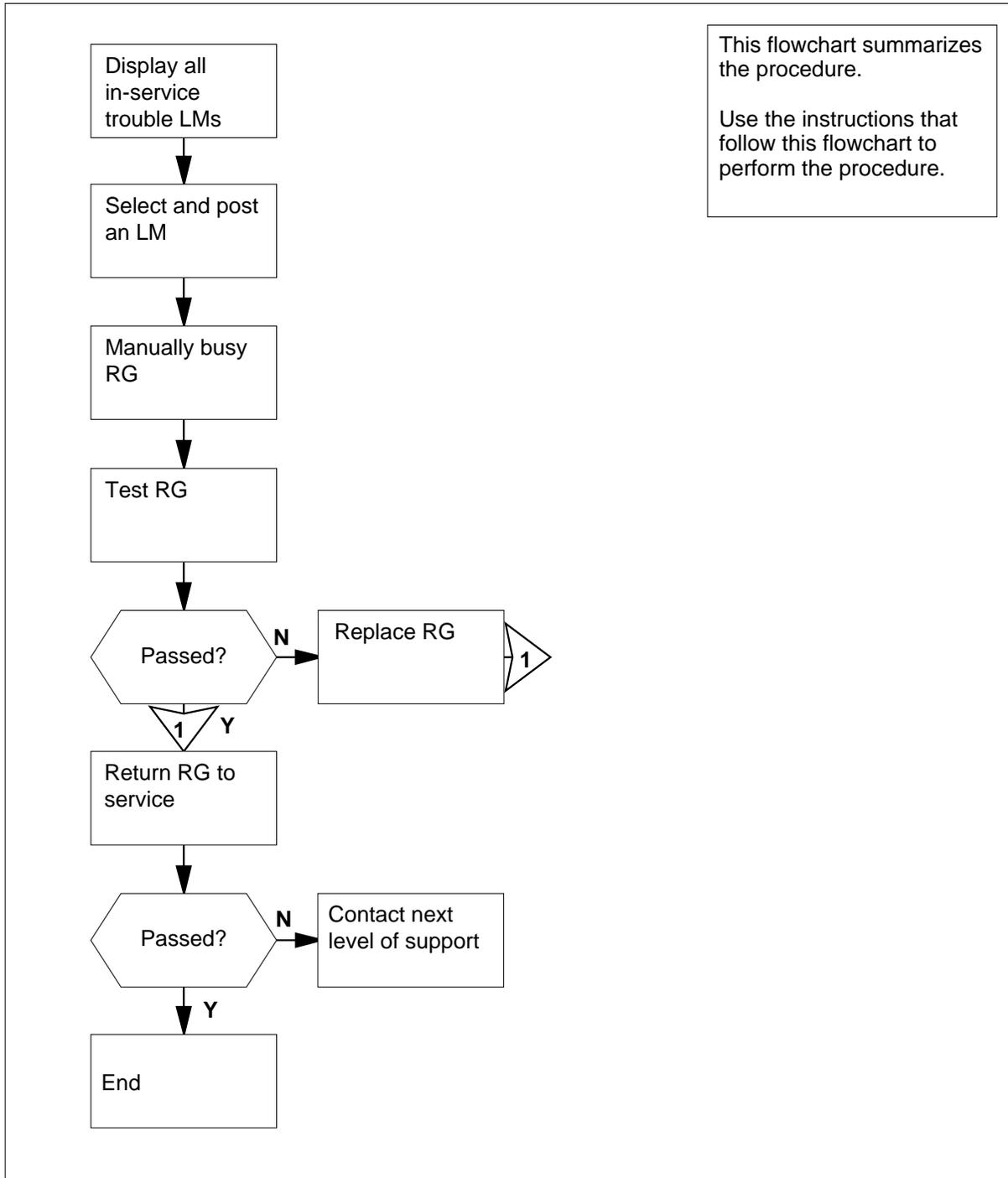
There are no common procedures.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

## PM LMRGen major or minor (continued)

### Summary of clearing a PM LMRGen major or minor alarm



## PM LMRGen major or minor (continued)

---

### Clearing a PM LMRGen major or minor alarm

#### At the MAP display

- 1 To access the PM level of the MAP display, type

```
>MAPCI ;MTC ;PM
```

and press the Enter key.

*Example of a MAP display response:*

```
SysB ManB OffL CBSy ISTb InSv
PM 15 0 0 1 3 5
```

- 2 Determine if an alarm is present under the Ext header of the MAP display.

---

| If an Ext alarm is | Do     |
|--------------------|--------|
| present            | step 3 |
| not present        | step 4 |

---

- 3 Perform the correct procedure in this document.

- 4 To display all the in-service trouble LMs, type

```
>DISP STATE ISTB LM
```

and press the Enter key.

*Example of a MAP display response:*

```
ISTb LM : HOST 01 0,HOST 01 1
```

- 5 Record the number of each in-service-trouble LM.

- 6 Choose an in-service-trouble LM on which to work.

- 7 To post the LM, type

```
>POST LM site frame_no bay_no
```

and press the Enter key.

*where*

**site**

is the four-character string that indicates the location of the LM

**frame\_no**

is the number of the LM frame (0 to 511)

**bay\_no**

is the number of the LM bay (0 or 1)

*Example of a MAP display response:*

---

## PM LMRGen major or minor (end)

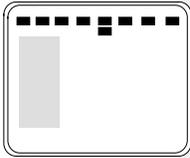
---

```
LM HOST 01 0 SysB NoTakeover
RGen : 0 Standby 1 Standby
```

|           | <b>If an RG</b>                                                                                                                                                      | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is SysB or ISTb                                                                                                                                                      | step 8    |
|           | is ManB                                                                                                                                                              | step 11   |
| <b>8</b>  | To busy the RG, type<br>>BSY RGI rgi_no<br>and press the Enter key.<br><i>where</i><br><b>rgi_no</b><br>is the number of the RG (0 or 1)                             |           |
| <b>9</b>  | To test the RG, type<br>>TST RGI<br>and press the Enter key.                                                                                                         |           |
|           | <b>If the TST command</b>                                                                                                                                            | <b>Do</b> |
|           | passes                                                                                                                                                               | step 11   |
|           | fails                                                                                                                                                                | step 10   |
| <b>10</b> | Perform the correct procedure in <i>Card Replacement Procedures</i> to replace the RG (NT2X05). Complete the procedure and return to this point.                     |           |
| <b>11</b> | To return the ringing generator to service, type<br>>RTS RGI rgi_no<br>and press the Enter key.<br><i>where</i><br><b>rgi_no</b><br>is the number of the RG (0 or 1) |           |
|           | <b>If the RTS command</b>                                                                                                                                            | <b>Do</b> |
|           | passes, and both RGs are InSv                                                                                                                                        | step 13   |
|           | fails                                                                                                                                                                | step 12   |
| <b>12</b> | For additional help, contact the next level of support.                                                                                                              |           |
| <b>13</b> | The procedure is complete.                                                                                                                                           |           |

## PM LTC critical

### Alarm display



| CM | MS | IOD | Net | PM                        | CCS | Lns | Trks | Ext |
|----|----|-----|-----|---------------------------|-----|-----|------|-----|
| .  | .  | .   | .   | <b>1LTC</b><br><b>*C*</b> | .   | .   | .    | .   |

### Indication

At the MTC level of the MAP display, LTC (preceded by a number and followed by a \*C\*) appears under the PM header of the alarm banner. The LTC indicates a critical alarm for a line trunk controller (LTC). The number that precedes the LTC indicates the number of LTCs that the alarm affects. The preceding figure shows an alarm banner with an LTC critical alarm.

### Meaning

The LTC is system busy (SysB) or C-side busy (CBsy). An LTC is C-side busy if both units are C-side busy.

An LTC is system busy under one of the following conditions:

- both LTC units are system busy
- one unit is system busy and the other unit is manually busy (ManB)

### Result

Service stops when an LTC is system busy or C-side busy.

### Common procedures

This procedure refers to the following common procedures:

- "Clearing PM C-side faults"
- "Monitoring system maintenance"

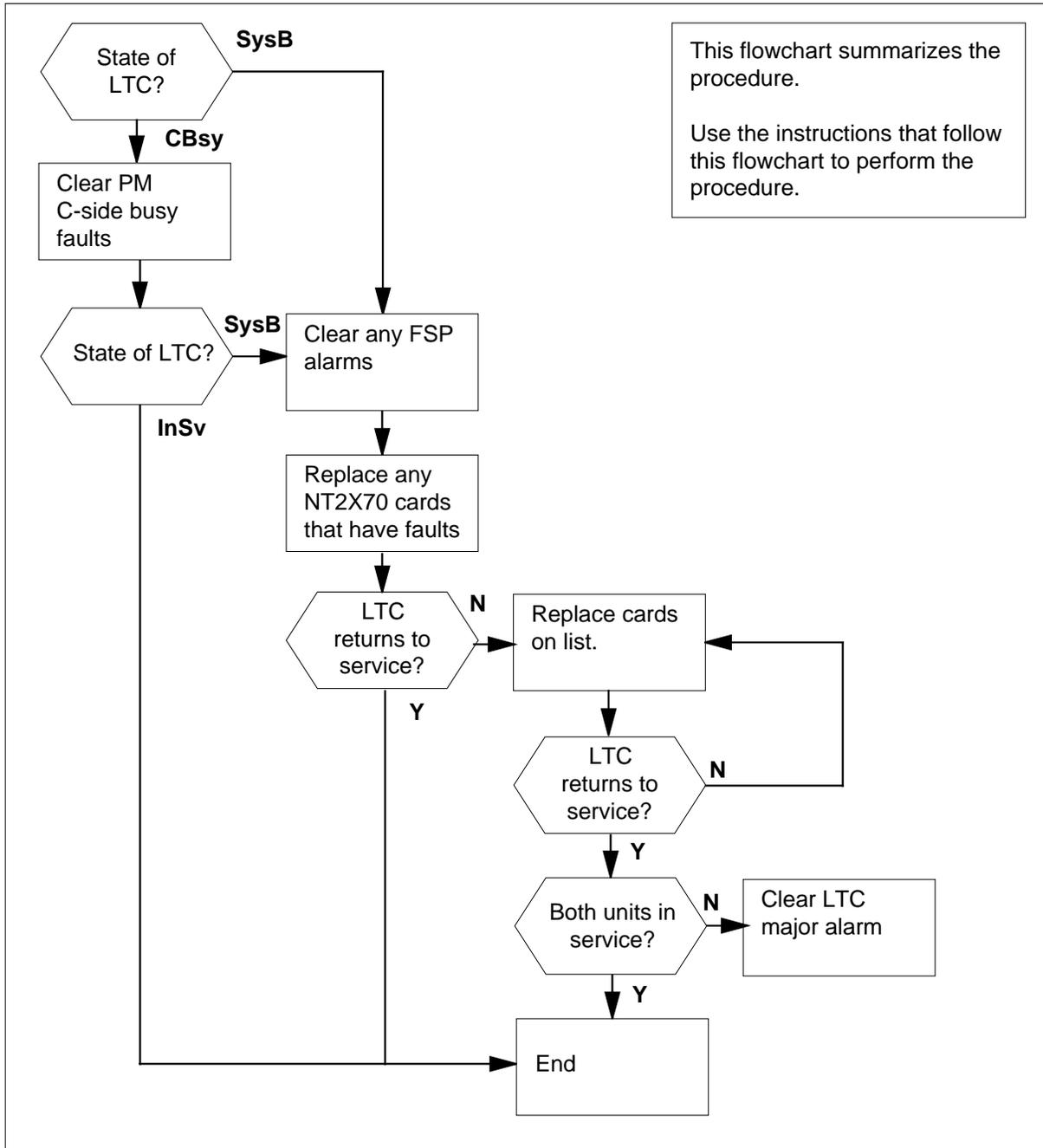
Do not go to the common procedures unless the step-action procedure directs you to go.

### Action

This section provides a summary flowchart and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

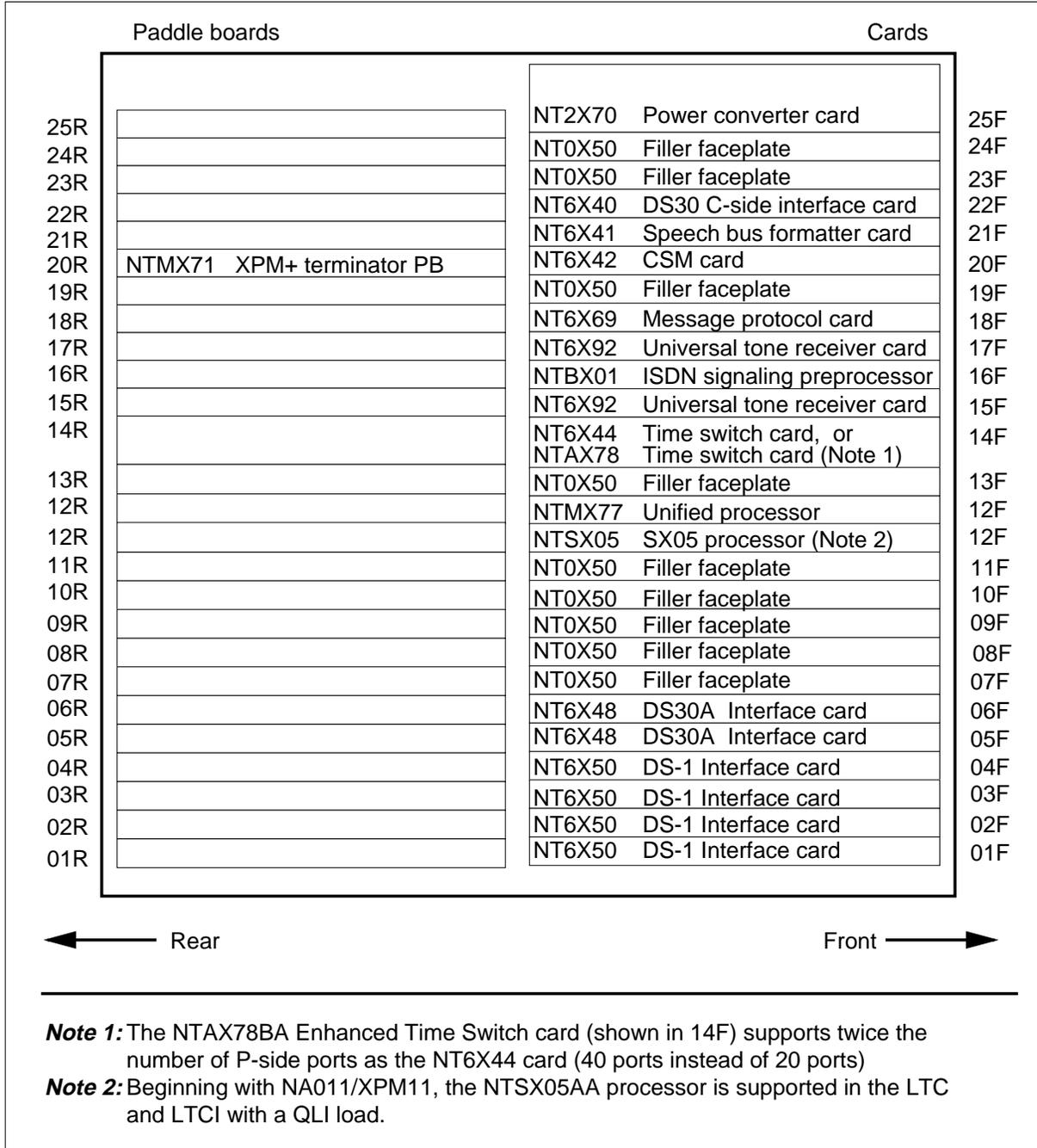
**PM LTC**  
**critical** (continued)

**Summary of clearing a PM LTC critical alarm**



**PM LTC**  
**critical** (continued)

**LTC shelf design**



---

## PM LTC critical (continued)

---

### Clearing a PM LTC critical alarm

#### At the MAP display

- 1 To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

Example of a MAP response:

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

---

**If**

**Do**

an audible alarm rings

step 2

no audible alarm rings

step 3

---

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To determine if system busy or C-side busy LTCs cause the critical alarm, type

>STATUS

and press the Enter key.

Example of a MAP response:

|      | SysB | ManB | OffL | CBsy | ISTb | InSv |
|------|------|------|------|------|------|------|
| PM   | 2    | 0    | 0    | 2    | 0    | 25   |
| TM8  | 0    | 0    | 0    | 0    | 0    | 2    |
| MTM  | 0    | 0    | 0    | 0    | 0    | 3    |
| LGC  | 1    | 0    | 0    | 0    | 0    | 3    |
| LCM  | 0    | 0    | 0    | 2    | 0    | 0    |
| LTC  | 1    | 0    | 0    | 0    | 0    | 1    |
| LIM  | 0    | 0    | 0    | 0    | 0    | 1    |
| LIU7 | 0    | 0    | 0    | 0    | 0    | 1    |
| FRIU | 0    | 0    | 0    | 0    | 0    | 1    |
| DTC  | 0    | 0    | 0    | 0    | 0    | 1    |
| LCME | 0    | 0    | 0    | 0    | 0    | 1    |

MORE . . .

**Note:** If LTCs are both SysB and CBsy, work on the SysB LTCs first.

**PM LTC**  
**critical** (continued)

---

- 4 To display all the CBsy or SysB LTCs, type  
**>DISP STATE state LTC**  
 and press the Enter key.

where

**state**  
 is CBsy or SysB, as recorded in step 3

*Example of a MAP response:*  
 SysB LTC : 0

**Note:** If multiple LTCs are CBsy or SysB, select an LTC on which to work.  
 Record the number of the LTC.

| <b>If you</b>      | <b>Do</b> |
|--------------------|-----------|
| recover a CBsy LTC | step 5    |
| recover a SysB LTC | step 6    |

- 5 Go to the common procedure "Clearing PM C-side faults" in this document.  
 Complete the procedure and return to this point.

| <b>If</b>                        | <b>Do</b>                                           |
|----------------------------------|-----------------------------------------------------|
| the LTC remains CBsy             | Treat the CBsy LTC as a SysB LTC and go to step 25. |
| the LTC changes to SysB          | step 6                                              |
| one LTC unit returns to service  | step 46                                             |
| both LTC units return to service | step 48                                             |

- 6 Check the Ext header of the alarm banner.

| <b>If an FSP alarm</b> | <b>Do</b> |
|------------------------|-----------|
| is present             | step 7    |
| is not present         | step 25   |

- 7 To locate the frame supervisory panel (FSP) alarm, type  
**>EXT; LIST FSP**  
 and press the Enter key.

*Example of a MAP response:*  
 FSPAISD

In this example, the alarm is an FSP alarm on Aisle D.

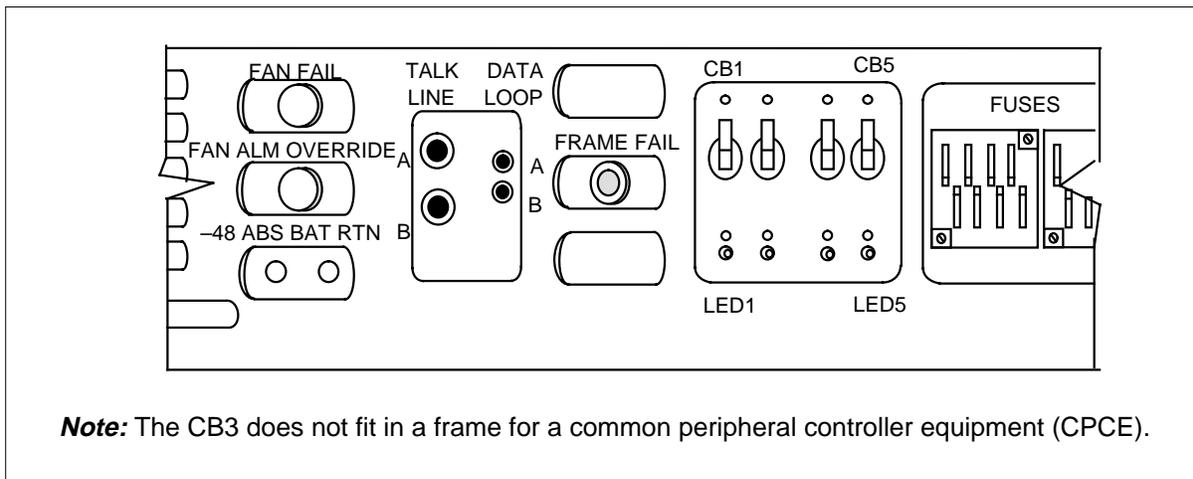
## PM LTC critical (continued)

### At the equipment aisle

- 8 Go to the aisle that you identified in step 7. The end aisle alarm is lit.

### At the equipment frame

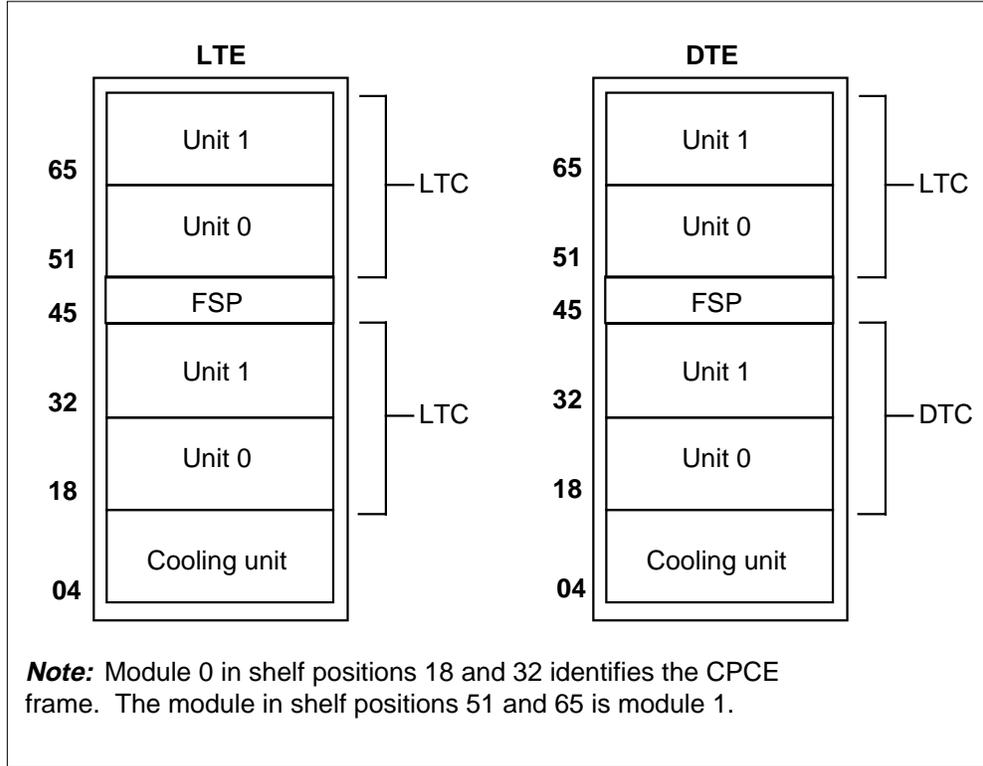
- 9 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP of each frame. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit FRAME FAIL lamp.



- 10 The following figure shows a line trunk equipment (LTE) and a digital trunk equipment (DTE) frame. Because this is an LTC critical alarm, the frame type that contains the LTC is a CPCE type. The CPCE frame can be an LTE frame, or a line group equipment (LGE) frame. The CPCE frame type also can be a DTE frame. Identify the PMs in the frame. Refer to the following figure for help.

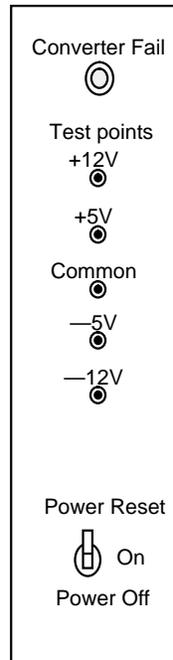
## PM LTC

**critical** (continued)



- 11 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "LTC shelf design" for help to locate this card. Refer to the following figure of an NT2X70AE card for help to check the Converter Fail LED.

## PM LTC critical (continued)



| If any LEDs | Do      |
|-------------|---------|
| are lit     | step 12 |
| are not lit | step 16 |

**12** Note the LTC with the LED lamps on.

**At the MAP display**

**13**

### ATTENTION

Record the active unit (0 or 1) to use later in this procedure. When you manual busy the LTC, unit activity will not display.

To post the system busy LTC, type

```
>PM; POST LTC ltc_no
```

and press the Enter key.

where

**ltc\_no**

is the number (0 to 255) of the LTC that you recorded in step 4

*Example of a MAP response:*

## PM LTC critical (continued)

---

PM Type: LTC PM No.: 0 PM Int. No: 0 Node\_No.: 21  
PMs Equipped: 38 Loadname: ECL07BI  
Unit 0 is patched  
Unit 1 is patched

- |  | <b>If a Mtce indicator</b>  | <b>Do</b> |
|--|-----------------------------|-----------|
|  | appears next to either unit | step 14   |
|  | does not appear             | step 15   |
- 14** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this step.
- |  | <b>If the critical alarm</b> | <b>Do</b> |
|--|------------------------------|-----------|
|  | remains                      | step 15   |
|  | changes                      | step 46   |
|  | clears                       | step 48   |
- 15** Determine if the LTC is the same as the LTC that you identified in step 12.
- |  | <b>If the LTC</b> | <b>Do</b> |
|--|-------------------|-----------|
|  | is different      | step 16   |
|  | is the same       | step 17   |
- 16** Clear the FSP alarm. Perform the correct procedure in this document. Complete the procedure and return to step 6.
- 17** To busy the LTC, type  
>BSY PM  
and press the Enter key.
- 18** Choose the active unit to work on, as recorded in step 13.

**At the equipment frame**

- 19** Change the NT2X70 card. Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**At the MAP display**

- 20** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

## PM LTC critical (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is:  
Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:*

```
Unit 0:
 Flash load File: [ECL07BI] ← (Processor load file name)
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
 Flash load File: ECL07BI
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
 Slotlet 0:
 Flash Load File: [QLI10BI] ← (Processor load file name)
 Flash Image File: QLI10BI
 Flash CMR File: CMR07A
Unit 1
 Slotlet 0:
 Flash Load File: QLI10BG ** Mismatch **
 Flash Image File: QLI10BG ** Mismatch **
 Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

|           | If the PRL card or packet                                                         | Do      |
|-----------|-----------------------------------------------------------------------------------|---------|
|           | is present                                                                        | step 21 |
|           | is not present                                                                    | step 24 |
| <b>21</b> | Determine if the LTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. |         |
|           | If the LTC is equipped with an                                                    | Do      |
|           | NT7X05 PRL card                                                                   | step 22 |
|           | NTSX06 PRL packet                                                                 | step 23 |

## PM LTC critical (continued)

---

- 22** To load the LTC from the local image, type  
**>LOADPM PM LOCAL IMAGE**  
and press the Enter key.

---

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 23 |

---

**23**



**DANGER**

**Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LTC from the local loadfile, type  
**>LOADPM PM LOCAL LOADFILE**  
and press the Enter key.

---

| If the load | Do      |
|-------------|---------|
| passed      | step 37 |
| failed      | step 24 |

---

- 24** To load the LTC that you worked on in step19, type  
**>LOADPM PM**  
and press the Enter key.

---

| If the load                                         | Do      |
|-----------------------------------------------------|---------|
| failed, and the system generated a card list        | step 38 |
| failed, and the system did not generate a card list | step 47 |
| passed                                              | step 37 |

---

---

**PM LTC**  
**critical** (continued)

---

- 25** To post the LTC, type  
**>POST LTC ltc\_no**  
 and press the Enter key.  
 where  
     **ltc\_no**  
     is the number (0 to 255) of the LTC that you recorded in step 4  
*Example of a MAP response:*

```
LTC 0 SysB Links_OOS: CSide 20, PSide 0
Unit0: Act SysB
Unit1: Inact SysB
```

---

| <b>If a Mtce indicator</b>  | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 26   |
| does not appear             | step 27   |

---

- 26** Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.

---

| <b>If the critical alarm</b> | <b>Do</b> |
|------------------------------|-----------|
| remains                      | step 27   |
| changes                      | step 46   |
| clears                       | step 48   |

---

- 27** To query the LTC for fault indications, type  
**>QUERYPM FLT**  
 and press the Enter key.

*Example of a MAP response:*  
 Activity dropped

- 28** Record the MAP response.

---

| <b>If the MAP response for the unit that you selected</b> | <b>Do</b> |
|-----------------------------------------------------------|-----------|
| is SWACT In Progress                                      | step 29   |
| is Load Corruption                                        | step 30   |
| is Load Failed                                            | step 30   |
| is Distributed Data Loading Failed                        | step 30   |

---

**PM LTC**  
**critical** (continued)

|           | <b>If the MAP response for the unit that you selected</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is Activity dropped                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | step 30   |
|           | is Not loaded since power up                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | step 30   |
|           | is other than listed here                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | step 36   |
| <b>29</b> | In an attempt to recover the LTC, the system switches the activity between the two LTC units. Wait until system maintenance is complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |
|           | <b>If</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Do</b> |
|           | the LTC units do not return to service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | step 36   |
|           | one LTC unit returns to service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | step 46   |
|           | both LTC units return to service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | step 48   |
| <b>30</b> | To busy the LTC, type<br><b>&gt;BSY PM</b><br>and press the Enter key.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |
| <b>31</b> | The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type<br><b>&gt;QUERYPM FILES</b><br>and press the Enter key.<br><br><b>Note:</b> If PRL cards are not present, the MAP response is:<br>Flash not datafilled. QueryPm files invalid<br><br><i>Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:</i><br><br><pre>Unit 0:   Flash load File: [ECL07BI] ← (Processor load file name)   Flash Image File:ECL07BI   Flash Image Timestamp: 1996/01/17 16:01:52.944 WED. Unit 1:   Flash load File: ECL07BI   Flash Image File:ECL07BI   Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.</pre> |           |
|           | <i>Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |

## PM LTC critical (continued)

```

Unit 0:
Slotlet 0:
 Flash Load File: QLI10BI ← (Processor load file name)
 Flash Image File: QLI10BI
 Flash CMR File: CMR07A
Unit 1
Slotlet 0:
 Flash Load File: QLI10BG ** Mismatch **
 Flash Image File: QLI10BG ** Mismatch **
 Flash CMR File: CMR07A

```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If a PRL card or packet | Do      |
|-------------------------|---------|
| is present              | step 32 |
| is not present          | step 35 |

- 32** Determine if the LTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LTC is equipped with an NTSX05 with an NTSX06 PRL, type

**>QUERYPM CONFIG**

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```

QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor

```

*Example of a MAP response if an SX05 processor is present*

```

QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packet

```

| If the LTC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 33 |
| NTSX06 PRL packet              | step 34 |

**PM LTC**  
**critical** (continued)

- 33** To load the LTC from the local image, type  
**>LOADPM PM LOCAL IMAGE**  
and press the Enter key.

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 37   |
| failed             | step 34   |

- 34**



**DANGER**

**Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LTC from the local loadfile, type  
**>LOADPM PM LOCAL LOADFILE**  
and press the Enter key.

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 37   |
| failed             | step 35   |

- 35** To load the LTC, type  
**>LOADPM PM**  
and press the Enter key.

| <b>If the load</b>                                  | <b>Do</b> |
|-----------------------------------------------------|-----------|
| failed, and the system generated a card list        | step 38   |
| failed, and the system did not generate a card list | step 47   |
| passed                                              | step 37   |

## PM LTC critical (continued)

- 36** To busy the LTC, type  
>BSY PM  
and press the Enter key.
- 37** To return the LTC to service, type  
>RTS PM  
and press the Enter key.

| If                                                                        | Do      |
|---------------------------------------------------------------------------|---------|
| the LTC failed to return to service, and the system generated a card list | step 38 |
| one LTC unit returns to service                                           | step 46 |
| both LTC units return to service                                          | step 48 |

### ***At the equipment frame***

- 38** Replace the first or next card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help to locate this card.
- The MAP response in step 13 (if you completed this step) or step 28 can help you isolate the card that has faults. Refer to the following table for help.

| MAP response                       | Suspect cards                                                        |
|------------------------------------|----------------------------------------------------------------------|
| PM Audit                           | NT6X69, NTMX77, NTSX05                                               |
| Activity Dropped                   | NTMX77, NTSX05                                                       |
| No WAI Received                    | NT6X40, NT6X41, NT6X42,<br>NT6X44, NT6X69, NTAX78,<br>NTMX77, NTSX05 |
| LINK Audit                         | NT6X40, NT6X41, NT6X42,<br>NT6X44, NT6X69, NTAX78,<br>NTMX77, NTSX05 |
| Load Corruption                    | NT6X42, NTMX77, NTSX05                                               |
| Load Failed                        | NTMX77, NTSX05                                                       |
| Distributed Data Loading<br>Failed | NT6X69, NTMX77, NTSX05                                               |

**PM LTC**  
**critical** (continued)

| <b>If you replace</b>    | <b>Do</b> |
|--------------------------|-----------|
| an NT6X42 or MTMX77 card | step 39   |
| an NTSX05 card           | step 40   |
| any other card           | step 44   |

**At the MAP display**

**39** Use the information that you recorded in step 13 to load the active LTC unit. To load the active LTC unit from the local image on the NT7X05 or NTSX06 PRL card, type

**>LOADPM ACTIVE LOCAL IMAGE**

and press the Enter key.

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 42   |
| failed             | step 40   |

**40**



**DANGER**

**Possible service interruption**

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the active LTC unit from the local loadfile on the PRL card, type

**>LOADPM ACTIVE LOCAL LOADFILE**

and press the Enter key.

| <b>If the load</b> | <b>Do</b> |
|--------------------|-----------|
| passed             | step 42   |
| failed             | step 41   |

**41** To load the active LTC unit from the CM, type

**>LOADPM ACTIVE**

---

**PM LTC**  
**critical** (continued)

---

and press the Enter key.

| If the load | Do      |
|-------------|---------|
| passed      | step 42 |
| failed      | step 47 |

- 42** To query the LTC counters for the firmware load on the NTMX77 or NTSX05 type

**>QUERYPM CNTRS**

and press the Enter key.

*Example of a MAP display for an LTC equipped with an NTMX77:*

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0

Unit 0:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03

UP:MX77AA

Unit 1:

Ram Load: ECL07BI

EProm Version: AB02

EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03,

UP:MX77AA

↑  
 ↑  
 — NTMX77 Firmware loadname —

*Example of a MAP display for an LTC equipped with an NTSX05:*

**PM LTC**  
**critical** (continued)

```

QueryPM cntrs
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EProm Version: AC01
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01

```

NTSX05 Firmware  
loadname version

|           | <b>If firmware</b>                                                                                  | <b>Do</b> |
|-----------|-----------------------------------------------------------------------------------------------------|-----------|
|           | is valid                                                                                            | step 44   |
|           | is invalid                                                                                          | step 43   |
| <b>43</b> | To load the NTMX77 or NTSX05 firmware, type<br>>LOADFW ACTIVE<br>and press the Enter key.           |           |
|           | <b>If load</b>                                                                                      | <b>Do</b> |
|           | passed                                                                                              | step 44   |
|           | failed                                                                                              | step 47   |
| <b>44</b> | To return the active LTC unit to service, type<br>>RTS ACTIVE<br>and press the Enter key.           |           |
|           | <b>If the unit</b>                                                                                  | <b>Do</b> |
|           | does not return to service, and you did not replace all cards on the list of cards that have faults | step 45   |
|           | does not return to service, and you replaced all cards on the list of cards that have faults        | step 47   |
|           | fails and the system did not generate a card list                                                   | step 47   |

---

**PM LTC**  
**critical** (end)

---

| <b>If the unit</b> | <b>Do</b> |
|--------------------|-----------|
| returns to service | step 46   |

**At the equipment frame**

- 45** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help in how to locate this card.

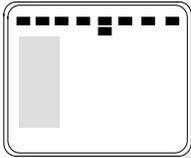
| <b>If you replace</b>    | <b>Do</b> |
|--------------------------|-----------|
| an NTMX77 or NT6X42 card | step 39   |
| an NTSX05 card           | step 40   |
| any other cards          | step 44   |

- 46** The LTC critical alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm. Go to step 48.
- 47** You need additional maintenance action to clear this alarm. Contact the next level of support. Describe in detail the steps that you performed to clear this alarm.
- 48** The procedure is complete.

## PM LTC major

---

### Alarm display



| CM | MS | IOD | Net | PM                      | CCS | Lns | Trks | Ext |
|----|----|-----|-----|-------------------------|-----|-----|------|-----|
| .  | .  | .   | .   | <b>1LTC</b><br><b>M</b> | .   | .   | .    | .   |

### Indication

At the MTC level of the MAP display, LTC (preceded by a number and followed by an M) appears under the PM header of the alarm banner. The LTC indicates a major alarm for a line trunk controller (LTC). The number that precedes the LTC indicates the number of LTCs that the alarm affects. The preceding figure shows an alarm banner with an LTC major alarm.

### Meaning

The LTC is in-service trouble (ISTb) as a result of one of the following conditions:

- one unit is system busy and one unit is ISTb
- one unit is system busy and one unit is in service
- one unit is C-side busy and one unit is ISTb
- one unit is C-side busy and one unit is in service

### Result

The alarm does not affect service. A backup unit is not available within the LTC.

### Common procedures

The procedure refers to the following common procedures:

- "Clearing C-side faults"
- "Monitoring system maintenance"

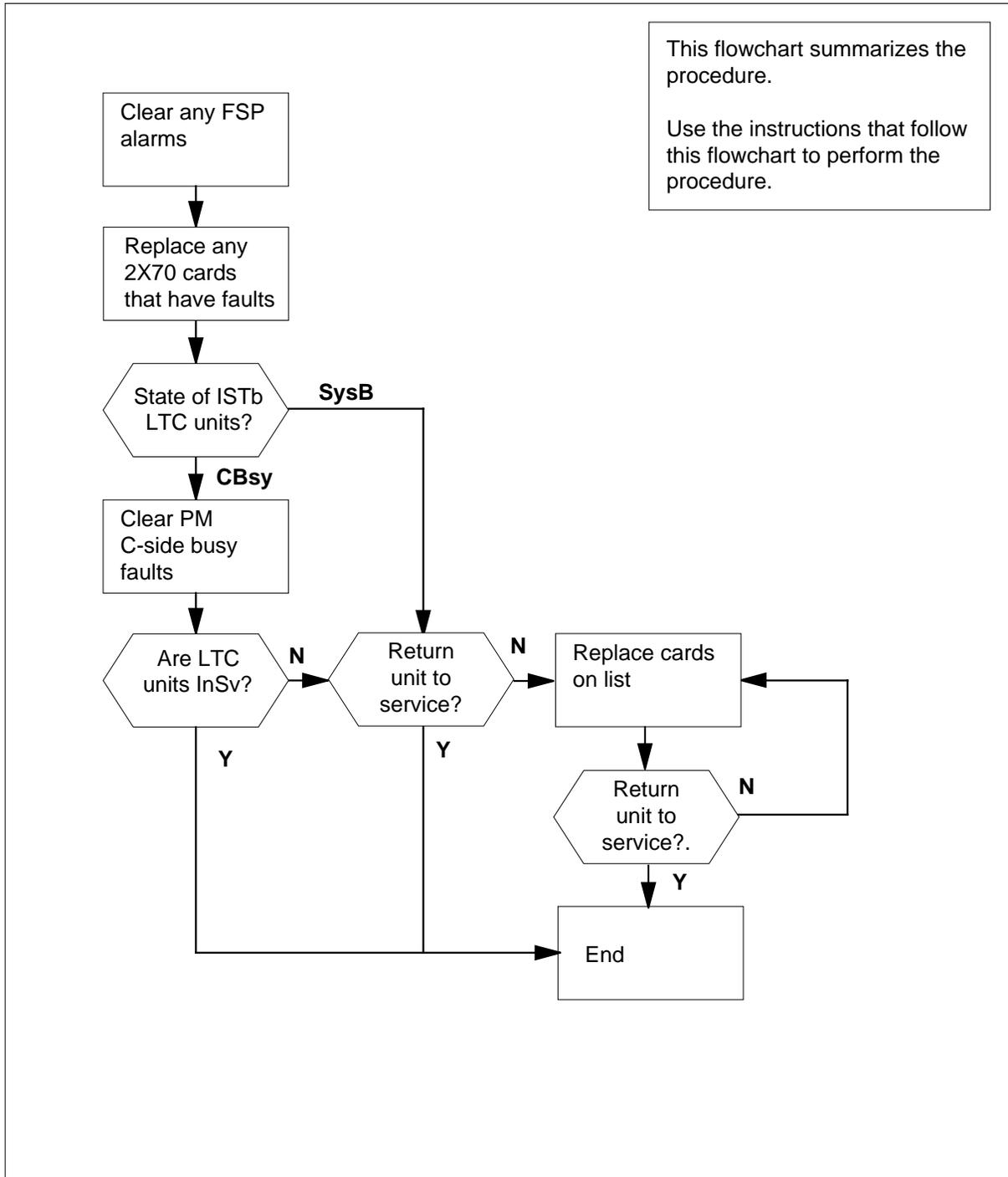
Do not go to the common procedures unless the step-action procedure directs you to go.

### Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

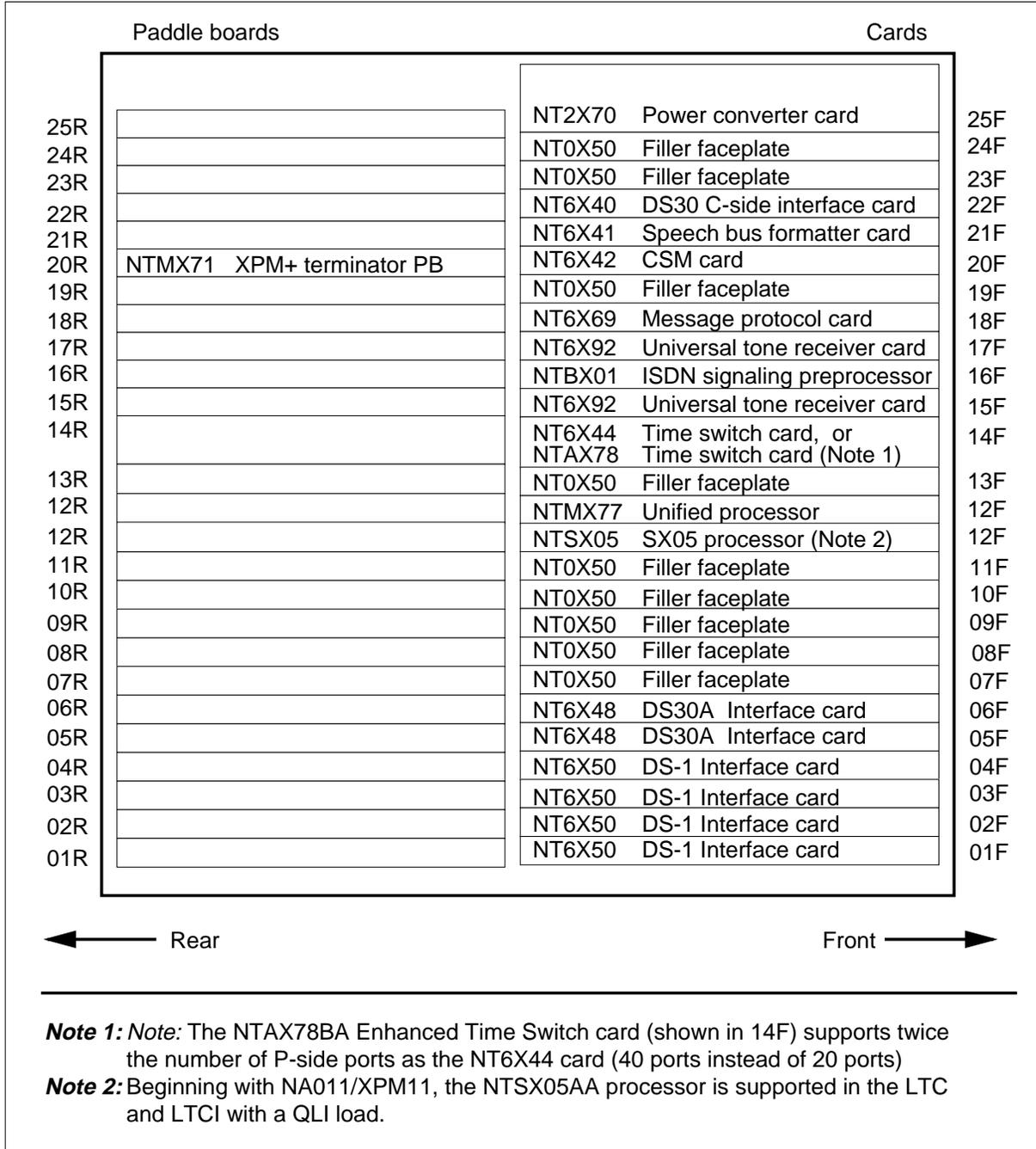
**PM LTC**  
**major (continued)**

**Summary of clearing a PM LTC major alarm**



**PM LTC**  
**major** (continued)

**LTC shelf design**



---

## PM LTC major (continued)

---

### Clearing a PM LTC major alarm

#### *At the MAP display*

- 1** To access the PM level of the MAP display, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP display response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBSy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

---

**If**

**Do**

an audible alarm rings

step 2

no audible alarm rings

step 3

---

- 2** To silence the alarm, type

**>SIL**

and press the Enter key.

- 3** To display all the ISTb LTCs, type

**>DISP STATE ISTB LTC**

and press the Enter key.

*Example of a MAP display response:*

ISTB LTC : 0

**Note:** If multiple LTCs are ISTb, select an LTC on which to work. Record the number of the LTC.

- 4** Check the Ext header of the alarm banner for a frame supervisory panel (FSP) alarm.

---

**If an FSP alarm**

**Do**

is present

step 5

is not present

step 22

---

- 5** To locate the FSP alarm, type

**>EXT ; LIST FSP**

and press the Enter key.

*Example of a MAP display response:*

FSPAISD

## PM LTC major (continued)

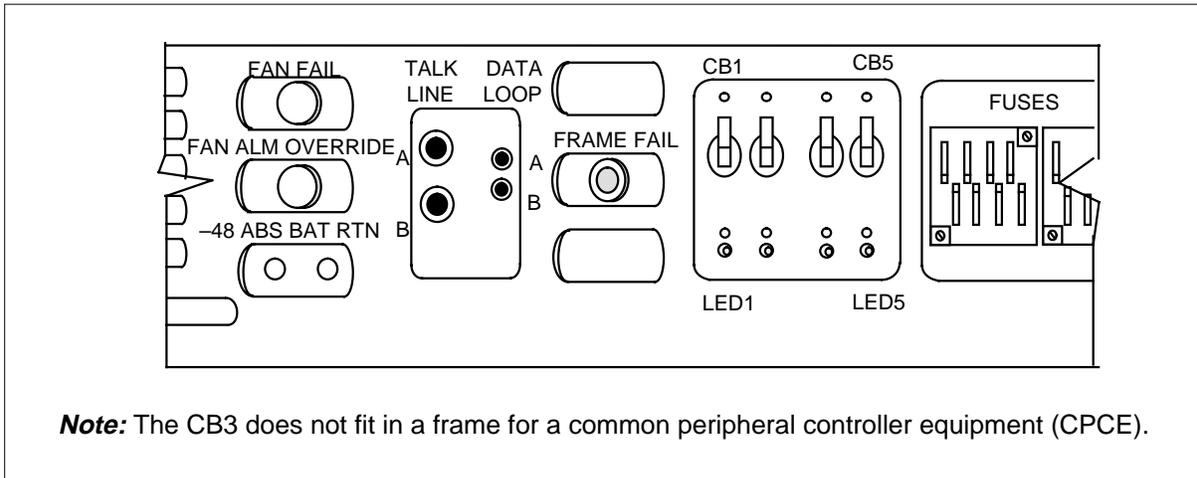
In this example, the alarm is an FSP alarm on Aisle D.

**At the equipment aisle**

- 6 Go to the aisle that you identified in step 5. The end aisle alarm is lit.

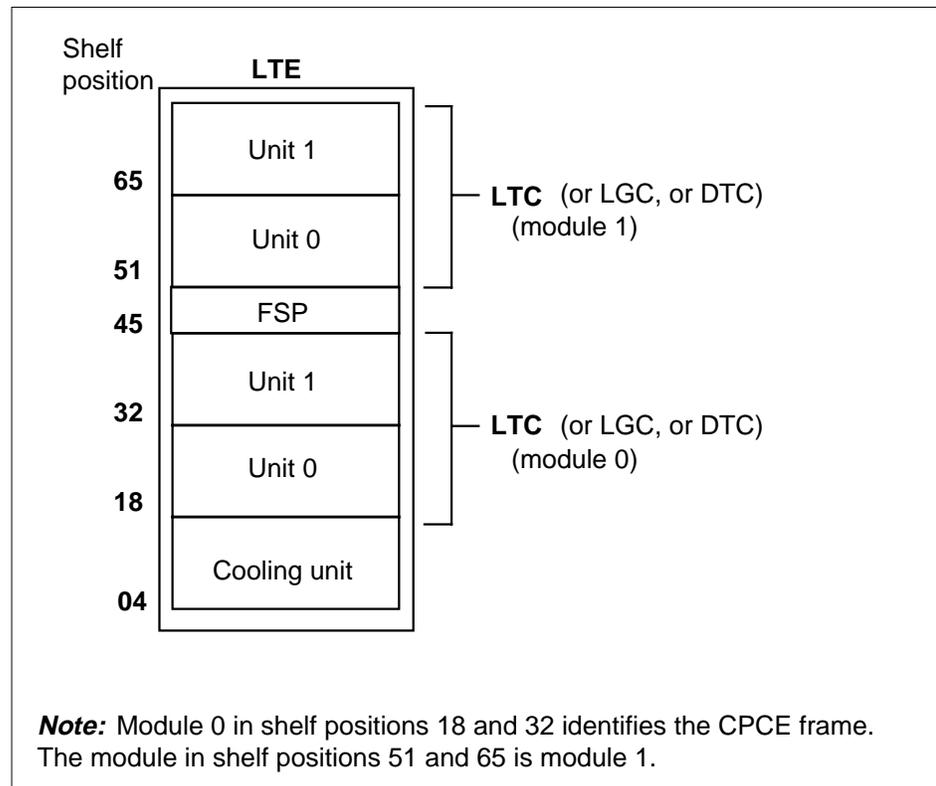
**At the equipment frame**

- 7 To identify the frame with the FSP alarm, check the FRAME FAIL lamp on the FSP. The frame with the FSP alarm has a lit FRAME FAIL lamp. The following figure shows an FSP with a lit fail lamp.



- 8 The following figure shows a line trunk equipment (LTE) frame. Because this is an EXT FSP alarm, the frame that contains the LTC is a common peripheral control equipment (CPCE) type and can be an LTE frame. The FSP alarm also can appear in a digital trunk equipment (DTE) frame or a line group equipment (LGE) frame. Identify the PMs in the frame. Refer to the following figure for help.

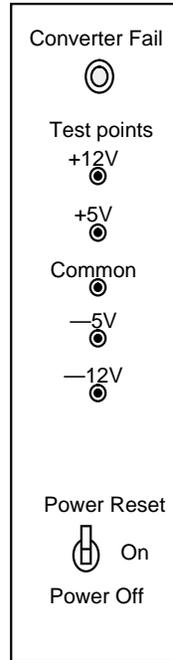
## PM LTC major (continued)



- 9 Check the Converter Fail LED on each NT2X70 power converter card in the frame. Refer to the figure "LTC shelf design" in this procedure for help to locate this card. Refer to the following figure of an NT2X70AE card for help to check the Converter Fail LED.

## PM LTC major (continued)

---



---

| <b>If any LEDs</b> | <b>Do</b> |
|--------------------|-----------|
| are lit            | step 10   |
| are not lit        | step 14   |

---

- 10** Note the LTC with the LED lamp on.

**At the MAP display**

- 11** To post the LTC, type  
>PM; POST LTC ltc\_no  
and press the Enter key.  
where

**ltc\_no**

is the number (0 to 255) of the LTC that you recorded in step 3

*Example of a MAP display response:*

---

**PM LTC**  
**major (continued)**


---

```
LTC 0 ISTb Links_OOS: CSide 17, PSide 0
Unit0: Act InSv
Unit1: Inact CBSy
```

- |                               | <b>If a Mtce indicator</b>                                                                                                                            | <b>Do</b> |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                               | appears next to either unit                                                                                                                           | step 12   |
|                               | does not appear                                                                                                                                       | step 13   |
| <b>12</b>                     | Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.                         |           |
|                               | <b>If the major alarm</b>                                                                                                                             | <b>Do</b> |
|                               | remains                                                                                                                                               | step 13   |
|                               | changes                                                                                                                                               | step 47   |
|                               | clears                                                                                                                                                | step 49   |
| <b>13</b>                     | Determine if the LTC is the same as the LTC that you identified in step 10.                                                                           |           |
|                               | <b>If the LTC</b>                                                                                                                                     | <b>Do</b> |
|                               | is different                                                                                                                                          | step 14   |
|                               | is the same                                                                                                                                           | step 15   |
| <b>14</b>                     | Clear the FSP alarm. Perform the correct alarm clearing procedure in this manual. Complete the procedure and return to step 4.                        |           |
| <b>15</b>                     | To busy the SysB LTC unit, type<br>>BSY UNIT unit_no<br>and press the Enter key.<br>where<br><b>unit_no</b><br>is the number (0 to 1) of the LTC unit |           |
| <b>At the equipment frame</b> |                                                                                                                                                       |           |
| <b>16</b>                     | Change the NT2X70 card. Refer to the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.       |           |
| <b>At the MAP display</b>     |                                                                                                                                                       |           |
| <b>17</b>                     | The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM        |           |

## PM LTC major (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

>QUERYPM FILES

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is: Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:*

```
Unit 0:
 Flash load File: [ECL07BI] ← (Processor load file name)
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
 Flash load File: ECL07BI
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.
```

*Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:*

```
Unit 0:
 Slotlet 0:
 Flash Load File: [QLI10BI] ← (Processor load file name)
 Flash Image File: QLI10BI
 Flash CMR File: CMR07A
Unit 1
 Slotlet 1:
 Flash Load File: QLI10BG ** Mismatch **
 Flash Image File: QLI10BG ** Mismatch **
 Flash CMR File: CMR07A
```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

|           | <b>If the PRL card or packetlet</b>                                                  | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------|-----------|
|           | is present                                                                           | step 18   |
|           | is not present                                                                       | step 21   |
| <b>18</b> | Determine if the LTC is equipped with an NTSX06 PRL packetlet or an NT7X05 PRL card. |           |
|           | <b>If the LTC is equipped with an</b>                                                | <b>Do</b> |
|           | NT7X05 PRL card                                                                      | step 19   |
|           | NTSX06 PRL packetlet                                                                 | step 20   |

## PM LTC major (continued)

- 19** To load the LTC unit from the local image, type  
`>LOADPMT UNIT unit_no LOCAL IMAGE`  
 and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the LTC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 20 |

- 20**



### DANGER

#### Possible service interruption

The LOCAL LOADFILE option of the LOADPMT command has a parameter of [`<file>` string]. The LOADPMT command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

- To load the LTC unit from the local loadfile, type  
`>LOADPMT UNIT unit_no LOCAL LOADFILE`  
 and press the Enter key.

*where*

**unit\_no**  
 is the number (0 to 1) of the LTC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 21 |

- 21** To load the LTC unit, type  
`>LOADPMT UNIT unit_no`  
 and press the Enter key.

*where*

**PM LTC**  
**major** (continued)

---

**unit\_no**  
 is the number (0 to 1) of the LTC unit

| <b>If the load</b>                                  | <b>Do</b> |
|-----------------------------------------------------|-----------|
| failed, and the system generated a card list        | step 37   |
| failed, and the system did not generate a card list | step 48   |
| passed                                              | step 36   |

- 22** To post the LTC, type  
**>POST LTC ltc\_no**  
 and press the Enter key.  
*where*

**ltc\_no**  
 is the number (0 to 255) of the LTC that you recorded in step 3

*Example of a MAP display response:*

```
LTC 0 InSv Links_OOS: CSide 20, PSide 0
Unit0: Act InSv
Unit1: Inact SysB
```

| <b>If a Mtce indicator</b>  | <b>Do</b> |
|-----------------------------|-----------|
| appears next to either unit | step 23   |
| does not appear             | step 24   |

- 23** Go to the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point.

| <b>If the alarm</b> | <b>Do</b> |
|---------------------|-----------|
| remains             | step 24   |
| changes             | step 47   |
| clears              | step 49   |

- 24** Determine the maintenance state of each LTC unit.

| <b>If</b>                                           | <b>Do</b> |
|-----------------------------------------------------|-----------|
| one unit is CBSy and the other unit is InSv or ISTb | step 25   |

---

**PM LTC**  
**major (continued)**


---

|           | <b>If</b>                                                                                                                                                           | <b>Do</b>                             |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
|           | one unit is SysB and the other unit is InSv or ISTb                                                                                                                 | Work on the SysB unit. Go to step 26. |
| <b>25</b> | Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and return to this point.                                           |                                       |
|           | <b>If</b>                                                                                                                                                           | <b>Do</b>                             |
|           | the LTC remains ISTb because one unit is SysB and the other is InSv or ISTb                                                                                         | Work on the SysB unit. Go to step 26. |
|           | the LTC returns to service                                                                                                                                          | step 49                               |
| <b>26</b> | To query the LTC for fault indications, type<br><b>&gt;QUERYPM FLT</b><br>and press the Enter key.<br><i>Example of a MAP display response:</i><br>Activity dropped |                                       |
| <b>27</b> | Record the MAP response.                                                                                                                                            |                                       |
|           | <b>If the MAP response</b>                                                                                                                                          | <b>Do</b>                             |
|           | is SWACT In Progress                                                                                                                                                | step 28                               |
|           | is Load Corruption                                                                                                                                                  | step 29                               |
|           | is Load Failed                                                                                                                                                      | step 29                               |
|           | is Distributed Data Loading Failed                                                                                                                                  | step 29                               |
|           | is Activity dropped                                                                                                                                                 | step 29                               |
|           | is other than listed here                                                                                                                                           | step 35                               |
| <b>28</b> | In an attempt to recover the LTC, the system switches the activity between the two LTC units. Wait until system maintenance is complete.                            |                                       |
|           | <b>If the LTC</b>                                                                                                                                                   | <b>Do</b>                             |
|           | does not return to service                                                                                                                                          | step 35                               |
|           | returns to service                                                                                                                                                  | step 49                               |

---

## PM LTC major (continued)

29 To busy the LTC unit, type

```
>BSY UNIT unit_no
```

and press the Enter key.

30 The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

```
>QUERYPM FILES
```

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is: Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:*

```

Unit 0:
Flash load File: [ECL07BI] ← (Processor load file name)
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
Flash load File: ECL07BI
Flash Image File: ECL07BI
Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.

```

*Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:*

```

Unit 0:
Slotlet 0:
Flash Load File: [QLI10BI] ← (Processor load file name)
Flash Image File: QLI10BI
Flash CMR File: CMR07A
Unit 1
Slotlet 0:
Flash Load File: QLI10BG ** Mismatch **
Flash Image File: QLI10BG ** Mismatch **
Flash CMR File: CMR07A

```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If a PRL card or packet | Do      |
|-------------------------|---------|
| is present              | step 31 |
| is not present          | step 34 |

31 Determine if the LTC is equipped with an NTSX06 PRL packet or an NT7X05 PRL card. To determine if the LTC is equipped with an NTSX05 with an NTSX06 PRL, type

```
>QUERYPM CONFIG
```

## PM LTC major (continued)

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

```
QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor
```

*Example of a MAP response if an SX05 processor is present*

```
QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
```

| If the LTC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 32 |
| NTSX06 PRL packlet             | step 33 |

- 32** To load the LTC from the local image, type  
>LOADPM UNIT *unit\_no* LOCAL IMAGE  
and press the Enter key.

where

**unit\_no**  
is the number (0 to 1) of the LTC unit

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 33 |

**33**



### DANGER

#### Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [*<file>* string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

## PM LTC major (continued)

---

To load the LTC unit from the local loadfile, type  
>LOADPMT UNIT *unit\_no* LOCAL LOADFILE  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the LTC unit

---

| If the load | Do      |
|-------------|---------|
| passed      | step 36 |
| failed      | step 34 |

---

- 34** To load the LTC unit, type  
>LOADPMT UNIT *unit\_no*  
and press the Enter key.
- 

| If the load                                         | Do      |
|-----------------------------------------------------|---------|
| failed, and the system generated a card list        | step 37 |
| failed, and the system did not generate a card list | step 48 |
| passed                                              | step 36 |

---

- 35** To busy the LTC unit that has faults, type  
>BSY UNIT *unit\_no*  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the LTC unit

- 36** To return the LTC unit to service, type  
>RTS UNIT *unit\_no*  
and press the Enter key.

*where*

**unit\_no**  
is the number (0 to 1) of the LTC unit

---

| If the LTC unit                              | Do      |
|----------------------------------------------|---------|
| failed, and the system generated a card list | step 37 |

---

## PM LTC major (continued)

| If the LTC unit                                     | Do      |
|-----------------------------------------------------|---------|
| failed, and the system did not generate a card list | step 48 |
| passed                                              | step 49 |

### **At the equipment frame**

- 37** Replace the first card on the list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help in how to locate this card.

The MAP response in step 11 (if you completed this step) or step 27 can help you isolate the card that has faults. Refer to the following table for help.

| MAP response                    | Suspect cards                                                  |
|---------------------------------|----------------------------------------------------------------|
| PM Audit                        | NT6X69, NTMX77, NTSX05                                         |
| Activity Dropped                | NTMX77, NTSX05                                                 |
| No WAI Received                 | NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05 |
| LINK Audit                      | NT6X40, NT6X41, NT6X42, NT6X44, NT6X69, NTAX78, NTMX77, NTSX05 |
| Load Corruption                 | NT6X42, NTMX77, NTSX05                                         |
| Load Failed                     | NTMX77, NTSX05                                                 |
| Distributed Data Loading Failed | NT6X69, NTMX77, NTSX05                                         |

| If you                                    | Do      |
|-------------------------------------------|---------|
| replace an NT6X42, NTMX77, or NTSX05 card | step 38 |
| replace any other card                    | step 45 |

### **At the MAP display**

- 38** The NT7X05 peripheral/remote loader (PRL) card used with the NTMX77 or the NTSX06 PRL card in the NTSX05 processor, allows a local load of XPM

# PM LTC major (continued)

data. A local load of XPM data reduces recovery time. To determine if a PRL card is present, type

**>QUERYPM FILES**

and press the Enter key.

**Note:** If PRL cards are not present, the MAP response is: Flash not datafilled. QueryPm files invalid

*Example of a MAP display for an LTC with an NTMX77 processor with an NT7X05 PRL card:*

```

Unit 0:
 Flash load File: ECL07BI ← (Processor load file name)
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:01:52.944 WED.
Unit 1:
 Flash load File: ECL07BI
 Flash Image File: ECL07BI
 Flash Image Timestamp: 1996/01/17 16:04:52.944 WED.

```

*Example of a MAP display for an LTC with an NTSX05 processor with an NTSX06 PRL card:*

```

Unit 0:
 Slotlet 0:
 Flash Load File: QLI10BI ← (Processor load file name)
 Flash Image File: QLI10BI
 Flash CMR File: CMR07A
Unit 1
 Slotlet 1:
 Flash Load File: QLI10BG ** Mismatch **
 Flash Image File: QLI10BG ** Mismatch **
 Flash CMR File: CMR07A

```

**Note:** If the load file on the flash memory is bad or missing, the system response is Unusable load file or file not found. Reload flash.

| If a PRL card or packetlet | Do      |
|----------------------------|---------|
| is present                 | step 39 |
| is not present             | step 42 |

**39** Determine if the LTC is equipped with an NTSX06 PRL packetlet or an NT7X05 PRL card. To determine if the LTC is equipped with an NTSX05 with an NTSX06 PRL, type

**>QUERYPM CONFIG**

and press the Enter key.

The response identifies if an NTSX05 is installed and what the PEC of the NTSX06 PRL card is, if installed.

*Example of a MAP response if no SX05 processor is present*

## PM LTC major (continued)

```
QueryPM config
UNIT 0 Request invalid. Unit does not have SX05 processor
UNIT 1 Request invalid. Unit does not have SX05 processor
```

*Example of a MAP response if an SX05 processor is present*

```
QueryPM config
UNIT 0 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
UNIT 1 Slot 12: SX05AA
 PCMCIA Slotlet 0: SX06CA
 PCMCIA Slotlet 1: No packlet
```

| If the LTC is equipped with an | Do      |
|--------------------------------|---------|
| NT7X05 PRL card                | step 40 |
| NTSX06 PRL packlet             | step 41 |

- 40** Use the information recorded in step 11 to load the inactive LTC unit. To load the inactive LTC unit from the local image on the NT7X05 PRL card, type

```
>LOADPM UNIT unit_no LOCAL IMAGE
```

and press the Enter key.

where

**unit\_no**

is the number of the inactive LTC unit that you recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 41 |

- 41**



### DANGER

#### Possible service interruption

The LOCAL LOADFILE option of the LOADPM command has a parameter of [<file> string]. The LOADPM command does not patch the loadfile when you use this parameter. Do not use this parameter unless you need to use the NOPATCH option of the loadfile.

To load the inactive LTC unit from the local loadfile on the PRL card, type

```
>LOADPM UNIT unit_no LOCAL LOADFILE
```

**PM LTC**  
**major** (continued)

and press the Enter key.

where

**unit\_no**  
 is the number of the inactive LTC unit that you recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 42 |

- 42** To load the inactive LTC unit from the CM, type  
**>LOADPM UNIT unit\_no**  
 and press the Enter key.

where

**unit\_no**  
 is the number of the inactive LTC unit that you recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 43 |
| failed      | step 48 |

- 43** To query the LTC counters for the firmware load on the NTMX77 or NTSX05 type  
**>QUERYPM CNTRS**  
 and press the Enter key.

*Example of a MAP display for an LTC equipped with an NTMX77:*

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
Ram Load: ECL07BI
EPRom Version: AB02
EEPROM Load: Loadable: MX77NG03, Executable: MX77NG03
UP:MX77AA
Unit 1:
Ram Load: ECL07BI
EPRom Version: AB02
EEPROM Load: Loadable: [MX77NG03], Executable: [MX77NG03]
UP:MX77AA

```

*Example of a MAP display for an LTC equipped with an NTSX05:*

## PM LTC major (continued)

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0
Unit 0:
QueryPM CNTRS command may take up to 2 minutes
Unit at ROM level
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01
Unit 1:
Ram Load: QLI10BG
EPROM Version: AC01
EEPROM Load: Loadable: SA01, Executable: SA01
UP: SX05AA
IP: BX01

```

| If firmware | Do      |
|-------------|---------|
| is valid    | step 45 |
| is invalid  | step 44 |

#### 44 To load the NTMX77 or NTSX05 firmware, type

```
>LOADFW UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the inactive LTC unit that you recorded in step 11

| If the load | Do      |
|-------------|---------|
| passed      | step 45 |
| failed      | step 48 |

#### 45 To return the LTC unit to service, type

```
>RTS UNIT unit_no
```

and press the Enter key.

where

**unit\_no**

is the number of the inactive LTC unit that you recorded in step 11

| If the unit                                                                                         | Do      |
|-----------------------------------------------------------------------------------------------------|---------|
| does not return to service, and you did not replace all cards on the list of cards that have faults | step 46 |
| does not return to service, and you replaced all cards on the list of cards that have faults        | step 48 |

**PM LTC**  
**major (end)**

---

| <b>If the unit</b>                                 | <b>Do</b> |
|----------------------------------------------------|-----------|
| fails, and the system did not generate a card list | step 48   |
| returns to service                                 | step 49   |

---

***At the equipment frame***

- 46** Replace the next card on the card list. Refer to the correct procedure in *Card Replacement Procedures*. Refer to the figure "LTC shelf design" in this procedure for help to locate this card.
- 

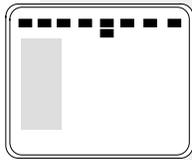
| <b>If you replace</b>            | <b>Do</b> |
|----------------------------------|-----------|
| an NTMX77, NTSX05 or NT6X42 card | step 38   |
| any other cards                  | step 45   |

---

- 47** The LTC major alarm changed to another type of alarm. Refer to the correct alarm clearing procedure in this document. Go to step 49.
- 48** For additional help, contact the next level of support.
- 49** The procedure is complete.

## PM LTC minor

### Alarm display



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

### Indication

At the MTC level of the MAP display, an LTC (preceded by a number) appears under the PM header of the alarm banner. The LTC indicates a minor alarm for a line trunk controller (LTC). The number that precedes the LTC indicates the number of LTCs that the alarm affects. The preceding figure shows an alarm banner with an LTC minor alarm.

### Meaning

The LTC is in-service trouble (ISTb) as a result of one of the following conditions:

- both units are ISTb
- one unit is ISTb and one unit is in service
- one unit is ISTb and one unit is manual busy
- one unit is in service and one unit is manual busy
- both units are in service with some P-side links or C-side links that are out of service

### Result

The alarm does not affect service.

### Common procedures

The procedure refers to the following common procedures:

- "Monitoring system maintenance"
- "Clearing PM C-side faults"

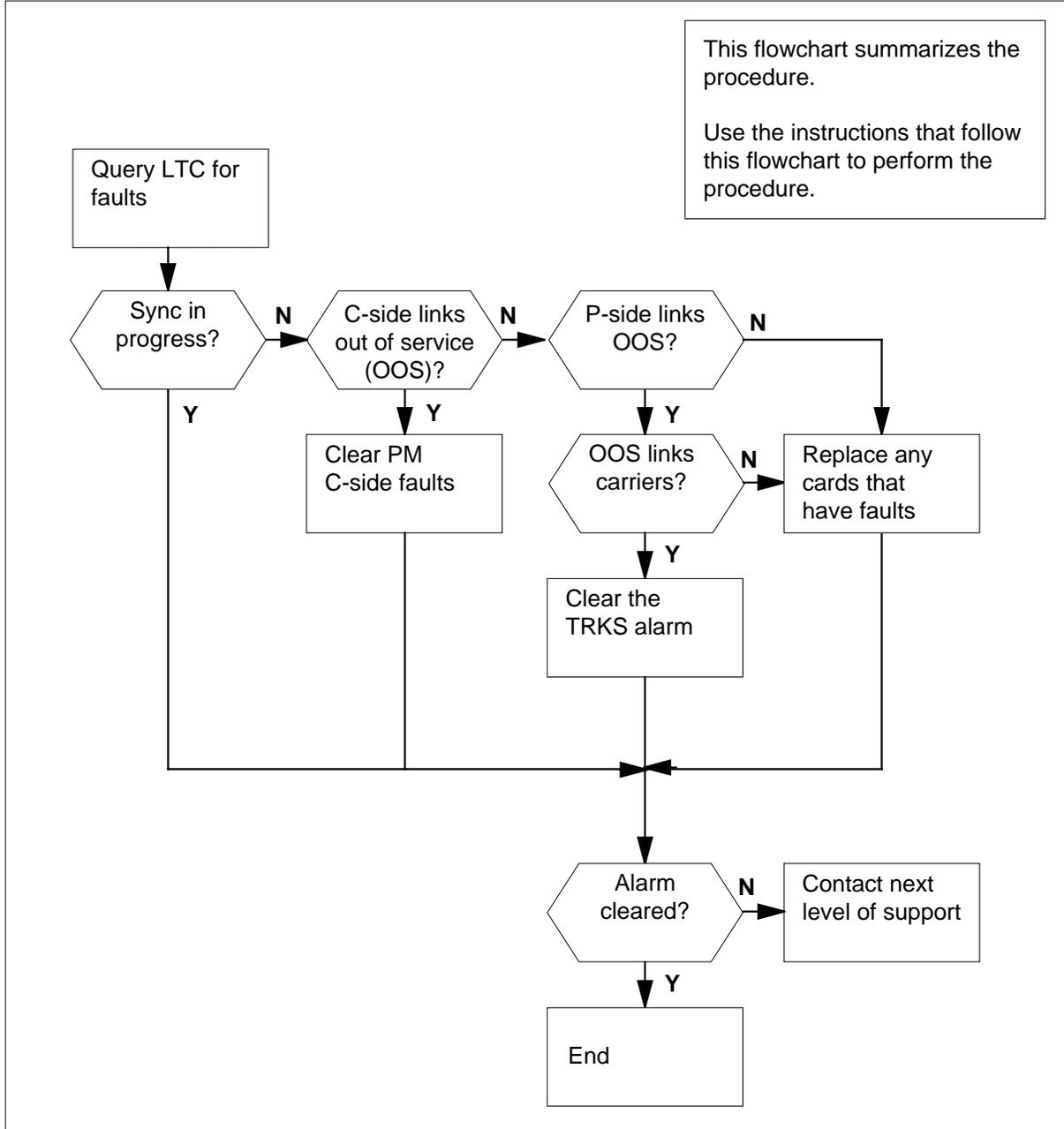
Do not go to the common procedures unless the step-action procedure directs you to go.

# PM LTC minor (continued)

## Action

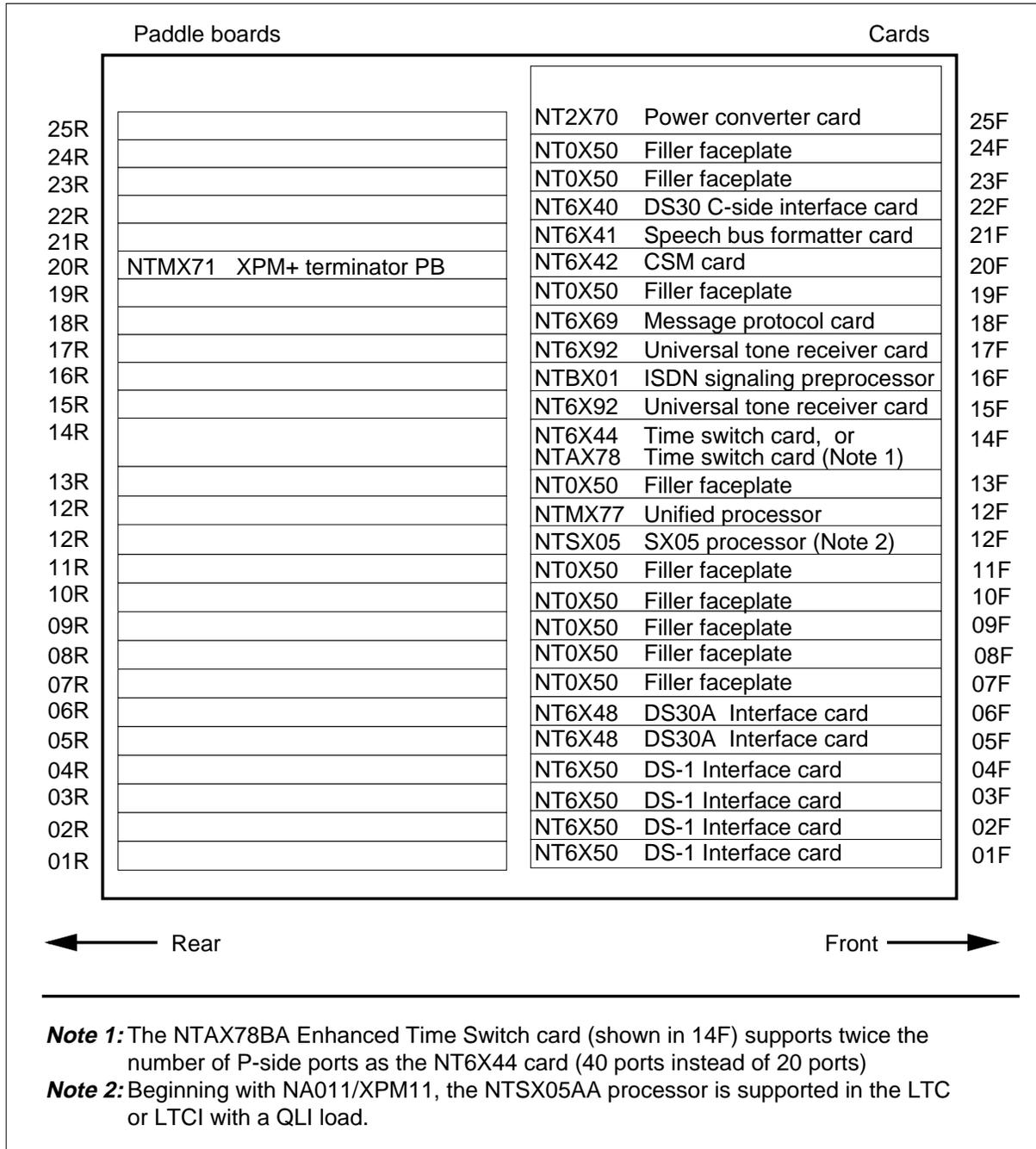
This section provides a summary flowchart and a list of steps to clear an alarm. A detailed step-action procedure follows the flowchart.

### Summary of clearing a PM LTC minor alarm



## PM LTC minor (continued)

### LTC shelf design



## PM LTC minor (continued)

---

### Clearing a PM LTC minor alarm

#### At the MAP display

- 1 To access the PM level of the MAP display, type

>MAPCI ;MTC ;PM

and press the Enter key.

*Example of a MAP display response:*

|    |      |      |      |      |      |      |
|----|------|------|------|------|------|------|
|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

---

**If**

**Do**

an audible alarm rings

step 2

no audible alarm rings

step 3

---

- 2 To silence the alarm, type

>SIL

and press the Enter key.

- 3 To display all the ISTb LTCs, type

>DISP STATE ISTB LTC

and press the Enter key.

*Example of a MAP display response:*

ISTb LTC : 0

**Note:** If multiple LTCs are ISTb, select an LTC on which to work. Repeat this procedure for each LTC that is ISTb.

Record the number of the LTC.

- 4 To post the LTC, type

>POST LTC ltc\_no

and press the Enter key.

where

**ltc\_no**

is the number (0 to 255) of the LTC that you recorded in step 3

*Example of a MAP display response:*

---

**PM LTC**  
**minor** (continued)

---

```
LTC 0 ISTb Links_OOS: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact ISTb Mtce
```

|          | <b>If a Mtce flag</b>                                                                                                      | <b>Do</b>                                              |
|----------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
|          | appears next to either unit                                                                                                | step 5                                                 |
|          | does not appear                                                                                                            | step 6                                                 |
| <b>5</b> | Go the common procedure "Monitoring system maintenance" in this document. Complete the procedure and return to this point. |                                                        |
|          | <b>If the LTC minor alarm</b>                                                                                              | <b>Do</b>                                              |
|          | remains                                                                                                                    | step 6                                                 |
|          | changes                                                                                                                    | step 35                                                |
|          | clears                                                                                                                     | step 36                                                |
| <b>6</b> | Select an LTC unit to recover.                                                                                             |                                                        |
|          | <b>If</b>                                                                                                                  | <b>Do</b>                                              |
|          | one unit is ISTb and one unit is InSv                                                                                      | step 7                                                 |
|          | both units are ISTb                                                                                                        | Work on the inactive unit and go to step 11.           |
|          | one unit is ManB and one unit is ISTb or InSv                                                                              | Work on the manually busy unit and go to step 11.      |
| <b>7</b> | Determine if the ISTb unit is active or inactive.                                                                          |                                                        |
|          | <b>If the ISTb unit</b>                                                                                                    | <b>Do</b>                                              |
|          | is active                                                                                                                  | step 8                                                 |
|          | is inactive                                                                                                                | Work on the in-service trouble unit and go to step 11. |

---

**PM LTC**  
**minor** (continued)

---

8



**CAUTION**

**Possible loss of service**

Confirm a cold SWACT during a period of low traffic. If you confirm a cold SWACT during a period of high traffic, the calls that the LTC handles will drop.

To switch the activity of the units, type

>SWACT

and press the Enter key.

The switch determines if you must perform a cold SWACT or a warm SWACT. The switch also shows a confirmation prompt for the selected SWACT.

---

| <b>If the switch of activity</b> | <b>Do</b> |
|----------------------------------|-----------|
| cannot continue                  | step 9    |
| can continue                     | step 10   |

---

9 To reject the prompt, type

>NO

and press the Enter key.

The system discontinues the switch of activity. Go to step 34.

10 To confirm the switch of activity, type

>YES

and press the Enter key.

The switch switches the activity between the active unit and the inactive unit. A Mtce flag appears during the switch of activity. Wait until the flag disappears before you proceed.

---

| <b>If the MAP response is</b>         | <b>Do</b>                                    |
|---------------------------------------|----------------------------------------------|
| SWACT Passed                          | Work on the inactive unit and go to step 11. |
| SWACT failed Reason:<br>XPM SWACTback | step 34                                      |
| SWACT refused by SWACT<br>controller  | step 34                                      |

---

## PM LTC minor (continued)

- 11 To determine the cause of the in-service trouble condition, type

>QUERYPM FLT

and press the Enter key.

**Note:** The in-service trouble condition of the LTC can be the result of multiple causes. The LTC and the LTC units remain ISTb until all the in-service trouble conditions clear.

| If the MAP response is                        | Do      |
|-----------------------------------------------|---------|
| Dynamic data sync in progress                 | step 12 |
| Superframe sync in progress                   | step 12 |
| CLASS Modem Resource Card 6X78 out of service | step 13 |
| CMR Load not present                          | step 16 |
| Static data mismatch with CC                  | step 19 |
| P-side links out of service                   | step 21 |
| C-side links out of service                   | step 31 |
| other than listed here                        | step 34 |

- 12 Wait 5 min for the system to return the LTC to service.

| If the LTC minor alarm | Do      |
|------------------------|---------|
| clears                 | step 36 |
| does not clear         | step 34 |

- 13



### CAUTION

#### Possible loss of service

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the CMR card, type

>BSY UNIT unit\_no CMR

and press the Enter key.

**PM LTC**  
**minor** (continued)

---

*where*

**unit\_no**

is the number of the LTC unit (0 or 1) that contains the CMR card

- 14** To test the CMR card, type

**>TST UNIT unit\_no CMR**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTC unit (0 or 1) that contains the CMR card

| <b>If the TST command</b> | <b>Do</b> |
|---------------------------|-----------|
| fails                     | step 15   |
| passes                    | step 18   |

***At the equipment frame***

- 15** Replace the CMR card (NT6X78). Refer to the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 17.

***At the MAP display***

- 16** To manually busy the CMR card, type

**>BSY UNIT unit\_no CMR**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTC unit (0 or 1) that contains the CMR card

- 17** To load the CMR card, type

**>LOADPM UNIT unit\_no CMR**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTC unit (0 or 1) that contains the CMR card

| <b>If the LOADPM command</b>                | <b>Do</b> |
|---------------------------------------------|-----------|
| passes                                      | step 18   |
| fails, and you replaced the CMR card        | step 34   |
| fails, and you did not replace the CMR card | step 15   |

## PM LTC minor (continued)

- 18** To return the CMR card to service, type

```
>RTS UNIT unit_no CMR
```

and press the Enter key.

*where*

**unit\_no**

is the number of the LTC unit (0 or 1) that contains the CMR card

---

**If the RTS command**

**Do**

passes and the LTC returns to service      step 36

passes and the LTC does not return to service      step 33

fails      step 34

---

- 19**



**CAUTION**

**Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during periods of low traffic to minimize the risk of traffic interruption.

To manually busy the inactive in-service-trouble LTC unit, type

```
>BSY UNIT unit_no
```

and press the Enter key.

*where*

**unit\_no**

is the number of the LTC unit (0 or 1)

- 20** To return the LTC unit to service, type

```
>RTS UNIT unit_no
```

and press the Enter key.

*where*

**PM LTC**  
**minor** (continued)

---

**unit\_no**  
 is the number of the LTC unit (0 or 1)

|           | <b>If the RTS command</b>                                                                                                                                                                                                                                     | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passes, and the LTC unit returns to service                                                                                                                                                                                                                   | step 36   |
|           | passes, and the LTC unit does not return to service                                                                                                                                                                                                           | step 33   |
|           | fails                                                                                                                                                                                                                                                         | step 34   |
| <b>21</b> | To identify the out-of-service P-side links, type<br>>TRNSL P<br>and press the Enter key.<br><i>Example of a MAP display response:</i>                                                                                                                        |           |
|           | <pre>Link 0: Carrier of Class - Timing;Status:Offl Link 1: Carrier of Class - Trunk ;Status:OK  Link 18: Carrier of Class - Trunk ;Status:OK Link 19: Carrier of Class - Trunk ;Status:OK</pre>                                                               |           |
|           | <b>Note:</b> Links 2 to 17 and 20-39 do not appear in this example.                                                                                                                                                                                           |           |
| <b>22</b> | Record the number and state of all the out-of-service P-side links.<br><b>Note:</b> P-side links with a status of OK are in service. Any other status indicates a P-side link that is out of service. The MAP display can identify P-side links as a CARRIER. |           |
|           | <b>If the out-of-service links</b>                                                                                                                                                                                                                            | <b>Do</b> |
|           | are carriers                                                                                                                                                                                                                                                  | step 23   |
|           | are links                                                                                                                                                                                                                                                     | step 24   |
| <b>23</b> | Clear the Trks alarm. Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.                                                                                                                         |           |
|           | <b>If the LTC minor alarm</b>                                                                                                                                                                                                                                 | <b>Do</b> |
|           | clears                                                                                                                                                                                                                                                        | step 36   |
|           | does not clear                                                                                                                                                                                                                                                | step 34   |
| <b>24</b> | Choose a link on which to work.                                                                                                                                                                                                                               |           |
|           | <b>If the link</b>                                                                                                                                                                                                                                            | <b>Do</b> |
|           | is SysB                                                                                                                                                                                                                                                       | step 25   |

---

**PM LTC**  
**minor (continued)**


---

|           | <b>If the link</b>                                                                                                                                            | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is ManB                                                                                                                                                       | step 26   |
| <b>25</b> | To manually busy the link, type<br>>BSY LINK link_no<br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 39 )    |           |
| <b>26</b> | To test the link, type<br>>TST LINK link_no<br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 39 )             |           |
|           | <b>If the TST command</b>                                                                                                                                     | <b>Do</b> |
|           | passes                                                                                                                                                        | step 27   |
|           | fails, and the system generates a card list                                                                                                                   | step 28   |
|           | fails, and the system does not generate a card list                                                                                                           | step 34   |
| <b>27</b> | To return the link to service, type<br>>RTS LINK link_no<br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 63) |           |
|           | <b>If the RTS command</b>                                                                                                                                     | <b>Do</b> |
|           | fails, and the system generates a card list                                                                                                                   | step 28   |
|           | fails, and the system does not generate a card list                                                                                                           | step 34   |
|           | passes, and other out-of-service links are present                                                                                                            | step 24   |
|           | passes, and the LTC remains ISTb                                                                                                                              | step 34   |
|           | passes, and the LTC minor alarm clears                                                                                                                        | step 36   |

**PM LTC**  
**minor** (continued)

---

**At the equipment frame**

- 28** Replace the first card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

**At the MAP display**

- 29** To return the link to service, type

`>RTS LINK link_no`

and press the Enter key.

where

**link\_no**

is the number of the link (0 to 63)

| If the RTS command                                   | Do      |
|------------------------------------------------------|---------|
| fails, and you did not replace all cards on the list | step 30 |
| fails, and you replaced all cards on the list        | step 34 |
| passes but other out-of-service links are present    | step 24 |
| passes and the LTC remains ISTb                      | step 34 |
| passes and the LTC minor alarm clears                | step 36 |

- 30** Replace the next card on the list. Perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and go to step 29.

- 31** Go to the common procedure "Clearing PM C-side faults" in this document. Complete the procedure and go to step 32.

- 32** To post the LTC, type

`>PM;POST LTC ltc_no`

and press the Enter key.

where

**ltc\_no**

is the number of the LTC (0 to 255)

| If the LTC                       | Do      |
|----------------------------------|---------|
| is InSv                          | step 36 |
| is ISTb one unit is ISTb or CBSy | step 33 |
| is other than listed here        | step 34 |

- 33** To determine the cause of the in-service trouble condition, type

`>QUERYPM FLT`

---

**PM LTC  
minor (end)**


---

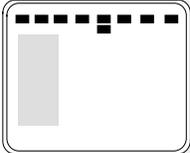
and press the Enter key.

**Note:** In-service trouble condition of an LTC can be the result of multiple of causes. The LTC and LTC units remain ISTb until all the in-service trouble conditions clear.

|           | <b>If the MAP response is</b>                                                                                                                                                                          | <b>Do</b> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | Dynamic data sync in progress                                                                                                                                                                          | step 12   |
|           | Superframe sync in progress                                                                                                                                                                            | step 12   |
|           | CLASS Modem Resource Card 6X78 out of service                                                                                                                                                          | step 13   |
|           | CMR Load not present                                                                                                                                                                                   | step 16   |
|           | Static data mismatch with CC                                                                                                                                                                           | step 19   |
|           | P-side links out of service                                                                                                                                                                            | step 21   |
|           | C-side links out of service                                                                                                                                                                            | step 31   |
|           | indicates a fault you cleared during this procedure                                                                                                                                                    | step 34   |
|           | is other than listed here                                                                                                                                                                              | step 34   |
| <b>34</b> | You need additional maintenance action to clear this alarm. Contact the next level of maintenance. Describe in detail the steps that you performed in your attempt to clear this alarm. Go to step 36. |           |
| <b>35</b> | The LTC minor alarm changed to another type of alarm. Refer to the correct procedure in this document to clear the alarm.                                                                              |           |
| <b>36</b> | The procedure is complete.                                                                                                                                                                             |           |

## PM LTCI critical, major, or minor

### Alarm display

|                                                                                   |    |    |     |     |       |     |     |      |     |      |
|-----------------------------------------------------------------------------------|----|----|-----|-----|-------|-----|-----|------|-----|------|
|  | CM | MS | IOD | Net | PM    | CCS | Lns | Trks | Ext | APPL |
|                                                                                   | .  | .  | .   | .   | 1LTCI | .   | .   | .    | .   | .    |
|                                                                                   |    |    |     |     | *C*   |     |     |      |     |      |

### Indication

At the MTC level of the MAP display, LTCI (preceded by a number) appears under the PM header of the alarm banner. The LTCI indicates a critical, major, or minor alarm for an ISDN line trunk controller (LTCI).

### Meaning

For a critical alarm, \*C\* appears under the alarm indicator. The system generates a critical alarm when the LTCI is system busy or C-side busy. An LTCI is system busy when both units are system busy. An LTCI is also system busy when one unit is system busy and the other unit is manually busy. An LTCI is C-side busy when both units are C-side busy.

For a major alarm, an M appears under the alarm indicator. The system generates a major alarm when the LTCI is manually busy, C-side busy, or in-service trouble (ISTb). An LTCI is manually busy when both units are manually busy. An LTCI is C-side busy with a major alarm when:

- one unit is C-side busy
- the other unit is system busy or manually busy

An LTCI is ISTb with a major alarm when:

- one unit is ISTb and the other unit is in service, C-side busy, manually busy, or ISTb
- one unit is manually busy and the other is in service
- both units are in service with some out-of-service P-side or C-side links

The number under the PM header in the alarm banner indicates the number of LTCIs affected.

### Result

Service stops when an LTCI is system busy, C-side busy, or manually busy. Each subtending PM does not have service, unless the PM has Emergency Stand-Alone (ESA) capabilities. The condition does not affect service when

**PM LTCI**  
**critical, major, or minor** (continued)

---

an LTCI is ISTb with a major or minor alarm. A backup unit is not present when one unit is manually busy and the other LTCI unit is ISTb. A backup unit is also not present when one unit is system busy and the other LTCI is ISTb. Service also continues in an in-service trouble LTCI as long as some P-side or C-side links are in service.

### **Common procedures**

This procedure refers to

- *Loading a PM*
- *Correcting a load mismatch*

Do not go to the common procedures unless the step-action procedure directs you to go.

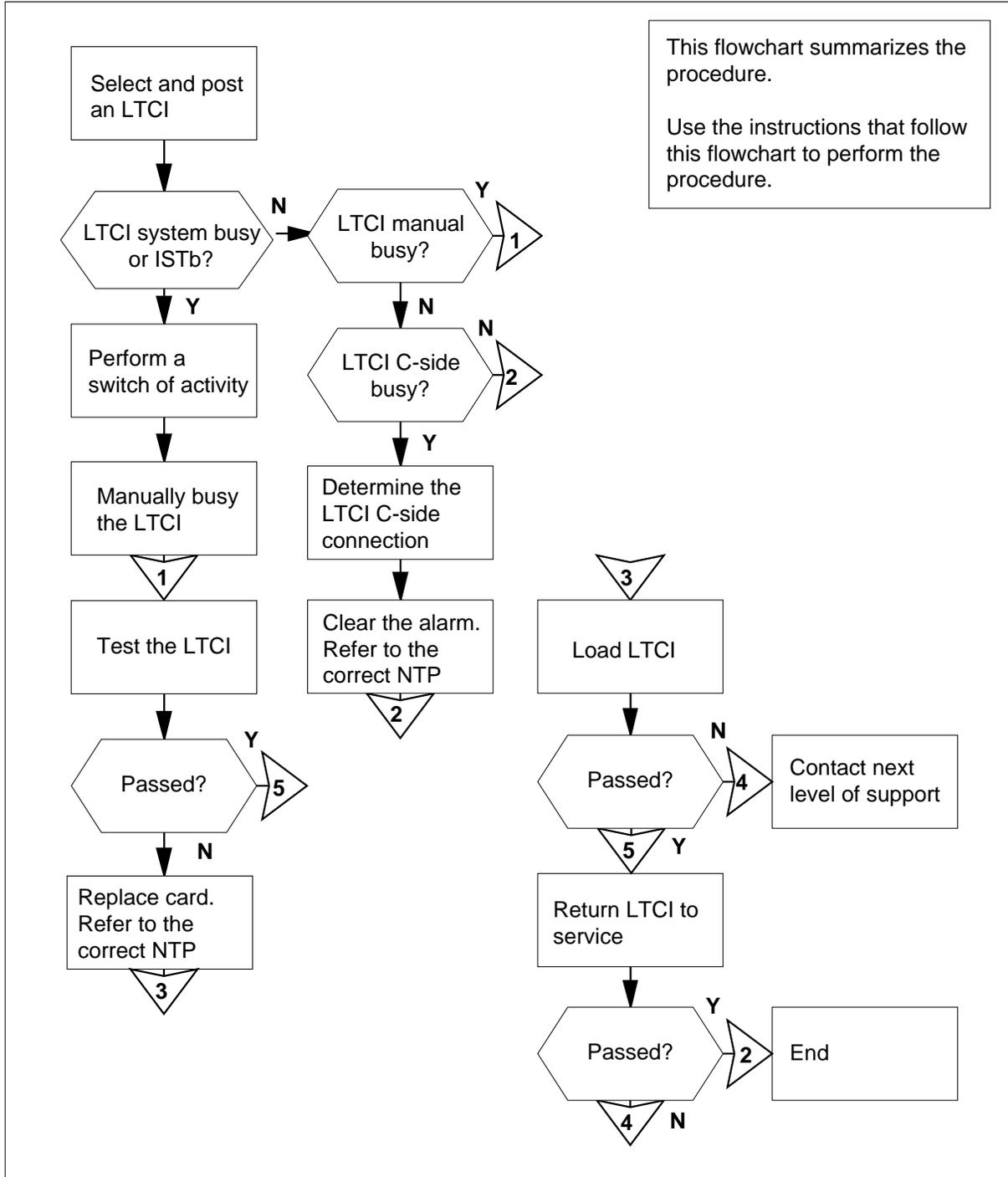
### **Action**

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

# PM LTCI

## critical, major, or minor (continued)

### Summary of clearing a PM LTCI critical, major, or minor alarm



---

## PM LTCI critical, major, or minor (continued)

---

### Clearing a PM LTCI critical, major, or minor alarm

#### At the MAP

- 1** To access the PM level of the MAP, type

**>MAPCI ;MTC ;PM**

and press the Enter key.

*Example of a MAP response:*

|    | SysB | ManB | OffL | CBsy | ISTb | InSv |
|----|------|------|------|------|------|------|
| PM | 1    | 3    | 5    | 7    | 6    | 12   |

- 2** Determine if an alarm is present under the Ext header of the MAP.

| If an Ext alarm | Do     |
|-----------------|--------|
| is present      | step 3 |
| is not present  | step 4 |

- 3** Perform the correct alarm clearing procedure in this document.

- 4** Determine if an audible alarm rings.

| If an alarm   | Do     |
|---------------|--------|
| rings         | step 5 |
| does not ring | step 6 |

- 5** To silence the alarm, type

**>SIL**

and press the Enter key.

- 6** To display the status of all PMs, type

**>STATUS**

and press the Enter key.

*Example of a MAP response:*

**PM LTCI**  
**critical, major, or minor** (continued)

|      |   |   |   |   |   |   |
|------|---|---|---|---|---|---|
| TM8  | 0 | 0 | 0 | 0 | 0 | 1 |
| MTM  | 0 | 0 | 0 | 0 | 1 | 3 |
| STM  | 0 | 0 | 0 | 0 | 0 | 2 |
| LM   | 0 | 0 | 1 | 0 | 0 | 1 |
| LGC  | 0 | 0 | 0 | 0 | 0 | 3 |
| LCM  | 0 | 0 | 0 | 0 | 1 | 0 |
| DTC  | 3 | 0 | 0 | 0 | 1 | 1 |
| LTC  | 0 | 0 | 0 | 0 | 2 | 1 |
| LCMI | 0 | 0 | 1 | 0 | 0 | 1 |
| LTCI | 0 | 0 | 0 | 1 | 1 | 1 |
| LCME | 0 | 1 | 0 | 0 | 1 | 1 |

**7** Determine the state of the LTCIs.

| <b>If the state of one LTCI</b> | <b>Do</b> |
|---------------------------------|-----------|
| is system busy (SysB)           | step 8    |
| is C-side busy (CBsy)           | step 64   |
| is manually busy (ManB)         | step 72   |
| is in-service trouble (ISTb)    | step 90   |

**8** To display all system busy LTCIs, type

**>DISP STATE SYSB LTCI**

and press the Enter key.

*Example of a MAP response:*

SysB LTCI : 0,3,5

**9** Record the number of each system busy LTCI.

**10** Choose an LTCI on which to work.

**11** To post the LTCI, type

**>POST LTCI ltci\_no**

and press the Enter key.

where

**ltci\_no**

is the number of the LTCI (0 to 255)

*Example of a MAP response:*

---

## PM LTCI critical, major, or minor (continued)

---

```
LTCI 0 SysB Links_OOS: CSide 0 , PSide 0
Unit0: Act ManB
Unit1: Inact SysB Mtce
```

| <b>If</b>                                                                                                                                                                                                                                                                    | <b>Do</b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| one LTCI is ManB and the other LTCI is SysB                                                                                                                                                                                                                                  | step 12   |
| both LTCI units are SysB and Mtce appears next to either unit                                                                                                                                                                                                                | step 13   |
| both LTCI units are SysB and Mtce does not appear next to either unit                                                                                                                                                                                                        | step 15   |
| <b>12</b> Go to step 76 to work on the manually busy unit first.                                                                                                                                                                                                             |           |
| <b>13</b> A maintenance flag (Mtce) appears in the MAP display when maintenance tasks are in progress. Wait until the flag disappears before you proceed with the next maintenance action.                                                                                   |           |
| <i><b>Note:</b> The status of system maintenance appears on the right of the maintenance flag in the MAP display. The flag appears for a maximum of 60 minutes. The length of time required for system maintenance depends on the number and type of PMs in your office.</i> |           |
| <b>If, after 60 min, the flag</b>                                                                                                                                                                                                                                            | <b>Do</b> |
| did not disappear                                                                                                                                                                                                                                                            | step 161  |
| disappears                                                                                                                                                                                                                                                                   | step 14   |
| <b>14</b> Determine if the LTCI is in service.                                                                                                                                                                                                                               |           |
| <b>If the state of the LTCI</b>                                                                                                                                                                                                                                              | <b>Do</b> |
| is InSv                                                                                                                                                                                                                                                                      | step 162  |
| is other than listed here                                                                                                                                                                                                                                                    | step 6    |
| <b>15</b> To determine the location of the LTCI, type<br>>QUERYPM<br>and press the Enter key.<br><i>Example of a MAP response:</i>                                                                                                                                           |           |

**PM LTCI**  
**critical, major, or minor** (continued)

---

```

PM Type: LTCI PM No.: 0 PM Int. No.: 0 Node_No: 18
Pms Equipped: 53 Loadname: NLT35CC
WARM SWACT is supported but not possible: node
redundancy lost
LTCI 0 is included in the REX schedule.
REX on LTCI 0 has not been performed.
Node Status: {MACHINE_BUSY, TRUE}
Unit 0 Act, Status: {MACHINE_BUSY, TRUE}
Unit 1 Inact, Status: {MACHINE_BUSY, TRUE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 00 B01 LTE 00 18 LTCI: 000 6X02AA

```

**At the LTE frame**

- 16** Determine if a power fault is the cause of the system busy condition. Examine the LTCIs in the LTC equipment (LTE) frame for a power converter fault.

**Note:** To check for a power fault, examine the fail lamp on the power converter (NT2X70) on each unit of the LTCI.

| <b>If the fail lamp</b>        | <b>Do</b> |
|--------------------------------|-----------|
| is lit on either converter     | step 17   |
| is not lit on either converter | step 30   |

- 17** Determine if one or both LTCI units are system busy.

| <b>If</b>                | <b>Do</b> |
|--------------------------|-----------|
| one LTCI unit is SysB    | step 18   |
| both LTCI units are SysB | step 24   |

**At the MAP terminal**

- 18** To manually busy the LTCI unit, type

>**BSY UNIT unit\_no**

and press the Enter key.

where

**unit\_no**

is the number of the system busy LTCI unit (0 or 1)

| <b>If the BSY command</b> | <b>Do</b> |
|---------------------------|-----------|
| passes                    | step 20   |
| fails                     | step 19   |

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

- 19** To force the LTCI unit to busy, type  
`>BSY UNIT unit_no FORCE`  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the system busy LTCI unit (0 or 1)
- 20** To replace the NT2X70 card, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 21** To load the LTCI unit, type  
`>LOADPM UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the LTCI unit (0 or 1) that you manually busied in  
     step 18

---

| If the LOADPM command | Do      |
|-----------------------|---------|
| passes                | step 23 |
| fails                 | step 22 |

---

- 22** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.
- 23** To return the manual busy LTCI unit to service, type  
`>RTS UNIT unit_no`  
 and press the Enter key.  
*where*  
     **unit\_no**  
     is the number of the LTCI unit (0 or 1) busied in step 18

---

| If the RTS command                                                                                     | Do      |
|--------------------------------------------------------------------------------------------------------|---------|
| passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB                           | step 30 |
| passes, the LTCI unit is InSv, but the fail lamp was on for the power converter on the other LTCI unit | step 18 |
| passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9                      | step 11 |

---

**PM LTCI**  
**critical, major, or minor** (continued)

|           | <b>If the RTS command</b>                                                                                                                          | <b>Do</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | passes, both LTCI units are InSv, and other LTCIs are not SysB                                                                                     | step 162  |
|           | fails, and you replaced the defective power converter                                                                                              | step 39   |
| <b>24</b> | To busy the LTCI, type<br><b>&gt;BSY PM</b><br>and press the Enter key.                                                                            |           |
|           | <b>If the BSY command</b>                                                                                                                          | <b>Do</b> |
|           | passes                                                                                                                                             | step 26   |
|           | fails                                                                                                                                              | step 25   |
| <b>25</b> | To force the LTCI to busy, type<br><b>&gt;BSY PM FORCE</b><br>and press the Enter key.                                                             |           |
| <b>26</b> | To replace the NT2X70 card, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>27</b> | To load the LTCI, type<br><b>&gt;LOADPM PM</b><br>and press the Enter key.                                                                         |           |
|           | <b>If the LOADPM command</b>                                                                                                                       | <b>Do</b> |
|           | passes                                                                                                                                             | step 29   |
|           | fails                                                                                                                                              | step 28   |
| <b>28</b> | Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                       |           |
| <b>29</b> | To return the LTCI to service, type<br><b>&gt;RTS PM</b><br>and press the Enter key.                                                               |           |
|           | <b>If the RTS command</b>                                                                                                                          | <b>Do</b> |
|           | passes, and one LTCI unit is InSv or ISTb, while the other LTCI unit is SysB                                                                       | step 30   |
|           | passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9                                                                  | step 11   |

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

| <b>If the RTS command</b>                                                                                                                                            | <b>Do</b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| passes, both LTCI units are InSv, and other LTCIs are not SysB                                                                                                       | step 162  |
| fails, and you replaced the power convertert that has faults                                                                                                         | step 53   |
| <b>30</b> To determine the cause of the system busy condition, type<br>>QUERYPM FLT<br>and press the Enter key.                                                      |           |
| <i>Note:</i> One unit can have more than one system busy condition at a given time. The unit remains system busy until all system busy conditions clear on the unit. |           |
| <b>If the MAP response</b>                                                                                                                                           | <b>Do</b> |
| is PM Audit                                                                                                                                                          | step 15   |
| is activity dropped                                                                                                                                                  | step 15   |
| is WAI received                                                                                                                                                      | step 15   |
| is SWACT in progress                                                                                                                                                 | step 31   |
| is Link Audit                                                                                                                                                        | step 32   |
| is C-Side Link RTS                                                                                                                                                   | step 32   |
| is CC restart has oc-<br>curred                                                                                                                                      | step 36   |
| is ISP failed to re-<br>spond to MP audit                                                                                                                            | step 36   |
| is unit SysB due to<br>diagnostic failure                                                                                                                            | step 36   |
| is not loaded since<br>power up                                                                                                                                      | step 55   |
| is load corruption<br>suspected                                                                                                                                      | step 55   |
| is load failed                                                                                                                                                       | step 55   |

---

**PM LTCI**  
**critical, major, or minor** (continued)

|           | <b>If the MAP response</b>                                                                                                                                                                                              | <b>Do</b> |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | is Distributed Data loading failed                                                                                                                                                                                      | step 55   |
|           | is other than listed here                                                                                                                                                                                               | step 161  |
| <b>31</b> | The system performs maintenance on the unit that became the inactive (Inact) unit. The Mtce flag appears next to the unit when system maintenance is in progress. After system maintenance is complete, repeat step 30. |           |
| <b>32</b> | To check the status of the C-side links, type<br><b>&gt;TRNSL C</b><br>and press the Enter key.<br><i>Example of a MAP response:</i>                                                                                    |           |
|           | <pre>Link 0: ENET 0 0 32 00 0;Cap MS;Status:OK Link 1: ENET 1 0 32 00 0;Cap MS;Status:OK  Link 30: ENET 0 0 32 00 15;Cap S;Status:OK Link 31: ENET 1 0 32 00 15;Cap S;Status:OK</pre>                                   |           |
|           | <b>Note 1:</b> Link 2 to link 29 do not appear in the previous example.                                                                                                                                                 |           |
|           | <b>Note 2:</b> The C-side links with a status of OK are in service. Any other status indicates an out-of-service C-side link.                                                                                           |           |
|           | <b>If the links</b>                                                                                                                                                                                                     | <b>Do</b> |
|           | are out of service                                                                                                                                                                                                      | step 33   |
|           | are in service                                                                                                                                                                                                          | step 36   |
| <b>33</b> | Record the network, plane, and link number of the links that do not have a status of OK.                                                                                                                                |           |
| <b>34</b> | Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.                                                                                                         |           |
| <b>35</b> | To post the LTCI that had out-of-service C-side links, type<br><b>&gt;PM;POST LTCI ltci_no</b><br>and press the Enter key.<br><i>where</i>                                                                              |           |
|           | <p><b>ltci_no</b><br/>                     is the number of the LTCI (0 to 255)</p>                                                                                                                                     |           |
|           | <b>If</b>                                                                                                                                                                                                               | <b>Do</b> |
|           | the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB                                                                                                                                                        | step 16   |

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

| <b>If</b>                                                                                                                                                                                        | <b>Do</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| both LTCI units are InSv, but you recorded other SysB LTCIs in step 9                                                                                                                            | step 11   |
| both LTCI units are InSv, and other LTCIs are not SysB                                                                                                                                           | step 162  |
| the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                         | step 97   |
| both LTCI units are ISTb                                                                                                                                                                         | step 100  |
| <b>36</b> Determine if one or both LTCI units are system busy.                                                                                                                                   |           |
| <b>If</b>                                                                                                                                                                                        | <b>Do</b> |
| one LTCI unit is SysB                                                                                                                                                                            | step 37   |
| both LTCI units are SysB                                                                                                                                                                         | step 52   |
| <b>37</b> To manually busy the system busy LTCI unit, type<br>> <b>BSY UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1) |           |
| <b>If the BSY command</b>                                                                                                                                                                        | <b>Do</b> |
| passes                                                                                                                                                                                           | step 39   |
| fails                                                                                                                                                                                            | step 38   |
| <b>38</b> To force the LTCI unit to busy, type<br>> <b>BSY UNIT unit_no FORCE</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1)       |           |
| <b>39</b> To test the LTCI unit, type<br>> <b>TST UNIT unit_no</b><br>and press the Enter key.<br><i>where</i>                                                                                   |           |

**PM LTCI**  
**critical, major, or minor** (continued)

**unit\_no**  
 is the number of the LTCI unit (0 or 1) that you manually busied in  
 step 37

*Example of a MAP response:*

```
LTCI 0 Unit 1 Non-Destructive ROM test and
 OSvce tests will be run
LTCI 0 Unit 1 Tst Passed
```

| <b>If the TST command</b>                                                  | <b>Do</b> |
|----------------------------------------------------------------------------|-----------|
| passes                                                                     | step 42   |
| fails and part of the response is check for possible logs                  | step 40   |
| fails and part of the response is Try PMRESET                              | step 41   |
| fails and part of the response is Invalid static data                      | step 42   |
| fails and the system generated a card list                                 | step 43   |
| fails and the system did not generate a card list                          | step 47   |
| fails and part of the response is Unit failed to initialize, try reloading | step 47   |
| is other than listed here                                                  | step 161  |

**40** Obtain the log that the system generated for the LTCI.

| <b>If the log</b>            | <b>Do</b> |
|------------------------------|-----------|
| provides a card list         | step 43   |
| does not provide a card list | step 48   |

**41** To reset the LTCI unit, type  
**>PMRESET UNIT unit\_no**  
 and press the Enter key.

*where*

**unit\_no**  
 is the number of the LTCI unit (0 or 1) that you manually busied in  
 step 37

---

## PM LTCI critical, major, or minor (continued)

---

*Example of a MAP response:*  
LTCI 0 Unit 1 PMReset Passed

| If the PMRESET command | Do      |
|------------------------|---------|
| passes                 | step 42 |
| fails                  | step 48 |

- 42** To return the manually busy LTCI unit to service, type  
>RTS UNIT **unit\_no**  
and press the Enter key.

where

**unit\_no**

is the number of the LTCI unit (0 or 1) that you manually busied in

step 37

| If the RTS command                                                                | Do       |
|-----------------------------------------------------------------------------------|----------|
| passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9 | step 11  |
| passes, and one LTCI unit is InSv or ISTb, while the other LTCI unit is SysB      | step 16  |
| passes, and one LTCI unit is InSv, while the other LTCI unit is ManB              | step 80  |
| passes, and one LTCI unit is InSv, while the other LTCI unit is ISTb              | step 97  |
| passes, and both LTCI units are ISTb                                              | step 100 |
| passes, and both LTCI units are InSv, and other LTCIs are not SysB                | step 162 |
| fails, and the system generated a card list                                       | step 43  |
| fails, and the system did not generate a card list                                | step 47  |
| is other than listed here                                                         | step 161 |

- 43** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.
- 44** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

## PM LTCI critical, major, or minor (continued)

- 45** Determine if the card that you replaced was a processor card (NT6X45), memory card (NT6X46), or processor memory card (NT6X47).
- | If the card                      | Do      |
|----------------------------------|---------|
| was an NT6X45, NT6X46, or NT6X47 | step 47 |
| was other than listed here       | step 46 |
- 46** To reset the LTCI unit, type  
>PMRESET UNIT *unit\_no*  
and press the Enter key.  
*where*  
**unit\_no**  
is the number of the LTCI unit (0 or 1) that you manually busied in  
step 37  
*Example of a MAP response:*  
LTCI 0 Unit 1 PMReset Passed
- | If the PMRESET command    | Do      |
|---------------------------|---------|
| passes                    | step 49 |
| is other than listed here | step 47 |
- 47** To load the LTCI unit, type  
>LOADPM UNIT *unit\_no*  
and press the Enter key.  
*where*  
**unit\_no**  
is the number of the LTCI unit (0 or 1) that you manually busied in step  
37
- | If the LOADPM command | Do      |
|-----------------------|---------|
| passes                | step 49 |
| fails                 | step 48 |
- 48** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.
- 49** To return the manually busy LTCI unit to service, type  
>RTS UNIT *unit\_no*  
and press the Enter key.

---

## PM LTCI critical, major, or minor (continued)

---

where

**unit\_no**

is the number of the LTCI unit (0 or 1) that you manually busied in

step 37

*Example of a MAP response:*

LTCI 0 Unit 1 Rts Passed

| If the RTS command                                                                | Do       |
|-----------------------------------------------------------------------------------|----------|
| passes, and both LTCIs are InSv, but you recorded other SysB LTCIs in step 9      | step 11  |
| passes, and the LTCI is InSv or ISTb, while the other LTCI is SysB                | step 16  |
| fails, and you did not replace all cards in the list that you recorded in step 43 | step 50  |
| passes, and one LTCI is InSv, while the other LTCI is ManB                        | step 80  |
| passes, and the LTCI is InSv, while the other LTCI is ISTb                        | step 97  |
| passes, and both LTCIs are ISTb                                                   | step 100 |
| passes, and both LTCIs are InSv, and other LTCIs are not SysB                     | step 162 |
| fails, and the system did not generate a card list                                | step 161 |
| fails, and you replaced all cards in the list that you recorded in step 43        | step 161 |
| other than listed here                                                            | step 161 |

**50** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**51** Go to step 45.

**52** To busy the LTCI, type

>BSY PM

and press the Enter key.

*Example of a MAP response:*

LTCI 0 Bsy Passed

## PM LTCI critical, major, or minor (continued)

---

- 53** To test the LTCI, type  
**>TST PM**  
 and press the Enter key.

*Example of a MAP response:*

```
LTCI 0 Unit 0 Non-Destructive ROM test and
 OSvce tests will be run
LTCI 0 Unit 1 Non-Destructive ROM test and
 OSvce tests will be run
LTCI 0 Unit 0 Tst Passed
LTCI 0 Unit 1 Tst Passed
```

| If the TST command                                                                             | Do       |
|------------------------------------------------------------------------------------------------|----------|
| passes on both units                                                                           | step 54  |
| fails on one or both units, and part of the response is check for possible logs                | step 40  |
| fails on one or both units, and part of the response is Try PMRESET                            | step 41  |
| fails on one or both units, and the system generated a card list                               | step 43  |
| fails on one or both units, and the system did not generate a card list                        | step 47  |
| fails on one or both units, and part of the response is PM failed to initialize, try reloading | step 57  |
| other than listed here                                                                         | step 161 |

- 54** To return the LTCI to service, type  
**>RTS PM**  
 and press the Enter key.

*Example of a MAP response:*  
 LTCI 0 Rts Passed

| If the RTS command                                                                | Do      |
|-----------------------------------------------------------------------------------|---------|
| passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9 | step 11 |

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

| <b>If the RTS command</b>                                                                                                                                                                                                | <b>Do</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| passes, and one LTCI unit is InSv or ISTb, while the other LTCI unit is SysB                                                                                                                                             | step 16   |
| passes, and one LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                                     | step 97   |
| passes, and both LTCI units are ISTb                                                                                                                                                                                     | step 100  |
| passes, both LTCI units are InSv, and other LTCIs are not SysB                                                                                                                                                           | step 162  |
| fails on one unit, and the system did not generate a card list                                                                                                                                                           | step 43   |
| fails on one unit, and the system generated a card list                                                                                                                                                                  | step 47   |
| <b>55</b> Determine if one or both LTCI units are system busy.                                                                                                                                                           |           |
| <b>If</b>                                                                                                                                                                                                                | <b>Do</b> |
| one LTCI unit is SysB                                                                                                                                                                                                    | step 56   |
| both LTCI units are SysB                                                                                                                                                                                                 | step 60   |
| <b>56</b> To manually busy the system busy LTCI unit, type<br>>BSY UNIT <b>unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the system busy LTCI unit (0 or 1)              |           |
| <b>57</b> To load the LTCI unit, type<br>>LOADPM UNIT <b>unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1) that you manually busied in<br><br>step 56 |           |
| <b>If the LOADPM command</b>                                                                                                                                                                                             | <b>Do</b> |
| passes                                                                                                                                                                                                                   | step 59   |

**PM LTCI**  
**critical, major, or minor** (continued)

|           | <b>If the LOADPM command</b>                                                                                                                                                                                                          | <b>Do</b> |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|           | fails                                                                                                                                                                                                                                 | step 58   |
| <b>58</b> | Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                                                                                                          |           |
| <b>59</b> | To return the manually-busy LTCI unit to service, type<br><b>&gt;RTS UNIT unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1) that you manually busied in<br>step 56 |           |
|           | <b>If the RTS command</b>                                                                                                                                                                                                             | <b>Do</b> |
|           | passes, both LTCI units are InSV, and no other LT-CIs are SysB                                                                                                                                                                        | step 162  |
|           | passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9                                                                                                                                                     | step 11   |
|           | passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB                                                                                                                                                          | step 16   |
|           | passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                                                  | step 97   |
|           | passes, and both LTCI units are ISTb                                                                                                                                                                                                  | step 100  |
|           | fails                                                                                                                                                                                                                                 | step 161  |
| <b>60</b> | To manually busy the LTCI, type<br><b>&gt;BSY PM</b><br>and press the Enter key.                                                                                                                                                      |           |
| <b>61</b> | To load the LTCI, type<br><b>&gt;LOADPM PM</b><br>and press the Enter key.                                                                                                                                                            |           |
|           | <b>If the LOADPM command</b>                                                                                                                                                                                                          | <b>Do</b> |
|           | passes                                                                                                                                                                                                                                | step 63   |
|           | fails                                                                                                                                                                                                                                 | step 62   |

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

**62** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.

**63** To return the LTCI to service, type  
**>RTS PM**  
 and press the Enter key.

| <b>If the RTS command</b>                                                         | <b>Do</b> |
|-----------------------------------------------------------------------------------|-----------|
| passes, both LTCI units are InSv, and other LTCIs are not SysB                    | step 162  |
| passes, and both LTCI units are InSv, but you recorded other SysB LTCIs in step 9 | step 11   |
| passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB      | step 16   |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb              | step 97   |
| passes, and both LTCI units are ISTb                                              | step 100  |
| fails                                                                             | step 161  |

**64** To display all C-side busy LTCIs, type  
**>DISP STATE CBSY LTCI**  
 and press the Enter key.

*Example of a MAP response:*  
 CBSy LTCI : 6,8

**65** Record the number of each C-side busy LTCI.

**66** Choose an LTCI on which to work.

**67** To post the LTCI, type  
**>POST LTCI ltci\_no**  
 and press the Enter key.

*where*

**ltci\_no**

is the number of the LTCI (0 to 255)

*Example of a MAP response:*

## PM LTCI critical, major, or minor (continued)

---

```
LTCI 6 CBSy Links_OOS: CSide 32 , PSide 0
Unit0: Act CBSy
Unit1: Inact CBSy
```

---

| If                                                            | Do      |
|---------------------------------------------------------------|---------|
| one LTCI unit is CBSy and the other LTCI unit is SysB or ManB | step 68 |
| both LTCI units are CBSy                                      | step 69 |

---

**68** Work on the C-side busy unit first.

**69** The fault is on the C-side of the LTCI.

To obtain the network plane and link numbers that the LTCI uses to communicate, type

```
>TRNSL C
```

and press the Enter key.

*Example of a MAP response:*

```
Link 0: ENET 0 0 32 00 0;Cap MS;Status:OK
Link 1: ENET 1 0 32 00 0;Cap MS;Status:OK

Link 30: ENET 0 0 32 00 15;Cap S;Status:OK
Link 31: ENET 1 0 32 00 15;Cap S;Status:OK
```

**Note:** Link 2 to link 29 do not appear in this example.

**70** Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

**71** To post the LTCI that was C-side busy, type

```
>PM;POST LTCI ltci_no
```

and press the Enter key.

*where*

**ltci\_no**

is the number of the LTCI (0 to 255)

*Example of a MAP response:*

---

## PM LTCI critical, major, or minor (continued)

---

```
LTCI 6 SysB Links_OOS: CSide 0 , PSide 0
Unit0: Act InSv
Unit1: Inact SysB
```

| If                                                                     | Do       |
|------------------------------------------------------------------------|----------|
| both LTCI units are InSv, and other LTCIs are not CBsy                 | step 162 |
| one LTCI unit is InSv, while the other LTCI unit is SysB               | step 16  |
| both LTCI units are InSv, but you recorded other CBsy LTCIs in step 65 | step 67  |
| one LTCI unit is InSv, while the other LTCI unit is ManB               | step 76  |
| one or both LTCI units remain CBsy                                     | step 161 |

**72** To display all manually-busy LTCIs, type

```
>DISP STATE MANB LTCI
```

and press the Enter key.

*Example of a MAP response:*

```
ManB LTCI : 2,10
```

**73** Record the number of each manually-busy LTCI.

**74** Choose an LTCI on which to work.

**75** To post the LTCI, type

```
>POST LTCI ltci_no
```

and press the Enter key.

where

**ltci\_no**

is the number of the LTCI (0 to 255)

*Example of a MAP response:*

```
LTCI 2 ManB Links_OOS: CSide 0 , PSide 0
Unit0: Act ManB
Unit1: Inact ManB
```

**76** Determine from office records or operating company personnel why the unit is manual busy.

When you have permission, continue with this procedure.

**PM LTCI**  
**critical, major, or minor** (continued)

---

- 77 To test the LTCI unit, type  
**>TST UNIT unit\_no**  
 and press the Enter key.  
*where*  
     **unit\_no**  
         is the number of the LTCI unit (0 or 1)

*Example of a MAP response:*

```
LTCI 2 Unit 0 Non-Destructive ROM test and
 OSvce tests will be run
LTCI 2 Unit 1 Non-Destructive ROM test and
 OSvce tests will be run
LTCI 2 Unit 0 Tst Passed
LTCI 2 Unit 1 Tst Passed
```

| <b>If the TST command</b>                                                                 | <b>Do</b> |
|-------------------------------------------------------------------------------------------|-----------|
| passes                                                                                    | step 80   |
| fails, and part of the response is check for possible logs                                | step 78   |
| fails, and part of the response is Try PMRESET                                            | step 79   |
| fails, and the system generated a card list                                               | step 81   |
| fails, and the system did not generate a card list                                        | step 86   |
| fails on one unit, and part of the MAP response is PM failed to initialize, try reloading | step 86   |
| other than listed here                                                                    | step 161  |

- 78 Obtain the log that the system generated for the LTCI.

| <b>If the log</b>            | <b>Do</b> |
|------------------------------|-----------|
| provides a card list         | step 81   |
| does not provide a card list | step 86   |

- 79 To reset the LTCI unit, type  
**>PMRESET UNIT unit\_no**  
 and press the Enter key.  
*where*

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

**unit\_no**

is the number of the LTCI unit (0 or 1) that you tested in step 77

*Example of a MAP response:*  
LTCI 2 Unit 1 PMReset Passed

| If the PMRESET | Do      |
|----------------|---------|
| passes         | step 80 |
| fails          | step 86 |

**80** To return the LTCI unit to service, type

>RTS UNIT **unit\_no**

and press the Enter key.

where

**unit\_no**

is the number of the LTCI unit (0 or 1) that you tested in step 77

| If the RTS command                                                                 | Do       |
|------------------------------------------------------------------------------------|----------|
| passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is SysB       | step 16  |
| passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is ManB       | step 76  |
| passes, both LTCI units are InSv, and other LTCIs are not ManB                     | step 162 |
| passes, and both LTCI units are InSv, but you recorded other ManB LTCIs in step 73 | step 75  |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97  |
| passes, and both LTCI units are ISTb                                               | step 100 |
| fails, and the system generated a card list                                        | step 81  |
| fails, and the system did not generate a card list                                 | step 86  |
| other than listed here                                                             | step 161 |

**81** Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.

**82** To replace the first card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

## PM LTCI critical, major, or minor (continued)

- 83** Determine if the card that you replaced was a processor card (NT6X45), memory card (NT6X46), or processor memory card (NT6X47).

| If the card                      | Do      |
|----------------------------------|---------|
| was an NT6X45, NT6X46, or NT6X47 | step 85 |
| was other than listed here       | step 84 |

- 84** To set the LTCI unit, type  
`>PMRESET UNIT unit_no`  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LTCI unit (0 or 1) that you tested in step 77  
*Example of a MAP response:*  
 LTCI 0 Unit 1 PMReset Passed

| If the PMRESET command | Do      |
|------------------------|---------|
| passes                 | step 87 |
| other than listed here | step 85 |

- 85** To load the LTCI unit, type  
`>LOADPM UNIT unit_no`  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LTCI unit (0 or 1) that you tested in step 77

| If the LOADPM command | Do      |
|-----------------------|---------|
| passes                | step 87 |
| fails                 | step 86 |

- 86** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.

- 87** To return the manually-busy LTCI unit to service, type  
`>RTS UNIT unit_no`  
 and press the Enter key.  
*where*

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

**unit\_no**  
is the number of the LTCI unit (0 or 1)

| <b>If the RTS command</b>                                                                                                                                                                                     | <b>Do</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| passes, and the LTCI unit is InSv or ISTb, while the other LTCI unit is ManB                                                                                                                                  | step 76   |
| passes, both LTCI units are InSv, and other LTCIs are not ManB                                                                                                                                                | step 162  |
| passes, and both LTCI units are InSv, but you recorded other ManB LTCIs in step 73                                                                                                                            | step 75   |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                          | step 97   |
| passes, and both LTCI units are ISTb                                                                                                                                                                          | step 100  |
| fails, and you did not replace all cards in the list that you recorded in step 81                                                                                                                             | step 88   |
| fails, and you replaced all cards in the list that you recorded in step 81                                                                                                                                    | step 161  |
| other than listed here                                                                                                                                                                                        | step 161  |
| <b>88</b> To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                        |           |
| <b>89</b> Go to step 83.                                                                                                                                                                                      |           |
| <b>90</b> To display all in-service trouble LTCIs, type<br><b>&gt;DISP STATE ISTB LTCI</b><br>and press the Enter key.<br><i>Example of a MAP response:</i><br>ISTb LTCI : 12                                 |           |
| <b>91</b> Record the number of each in-service trouble LTCI.                                                                                                                                                  |           |
| <b>92</b> Choose an LTCI on which to work.                                                                                                                                                                    |           |
| <b>93</b> To post the LTCI, type<br><b>&gt;POST LTCI ltc_i_no</b><br>and press the Enter key.<br><i>where</i><br><b>ltc_i_no</b><br>is the number of the LTCI (0 to 255)<br><i>Example of a MAP response:</i> |           |

**PM LTCI**  
**critical, major, or minor** (continued)

```
LTCI 12 ISTb Links_OOS: CSide 0 , PSide 0
Unit0: Inact InSv
Unit1: Act ISTb
```

| <b>If</b>                                                        | <b>Do</b> |
|------------------------------------------------------------------|-----------|
| one LTCI unit is SysB and the other LTCI unit is ISTb or InSv    | step 94   |
| one LTCI unit is ManB and the other LTCI unit is ISTb or InSv    | step 95   |
| one LTCI unit is ISTb or InSv, while the other LTCI unit is CBSy | step 96   |
| one LTCI unit is ISTb and the other LTCI unit is InSv            | step 97   |
| both LTCI units are ISTb                                         | step 100  |
| both LTCI units are InSv                                         | step 101  |

- 94** Go to step 16 to work on the system busy unit first.
- 95** Go to step 76 to work on the manually-busy unit first.
- 96** Perform the procedure *Clearing a PM IPML major or minor alarm* in this document. Complete the procedure and return to this point.
- 97** Determine if the posted LTCI unit is active or inactive.  
**Note:** The activity status of the unit appears on the right side of the LTCI unit number in the MAP display in step 93.

| <b>If the unit</b> | <b>Do</b> |
|--------------------|-----------|
| is inactive        | step 100  |
| is active          | step 98   |

**98**



**CAUTION**  
**Possible loss of service**  
 Perform this activity during a period of low traffic. If you perform this activity during periods of high traffic the system drops all calls and data calls that this PM handles.

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

To switch the activity of the units, type

**>SWACT**

and press the Enter key.

*Example of a MAP response:*

A Warm SWACT will be performed after data sync of active terminals Please confirm ("YES", "Y", "NO", or "N"):

**99** To confirm the prompt to switch the activity of the units, type

**>YES**

and press the Enter key.

**Note:** A maintenance flag (Mtce) appears when maintenance tasks are in progress. Wait until the flag disappears before you proceed with the next maintenance action.

**100** Work on the inactive in-service trouble unit.

**101** To determine the cause of the in-service trouble condition, type

**>QUERYPM FLT**

and press the Enter key.

**Note:** One unit can have more than one in-service trouble condition at a given time. The unit remains in-service trouble until all in-service trouble conditions clear on the unit.

| If the response                                  | Do       |
|--------------------------------------------------|----------|
| is PM Overloaded                                 | step 161 |
| is Dynamic data sync in progress                 | step 102 |
| is Superframe sync in progress                   | step 102 |
| is CMR Load not present                          | step 103 |
| is CMR Load mismatch with Inventory table        | step 105 |
| is PM Load mismatch with Inventory table         | step 109 |
| is Load File mismatch with Inventory table       | step 109 |
| is Static data mismatch with CC                  | step 111 |
| is Sync trouble                                  | step 111 |
| is CLASS Modem Resource Card 6X78 out of service | step 116 |

---

**PM LTCI**  
**critical, major, or minor** (continued)

|            | <b>If the response</b>                                                                                                                                                                                                 | <b>Do</b> |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | is P-side links out of service                                                                                                                                                                                         | step 123  |
|            | is Major alarm raised due to P-side link failure                                                                                                                                                                       | step 123  |
|            | is C-side links out of service                                                                                                                                                                                         | step 157  |
|            | is other than listed here                                                                                                                                                                                              | step 161  |
| <b>102</b> | After a dynamic data or superframe synchronization process, the system automatically returns the LTCI unit to service. If other in-service trouble conditions are not present, the system returns the unit to service. |           |
|            | <b>Note:</b> The system requires 5 min to change the status of the LTCI unit after a dynamic data or superframe synchronization process.                                                                               |           |
|            | <b>If after 5 min</b>                                                                                                                                                                                                  | <b>Do</b> |
|            | the LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                                               | step 97   |
|            | both LTCI units are InSv, and other LTCIs are not ISTb                                                                                                                                                                 | step 162  |
|            | both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91                                                                                                                                                 | step 93   |
|            | the LTCI unit remains ISTb                                                                                                                                                                                             | step 101  |
| <b>103</b> | Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                                                                                           |           |
| <b>104</b> | Go to step 110.                                                                                                                                                                                                        |           |
| <b>105</b> |                                                                                                                                                                                                                        |           |



**CAUTION**

**Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the LTCI unit, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

where

**unit\_no**  
is the number of the LTCI unit (0 or 1)

| If the BSY command | Do       |
|--------------------|----------|
| passes             | step 106 |
| fails              | step 161 |

**106** To manually busy the CMR card, type

>BSY UNIT **unit\_no** CMR

and press the Enter key.

where

**unit\_no**  
is the number of the LTCI unit (0 or 1) that contains the CMR card

| If the BSY command | Do       |
|--------------------|----------|
| passes             | step 107 |
| fails              | step 161 |

**107** Perform the procedure *Correcting a load mismatch* in this document. Complete the procedure and return to this point.

**108** To return the CMR card to service, type

>RTS UNIT **unit\_no** CMR

and press the Enter key.

where

**unit\_no**  
is the number of the LTCI unit (0 or 1) that contains the CMR card

| If the RTS command                                                                 | Do       |
|------------------------------------------------------------------------------------|----------|
| passes, both LTCI units are InSv, and other ISTb LTCIs are not ISTb                | step 162 |
| passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97  |
| passes, but the LTCI unit remains ISTb                                             | step 101 |

---

**PM LTCI**  
**critical, major, or minor** (continued)

|            | <b>If the RTS command</b>                                                                                                                                                                                                                              | <b>Do</b> |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | fails, and you did not replace the CMR card (NT6X78)                                                                                                                                                                                                   | step 119  |
|            | fails, and you replaced the CMR card (NT6X78)                                                                                                                                                                                                          | step 161  |
| <b>109</b> | Perform the procedure <i>Correcting a load mismatch</i> in this document. Complete the procedure and return to this point.                                                                                                                             |           |
| <b>110</b> | From the MAP of the posted LTCI, determine the status of the LTCI units.<br><b>Note:</b> A maintenance flag (Mtce) appears when maintenance tasks are in progress. Wait until the flag disappears before you proceed with the next maintenance action. |           |
|            | <b>If</b>                                                                                                                                                                                                                                              | <b>Do</b> |
|            | both LTCI units are InSv, and no other LTCIs are ISTb                                                                                                                                                                                                  | step 162  |
|            | both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91                                                                                                                                                                                 | step 93   |
|            | one LTCI unit is InSv, while the other LTCI unit is ISTb                                                                                                                                                                                               | step 97   |
|            | the LTCI unit remains ISTb                                                                                                                                                                                                                             | step 101  |

**111**



**CAUTION**  
**Possible loss of service**  
 The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the inactive in-service trouble LTCI unit, type  
**>BSY UNIT unit\_no**  
 and press the Enter key.  
*where*

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

| <b>unit_no</b><br>is the number of the LTCI unit (0 or 1)                          |                                                                                                                                                                               |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>If the BSY command</b>                                                          | <b>Do</b>                                                                                                                                                                     |
| passes                                                                             | step 112                                                                                                                                                                      |
| fails                                                                              | step 161                                                                                                                                                                      |
| <b>112</b>                                                                         | To return the LTCI unit to service, type<br>>RTS UNIT <b>unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1) |
| <b>If the RTS command</b>                                                          | <b>Do</b>                                                                                                                                                                     |
| passes, both LTCI units are InSv, and other LTCIs are not ISTb                     | step 162                                                                                                                                                                      |
| passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91 | step 93                                                                                                                                                                       |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97                                                                                                                                                                       |
| passes, but the LTCI unit remains ISTb                                             | step 101                                                                                                                                                                      |
| fails                                                                              | step 113                                                                                                                                                                      |
| <b>113</b>                                                                         | To load the LTCI unit, type<br>>LOADPM UNIT <b>unit_no</b><br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1)           |
| <b>If the LOADPM command</b>                                                       | <b>Do</b>                                                                                                                                                                     |
| passes                                                                             | step 115                                                                                                                                                                      |
| fails                                                                              | step 114                                                                                                                                                                      |
| <b>114</b>                                                                         | Perform the procedure <i>Loading a PM</i> in this document. Complete the procedure and return to this point.                                                                  |

## PM LTCI critical, major, or minor (continued)

115 To return the LTCI unit to service, type

**>RTS UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTCI unit (0 or 1)

| <b>If the RTS command</b>                                                          | <b>Do</b> |
|------------------------------------------------------------------------------------|-----------|
| passes, both LTCI units are InSv, and other LTCIs are not ISTb                     | step 162  |
| passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91 | step 93   |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97   |
| passes, but the LTCI unit remains ISTb                                             | step 101  |
| fails                                                                              | step 161  |

116



### **CAUTION**

#### **Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the LTCI unit, type

**>BSY UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTCI unit (0 or 1)

| <b>If the BSY command</b> | <b>Do</b> |
|---------------------------|-----------|
| passes                    | step 117  |
| fails                     | step 161  |

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

- 117** To manually busy the CMR card, type  
**>BSY UNIT unit\_no CMR**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LTCI unit (0 or 1) that contains the CMR card
- 118** To test the CMR card, type  
**>TST UNIT unit\_no CMR**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LTCI unit (0 or 1) that contains the CMR card
- | If the TST command | Do       |
|--------------------|----------|
| passes             | step 122 |
| fails              | step 119 |
- 119** To replace the CMR card (NT6X78), perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.
- 120** To load the CMR card, type  
**>LOADPM UNIT unit\_no CMR**  
 and press the Enter key.  
*where*  
**unit\_no**  
 is the number of the LTCI unit (0 or 1) that contains the CMR card
- | If the LOADPM command | Do       |
|-----------------------|----------|
| passes                | step 122 |
| fails                 | step 121 |
- 121** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.
- 122** To return the CMR card to service, type  
**>RTS UNIT unit\_no CMR**  
 and press the Enter key.  
*where*

**PM LTCI**  
**critical, major, or minor** (continued)

**unit\_no**  
 is the number of the LTCI unit (0 or 1) that contains the CMR card

| If the RTS command                                                                 | Do       |
|------------------------------------------------------------------------------------|----------|
| passes, both LTCI units are InSv, and other LTCIs are not ISTb                     | step 162 |
| passes, and both LTCI units are InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |
| passes, and the LTCI unit is InSv, while the other LTCI unit is ISTb               | step 97  |
| passes, but the LTCI unit remains ISTb                                             | step 101 |
| fails, and you did not replace the CMR card (NT6X78)                               | step 119 |
| fails, and you replaced the CMR card (NT6X78)                                      | step 161 |

- 123** To identify the out-of-service P-side links, type  
**>TRNSL P**  
 and press the Enter key.

*Example of a MAP response:*

```
Link 0: Carrier of Class - Timing;Status:Offl
Link 1: Carrier of Class - Trunk ;Status:OK

Link 18: Carrier of Class - Trunk ;Status:OK
Link 19: Carrier of Class - Trunk ;Status:OK
```

**Note:** Link 2 to link 17 do not appear in this example.

- 124** Record the number and state of each out-of-service P-side link.  
**Note:** P-side links with a status of OK are in service. Any other status indicates an out-of-service P-side link. All P-side links are links, unless identified in the MAP display as a CARRIER.

| If the out-of-service links | Do       |
|-----------------------------|----------|
| are DCH                     | step 125 |
| are carriers                | step 130 |
| are links                   | step 132 |

- 125** To access the DCH level of the MAP display, type  
**>DCH**

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

and press the Enter key.

- 126** Perform the procedure *Clearing a PM DCH major or minor alarm* in this document. Complete the procedure and return to this point.

- 127** Determine the status of the LTCI.

| If the LTCI                                           | Do       |
|-------------------------------------------------------|----------|
| is InSv, and other LTCIs are not ISTb                 | step 162 |
| is InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |
| remains ISTb                                          | step 128 |

- 128** To exit the DCH level of the MAP display, type  
>QUIT  
and press the Enter key.

- 129** To determine the status of the P-side links, type  
>TRNSL P  
and press the Enter key.

| If the links       | Do       |
|--------------------|----------|
| are out of service | step 124 |
| are in service     | step 101 |

- 130** Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

- 131** To post the LTCI that had out-of-service P-side links, type

>PM;POST LTCI *ltci\_no*

and press the Enter key.

where

**ltci\_no**  
is the number of the LTCI (0 to 255)

| If the LTCI                                           | Do       |
|-------------------------------------------------------|----------|
| is InSv, and other LTCIs are not ISTb                 | step 162 |
| is InSv, but you recorded other ISTb LTCIs in step 91 | step 93  |

---

## PM LTCI critical, major, or minor (continued)

|            | <b>If the LTCI</b>                                                                                                                               | <b>Do</b> |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | remains ISTb                                                                                                                                     | step 129  |
| <b>132</b> | Determine if more than one link is out of service.                                                                                               |           |
| <b>133</b> | Choose a link on which to work.                                                                                                                  |           |
|            | <b>If the link</b>                                                                                                                               | <b>Do</b> |
|            | is SysB                                                                                                                                          | step 134  |
|            | is ManB                                                                                                                                          | step 135  |
| <b>134</b> | To busy the link, type<br>>BSY LINK link_no<br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 63) |           |
| <b>135</b> | To test the link, type<br>>TST LINK link_no<br>and press the Enter key.<br><i>where</i><br><b>link_no</b><br>is the number of the link (0 to 63) |           |
|            | <b>If the TST command</b>                                                                                                                        | <b>Do</b> |
|            | passes                                                                                                                                           | step 136  |
|            | fails, and the system generated a card list                                                                                                      | step 137  |
|            | fails and the system did not generate a card list                                                                                                | step 142  |
|            | other than listed here                                                                                                                           | step 161  |
| <b>136</b> | To return the link to service, type<br>>RTS LINK link_no<br>and press the Enter key.<br><i>where</i>                                             |           |

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

**link\_no**  
is the number of the link (0 to 63)

|            | <b>If the RTS command</b>                                                                                                                                     | <b>Do</b> |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | passes, the LTCI unit is InSv, and other LTCIs are not ISTb                                                                                                   | step 162  |
|            | passes, and the LTCI unit is InSv, but you recorded other ISTb LTCIs in step 91                                                                               | step 93   |
|            | passes, but other out-of-service links are present                                                                                                            | step 132  |
|            | fails, and the system generated a card list                                                                                                                   | step 137  |
|            | fails, and the system did not generate a card list                                                                                                            | step 142  |
| <b>137</b> | Record the location, description, number, product engineering code (PEC), and PEC suffix of the cards on the list.                                            |           |
| <b>138</b> | To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point. |           |
| <b>139</b> | To return the link to service, type<br>>RTS LINK link_no<br>and press the Enter key.<br>where<br><b>link_no</b><br>is the number of the link (0 to 63)        |           |
|            | <b>If the RTS command</b>                                                                                                                                     | <b>Do</b> |
|            | passes, the LTCI unit is InSv, and other LTCIs are not ISTb                                                                                                   | step 162  |
|            | passes, and the LTCI unit is InSv, but you recorded other ISTb LTCIs in step 91                                                                               | step 93   |
|            | passes, but other out-of-service links are present                                                                                                            | step 132  |
|            | fails, and you did not replace all cards in the list that you recorded in step 137                                                                            | step 140  |
|            | fails, and you replaced all cards in the list that you recorded in step 137                                                                                   | step 161  |
| <b>140</b> | To replace the next card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.  |           |
| <b>141</b> | Go to step 139.                                                                                                                                               |           |

---

## PM LTCI critical, major, or minor (continued)

---

142



**CAUTION**

**Possible loss of service**

The active unit does not have backup until you return the inactive unit to service. System maintenance on the active unit can cause traffic interruption. Perform this section of the procedure during a period of low traffic to minimize the risk of traffic interruption.

To manually busy the inactive LTCI unit, type

**>BSY UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTCI unit (0 or 1)

---

| <b>If the BSY command</b> | <b>Do</b> |
|---------------------------|-----------|
| passes                    | step 143  |
| fails                     | step 161  |

---

**143** To test the LTCI unit, type

**>TST UNIT unit\_no**

and press the Enter key.

*where*

**unit\_no**

is the number of the LTCI unit (0 or 1)

---

| <b>If the TST command</b>                                  | <b>Do</b> |
|------------------------------------------------------------|-----------|
| passes                                                     | step 151  |
| fails, and the system generated a card list                | step 145  |
| fails, and part of the response is check for possible logs | step 144  |
| fails, and the system did not generate a card list         | step 149  |

---

---

**PM LTCI**  
**critical, major, or minor** (continued)

---

|            | <b>If the TST command</b>                                                                                                                                                                                                               | <b>Do</b> |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|            | other than listed here                                                                                                                                                                                                                  | step 161  |
| <b>144</b> | Obtain the log that the system generated for the LTCI.                                                                                                                                                                                  |           |
|            | <b>If the log</b>                                                                                                                                                                                                                       | <b>Do</b> |
|            | provides a card list                                                                                                                                                                                                                    | step 145  |
|            | does not provide a card list                                                                                                                                                                                                            | step 149  |
| <b>145</b> | Record the location, description, slot number, product engineering code (PEC), and PEC suffix of the cards on the list.                                                                                                                 |           |
| <b>146</b> | To replace the first card on the list, perform the correct procedure in <i>Card Replacement Procedures</i> . Complete the procedure and return to this point.                                                                           |           |
| <b>147</b> | Determine if the card you replaced was a processor card (NT6X45), memory card (NT6X46), or processor memory card (NT6X47).                                                                                                              |           |
|            | <b>If the card</b>                                                                                                                                                                                                                      | <b>Do</b> |
|            | was an NT6X45, NT6X46, or NT6X47                                                                                                                                                                                                        | step 149  |
|            | was other than listed here                                                                                                                                                                                                              | step 148  |
| <b>148</b> | To reset the LTCI unit, type<br>>PMRESET UNIT unit_no<br>and press the Enter key.<br><i>where</i><br><b>unit_no</b><br>is the number of the LTCI unit (0 or 1)<br><br><i>Example of a MAP response:</i><br>LTCI 0 Unit 1 PMReset Passed |           |
|            | <b>If the PMRESET command</b>                                                                                                                                                                                                           | <b>Do</b> |
|            | passes                                                                                                                                                                                                                                  | step 151  |
|            | other than listed here                                                                                                                                                                                                                  | step 149  |
| <b>149</b> | To load the LTCI unit, type<br>>LOADPDM UNIT unit_no<br>and press the Enter key.<br><i>where</i>                                                                                                                                        |           |

**PM LTCI**  
**critical, major, or minor** (continued)

---

**unit\_no**  
 is the number of the LTCI unit (0 or 1)

| <b>If the LOADPM command</b> | <b>Do</b> |
|------------------------------|-----------|
| passes                       | step 151  |
| fails                        | step 150  |

**150** Perform the procedure *Loading a PM* in this document. Complete the procedure and return to this point.

**151** To return the LTCI unit to service, type

`>RTS UNIT unit_no`

and press the Enter key.

where

**unit\_no**  
 is the number of the LTCI unit (0 or 1)

| <b>If the RTS command</b>                                                          | <b>Do</b> |
|------------------------------------------------------------------------------------|-----------|
| passes, but ManB links are present                                                 | step 154  |
| passes, but out-of-service links continue to be present                            | step 161  |
| fails, and you did not replace all cards in the list that you recorded in step 145 | step 152  |
| fails, and you replaced all cards in the list that you recorded in step 145        | step 161  |

**152** To replace the next card on the list, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

**153** Go to step 147.

**154** Determine if more than one link is manually busy.

**155** Choose a link on which to work.

**156** To return the link to service, type

`>RTS LINK link_no`

and press the Enter key.

where

---

## PM LTCI critical, major, or minor (continued)

---

**link\_no**  
is the number of the link (0 to 63)

| If the RTS command                                                               | Do       |
|----------------------------------------------------------------------------------|----------|
| passes, the LTCI unit is InSv, and other LTCIs are not ISTb                      | step 162 |
| passes, and the LTCI unit is InSv, but you recorded other ISTb LTCIs in step 91  | step 93  |
| passes, but more ManB links are present                                          | step 154 |
| passes, and more out-of-service links are not present, but the LTCI remains ISTb | step 97  |
| fails                                                                            | step 161 |

**157** To identify the out-of-service C-side links, type

**>TRNSL C**

and press the Enter key.

*Example of a MAP response:*

```
Link 0: ENET 0 0 32 00 0;Cap MS;Status:OK
Link 1: ENET 1 0 32 00 0;Cap MS;Status:OK
```

```
Link 30: ENET 0 0 32 00 15;Cap S;Status:OK
Link 31: ENET 1 0 32 00 15;Cap S;Status:OK
```

**Note:** Link 2 to link 29 do not appear in this example.

**158** Record the network, plane, and link number of the links that do not have a status of OK.

**159** Perform the correct alarm clearing procedure in this document. Complete the procedure and return to this point.

**160** To post the LTCI that had the original out-of-service C-side links, type

**>PM;POST LTCI ltci\_no**

and press the Enter key.

*where*

**ltci\_no**  
is the number of the LTCI (0 to 255)

| If the LTCI                           | Do       |
|---------------------------------------|----------|
| is InSv, and other LTCIs are not ISTb | step 162 |

---

**PM LTCI**

**critical, major, or minor** (end)

---

|            | <b>If the LTCI</b>                                       | <b>Do</b> |
|------------|----------------------------------------------------------|-----------|
|            | is InSv, but you recorded other<br>ISTb LTCIs in step 91 | step 93   |
|            | remains ISTb                                             | step 101  |
| <b>161</b> | For additional help, contact the next level of support.  |           |
| <b>162</b> | The procedure is complete.                               |           |

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IOD SENDn  
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IOD SLMbsy  
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