297-5141-545C

DMS-100 Family

DMS SuperNode STP/SSP Integrated Node

Recovery Procedures

BCS38i   Preliminary 38.01   December 1994

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Recovery Procedures

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Contents

About this document

When to use this document

This document contains recovery procedures for the DMS SuperNode Signaling Transfer Point/Service Switching Point Integrated Node (DMS-INode) using link peripheral processors (LPP) as the interface to the Common Channel Signaling 7 (CCS7) network. The procedures in this document are designed for maintenance personnel in an operating company.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

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

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *DMS-100 Family Guide to Northern Telecom Publications*, 297-1001-001.

References in this document

The following documents are referred to in this document:

* *Bellcore Format Automatic Message Accounting Reference Guide*, 297-1001-830

* *Device Independent Recording Package Routine Maintenance Procedures*, 297-1001-572

* *Commands Reference Manual*, 297-1001-822

- *DMS SuperNode STP/SSP Integrated Node Alarm and Performance Monitoring Procedures*, 297-5141-543C

- *DMS SuperNode STP/SSP Integrated Node Card Replacment Procedures*, 297-5141-547C

- *DMS SuperNode STP/SSP Integrated Node Routine Maintenance Procedures*, 297-5141-546C

- *Log Report Reference Manual*, 297-1001-840i

- *Magnetic Tape Reference Manual*, 297-1001-118

- *Operational Measurements Reference Manual*, 297-1001-814

What precautionary messages mean

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

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

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER   Possibility of personal injury

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

WARNING   Possibility of equipment damage

> **WARNING**
> **Damage to the backplane connector pins**
> Align the card before seating it, to avoid bending the
> backplane connector pins. Use light thumb pressure to
> align the card with the connectors. Next, use the levers on
> the card to seat the card into the connectors.

CAUTION   Possibility of service interruption or degradation

> **CAUTION**
> **Possible loss of service**
> Before continuing, confirm that you are removing the card
> from the inactive unit of the peripheral module.
> Subscriber service will be lost if you remove a card from
> the active unit.

How commands, parameters, and responses are represented

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

Input prompt (>)

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

>BSY

Commands and fixed parameters

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

>BSY CTRL

Variables

Variables are shown in lowercase letters:

>BSY CTRL ctrl_no

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

Responses

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

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

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

1 Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no
and pressing the Enter key.

where

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

Example of a MAP response:

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

Recovery procedures

Introduction to recovery procedures

This chapter contains procedures for performing recovery tasks. For each recovery task, you will find a procedure containing

- explanatory and context-setting information

- a summary flowchart

- step-action instructions

Explanatory and context-setting information

The first page of each procedure contains the following headings:

- Application (when to use the procedure)

- Action (how to use the flowchart and step-action instructions)

Summary flowchart

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

Step-action instructions

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

The step-action instructions provide the command syntax and system information you use or see while performing the procedure. For help on DMS commands, see *DMS-100 Family Commands Reference Manual*, 297-1001-822.

Booting a DMS SuperNode SE switch

Application

Use this procedure to boot a DMS SuperNode SE switch from system load module (SLM) disk or tape. Perform this procedure when instructed by your next level of support.

All calls are dropped once the switch is booted.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Booting a DMS SuperNode SE switch (continued)

Summary of Booting a DMS SuperNode SE switch

```
          ┌──────────────┐
          │  Boot CPU    │
          │              │
          └──────┬───────┘
                 │
                 ▼
            ╱─────────╲         N
           ╱ CPU status ╲──────────────────┐
           ╲    A1?     ╱                   │
            ╲─────────╱                     │
                 │ Y                         │
                 ▼                           │
          ┌──────────────┐                  │
          │ Synchronize MS│                  │
          │ clocks        │                  │
          └──────┬───────┘                  │
                 │                           │
                 ▼                           │
            ╱─────────╲         N            │
           ╱  Passed?  ╲─────────────────────┤
           ╲           ╱                     │
            ╲─────────╱                      │
                 │ Y                          │
                 ▼                            │
          ┌──────────────┐                   │
          │ Synchronize  │                    │
          │ CPUs         │                    │
          └──────┬───────┘                   │
                 │                            │
                 ▼                            │
            ╱─────────╲         N             │
           ╱  Passed?  ╲────────────────────┐ │
           ╲           ╱                    │ │
            ╲─────────╱                     │ │
                 │ Y                         ▼ ▼
          ┌──────────────┐          ┌──────────────┐
          │  End         │          │ Contact next │
          │              │          │ level of support│
          └──────────────┘          └──────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Booting a DMS SuperNode SE switch (continued)

Booting a DMS SuperNode SE switch

>
>
> **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your
> next level of support.

>
>
> **CAUTION**
> **Extended service interruption**
> Booting the switch from tape requires more recovery
> time than booting from disk. Boot from disk
> whenever possible, since call processing is resumed
> more quickly after booting from disk.

1 Determine from office records the name and location of the most recent office
image file.

If the most recent image file resides on	Do
SLM disk	step 2
SLM tape	step 11

At the CM reset terminal for the inactive CPU

2 Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

PLEASE CONFIRM: (YES/NO)

3 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

JAM DONE

Booting a DMS SuperNode SE switch (continued)

4   Boot the inactive CPU by typing

>\BOOT SLMslm_no
and pressing the Enter key.

where

slm_no   is the number of the SLM (0 or 1) that contains the most recent
           image file

Example input:

>\BOOT SLM1
RTIF response:

BOOT PLEASE CONFIRM: (YES/NO)

5   Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

BOOT INITIATED

6   Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

JAM RELEASE DONE

At the CM reset terminal for the active CPU

7   Override the active CPU by typing

>\OVERRIDE
and pressing the Enter key.

RTIF response:

TEMP. RESET/JAM ENABLE

8   Jam the active CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

PLEASE CONFIRM: (YES/NO)

Booting a DMS SuperNode SE switch (continued)

9 Confirm the command by typing

>**YES**

and pressing the Enter key.

RTIF response:

JAM DONE

Note: Jamming the active CPU causes a switch of activity. The active CPU becomes inactive once it is jammed, and there is a corresponding switch of activity between reset terminals.

At the CM reset terminal for the active CPU

10 Wait until A1 flashes on the reset terminal for the active CPU to determine if the switch has booted.

Note: Allow about 15 min for A1 to start flashing.

If A1	Do
flashes	step 21
does not flash	step 34

At the CM/SLM shelf

11 Ensure that the SLM tape cartridge containing the most recent image file is inserted in the tape drive.

At the CM reset terminal for the inactive CPU

12 Jam the inactive CPU by typing

>**\JAM**

and pressing the Enter key.

RTIF response:

PLEASE CONFIRM: (YES/NO)

13 Confirm the command by typing

>**YES**

and pressing the Enter key.

RTIF response:

JAM DONE

Booting a DMS SuperNode SE switch (continued)

14   Boot the inactive CPU by typing

>**\BOOT SLMslm_noT**
and pressing the Enter key.

where

slm_no   is the number of the SLM (0 or 1) with the required tape load

Example input:

>**\BOOT SLM1T**

RTIF response:

BOOT PLEASE CONFIRM: (YES/NO)

15   Confirm the command by typing

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

RTIF response:

BOOT INITIATED

16   Release the jam on the inactive CPU by typing

>**\RELEASE JAM**
and pressing the Enter key.

RTIF response:

JAM RELEASE DONE

At the CM reset terminal for the active CPU

17   Override the active CPU by typing

>**\OVERRIDE**
and pressing the Enter key.

RTIF response:

TEMP. RESET/JAM ENABLE

18   Jam the active CPU by typing

>**\JAM**
and pressing the Enter key.

RTIF response:

PLEASE CONFIRM: (YES/NO)

Booting a DMS SuperNode SE switch (continued)

19 Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

```
JAM DONE
```

Note: Jamming the active CPU causes a switch of activity. The active CPU becomes inactive once it is jammed, and there is a corresponding switch of activity between reset terminals.

At the CM reset terminal for the active CPU

20 Wait until A1 flashes on the reset terminal for the active CPU to determine if the switch has booted.

Note: Allow about 20 min for A1 to start flashing.

If A1	Do
flashes	step 21
does not flash	step 34

At the MAP terminal

21 Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

Example of a MAP response:

```
Please Login.
```

If you	Do
have to log in	step 22
are logged in automatically	step 26

> **CAUTION**
> **Extended service interruption**
> The exact login procedure may vary, depending on your office configuration. If you need further assistance, contact the personnel responsible for the next level of support.

Booting a DMS SuperNode SE switch (continued)

22   Press the Break key.

MAP response:

?

23   Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

MAP response:

Enter User Name

24   Enter the user name by typing

>user_name
and pressing the Enter key.

where

user_name   is the name of the user for the account

MAP response:

Enter Password

25   Enter the password by typing

>password
and pressing the Enter key.

where

password   is the password for the account

Example of a MAP response:

SuperNode1 Logged in on 1993/03/11 at 20:37:17.

26   Access the MS clock level of the MAP display by typing

>MAPCI;MTC;MS;CLOCK
and pressing the Enter key.

27   Synchronize the clocks by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 28
failed	step 34

Booting a DMS SuperNode SE switch (continued)

28 Access the CM level of the MAP display by typing

>CM
and pressing the Enter key.

29 Determine if the CPUs are in sync.

Note: A dot under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 35
not in sync	step 30

30 Determine from the personnel responsible for your next level of support if you are permitted to synchronize the CPUs.

If you are	Do
permitted to synchronize the CPUs	step 31
not permitted to synchronize the CPUs	step 35

31 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 32
not jammed	step 33

At the CM reset terminal for the inactive CPU

32 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

JAM RELEASE DONE

Booting a DMS SuperNode SE switch (end)

At the MAP terminal

33   Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 35
failed	step 34

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

35   You have completed this procedure.

Booting a DMS SuperNode switch

Application

Use this procedure to boot a DMS SuperNode switch from system load module (SLM) disk or tape. Perform this procedure when instructed by your next level of support.

All calls are dropped once the switch is booted.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Booting a DMS SuperNode switch (continued)

Summary of Booting a DMS SuperNode switch

```
        ┌─────────────┐
        │  Boot CPU   │
        └─────────────┘
               │
               ▼
           ╱───────╲            N
          ╱ CPU status╲──────────────────┐
          ╲   A1?    ╱                    │
           ╲───────╱                      │
               │ Y                        │
               ▼                          │
        ┌─────────────┐                   │
        │Synchronize MS│                  │
        │   clocks    │                   │
        └─────────────┘                   │
               │                          │
               ▼                          │
           ╱───────╲            N         │
          ╱ Passed? ╲─────────────────────┤
          ╲        ╱                       │
           ╲───────╱                       │
               │ Y                         │
               ▼                           │
        ┌─────────────┐                    │
        │Synchronize  │                    │
        │   CPUs      │                    │
        └─────────────┘                    │
               │                           │
               ▼                           │
           ╱───────╲            N          │
          ╱ Passed? ╲──────────────────────┤
          ╲        ╱                        │
           ╲───────╱                        │
               │ Y                          ▼
               ▼              ┌──────────────────┐
        ┌─────────────┐       │  Contact next    │
        │     End     │       │ level of support │
        └─────────────┘       └──────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
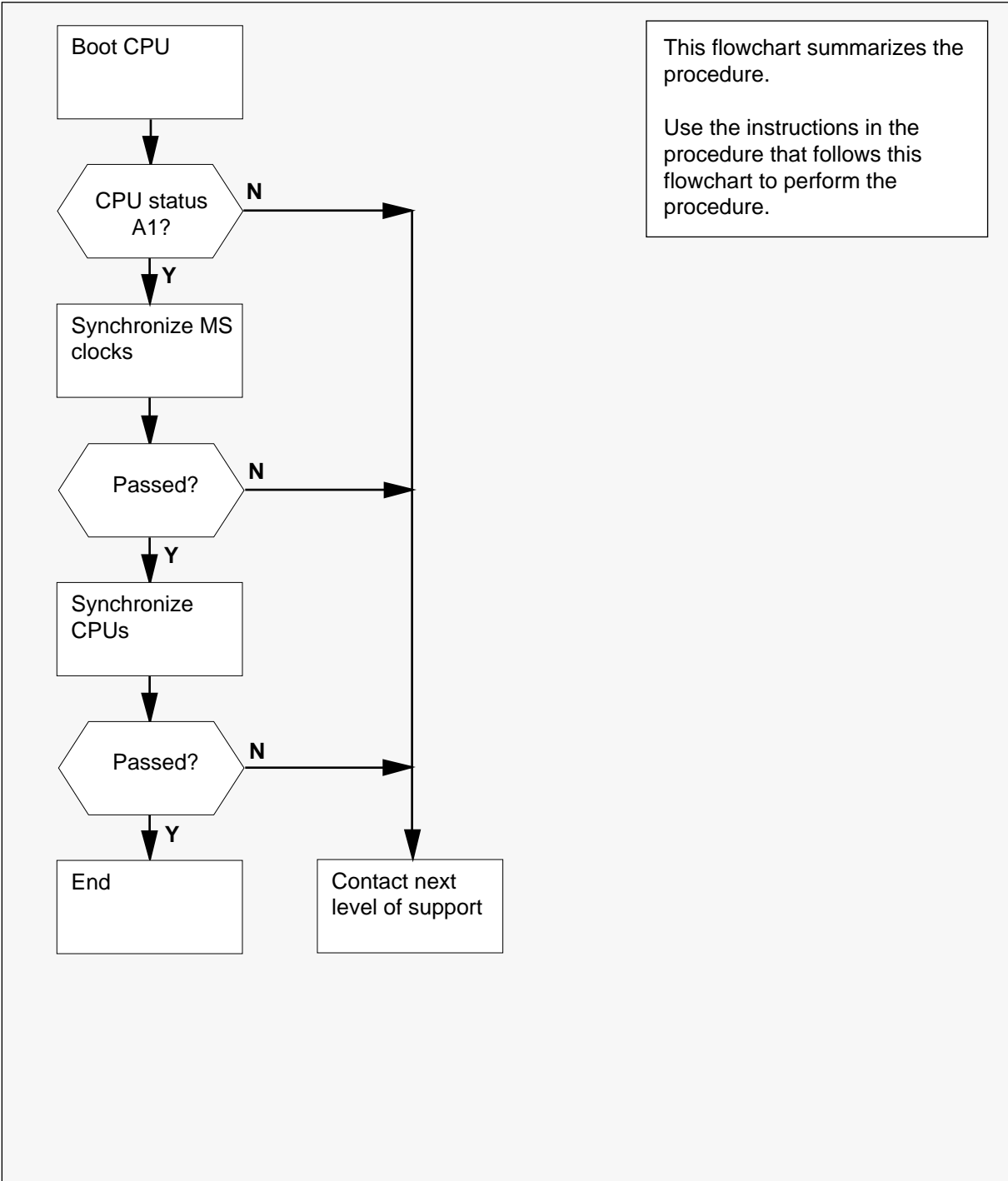
Booting a DMS SuperNode switch (continued)

Booting a DMS SuperNode switch

1

> **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your
> next level of support.

> **CAUTION**
> **Extended service interruption**
> Booting the switch from tape requires more recovery
> time than booting from disk. Boot from disk
> whenever possible, since call processing is resumed
> more quickly after booting from disk.

Determine from office records the name and location of the most recent office
image file.

If the most recent image file resides on	Do
SLM disk	step 2
SLM tape	step 11

At the CM reset terminal for the inactive CPU

2 Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

3 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
JAM DONE
```

Booting a DMS SuperNode switch (continued)

4 Boot the inactive CPU by typing

>\BOOT SLMslm_no
and pressing the Enter key.

where

slm_no   is the number of the SLM (0 or 1) that contains the most recent
image file

Example input:

>\BOOT SLM0

RTIF response:

BOOT Please confirm: (YES/NO)

5 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

BOOT INITIATED

6 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

JAM RELEASE DONE

At the CM reset terminal for the active CPU

7 Override the active CPU by typing

>\OVERRIDE
and pressing the Enter key.

RTIF response:

TEMP. RESET/JAM ENABLE

Booting a DMS SuperNode switch (continued)

8   Jam the active CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

Note: Jamming the active CPU causes a switch of activity. The active CPU becomes inactive once it is jammed.

9   Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
JAM DONE
```

10   Monitor the CM reset terminal for the active CPU to determine if the switch has booted.

Note: When the switch is booting, the reset terminal displays the response Booting followed by various diagnostic messages, and alphanumeric addresses are displayed in the status bar. Once the switch has finished booting, A1 flashes in the status bar.

If A1	Do
flashes	step 21
does not flash after approximately 15 min	step 34

At the SLM shelf

11   Ensure that the SLM tape cartridge containing the most recent image file is inserted in the tape drive.

At the CM reset terminal for the inactive CPU

12   Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

Booting a DMS SuperNode switch (continued)

13 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
JAM DONE
```

14 Boot the inactive CPU by typing

>\BOOT SLMslm_noT
and pressing the Enter key.

where

slm_no   is the number of the SLM (0 or 1) with the required tape load

Example input:

>\BOOT SLM0T

RTIF response:

```
BOOT Please confirm: (YES/NO)
```

15 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
BOOT INITIATED
```

16 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

At the CM reset terminal for the active CPU

17 Override the active CPU by typing

>\OVERRIDE
and pressing the Enter key.

RTIF response:

```
TEMP. RESET/JAM ENABLE
```

Booting a DMS SuperNode switch (continued)

18 Jam the active CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

Note: Jamming the active CPU causes a switch of activity. The active CPU becomes inactive once it is jammed.

19 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
JAM DONE
```

20 Monitor the CM reset terminal for the active CPU to determine if the switch has booted.

Note: When the switch is booting, the reset terminal displays the response Booting followed by various diagnostic messages, and alphanumeric addresses are displayed in the status bar. Once the switch has finished booting, A1 flashes in the status bar.

If A1	Do
flashes	step 21
does not flash after approximately 20 min	step 34

Booting a DMS SuperNode switch (continued)

At the MAP

21   Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

Example of a MAP response:

```
Please Login.
```

If you	Do
have to log in	step 22
are logged in automatically	step 26

22   Press the Break key.

Example of a MAP response:

```
?
```

23   Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

Example of a MAP response:

```
Enter User Name
```

24   Enter the user name by typing

>user_name
and pressing the Enter key.

where

user_name   is the name of the user for the account

Example of a MAP response:

```
Enter Password
```

Booting a DMS SuperNode switch (continued)

25 Enter the password by typing

>password
and pressing the Enter key.

where

password   is the password for the account

Example of a MAP response:

```
SuperNode1 Logged in on 1993/03/11 at 20:37:17.
```

26 Access the MS Clock level of the MAP display by typing

>MAPCI;MTC;MS;CLOCK
and pressing the Enter key.

27 Synchronize the clocks by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 28
failed	step 34

28 Access the CM level of the MAP display by typing

>CM
and pressing the Enter key.

29 Determine if the CPUs are in sync.

Note: A dot symbol under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 35
not in sync	step 30

Booting a DMS SuperNode switch (continued)

30 Determine from the personnel responsible for your next level of support if it is permitted to synchronize the CPUs.

If it is	Do
permitted to synchronize the CPUs	step 31
not permitted to synchronize the CPUs	step 35

31 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 32
not jammed	step 33

At the CM reset terminal for the inactive CPU

32 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

At the MAP

33 Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 35
failed	step 34

Booting a DMS SuperNode switch (end)

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

35 You have completed this procedure.

Checking for call completion

Application

Use this procedure to ensure that calls can be completed between this office and others that are connected to it through CCS7 signaling links.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Checking for call completion (continued)

Summary of Checking for call completion

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
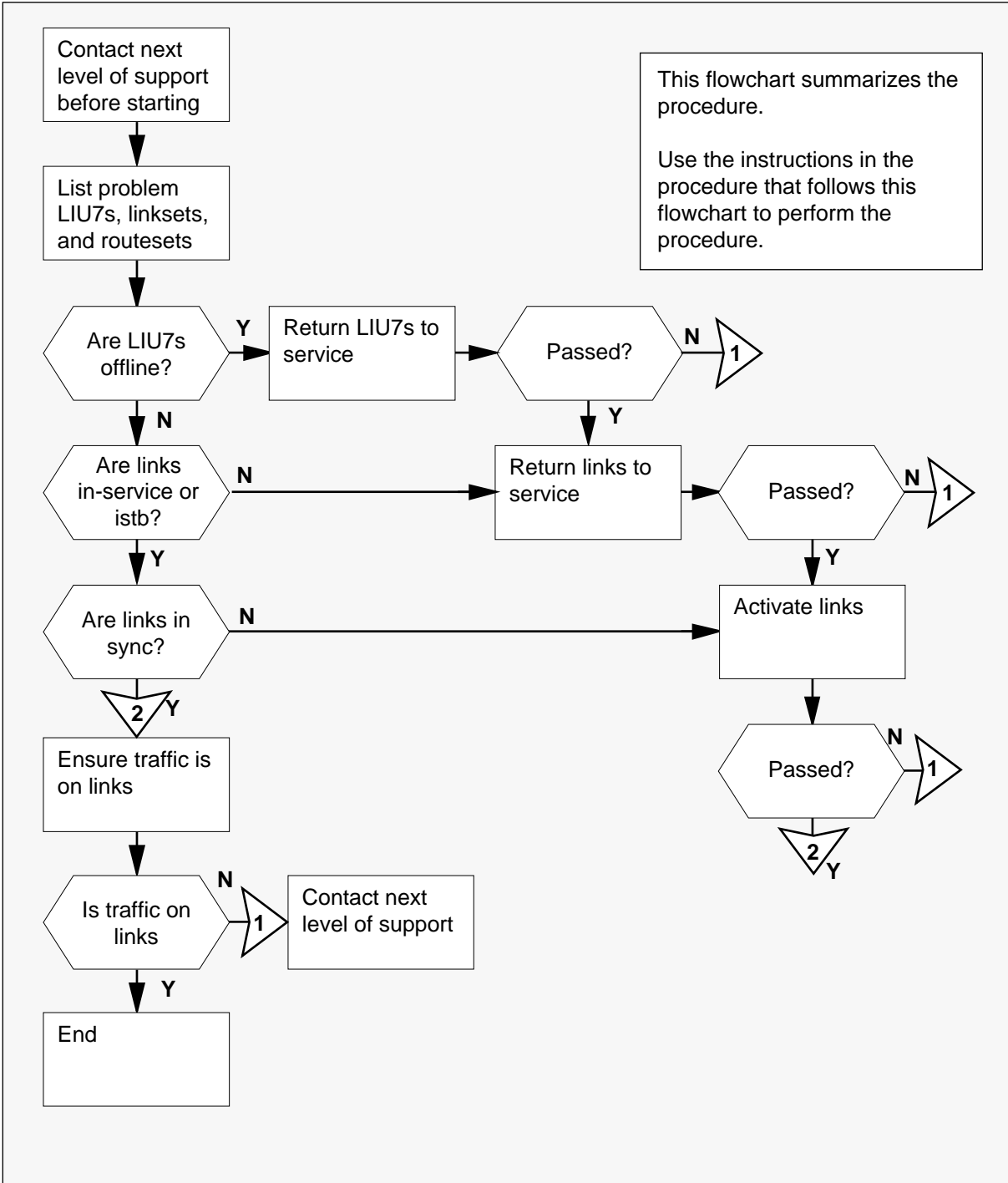
Checking for call completion (continued)

Checking for call completion

At the MAP

>
> ## CAUTION
> **Possible equipment damage or service interruption**
> Do not attempt this procedure before contacting your next level of support.

1   As CCS7 link interface units (LIU7) begin to recover from a system failure, check the following logs:

- AUDT612, AUDT613, AUDT614, AUDT615, or AUDT623, which indicate state mismatches
- CCS101, which indicates a status indication out of service (SIOS) from the far end
- CCS177, which detects inconsistency in route data

For further information about the log reports, see *Log Report Reference Manual*

Also look for the following operational measurements (OM) groups:

- C7LINK2, which provides information on calls and congestion for CCS7
- C7LINK1, which provides information on the failures and recoveries of a CCS7 link

For further information about OMs, see *Operational Measurements Reference Manual*.

2   Record the LIU7s, linksets, and routesets that are indicated in the logs and OMs examined at step 1. Ensure that you have correctly matched each routeset with its component linksets and LIU7s.

3   Make test calls to the far-end office associated with the routesets you recorded at step 2. Record any problems encountered when making the test calls, and match these problems to the routesets.

4   Choose a routeset that is associated with call completion problems through this office.

Note: Depending on the position of this office in the network, some routesets may have priority over others. Check with your next level of support to determine priority.

5   Access the C7RTESET level of the MAP display by typing

>MAPCI;MTC;CCS;CCS7;C7RTESET
and pressing the Enter key.

Checking for call completion (continued)

6 Post the routeset by typing

>POST C rteset_name
and pressing the Enter key.

where

rteset_name   is the name of the routeset associated with the linkset
                  chosen in step 4

Example input:

>POST C SSP100_RT

Example of a MAP display:

```
C7Routeset  SSP100_RT            SysB    Linkset  Transfer
   Rte   State  Mode Cost Linkset         State    Status
   0     SysB  Assoc 0    SSP100_LK        SysB       TFP
   1     SysB  Quasi 1    SSP101_LK        SysB       TFP
```

7 Determine which linksets in the posted routeset are causing problems.

If	Do
one or more linksets are out of service	step 8
there are no more out-of-service linksets and there are still routesets associated with call completion problems	step 4
there are no more out-of-service linksets and there are no more routesets associated with call completion problems	step 39

8 Choose a linkset to work on.

9 Access the C7LKSET level of the MAP display by typing

>C7LKSET
and pressing the Enter key.

Checking for call completion (continued)

10 Post the linkset by typing

>POST C linkset_name
and pressing the Enter key.

where

linkset_name   is the name of the linkset chosen at step 8

```
Linkset  SSP100_LK        SYSB
   Traf Sync                                          Link
LK Stat Stat Resource  Stat Physical Access     Stat Action
0  SysB SysB LIU7 101  SysB DS0A
1  SysB SysB LIU7 103  SysB DS0A


Size of Posted Set = 2
```

11 Determine which links are out of service.

12 Choose an out-of-service link.

If the LIU7 associated with this link is	Do
InSv or ISTb	step 26
ManB, SysB, or OffL	step 13

13 Access the PM level of the MAP display by typing

>PM
and pressing the Enter key.

14 Post the LIU7 by typing

>POST LIU7 liu_no
and pressing the Enter key.

where

liu_no   is the number of the LIU7 (0 to 215) associated with the link you
           chose in step 12

If the state of the LIU7 is	Do
SysB or OffL	step 15
ManB	step 16

Checking for call completion (continued)

15 Force the LIU7 to busy by typing

> **>BSY FORCE**

and pressing the Enter key.

16 Return the LIU7 to service by typing

> **>RTS**

and pressing the Enter key.

If the RTS command	Do
passed	step 21
failed	step 17

17 Force the LIU7 to busy by typing

> **>BSY FORCE**

and pressing the Enter key.

18 Reset the LIU7 by typing

> **>PMRESET**

and pressing the Enter key.

If the PMRESET command	Do
passed, and the LIU7 is `ISTb` or `InSv`	step 20
failed, and the LIU7 is `ManB`	step 19

19 Reload the LIU7 by typing

> **>LOADPM**

and pressing the Enter key.

If the LOADPM command	Do
passed	step 20
failed	step 38

Checking for call completion (continued)

20 Return the LIU7 to service by typing

>RTS

and pressing the Enter key.

If the RTS command	Do
passed	step 21
failed	step 38

21 Access the C7LKSET level of the MAP display by typing

>CCS;CCS7;C7LKSET

and pressing the Enter key.

22 Post the linkset associated with the link that resides on the LIU7 you are working on by typing

>POST C linkset_name

and pressing the Enter key.

where

linkset_name   is the name of the linkset associated with the LIU7

23 Determine if the link associated with the LIU7 you are working on is still out of service.

If the link is	Do
`InSv` or `ISTb`, and the linkset is `InSv` or`ISTb`	step 24
`InSv` or `ISTb`, and the linkset is out of service	step 25
out of service	step 26

24 You have restored traffic on the linkset.

Go to step 7.

Checking for call completion (continued)

25   You have restored traffic to the link, but the linkset is still out of service. Contact
      the far-end office. Tell personnel there that you have in-service or in-service
      trouble links, and that the associated linkset is out of service.

      Go to step 7.

26   Manually busy the link by typing

      >BSY link_no
      and pressing the Enter key.

      where

      link_no   is the number of the link (0 to 157)

27   Confirm the command by typing

      >YES
      and pressing the Enter key.

28   Return the link to service by typing

      >RTS link_no
      and pressing the Enter key.

      where

      link_no   is the number of the link in the posted linkset (0 to 157)

If the RTS command	Do
passed	step 29
failed	step 38

29   Activate the link by typing

      >ACT link_no
      and pressing the Enter key.

      where

      link_no   is the number of the link (0 to 157)

Checking for call completion (continued)

30 Determine if traffic is running on the link by typing

>**QUERYTRF link_no**
and pressing the Enter key.

where

link_no   is the number of the link in the linkset (0 to 157)

Example of a MAP response:

```
QueryTrf: Link occupancy for 13:30:00 - 14:00:00
Link     Speed    Byte/sec  Erlang    MSU len %RTx
   4     7000           0    0.00          0      0
```

Note: In the Byte/sec, Erlang, and MSU len fields, a value of zero means that no traffic is running, and a value greater than zero means that traffic is running. In the above example, no traffic is running on the link.

If traffic on the link is	Do
running, and the linkset is `InSv` or `ISTb`	step 31
running, and the linkset is out of service	step 32
not running	step 33

31 You have restored traffic on the linkset.

Go to step 7.

32 You have restored traffic to the link, but the linkset is still out of service. Contact the far-end office. Tell personnel there that you have in-service or in-service trouble links, and that the associated linkset is out of service.

Go to step 7.

33 Wait 8 min to see if the link activates.

Checking for call completion (continued)

34 Determine whether traffic has begun to run on the link by typing

>QUERYTRF link_no
and pressing the Enter key.

where

link_no   is the number of the link in the linkset (0 to 157)

Example of a MAP response:

```
QueryTrf: Link occupancy for 13:30:00 - 14:00:00
Link    Speed   Byte/sec Erlang   MSU len %RTx
   4    7000         52   0.40       28         0
```

If traffic on the link is	Do
running, and the linkset is `InSv` or `ISTb`	step 31
running, and the linkset is out of service	step 32
not running	step 35

35 The link will not return to service.

If there are	Do
more out of service links in the linkset you are working on	step 12
no more out-of-service links in the linkset you are working on	step 7

36 Access the C7RTESET level of the MAP display by typing

>C7RTESET
and pressing the Enter key.

Checking for call completion (end)

37 Determine the state of the routeset.

Example of a MAP display:

```
C7Routeset   SSP100_RT              InSv        Linkset    Transfer
   Rte    State  Mode Cost Linkset             State      Status
   0      InSv   Assoc 0    SSP100_LK           InSv       TFA
   1      InSv   Quasi 1    SSP101_LK           InSv       TFA
```

If the state of the routeset is	Do
InSv	step 4
anything else	step 38

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

39 You have completed this procedure.

Checking for message throughput

Application

Use this procedure to to ensure that messages can be sent through this node over CCS7 signaling links after a system failure.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Checking for message throughput (continued)

Summary of Checking for message throughput

```
┌──────────────────┐              ┌────────────────────────────┐
│ List problem     │              │ This flowchart summarizes  │
│ LIU7s, linksets, │              │ the procedure.             │
│ and routesets    │              │                            │
└────────┬─────────┘              │ Use the instructions in    │
         ▼                        │ the procedure that follows │
         ╲1╱                      │ this flowchart to perform  │
┌──────────────────┐             │ the procedure.             │
│ Select a linkset │              └────────────────────────────┘
│                  │
└────────┬─────────┘
         ▼
┌──────────────────┐
│ Return LIU7s to  │
│ service          │
└────────┬─────────┘
         ▼
┌──────────────────┐
│ Restore traffic  │
│ to links         │
└────────┬─────────┘
         ▼
    ⬡ Are all     ⬡  N
      linksets      ──▷ 1
      in service?
         │ Y
         ▼
    ⬡ Routesets   ⬡  N     ┌────────────────────┐
      in service?    ────▶  │ Contact next       │
         │ Y                │ level of support   │
         ▼                  └────────────────────┘
┌──────────────────┐
│ End              │
│                  │
└──────────────────┘
```
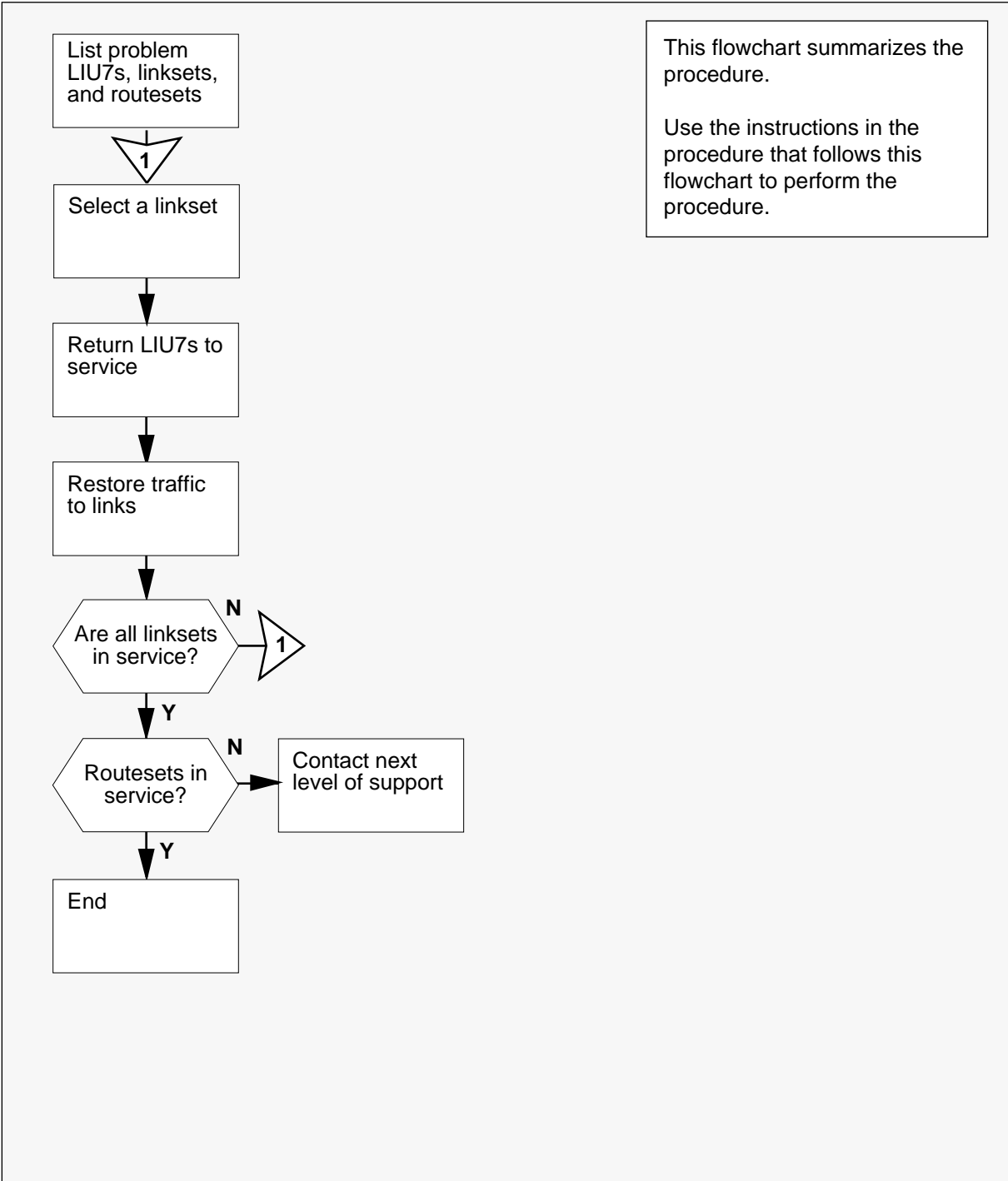
Checking for message throughput (continued)

Checking for message throughput

> ⚠️ **WARNING**
> **Possible equipment damage or service interuption**
> Do not attempt this procedure before contacting your next
> level of support.

At the MAP

1   As LIU7s begin to recover from a system failure, check the following logs:

   - AUDT612, AUDT613, AUDT614, AUDT615, or AUDT623, which indicate
     state mismatches
   - CCS101, which indicates the far end has a status indication out of service
     (SIOS) message
   - CCS177, which detects inconsistencies in route data

   For further information about the log reports, see *Log Report Reference
   Manual.*

   Also look for the following operational measurements (OM):

   - C7LINK2
   - C7LINK1

   For further information about OMs, see *Operational Measurements Reference
   Manual.*

2   Record the LIU7s, linksets, and routesets that are indicated in the logs and
    OMs examined at step 1. Ensure that you have correctly matched each
    routeset with its component linksets and LUI7s.

3   Ask your next level of support to make test calls to and from the far-end offices
    associated with the routesets you recorded at step 2. Record any problems
    encountered when making the test calls, and match these problems to the
    routesets.

4   Choose a routeset that is associated with call completion problems through this
    office.

   Note: Depending on the position of this office in the network, some routesets
   may have priority over others. Check with your next level of support to
   determine priority.

5   Access the C7RTESET level of the MAP display by typing

   >MAPCI;MTC;CCS;CCS7;C7RTESET
   and pressing the Enter key.

Checking for message throughput (continued)

6   Post the routeset by typing

>POST C rteset_name
and pressing the Enter key.

where
rteset_name   is the name of the routeset associated with the linkset
                           chosen at step 4

Example input:

>POST C SSP100_RT

Example of a MAP response:

```
C7Routeset  SSP100_RT          SysB       Linkset    Transfer
  Rte    State  Mode Cost Linkset           State     Status
   0     SysB  Assoc 0     SSP100_LK        SysB      TFP
   1     SysB  Quasi 1     SSP101_LK        SysB      TFP
```

7   Determine which linksets in the posted routeset are causing problems.

If	Do
one or more linksets are out of service	step 8
there are no more out-of-service linksets, and there are still routesets associated with call completion problems	step 4
there are no more out-of-service linksets, and there are no more routesets on your list of routesets made in step 2	step 37

8   Choose a linkset on which to work.

9   Access the C7LKSET level of the MAP display by typing

>C7LKSET
and pressing the Enter key.

Checking for message throughput (continued)

10 Post the linkset by typing

>POST C linkset_name
and pressing the Enter key.

where
linkset_name   is the name of the linkset chosen at step 8
Example of a MAP response:

```
Linkset  SSP100_LK        SYSB
   Traf Sync                                             Link
LK Stat Stat Resource  Stat Physical Access      Stat Action
0  SysB SysB LIU7 101  SysB DS0A
1  SysB SysB LIU7 103  SysB DS0A


   Size of Posted Set = 2
```

11 Determine which links are out of service.

12 Choose an out-of-service link.

If the LIU7 associated with this link is	**Do**
InSv or ISTb	step 27
ManB, SysB, or Offl	step 13
anything else	step 39

13 Access the PM level of the MAP display

>PM
and pressing the Enter key.

Example of a MAP response:

```
          SysB    ManB    OffL    CBsy    ISTb    InSv
PM          1      10      12       0       6      49
```

Checking for message throughput (continued)

14   Post the LIU7 by typing

>**POST LIU7 liu_no**

and pressing the Enter key.

where

liu_no   is the number of the LIU7 (0 to 750) associated with the link you chose at step 12

If the state of the LIU7 is	Do
SysB or Offl	step 15
ManB	step 16

15   Force the LIU7 to busy by typing

>**BSY FORCE**

and pressing the Enter key.

16   Return the LIU7 to service

>**RTS**

and pressing the Enter key.

If the RTS command	Do
passed, and the LIU7 is ISTb or InSv	step 22
failed, and the LIU7 is ManB or SysB	step 17
anything else	step 39

17   Force the LIU7 to busy by typing

>**BSY FORCE**

and pressing the Enter key.

Checking for message throughput (continued)

18 Reset the LIU7 by typing

>**PMRESET**

and pressing the Enter key.

If the PMRESET command	Do
passed, and the LIU7 is ISTb or InSv	step 21
failed, and the LIU7 is ManB	step 20
failed, and the LIU7 is SysB	step 19

19 Force the LIU7 to busy by typing

>**BSY FORCE**

and pressing the Enter key.

20 Reload the LIU7 by typing

>**LOADPM**

and pressing the Enter key.

If the LOADPM command	Do
passed	step 21
failed	step 39

21 Return the LIU7 to service

>**RTS**

and pressing the Enter key.

If the RTS command	Do
passed	step 22
failed	step 39

22 Access the C7LKSET level of the MAP display by typing

>**C7LKSET**

and pressing the Enter key.

Checking for message throughput (continued)

23 Post the linkset associated with the link that resides on the LIU7 that you just
worked on by typing

>POST C linkset_name
and pressing the Enter key.

where
linkset_name   is the name of the linkset associated with the LIU7

24 Determine if the link associated with the LIU7 that you just worked on is still out
of service.

If the link is	Do
InSv or ISTb, and the linkset is InSv or ISTb	step 25
InSv or ISTb, and the linkset is out of service	step 26
out of service	step 27

25 You have restored traffic on the linkset.

Go to step 7 and choose another out of service linkset on which to work.

26 You have restored traffic to the link, but the linkset is still out of service. Contact
the far-end office. Tell personnel there that you are have in service or in-service
trouble links and that the associated linkset is out of service.

Go to step 7.

27 Manually busy the link by typing

>BSY link_no
and pressing the Enter key.

where
link_no   is the number of the link (0 to 15)

MAP response:

```
ENTER YES TO
CONFIRM BSY
OR NO TO QUIT
```

Checking for message throughput (continued)

28 Confirm the command by typing

>YES

and pressing the Enter key.

If the BSY command	Do
passed	step 29
failed	step 39

29 Return the link to service by typing

>RTS link_no

and pressing the Enter key.

where
link_no   is the number of the link (0 to 15)

If the RTS command	Do
passed	step 30
failed	step 39

30 Activate the link by typing

>ACT link_no

and pressing the Enter key.

where
link_no   is the number of the link (0 to 15)

If the ACT command	Do
passed	step 31
failed	step 39

Checking for message throughput (continued)

31 Determine if traffic is running on the link by typing

>QUERYTRF link_no
and pressing the Enter key.

where
link_no   is the number of the link (0 to 15)
Example of a MAP response:

```
QueryTrf: Link occupancy for 13:30:00 - 14:00:00
Link    Speed   Byte/sec  Erlang   MSU len %RTx
   4    7000          0    0.00         0       0
```

Note: In the Byte/sec, Erlang, and MSU len fields, a value of zero indicates that no traffic is running, and a value greater than zero indicates that traffic is running. In the above example, no traffic is running on the link.

If traffic on the link is	Do
running, and the linkset is `InSv` or `ISTb`	step 32
running, and the linkset is out of service	step 33
not running	step 34

32 You have restored traffic on the linkset.

Go to step 7 and choose another out of service linkset on which to work.

33 You have restored traffic to the link, but the linkset is still out of service. Contact the far-end office. Tell personnel there that you are have in service or in-service trouble links and that the associated linkset is out of service.

Go to step 7.

34 Wait 8 min to see if the link activates.

Checking for message throughput (continued)

35 Determine whether traffic has begun to run on the link by typing

>QUERYTRF link_no
and pressing the Enter key.

where
link_no   is the number of the link (0 to 15)
Example of a MAP response:

```
QueryTrf: Link occupancy for 14:00:00 - 14:30:00
Link    Speed   Byte/sec  Erlang   MSU len %RTx
   4    7000          52    0.40       28         0
```

If traffic on the link is	Do
running, and the linkset is `InSv` or `ISTb`	step 32
running, and the linkset is out of service	step 33
not running	step 36

36 The link will not return to service.

If there are	Do
more out-of-service links in the linkset on which you are working	step 12
no more out-of-service links in the linkset on which you are working	step 7

37 Access the C7RTESET level of the MAP display by typing

>C7RTESET
and pressing the Enter key.

Example of a MAP display

```
C7Routeset  SSP100_RT          InSv       Linkset    Transfer
  Rte   State  Mode Cost Linkset         State     Status
   0    InSv   Assoc 0    SSP100_LK        InSv      TFA
   1    InSv   Quasi 1    SSP101_LK        InSv      TFA
```

Checking for message throughput (end)

38   Determine the state of all recorded routesets.

If the state of all recorded routesets is	Do
InSv	step 40
anything else	step 39

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

40   You have completed this procedure.

Emergency power conservation

Application

Use this procedure to conserve emergency backup power on a DMS SuperNode switch, without loss of subscriber service, during an extended commercial power outage.

CAUTION
Potential service interruption or extended outage
Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

This procedure reduces the drain on emergency batteries to a minimum by progressively shutting down equipment that is not essential to maintain subscriber service. Equipment shutdown is specified in ascending order based on its effect on overall system reliability-that is, beginning with less essential equipment such as spare printers, and ending with highly essential equipment such as the inactive CM plane.

The procedure consists of a top-level procedure and a number of subprocedures. The top-level procedure, *Emergency power conservation* in this document, specifies the equipment which can be shut down without loss of service, and the order in which to do so. The top-level procedure refers out to the subprocedures which provide detailed instructions for shutting down individual elements of the switch. These subprocedures are listed in the table of contents.

CAUTION
Potential loss of service or extended outage
This procedure is intended only for conservation of emergency backup power. Do not use this procedure or any of its subprocedures for equipment maintenance purposes.

Emergency power conservation (continued)

Usage notes

While performing this procedure, take into consideration the configuration and condition of your switch, the expected duration of the power outage, and the quantity of reserve power available. Proceed at your own discretion, as follows:

- Complete only as much of this procedure as your particular situation warrants. For example, if you anticipate that power will be restored shortly, you may decide to leave major subsystems, such as the message switch and computing module, operating in duplex mode. Similarly, in the interests of reliability, you may choose to leave both units in service on peripheral modules required for emergency service lines.

- When this procedure instructs you to busy and power down one plane or unit of a subsystem, it is assumed that the mate plane or unit you intend to leave in service is fault free and capable of normal operation. .

⚠ **CAUTION**
Potential loss of service
If you receive a warning prompt indicating loss of service when you attempt to busy a subsystem unit or plane, do not proceed. Clear the problem first, busy the mate unit or plane instead, or leave both planes or units of that subsystem in service
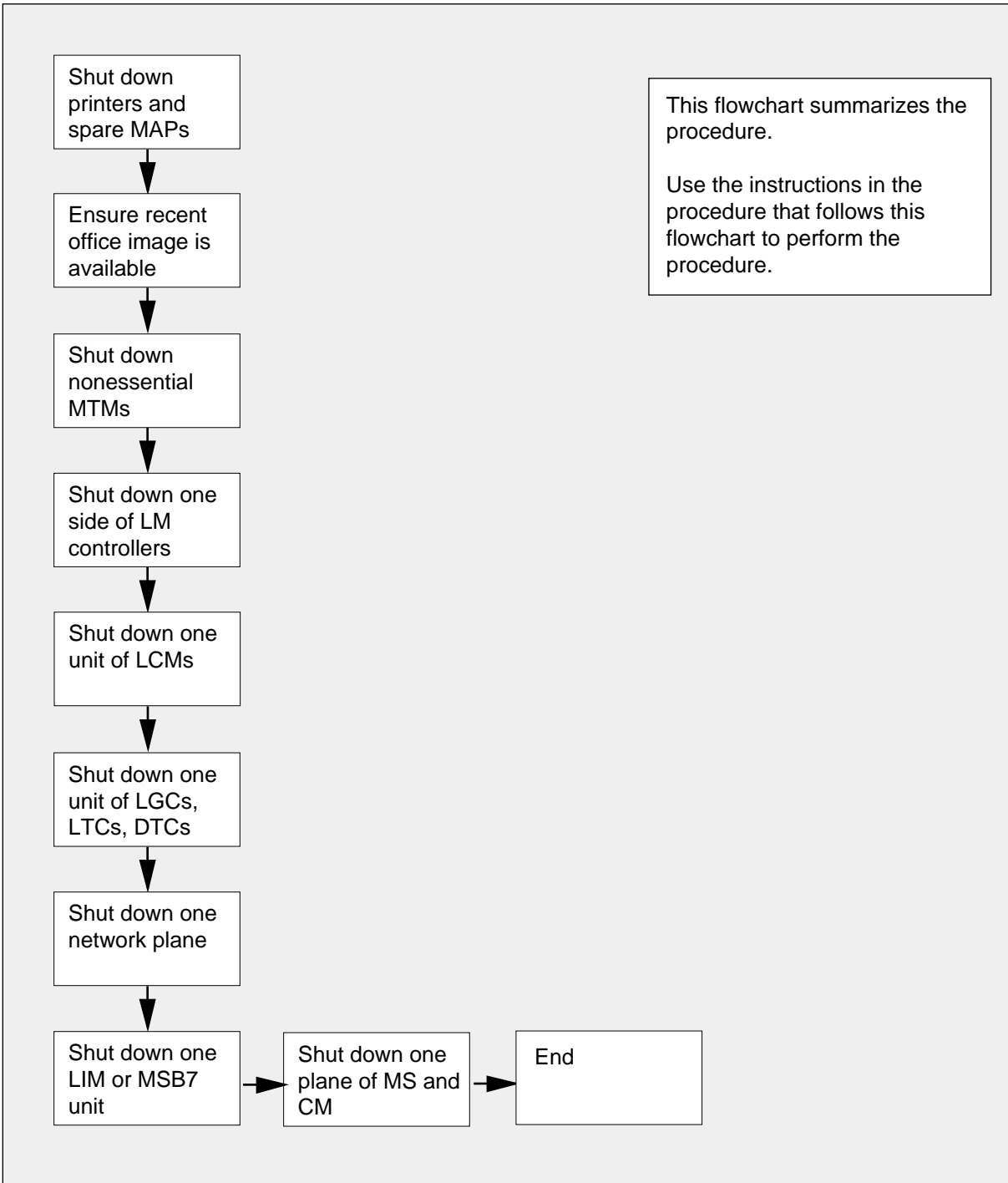

- Where possible, take the same unit or plane number out of service on each subsystem (for example, ENET plane 0, LIM unit 0, MS 0). This action decreases the possibility of error and reduces recovery time.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation (continued)

Summary of Emergency power conservation

```
┌─────────────┐
│ Shut down   │
│ printers and│
│ spare MAPs  │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Ensure recent│
│ office image is│
│ available   │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Shut down   │
│ nonessential│
│ MTMs        │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Shut down one│
│ side of LM  │
│ controllers │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Shut down one│
│ unit of LCMs│
└─────────────┘
       │
       ▼
┌─────────────┐
│ Shut down one│
│ unit of LGCs,│
│ LTCs, DTCs  │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Shut down one│
│ network plane│
└─────────────┘
       │
       ▼
┌─────────────┐   ┌─────────────┐   ┌─────────┐
│ Shut down one│→ │ Shut down one│→ │ End     │
│ LIM or MSB7 │   │ plane of MS and│   │         │
│ unit        │   │ CM          │   │         │
└─────────────┘   └─────────────┘   └─────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation (continued)

Emergency power conservation

1

> ⚠ **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

Read the section Usage notes in this document.

2   Using office records, identify the power inverters that supply the MAPs and printers for the switch.

3   Turn the power off on all inverters identified in step 2, except the inverter which supplies the operator's MAP and one printer connected to IOC 0.

Emergency power conservation (continued)

At the MAP

4 Confirm that a recent office image is readily available to reload the switch should total shutdown become necessary by typing

>AUTODUMP STATUS
and pressing the Enter key.

Example of a MAP response:

```
Successful Image: 930215_MS
Taken: 1992/03/18 21:47:32:04.138 WED.
On Volume: S00DIMAGE1

Successful Image: 930215_CM
Taken: 1992/03/18 21:47:32:04.138 WED.
On Volume: S00DIMAGE1

SCHEDULED-Image Dump is ON.

Next scheduled dump is THURSDAY at 21:00 hours.
Next image to be dumped on S01DIMAGE0.
```

If a recent office image is	Do
available	step 6
not available	step 5

5 Take an office image using procedure *Recording an office image on an SLM disk* in *Routine Maintenance Procedures*.

6 Shut down all maintenance trunk modules in the office, except those that contain service affecting cards, by performing the procedure *Emergency shutdown of maintenance trunk modules* in this document.

   Note: Service affecting cards include digitone receiver cards (NT2X48), centralized automatic message accounting (CAMA) cards (NT2X66 and NT2X66), and digital recorded announcement machine (DRAM) cards.

7 Shut down one of the line module controllers (NT2X14 shelf) in each double-bay line module pair in the office, by performing the procedure *Emergency shutdown of one half a line module pair* in this document.

8 Shut down one unit of all line concentrating modules (LCM) in the office, by performing the procedure *Emergency shutdown of one unit of LCMs* in this document.

Emergency power conservation (end)

9 Shut down one unit of all line group controllers (LGC) line trunk controllers (LTC), and digital trunk controllers (DTC) in the office, by performing the procedure *Emergency shutdown of one LGC, LTC and DTC unit* in this document.

10 Shut down one plane of all network shelves in the office, as follows:

- for ENET, perform the procedure *Emergency shutdown of one enhanced network plane* in this document
- for JNET, perform the procedure *Emergency shutdown of one junctored network plane* in this document

11 If you removed power from an entire network frame in step 10, shut down the cooling fans for the frame by removing the appropriate power fuses from the PDC.

12 Busy and power down one local message switch in the link peripheral processor (LPP), by performing the procedure *Emergency shutdown of one LIM unit on each LPP* in this document.

13 Shut down one unit of all CCS7 message switch and buffers (MSB7) in the office, by performing the procedure *Emergency shutdown of one unit of MSB7s* in this document.

14 Shut down one message switch plane, by performing the procedure *Emergency shutdown of one DMS SuperNode MS plane* in this document.

15 If your office is equipped with a remote oscillator (Bliley) shelf (NT3X9507), busy the clock associated with the MS number you powered down in step 14, by performing the procedure *Emergency shutdown of one remote oscillator shelf plane* in this document.

16 Shut down one plane of the computing module, by performing the procedure *Emergency shutdown of one DMS SuperNode CM plane* in this document.

17 You have completed this procedure.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane

Application

Use this procedure to conserve emergency backup power by shutting down one computing module (CM) plane.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
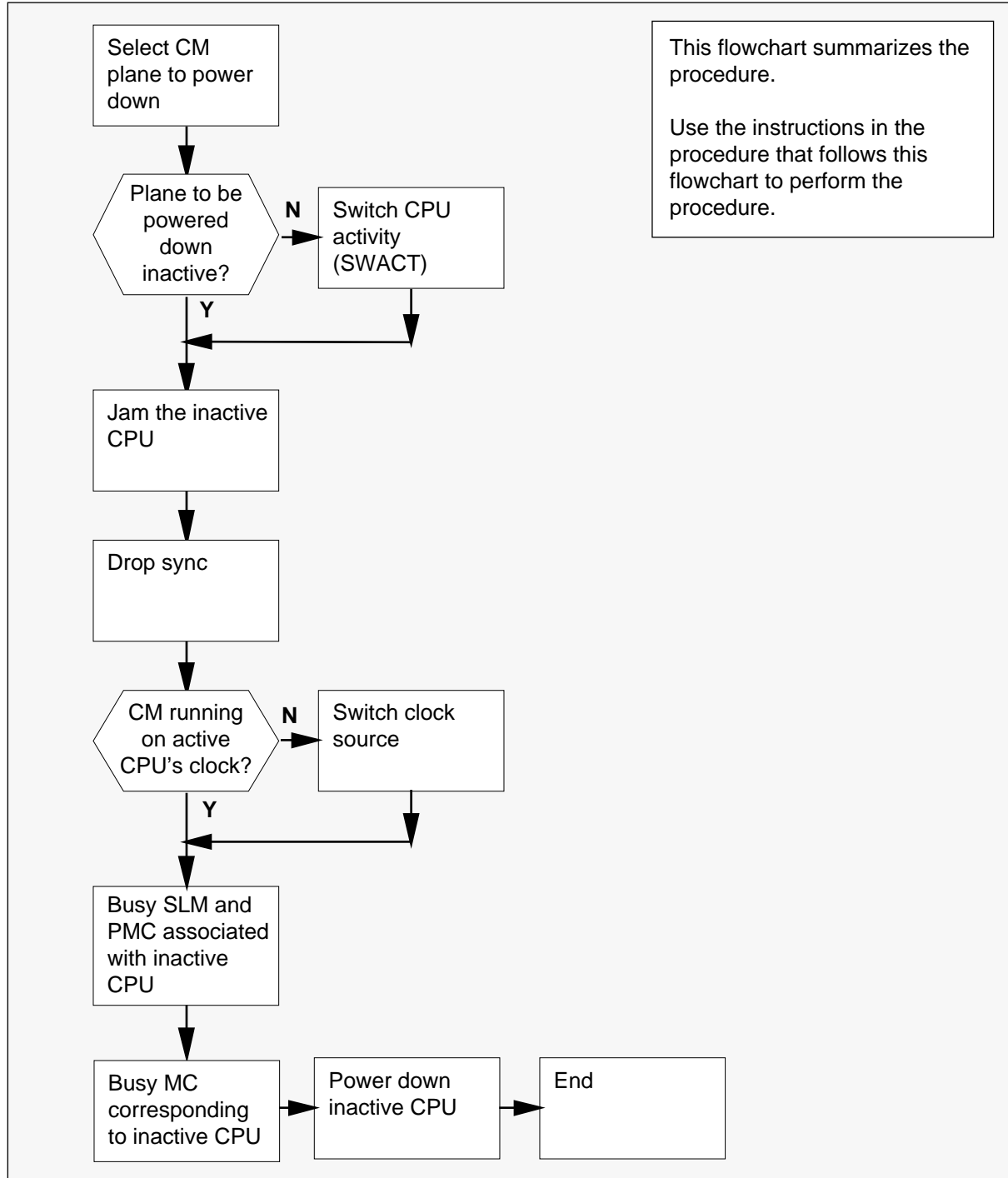> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

Summary of Emergency shutdown of one SuperNode SE CM plane

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

Emergency shutdown of one SuperNode SE CM plane

At the MAP

1   Access the CM level of the MAP display by typing

   >MAPCI;MTC;CM
   and pressing the Enter key.

   Example of a MAP display:

   ```
   CM  Sync  Act  CPU0  CPU1 Jam Memory CMMnt  MC   PMC
    0   no  cpu 1  .     .   no    .     .      .    .
   ```

2   Determine which central processing unit (CPU) is active, indicated under
   header Act on the MAP display.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

3 Determine the state of the computing module planes (CPU 0 and CPU 1) before proceeding.   (A fault free CPU is indicated by a dot under the corresponding CPU header on the MAP display.)

If	Do
both CPU planes are fault free	step 7
the inactive CPU has a fault, and the active CPU is fault free	step 7
the active CPU has a fault, and the inactive CPU is fault free	step 5
both CPU 0 and CPU 1 have faults	step 4

4 Do not continue this procedure until you clear the faults on at least one CPU, by clearing the appropriate CM alarms. When at least one CPU is fault free, go to step 2.

5 Switch activity by typing

>SWACT
and pressing the Enter key.

Example of a MAP response:

```
Switch of activity will cause the CM to be running on the
inactive CPU's processor clock. System will drop SYNC and
then re-SYNC in order to switch to the active CPU's
clock.
Do you wish to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

6 Confirm the command by typing

>YES
and pressing the Enter key.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

At the CM reset terminal for the inactive CPU

> ⚠️ **CAUTION**
> **Loss of service**
> Ensure that you do not jam the active CPU. Jamming the active CPU while the CM is out of sync causes a cold restart. The reset terminal for the active CPU is identified by the word Active on the top banner of its display.

7 Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

Please confirm: (YES/NO)

8 Confirm the command by typing

YES
and pressing the Enter key.

RTIF response:

JAM DONE

At the MAP

9 Drop synchronization by typing

>DPSYNC
and pressing the Enter key.

Example of MAP response:

About to drop sync with CPU n active.
The inactive CPU is JAMMED.
Do you want to continue?
Please confirm ("YES", "Y", "NO", or "N"):

10 Confirm the command by typing

>YES
and pressing the Enter key.

At the CM reset terminal for the inactive CPU

11 Wait until A1 flashes on the reset terminal for the inactive CPU.

Note: Allow about 5 minutes for A1 to start flashing.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

At the MAP

> **CAUTION**
> **Possible loss of service**
> Ensure that the CM is running on the active CPU's
> clock. Powering down the inactive side of the CM
> while the CM is running on the inactive CPU's clock
> may cause a cold restart or a system image reload.

12   Determine if the CM is running on the active CPU's clock by typing

>INSYNC
and pressing the Enter key.

Example of a MAP response:

```
CPU pair is NOT insync, CUP O is active.
CM is running on active CPU clock.

Memory Error Correction is ENABLED.

The inactive CPU is jammed.
```

If the CM is running on the	Do
inactive clock	step 13
active clock	step 14

13   To run the CM on the active CPU's clock, perform the procedure *Switching the clock source* in *Card Replacement Procedures*. When you have completed the procedure, return to this point.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

14 Access the CMMNT level of the MAP display

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

Example of a MAP display:

```
CM  Sync  Act  CPU1  CPU1  Jam  Memory  CMMnt   MC   PMC
 0   no   cpu 0  .     .    yes    .      .     .    .


Traps:         Per minute =    0      Total =        5


AutoLdev:      Primary = SLM 0 DISK Secondary = SLM 1
DISK


Image Restartable = No image test since last restart


Next image restart type = WARM


Last CM REXTST executed


System memory in kbytes as of 14:39:07
Memory(kbytes): Used = 105984 Avail = 12800 Total =
118784
```

15 Record the primary autoload device.

Note: The primary autoload device is shown to the right of the Primary header. In the example shown in step 14, the primary autoload device is the disk of SLM 0.

16 Determine if the primary autoload device is on the side of the switch with the active CPU or the inactive CPU.

If the primary autoload device is on the same plane as the	Do
active CPU	step 18
inactive CPU	step 17

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

17 Change the primary autoload device to a device on the same side of the switch as the active CPU by typing

>AUTOLD SLM sim_number device_type
and pressing the Enter key.

where

mc_number   is the number of the active CPU (0 or 1)
device type   is the number of SLM device (DISK or TAPE)

Example of a MAP response:

```
New autoload route has been set.
```

18 Access the SLM corresponding to the inactive CPU by typing

>IOD;SLM sim_number
and pressing the Enter key.

where

sim_number   is the number of the inactive CPU (0 or 1)

Example of a MAP display:

```
 IOD

 IOC  0  1  2  3

 STAT .   .   .   .

 DIRP:   .    XFER:   .   DVI :   .    DPPP:   .    DPPU:
 .
 NOP :   .    SLM :   .   NX25:   .    MLP :   .    SCAI:
 .

 SLM  0  1

 Stat .  1

 SLM 0                 device        TAPE         DISK
                       status          .            .
                        drive         idle        on line
                       user
```

Note: The dots to the right of the SLM Stat header mean that both SLM 0 and SLM 1 are in service.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

> **CAUTION**
> **Possible loss of data recording services**
> The following step involves removing from service the SLM on the inactive plane. Before you manually busy the SLM, ensure that the data recording services provided by the SLM on the inactive plane will be assumed by the SLM on the active plane.

19 Manually busy the SLM by typing

>BSY
and pressing the Enter key.

Example of a MAP response:

```
SLM 0 busy passed.
```

Note: The letter M to the right of the SLM Stat header means that the associated SLM is manually busy.

20 Access the PMC level of the MAP by typing

>CM;PMC
and pressing the Enter key.

Example of a MAP display:

```
            PMC 0


              .

PORT0:     pbsy
PORT1:
```

> **CAUTION**
> **Possible loss of service**
> Ensure that you busy the MC that corresponds to the inactive CPU. Powering down the plane with the wrong MC busied causes a warm restart.

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (continued)

21   Manually busy the port that corresponds to the inactive CPU by typing

>**BSY pmc_number PORT port_number**
and pressing the Enter key.

where

pmc_number   is the number of the peripheral message controller (PMC)
                  (0 or 1)
port_number   is the number of the inactive CPU (0 or 1)

Example input:

>**BSY 0 PORT 0**
and pressing the Enter key.

Example of a MAP response:

```
Maintenance action submitted.
Passed.
```

Example of a MAP display:

```
          PMC 0
          istb
             .

PORT0:      mbsy
PORT1:
```

22   Access the MC level of the MAP by typing

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

Example of a MAP response:

```
CM 0
 MC 0 MC 1
   .    .
```

Emergency power conservation
Emergency shutdown of one SuperNode SE CM plane (end)

23 Manually busy the MC that corresponds to the inactive CPU by typing

>**BSY mc_number**
and pressing the Enter key.

where

mc_number   is the number of the inactive CPU (0 or 1)

Example of a MAP response:

```
Maintenance action submitted.
MC busied OK.
```

At the CM/SLM shelf

> ⚠ **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage by static electricity.

24 Power down the inactive CPU plane by pressing down and releasing the power switch located on the faceplate of the NTDX15 power converter.

Note: For plane 0, the power converter is located in slots 4F through 6F. For plane 1, the power converter is located in slots 33F through 35F.

25 You have completed this procedure.

Emergency power conservation
Emergency shutdown of one SuperNode SE MS plane

Application

Use this procedure to conserve emergency backup power by shutting down one message switch (MS) shelf.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
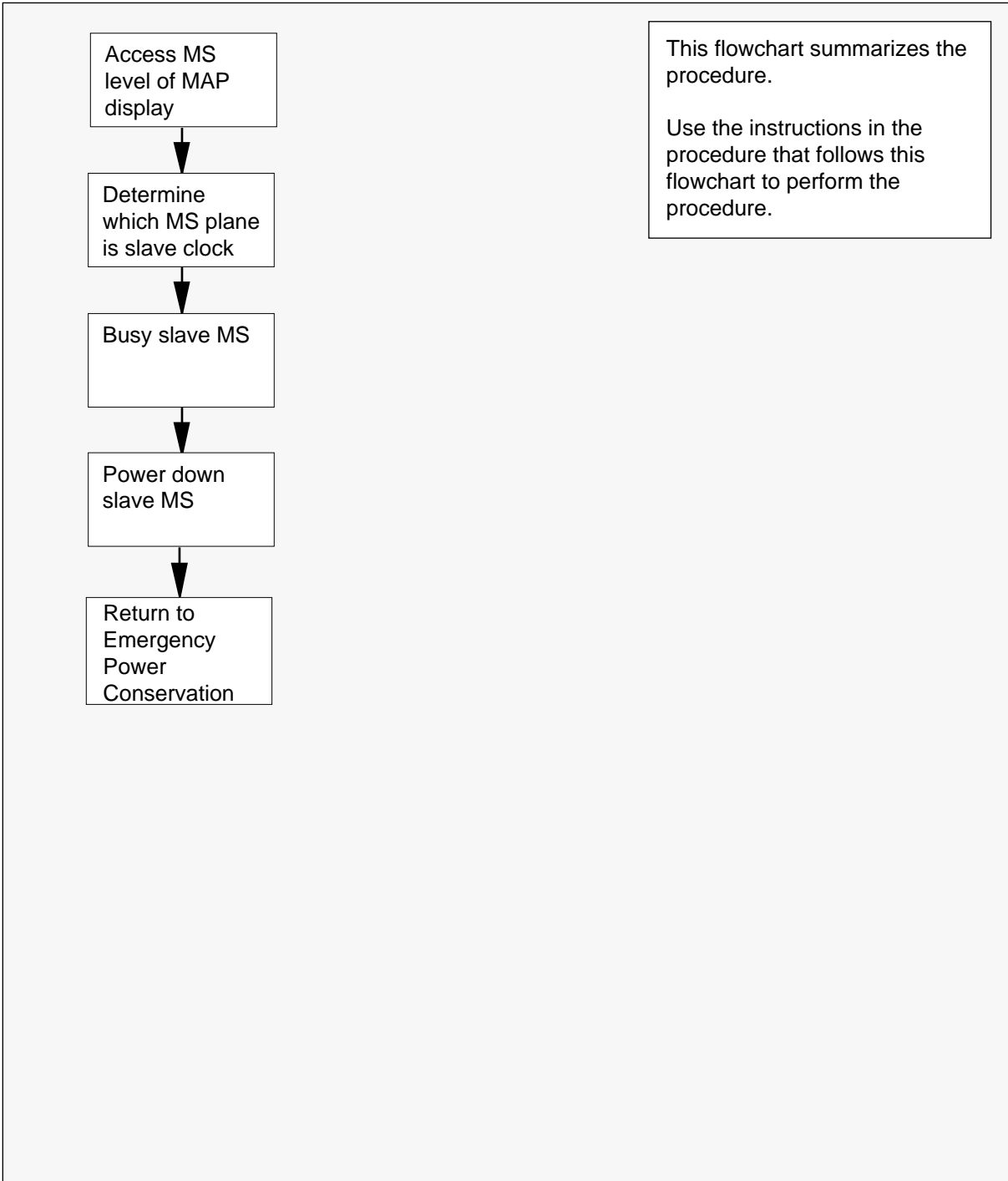> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one SuperNode SE MS plane (continued)

Summary of Emergency shutdown of one SuperNode SE MS plane

```
┌──────────────┐
│ Access MS    │
│ level of MAP │
│ display      │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Determine    │
│ which MS plane│
│ is slave clock│
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Busy slave MS│
│              │
│              │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Power down   │
│ slave MS     │
│              │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Return to    │
│ Emergency    │
│ Power        │
│ Conservation │
└──────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation
Emergency shutdown of one SuperNode SE MS plane (continued)

Emergency shutdown of one SuperNode SE MS plane

CAUTION
Potential service interruption or extended outage
Northern Telecom recommends that you contact Northern
Telecom's Emergency Technical Assistance Services
(ETAS) or your next level of support before performing
this procedure.

CAUTION
Potential service interruption or extended outage
This procedure is intended only for conservation of
emergency backup power. Do not use this procedure or
portions thereof for equipment maintenance purposes

At the MAP

1   Access the MS level of the MAP display by typing

   >MAPCI;MTC;MS
   and pressing the Enter key.

   Example of a MAP display:

   ```
   Message Switch    Clock   Shelf 0   Inter-MS Link 0 1
   MS 0         .    M Free      .                   R .
   MS 1         .    Slave       F                   S .
   ```

2   Determine which MS is the clock slave, indicated under the header Clock.

3   Determine the state of the message switch planes.

If	Do
both MS planes are fault free	step 8
the slave MS has a fault, and the master MS plane is fault free	step 8
the master MS has a fault, but the slave MS is fault free	step 5
both MS planes have faults	step 4

Emergency power conservation
Emergency shutdown of one SuperNode SE MS plane (continued)

4 Do not continue this procedure until you clear the faults on at least one MS, by clearing the appropriate MS alarms. When at least one MS is fault free, go to step 2.

5 Switch clock mastership by typing

>SWMAST
and pressing the Enter key.

Example of a MAP response:

```
Request to Switch Clock Mastership MS: 0 submitted.
Request to Switch Clock Mastership MS: 0 passed.
```

If the SWMAST command	Do
passed	step 7
failed	step 6

6 Do not continue this procedure until you clear any faults which may be preventing the switch of mastership, by clearing the appropriate MS alarms. When these faults have been cleared, go to step 2.

7 Wait 10 min to ensure MS stability, then continue with this procedure.

8 Manually busy the slave MS by typing

>BSY ms_number
and pressing the Enter key.

where

ms_number   is the number of the slave MS (0 or 1)

Example of a MAP response:

```
Request to MAN BUSY MS: 0 submitted.
Request to MAN BUSY MS: 0 passed.
```

Emergency power conservation
Emergency shutdown of one SuperNode SE MS plane (end)

At the MS shelf

> **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

> **CAUTION**
> **Possible loss of service**
> Ensure that you power down the slave MS. If you power down the MS containing the master clock the system will shut down completely.

9 Power down the slave MS, as follows:

    a. Press down and release the switch on the faceplate of the NT9X30 power converter.

    b. Press down and release the switch on the faceplate of the NT9X31 power converter.

    Note: If MS 0 is the slave MS, turn off the converters in slots 1 and 4. If MS 1 is the slave MS, turn off the converters in slots 33 and 36.

10 Return to the procedure *Emergency Power Conservation* in this document and proceed as directed.

Emergency power conservation
Emergency shutdown of one DMS SuperNode MS plane

Application

Use this procedure conserve emergency backup power by shutting down one message switch (MS) shelf.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
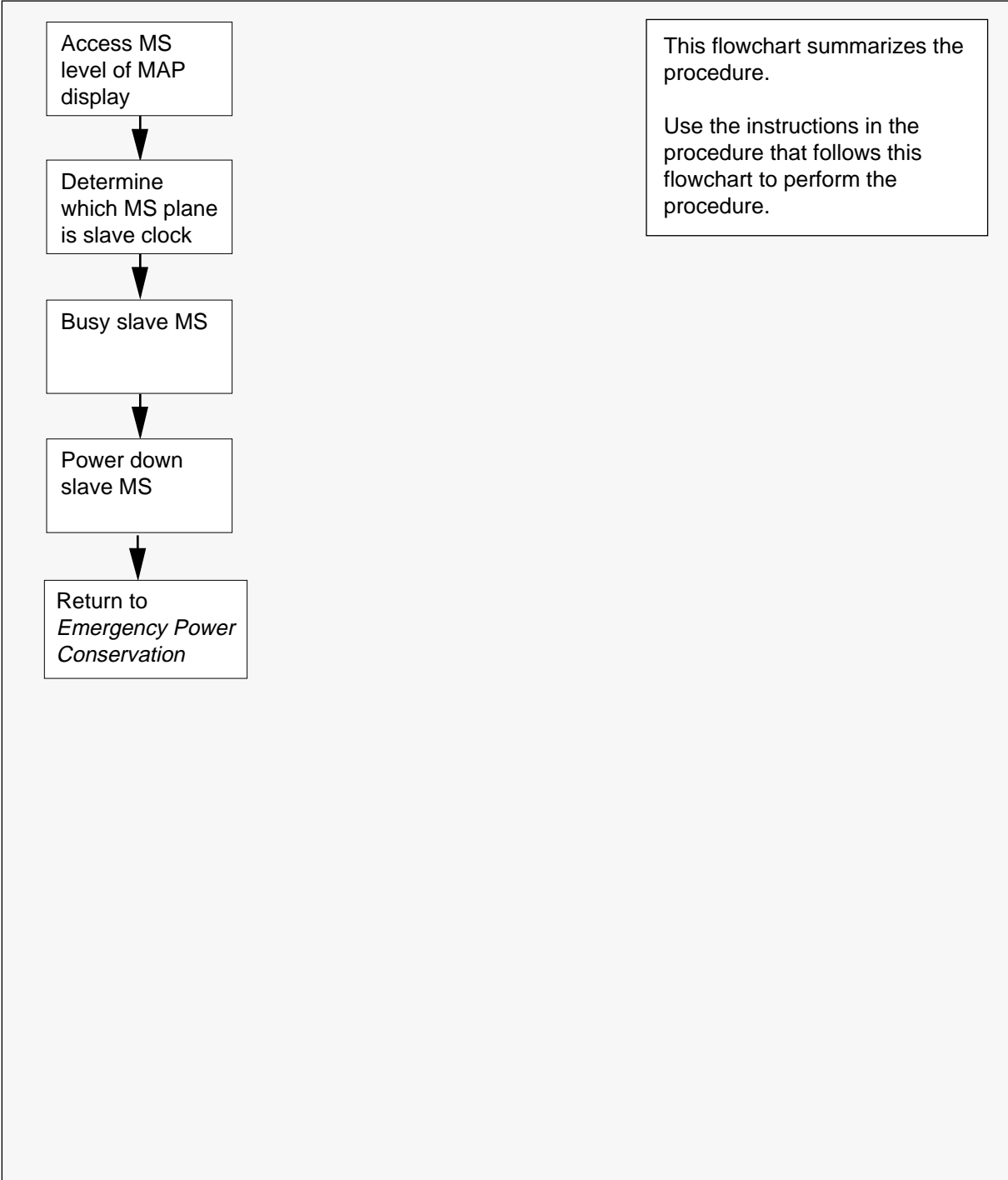> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one DMS SuperNode MS plane (continued)

Summary of Emergency shutdown of one DMS SuperNode MS plane

Access MS
level of MAP
display

↓

Determine
which MS plane
is slave clock

↓

Busy slave MS

↓

Power down
slave MS

↓

Return to
*Emergency Power
Conservation*

This flowchart summarizes the
procedure.

Use the instructions in the
procedure that follows this
flowchart to perform the
procedure.

Emergency power conservation
Emergency shutdown of one DMS SuperNode MS plane (continued)

Emergency shutdown of one DMS SuperNode MS plane

> ⚠ **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

At the MAP

1 Access the MS level of the MAP display by typing

   >MAPCI;MTC;MS
   and pressing the Enter key.

   Example of a MAP display:

```
Message Switch   Clock  Shelf 0   Inter-MS Link 0 1
MS 0       .          M Free     .                R .
MS 1       .          Slave      F                S .
```

2 Determine which MS is the clock slave, indicated under the header Clock.

Emergency power conservation
Emergency shutdown of one DMS SuperNode MS plane (continued)

3   Determine the state of the message switch planes.

If	Do
both MS planes are fault free	step 8
the slave MS has a fault, and the master MS plane is fault free	step 8
the master MS has a fault, but the slave MS is fault free	step 5
both MS planes have faults	step 4

4   Do not continue this procedure until you clear the faults on at least one MS, by clearing the appropriate MS alarms. When at least one MS is fault free, go to step 2.

5   Switch clock mastership by typing

   >SWMAST
   and pressing the Enter key.

   Example of a MAP response:

```
Request to Switch Clock Mastership MS: 0 submitted.
Request to Switch Clock Mastership MS: 0 passed.
```

If the SWMAST command	Do
passed	step 7
failed	step 6

6   Do not continue this procedure until you clear any faults which may be preventing the switch of mastership, by clearing the appropriate MS alarms. When these faults have been cleared, go to step 2.

7   Wait 10 min to ensure MS stability, then continue with this procedure.

Emergency power conservation
Emergency shutdown of one DMS SuperNode MS plane (end)

8 Manually busy the slave MS by typing

>BSY ms_number
and pressing the Enter key.

where

ms_number   is the number of the slave MS (0 or 1)

Example of a MAP response:

```
Request to MAN BUSY MS: 0 submitted.
Request to MAN BUSY MS: 0 passed.
```

At the MS shelf

9

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap
> groundingpoint of the frame supervisory panel (FSP)
> while handling cards. This protects the cards against
> damage caused by static electricity.

> **CAUTION**
> **Possible loss of service**
> Ensure that you power down the slave MS. If you
> power down the MS containing the master clock the
> system will shut down completely.

Power down the slave MS, as follows:

a.   Press down and release the switch on the faceplate of the NT9X30
     +5V power converter in slot 4.

b.   Press down and release the switch on the faceplate of the NT9X31
     -5V power converter in slot 1.

c.   Simultaneously press down and release the switches on the faceplates of
     both power converters in slots 33 and 36.

10 Return to the procedure *Emergency power conservation* in this document and
    proceed as directed.

Emergency power conservation
Emergency shutdown of one enhanced network plane

Application

Use this procedure to conserve emergency backup power by shutting down one plane of the enhanced network (ENET).

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
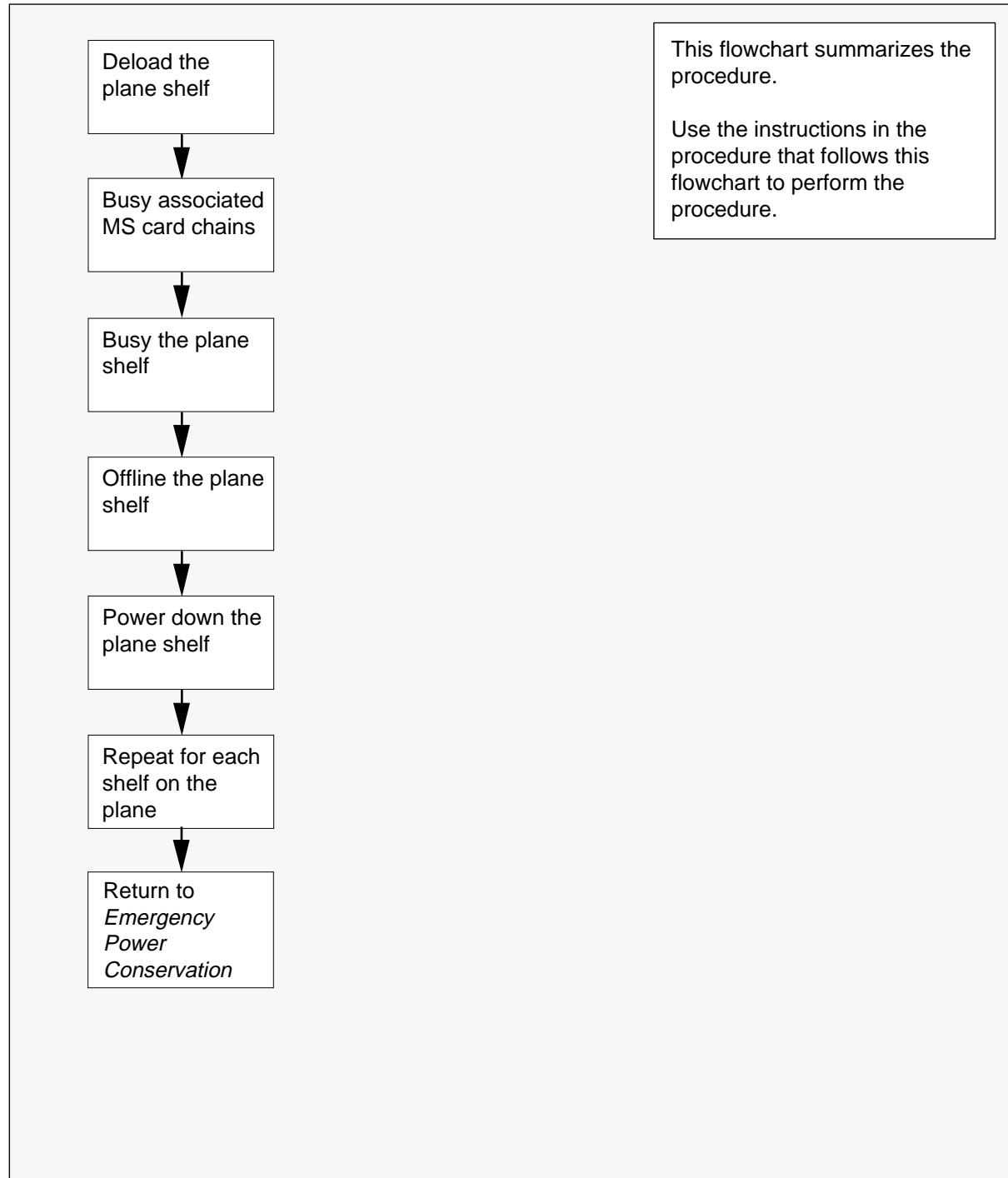> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one enhanced network plane (continued)

Summary of Emergency shutdown of one enhanced network plane

```
┌─────────────────┐
│ Deload the      │
│ plane shelf     │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Busy associated │
│ MS card chains  │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Busy the plane  │
│ shelf           │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Offline the plane│
│ shelf           │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Power down the  │
│ plane shelf     │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Repeat for each │
│ shelf on the    │
│ plane           │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Return to       │
│ *Emergency*     │
│ *Power*         │
│ *Conservation*  │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation
Emergency shutdown of one enhanced network plane (continued)

Emergency shutdown of one enhanced network plane

At the MAP

1

CAUTION
Potential service interruption or extended outage
Northern Telecom recommends that you contact
Northern Telecom's Emergency Technical Assistance
Services (ETAS) or your next level of support before
performing this procedure.

CAUTION
Potential loss of service or extended outage
This procedure is intended only for conservation of
emergency backup power. Do not use this procedure
or portions thereof for equipment maintenance
purposes.

Access the System level of the network MAP display by typing

>MAPCI;MTC;NET;SYSTEM
and pressing the Enter key.

Example of a MAP display:

```
SYSTEM
   Shelf    Plane 0 Plane 1
            00     .        .
```

2   Choose a plane shelf to remove from service, and note its shelf number and
plane number.

Emergency power conservation
Emergency shutdown of one enhanced network plane (continued)

3   Deload the plane shelf you chose in step 2 by typing

>**DELOAD plane_no shelf_no SET**
and pressing the Enter key.

where

plane_no   is the number of the plane in this node (0 or 1)
shelf_no   is 0 or 1 for 64K ENET, or 0 to 7 for 128K ENET

MAP response:

```
Request to SET DELOAD ENET Plane:0 Shelf:00 submitted.
Request to SET DELOAD ENET Plane:0 Shelf:00 passed.
```

4   Allow up to 30 min for traffic to clear on the plane shelf. To monitor the deload
status of the plane shelf, enter the following command as required by typing

>**DELOAD plane_no shelf_no QUERY**
and pressing the Enter key.

where

plane_no   is 0 or 1
shelf_no   is 0 to 1 for 64K ENET, or 0 to 7 for 128 K ENET

Example of a MAP response:

```
Request to QUERY DELOAD ENET Plane:0 Shelf:00 passed.
                  111111       11122222          22222333
                  90123456     78901234          56789012
Plane:0 Shelf:00--------     --------          ---Y--YY
```

Note: A deloaded crosspoint card is indicated by a Y under the slot number
(28, 31, and 32 in the example shown) in the MAP display.

5   When you have confirmed that all crosspoint cards on the plane shelf are
deloaded, continue to the next step.

Emergency power conservation
Emergency shutdown of one enhanced network plane (continued)

6   Identify the message switch card chain associated with the plane shelf by typing

>**>TRNSL plane_no shelf_no**
and pressing the Enter key.

where

plane_no   is the number of the plane in this node
shelf_no   is 0 or 1 for 64K ENET, or 0 to 7 for 128K ENET

Example of a MAP response:

```
Request to TRNSL ENET Plane:0 Shelf:00 passed.
ENET Plane:0 Shelf:00 MS:0 and 1 Card:20 Link:00 Port:00
```

7   Access the MS Shelf level of the MAP display by typing

>**>MS;SHELF**
and pressing the Enter key.

8   Manually busy the head card in the chain on MS 0 by typing

>**>BSY 0 card_no CHAIN**
and pressing the Enter key.

where

card_no   is the card shown in the MAP response in step 6

9   Manually busy the head card in the chain on MS 1 by typing

>**>BSY 1 card_no CHAIN**
and pressing the Enter key.

where

card_no   is the card shown in the MAP response in step 6

10   Access the System level of the MAP display by typing

>**>NET;SYSTEM**
and pressing the Enter key.

Emergency power conservation
Emergency shutdown of one enhanced network plane (continued)

11 Manually busy the plane shelf by typing

>BSY plane_no shelf_no
and pressing the Enter key.

where

plane_no   is the number of the plane in this node
shelf_no   is 0 or 1 for 64K ENET, or 0 to 7 for 128K ENET

MAP response:

```
Request to MAN BUSY ENET Plane:0 Shelf:00 submitted.
Request to MAN BUSY ENET Plane:0 Shelf:00 passed.
```

12 Offline the plane shelf by typing

>OFFL plane_no shelf_no
and pressing the Enter key.

where

plane_no   is the number of the plane in this node
shelf_no   is 0 or 1 for 64K ENET, or 0 to 7 for 128K ENET

MAP response:

```
Request to OFFL ENET Plane:0 Shelf:00 submitted.
Request to OFFL ENET Plane:0 Shelf:00 passed.
```

13 Before proceeding, wait about 20 min to allow for the completion of any maintenance activities on the peripheral module (PM) links and redistribution of network traffic.

Emergency power conservation
Emergency shutdown of one enhanced network plane (end)

At the ENET cabinet

14

> ⚠ **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

> ⚠ **CAUTION**
> **Possible loss of service**
> Ensure that you power down the correct shelf. Powering down an in-service shelf may drop calls in progress or cause network blockage.

Power down the offline plane shelf, as follows:

- Press down and release the switch on the faceplate of the NT9X30 +5V power converter in slot 4.
- Press down and release the switch on the faceplate of the NT9X31 -5V power converter in slot 1.
- Simultaneously press down and release the switches on the faceplates of both power converters in slots 33 and 36.

15 Repeat steps 2 to 14 of this procedure for one plane of each ENET shelf.

16 Return to the procedure *Emergency power conservation* in this document and proceed as directed.

Emergency power conservation
Emergency shutdown of maintenance trunk modules

Application

Use this procedure to conserve emergency backup power, by shutting down maintenance trunk modules (MTM) that do not contain service affecting circuits.

CAUTION
Potential service interruption or extended outage
Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

CAUTION
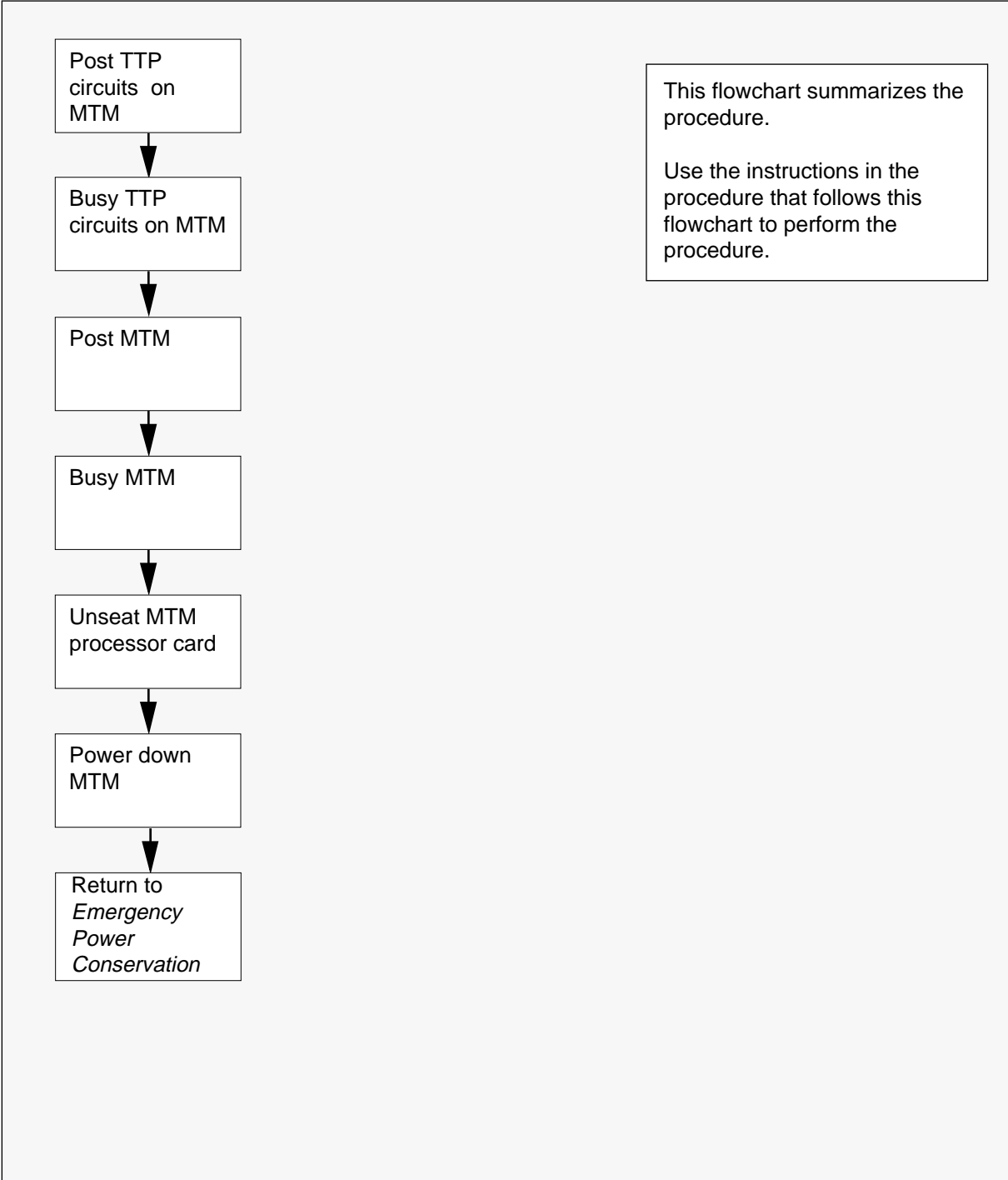**Potential loss of service or extended outage**
This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of maintenance trunk modules (continued)

Summary of Emergency shutdown of maintenance trunk modules

Post TTP
circuits on
MTM

↓

Busy TTP
circuits on MTM

↓

Post MTM

↓

Busy MTM

↓

Unseat MTM
processor card

↓

Power down
MTM

↓

Return to
*Emergency
Power
Conservation*

This flowchart summarizes the
procedure.

Use the instructions in the
procedure that follows this
flowchart to perform the
procedure.

Emergency power conservation
Emergency shutdown of maintenance trunk modules (continued)

Emergency shutdown of maintenance trunk modules

At the MAP

1

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Access the TTP level of the MAP display by typing

>MAPCI;MTC;TRKS;TTP
and pressing the Enter key.

2 Post the circuits associated with the MTM to be shut down by typing

>POST P MTM pm_no
and pressing the Enter key.

where

pm_no   is the PM identification number (0 to 999)

Example of a MAP response:

```
    LAST CKT = 27
    POST CKT IDLED
    SHORT CLLI IS: OTDA00
    OK, CKT POSTED

POST    20  DELQ        BUSY Q      DIG
TTP 6-006
CKT TYPE    PM NO.  COM LANG    STA S R DOT TE R
OG  MF TM8 1 0  OTWAON23DA00 2001    LO
                              P_IDL
```

Emergency power conservation
Emergency shutdown of maintenance trunk modules (continued)

3 Manually busy all circuits associated with the MTM by typing

>BSY ALL

and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>PM;POST MTM pm_no

and pressing the Enter key.

where

pm_no   is the PM identification number (0 to 999)

```
          SysB      ManB      OffL      CBsy      ISTb      InSv
PM          0         2         2         0         7        21
MTM         0         0         1         0         0         6


MTM     0    InSv
```

5 Manually busy the MTM by typing

>BSY

and pressing the Enter key.

At the shelf

6

⚠	**CAUTION** **Static electricity damage** Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

⚠	**CAUTION** **PM shelf failure** Unseat the NT0X70 processor and memory circuit card before powering down the PM shelf. Failure to do this causes a firmware error.

Unseat the NT0X70 processor card.

Emergency power conservation
Emergency shutdown of maintenance trunk modules (end)

> **7** Set the handle of the PWR switch downward on the NT2X09 power converter in slot 17.
>
> **8** Set the handle of the PWR switch downward on the NT2X70 power converter in slot 20.
>
> **9** Repeat steps 1 to 8 for each MTM to be powered down.
>
> **10** Return to the procedure *Emergency power conservation* in this document and proceed as directed.

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane

Application

Use this procedure to conserve emergency backup power by shutting down
one computing module (CM) plane.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
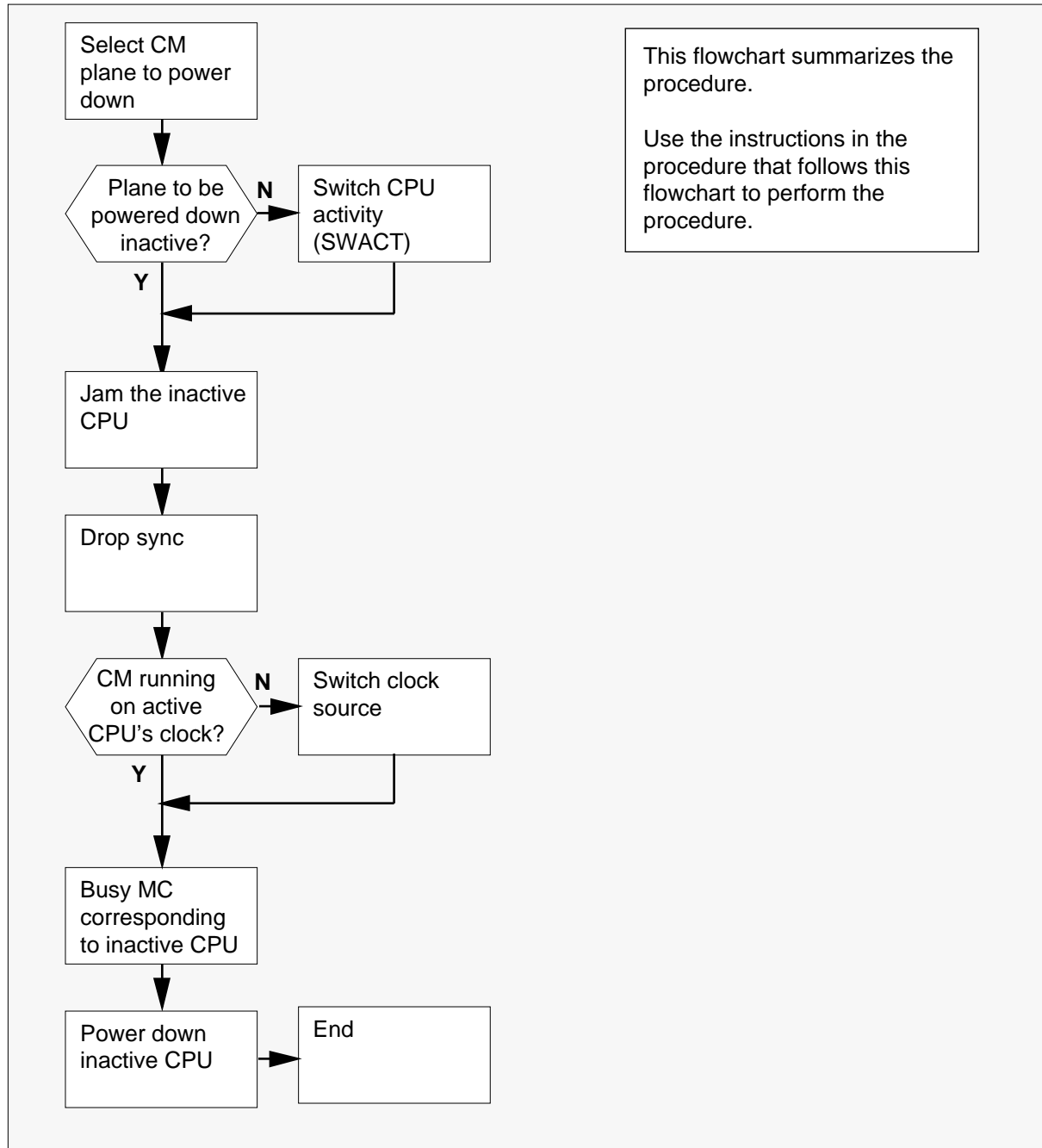> performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

Action

The following flowchart provides an overview of the procedure. Use the
instructions in the step-action procedure that follows the flowchart to
perform the recovery task.

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane (continued)

Summary of Emergency shutdown of one DMS SuperNode CM plane

```
┌─────────────────┐
│ Select CM       │
│ plane to power  │
│ down            │
└─────────────────┘
         │
         ▼
    ╱ Plane to be ╲   N   ┌─────────────────┐
   ⟨ powered down  ⟩────▶ │ Switch CPU      │
    ╲  inactive?  ╱       │ activity        │
         │                │ (SWACT)         │
         Y                └─────────────────┘
         │
         ▼
┌─────────────────┐
│ Jam the inactive│
│ CPU             │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Drop sync       │
│                 │
└─────────────────┘
         │
         ▼
    ╱ CM running ╲   N   ┌─────────────────┐
   ⟨ on active    ⟩────▶ │ Switch clock    │
    ╲ CPU's clock?╱      │ source          │
         │               └─────────────────┘
         Y
         │
         ▼
┌─────────────────┐
│ Busy MC         │
│ corresponding   │
│ to inactive CPU │
└─────────────────┘
         │
         ▼
┌─────────────────┐      ┌─────────────────┐
│ Power down      │────▶ │ End             │
│ inactive CPU    │      │                 │
└─────────────────┘      └─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane (continued)

Emergency shutdown of one DMS SuperNode CM plane

> ⚠ **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

At the MAP

1   Access the CM level of the MAP display by typing

   >MAPCI;MTC;CM
   and pressing the Enter key.

   Example of a MAP display

```
CM  Sync  Act  CPU0  CPU1 Jam Memory CMMnt  MC   PMC
 0   no  cpu 1   .     .   no   .      .     .    .
```

2   Determine which central processing unit (CPU) is active, indicated under
   header Act on the MAP display.

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane (continued)

3   Determine the state of the computing module planes (cpu 0 and cpu 1) before proceeding.   (A fault free CPU is indicated by a dot under the corresponding CPU header on the MAP display.)

If	Do
both CPU planes are fault free	step 7
the inactive CPU has a fault, and the active CPU is fault free	step 7
the active CPU has a fault, and the inactive CPU is fault free	step 5
both CPU 0 and CPU 1 have faults	step 4

4   Do not continue this procedure until you clear the faults on at least one CPU, by clearing the appropriate CM alarms. When at least one CPU is fault free, go to step 2.

5   Switch activity by typing

    >SWACT
    and pressing the Enter key.

    Example of a MAP display

    ```
    Switch of activity will cause the CM to be running on
    the inactive CPU's processor clock. System will drop
    SYNC and then re-SYNC in order to switch to the active
    CPU's clock.
    Do you wish to continue?
    Please confirm ("YES", "Y", "NO", or "N"):
    ```

6   Confirm the command by typing

    >YES
    and pressing the Enter key.

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane (continued)

At the CM reset terminal for the inactive CPU

7

> ⚠ **CAUTION**
> **Loss of service**
> Ensure that you do not jam the active CPU. Jamming the active CPU while the CM is out of sync causes a cold restart. The reset terminal for the active CPU is identified by the word Active on the top banner of its display.

Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response

```
Please confirm: (YES/NO)
```

8   Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response

```
JAM DONE
```

At the MAP

9   Drop synchronization by typing

>DPSYNC
and pressing the Enter key.

Example of a MAP display

```
About to drop sync with CPU n active.
The inactive CPU is JAMMED.
Do you want to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

10   Confirm the command by typing

>YES
and pressing the Enter key.

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane (continued)

11 Wait until A1 flashes on the reset terminal for the inactive CPU.

Note: Allow about 5 min for A1 to start flashing.

12 Determine if the CM is running on the active CPU's clock by typing

>INSYNC
and pressing the Enter key.

Example of a MAP display:

```
CPU pair is NOT insync, CPU 0 is active.
CM is running on active CPU clock.

Memory Error Correction is ENABLED.

The inactive CPU IS Jammed.
```

If the CM is running on the	Do
inactive clock	step 13
active clock	step 14

13 To run the CM on the active CPU's clock, perform the procedure *Switching the clock source* in *Card Replacement Procedures*. When you have completed the procedure, return to this point.

14 Access the MC level of the MAP display by typing

>MC
and pressing the Enter key.

Example of a MAP display:

```
MC 0     MC 1
  .        .
```

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane (continued)

15

> ⚠️ **CAUTION**
> **Loss of service**
> Ensure that you busy the message controller that corresponds to the inactive CPU. Powering down the plane with the wrong MC busied causes a warm restart.

Manually busy the MC that corresponds to the inactive CPU by typing

>BSY mc_number
and pressing the Enter key.

where

mc_number   is the number of the MC (0 or 1) on the inactive side

Example of a MAP display:

```
Maintenance action submitted.
MC busied OK.
```

Emergency power conservation
Emergency shutdown of one DMS SuperNode CM plane (end)

At the CM shelf

16

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

> **CAUTION**
> **Possible loss of service**
> Ensure that the CM is running on the active CPU's clock. Powering down the inactive side of the CM while the CM is running on the inactive CPU's clock may cause a cold restart or a system image reload.

Power down the inactive CPU, as follows:

- Press down and release the power switch on the faceplate of the NT9X30 power converter on the inactive side of the CM shelf.

  Note: For CPU 0, the power converter is located in slots 4F through 6F. For CPU 1, the power converter is located in slots 36F through 38F.

- Press down and release the power switch on the faceplate of the NT9X31 power converter on the inactive side of the CM shelf.

  Note: For CPU 0, the power converter is located in slots 1F through 3F. For CPU 1, the power converter is located in slots 33F through 35F.

17 You have completed this procedure.

Emergency power conservation
Emergency shutdown of one half of a line module pair

Application

Use this procedure to conserve emergency backup power by shutting down one half of a line module pair.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one half of a line module pair (continued)

Summary of Emergency shutdown of one half of a line module pair

```
┌─────────────────┐
│ Post the line   │
│ module to be    │
│ powered down    │
└─────────────────┘
        │
        ▼
┌─────────────────┐
│ Busy the line   │
│ module to be    │
│ powered down    │
└─────────────────┘
        │
        ▼
┌─────────────────┐
│ Power down the  │
│ line module     │
└─────────────────┘
        │
        ▼
┌─────────────────┐
│ Repeat for each │
│ LM to be        │
│ powered down    │
└─────────────────┘
        │
        ▼
┌─────────────────┐
│ Return to       │
│ Emergency       │
│ Power           │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation
Emergency shutdown of one half of a line module pair (continued)

Emergency shutdown of one half of a line module pair

At the MAP

1

<table>
<tr>
<td>

⚠ **CAUTION**

Potential service interruption or extended outage
Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

</td>
</tr>
</table>

<table>
<tr>
<td>

⚠ **CAUTION**

Potential loss of service or extended outage
This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.
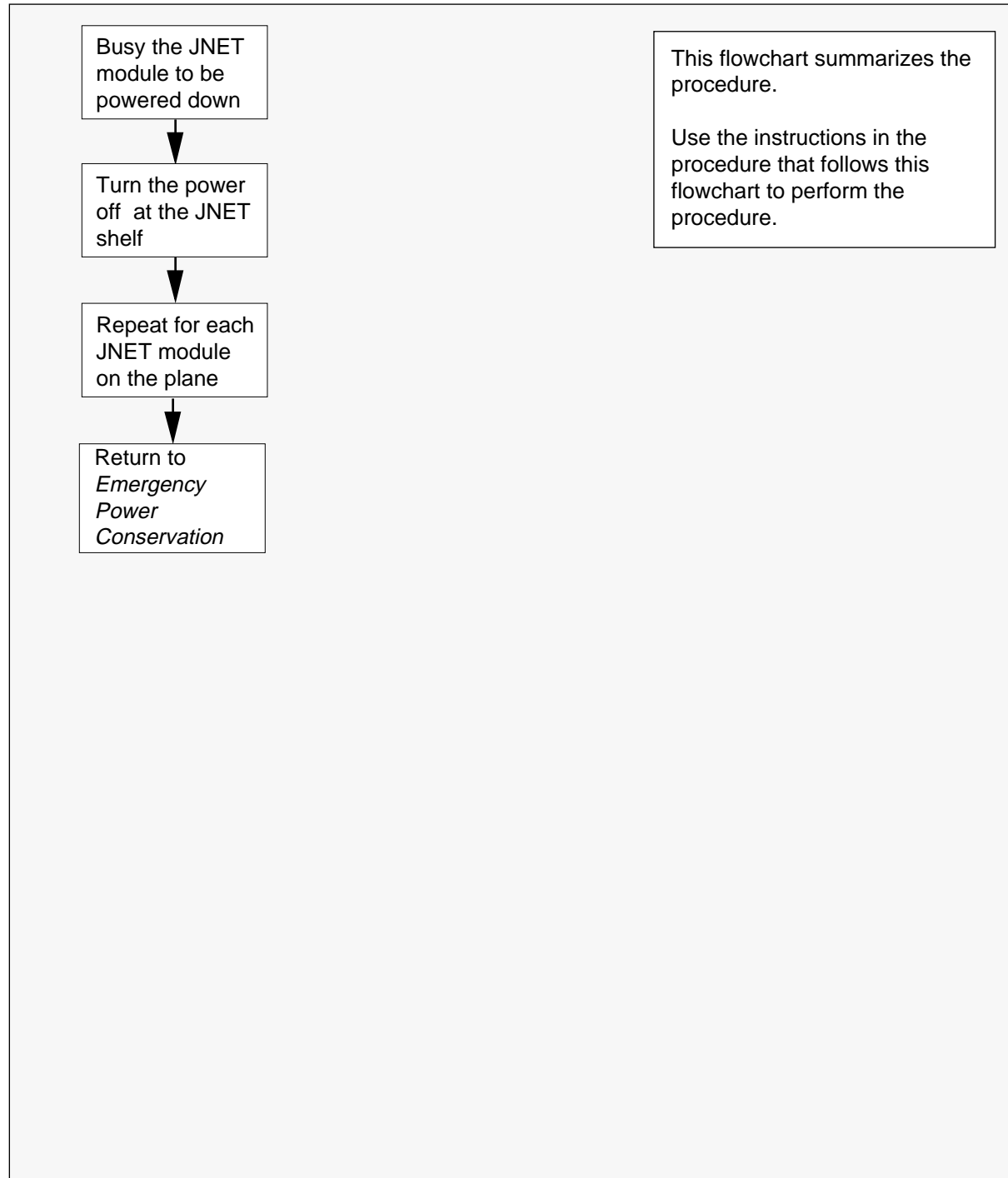
</td>
</tr>
</table>

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

2   Post the LM to be powered down by typing

>POST LM HOST frame pair
and pressing the Enter key.

where

frame   is the frame number (00 to 99)
pair   is the frame pair number (0 to 1)

Example of a MAP response:

```
LM  HOST 00 0  Insv
```

Emergency power conservation
Emergency shutdown of one half of a line module pair (end)

3   Manually busy the LM by typing

     >BSY
     and pressing the Enter key.

     Example of a MAP response:

```
LM 0 Bsy
OK.
```

4

<table>
<tr><td>

⚠ **!**

</td><td>

CAUTION
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

</td></tr>
</table>

     Pull and set the handle of the power converter (NT2X70 in slot 20) POWER switch downward to the OFF position.

5   Repeat steps 2 to 4 for each LM to be powered down.

6   Return to the procedure *Emergency power conservation* in this document and proceed as directed.

Emergency power conservation
Emergency shutdown of one junctored network plane

Application

Use this procedure to conserve emergency backup power by shutting down one plane of the junctored network (JNET). This procedure applies to the following JNET types:

- NT0X48
- NT5X13
- NT8X10

⚠ **CAUTION**
Potential service interruption or extended outage
Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

⚠ **CAUTION**
Potential loss of service or extended outage
This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one junctored network plane (continued)

Summary of Emergency shutdown of one junctored network plane

Busy the JNET module to be powered down

↓

Turn the power off at the JNET shelf

↓

Repeat for each JNET module on the plane

↓

Return to *Emergency Power Conservation*

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation
Emergency shutdown of one junctored network plane (continued)

Emergency shutdown of one junctored network plane

At the MAP

1

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

Access the NET level of the MAP display by typing

>MAPCI;MTC;NET
and pressing the Enter key.

Example of a MAP response:

```
Net
            11111   11111   22222   22222   33
Plane  01234   56789   01234   56789      01234   56789
  0    ....
  1    ....
JNET:
```

2   Select a network plane pair to power down.

3   Manually busy the network module to be powered down by typing

>BSY plane_no pair_no
and pressing the Enter key.

where

plane_no   is the network plane number (0 to 1)
pair_no   is the network plane pair number (0 to 31)

Emergency power conservation
Emergency shutdown of one junctored network plane (end)

   4   Determine the physical location of the network module to be powered down by
          typing

          >LOC plane_no pair_no
          and pressing the Enter key.

          where

          plane_no   is the network plane number (0 to 1)
          pair_no   is the network plane pair number (0 to 31)

   At the network cabinet

   5

⚠	**CAUTION** **Static electricity damage** Wear a wrist strap connected to the wrist strap grounding point of a frame supervisory panel (FSP) or modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

⚠	**CAUTION** **Potential loss of service** Ensure that you power down only the shelves that you busied in step 3.

          At the shelves you busied in step 3, set the handle of the PWR switch on the
          power converters downward to the OFF position.

   6   Repeat steps 2 to 5 for one plane of each network plane pair.

   7   Return to the procedure *Emergency Power Conservation* in this document and
          proceed as directed.

Emergency power conservation
Emergency shutdown of one LIM unit on each LPP

Application

Use this procedure to conserve emergency backup power by shutting down one link interface module (LIM) unit in each link peripheral processor (LPP) cabinet.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one LIM unit on each LPP (continued)

Summary of Emergency shutdown of one LIM unit on each LPP

```
┌─────────────────┐
│ Post the LIM    │
│ unit to be      │
│ powered down    │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Busy the        │
│ corresponding   │
│ F-bus           │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Busy the LIM    │
│ unit to be      │
│ powered down    │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Power down the  │
│ LIM unit        │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ Emergency       │
│ Power           │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
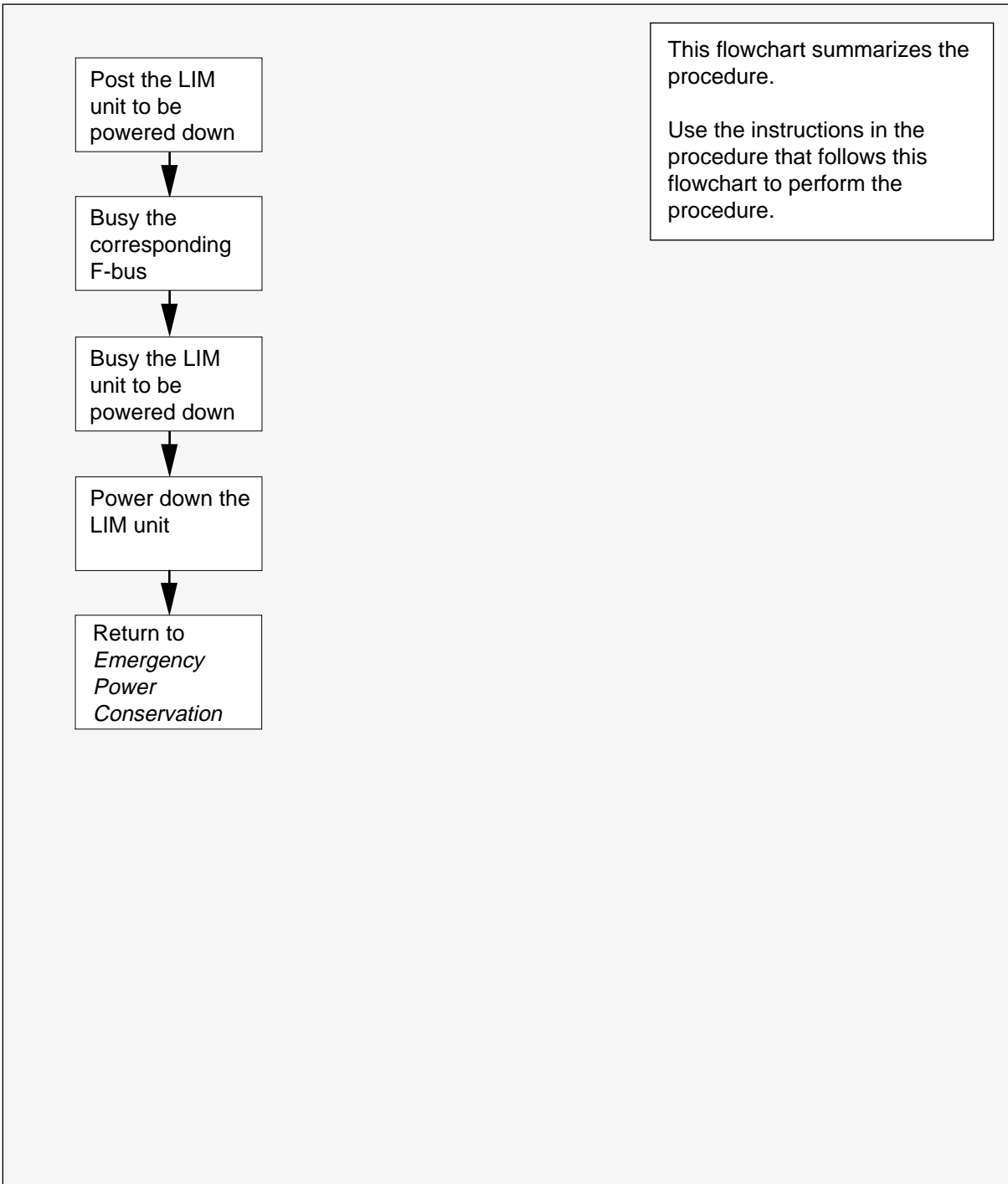
Emergency power conservation
Emergency shutdown of one LIM unit on each LPP (continued)

Emergency shutdown of one LIM unit on each LPP

At the MAP

1

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

Example of a MAP display:

```
          SysB    ManB    OffL    CBsy    ISTb    InSv
PM          1      10      12       0       6      49
```

2 Post the LIM containing the unit to be powered down by typing

>POST LIM lim_no
and pressing the Enter key.

where

lim_no   is the number of the LIM to be posted (0 to 16)

Example of a MAP response:

```
 LIM 1   ISTB
                 Links_OOS Taps_OOS
 Unit0: ManB        2        16
 Unit1:  .           .         .
```

Emergency power conservation
Emergency shutdown of one LIM unit on each LPP (continued)

3

> ⚠️ **CAUTION**
> **Possible loss of service**
> Ensure that the mate LIM unit is in service before
> busying the LIM unit to be powered down. Failure to
> do so can isolate nodes on link interface shelves (LIS)
> 1, 2, and 3.

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

>FBUS
and pressing the Enter key.

Example of a MAP display:

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

Emergency power conservation
Emergency shutdown of one LIM unit on each LPP (continued)

4

⚠️	**CAUTION** **Possible loss of service** Before busying the F-bus associated with the LIM unit to be powered down, ensure that the mate F-bus and all its equipped taps are in service. Failure to do so will isolate application specific units (ASU) on LIS 1, 2, and 3.

Manually busy the F-bus associated with the LIM unit to be powered down by typing

>BSY FBUS fbus_no
and pressing the Enter key.

where

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

Note: F-bus 0 is associated with LIM unit 0; F-bus 1 is associated with LIM unit 1.

If the response is	Do
LIM x FBus y Busy initiated. LIM x FBus y Busy passed.	step 6
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)	step 5

5   Confirm the command by typing

>YES
and pressing the Enter key.

Emergency power conservation
Emergency shutdown of one LIM unit on each LPP (end)

6   Quit the F-bus level of the MAP display by typing

    >QUIT
and pressing the Enter key.

7

<table>
<tr><td>⚠ !</td><td>**CAUTION**
Possible loss of service
Ensure that the mate LIM unit is in service before manually busying the LIM unit to be powered down. Failure to do so can isolate nodes on LIS 1, 2, and 3.</td></tr>
</table>

Manually busy the LIM unit to be powered down by typing

    >BSY UNIT unit_no
and pressing the Enter key.

where

unit_no   is the number of the LIM unit (0 or 1)

At the LPP

8

<table>
<tr><td>⚠ !</td><td>**CAUTION**
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling cards. This protects the cards against damage caused by static electricity.</td></tr>
</table>

Power down the LIM unit you busied in step 7 by pressing down and releasing the power switch on the faceplate of its NT9X30 power converter (located in slot 4 for LIM unit 0, slot 36 for LIM unit1).

Note: The CONVERTER OFF LED lights when the NT9X30 power converter is powered down.

9   Return to the procedure *Emergency Power Conservation* in this document and proceed as directed.

Emergency shutdown of one MS plane

Application

Use this procedure to conserve emergency backup power by shutting down one message switch (MS) shelf.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency shutdown of one MS plane (continued)

Summary of Emergency shutdown of one MS plane

```
┌─────────────┐
│ Access MS   │
│ level of MAP│
│ display     │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Determine   │
│ which MS    │
│ plane is    │
│ slave clock │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Busy slave  │
│ MS          │
│             │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Power down  │
│ slave MS    │
│             │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Return to   │
│ Emergency   │
│ Power       │
│ Conservation│
└─────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency shutdown of one MS plane (continued)

Emergency shutdown of one MS plane

> ⚠️ **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern
> Telecom's Emergency Technical Assistance Services
> (ETAS) or your next level of support before performing
> this procedure.

> ⚠️ **CAUTION**
> **Potential service interruption or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure or
> portions thereof for equipment maintenance purposes

At the MAP

1 Access the MS level of the MAP display by typing

>MAPCI;MTC;MS
and pressing the Enter key.

Example of a MAP display:

```
Message Switch    Clock   Shelf 0   Inter-MS Link 0 1
MS 0         .    M Free     .                 R .
MS 1         .    Slave      F                   S .
```

2 Determine which MS is the clock slave, indicated under the header Clock.

3 Determine the state of the message switch planes.

If	Do
both MS planes are fault free	step 8
the slave MS has a fault, and the master MS plane is fault free	step 8
the master MS has a fault, but the slave MS is fault free	step 5
both MS planes have faults	step 4

Emergency shutdown of one MS plane (continued)

4 Do not continue this procedure until you clear the faults on at least one MS, by clearing the appropriate MS alarms. When at least one MS is fault free, go to step 2.

5 Switch clock mastership by typing

>SWMAST

and pressing the Enter key.

Example of a MAP response:

```
Request to Switch Clock Mastership MS: 0 submitted.
Request to Switch Clock Mastership MS: 0 passed.
```

If the SWMAST command	Do
passed	step 7
failed	step 6

6 Do not continue this procedure until you clear any faults which may be preventing the switch of mastership, by clearing the appropriate MS alarms. When these faults have been cleared, go to step 2.

7 Wait 10 min to ensure MS stability, then continue with this procedure.

8 Manually busy the slave MS by typing

>BSY ms_number

and pressing the Enter key.

where

ms_number   is the number of the slave MS (0 or 1)

Example of a MAP response:

```
Request to MAN BUSY MS: 0 submitted.
Request to MAN BUSY MS: 0 passed.
```

Emergency shutdown of one MS plane (continued)

At the MS shelf

> **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

> **CAUTION**
> **Possible loss of service**
> Ensure that you power down the slave MS. If you power down the MS containing the master clock the system will shut down completely.

9   Verify the type of switch you are working on.

If you are working on a	Do
SuperNode switch	step 10
SuperNode SE switch	step 11

10   Power down the slave MS, as follows:

    a.   Press down and release the switch on the faceplate of the NT9X30 power converter in slot 4F.

    b.   Press down and release the switch on the faceplate of the NT9X31 power converterin slot 1F.

    c.   Simultaneously press down and release the switches on the faceplates of both power converters in slots 33F and 36F.

    Go to step 14.

11   Determine which MS is the slave MS, using the information displayed in step 1.

If the slave MS is	Do
MS 0	step 12
MS 1	step 13

Emergency shutdown of one MS plane (end)

    12 Power down the slave MS as follows:

        a.   Press down and release the switch on the faceplate of the NT9X30 power converter in slot 4F.

        b.   Press down and release the switch on the faceplate of the NT9X31 power converterin slot 1F.

        Go to step 14.

    13 Power down the slave MS as follows:

        a.   Press down and release the switch on the faceplate of the NT9X30 power converter in slot 36F.

        b.   Press down and release the switch on the faceplate of the NT9X30 power converter in slot 33F.

    14 Return to the procedure *Emergency Power Conservation* in this document and proceed as directed.

Emergency power conservation
Emergency shutdown of one remote oscillator shelf plane

Application

Use this procedure to conserve emergency backup power by shutting down one plane of a remote oscillator shelf (ROS). Do not use this procedure until you have removed power from the associated message switch plane, by performing the procedure *Emergency power conservation-Emergency shutdown of one DMS SuperNode MS plane* in this document.

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
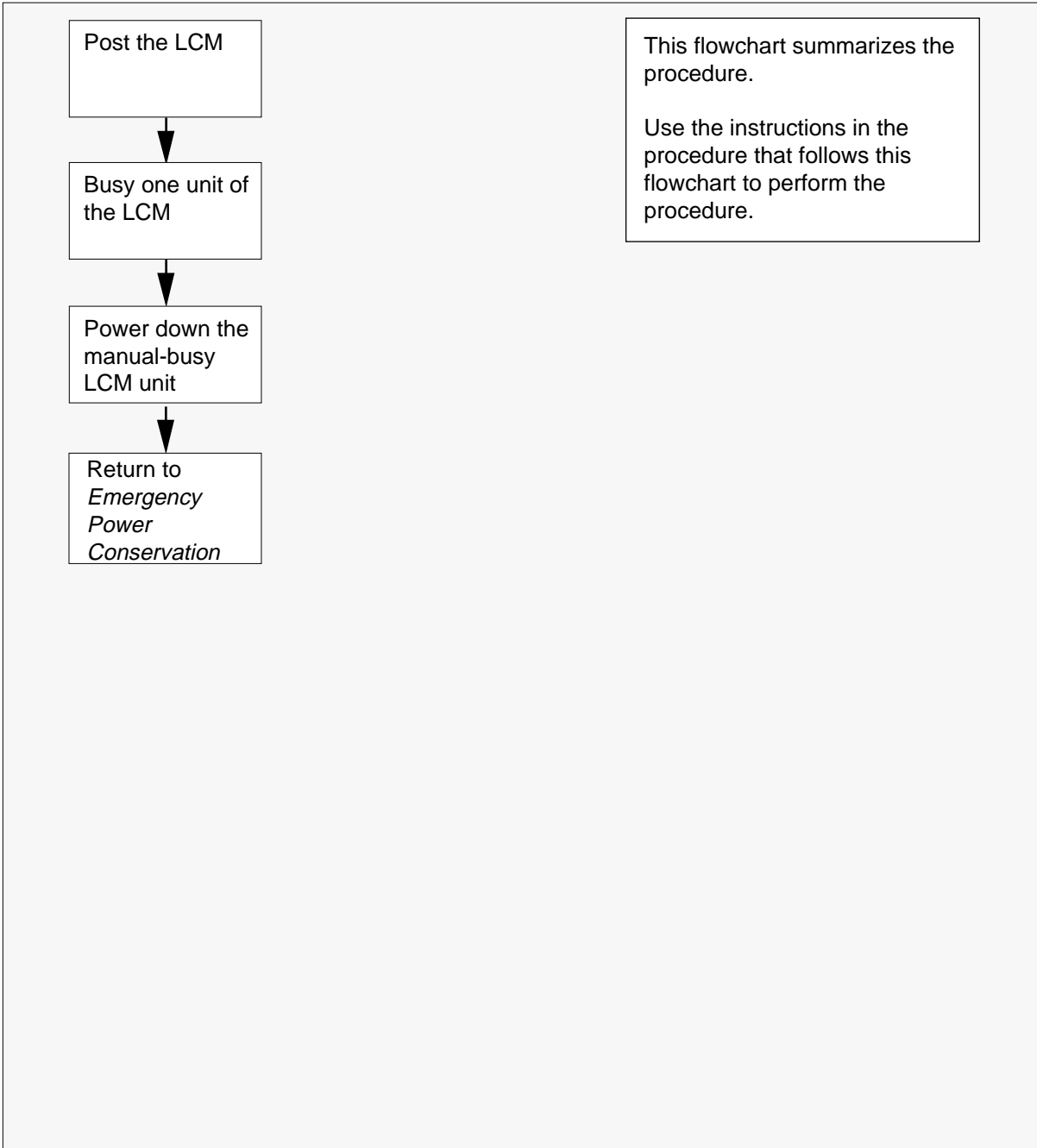> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one remote oscillator shelf plane (continued)

Summary of Emergency shutdown of one remote oscillator shelf plane

Access MS
level of MAP
display

↓

Confirm MS is
manual-busy
and record
plane number

↓

Confirm MS has
been powered
down

↓

Power down
half of ROS
associated with
depowered MS

↓

Return to
*Emergency
Power
Conservation*

This flowchart summarizes the
procedure.

Use the instructions in the
procedure that follows this
flowchart to perform the
procedure.

Emergency power conservation
Emergency shutdown of one remote oscillator shelf plane (continued)

Emergency shutdown of one remote oscillator shelf plane

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

At the MAP

1   Access the MS level of the MAP display by typing

   >MAPCI;MTC;MS
   and pressing the Enter key.

   Example of a MAP display:

```
Message Switch   Clock  Shelf 0  Inter-MS Link 0 1
MS 0        .           M Free      .              R .
MS 1        .           Slave       F              S .
```

2   Confirm that one message plane is manual busy, indicated by an M under the message header, and note which plane it is (0 or 1).

At the message switch

3   Confirm that the manual busy MS has been powered down. (The remote oscillator shelf is protected by a power interlock. You cannot power down one half of the ROS until you first power down its associated MS.)

Emergency power conservation
Emergency shutdown of one remote oscillator shelf plane (end)

At the ROS

> ⚠ **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

4   Power down the half of the ROS associated with the depowered MS plane.

   Note: Slots 1 to 13 are associated with MS 0. Slots 14 to 26 are associated with MS 1.

5   Return to the procedure *Emergency Power Conservation* in this document and proceed as directed.

Emergency power conservation
Emergency shutdown of one unit of LCMs

Application

Use this procedure to conserve emergency backup power by shutting down one unit of line concentrating modules (LCM).

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
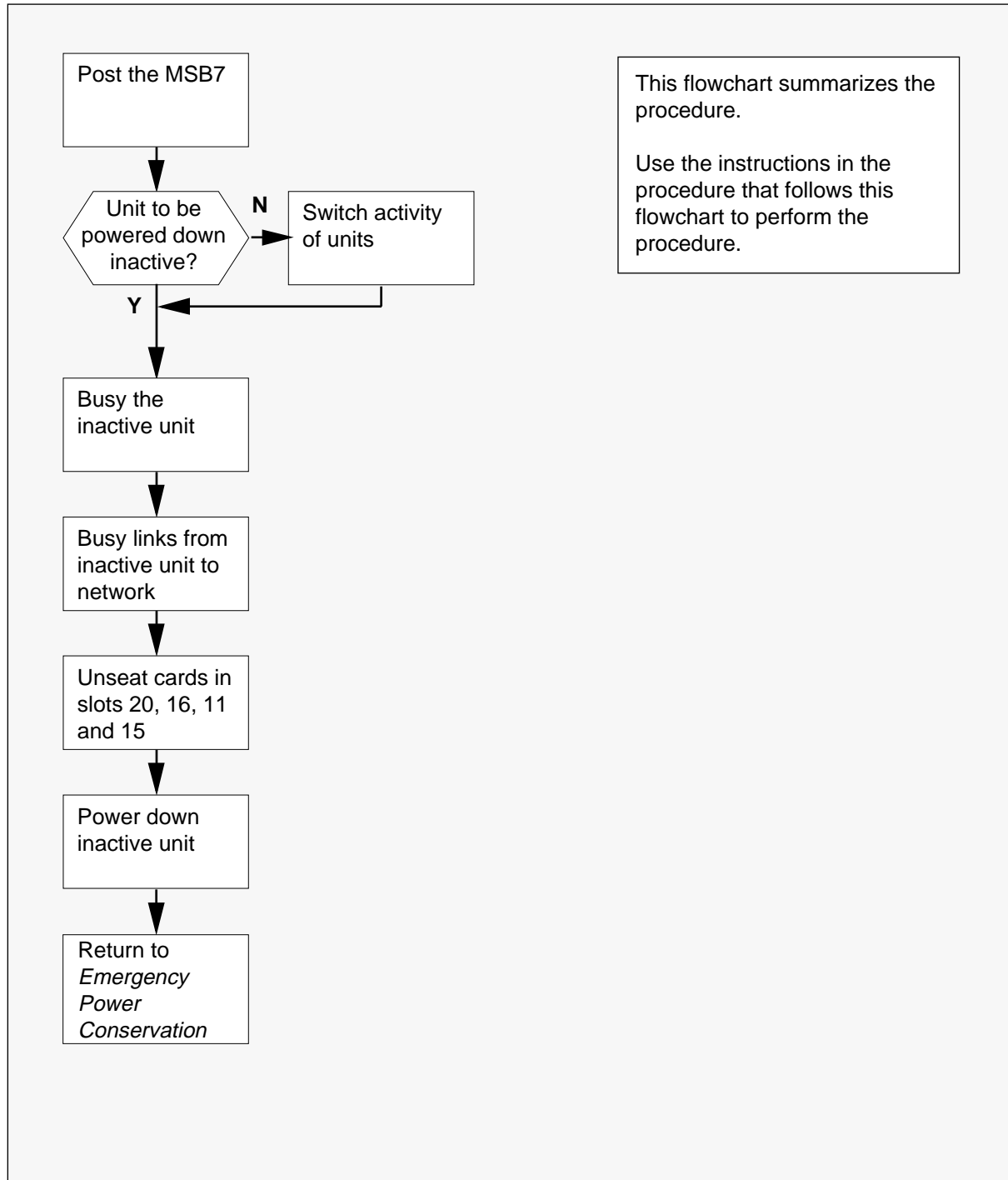> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one unit of LCMs (continued)

Summary of Emergency shutdown of one unit of LCMs

```
┌─────────────────┐
│ Post the LCM    │
│                 │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Busy one unit of│
│ the LCM         │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Power down the  │
│ manual-busy     │
│ LCM unit        │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ Emergency       │
│ Power           │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation
Emergency shutdown of one unit of LCMs (continued)

Emergency shutdown of one unit of LCMs

> ⚠️ **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> ⚠️ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

At the MAP

1   Access the PM level of the MAP display by typing

   >MAPCI;MTC;PM
   and pressing the Enter key.

2   Post the LCM for which one unit is to be powered down by typing

   >POST LCM HOST frame pair
   and pressing the Enter key.

   where

   frame   is the frame number (00 to 99)
   pair   is the frame pair number (0 to 1)

   Example of a MAP response:

```
LCM HOST 00 0 InSv Links  OOS: Cside 0 Pside 0
Unit 0: InSv        /RG:0
Unit 1: InSv    /RG:1
                     11 11 11 11 11
Drwr:   01 23 45 67 89 01 23 45 67 89   RG:Pref 0 InSv
                                         Stby 1 InSv
```

Emergency power conservation
Emergency shutdown of one unit of LCMs (end)

3 Manually busy the LCM unit by typing

>**BSY UNIT unit_no**
and pressing the Enter key.

where

unit_no   is the unit of the PM to be busied (0 or 1)

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap
> grounding point of a frame supervisory panel (FSP) or
> a modular supervisory panel (MSP) while handling
> circuit cards. This protects the cards against damage
> caused by static electricity.

4 At the FSP or MSP, turn off the appropriate circuit breakers for the LCM unit.

Note: The circuit breakers are labeled by shelf location.

5 Repeat steps 2 to 4 for one unit of each LCM in the office.

6 Return to the procedure *Emergency power conservation* in this document and
proceed as directed.

Emergency power conservation
Emergency shutdown of one unit of MSB7s

Application

Use this procedure to conserve emergency backup power by shutting down one unit of CCS7 message switch and buffers (MSB7).

> **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of emergency backup power. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency power conservation
Emergency shutdown of one unit of MSB7s (continued)

Summary of Emergency shutdown of one unit of MSB7s

```
┌─────────────────┐
│  Post the MSB7  │
└────────┬────────┘
         ▼
   ╱─────────────╲      N   ┌──────────────┐
  ╱ Unit to be    ╲────────▶│ Switch activity│
  ╲ powered down  ╱         │ of units      │
   ╲ inactive?   ╱          └───────┬──────┘
      │ Y                           │
      ◀───────────────────────────┘
      ▼
┌─────────────────┐
│ Busy the        │
│ inactive unit   │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Busy links from │
│ inactive unit to│
│ network         │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Unseat cards in │
│ slots 20, 16, 11│
│ and 15          │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Power down      │
│ inactive unit   │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Return to       │
│ Emergency       │
│ Power           │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Emergency power conservation
Emergency shutdown of one unit of MSB7s (continued)

Emergency shutdown of one unit of MSB7s

At the MAP

1

> ⚠ **CAUTION**
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

2 Post the PM for which one unit is to be powered down by typing

>POST MSB7 pm_no
and pressing the Enter key.

where

pm_no   is the PM identification number (0 to 999)

Example of a MAP response:

```
MSB7    0 InSv  Links_OOS: CSide  0 , PSide  0
Unit0:          Act     InSv
Unit1:          Inact        InSv
```

Emergency power conservation
Emergency shutdown of one unit of MSB7s (continued)

3 From the MAP display, determine if the MSB7 unit to be powered down is the active (Act) or inactive (Inact) unit.

If the unit is	Do
active	step 4
inactive	step 8

4 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

Example of a MAP display:

```
MSB7 0      A Warm SwAct will immediately be performed
Please confirm ("YES", "Y", "NO" or "N"):
```

If the MAP response indicates	Do
a warm SwAct	step 7
anything else	step 5

5 Cancel the switch of activity by typing

>NO

and pressing the Enter key.

6 Activity cannot be switched on the PM at this time. Proceed as follows:

If you want to	Do
power down the inactive unit instead	step 8
leave both units of this MSB7 in service and work on the next MSB7	step 2

7 Confirm the prompt to switch the activity of the units by typing

>YES

and pressing the Enter key.

Emergency power conservation
Emergency shutdown of one unit of MSB7s (continued)

8   Manually busy the inactive unit of the MSB7 by typing

>BSY UNIT unit_no
and pressing the Enter key.

where

unit_no   is the PM unit number (0 or 1)

9   Identify the network type and network links associated with the manual-busy
     MSB7 unit by typing

>TRNSL C
and pressing the Enter key.

Example of a MAP response for JNET:

```
LINK 0: NET 0 3 12;CAP MS;Status:OK
LINK 1: NET 1 3 12;CAP MS;Status:OK
LINK 2: NET 0 3 28;CAP MS;Status:OK
LINK 3: NET 1 3 28;CAP MS;Status:OK
LINK 4: NET 0 3 44;CAP MS;Status:OK
 ...
LINK 31 NET 1 3 63;CAP MS;Status:OK
```

Note: Links 5 to 30 are not shown.

Example of a MAP response for ENET:

```
LINK 0: ENET 0  0 13 00;CAP MS;Status:OK
LINK 1: ENET 1  0 23 00;CAP MS;Status:OK
LINK 2: ENET 0  0 13 01;CAP MS;Status:OK
LINK 3: ENET 1  0 23 01;CAP MS;Status:OK
LINK 4: ENET 0  0 13 02;CAP MS;Status:OK
LINK 5: ENET 1  0 23 02;CAP MS;Status:OK
LINK 6: ENET 0  0 13 03;CAP MS;Status:OK
LINK 7: ENET 1  0 23 03;CAP MS;Status:OK
```

10   Determine if the network on your switch is a junctored network (JNET) or
     enhanced network (ENET).

If the network is	Do
JNET	step 11
ENET	step 18

Emergency power conservation
Emergency shutdown of one unit of MSB7s (continued)

11 Determine which MSB7 unit is manual-busy (0 or 1) and record the speech link numbers (0 to 31) associated with it. Even numbered speech links (0, 2, 4 ... 30) are associated with MSB7 unit 0. Odd numbered speech links (1, 3, 5 ... 31) are associated with MSB7 unit 1.

Note: In the example shown in step 9, speech link numbers 5 to 30 are not shown.

12 For each speech link recorded in step 11, record the network plane number, the network module (pair) number, and the network link number.

Note: In the JNET example response shown in step 9, speech link 2 is associated with network plane 0, network module number 3, and network link number 28.

13 Access the NET level of the MAP display by typing

>NET
and pressing the Enter key.

14 Access the network link level for the first network link to be busied by typing

>LINKS n
and pressing the Enter key.

where

n   is the network module number recorded in step 12

15 Manually busy the first network link by typing

>BSY plane_no link_no
and pressing the Enter key.

where

plane_no   is the network plane (0 or 1)
link_no   is the network link number

16 Repeat steps 14 and 15 until all links between the manual-busy MSB7 unit and the network are manual-busy, then go to step 17.

17 Wait approximately 2 minutes, then go to step 25.

18 Determine the speech link numbers associated with the manual-busy MSB7 unit. Even numbered speech links are associated with unit 0. Odd numbered speech links are associated with unit 1.

Note: In the ENET example response in step 9, speech links 0, 2, 4 and 6 are associated with MSB7 unit 0. Speech links 1, 3, 5, and 7 are associated with MSB7 unit 1.

Emergency power conservation
Emergency shutdown of one unit of MSB7s (continued)

19 For each speech link recorded in step 18, record the ENET plane number, shelf number, card number, and network link number associated with it.

Note: In the ENET example response shown in step 9, speech link 3 is associated with ENET plane 1, shelf 0, card 23, and network link number 01.

20 Access the NET level of the MAP display by typing

>NET
and pressing the Enter key.

21 For the first speech link, access the MAP display for its associated ENET card by typing

>SHELF shelf_no; CARD card_no
and pressing the Enter key.

where

shelf_no   is the ENET shelf number
card_no   is the ENET card number

22 Deload traffic from the ENET card by typing

>DELOAD   plane_no SET
and pressing the Enter key.

where

plane_no   is the ENET plane number

23 Busy the first link recorded in step 18 from the ENET card to the PM unit by typing

>BSY   plane_no LINK link_no
and pressing the Enter key.

where

plane_no   is the ENET plane number, recorded in step 19
link_no   is the network link number, recorded in step 19

24 Repeat steps 21 to 23 for each speech link recorded in step 18, then continue this procedure.

Emergency power conservation
Emergency shutdown of one unit of MSB7s (end)

At the shelf containing the inactive MSB7

25

> ⚠ **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap
> grounding point of a frame supervisory panel (FSP) or
> a modular supervisory panel (MSP) while handling
> circuit cards. This protects the cards against damage
> caused by static electricity.

Unseat the NT6X69 message protocol card from slot 20.

26 Unseat the NT6X45 signaling processor card from slot 16.

27 Unseat the NT6X45 master processor card from slot 11.

28 Unseat the NT6X46 signaling processor memory card from slot 15.

29

> ⚠ **CAUTION**
> **Loss of service**
> Service is lost if you power down the active unit of the
> MSB7, or the power converter in slot 1.

Pull and set the handle of the power converter (NT2X70 in slot 25) POWER
switch downward to the OFF position.

30 Repeat steps 2 to 29 for one unit of each MSB7.

31 Return to the procedure *Emergency Power Conservation* in this document and
proceed as directed.

Emergency switch shutdown

Application

Use this procedure to shut down a DMS SuperNode switch as follows:

- in the event of an emergency, such as flooding or fire

- to protect equipment if available operating voltage at the power distribution center (PDC) falls below -43.75 V dc

- when instructed by your next level of support

Do not use this procedure to conserve emergency backup power. To conserve emergency backup power, perform the procedure *Emergency power conservation* in this document to shut down nonessential elements of the switch.

CAUTION
This procedure results in a complete loss of subscriber service
Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Emergency switch shutdown (continued)

Summary of Emergency switch shutdown

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
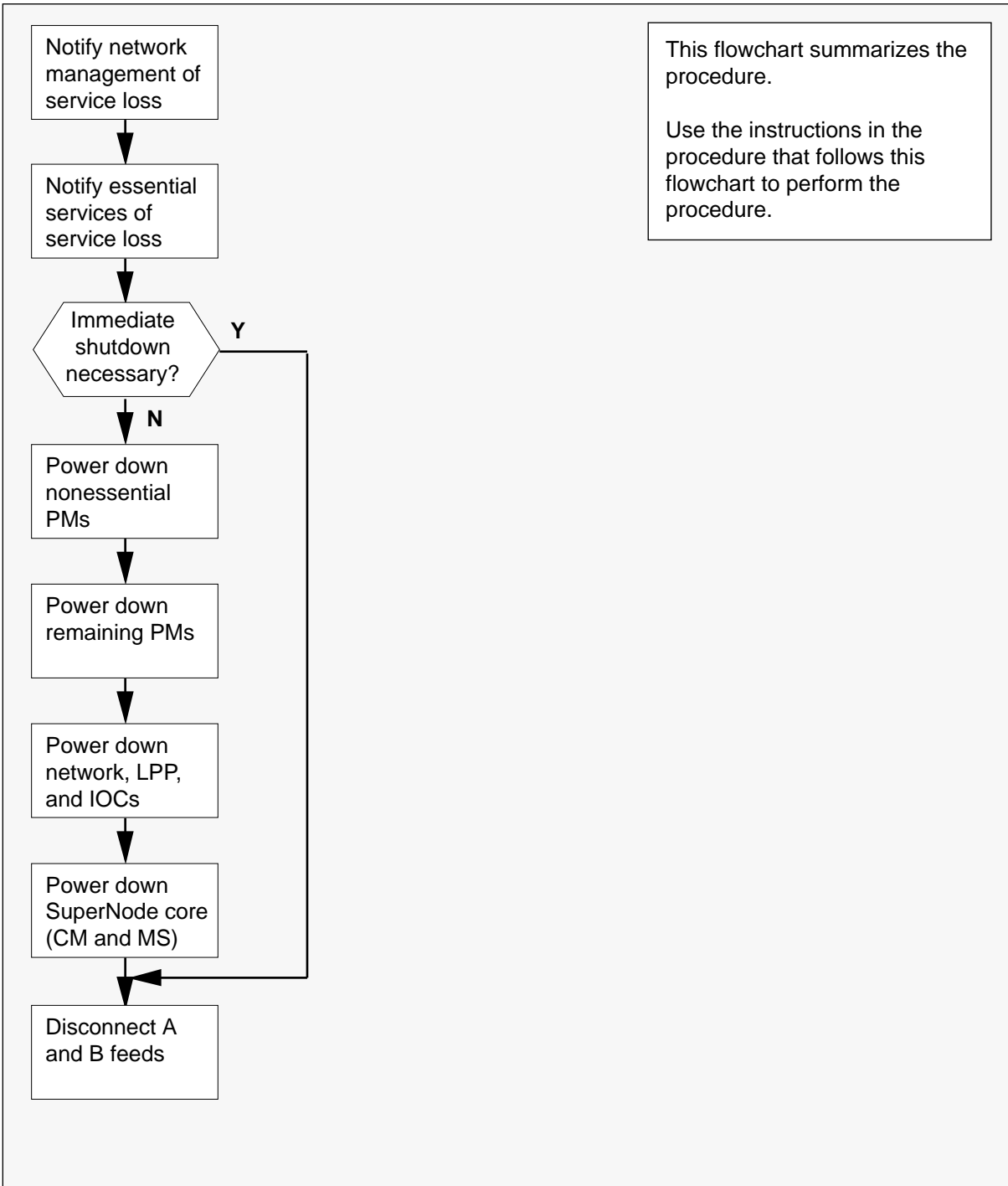
Emergency switch shutdown (continued)

Emergency switch shutdown

> ⚠️ **CAUTION**
> **This procedure results in a complete loss of subscriber service**
> Northern Telecom recommends that you contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

1   Notify network management personnel of the impending service interruption.

2   Notify emergency services (police, fire, ambulance) of the impending service interruption.

3   Proceed as follows:

If	Do
the switch must be shut down immediately due to dangerous environmental conditions	step 4
there is time (one half hour or more) to shut down the switch in an orderly fashion	step 6

4   Turn power off to the PDCs by disconnecting the A and B feeds at the power room.

Note: Turning off the switch in this manner should only be done if absolutely necessary, as current arcing may occur.

5   Go to step 18.

6   Using office records, identify the peripheral modules that host emergency services (such as fire, police, and ambulance), so that these peripherals can be shut off last.

7   Turn off the power converter for each maintenance trunk module shelf, except those identified in step 6 as essential for emergency service lines.

Note: Older peripheral modules, such as line modules and digital carrier modules, use universal tone receivers resident in maintenance trunk modules.

8   Turn off the inverters for all MAPs and printers, except the operator MAP and one printer.

Emergency switch shutdown (end)

9   Turn off the power converters on all digital trunk controllers and trunk modules, except those identified in step 6 as essential for emergency service communications.

10 Turn off the power converters on each line module shelf, except those identified in step 6 as hosting emergency service lines.

11 Turn off the power converters on all line concentrating modules, except those identified in step 6 as hosting emergency service lines.

12 Turn off the power converters on all line group controllers and line trunk controllers, except those identified in step 6 as essential for emergency service communications.

13 Turn off the power on all remaining peripheral modules, leaving essential service PMs until last.

14 Turn off power for the network modules, link peripheral processor, and input/output controllers.

    Note: To power down the ENET and LPP, unseat then reseat the power converters.

15 Turn the power off for all remaining devices, including the inverter which supplies the operator MAP, and any external printers, tape drives, or disk drives.

16 Turn off power for the computing module and message switch. Power down one plane by turning off the power converters. Power the second plane down by unseating then reseating the power converters.

17 Turn power off to the PDCs by disconnecting the A and B feeds at the power room.

18 You have completed this procedure.

Performing a reload-restart on a DMS SuperNode SE

Application

Use this procedure to perform a reload-restart on a DMS SuperNode SE switch. Perform this procedure when instructed by your next level of support.

A reload-restart is more severe than a cold restart. A reload-restart simulates actual reload of the current software into the switch. All calls are dropped during the restart, and no billing data is recorded for these calls. Office configuration and translation data is retained.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Performing a reload-restart on a DMS SuperNode SE (continued)

Summary of Performing a reload-restart on a DMS SuperNode SE

```
        ┌──────────────┐
        │Restart switch│
        └──────┬───────┘
               │
               ▼
          ╱────────╲          N
         ╱Active CPU ╲─────────────────►┐
         ╲status A1? ╱                   │
          ╲────┬───╱                     │
               │ Y                       │
               ▼                         │
        ┌──────────────┐                 │
        │Synchronize MS│                 │
        │clocks        │                 │
        └──────┬───────┘                 │
               │                         │
               ▼                         │
          ╱────────╲          N          │
         ╱ Passed?   ╲────────────────►──┤
         ╲          ╱                     │
          ╲────┬───╱                      │
               │ Y                        │
               ▼                          │
        ┌──────────────┐                  │
        │Synchronize   │                  │
        │CPUs          │                  │
        └──────┬───────┘                  │
               │                          │
               ▼                          │
          ╱────────╲          N           │
         ╱ Passed?   ╲────────────────►───┤
         ╲          ╱                      │
          ╲────┬───╱                       ▼
               │ Y              ┌───────────────┐
               ▼                │Contact next   │
        ┌──────────────┐        │level of support│
        │End           │        └───────────────┘
        └──────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Performing a reload-restart on a DMS SuperNode SE (continued)

Performing a reload-restart on a DMS SuperNode SE

> ⚠ **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your
> next level of support.

> ⚠ **CAUTION**
> **Loss of service**
> All calls are dropped during a reload-restart, and
> billing data is not recorded.

> ⚠ **CAUTION**
> **Extended service interruption**
> Execute the restart from a MAP terminal whenever
> possible. Depending on the severity of the problem,
> MAP terminals may be out of service. If a MAP
> terminal is not available, perform the restart from the
> CM reset terminals.

1   Determine if a MAP terminal is available from which to execute the restart.

If	Do
a MAP terminal is available	step 2
no MAP terminal is available	step 6

At the MAP terminal

2   Access the CI level of the MAP display by typing

   >QUIT ALL
   and pressing the Enter key.

Performing a reload-restart on a DMS SuperNode SE (continued)

3   Restart the switch by typing

>RESTART RELOAD
and pressing the Enter key.

Example of a MAP response:

```
WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Please confirm ("YES", "Y", "NO", or "N"):
```

4   Confirm the command by typing

>YES
and pressing the Enter key.

At the CM reset terminal for the active CPU

5   Wait until A1 flashes on the reset terminal for the active CPU to determine if the switch has restarted.

Note: Allow about 5 min for A1 to start flashing.

If A1	Do
flashes	step 16
does not flash	step 29

At the CM reset terminal for the inactive CPU

6   Determine from the reset terminal status bar if the CPUs are in sync.

Note: The word Sync in the status bar indicates that the CPUs are in sync. The word NoSync indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 7
not in sync	step 12

7   Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

```
PLEASE CONFIRM: (YES/NO)
```

Performing a reload-restart on a DMS SuperNode SE (continued)

8 Confirm the command by typing

   >YES

   and pressing the Enter key.

   RTIF response:

   JAM DONE

9 Restart the inactive CPU by typing

   >\RESTART RELOAD

   and pressing the Enter key.

   RTIF response:

   PLEASE CONFIRM: (YES/NO)

10 Confirm the command by typing

   >YES

   and pressing the Enter key.

   RTIF response:

   RESTART DONE

11 Wait for the CPUs to drop synchronization.

   Note: The word NoSync appears in the reset terminal status bar when the CPUs drop synchronization.

At the CM reset terminal for the active CPU

12 Override the active CPU by typing

   >\OVERRIDE

   and pressing the Enter key.

   RTIF response:

   TEMP. RESET/JAM ENABLE

13 Restart the active CPU by typing

   >\RESTART RELOAD

   and pressing the Enter key.

   RTIF response:

   PLEASE CONFIRM: (YES/NO)

Performing a reload-restart on a DMS SuperNode SE (continued)

14 Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

RESTART DONE

15 Wait until A1 flashes on the reset terminal for the active CPU to determine if the switch has restarted.

Note: Allow about 5 min for A1 to start flashing.

If A1	Do
flashes	step 16
does not flash	step 29

 At the MAP terminal

16 Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

Example of a MAP response:

Please Login.

If you	Do
have to log in	step 17
are logged in automatically	step 21

CAUTION
Extended service interruption
The exact login procedure may vary, depending on your office configuration. If you need further assistance, contact the personnel responsible for the next level of support.

17 Press the Break key.

MAP response:

?

Performing a reload-restart on a DMS SuperNode SE (continued)

18   Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

MAP response:

Enter User Name

19   Enter the user name by typing

>user_name
and pressing the Enter key.

where

user_name   is the name of the user for the account

MAP response:

Enter Password

20   Enter the password by typing

>password
and pressing the Enter key.

where

password is the password for the account

Example of a MAP response:

SuperNodeSE Logged in on 1993/03/11 at 20:37:17.

21   Access the MS Clock level of the MAP display by typing

>MAPCI;MTC;MS;CLOCK
and pressing the Enter key.

22   Synchronize the clocks by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 23
failed	step 29

23   Access the CM level of the MAP display by typing

>CM
and pressing the Enter key.

Performing a reload-restart on a DMS SuperNode SE (continued)

24 Determine if the CPUs are in sync.

Note: A dot symbol under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 30
not in sync	step 25

25 Determine from the personnel responsible for your next level of support if you are permitted to synchronize the CPUs.

If you are	Do
permitted to synchronize the CPUs	step 26
not permitted to synchronize the CPUs	step 30

26 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 27
not jammed	step 28

At the CM reset terminal for the inactive CPU

27 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

JAM RELEASE DONE

Performing a reload-restart on a DMS SuperNode SE (end)

At the MAP terminal

28 Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 30
failed	step 29

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

30 You have completed this procedure.

Performing a cold restart on a DMS SuperNode switch

Application

Use this procedure to perform a cold restart on a DMS SuperNode switch. Perform this procedure when instructed by your next level of support.

A cold restart is more severe than a warm restart, but less severe than a reload-restart. A cold restart is an initialization phase during which temporary storage is deallocated and cleared. All calls are dropped during the restart, and no billing data is recorded for these calls. Office configuration and translation data is retained.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Performing a cold restart on a DMS SuperNode switch (continued)

Summary of Performing a cold restart on a DMS SuperNode switch

```
                    Restart switch


                    Active CPU        N
                    status A1?

                         │ Y

                    Synchronize MS
                    clocks


                    Passed?           N

                         │ Y

                    Synchronize
                    CPUs


                    Passed?           N

                         │ Y

                    End               Contact next
                                      level of support
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
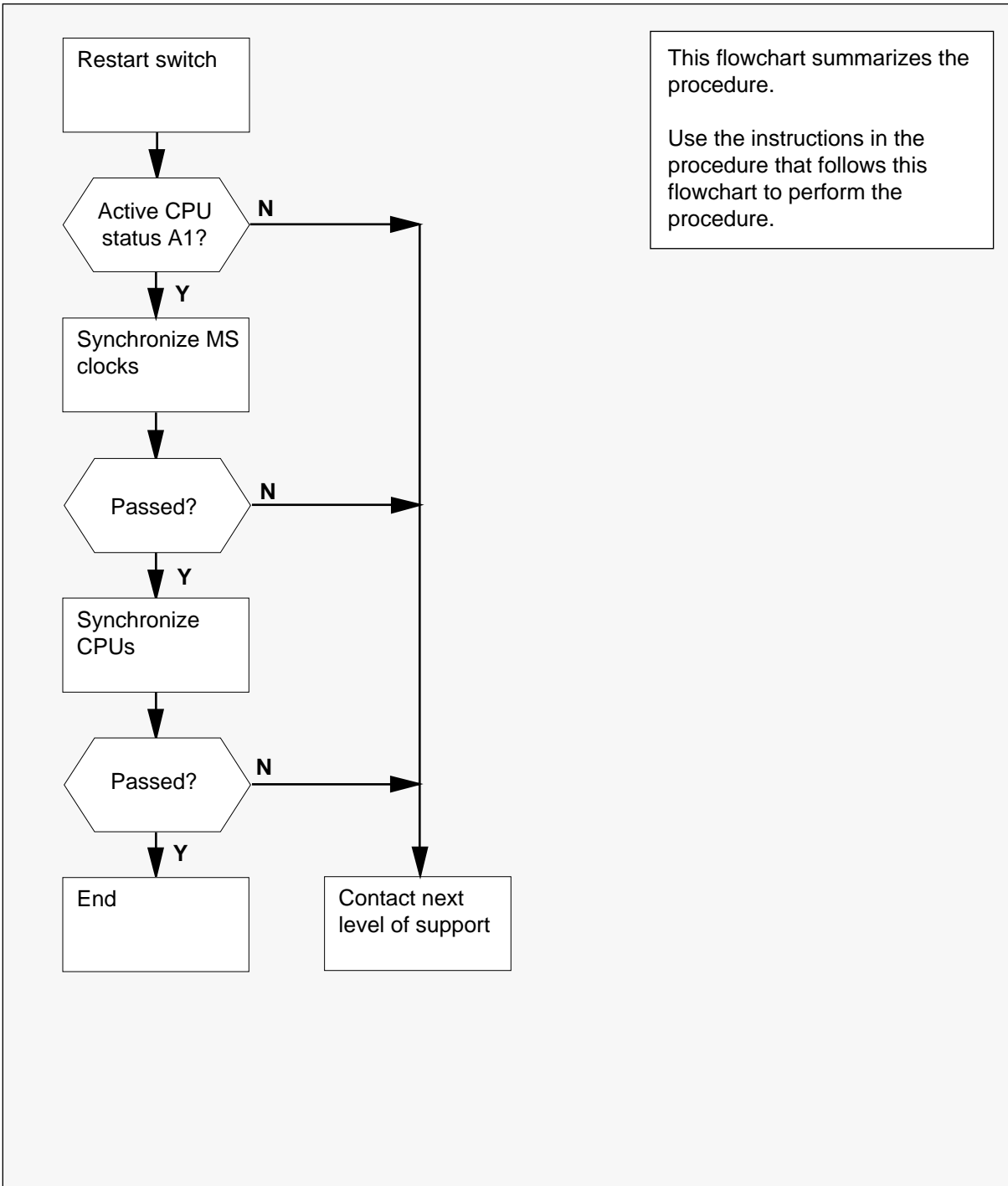
Performing a cold restart on a DMS SuperNode switch (continued)

Performing a cold restart on a DMS SuperNode switch

CAUTION
Contact your next level of support
Do not attempt this procedure before contacting your next level of support.

CAUTION
Loss of Service
All calls are dropped during a cold restart.

CAUTION
Extended service interruption
Execute the restart from a MAP terminal whenever possible. Depending on the severity of the problem, MAP terminals may be out of service. If a MAP terminal is not available, perform the restart from the CM reset terminals.

1   Determine if a MAP terminal is available from which to execute the restart.

If	Do
a MAP terminal is available	step 2
no MAP terminal is available	step 6

At the MAP

2   Access the CI level of the MAP display by typing

>QUITALL
and pressing the Enter key.

Performing a cold restart on a DMS SuperNode switch (continued)

3 Restart the switch by typing

>RESTARTCOLD

and pressing the Enter key.

Example of a MAP response:

```
WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Please confirm ("YES", "Y", "NO", or "N"):
```

4 Confirm the command by typing

>YES

and pressing the Enter key.

At the CM reset terminal for the active CPU

5 Monitor the CM reset terminal for the active CPU to determine if the switch has restarted.

Note: When the switch is restarting, alphanumeric addresses are displayed in the reset terminal status bar. Once the switch has restarted, A1 flashes in the status bar.

If A1	Do
flashes	step 16
does not flash after approximately 5 min	step 29

Performing a cold restart on a DMS SuperNode switch (continued)

At the CM reset terminal for the inactive CPU

6 Determine from the reset terminal status bar if the CPUs are in sync.

Note: The word Sync in the status bar indicates that the CPUs are in sync. The word NoSync indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 7
not in sync	step 12

7 Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

8 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
JAM DONE
```

9 Restart the inactive CPU by typing

>\RESTART COLD
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

10 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
RESTART DONE
```

Performing a cold restart on a DMS SuperNode switch (continued)

11 Wait for the CPUs to drop synchronization.

Note: The word NoSync appears in the reset terminal status bar when the CPUs drop synchronization.

At the CM reset terminal for the active CPU

12 Override the active CPU by typing

>\OVERRIDE
and pressing the Enter key.

RTIF response:

```
TEMP. RESET/JAM ENABLE
```

13 Restart the active CPU by typing

>\RESTART COLD
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

14 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
RESTART DONE
```

15 Monitor the CM reset terminal for the active CPU to determine if the switch has restarted.

Note: When the switch is restarting, alphanumeric addresses are displayed in the reset terminal status bar. Once the switch has restarted, A1 flashes in the status bar.

If A1	Do
flashes	step 16
does not flash after approximately 5 min	step 29

Performing a cold restart on a DMS SuperNode switch (continued)

At the MAP

16 Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

> **CAUTION**
> **Extended service interruption**
> The exact login procedure may vary, depending on your office configuration. If you need further assistance, contact the personnel responsible for the next level of support.

Example of a MAP response:

```
Please Login.
```

If you	Do
have to log in	step 17
are logged in automatically	step 21

17 Press the Break key.

Example of a MAP response:

```
?
```

18 Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

Example of a MAP response:

```
Enter User Name
```

Performing a cold restart on a DMS SuperNode switch (continued)

19   Enter the user name by typing

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

where

user_name   is the name of the user for the account

Example of a MAP response:

```
Enter Password
```

20   Enter the password by typing

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

where

password   is the password for the account

Example of a MAP response:

```
SuperNode1 Logged in on 1993/03/11 at 20:37:17.
```

21   Access the MS Clock level of the MAP display by typing

>**MAPCI;MTC;MS;CLOCK**
and pressing the Enter key.

22   Synchronize the clocks by typing

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

If the SYNC command	Do
was successful	step 23
failed	step 29

23   Access the CM level of the MAP display by typing

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

Performing a cold restart on a DMS SuperNode switch (continued)

24 Determine if the CPUs are in sync.

Note: A dot symbol under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 30
not in sync	step 25

25 Determine from the personnel responsible for your next level of support if it is permitted to synchronize the CPUs.

If it is	Do
permitted to synchronize the CPUs	step 26
not permitted to synchronize the CPUs	step 30

26 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 27
not jammed	step 28

At the CM reset terminal for the inactive CPU

27 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

Performing a cold restart on a DMS SuperNode switch (end)

At the MAP

28 Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 30
failed	step 29

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

30 You have completed this procedure.

Performing a reload-restart on a DMS SuperNode switch

Application

Use this procedure to perform a reload-restart on a DMS SuperNode switch. Perform this procedure when instructed by your next level of support.

> **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your next level of support.

A reload-restart is more severe than a cold restart. A reload-restart simulates actual reload of the current software into the switch. All calls are dropped during the restart, and billing data is not recorded for these calls. Office configuration and translation data is retained.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Performing a reload-restart on a DMS SuperNode switch (continued)

Summary of Performing a reload-restart on a DMS SuperNode switch

```
┌──────────────────┐
│  Restart switch  │
└──────────────────┘
          │
          ▼
      ╱Active CPU╲        N
     ╱ status A1? ╲ ──────────────┐
      ╲          ╱                 │
          │ Y                      │
          ▼                        │
┌──────────────────┐               │
│ Synchronize MS   │               │
│ clocks           │               │
└──────────────────┘               │
          │                        │
          ▼                        │
      ╱          ╲        N        │
     ╱  Passed?   ╲ ───────────────┤
      ╲          ╱                 │
          │ Y                      │
          ▼                        │
┌──────────────────┐               │
│ Synchronize      │               │
│ CPUs             │               │
└──────────────────┘               │
          │                        │
          ▼                        │
      ╱          ╲        N        │
     ╱  Passed?   ╲ ───────────────┤
      ╲          ╱                 │
          │ Y                      ▼
          ▼              ┌──────────────────┐
┌──────────────┐         │ Contact next     │
│     End      │         │ level of support │
└──────────────┘         └──────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Performing a reload-restart on a DMS SuperNode switch (continued)

Performing a reload-restart on a DMS SuperNode switch

> **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your
> next level of support.

> **CAUTION**
> **Loss of service**
> All calls are dropped during a reload-restart, and
> billing data is not recorded.

> **CAUTION**
> **Extended service interruption**
> Execute the restart from a MAP terminal whenever
> possible. Depending on the severity of the problem,
> MAP terminals may be out of service. If a MAP
> terminal is not available, perform the restart from the
> CM reset terminals.

At the MAP

1   Determine if a MAP terminal is available from which to execute the restart.

If	Do
a MAP terminal is available	step 2
no MAP terminal is available	step 6

2   Access the CI level of the MAP display by typing

   >QUITALL
   and pressing the Enter key.

Performing a reload-restart on a DMS SuperNode switch (continued)

3 Restart the switch by typing

>RESTART RELOAD
and pressing the Enter key.

Example of a MAP response:

```
WARNING: This action will result in a call processing
outage.
Please confirm ("YES", "Y", "NO", or "N"):
```

4 Confirm the command by typing

>YES
and pressing the Enter key.

At the CM reset terminal for the active CPU

5 Monitor the CM reset terminal for the active CPU to determine if the switch has restarted.

Note: When the switch is restarting, alphanumeric addresses are displayed in the reset terminal status bar. Once the switch has restarted, A1 flashes in the status bar.

If A1	Do
flashes	step 16
does not flash after approximately 5 min	step 29

At the CM reset terminal for the inactive CPU

6 Determine from the reset terminal status bar if the CPUs are in sync

Note: The word Sync in the status bar indicates that the CPUs are in sync. The word NoSync indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 7
not in sync	step 12

Performing a reload-restart on a DMS SuperNode switch (continued)

7 Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

8 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
JAM DONE
```

9 Restart the inactive CPU by typing

>\RESTART RELOAD
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

10 Confirm the restart procedure by typing

>YES
and pressing the Enter key.

RTIF response:

```
RESTART DONE
```

11 Wait for the CPUs to drop synchronization.

Note: The word NoSync appears in the reset terminal status bar when the CPUs drop synchronization.

At the CM reset terminal for the active CPU

12 Override the active CPU by typing

>\OVERRIDE
and pressing the Enter key.

RTIF response:

```
TEMP. RESET/JAM ENABLE
```

Performing a reload-restart on a DMS SuperNode switch (continued)

13   Restart the active CPU by typing

>\RESTART RELOAD
and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

14   Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

```
RESTART DONE
```

15   Monitor the CM reset terminal for the active CPU to determine if the switch has restarted.

Note: When the switch is restarting, alphanumeric addresses are displayed in the reset terminal status bar. Once the switch has restarted, A1 flashes in the status bar.

If A1	Do
flashes	step 16
does not flash after approximately 5 min	step 29

Performing a reload-restart on a DMS SuperNode switch (continued)

At the MAP

16 Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

> **CAUTION**
> **Extended service interruption**
> The exact login procedure may vary, depending on your office configuration. If you need further assistance, contact the personnel responsible for the next level of support.

Example of a MAP response:

```
Please Login.
```

If you	Do
have to log in	step 17
are logged in automatically	step 21

17 Press the Break key

MAP response:

```
?
```

18 Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

MAP response:

```
Enter User Name
```

Performing a reload-restart on a DMS SuperNode switch (continued)

19 Enter the user name by typing

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

where

user_name   is the name of the user for the account

Example of a MAP response:

```
Enter Password
```

20 Enter the password by typing

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

where

password   is the password for the account

Example of a MAP response:

```
SuperNode1 Logged in on 1993/03/11 at 20:37:17.
```

21 Access the MS Clock level of the MAP display by typing

>**MAPCI;MTC;MS;CLOCK**
and pressing the Enter key.

22 Synchronize the clocks by typing

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

If the SYNC command	Do
was successful	step 23
failed	step 29

23 Access the CM level of the MAP display by typing

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

Performing a reload-restart on a DMS SuperNode switch (continued)

24 Determine if the CPUs are in sync.

Note: A dot symbol under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If the CUPs are	Do
in sync	step 30
not in sync	step 25

25 Determine from the personnel responsible for your next level of support if it is permitted to synchronize the CPUs.

If it is	Do
permitted to synchronize the CPUs	step 26
not permitted to synchronize the CPUs	step 30

26 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 27
not jammed	step 28

At the CM reset terminal for the inactive CPU

27 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

Performing a reload-restart on a DMS SuperNode switch (end)

At the MAP

28   Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 30
failed	step 29

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

30   You have completed this procedure.

Performing a warm restart on a DMS SuperNode switch

Application

Use this procedure to perform a warm restart on a DMS SuperNode switch. Perform this procedure when instructed by your next level of support.

> ⚠ **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your next level of support.
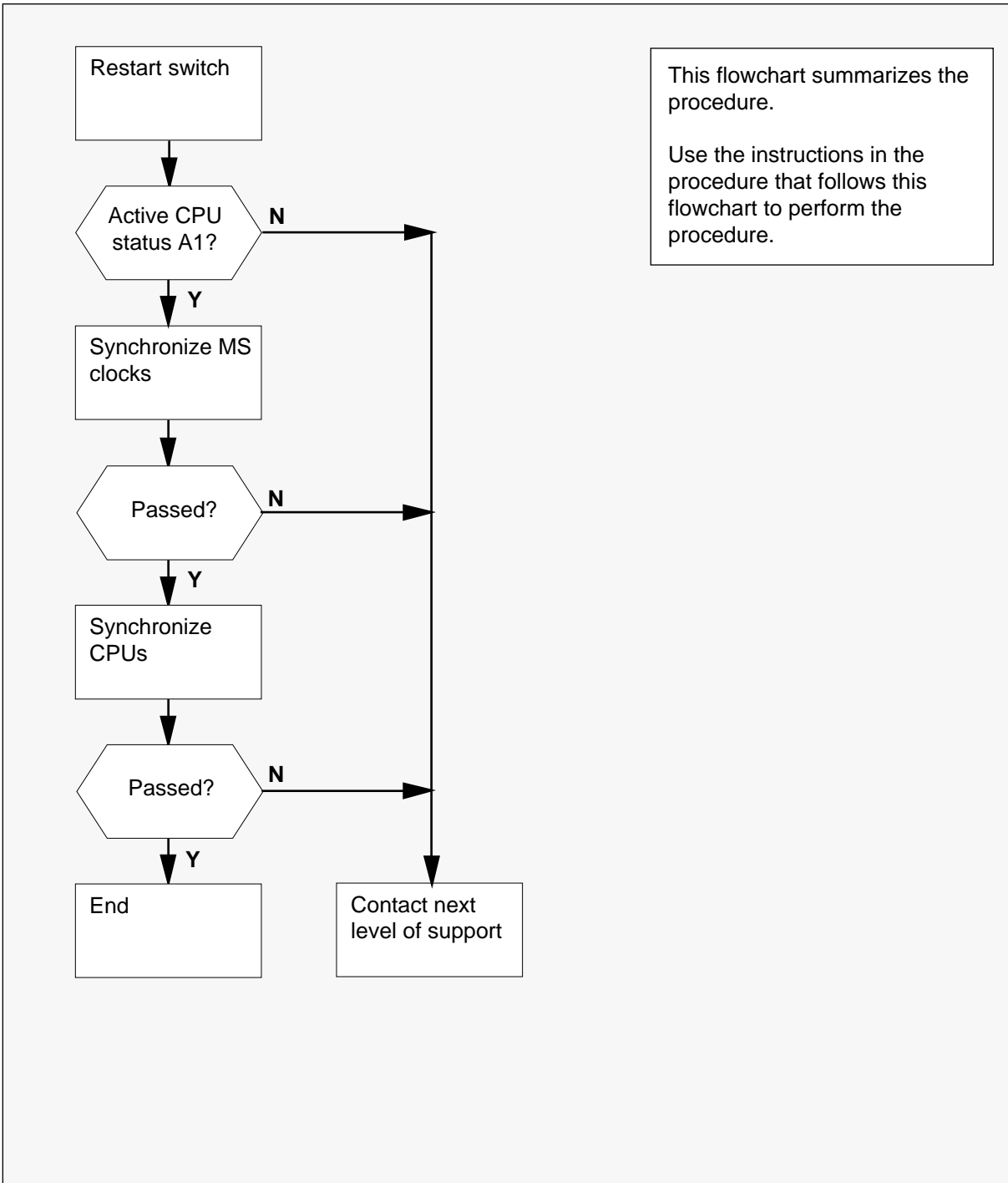
A warm restart is the least severe type of restart; it is an initialization phase during which temporary storage is deallocated and cleared. Calls in the talking state continue during the restart, and data associated with each call is retained. Calls that have not yet reached the talking state are disconnected.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Performing a warm restart on a DMS SuperNode switch (continued)

Summary of Performing a warm restart on a DMS SuperNode switch

Restart switch

Active CPU status A1?

— N

Synchronize MS clocks

— Y

Passed?

— N

Synchronize CPUs

— Y

Passed?

— N

End

Contact next level of support

— Y

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Performing a warm restart on a DMS SuperNode switch (continued)

Performing a warm restart on a DMS SuperNode switch

> **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your
> next level of support.

> **CAUTION**
> **Loss of Service**
> Calls being processed that have not yet reached the
> talking state are disconnected during a warm restart.

> **CAUTION**
> **Extended service interruption**
> Execute the restart from a MAP terminal whenever
> possible. Depending on the severity of the problem,
> MAP terminals may be out of service. If a MAP
> terminal is not available, perform the restart from the
> CM reset terminals.

1 Determine if a MAP terminal is available from which to execute the restart.

If	Do
a MAP terminal is available	step 2
no MAP terminal is available	step 6

At the MAP

2 Access the CI level of the MAP display by typing

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

Performing a warm restart on a DMS SuperNode switch (continued)

3   Restart the switch by typing

>RESTART WARM

and pressing the Enter key.

Example of a MAP response:

```
WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Please confirm ("YES", "Y", "NO", or "N"):
```

4   Confirm the command by typing

>YES

and pressing the Enter key.

At the CM reset terminal for the active CPU

5   Monitor the CM reset terminal for the active CPU to determine if the switch has restarted.

Note: When the switch is restarting, alphanumeric addresses are displayed in the reset terminal status bar. Once the switch has restarted, A1 flashes in the status bar.

If A1	Do
flashes	step 16
does not flash after approximately 5 min	step 29

At the CM reset terminal for the inactive CPU

6   Determine from the reset terminal status bar if the CPUs are in sync.

Note: The word Sync in the status bar indicates that the CPUs are in sync. The word NoSync indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 7
not in sync	step 12

Performing a warm restart on a DMS SuperNode switch (continued)

7 Jam the inactive CPU by typing

>\JAM

and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

8 Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

```
JAM DONE
```

9 Restart the inactive CPU by typing

>\RESTART WARM

and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

10 Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

```
RESTART DONE
```

11 Wait for the CPUs to drop synchronization.

Note: The word NoSync appears in the reset terminal status bar when the CPUs drop synchronization.

At the CM reset terminal for the active CPU

12 Override the active CPU by typing

>\OVERRIDE

and pressing the Enter key.

RTIF response:

```
TEMP. RESET/JAM ENABLE
```

Performing a warm restart on a DMS SuperNode switch (continued)

13   Restart the active CPU by typing

>\RESTART WARM

and pressing the Enter key.

RTIF response:

```
Please confirm: (YES/NO)
```

14   Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

```
RESTART DONE
```

15   Monitor the CM reset terminal for the active CPU to determine if the switch has restarted.

Note: When the switch is restarting, alphanumeric addresses are displayed in the reset terminal status bar. Once the switch has restarted, A1 flashes in the status bar.

If A1	Do
flashes	step 16
does not flash after approximately 5 min	step 29

Performing a warm restart on a DMS SuperNode switch (continued)

At the MAP

16 Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

```
               CAUTION
               Extended service interruption
               The exact login procedure may vary, depending on
               your office configuration. If you need further
               assistance, contact the personnel responsible for the
               next level of support.
```

Example of a MAP response:

```
Please Login.
```

If you	Do
have to log in	step 17
are logged in automatically	step 21

17 Press the Break key.

MAP response:

```
?
```

18 Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

MAP response:

```
Enter User Name
```

Performing a warm restart on a DMS SuperNode switch (continued)

19   Enter the user name by typing

>user_name
and pressing the Enter key.

where

user_name   is the name of the user for the account

MAP response:

Enter Password

20   Enter the password by typing

>password
and pressing the Enter key.

where

password is the password for the account

Example of a MAP response:

SuperNode1 Logged in on 1993/03/11 at 20:37:17.

21   Access the MS Clock level of the MAP display by typing

>MAPCI;MTC;MS;CLOCK
and pressing the Enter key.

22   Synchronize the clocks by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 23
failed	step 29

23   Access the CM level of the MAP display by typing

>CM
and pressing the Enter key.

Performing a warm restart on a DMS SuperNode switch (continued)

24 Determine if the CPUs are in sync.

Note: A dot symbol under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 30
not in sync	step 25

25 Determine from the personnel responsible for your next level of support if it is permitted to synchronize the CPUs.

If it is	Do
permitted to synchronize the CPUs	step 26
not permitted to synchronize the CPUs	step 30

26 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 27
not jammed	step 28

At the CM reset terminal for the inactive CPU

27 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

Performing a warm restart on a DMS SuperNode switch (end)

At the MAP

28 Synchronize the CPUs by typing

  >SYNC
  and pressing the Enter key.

If the SYNC command	Do
was successful	step 30
failed	step 29

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

30 You have completed this procedure.

Performing a warm restart on a SuperNode SE switch

Application

Use this procedure to perform a warm restart on a DMS SuperNode SE switch. Perform this procedure when instructed by your next level of support

A warm restart is the least severe type of restart; it is an initialization phase during which temporary storage is deallocated and cleared. Calls in the talking state continue during the restart, and data associated with each call is retained. Calls that have not yet reached the talking state are disconnected.

Action

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

Performing a warm restart on a SuperNode SE switch (continued)

Summary of Performing a warm restart on a SuperNode SE switch

Restart switch

Active CPU
status A1?

N

Y

Synchronize MS
clocks

Passed?

N

Y

Synchronize
CPUs

Passed?

N

Y

End

Contact next
level of support

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Performing a warm restart on a SuperNode SE switch (continued)

Performing a warm restart on a DMS SuperNode SE switch

> **CAUTION**
> **Contact your next level of support**
> Do not attempt this procedure before contacting your next level of support.

> **CAUTION**
> **Loss of service**
> Calls being processed that have not yet reached the talking state are disconnected during a warm restart.

> **CAUTION**
> **Extended service interruption**
> Execute the restart from a MAP terminal whenever possible. Depending on the severity of the problem, MAP terminals may be out of service. If a MAP terminal is not available, perform the restart from the CM reset terminals.

1 Determine if a MAP terminal is available from which to execute the restart.

If	Do
a MAP terminal is available	step 2
no MAP terminal is available	step 6

At the MAP terminal

2 Access the CI level of the MAP display by typing

>QUIT ALL
and pressing the Enter key.

Performing a warm restart on a SuperNode SE switch (continued)

3   Restart the switch by typing

>RESTART WARM
and pressing the Enter key.

Example of a MAP response:

```
WARNING: This action will result in a CALL PROCESSING
OUTAGE.
Please confirm ("YES", "Y", "NO", or "N"):
```

4   Confirm the command by typing

>YES
and pressing the Enter key.

At the CM reset terminal for the active CPU

5   Wait until A1 flashes on the reset terminal for the active CPU to determine if the switch has restarted.

Note: Wait about 5 minutes for A1 to start flashing.

If A1	Do
flashes	step 16
does not flash	step 29

At the CM reset terminal for the inactive CPU

6   Determine from the reset terminal status bar if the CPUs are in sync.

Note: The word Sync in the status bar means that the CPUs are in sync. The word NoSync means that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 7
not in sync	step 12

7   Jam the inactive CPU by typing

>JAM
and pressing the Enter key.

RTIF response:

```
PLEASE CONFIRM: (YES/NO)
```

Performing a warm restart on a SuperNode SE switch (continued)

8   Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

JAM DONE

9   Restart the inactive CPU by typing

>\RESTART WARM

and pressing the Enter key.

RTIF response:

PLEASE CONFIRM: (YES/NO)

10   Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

RESTART DONE

11   Wait for the CPUs to drop synchronization.

Note: The word NoSync appears in the reset terminal status bar when the CPUs drop synchronization.

At the CM reset terminal for the active CPU

12   Override the active CPU by typing

>\OVERRIDE

and pressing the Enter key.

RTIF response:

TEMP. RESET/JAM ENABLE

13   Restart the active CPU by typing

>\RESTART WARM

and pressing the Enter key.

RTIF response:

PLEASE CONFIRM: (YES/NO)

14   Confirm the command by typing

>YES

and pressing the Enter key.

RTIF response:

RESTART DONE

Performing a warm restart on a SuperNode SE switch (continued)

15 Wait until A1 flashes on the reset terminal for the active CPU to determine if the switch has restarted.

Note: Wait about 5 minutes for A1 to start flashing.

If A1	Do
flashes	step 16
does not flash	step 29

At the MAP

16 Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

Example of a MAP response:

```
Please Login.
```

If you	Do
have to log in	step 17
are logged in automatically	step 21

⚠️ **CAUTION**
Extended service interruption
The exact login procedure may vary, depending on your office configuration. If you need further assistance, contact the personnel responsible for the next level of support.

---

17 Press the Break key.

MAP response:

```
?
```

18 Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

MAP response:

```
Enter User Name
```

Performing a warm restart on a SuperNode SE switch (continued)

19   Enter the user name by typing

>user_name
and pressing the Enter key.

where

user_name   is the name of the user for the account

MAP response:

Enter Password

20   Enter the password by typing

>password
and pressing the Enter key.

where

password is the password for the account

Example of a MAP response:

SuperNode1 Logged in on 1993/03/11 at 20:37:17.

21   Access the MS Clock level of the MAP display by typing

>MAPCI;MTC;MS;CLOCK
and pressing the Enter key.

22   Synchronize the clocks by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 23
failed	step 29

23   Access the CM level of the MAP display by typing

>CM
and pressing the Enter key.

Performing a warm restart on a SuperNode SE switch (continued)

24 Determine if the CPUs are in sync.

Note: A dot symbol under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If the CPUs are	Do
in sync	step 30
not in sync	step 25

25 Determine from the personnel responsible for your next level of support if you are permitted to synchronize the CPUs.

If you are	Do
permitted to synchronize the CPUs	step 26
not permitted to synchronize the CPUs	step 30

26 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 27
not jammed	step 28

At the CM reset terminal for the inactive CPU

27 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

Performing a warm restart on a SuperNode SE switch (end)

At the MAP

28 Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 30
failed	step 29

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

30 You have completed this procedure.

Recording a 16K ENET image on an SLM disk

Application

Use this procedure to take an enhanced network (ENET) image and store it on one or both system load module (SLM) disks.

Interval

Perform this procedure after each ENET software upgrade or patch.

Action

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

Recording a 16K ENET image on an SLM disk
 (continued)

Summary of Recording a 16K ENET image on an SLM disk

```
┌──────────────┐
│ Dump ENET    │
│ image file   │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Add new loads│
│ to table     │
│ PMLOADS      │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Add new load │
│ name to table│
│ ENINV        │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Remove old   │
│ load name    │
│ from table   │
│ PMLOADS      │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Erase old    │
│ file from    │
│ SLM disk     │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Back up image│
│ to tape      │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ End          │
│              │
└──────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
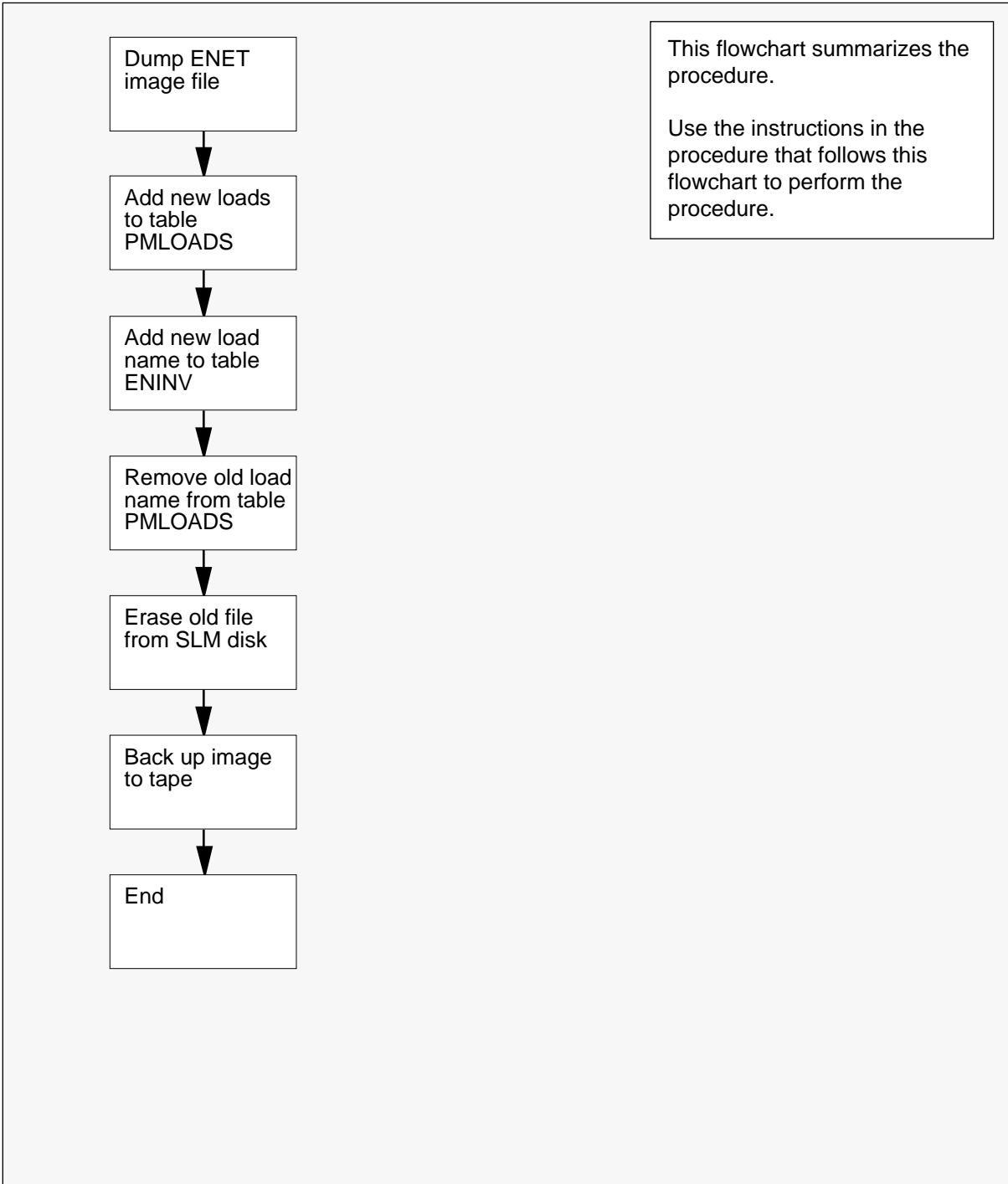
Recording a 16K ENET image on an SLM disk

(continued)

Recording a 16K ENET image on an SLM disk

1 Choose an SLM disk and volume on which to store the image.

Note: Creation of a disk volume in each SLM, designated exclusively for storing ENET images, is recommended. In the MAP display examples used in the following procedure, the disk volumes designated for storing ENET images are S00DENET and S01DENET.

At the MAP

2 Access the CI level of the MAP display by typing

>QUIT ALL
and pressing the Enter key.

3 Take an image of the ENET and store it on the SLM disk you have chosen by typing

>DUMP filename disk_volume_name ACTIVE TERSE NODE ENET plane_number 0
and pressing the Enter key.

where

filename   is the name you are assigning to the ENET image file you are copying (for example, ENET0SH0)

disk_volume_name   is the name of the SLM disk (S00D or S01D) and the name of the volume on the disk to which you are dumping (for example, S00DENET)

plane_number   is the ENET plane number (0 or 1)

Example input:

>DUMP ENET0SH0 S00DENET ACTIVE TERSE NODE ENET 0 0
Example of a MAP response:

```
ENET0SH0: Estimated image size is 2538 Kbytes.
ENET0SH0:
ENET0SH0: Dumping Data Store.
ENET0SH0:
ENET0SH0: Dumping Program Store.
ENET0SH0: Dumping Entry Record.
ENET0SH0:
ENET0SH0: Checking Data Store.
ENET0SH0:
ENET0SH0: Checking Program Store.
ENET0SH0: Checking Entry Record.
ENET0SH0: Successful DUMP and CHECK.
ENET0SH0: 2538 blocks with 16 corrections.
Dump completed successfully.
```

Recording a 16K ENET image on an SLM disk

(continued)

4 Access the disk utility by typing

>DISKUT
and pressing the Enter key.

Example of a MAP response:

```
Disk utility is now active.
DISKUT:
```

5 List the files stored on the SLM volume to determine the ENET image file name by typing

>LISTFL disk_volume_name
and pressing the Enter key.

where

disk_volume_name is the name of the SLM disk (S00D or S01D) and the name of the volume on the disk to which you are dumping (for example, S00DENET)

Example input:

>LISTFL S00DENET

Example of a MAP response:

```
File information for volume S00DENET:
{NOTE:  1 BLOCK = 512 BYTES }
----------------------------------------------------------------
  LAST FILE O R I O        FILE      NUM OF    MAX     FILE NAME
MODIFY CODE R E T P        SIZE     RECORDS    REC
  DATE      G C O E          IN          IN    LEN
               C N       BLOCKS        FILE
----------------------------------------------------------------
930215     0 I F          49364        4682   1020  ENET_0215_ENET
930214     0 I F          72190        6095   1020  ENET_0214
930212     0 I F          69364        6730   1020  ENET_0212
930211     0 I F          75310        4682   1020  ENET_0211
930210     0 I F          99370        8890   1020  ENET_0210
```

Recording a 16K ENET image on an SLM disk

(continued)

6 Determine if the name of the most recent image file begins with a number or a letter.

Note: The file name is shown under the FILE NAME header of the MAP display.

If the file name begins with a	Do
letter	step 7
number	step 8

7 Rename the ENET image file using a name that has no more than 17 characters, and record the new name by typing

>RENAMEFL old_file_name new_file_name
and pressing the Enter key.

where

old_file_name   is the ENET image file name determined in step 17
new_file_name is the new name for the ENET image file
                          (for example,ENET_0215)

Example input:

>RENAMEFL ENET_0215_ENET ENET_0215

Example of a MAP response:

```
File ENET_0215_ENET, volume S00DENET, node CM has been
renamed to ENET_0215.
```

Go to step 9.

Recording a 16K ENET image on an SLM disk

(continued)

8 Rename the ENET image file using a name that has no more than 17 characters, and record the new name by typing

**>RENAMEFL (STRTOSYM 'old_file_name')
(STRTOSYM 'new_file_name')**
and pressing the Enter key.

where

old_file_name   is the ENET image file name determined in step 5
new_file_name is the new name for the ENET image file
                  (for example, ENET_0215)

Example input:

**>RENAMEFL (STRTOSYM 'ENET_0215_ENET')
(STRTOSYM 'ENET_0215')**

9 List the files stored on the SLM volume (to verify the new file name) by typing

>LISTFL disk_volume_name
and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
                      the name of the volume on the disk to which you
                      are dumping (for example, S00DENET)

Example of a MAP response:

```
File information for volume S00DENET:
{NOTE:  1 BLOCK = 512 BYTES }
--------------------------------------------------------------
   LAST FILE O R I O      FILE     NUM OF   MAX    FILE NAME
MODIFY CODE R E T P       SIZE     RECORDS  REC
  DATE      G C O E        IN         IN    LEN
              C N       BLOCKS      FILE
--------------------------------------------------------------
930215    0 I F         49364       4682  1020 ENET_0215
930214    0 I F         72190       6095  1020 ENET_0214
930212    0 I F         69364       6730  1020 ENET_0212
930211    0 I F         75310       4682  1020 ENET_0211
930210    0 I F         99370       8890  1020 ENET_0210
```

Recording a 16K ENET image on an SLM disk

(continued)

10 Quit from the disk utility by typing

>QUIT
and pressing the Enter key.

11 Access table PMLOADS by typing

>TABLE PMLOADS
and pressing the Enter key.

Example of a MAP response:

```
TABLE: PMLOADS
```

12 Add the new ENET image file name to table PMLOADS by typing

>ADD new_file_name disk_volume_name
and pressing the Enter key.

where

new_file_name   is the new ENET image file
disk_volume_name   is the name of the SLM disk (S00D or S01D) and
                     the name of the volume on the disk to which you
                     are dumping (for example, S00DENET)

Example input:

>ADD ENET_0215 S00DENET

Example of a MAP response:

```
 TUPLE TO BE ADDED:
    ENET_0215       S00DENET
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

13 Confirm the command by typing

>Y
and pressing the Enter key.

Example of a MAP response:

```
 TUPLE ADDED
```

Recording a 16K ENET image on an SLM disk
 (continued)

14   Quit from table PMLOADS by typing

>QUIT
and pressing the Enter key.

15   Access table ENINV by typing

>TABLE ENINV
and pressing the Enter key.

Example of a MAP response:

```
 TABLE: ENINV
```

16   Display all the tuples in table ENINV by typing

>LIST ALL
and pressing the Enter key.

Example of a MAP response:

```
FRTYPE    FRNO FRPEC    SHPEC     MSCARD0    MSLINK0    MSPORT0
SHELF0                      LOAD0     MSCARD1    MSLINK1
FRPOS1    SHELF1                LOAD1
------------------------------------------------------------
  ENC         0 NT9X05AB  NT9X0801      6          0          0
  39                      ENET_0210     8          0
   5         13           ENET_0210
  ENC         0 NT9X05AB  NT9X0801     10          0          0
  26                      ENET_0210    12          0
   5         00           ENET_0210
```

Note: In the example, the first two columns and the last column are not shown
due to space constraints.

17   Record the file name that appears under the LOAD0 and LOAD1 headings.

18   Record the number of tuples in the table.

Note: Every equipped ENET shelf has a corresponding tuple in table ENINV.
The MAP response example in step 16 is for a switch with two equipped ENET
shelves (0 and 1).

Recording a 16K ENET image on an SLM disk

(continued)

19   Access the first tuple by typing

>TOP

and pressing the Enter key.

20   Change the load name in the first tuple for plane 0, shelf 0 by typing

>CHANGE LOAD0 new_file_name

and pressing the Enter key.

where

new_file_name   is the new ENET image file name

Example input:

CHANGE LOAD0 ENET_0215

Example of a MAP response:

```
TUPLE TO BE CHANGED
   ENC       0     NT9X05AB  NT9X0801        6           0            0
    39                       ENET_0210       8           0
     5          13                ENET_0210
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

21   Confirm the command by typing

>Y

and pressing the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
```

22   Change the load name in the first tuple for plane 1, shelf 0 by typing

>CHANGE LOAD1 new_file_name

and pressing the Enter key.

where

new_file_name   is the new ENET image file name

23   Confirm the command by typing

>Y

and pressing the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
```

Recording a 16K ENET image on an SLM disk
(continued)

24 From the information recorded in step 18, determine if there are more tuples to be updated.

Note: If the switch has two or more equipped ENET shelves, more tuples will have to be updated.

If there are	Do
more tuples	step 25
no more tuples	step 30

25 Access the next tuple by typing

>DOWN
and pressing the Enter key.

You have completed this procedure.

26 Change the load name in the next tuple for plane 0 by typing

>CHANGE LOAD0 new_file_name
and pressing the Enter key.

where

new_file_name   is the new ENET image file name

27 Confirm the command by typing

>Y
and pressing the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
```

28 Change the load name for plane 1 by typing

>CHANGE LOAD1 new_file_name
and pressing the Enter key.

where

new_file_name   is the new ENET image file name

Recording a 16K ENET image on an SLM disk
(continued)

29 Confirm the command by typing

>Y
and pressing the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
```

Go to step 24.

30 Repeat steps 25 through 29 until the tuples for all ENET shelves have been updated. When you have finished updating the tuples, continue with this procedure.

31 Quit table ENINV by typing

>QUIT
and pressing the Enter key.

32 Access table PMLOADS by typing

>TABLE PMLOADS
and pressing the Enter key.

Example of a MAP response:

```
TABLE: PMLOADS
```

33 Search for the old file name by typing

>POSITION old_file_name
and pressing the Enter key.

where

old_file_name   is the file name recorded in step 17

Example input:

POSITION ENET_0210

Example of a MAP response:

```
ENET_0210        S01DISLOADS
```

Recording a 16K ENET image on an SLM disk
(continued)

34 Record the disk volume name associated with the ENET image file. In the MAP response example in step 33, the disk volume name is S01DISLOADS.

35 Delete the old file by typing

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

Example of a MAP response:

```
TUPLE TO BE DELETED:
   ENET_0210      S01DISLOADS
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

36 Confirm the command by typing

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

Example of a MAP response:

```
TUPLE DELETED
```

37 Quit table PMLOADS by typing

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

38 Access the disk utility by typing

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

Example of a MAP response:

```
Disk utility is now active.
DISKUT:
```

Recording a 16K ENET image on an SLM disk

(continued)

39   List the files stored on the SLM volume (to verify the new ENET image file name) by typing

>LISTFL disk_volume_name
and pressing the Enter key.

where

disk_volume_name   is the disk volume name recorded in step 34

Example of a MAP response

```
File information for volume S00DENET:
{NOTE:  1 BLOCK = 512 BYTES }
-----------------------------------------------------------------
  LAST FILE O R I O      FILE      NUM OF    MAX     FILE NAME
MODIFY CODE R E T P      SIZE      RECORDS   REC
  DATE      G C O E       IN           IN   LEN
              C N      BLOCKS        FILE
-----------------------------------------------------------------
930215    0 I F          49364         4682  1020 ENET_0215
930214    0 I F          72190         6095  1020 ENET_0214
930212    0 I F          69364         6730  1020 ENET_0212
930211    0 I F          75310         4682  1020 ENET_0211
930210    0 I F          99370         8890  1020 ENET_0210
```

40   Determine if the name of the oldest image file begins with a number or a letter.

Note: The file name is shown under the FILE NAME header of the MAP display.

If the file name begins with a	Do
letter	step 41
number	step 42

41   Erase the oldest file from the SLM disk by typing

>DELETEFL old_file_name
and pressing the Enter key.

where

old_file_name   is the file name recorded in step 17

Example input:

>DELETEFL ENET_0210

Go to step 43.

Recording a 16K ENET image on an SLM disk
(continued)

42 Erase the oldest file from the SLM disk by typing

>**DELETEFL (STRTOSYM 'old_file_name')**
and pressing the Enter key.

where

old_file_name   is the file name recorded in step 17

Example input:

>**DELETEFL (STRTOSYM 'ENET_0210')**

43 Confirm the command by typing

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

Example of a MAP response:

```
File ENET_0210 has been deleted from volume S01DISLOADS,
on node CM.
```

44 Determine whether one or two ENET images are required, based on your telephone company operating procedures.

If	Do
one ENET image is required	step 57
two ENET images (one for each SLM disk) are required	step 45

Recording a 16K ENET image on an SLM disk

(continued)

45 Quit from the disk utility by typing

>QUIT
and pressing the Enter key.

46 Take an image of the ENET and store it on the other SLM disk by typing

**>DUMP filename disk_volume_name ACTIVE TERSE NODE ENET
plane_number 0**
and pressing the Enter key.

where

filename   is the name you are assigning to the ENET image file you
                    are copying (for example, ENET0SH0)

disk_volume_name   is the name of the SLM disk (S00D or S01D) and the
                    name of the volume on the disk to which you are dumping
                    (for example, S01DENET)

plane_number   is the ENET plane number (0 or 1)

Note: The ENET image file name cannot exceed 12 characters. The name of
the volume on the SLM disk cannot exceed 8 characters. All ENET nodes have
identical loads; therefore, it is only necessary to dump an image of one ENET
node. A node is to a plane and shelf designation in the ENET subsystem.

Example input:

>DUMP ENET0SH0 S01DENET ACTIVE TERSE NODE ENET 0 0

47 Access the disk utility by typing

>DISKUT
and pressing the Enter key.

Example of a MAP response:

```
Disk utility is now active.
DISKUT:
```

Recording a 16K ENET image on an SLM disk
(continued)

48 List the files stored on the SLM volume (to verify the new ENET image file name) by typing

>LISTFL disk_volume_name
and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
the name of the volume on the disk to which you
are dumping (for example, S01DENET)

Example of a MAP response:

```
File information for volume S00DENET:
{NOTE:  1 BLOCK = 512 BYTES }
----------------------------------------------------------------
  LAST FILE O R I O      FILE     NUM OF   MAX    FILE NAME
MODIFY CODE R E T P      SIZE     RECORDS  REC
  DATE      G C O E       IN         IN    LEN
            C N       BLOCKS       FILE
----------------------------------------------------------------
930215   0 I F         49364       4682  1020 ENET_0215
930214   0 I F         72190       6095  1020 ENET_0214
930212   0 I F         69364       6730  1020 ENET_0212
930211   0 I F         75310       4682  1020 ENET_0211
930210   0 I F         99370       8890  1020 ENET_0210
```

49 Determine if the name of the most recent image file begins with a number or a letter.

Note: The file name is shown under the FILE NAME header of the MAP display.

If the file name begins with a	Do
letter	step 50
number	step 51

Recording a 16K ENET image on an SLM disk

(continued)

50 Rename the ENET image file and record the new name by typing

>**RENAMEFL   old_file_name   new_file_name**
and pressing the Enter key.

where

old_file_name   is the ENET image file name determined in step 48
new_file_name   is the new name for the ENET image file
                        (17 characters maximum)

Example input:

>**RENAMEFL   ENET_0215_ENET   ENET_0215**

Example of a MAP response:

```
File ENET_0215_ENET, volume S01DENET, node CM has been
renamed to ENET_0215.
```

Go to step 52.

Recording a 16K ENET image on an SLM disk

(continued)

51   Rename the ENET image file using a name that has no more than 17 characters , and record the new name by typing

>**RENAMEFL (STRTOSYM 'old_file_name')
(STRTOSYM 'new_file_name')**
and pressing the Enter key.

where

old_file_name   is the ENET image file name determined in step 48
new_file_name is the new name for the ENET image file
                    (17 characters maximum)

Example input:

>**RENAMEFL (STRTOSYM 'ENET_0215_ENET')
(STRTOSYM 'ENET_0215')**

52   List the files stored on the SLM volume to verify the new name by typing

>**LISTFL disk_volume_name**
and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
                        the name of the volume on the disk to which you
                        are dumping (for example, S01DENET)

Example of a MAP response:

```
File information for volume S00DENET:
{NOTE:  1 BLOCK = 512 BYTES }
----------------------------------------------------------------
  LAST FILE O R I O       FILE      NUM OF   MAX     FILE NAME
MODIFY CODE R E T P       SIZE      RECORDS  REC
  DATE      G C O E        IN           IN  LEN
            C N        BLOCKS        FILE
----------------------------------------------------------------
930215     0 I F         49364         4682 1020 ENET_0215
930214     0 I F         72190         6095 1020 ENET_0214
930212     0 I F         69364         6730 1020 ENET_0212
930211     0 I F         75310         4682 1020 ENET_0211
930210     0 I F         99370         8890 1020 ENET_0210
```

Recording a 16K ENET image on an SLM disk

(continued)

53 Determine if the name of the oldest image file begins with a number or a letter.

Note: The file name is shown under the FILE NAME header of the MAP display.

If the file name begins with a	Do
letter	step 54
number	step 55

54 Erase the oldest file from the SLM disk by typing

>DELETEFL old_file_name
and pressing the Enter key.

where

old_file_name   is the file name recorded in step 17

Example input:

>DELETEFL ENET_0210

Go to step 56.

55 Erase the oldest file from the SLM disk by typing

>DELETEFL (STRTOSYM 'old_file_name')
and pressing the Enter key.

where

old_file_name   is the file name recorded in step 17

Example input:

>DELETEFL (STRTOSYM 'ENET_0210')

56 Confirm the command by typing

>Y
and pressing the Enter key.

Example of a MAP response:

```
File ENET_0210 has been deleted from volume S01DISLOADS,
on node CM.
```

Recording a 16K ENET image on an SLM disk
(continued)

57 Obtain a backup tape for the ENET image.

58 Using a slot-head screwdriver, rotate the tape cartridge write protection screw 180° from the SAFE position.
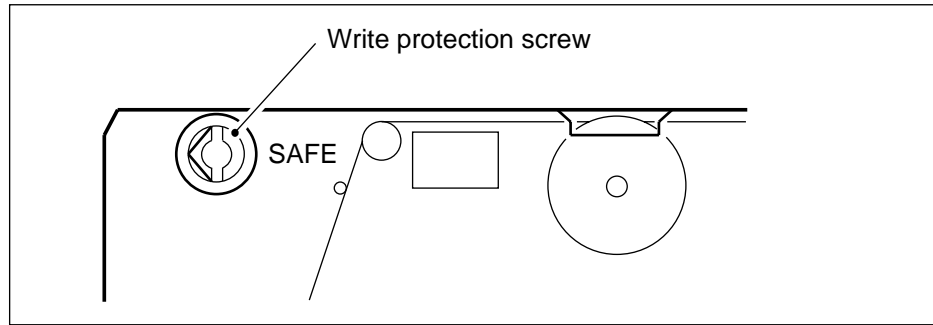
At the SLM

59 Insert the backup tape into the appropriate SLM tape drive.

At the MAP

60 Mount the tape cartridge by typing

>INSERTTAPE device_name
and pressing the Enter key.

where

device_name   is S00T if you are working on SLM 0, or S01T if you
           are working on SLM 1

If the tape is	Do
formatted	step 62
unformatted	step 61

Recording a 16K ENET image on an SLM disk
(continued)

61   Format the tape by typing

>**INSERTTAPE tape_device_name WRITELABEL label_name**
and pressing the Enter key.

where

tape_device_name   is S00T if you are working on SLM 0, or S01T if
you are working on SLM 1

label_name   is an alphanumeric name for the tape, up to six
characters in length (for example, ENIMG)

Example input:

INSERTTAPE S01T WRITELABEL ENIMG

62   List the files on the SLM volume that contains the latest ENET image files by
typing

>**LISTFL disk_volume_name**
and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
the name of the volume on the disk to which you
are dumping (for example, S01DENET)

Recording a 16K ENET image on an SLM disk

(continued)

63 Back up the ENET image file from the disk to the tape by typing

>**BACKUP FILE new_file_name tape_device_name tape_file_name**
and pressing the Enter key.

where

new_file_name   is the name of the renamed ENET image file
tape_device_name   is S00T if you are working on SLM 0, or S01T if
                                     you are working on SLM 1
tape_file_name   is the name you are using for the ENET image file
                                     stored on tape

Note: The tape file name is optional. If a tape file name is not entered, a
default file name is assigned.

Example input:

>**BACKUP FILE ENET_0215 S01T ENET_0215**

If the response indicates	Do
the command was successful	step 73
there is not enough tape capacity to back up the image file	step 64
anything else	step 77

64 Cancel the command by typing

>**N0**
and pressing the Enter key.

Example of a MAP response:

```
BACKUP command is aborted.
Operation aborted by user.
```

65 Demount the tape by typing

>**EJECTTAPE tape_device_name**
and pressing the Enter key.

where

tape_device_name   is S00T if you are working on SLM 0, or S01T if
                                     you are working on SLM 1

Recording a 16K ENET image on an SLM disk

(continued)

At the SLM

66   Release the tape cartridge by pressing up on the locking lever.

67   Withdraw the tape cartridge by pulling it straight out from the tape drive.

68   Obtain a DC6250 (250-Mbyte) tape cartridge.

If you	Do
can obtain a tape cartridge	step 69
cannot obtain a tape cartridge	step 77

69   Using a slot-head screwdriver, rotate the SLM tape cartridge write protection screw 180° away from the SAFE position.

70   Insert the DC6250 tape cartridge into the SLM tape drive.

At the MAP

71   Mount the inserted tape by typing

>INSERTTAPE tape_device_name WRITELABEL label_name
and pressing the Enter key.

where

tape_device_name   is the tape drive (S00T or S01T) that contains the tape
label_name   is an alphanumeric name for the tape, up to six
                      characters long

Example input:

>INSERTTAPE S00T WRITELABEL ENETIMG

Example of a MAP response:

```
Writing the label ENETIMG to tape volume S00T on node CM
will destroy all files stored on this tape volume.

Do you want to continue?
Please confirm ("YES", "Y", "NO", or "N"):
```

Recording a 16K ENET image on an SLM disk
(end)

72 Confirm the command by typing

>YES
and pressing the Enter key.

Example of a MAP response:

```
The INSERT operation may take
up to 5 minutes to tension the tape.

A tape is now available to user on unit 1, node CM.
Name ENETIMG has been written to the tape label.
```

73 List the files on the tape to confirm that the ENET image file has been copied by typing

>LISTFL tape_device_name
and pressing the Enter key.

where

tape_device_name   is S00T if you are working on SLM 0, or S01T if
                    you are working on SLM 1

74 Demount the tape by typing

>EJECTTAPE tape_device_name
and pressing the Enter key.

where

tape_device_name   is S00T if you are working on SLM 0, or S01T if
                    you are working on SLM 1

 At the SLM

75 Remove the tape from the SLM and store it.

 At the MAP

76 Quit from the disk utility by typing

>QUIT
and pressing the Enter key.

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

78 You have completed this procedure.

Recovering a dead DIRP utility

Application

Use this procedure to recover the main processes for the DIRP utility. The main processes of the DIRP utility are:

- DIRPGI

- DIRPDSON

- DIRPTSON

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering a dead DIRP utility (continued)

Summary of Recovering a dead DIRP utility

```
┌─────────────────┐
│ Check DIRP101   │
│ logs            │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Recreate DIRP   │
│ process         │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Check DIRP101   │
│ logs            │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Contact next    │
│ level of support│
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ End             │
│                 │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
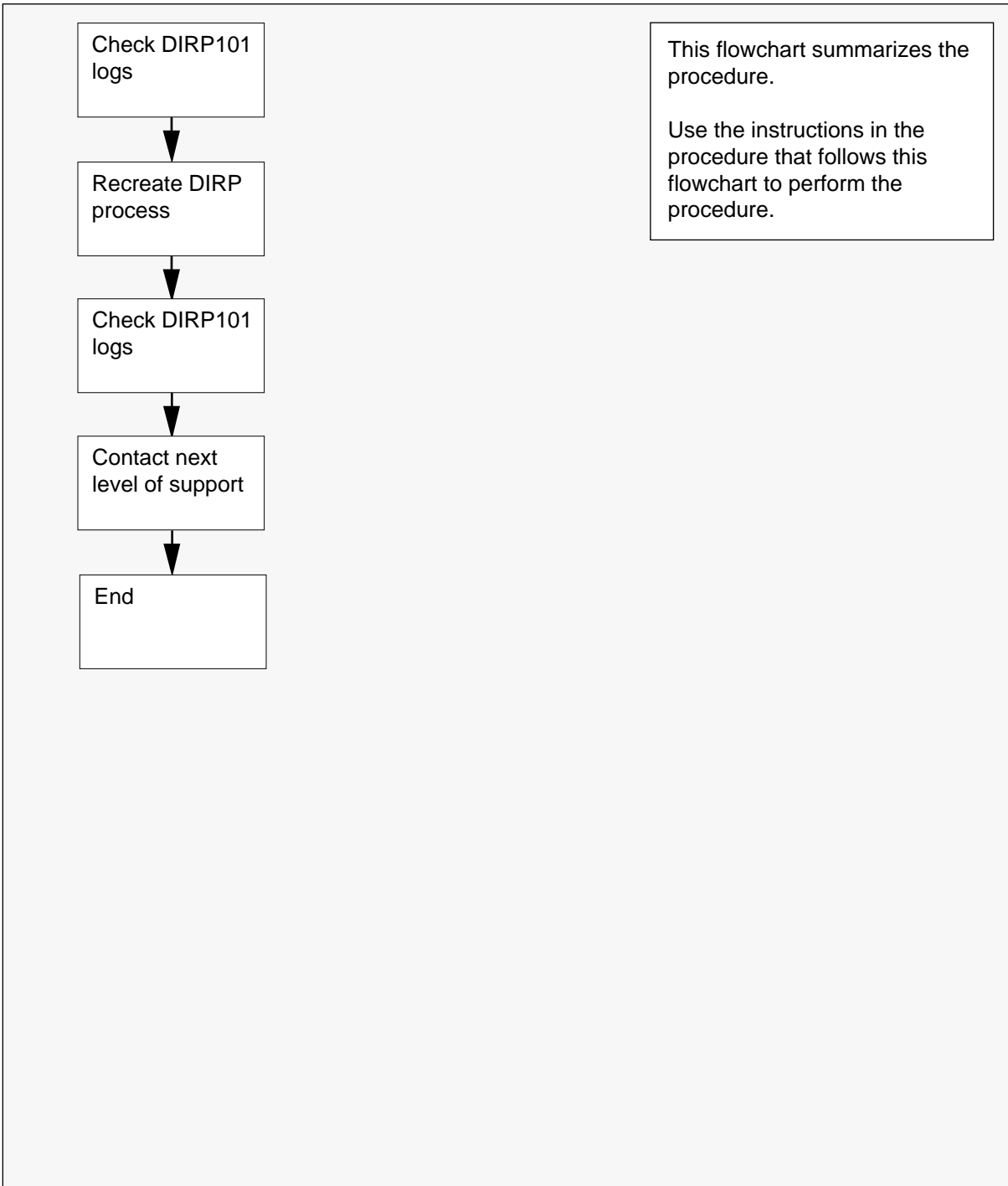
Recovering a dead DIRP utility (continued)

Recovering a dead DIRP utility

CAUTION

Loss or corruption of AMA data

If you fail either to use this procedure or to follow it exactly, you may lose or corrupt automatic message accounting (AMA) data. Because AMA data is used to produce billings, loss or corruption of AMA data results in revenue loss for the operating company.

At the MAP

1   If an audible alarm is sounding, silence it by typing

   >MTC;SIL
   and pressing the Enter key.

2   Access the DIRP level of the MAP by typing

   >MAPCI;MTC;IOD;DIRP
   and pressing the Enter key.

3   Enable the printer by typing

   >RECORD START ONTO device
   and pressing the Enter key.

   where

   device   is the printer type

4   Access the DIRP logs by typing

   >LOGUTIL;OPEN DIRP
   and pressing the Enter key.

   Example of a MAP response:

```
DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 60 S
SSNAME= AMA POOL#= 0 VOLUME#= # 22 SOS-FILE-ID= nnnn nnnn n
TEXT1= COULDN'T RECREATE DIRGI AFTER DEATH PARM1= operating
TEXT2=                                         PARM2= hhh


DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 61 S
SSNAME= AMA POOL#= 0 VOLUME#= # 22 SOS-FILE-ID= nnnn nnnn n
TEXT1= DIRGI NOT RECREATED, DIED TWICE<30secs PARM1= operat
TEXT2=                                         PARM2= hhh
```

Recovering a dead DIRP utility (end)

5 Check the DIRP logs to determine which DIRP process has died.

6 Recreate the applicable DIRP process (DIRPGI, DIRPDSON, or DIRPTSON) by typing

>REVIVE ALL
and pressing the Enter key.

Note: The REVIVE command brings the DIRP child process back to life, but does not correct the problem that caused its death.

7 Check the DIRP logs to determine if the REVIVE command recreated the process. Go to step 8.

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

9 You have completed this procedure.

Recovering AMA data with block numbers

Application

Use this procedure to recover automatic message accounting (AMA) data from a distributed processing peripheral (DPP) on which both tape ports have failed because of a system fault. The fault was such that the parallel data block numbers appear on the DIRP101 logs. This procedure recovers the data from the DPP and copies the data to tape.

Action

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

Recovering AMA data with block numbers
 (continued)

Summary of Recovering AMA data with block numbers
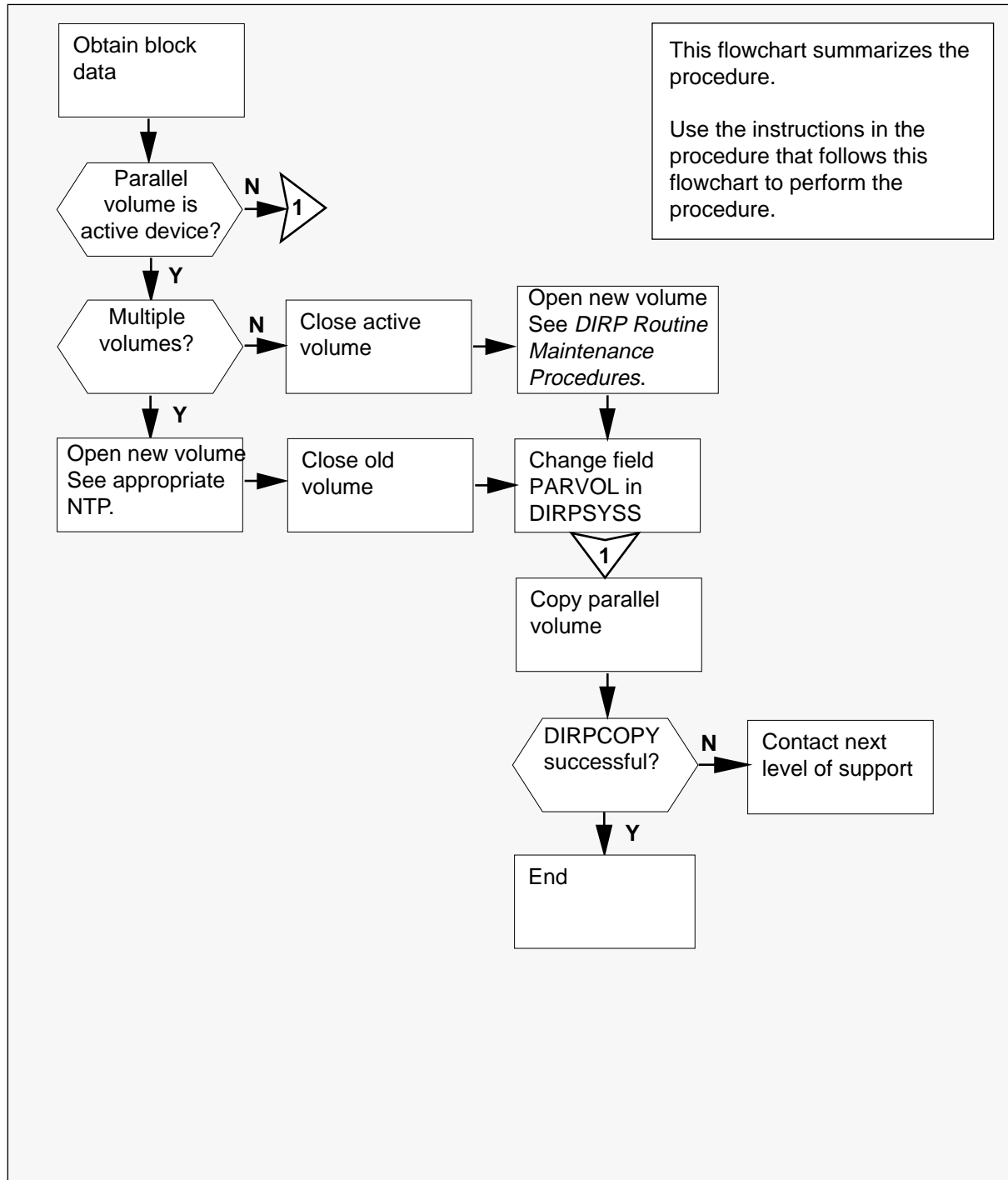
Recovering AMA data with block numbers

(continued)

Recovering AMA data with block numbers

At the MAP

1

⚠ **CAUTION**

Possible loss or corruption of AMA data
If you fail either to use this procedure or to follow it exactly, you may lose or corrupt automatic message accounting (AMA) data. Because AMA data is used to produce billings, loss or corruption of AMA data results in revenue loss for the operating company.

Access the DIRP level of the MAP by typing

>MAPCI;MTC;IOD;DIRP
and pressing the Enter key.

2   Enable the printer by typing

>RECORD START ONTO device
and pressing the Enter key.

where

device   is the printer type

3   Access the DIRP logs by typing

>LOGUTIL;OPEN DIRP
and pressing the Enter key.

Example of a MAP display:

```
DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 16 S
SSNAME= AMA POOL#= 0 VOLUME#= # 22 SOS-FILE-ID= nnnn nnnn n
TEXT1= NEXT PARALLEL FILE BLOCK NUMBER: 1          PARM1=
TEXT1= NEXT ACTIVE FILE BLOCK NUMBER: 4            PARM2=

DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 17 S
SSNAME= AMA POOL#= 0 VOLUME#= # 23 SOS-FILE-ID= nnnn nnnn n
TEXT1= LAST PARALLEL FILE BLOCK NUMBER: 1          PARM1=
TEXT1= LAST ACTIVE FILE BLOCK NUMBER: 1            PARM2=
```

Recovering AMA data with block numbers
 (continued)

    4   Check the DIRP logs to determine if the parallel data block numbers appear on the log.

    5   Note the parallel block numbers in the DIRP101 log as follows:

- the last sequence number before the DPP outage
- the first sequence number following the DPP outage

    6   Query the volumes that are currently mounted in the AMA subsystem by typing

        >QUERY AMA VOLUMES
        and pressing the Enter key.

        Example of a MAP display:

```
SSNAME SSNO SEQNO ROTATES POOLNO PARLPOOL EMERGENCY
AMA      0    1      2      0        6    ***YES***

REGULAR VOLUMES
VOL#   VOLNAME   STATE   IOC  CARD  VOL  FSEG  ROOM  VLID  F
  T0    READY     0    0     0   N/A    0   2400
 23        T     AVAIL   2    1     0   N/A    0    2400

PARALLEL VOLUME(S)
PARALLEL           STATE  IOC  CARD  VOL  FSEG  ROOM  VLID
B910212061307AMA   READY   0    0     0   N/A    1   2400
```

If the parallel volume is	Do
the current file	step 7
not the current file	step 17

    7   Determine if your installation has multiple volumes.

If your installation	Do
has multiple volumes	step 8
does not have multiple volumes	step 11

Recovering AMA data with block numbers

(continued)

8   Allocate a volume.

Refer to Allocating recording volumes in the DIRP utility in *Device Independent Recording Package Routine Maintenance Procedures*, and return to this point.

9   Close the active volume by typing

>CLOSE AMA PARALLEL
and pressing the Enter key.

Example of a MAP response:

```
 SENDING REQUEST TO SUBSYSTEM
 PLEASE CONFIRM ("YES" or "NO")
```

10   Confirm the request by typing

>YES
and pressing the Enter key.

Example of a MAP display:

```
 REQUEST SENT TO SUBSYSTEM.   CHECK DIRP LOGS FOR DETAILS
```

Go to step 14.

11   Close the active volume by typing

>CLOSE AMA PARALLEL
and pressing the Enter key.

Example of a MAP display:

```
 SENDING REQUEST TO SUBSYSTEM
 PLEASE CONFIRM ("YES" or "NO")
```

12   Confirm the request by typing

>YES
and pressing the Enter key.

Example of a MAP response:

```
 REQUEST SENT TO SUBSYSTEM.   CHECK DIRP LOGS FOR DETAILS
```

Recovering AMA data with block numbers
 (continued)

13   Allocate a volume.

Refer to Allocating recording volumes in the DIRP utility in *Device Independent Recording Package Routine Maintenance Procedures*, and return to this point.

14   Query the volumes that are currently mounted in the AMA subsystem by typing

>QUERY AMA VOLUMES
and pressing the Enter key.

Example of a MAP display:

```
QUERY AMA PARALLEL NONE
```

15   Check the DIRP logs for details of closure of the active volume.

Example of a MAP display:

```
DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 16 S
SSNAME= AMA POOL#= 0 VOLUME#= # 22 SOS-FILE-ID= nnnn nnnn n
TEXT1= NEXT PARALLEL FILE BLOCK NUMBER: 1            PARM1=
TEXT1= NEXT ACTIVE FILE BLOCK NUMBER: 4              PARM2=
```

Recovering AMA data with block numbers

(end)

16 Exit the table by typing

>QUIT

and pressing the Enter key.

17 Load a blank or expired tape on the magnetic tape drive.

Refer to *Magnetic Tape Reference Manual*, 297-1001-118, and return to this point.

18 Copy the parallel AMA file to the tape by typing

>DIRPCOPY AMA file_name Tn start_no block_length

and pressing the Enter key.

where

file_name	is the parallel file name
Tn	is the number of the tape drive
start_no	is the first sequence number to be recovered (obtained in step 4)
block_length	is the last sequence number minus the first sequence number (both obtained in step 4)

Example input:

>DIRPCOPY AMA DIRPPARALLEL_AMA T2 5400 100

Note: The length of time it takes the DIRPCOPY utility to copy the file depends on the length of the parallel file and the number of blocks to be copied.

If the DIRPCOPY command was	**Do**
successful	step 20
not successful	step 19

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

20 You have completed this procedure.

Recovering AMA data without DIRP block numbers

Application

Use this procedure to recover automatic message accounting (AMA) data after a fault on a distributed processing peripheral (DPP) has disrupted recording to the DPP. The fault was such that the data previously collected and stored by the DPP is inaccessible because the DIRP data block numbers do not appear on the DIRP101 logs. This procedure shows you how to determine the DIRP block numbers of the data that was not recorded by the DPP, and how to retrieve the data from the parallel recording device and copy it to tape.

Action

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

Recovering AMA data without DIRP block numbers

(continued)

Summary of Recovering AMA data without DIRP block numbers

```
┌─────────────────┐
│ Obtain copy of  │
│ AMA block from  │
│ data center     │
└─────────────────┘
         │
         ▼
    ╱─────────╲
   ╱ AMA data on ╲        N
  ⟨ volume of active ⟩──────┐
   ╲ parallel device? ╱     │
    ╲─────────╱            │
         │ Y               │
         ▼                 │
┌─────────────────┐        │
│ Determine       │        │
│ name of parallel│        │
│ volume          │        │
└─────────────────┘        │
         │                 │
         ▼                 │
┌─────────────────┐        │
│ Add a new       │        │
│ volume          │        │
└─────────────────┘        │
         │                 │
         ▼                 │
┌─────────────────┐        │
│ Rotate parallel │        │
│ volumes         │        │
└─────────────────┘        │
         │                 │
         ▼                 │
┌─────────────────┐        │
│ Determine block │        │
│ numbers of      │        │
│ missing data    │        │
└─────────────────┘        │
         │                 │
         ▼                 │
┌─────────────────┐        │
│ Copy file to tape│       │
└─────────────────┘        │
         │                 │
         ▼                 │
┌─────────────────┐        │
│ End             │◄───────┘
│                 │
└─────────────────┘
```

> This flowchart summarizes the procedure.
>
> Use the instructions in the procedure that follows this flowchart to perform the procedure.
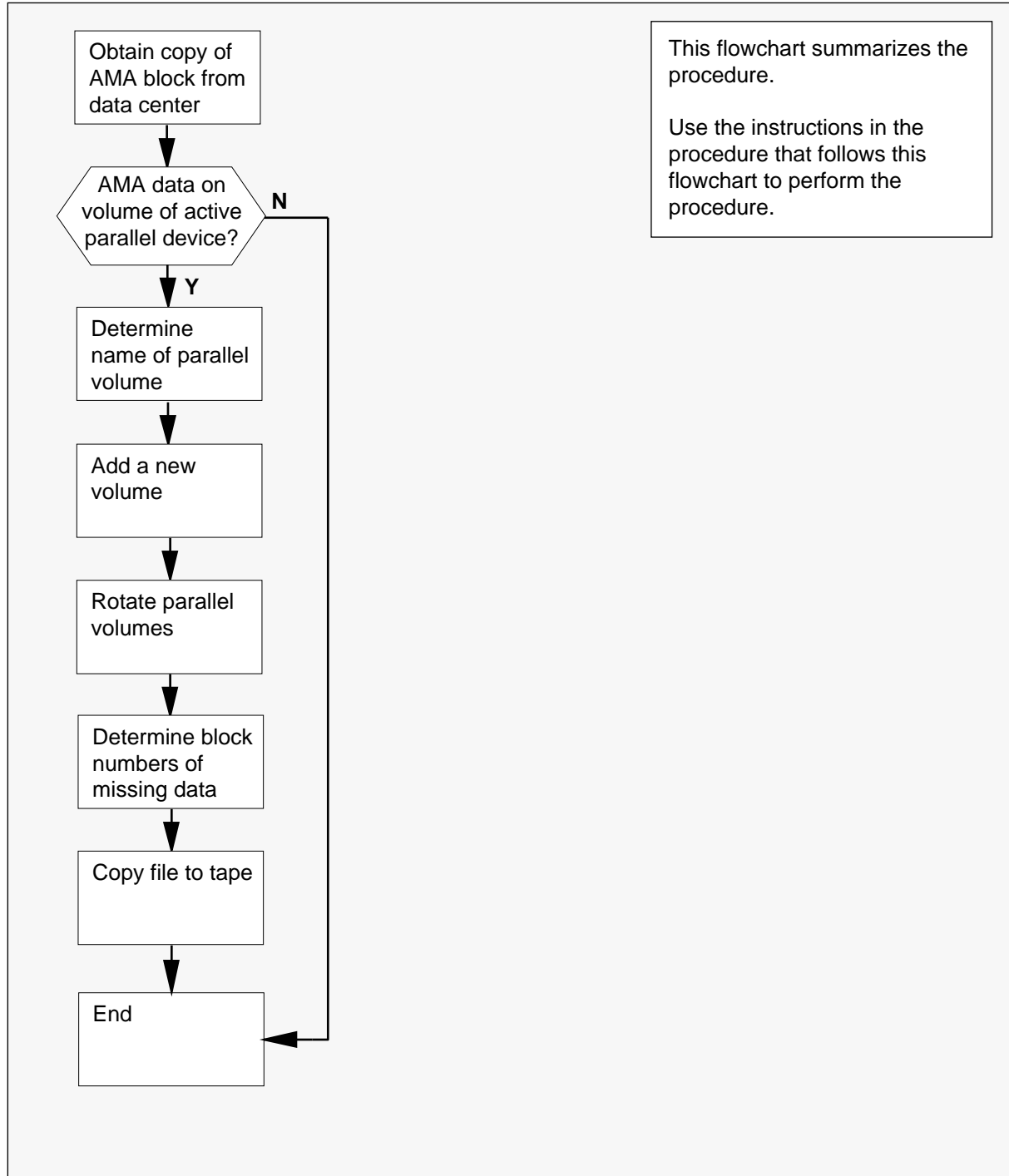
Recovering AMA data without DIRP block numbers
 (continued)

Recovering AMA data without DIRP block numbers

1

> **CAUTION**
> **Possible loss or corruption of AMA data**
> If you fail either to use this procedure or to follow it
> exactly, you may lose or corrupt automatic message
> accounting (AMA) data. Because AMA data is used
> to produce billings, loss or corruption of AMA data
> results in revenue loss for the operating company.

Contact your data center and obtain the following information:

- the time frame of the missing AMA data
- the sequence number of the DPP block that was received by the data center immediately before the DPP outage
- the sequence number of the DPP block that was received by the data center immediately after the DPP outage

Note: The sequence numbers referred to are DPP reference numbers, not numbers assigned by the DMS or the data center.

At the MAP

2   Access the DPP level of the MAP by typing

>MAPCI;MTC;IOD;DPP AMA
and pressing the Enter key.

3   Access the DIRP logs by typing

>LOGUTIL;OPEN DIRP
and pressing the Enter key.

4   Enable the printer by typing

>RECORD START ONTO device
and pressing the Enter key.

where

device   is the printer type

Recovering AMA data without DIRP block numbers

(continued)

5 Obtain a print of the DPP AMA block that the data center received immediately before the DPP outage by typing

>IDXMAINT EXAMINE AMA PACKED first_sequence_no
and pressing the Enter key.

where

first_sequence_no   is the sequence number that was received by the data center immediately before the DPP outage occurred. This number is supplied by the data center (see step 1).

Example of a MAP display:

```
00 00 00 00 00 00 00 00 12 25 11 15  00
07BA 0000 0040 0000 AA00 700C 043C 036C 0602 091C 036C
0602 091C 0021 3C00 000C 0200 000C 1C0C 1C00 0C60 2C82
0780 1C1C 0060 2C83 8579 2C00 0015 2C00 0000 000C 1010
301C 0000 0023 0C00 0838 8C
```

6 In the office records, make a note of the time and date that is on the first line of the AMA data block.

For example:

DATE=12 25
TIME=11 15

7 Obtain a print of the DPP AMA block that was received by the data center immediately after the DPP outage by typing

>IDXMAINT EXAMINE AMA PACKED last_sequence_no
where

last_sequence_no   is the sequence number that was received by the data center immediately after the end of the DPPoutage. This number is supplied by the data center (see step 1).

Note: The sequence numbers referred to are DPP reference numbers, not numbers assigned by the DMS or the data center.

Example of a MAP display:

```
00 00 00 00 00 00 00 00 12 25 11 15  00
07BA 0000 0040 0000 AA00 700C 043C 036C 0602 091C 036C
0602 091C 0021 3C00 000C 0200 000C 1C0C 1C00 0C60 2C82
0780 1C1C 0060 2C83 8579 2C00 0015 2C00 0000 000C 1010
301C 0000 0023 0C00 0838 8C
```

Recovering AMA data without DIRP block numbers
(continued)

8   In the office records, make a note of the time and date that is on the first line of the AMA data block.

For example:

DATE=12 25
TIME=11 15

9   Determine whether the AMA blocks are concurrent with the time frame specified in step 1.

If the AMA blocks	Do
are concurrent	step 11
are not concurrent	step 10

10   Request a copy of the DPP AMA blocks from the data center.

11   Prepare a record of the DPP block of AMA data that was received by the data center immediately before the DPP outage occurred by locating the letters AA, which signify the start of the record in the block of data, and proceeding according to the following example.

Example of a MAP display:

```
00 00 00 00 00 00 00 00 12 25 13 15   00
07BA 0000 0040 0000 AA00 700C 043C 036C 0602 091C 036C
0602 091C 0021 3C00 000C 0200 000C 1C0C 1C00 0C60 2C82
0780 1C1C 0060 2C83 8579 2C00 0015 2C00 0000 000C 1010
301C 0000 0023 0C00 0838 8C
```

Note: C indicates the end of each field.

A record prepared from the example above looks like this:

* Structure code = 00700C
* Call code = 043C
* Originating numbering plan area (NPA) = 602C
* Originating number = 8207801C
* Terminating numbering plan area (NPA) = 00602C
* Terminating number = 8385792C
* Connected time = 0000152C

For more information about breaking down the block of AMA data into the required record, refer to *Bellcore Format Automatic Message Accounting Reference Guide*.

Recovering AMA data without DIRP block numbers

(continued)

12 Recheck the record to ensure that it is correct.

13 Repeat steps 11 and 12 for the block of AMA data that was received by the data center immediately after the end of the DPP outage.

Go to step 14.

14 Determine whether the AMA data that needs to be recovered is on the parallel volume that is on the active device.

If the location of the AMA data	Do
on the active parallel device	step 15
not on the active parallel device	step 34
unknown	step 15

Recovering AMA data without DIRP block numbers
(continued)

    15 Access the IOC level of the MAP by typing

       >MTC;IOD;LISTDEV DDU
       and pressing the Enter key.

       Example of a MAP display:

```
CC     CMC         IOD     Net     PM      Lns     Trks      Ext
                   1DDUOS
                   M
DDU                IOD     IOC   0     1     2      3        4
  0  Quit           Stat        1DDUOS
  2
  3                 DIRP           XFER
  4 List Dev_
  5                 IOC Card   0   1    2    3    4    5
  6 Tst             1  Port 0123 0123 0123 0123 0123 0123
  7 Bsy                Stat .--- ..SS .--- SSSS P--- SSSS
  8 RTS                Type  MTD  Cons DDU Cons DDU  Cons
  9 Offl
 10
 11 Start         Card 4   Unit          1
 12 Stop            User          SYSTEM  Drive_State
 13                 Status         SBsy   drive-faults
 14
 15 Status
 16 Alloc
 17 Fcnt
 18 Clrfcnt_
    User ID
Time  hh  :     mm>
```

Recovering AMA data without DIRP block numbers

(continued)

16 Note the IOC number and card number for each disk drive utility (DDU).

17 Determine the name of the parallel volume of each DDU by typing

>**IOC ioc_no;CARD card_no;ALLOC**
and pressing the Enter key.

where

ioc_no   is the input/output controller number of the DDU that was noted in
            step 1

card_no   is the card number of the DDU that was noted in step 16

Example of a MAP display:

```
IOD  IOC   0    1     2     3      4
Stat            1DDUOS


DIRP    EXFER:


IOC     Card  0   1    2    3    4    5
        Port 0123 0123 0123 0123 0123 0123
        Stat .--- ..SS .--- SSSS P--- SSSS



Card 4   Unit          1
        User         SYSTEM  Drive_State
        Status        Ready   on_line
Alloc

VOLID VOL_NAME SERIAL_NO BLOCKS ADDR TYPE R/O FILES OPEN
    0    IMAGE     A000    12288  D010   0   NO      0
    1    VOL1      A001     3000  D010   0   NO      0
    2    UNALLOCD  A002    15004  D010   1   NO     0
    3    AMAP      A002    15004  D010   1   NO     0
```

18 Repeat step 17 for each DDU.

19 Access the disk utility by typing

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

Recovering AMA data without DIRP block numbers
(continued)

20 Enter the parallel volume name by typing

>LISTVOL vol_name ALL
and pressing the Enter key.

where

vol_name is the parallel volume name that was determined in step 17

Example of a MAP display:

```
DSKUT
>listvol D000AMAP ALL
```

21 Note the active file name.

For example:

DIRPPARALEL_AMA

Recovering AMA data without DIRP block numbers

(continued)

22   Enter the active file name by typing

>SHOWFL file_name
and pressing the Enter key.

where

file_name is the active file name that was noted in step 21

Example of a MAP display:

```
DSKUT:


>showfl B900821122501_AMA
Volume Size:    32000   blocks
Free Space:     1246 blocks
Number of Files:     26



Show all Volume data

>showvol D000AMAP   full
Volume Size:        32000   blocks
Free Space:         1246  blocks
Number of Files:       1
Volume number:      5
Volume Id:          2845



Show all File data

>showfl D000AMAP  full
Number of Records:  6788
Last Modified:    1991/11/17  00:00:23.387 MON.
Fixed Record:     2845 0008  0001
File Owner:         SYSTEM
```

Recovering AMA data without DIRP block numbers
(continued)

23   Note the Last Modified date and the time of each file.

24   Repeat steps 20 through 23 for each parallel volume that was obtained in step17.

25   Compare the times and dates that were obtained in step 23 with the same information given by the data center and recorded in steps 6 and 8 to locate the parallel volume that was collecting AMA data during the period in which the DPP failed.

26   Exit the disk utility by typing

>QUIT

and pressing the Enter key.

27   Access the DIRP level of the MAP by typing

>DIRP

and pressing the Enter key.

28   Query the volumes that are currently mounted in the AMA subsystem by typing

>QUERY AMA VOLUMES

and pressing the Enter key.

Example of a MAP display:

```
SSNAME SSNO SEQNO ROTATES POOLNO PARLPOOL EMERGENCY
AMA      0    1      2       0       6        NO


REGULAR VOLUMES
VOL#   VOLNAME  STATE   IOC   CARD   VOL  FSEG  ROOM   VLID  F
PARALLEL VOLUME(S)
VOL# VOLNAME STATE   IOC   CARD   VOL   FSEG   ROOM   VLID  CURR
   0 D00AMA2 READY    0     0     0    N/A     1    2400   YES
```

Recovering AMA data without DIRP block numbers

(continued)

29 From the MAP response you got in step 28, determine whether you have parallel volumes in the available state.

If you	Do
have available volumes	step 31
do not have available volumes	step 30

30 Add a new disk volume.

Refer to "Parallel recording on disk in the DIRP utility" in *Device Independent Recording Package Routine Maintenance Procedures*, and return to this point.

31

> **CAUTION**
> **Loss of parallel data**
> Manual parallel rotations reduce the total amount of parallel data that is retained by the switch. Parallel data may be lost.

Rotate the subsystem by typing

>ROTATE AMA PARALEL
and pressing the Enter key.

Example of a MAP display:

```
 **WARNING-MANUAL PARALLEL ROTATIONS REDUCE THE TOTAL **AMOU
DATA RETENTION ON THE SWITCH
SENDING REQUEST TO SUBSYSTEM
PLEASE CONFIRM ("YES" OR NO"):
```

32 Confirm the information by typing

>YES
and pressing the Enter key.

Example of a MAP display:

```
REQUEST SENT TO SUBSYSTEM, CHECK DIRP LOG FOR DETAILS
```

Recovering AMA data without DIRP block numbers
(continued)

33 Wait for a DIRP101 log to confirm the rotation.

Is the rotation confirmed?	Do
yes	step 34
no	step 72

34 Access the disk utility by typing

>DISKUT

and pressing the Enter key.

35 Locate the block number that the data center received immediately after the DPP outage by typing

>LISTVOL vol_name ALL

and pressing the Enter key.

where

vol_name is the parallel volume name that was determined in step 17

Example of a MAP display:

```
DSKUT
>LISTVOL D000AMAP ALL
```

Recovering AMA data without DIRP block numbers

(continued)

36 Note the active file name.

37 Note the Last Modified date and time of each file.

38 Exit the disk utility by typing

>QUIT
and pressing the Enter key.

39 Return to the DIRP level of the MAP by typing

>DIRP
and pressing the Enter key.

40 Dump the contents of the AMA file by typing

>AMADUMP BC file_name
and pressing the Enter key.

where

file_name is the AMA file name that was noted in step 25

41 To determine the number of the DPP block that was received by the data center immediately before the DPP outage, it is necessary to filter the information that was obtained in step 11. Begin by typing

>FILTER ADD 'structure_code
and pressing the Enter key.

where

structure_code is the structure code that was obtained in step 11

Example input:

>FILTER ADD '00700
Example of a MAP display:

```
 >>>ADDING....STRUCTURE CODE: 00700
        RECORD CODE:  00700
          CALL CODE:
```

42 Enter the call code that was obtained in step 11.

Example input:

>043C
The filter function responds by prompting you for numerous fields.

Recovering AMA data without DIRP block numbers
 (continued)

43 Fill in the ORIG NPA field using the originating numbering plan area (NPA) value that was obtained in step 11. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>602* or **602C**
Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

44 Fill in the ORIG NUMBER field using the originating number value that was obtained in step 11. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>9422640* or **9422640C**
Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

45 Fill in the TERM NPA field using the terminating numbering plan area (NPA) value that was obtained in step 11. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>00602* or **00602C**
Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

46 Fill in the TERM NUMBER field using the terminating number value that was obtained in step 11. If the value contains any zeros, the field must be defined with all the zeros included.

Example input:

>8385792* or **8385792C**
Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

47 Fill in the CONNECT TIME field on the screen using the connect time value that was obtained in step 11. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>0000152* or **0000152C**
Press the Enter key.

Note: The * is a wild card, and matches any variable.

Recovering AMA data without DIRP block numbers

(continued)

48   Stop the prompts from moving to the next field by typing

>$

and pressing the Enter key.

49   Check the information that you have entered in the filter field in steps 43 to 47 by typing

>FILTER DISPLAY ALL

and pressing the Enter key.

This command causes a record containing all the fields that you have just defined to be displayed.

Example of a MAP display:

```
*HEX ID = AA STRUCT CODE:00700*  CALL TYPE:****
SENSOR TYPE: **** SENSOR ID: ******** REC OFC TYPE: ****
REC OFC ID: ******** DATE: ****** TIMING IND: ******
STUDY IND: ******** ANSWER: ** SERV OBSERVED: **
OPER ACTION: ** SERV FEAT: **** ORIG NPA; 602C
ORIG NO: 9422640C OVERSEAS IND: **  TERM NPA; 00602C
TERM NO: 8385792C TIME: ******** ELAPSED TIME: **********
IC/INC PREFIX: ****** CC DATE: ****** CC TIME: 0000152C
ELAPSED CC: ********** IC/INC EVENT: **** TRK ROUTING: **
DIALING: ** ANI: **
```

Recovering AMA data without DIRP block numbers
(continued)

50 Enable the filter function by typing

>FILTER ENABLE
and pressing the Enter key.

51 Filter through the entire parallel file by typing

>DUMP CALL DETAILS
and pressing the Enter key.

This command filters through the entire parallel file searching for the defined record. One record should match the data that you entered into the filter. When the utility locates the record, the block number that was received at the data center immediately before the DPP outage is displayed.

Example of a MAP display:

```
>>>BLOCK NO:15
*HEX ID = AA STRUCT CODE:00700*  CALL TYPE:****
SENSOR TYPE: **** SENSOR ID: ******** REC OFC TYPE: ****
REC OFC ID: ******** DATE: ****** TIMING IND: ******
STUDY IND: ******** ANSWER: ** SERV OBSERVED: **
OPER ACTION: ** SERV FEAT: **** ORIG NPA; 602C
ORIG NO: 9422640C OVERSEAS IND: **  TERM NPA; 00602C
TERM NO: 8385792C TIME: ******** ELAPSED TIME: **********
IC/INC PREFIX: ****** CC DATE: ****** CC TIME: 0000152C
ELAPSED CC: ********** IC/INC EVENT: **** TRK ROUTING: **
DIALING: ** ANI: **
```

Recovering AMA data without DIRP block numbers

(continued)

52 Note the block number displayed on the screen. In the example in step 51, the block number is 15.

53 Check the entire block against the one that was provided by the data center by typing

>DUMP CALL DETAILS block_number 1
and pressing the Enter key.

where

block_number   is the number recorded in step 52

54 Disable the FILTER ADD command used in step 41 by typing

>FILTER DISABLE
and pressing the Enter key.

55 Delete the FILTER ADD command used in step 41 by typing

> FILTER DELETE structure_code 1
and pressing the Enter key.

where

structure_code is the structure code that was obtained in step 11

Example input:

>FILTER DELETE '00700

56 To determine the number of the DPP block that was received by the data center immediately after the DPP outage, it is necessary to filter the information that was obtained in step 13. Begin by typing

>FILTER ADD 'structure_code
and pressing the Enter key.

where

structure_code is the structure code that was obtained in step 13

Example of a MAP display:

```
 >>>ADDING....STRUCTURE CODE: 00625
         RECORD CODE:  00625
           CALL CODE:
```

Recovering AMA data without DIRP block numbers
(continued)

57 Enter the call code that was obtained in step 13.

Example input:

>067C

The filter function responds by prompting you for numerous fields.

58 Fill in the ORIG NPA field using the originating numbering plan area (NPA) value that was obtained in step 13. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>602* or **602C**

Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

59 Fill in the ORIG NUMBER field using the originating number value that was obtained in step 13. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>602* or **602C**

Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

60 Fill in the TERM NPA field using the terminating numbering plan area (NPA) value that was obtained in step 13. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>00602* or **00602C**

Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

61 Fill in the TERM NUMBER field using the terminating number value that was obtained in step 13. If the value contains any zeros, the field must be defined with all the zeros included.

Example input:

>2239754* or **2239754C**

Continue to the next field by pressing the Enter key.

Note: The * is a wild card, and matches any variable.

Recovering AMA data without DIRP block numbers

(continued)

62 Fill in the CONNECT TIME field on the screen using the connect time value that was obtained in step13. If the value contains zeros, the field must be defined with all the zeros included.

Example input:

>0000943* or 0000943C
Press the Enter key.

Note: The * is a wild card, and matches any variable.

63 Stop the prompts from moving to the next field by typing

>$
Press the Enter key.

64 Recheck the information you have entered in the filter field in steps 58 to 62 by typing

>FILTER DISPLAY ALL
and pressing the Enter key.

This will display a record containing all the fields that you just defined.

Example of a MAP display:

```
*HEX ID = AA STRUCT CODE:00625*  CALL TYPE:****
SENSOR TYPE: **** SENSOR ID: ******** REC OFC TYPE: ****
REC OFC ID: ******** DATE: ****** TIMING IND: ******
STUDY IND: ******** ANSWER: ** SERV OBSERVED: **
OPER ACTION: ** SERV FEAT: **** ORIG NPA; 602C
ORIG NO: 6319561C OVERSEAS IND: **  TERM NPA; 00602C
TERM NO: 2239754C TIME: ******** ELAPSED TIME: **********
IC/INC PREFIX: ****** CC DATE: ****** CC TIME: 0000943C
ELAPSED CC: ********** IC/INC EVENT: **** TRK ROUTING: **
DIALING: ** ANI: **
```

Recovering AMA data without DIRP block numbers
(continued)

65 Enable the filter function by typing

>FILTER ENABLE
and pressing the Enter key.

66 Filter through the entire parallel file by typing

>DUMP CALL DETAILS
and pressing the Enter key.

This command filters through the entire parallel file searching for the defined record. One record should match the data that you entered into the filter. When the utility locates the record, the block number that was received at the data center immediately before the DPP outage is displayed.

Example of a MAP display:

```
>>>BLOCK    NO:27
*HEX ID = AA STRUCT CODE:00625*  CALL TYPE:****
SENSOR TYPE: **** SENSOR ID: ******** REC OFC TYPE: ****
REC OFC ID: ******** DATE: ****** TIMING IND: ******
STUDY IND: ******** ANSWER: ** SERV OBSERVED: **
OPER ACTION: ** SERV FEAT: **** ORIG NPA; 602C
ORIG NO: 6319561C OVERSEAS IND: **  TERM NPA; 00602C
TERM NO: 2239754C TIME: ******** ELAPSED TIME: **********
IC/INC PREFIX: ****** CC DATE: ****** CC TIME: 0000943C
ELAPSED CC: ********** IC/INC EVENT: **** TRK ROUTING: **
DIALING: ** ANI: **
```

67 Note the block number displayed on the screen.

68 Check the entire block against the one that was provided by the data center by typing

>DUMP CALL DETAILS block_number 1
and pressing the Enter key.

where

block_number   is the number that was noted in step 67

Recovering AMA data without DIRP block numbers

(end)

69   Mount a tape that is suitable for subsystem recording on a magnetic tape drive.

Refer to *Magnetic Tape Reference Manual*, 297-1001-118, and return to this point.

70   Copy the parallel AMA file to the tape by typing

>DIRPCOPY AMA file_name Tn start_no block_length
and pressing the Enter key.

where

file_name	is the parallel file name
Tn	is the number of the tape drive
start_no	is the block number that was obtained in step 52, plus 1; for example, 15+1=16
block_length	is the number that was obtained in step 67 minus 1, minus the start_no; for example, (27-1)-16=10

Example input:

>DIRPCOPY AMA DIRPPARALLEL_AMA T2 16 10

Note: The length of time it takes the DIRPCOPY utility to copy the file depends on the length of the parallel file and the number of blocks to be copied.

71   Determine whether the DIRPCOPY command was successful.

If the DIRPCOPY command was	Do
successful	step 73
not successful	step 72

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

73   You have completed this procedure.

Recovering a stuck LIU7

Application

Use this procedure to recover a stuck CCS7 link interface unit (LIU7). An LIU7 is considered stuck when both its F-bus taps are not accessible (NA). This procedure applies only to three-slot LIU7s.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering a stuck LIU7 (continued)

Summary of Recovering a stuck LIU7

Post LIM
associated with
stuck LIU7

↓

Manually busy
F-bus taps

↓

Return F-bus
taps to service

↓

Passed? —**Y**→

↓ **N**

Reseat cards

↓

Reload LIU7

↓

Passed? —**Y**→

↓ **N**

Contact next
level of support

End

This flowchart summarizes the
procedure.

Use the instructions in the
procedure that follows this
flowchart to perform the
procedure.
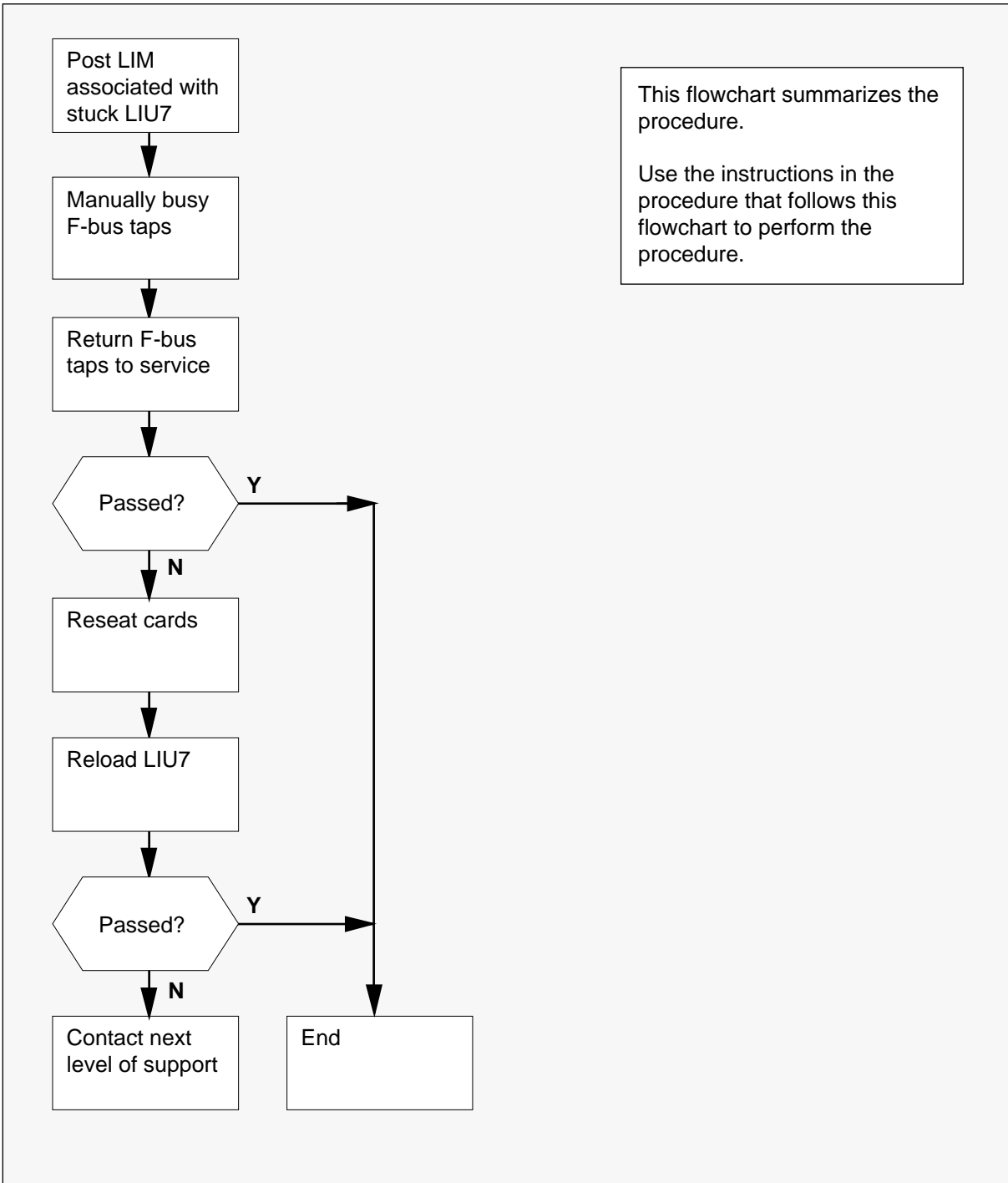
Recovering a stuck LIU7 (continued)

Recovering a stuck LIU7

At the MAP

1

⚠	**CAUTION** **Contact your next level of support** Do not attempt this procedure before contacting your next level of support.

Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

2 Post the system-busy not accessible LIU7 by typing

>POST LIU7 SYSB
and pressing the Enter key.

If the LIU7 shown is	Do
SysB (NA)	step 4
SysB	step 3

3 Display the next system-busy LIU7 by typing

>NEXT
and pressing the Enter key.

```
                          1 1 1 1
Card  1 2 3 4 5 6 7 8 9 0 1 2 3
Chain              |
MS 0  . . . . . . - . . . . . .
MS 1  . . . . . . - . . . . . .

Card 12           FBus Tap: 0      11 12   16   20
MS 0  .                .        .     . S... .... ....
MS 1  .                .        .     . .... .... ....
```

4 Determine the LIM associated with the LIU7 by typing

>QUERYPM
and pressing the Enter key.

Recovering a stuck LIU7 (continued)

5   Post the LIM associated with the stuck LIU7 by typing

>**POST LIM lim_no**
and pressing the Enter key.

where

lim_no   is the number of the LIM (0 or 1)

6   Access the F-bus level of the MAP display by typing

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

Example of a MAP response:

```
                          11111111112222
                 01234567890123456789 0123
FBus 0 ISTb (NA) ...M....SSSS............
FBus 1 InSv      ..........S.............
```

Note: In the example, S indicates that F-bus taps are system busy.

7   Determine which F-bus taps are associated with the stuck LIU7 by typing

>**TRNSL fbus_no**
and pressing the Enter key.

where

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

Example of a MAP response:

```
 LIM lim_no FBus fbus_no Tap tap_no is unequipped.
 LIM lim_no FBus fbus_no Tap tap_no is on LIU7 liu_no.
 LIM lim_no FBus fbus_no Tap tap_no is on LIU7 liu_no.
```

8   Manually busy the F-bus taps associated with the stuck LIU7 by typing

>**BSY 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 23)

Recovering a stuck LIU7 (continued)

9   Return the F-bus taps associated with the stuck LIU7 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 23)

Example of a MAP response:

```
LIM lim_no FBus fbus_no Tap tap_no Return to Service
initiated.
```

10   Access the PM level of the MAP display by typing

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

11   Post the stuck LIU7 by typing

>**POST LIU7 liu_no**
and pressing the Enter key.

where

liu_no   is the number of the stuck LIU7 (0 to 215)

12   Manually busy the LIU7 by typing

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

13   Confirm the busy by typing

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

14   Prepare to unseat and reseat the cards belonging to the stuck LIU7.

Recovering a stuck LIU7 (continued)

At the LPP

15

CAUTION
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

Locate the NT9X75 card belonging to the stuck LIU7.
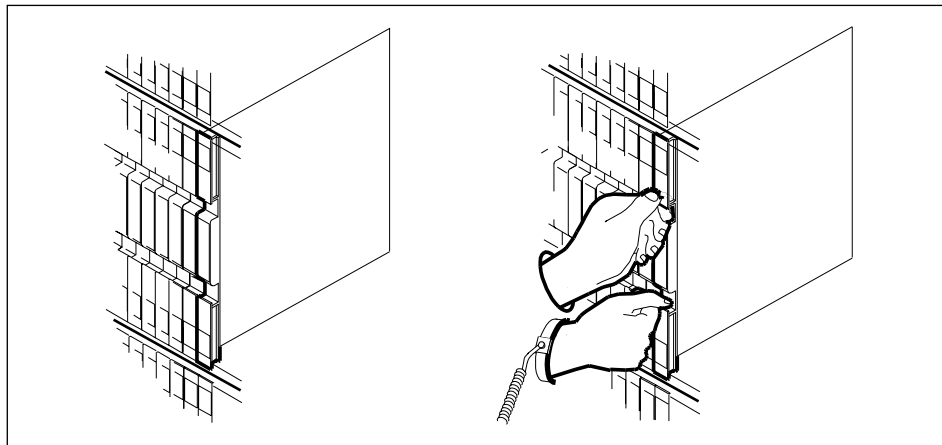
16   Gently pull the card towards you about 25 mm (1 in.).
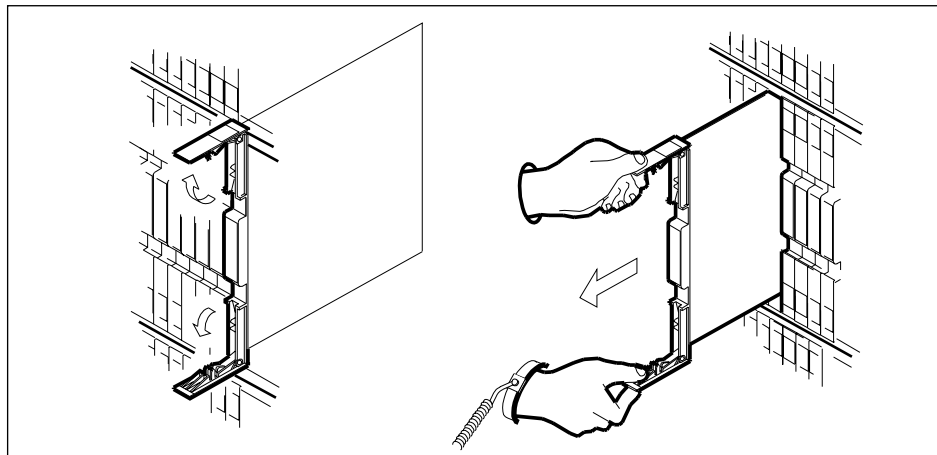
17   Leave the NT9X75 sitting in its slot on the link interface shelf (LIS).

Recovering a stuck LIU7 (continued)

18 Repeat steps 15, 16, and 17 for the NT9X76 and the NT9X13 cards belonging to the stuck LIU7.

19 Gently slide the NT9X13 card back into the LIS.
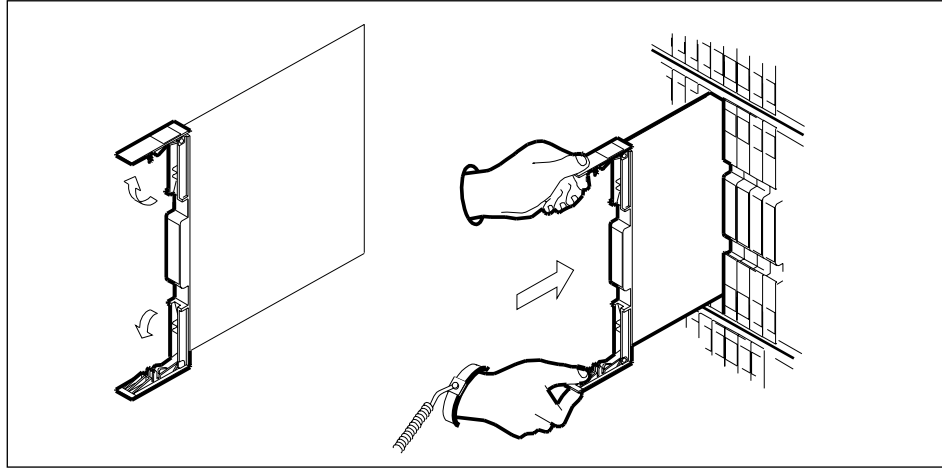
20 Seat and lock the card, as follows:

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

   b. Close the locking levers.
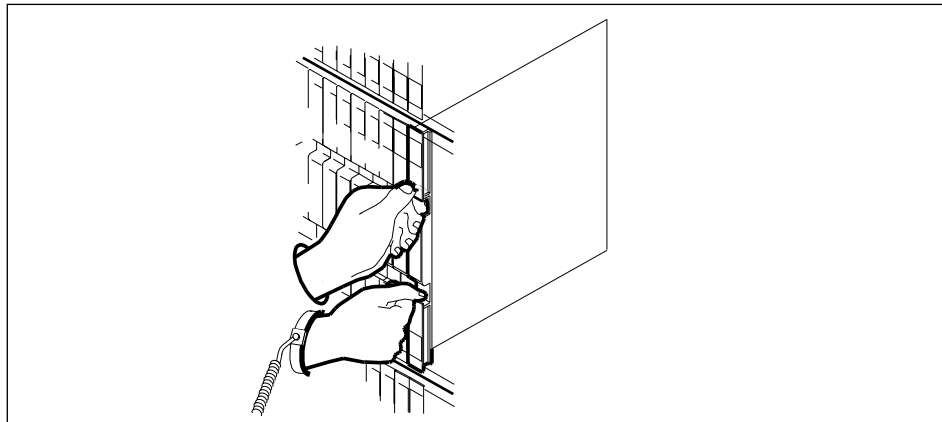
21 Repeat steps 19 and 20 for the NT9X76 and NT9X75 card belonging to the stuck LIU7.

Recovering a stuck LIU7 (end)

At the MAP

22   Reload the LIU7 by typing

>LOADPM
and pressing the Enter key.

If the LOADPM command	Do
passed	step 23
failed	step 24

23   Return the LIU7 to service by typing

>RTS
and pressing the Enter key.

If the RTS command	Do
passed	step 25
failed	step 24

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

25   You have completed this procedure.

Recovering CCS7 linksets

Application

Use this procedure to recover CCS7 linksets.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering CCS7 linksets (continued)

Summary of Recovering CCS7 linksets

Post LIU7

↓

Ensure LIU7
is in service

↓

Post the
linkset

↓

Busy and RTS
linkset

↓

Activate
linkset

↓

Confirm traffic
is running on
linkset.

↓

End

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
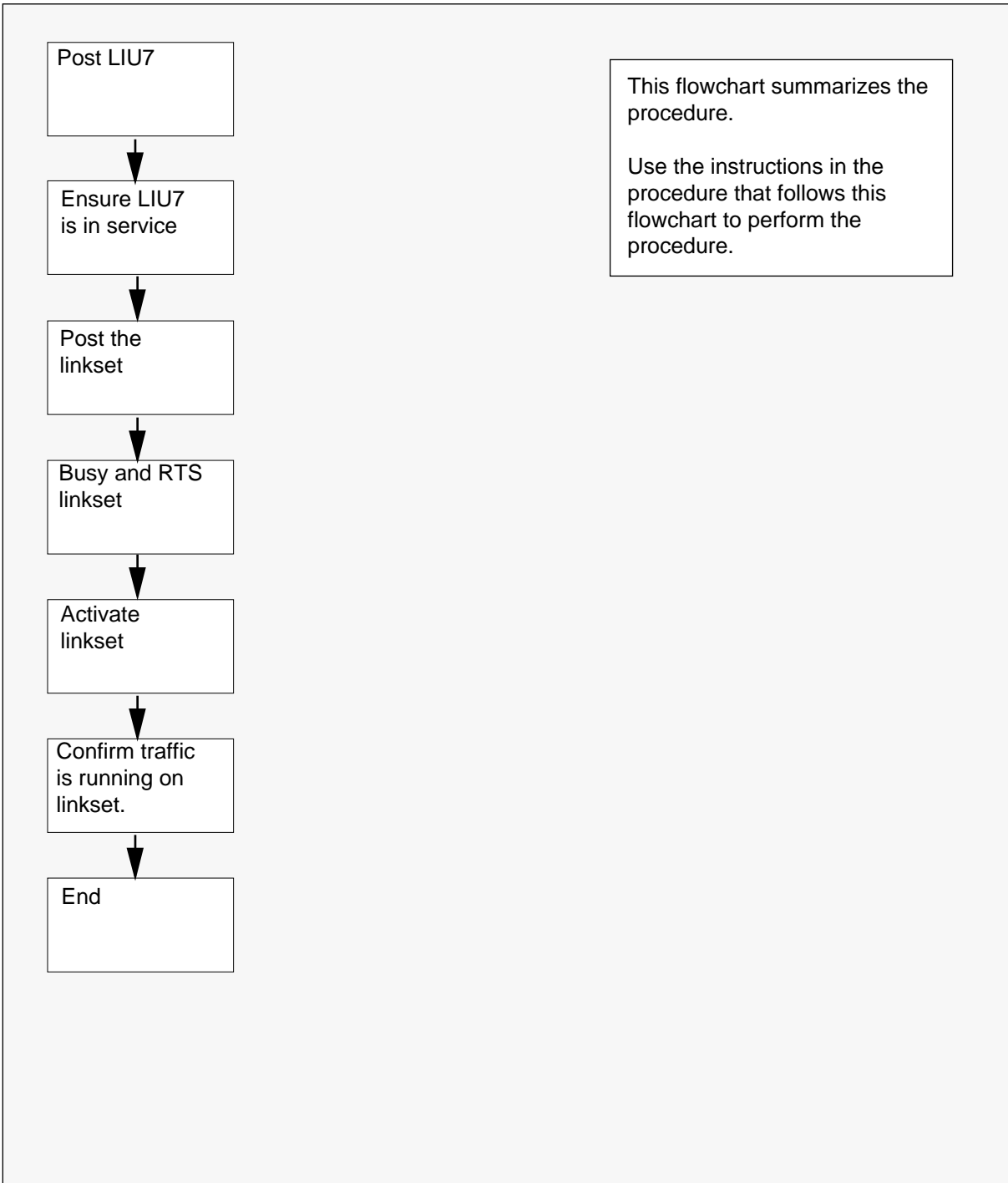
Recovering CCS7 linksets (continued)

Recovering CCS7 linksets

At the MAP

1   Access the PM level of the MAP display by typing

    >MAPCI;MTC;PM
    and pressing the Enter key.

2   Post the LIU7 by typing

    >POST LIU7 liu_no
    and pressing the Enter key.

    where

    liu_no   is the number of the LIU7 (0 to 215)

3   Determine the state of the posted LIU7.

If the state of the LIU7 is	Do
InSv	step 9
Offl	step 4
ManB	step 5

4   Force the LIU7 to busy by typing

    >BSY FORCE
    and pressing the Enter key.

5   Return the LIU7 to service by typing

    >RTS FORCE
    and pressing the Enter key.

If the RTS command	Do
passed	step 9
failed	step 6

Recovering CCS7 linksets (continued)

6 Reset the LIU7 by typing

>PMRESET

and pressing the Enter key.

If the PMRESET command	Do
passed	step 8
failed	step 7

7 Load the LIU7 by typing

>LOADPM

and pressing the Enter key.

If the LOADPM command	Do
passed	step 8
failed	step 28

8 Force the LIU7 to return to service by typing

>RTS FORCE

and pressing the Enter key.

If the RTS command	Do
passed	step 9
failed	step 28

9 Determine which link this LIU7 belongs to by typing

>QUERYPM

and pressing the Enter key.

10 Access the C7LKSET level of the MAP display by typing

>CCS;CCS7;C7LKSET

and pressing the Enter key.

11 Choose a linkset to work on.

Recovering CCS7 linksets (continued)

12 Post the linkset by typing

>**POST C linkset_name**
and pressing the Enter key.

where

linkset_name   is the name of the linkset

Example of a MAP display:

```
Linkset  SSP100_LK          ISTb
    Traf Sync                                              Link
LK Stat Stat Resource   Stat Physical Access   Stat Action
0  InSv Sync LIU7 101   InSv DS0A
1  ISTb Sync LIU7 103   InSv DS0A


   Size of Posted Set = 2
```

13 Determine if any links are out of service.

If one or more links are	Do
InSv or ISTb, and the linkset is InSv or ISTb	step 14
InSv or ISTb, and the linkset is out of service	step 15
out of service	step 16

14 You have restored traffic on the linkset.

If there are out of service linksets and you have	Do
worked on all the linksets	step 27
not worked on all the linksets	step 11

15 You have restored traffic to one or more links, but the linkset is still out of service. Contact the far-end office. Tell personnel there that you have in-service or in-service trouble links, and the associated linkset is out of service.

Go to step 11.

16 Choose a link to work on.

Recovering CCS7 linksets (continued)

17   Manually busy the link by typing

>BSY link_no

and pressing the Enter key.

where

link_no   is the number of the link (0 to 15)

18   Confirm the command by typing

>YES

and pressing the Enter key.

19   Return the link to service by typing

>RTS link_no

and pressing the Enter key.

where

link_no   is the number of the link in the posted linkset (0 to 15)

If the RTS command	Do
passed	step 20
failed	step 26

20   Activate the link by typing

>ACT link_no

and pressing the Enter key.

where

link_no   is the number of the link (0 to 15)

Recovering CCS7 linksets (continued)

21 Determine if traffic is running on the link by typing

>QUERYTRF link_no
and pressing the Enter key.

where

link_no   is the number of the link in the linkset (0 to 15)

Example of a MAP response:

```
QueryTrf: Link occupancy for 13:30:00 - 14:00:00
 Link    Speed   Byte/sec  Erlang    MSU len %RTx
    4    7000          0    0.00          0       0
```

Note: In the Byte/sec, Erlang, and MSU len fields, a value of zero means that no traffic is running, and a value greater than zero means that traffic is running. In the example, no traffic is running on the link.

If traffic on the link is	Do
running, and the linkset is InSv or ISTb	step 22
running, and the linkset is out of service	step 23
not running	step 24

22 You have restored traffic on the linkset.

Go to step 26 and choose another out-of-service linkset to work on.

23 You have restored traffic to the link, but the linkset is still out of service. Contact the far-end office. Tell personnel there that you are have in-service or in-service trouble links, and that the associated linkset is out of service.

Go to step 26.

24 Wait 8 min to see if the link activates.

Recovering CCS7 linksets (end)

25 Determine whether traffic has begun to run on the link by typing

>**QUERYTRF link_no**
and pressing the Enter key.

where

link_no   is the number of the link in the linkset (0 to 15)

Example of a MAP response:

```
QueryTrf: Link occupancy for 13:30:00 - 14:00:00
Link    Speed   Byte/sec  Erlang   MSU len %RTx
   4    7000        52     0.40       28        0
```

If traffic on the link is	Do
running, and the linkset is InSv or ISTb	step 22
running, and the linkset is out of service	step 23
not running	step 26

26 Your next action depends on the state of other links in the linkset.

If there are still out of service links in the linkset and you have	Do
not worked on those links	step 16
worked on those links	step 28

27 Determine if there are any alarms present in the alarm banner.

If alarms are	Do
present	step 28
not present	step 29

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

29 You have completed this procedure.

Recovering data from a disk to tape

Application

Use this procedure to recover a disk-type file in which errors were detected during a data-link transmission to a data center. This procedure recovers the file by copying from disk to tape. The tape file can then be physically transported to the data center.

Action

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

Recovering data from a disk to tape

(continued)

Summary of Recovering data from a disk to tape

```
┌──────────────────┐
│ Rotate volumes   │
│                  │
│                  │
└──────────────────┘
         │
         ▼
┌──────────────────┐
│ Copy parallel    │
│ volume           │
│                  │
└──────────────────┘
         │
         ▼
┌──────────────────┐
│ End              │
│                  │
│                  │
└──────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
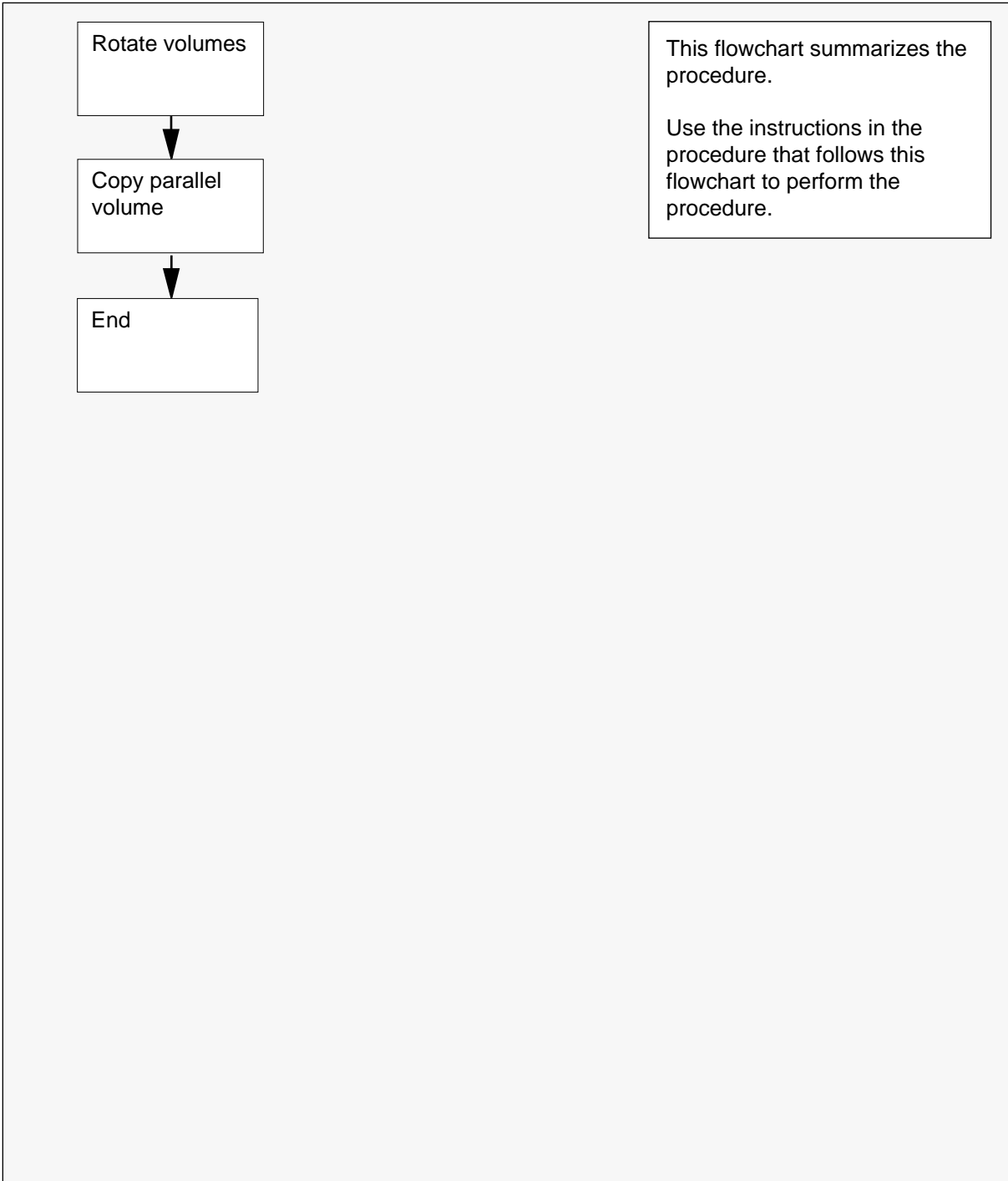
Recovering data from a disk to tape

(continued)

Recovering data from a disk to tape

At the MAP

1

CAUTION
Possible loss or corruption of AMA data
If you fail either to use this procedure or to follow it
exactly, you may lose or corrupt automatic message
accounting (AMA) data. Because AMA data is used
to produce billings, loss or corruption of AMA data
results in revenue loss for the operating company.

Access the DIRP level of the MAP by typing

>MAPCI;MTC;IOD;DIRP
and pressing the Enter key.

2 Access the DIRP logs by typing

>LOGUTIL;OPEN DIRP
and pressing the Enter key.

3 Enable the printer by typing

>RECORD START ONTO device
and pressing the Enter key.

where

device   is the printer type

4 Check the DIRP logs to determine the parallel data block numbers that were
received by the data center immediately before and after the faulty data-link
transmission.

Example of a MAP response:

```
DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 16 S
SSNAME= AMA POOL#= 0 VOLUME#= # 22 SOS-FILE-ID= nnnn nnnn n
TEXT1= NEXT PARALLEL FILE BLOCK NUMBER: 1          PARM1=
TEXT1= NEXT ACTIVE FILE BLOCK NUMBER: 4            PARM2=

DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 17 S
SSNAME= AMA POOL#= 0 VOLUME#= # 23 SOS-FILE-ID= nnnn nnnn n
TEXT1= LAST PARALLEL FILE BLOCK NUMBER: 1          PARM1=
TEXT1= LAST ACTIVE FILE BLOCK NUMBER: 1            PARM2=
```

Recovering data from a disk to tape

(continued)

5   Query the volumes that are currently mounted in the subsystem and determine the state of the parallel volume by typing

>QUERY ssys VOLUMES
and pressing the Enter key.

where

ssys   is the affected subsystem

Example of a MAP display:

```
SSNAME  SSNO  SEQNO  ROTATES  POOLNO  PARLPOOL  EMERGENCY
AMA       0     1       2        0        6        No

REGULAR
VOL#  VOLUMNAME  STATE     IOC   CARD   VOL   FSEG   ROOM   VLID

PARALLEL VOLUMES(S)
VOL#  VOLNAME  STATE   IOC   CARD   VOL   FSEG   ROOM   VLID   CURR
   0  D00AMA2  READY    0     0      0    N/A      1   2400    YES
```

If the parallel volume from which data is to be recovered is	Do
the current device	step 6
not the current device	step 11

6   Determine whether you have parallel volumes in the available state.

If you	Do
have available volumes	step 8
do not have available volumes	step 7

Recovering data from a disk to tape
 (continued)

7 Add a new disk volume.

Refer to "Parallel recording on disk in the DIRP utility" in *Device Independent Recording Package (DIRP) Routine Maintenance Procedures*, and return to this point.

8

⚠	**CAUTION** **Loss of parallel data** Manual parallel rotations reduce the total amount of parallel data that is retained by the switch. Parallel data may be lost.

Rotate the subsystem by typing

>ROTATE AMA PARALEL
and pressing the Enter key.

Example of a MAP display:

```
**WARNING-MANUAL PARALLEL ROTATIONS REDUCE THE TOTAL **AMOU
DATA RETENTION ON THE SWITCH
SENDING REQUEST TO SUBSYSTEM
PLEASE CONFIRM ("YES" OR NO"):
```

9 Confirm the information by typing

>YES
and pressing the Enter key.

Example of a MAP display:

```
REQUEST SENT TO SUBSYSTEM, CHECK DIRP LOG FOR DETAILS
```

10 Wait for a DIRP101 log to confirm the rotation.

Is the rotation confirmed?	Do
yes	step 11
no	step 14

Recovering data from a disk to tape

(end)

11   Load a blank or expired tape on the magnetic tape drive.

Refer to *Magnetic Tape Reference Manual*, 297-1001-118, and return to this point.

12   Copy the subsystem file to the tape by typing

>DIRPCOPY ssys file_name Tn start_no block_length
and pressing the Enter key.

where

ssys	is the affected subsystem
file_name	is the parallel file name
Tn	is the number of the tape drive
start_no	is the first sequence number to be recovered (obtained in step 4)
block_length	is the last sequence number minus the firstsequence number (both obtained in step 4)

Example input:

>DIRPCOPY AMA DIRPPARALLEL_AMA T2 5400 100

Note: The length of time it takes the DIRPCOPY utility to copy the file depends on the length of the parallel file and the number of blocks to be copied.

13   Determine if the DIRPCOPY command was successful.

If the DIRPCOPY command was	Do
successful	step 15
not successful	step 14

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

15   You have completed this procedure.

Recovering DS-0 clocking

Application

Use this procedure to recover from a loss of DS-0 clocking on a DMS SuperNode SP/SSP node. A loss of DS-0 clocking is indicated in the PM181 log. If one clock is lost, all CCS7 link interface units (LIU7) associated with that clock become system busy. If both clocks are lost, all the CCS7 links lose synchronization.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering DS-0 clocking (continued)

Summary of Recovering DS-0 clocking

```
    ┌─────────────┐
    │ Check log   │
    │ PM181       │
    └──────┬──────┘
           │
           ▼
    ┌─────────────┐
    │ Determine LIM│
    │ with SysB LIU7s│
    └──────┬──────┘
           │      N
           ▼    ┌──┐
      Is either │ 2│
      F-bus in  └──┘
      ISTb?
           │ Y
           ▼      N  ┌──────────────┐      ┌──┐
      Is the TSG ───▶│ Wait for TSG to│────│ 1│
      working?       │ be fixed      │     └──┘
           │         └──────────────┘
        ┌──┐ Y
        │ 1│
        └──┘
           ▼      N  ┌──────────────┐
      Are problems ─▶┌──┐ Contact next│
      clearing?      │ 2│ level of support│
           │         └──┘ └──────────┘
           │ Y
           ▼
    ┌─────────────┐
    │ End         │
    │             │
    └─────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
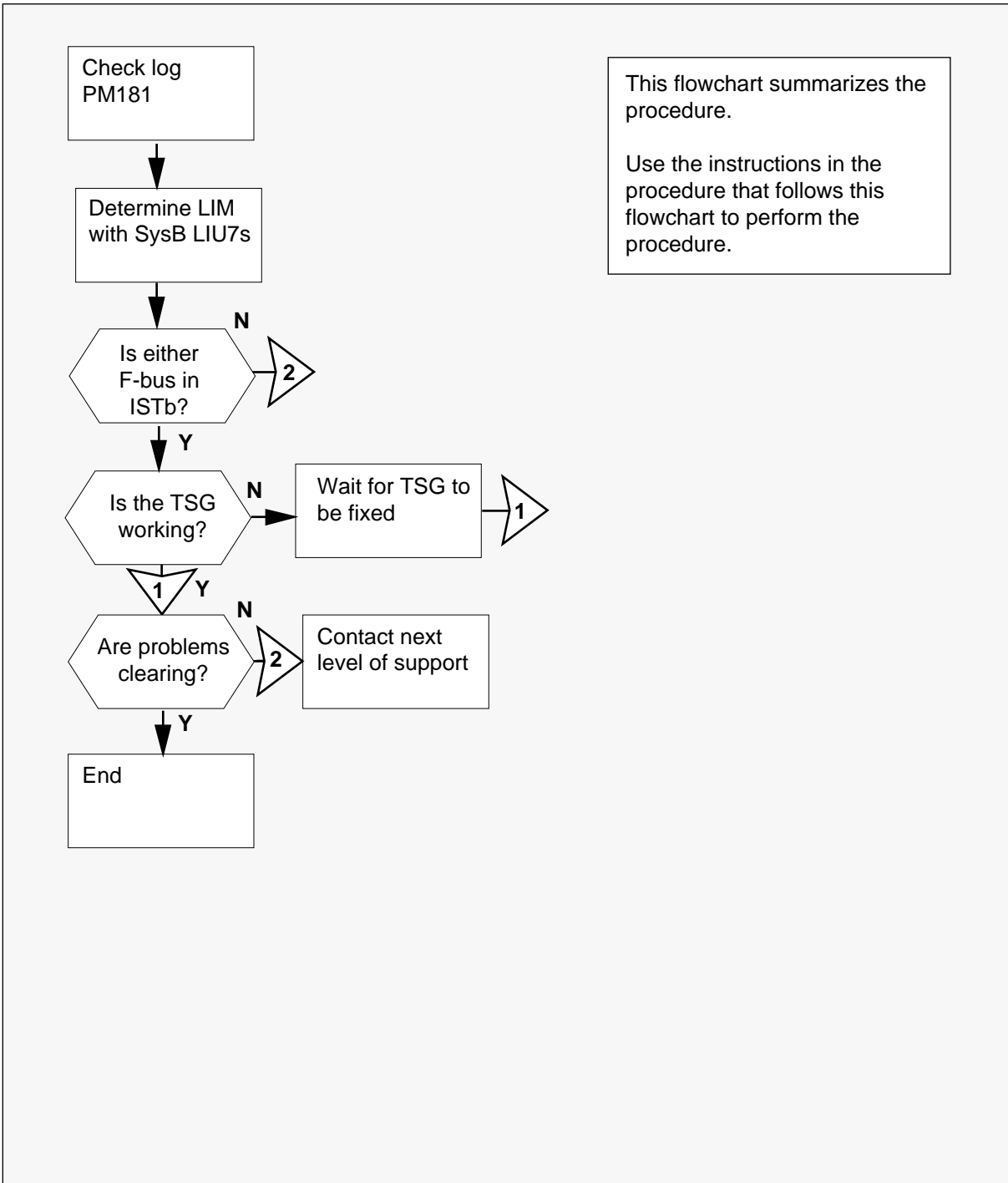
Recovering DS-0 clocking (continued)

Recovering DS-0 clocking

At the MAP

1

> ⚠️ **CAUTION**
> **Possible equipment damage or service interruption**
> Do not attempt this procedure before contacting your
> next level of support.

Access the LOGUTIL level of the MAP display by typing

>MAPCI;MTC;LOGUTIL
and pressing the Enter key.

2 Determine if a PM181 log has been generated by typing

>OPEN PM181
and pressing the Enter key.

Note: The PM181 log indicates a loss of DS-0 clocking.

If a PM181 log has	Do
been generated	step 3
not been generated	step 14

3 Find out more information about the last five PM181 logs generated by typing

>BACK 5
and pressing the Enter key.

4 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM
and pressing the Enter key.

Example of a MAP display:

```
         SysB    ManB    OffL    CBsy    ISTb    InSv
PM         1      10      12       0       6      49
```

5 Post all system-busy LIU7s by typing

>POST LIU7 SYSB
and pressing the Enter key.

Example of a MAP response:

```
LIU7   31   SysB
```

Recovering DS-0 clocking (continued)

6   Determine the LIM associated with the LIU7s by typing

>   **>QUERYPM**

>   and pressing the Enter key.

>   *Example of a MAP display:*

```
PM type:LIU7    PM No.:110   Status:SysB
LIM: 1  Shelf:2  Slot: 12    LIU FTA:4249 1000
Default Load: LCC35BX
Running Load: LCC35BX
```

7   Post the LIM associated with system-busy LIU7s by typing

>   **>POST LIM lim_no**

>   and pressing the Enter key.

>   *where*

>   lim_no   is the number of the LIM associated with the LIU7s

8   Access the F-bus level of the MAP display by typing

>   **>FBUS**

>   and pressing the Enter key.

>   *Example of a MAP display:*

```
              Tap:  0   4   8   12  16      20   24   28  32
  FBus0: ISTb       IIII IIII IIII IIII ----    ---- ---- ---I II--
  FBus1: InSv       .M.. .I.. S... .... ----    ---- ---- ---. ..--
```

>   *Note:* In the example, B 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, M indicates a manual-busy tap, I indicates an in-service trouble
>   tap, S indicates a system-busy tap, and a dash (-) indicates an unequipped tap.

9   Determine if either F-bus is in-service trouble.

If either F-bus is	Do
in-service trouble	step 10
anything else	step 13

Recovering DS-0 clocking (end)

10 Contact the personnel responsible for maintaining the test signal generator (TSG) and determine if the TSG is working.

If the TSG is	Do
working	step 12
not working	step 11

11 Wait until the personnel responsible for maintaining the TSG have it working again.

12 Wait 5 min to see if:

- the LIU7s return to service, and
- the links become synchronized

If this change in state	Do
occurs	step 14
does not occur	step 13

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

14 You have completed this procedure.

Recovering from a dead system in a SuperNode switch

Application

Use this procedure to recover a dead system. A DMS SuperNode switch is considered dead if the entire switch is without power, as a result of loss or interruption of -48 V dc A and B power feeds to the power distribution centers (PDC).

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

> **WARNING**
> **Contact ETAS or your next level of support**
> If the event of a dead system, contact Northern Telecom's Emergency Technical Assistance Services (ETAS) or your next level of support before performing this procedure.

Recovering from a dead system in a SuperNode switch (continued)

Summary of Recovering from a dead system in a SuperNode switch

Proceed only after contacting your next level of support

↓

Ensure power is restored at PDC

↓

Recover the MS and CM

↓

Is the switch booting? —N→ Boot the switch

Y↓

Recover IOC 0 and operator MAP

↓

Sync MS clocks   Recover PMs

↓   ↓

Recover the network   Restart DIRP subsystems

↓   ↓

Recover other IOCs and MAPs   Sync CM and release jam   →   End

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Recovering from a dead system in a SuperNode switch (continued)

Recovering from a dead system in a SuperNode switch

> ⚡ **WARNING**
> **Possible equipment damage or extended service interruption**
> Do not attempt this procedure before contacting your next level of support.

At the PDC

1 As soon as possible after the power outage is detected, remove all the fuseholders for the LCE talk batteries, TME talk batteries, and PDC filter fuses from the appropriate PDCs.

   Note: The location of the fuseholders in the fuse panel can vary, depending on your office configuration. For assistance locating the fuseholders, consult the fuse assignment diagram for your office, or have your next level of support assist you in locating the fuses.

> ✋ **DANGER**
> **Risk of electrocution**
> Do not touch the cabinet wiring. Contact with unshielded cabinet wiring may result in electric shock. The voltage measurements in step 2 should be performed by qualified power maintenance personnel only.

2 When you have been advised that power has been restored at the power plant for your office, have power maintenance personnel verify that voltage is restored at each PDC. At the rear of each PDC, measure the dc voltage across the A feed bus and the battery return plate. Repeat for the B feed bus. Power is considered restored when the voltage on each feed is -48 V dc.

   Note: Power is distributed at a nominal potential of -48 V dc; however, under extreme conditions, such as a commercial power failure, the operating voltage can range from -43.75 V dc to -55.8 V dc.

If power has	Do
been restored	step 4
not been restored	step 3

Recovering from a dead system in a SuperNode switch (continued)

At the power room

3 For assistance in restoring power to the PDC, contact the personnel responsible for maintaining power at your site. When power has been restored to the PDC, continue with this procedure.

At the PDC

4 Inspect the alarm indicating fuses for the dual plane combined core (DPCC) and network cabinets.

If	Do
any of the fuses have blown	step 5
none of the fuses are blown	step 12

5 Replace the blown cartridge fuse in the back of the affected fuseholder. Ensure that the amperage of the replacement cartridge fuse matches the amperage marked on the PDC.

6 Remove the blown alarm-indicating fuse from the front of the fuseholder.

7 Reinsert the fuseholder, with the alarm-indicating fuse removed, into the PDC.

8 Obtain a replacement alarm-indicating fuse.

9 Insert the replacement alarm-indicating fuse into the fuseholder.

10 Proceed as follows:

If	Do
fuses blow repeatedly	step 11
fuse replacement is successful	step 12

11 Contact your next level of support for assistance. When all blown fuses have been replaced successfully, and power to the DPCC and network cabinets is restored, continue at step 12.

12 If a second person is available to assist in the recovery, have that person begin restoring power from the PDC to the peripheral module frames, as described in steps 99 through 113 of this procedure, while you recover the core and network by completing steps 13 through 82. If only one person is available, recover the core and network first.

Recovering from a dead system in a SuperNode switch (continued)

At the DPCC cabinet

13 Locate the two NT9X47 power converters for the system load module (SLM) shelf.

   Note: The NT9X47 power converters are located in slots 1F and 33F on the SLM shelf.

14 Turn on the two NT9X47 power converters simultaneously by lifting and releasing the power switches located on the faceplates of the converters.

15 Locate the two NT9X30 power converters for the SLM shelf.

   Note: The NT9X30 power converters are located in slots 4F and 36F on the SLM shelf.

16 Turn on the two NT9X30 power converters simultaneously by lifting and releasing the power switches located on the faceplates of the converters.

17 Locate the NT9X31 and NT9X30 power converters for message switch 0 (MS 0) in slots 33F and 36F on the MS 0 shelf.

18 Turn on the NT9X31 and NT9X30 power converters in slots 33F and 36F simultaneously by lifting and releasing the power switches located on the faceplates of the converters.

At the remote oscillator shelf

19 If the switch is equipped with a remote oscillator shelf (Bliley shelf), turn on its power converters.

At the DPCC cabinet

20 Locate the NT9X31 power converter for MS 0 in slot 1F on the MS 0 shelf.

21 Turn on the NT9X31 power converter in slot 1F by lifting and releasing the power switch located on the faceplate of the converter.

22 Locate the NT9X30 power converter for MS 0 in slot 4F on the MS 0 shelf.

23 Turn on the NT9X30 power converter in slot 4F by lifting and releasing the power switch located on the faceplate of the converter.

24 Locate the NT9X31 and NT9X30 power converters for message switch 1 (MS 1) in slots 33F and 36F on the MS 1 shelf.

25 Turn on the NT9X31 and NT9X30 power converters in slots 33F and 36F simultaneously by lifting and releasing the power switches located on the faceplates of the converters.

26 Locate the NT9X31 power converter for MS 1 in slot 1F on the MS 1 shelf.

27 Turn on the NT9X31 power converter in slot 1F by lifting and releasing the power switch located on the faceplate of the converter.

Recovering from a dead system in a SuperNode switch (continued)

28 Locate the NT9X30 power converter for MS 1 in slot 4F on the MS 1 shelf.

29 Turn on the NT9X30 power converter in slot 4F by lifting and releasing the power switch located on the faceplate of the converter.

30 Locate the two NT9X31 power converters for the computing module (CM) shelf.

   Note: The NT9X31 power converters are located in slots 1F and 33F on the CM shelf.

31 Turn on the two NT9X31 power converters simultaneously by lifting and releasing the power switches located on the faceplates of the converters.

32 Locate the two NT9X30 power converters for the CM shelf.

   Note: The NT9X30 power converters are located in slots 4F and 36F on the CM shelf.

33 Turn on the two NT9X30 power converters simultaneously by lifting and releasing the power switches located on the faceplates of the converters.

34 Determine if all the converters powered up successfully, which is indicated by all the Converter Off lights going off.

If	Do
all the converters powered up	step 36
any converters did not power up	step 35

35 Power up the frame by performing the procedure *Clearing an Ext FSP DPCC cabinet major alarm* in *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

 At the CM reset terminal for the inactive CPU

36 Release the jam on the inactive CPU by typing

   >\RELEASE JAM
   and pressing the Enter key

   RTIF response:

   JAM RELEASE DONE

Recovering from a dead system in a SuperNode switch (continued)

At the CM reset terminal for the active CPU

37 Monitor the CM reset terminal for the active CPU to determine if the switch has booted.

Note: When the switch is booting, the reset terminal displays the response Booting followed by various diagnostic messages, and alphanumeric addresses are displayed in the status bar. Once the switch has finished booting, A1 flashes in the status bar.

If A1	Do
flashes	step 44
does not flash after approximately 15 min	step 38

At the CM reset terminal for the inactive CPU

38 Jam the inactive CPU by typing

>\JAM
and pressing the Enter key.

RTIF response:

Please confirm: (YES/NO)

39 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

JAM DONE

At the CM reset terminal for the active CPU

40 Override the active CPU by typing

>\OVERRIDE
and pressing the Enter key.

RTIF response:

TEMP. RESET/JAM ENABLE

Recovering from a dead system in a SuperNode switch (continued)

41 Boot the active CPU by typing

>\BOOT SLMslm_no
and pressing the Enter key.

where

slm_no   is the number of the SLM (0 or 1) that contains the most recent
image file

Example input:

>BOOT SLM0
RTIF response:

Please confirm: (YES/NO)

42 Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

JAM DONE

43 Monitor the CM reset terminal for the active CPU to determine if the switch has
booted.

Note: When the switch is booting, the reset terminal displays the response
Booting, followed by various diagnostic messages, and alphanumeric
addresses are displayed in the status bar. Once the switch has finished
booting, A1 flashes in the status bar.

If	Do
flashes	step 44
does not flash after approximately 15 min	step 162

At the IOD frame

44 Turn on the power converters on input/output controller 0 (IOC 0).

Note: Depending on the vintage of IOC, it will be equipped with one or two
power converters.

45 While pressing the reset button on one of the IOC power converters, lift the
FSP circuit breaker switch for IOC 0.

46 Release the reset button.

Recovering from a dead system in a SuperNode switch (continued)

47 Turn on the power inverter that supplies the operator MAP.

48

	CAUTION
	Extended service interruption
	The exact login procedure may vary, depending on your office configuration. If you need further assistance, contact the personnel responsible for the next level of support.

Determine if you have to log in.

Note: The message Please Login indicates that you have to log in. Depending on your office parameters, you may be logged in automatically.

Example of a MAP response:

```
Please Login.
```

If you	Do
have to log in	step 49
are logged in automatically	step 53

49 Press the Break key.

MAP response:

```
?
```

50 Log in to the MAP terminal by typing

>LOGIN
and pressing the Enter key.

MAP response:

```
Enter User Name
```

Recovering from a dead system in a SuperNode switch (continued)

51 Enter the user name by typing

>user_name
and pressing the Enter key.

where

user_name   is the name of the user for the account

MAP response:

Enter Password

52 Enter the password by typing

>password
and pressing the Enter key.

where

password   is the password for the account

Example of a MAP response:

SuperNode1 Logged in on 1993/03/11 at 20:37:17.

53 Turn on priority by typing

>PRIORITY ON
and pressing the Enter key.

MAP response:

 Pref>

54 Determine if the system time is correct by typing

>TIME
and pressing the Enter key.

Example of a MAP response:

Time is 14:55:50

If the system time	Do
correct	step 56
incorrect	step 55

Recovering from a dead system in a SuperNode switch (continued)

55   Enter the correct time (using the 24h clock) by typing

>SETTIME hh mm
and pressing the Enter key.

where

hh   is the hour (01 to 24)
mm   is the minute (01 to 60)

Example input:

>SETTIME 16 55

Example of a MAP response:

```
Time is 16:55:00 on FRI. 1991/02/26
Timezone is 0 minutes from GMT.
```

56   Determine if the system date is correct by typing

>DATE
and pressing the Enter key.

Example of a MAP response:

```
Date is FRI. 26/FEB/1994 16:55:23
```

If the system date is	Do
correct	step 58
incorrect	step 57

57   Enter the correct date by typing

>SETDATE dd mm yy
and pressing the Enter key.

where

dd   is the day (01 to 31)
mm   is the month (01 to 12)
yy   is the year

Example input:

>SETDATE 12 03 93

Example of a MAP response:

```
Date is SAT. 13/MAR/1993 16:57:32
```

Recovering from a dead system in a SuperNode switch (continued)

58 Access the MS Clock level of the MAP display by typing

>MAPCI;MTC;MS;CLOCK
and pressing the Enter key.

59 Synchronize the clocks by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 61
failed	step 60

60 Note the reason for synchronization failure, as shown in the MAP response. Continue at step 61 to recover networks and peripheral modules, and repeat the attempt to synchronize the MS clocks later, after networks and PMs are in service.

61 Determine the type of network equipped on your switch.

If the network type is	Do
ENET	step 62
JNET	step 71

At the ENET frames

62 Locate the NT9X31 power converters in slots 1F and 33F on an ENET shelf.

63 Turn on the NT9X31 power converters by lifting and releasing the power switches located on the faceplates of the converters.

64 Locate the NT9X30 power converters in slots 4F and 36F on an ENET shelf.

65 Turn on the NT9X30 power converters by lifting and releasing the power switches located on the faceplates of the converters.

Recovering from a dead system in a SuperNode switch (continued)

66   Determine if all the converters powered up successfully, indicated by all the Converter Off lights going off.

If	Do
all the converters powered up	step 68
any converters did not power up	step 67

67   Power up the ENET frame by performing the procedure *Clearing an Ext FSP DPCC cabinet major alarm* in *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

68   Determine from the MAP display if an SBsy or Shlv alarm is present under the NET header of the alarm banner.

If an alarm is	Do
present	step 69
not present	step 83

69   The ENET has an automatic recovery system. Allow 5 min for the ENET to recover after the core has booted.

Note: The ENET is considered recovered when neither a SBsy or Shlv alarm is present under the NET header of the alarm banner.

If after 5 min the ENET has	Do
recovered	step 83
not recovered	step 70

70   Manually recover the ENET by performing the procedure *Recovering the Enhanced Network* in this document. When you have completed the procedure, return to this point.

Go to step 83.

Recovering from a dead system in a SuperNode switch (continued)

At the JNET shelf

71

	WARNING
⚡	**Static electricity damage** Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

Locate the first junctored network shelf to be recovered.

72 Determine if the power converter is an NT2X70AE card.

If the power converter is	Do
an NT2X70AE card	step 73
not an NT2X70AE card	step 76

73 Determine if the FSP or MSP has circuit breakers.

If the FSP or MSP does	Do
have circuit breakers	step 74
not have circuit breakers	step 75

74 Power up the converter.

   a. Pull and set the handle of the POWER switch upward to the RESET position and hold.

   b. Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

   c. Release the handle.

   Go to step 79.

Recovering from a dead system in a SuperNode switch (continued)

75   Power up the converter.

    a.   Pull and set the handle of the POWER switch upward to the RESET position and hold until the CONVERTER FAIL LED goes off.

    b.   Release the handle.

    Go to step 79.

76   Determine if the FSP or MSP has circuit breakers.

If the FSP or MSP does	Do
have circuit breakers	step 77
not have circuit breakers	step 78

77   Power up the converter.

    a.   Pull and set the handle of the POWER switch upward to the ON position.

    b.   Press and hold the RESET button on the power converter.

    c.   Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

    d.   Release the RESET button.

    Go to step 79.

78   Power up the converter.

    a.   Pull and set the handle of the POWER switch upward to the ON position.

    b.   Press the RESET button on the power converter until the CONVERTER FAIL LED goes off.

    c.   Release the RESET button.

Recovering from a dead system in a SuperNode switch (continued)

79 Access the NET level of the MAP display by typing

>MAPCI;MTC;NET
and pressing the Enter key.

Example of a MAP response:

```
Net
                        11111  11111  22222  22222  33
Plane 01234    56789    01234  56789  01234  56789  01
   0  0000
   1  0000
JNET:
```

80 Manually busy the network module to be returned to service by typing:

>BSY plane_no pair_no
and pressing the Enter key.

where

plane_no   is the network plane number (0 or 1)
pair_no   is the network plane pair number (0 to 31)

81 Return the network module to service by typing

>RTS plane_no pair_no
and pressing the Enter key.

where

plane_no   is the network plane number (0 or 1)
pair_no   is the network plane pair number (0 to 31)

82 Repeat steps 71 through 81 for each JNET shelf. When all JNET shelves are recovered, continue at step 83.

83 Determine if there are additional IOCs and MAPs to recover.

If	Do
there are additional IOCs and MAPs to recover	step 84
all IOCs and MAPs are recovered	step 96

84 Restore power to all remaining power inverters in the office.

At the IOC

85 Locate the IOC to be recovered.

Recovering from a dead system in a SuperNode switch (continued)

86   Turn on the power converters on the IOC.

Note: Depending on the vintage of IOC, it will be equipped with one or two power converters.

87   While pressing the reset button on one of the IOC power converters, lift the associated circuit breaker switch on the FSP.

88   Release the reset button.

89   Repeat steps 85 through 88 for each IOC to be recovered, then continue at step 90.

90   Access the IOD level of the MAP display by typing

>MTC;IOD
and pressing the Enter key.

91   Access the IOC level for the IOC of the MAP display by typing

>IOC ioc_no
and pressing the Enter key.

where

ioc_no   is the number of the IOC to be recovered

92   Manually busy the IOC by typing

>BSY ioc_no
and pressing the Enter key.

where

ioc_no   is the number of the IOC

93   Return the IOC to service by typing

>RTS ioc_no
and pressing the Enter key.

where

ioc_no   is the number of the IOC

94   Repeat steps 91 through 93 for each IOC to be recovered, then continue at step 95.

95   Log in to additional MAPs as required.

Note: Steps 48 through 52 describe how to log in to the MAP.

Recovering from a dead system in a SuperNode switch (continued)

96   Determine if your switch is equipped with one or more link peripheral processors (LPP).

If the switch you are recovering	Do
has LPPs	step 97
does not have LPPs	step 98

97   Perform the procedure *Recovering Link Peripheral Processors* in this document.

When you have completed the procedure, return to this point.

98   Steps 99 through 113 describe how to restore power from the PDC to the peripheral module frames. Proceed as follows:

If	Do
power has already been restored to the PM frames	step 114
power has not yet been restored to the PM frames	step 99

99   Obtain a capacitor charging tool, either:

- a 100-W, 120-V light bulb screwed into a socket that has pigtail leads, or
- tool number T000655 (CPC number NTA0600512), which is fitted with a fuseholder-style connector instead of pigtail leads for easier insertion

At the PDC

100 At the first empty fuse slot in the PDC, connect the leads of the capacitor charging tool across the contacts for the fuseholder until the lamp dims. (If you are using a charging tool with a fuseholder-style connector, insert the connector into the slot until the lamp dims.)

Recovering from a dead system in a SuperNode switch (continued)

101

> ⚠ **WARNING**
> **Possible equipment damage or extended service interruption**
> Use the correct fuses. When returning fuses to the PDC, ensure that the amperage of the fuses match the amperage marked on the PDC.

Remove the capacitor charging tool and immediately reinsert the appropriate fuseholder into the slot.

102 Repeat steps 100 and 101 for all the LCE talk battery, TME talk battery, and PDC filter fuseholders you removed in step 1. When all fuses are restored to the PDCs, continue with this procedure.

103 Determine if any alarm-indicating fuses have blown.

Note: The fuse alarm-indicator lamp lights when an alarm-indicating fuse blows.

If	Do
any alarm-indicating fuses have blown	step 104
no alarm-indicating fuses have blown	step 114

104 Locate a fuseholder with a blown alarm-indicating fuse.

Note: Blown fuses can be replaced in any order.

105 The cartridge fuse in the fuseholder is blown. Remove the fuseholder from the PDC.

106 Replace the blown cartridge fuse in the back of the fuseholder. Ensure that the amperage of the replacement cartridge fuse matches the amperage marked on the PDC.

107 Remove the blown alarm-indicating fuse from the front of the fuseholder.

108 Reinsert the fuse holder, with the alarm-indicating fuse removed, into the PDC.

109 Obtain a replacement alarm-indicating fuse.

110 Insert the replacement alarm-indicating fuse into the fuseholder.

Recovering from a dead system in a SuperNode switch (continued)

111 Determine if the alarm-indicating fuse blows.

Note: The fuse alarm indicator lamp lights when an alarm-indicating fuse blows.

If the alarm indicating fuse	Do
blows	step 162
does not blow	step 112

112 Determine if all the blown alarm-indicating fuses have been replaced.

If	Do
all the blown alarm-indicating fuses have been replaced	step 113
there are more blown alarm-indicating fuses to be replaced	step 104

113 Determine if the fuse alarm indicator lamp is lit.

If the fuse alarm indicator lamp is	Do
lit	step 162
not lit	step 114

At the PM frames

114 Select a peripheral module (PM) frame to power up.

Note: The PM frames can be powered up in any order.

115 Locate the frame supervisory panel (FSP) and the power converters on the frame.

116 Determine if the FSP for the frame has fuses or breakers.

If the FSP has	Do
fuses	step 117
breakers	step 122

Recovering from a dead system in a SuperNode switch (continued)

117 Determine if the power converters have Power Reset buttons or Power Reset switches.

If the power converters have	Do
Power Reset buttons	step 118
Power Reset switches	step 120

118 Turn on each power converter by pressing and holding its Power Reset button for 2 s.

Note: The Converter Fail light goes off when the power converter is turned on.

119 Determine if all the converters powered up successfully, indicated by all the Converter Fail lights going off.

If	Do
all the converters powered up	step 124
any converters did not power up	step 125

120 Turn on each power converter by pulling out the power switch and toggling it to the Power Reset position.

Note: The Converter Fail light goes off when the power converter is turned on.

121 Determine if all the converters powered up successfully, indicated by all the Converter Fail lights going off.

If	Do
all the converters powered up	step 124
any converters did not power up	step 125

122 Turn on each power converter, as follows:

a. toggle the breaker to the ON position

b. press and hold the Power Reset button for 2 s

c. release the breaker and the Power Reset button

Note: The Converter Fail light goes off when the power converter is turned on.

Recovering from a dead system in a SuperNode switch (continued)

123 Determine if all the converters powered up successfully, indicated by all the Converter Fail lights going off.

If	Do
all the converters powered up	step 124
any converters did not power up	step 125

124 Determine if all PM frames have been powered up.

If	Do
all frames have been powered up	step 128
any frames have not been powered up	step 125

125 Determine if an attempt was made to power up the remaining frames.

If	Do
no attempt was made to power up the remaining frames	step 126
an attempt was made and failed	step 127

126 Power up the next frame.

Go to step 114.

127 Power up the remaining PM frames by performing the appropriate procedures in *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

Recovering from a dead system in a SuperNode switch (continued)

128 Determine the recovery status of the PMs by typing

>PM;STATUS
and pressing the Enter key.

Example of a MAP response

```
Status         SysB    ManB    OffL    CBsy    ISTb    InSv
PM                9       1       4       1       8      28

TM8               0       0       0       0       1       6
MTM               0       0       1       0       0       6
DCM               0       0       1       0       0       7
OAU               0       0       0       0       0       1
LM                0       0       2       0       0       2
LCM               0       0       0       0       1       4
DTC               4       0       0       0       1       0
LTC               3       1       0       0       3       0
MSB7              2       0       0       0       1       0
RMM               0       0       0       0       0       2
```

Note: The DMS-100 switch automatically recovers most PMs. For information about which PMs are automatically recovered, refer to *System Recovery Controller* in this document.

129 Note the system-busy (SysB) PMs.

130 Post the system-busy PMs by typing

>POST SYSB
and pressing the Enter key.

Example of a MAP response:

```
MSB7    0 SysB  Links_OOS: CSide  0 , PSide  0
Unit0:   Act   SysB  Mtce           /Loading: 2093K
Unit1:   Inact SysB  Mtce           /Loading: 2093K
```

131 Determine if automatic recovery action is underway on the displayed PM, indicated by a maintenance flag (Mtce) in the MAP response.

If a maintenance flag is	Do
present	step 132
not present	step 134

132 Display the next system-busy PM by typing

>NEXT
and pressing the Enter key.

Recovering from a dead system in a SuperNode switch (continued)

133 Determine if automatic recovery action is underway on the displayed PM, indicated by a maintenance flag (Mtce) in the MAP response.

If a maintenance flag is	Do
present	step 135
not present	step 134

134 Note the system-busy PMs that are not automatically recovering.

135 Repeat steps 132 and 133 for each PM noted in step 129. When you have displayed all the system-busy PMs and noted the recovery status of each, continue with this procedure.

Note: The MAP response End of post set indicates that all of the system-busy PMs have been displayed.

136 Wait up to 10 min for the PMs to automatically recover.

137 Determine the recovery status of the PMs by typing

>PM;STATUS
and pressing the Enter key.

Example of a MAP response:

```
Status          SysB    ManB    OffL    CBsy    ISTb    InSv
PM                 3       4       4       1       9      30

TM8                0       0       0       0       1       6
MTM                0       0       1       0       0       6
DCM                0       0       1       0       0       7
OAU                0       0       0       0       0       1
LM                 0       0       2       0       0       2
LCM                0       0       0       0       1       4
DTC                1       1       0       0       1       1
LTC                1       2       0       0       5       1
MSB7               1       1       0       0       1       0
RMM                0       0       0       0       0       2
```

138 Note the system-busy PMs that have not automatically recovered.

139 Determine from office records or other office personnel which PMs should be manually recovered first.

Recovering from a dead system in a SuperNode switch (continued)

140 Manually recover the system-busy PMs noted in steps 134 and 138 in the required order. Perform the appropriate alarm clearing procedures in *Alarm and Performance Monitoring Procedures*. When you have completed the procedures, return to this point.

At the MAP

141

> **CAUTION**
> **Loss of billing data**
> Depending on your office configuration, billing systems other than, or in addition to, AMA may be used. Contact your next level of support to determine if other billing systems are used, and if recovery action is required.

Access the DIRP level of the MAP display by typing

>IOD;DIRP
and pressing the Enter key.

Recovering from a dead system in a SuperNode switch (continued)

142 Determine the state of the recording volumes for the billing subsystem by typing

>**QUERY subsystem ALL**
and pressing the Enter key.

where

subsystem   is the name of the DIRP subsystem used for billing

Example input:

>**QUERY AMA ALL**

Example of a MAP response:

```
SSNAME SSNO SEQNO ROTATES POOLNO PARLPOOL EMERGENCY
AMA     0    1      6      9         62 ***YES***
REGULAR
FILE(S) STATE VOLUME RECCOUNT BLOCK E V V_B VLID FNUM FRN#
ACTIVE     NONE
STANDBY1   NONE
PARALLEL
FILE           STATE VOLUME   BLOCK E  V V_B VLID FNUM FRN#
               NONE
REGULAR VOLUME(S)
VOL# VOLNAME  STATE      IOC CARD VOL FSEG ROOM VLID FILES
REGULAR SPACE
```

If	Do
no volumes are allocated, as indicated by the word NONE under the STATE header on the MAP display	step 144
any volume is IN ERROR, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 143
all volumes are READY, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 145

Recovering from a dead system in a SuperNode switch (continued)

143 Reset any volumes that are IN ERROR by typing

>RSETVOL vol_name
and pressing the Enter key.

where

vol_name   is the name of the volume to be reset

If the RSETVOL command	Do
passed	step 145
failed	step 162

144 Perform the procedure *Allocating recording volumes in the DIRP utility* in *Device Independent Recording Package (DIRP) Routine Maintenance Procedures.* When you have completed the procedure, return to this point.

Recovering from a dead system in a SuperNode switch (continued)

145 Determine the state of the DLOG recording volumes by typing

>QUERY DLOG ALL
and pressing the Enter key.

Example of a MAP response:

```
SSNAME SSNO SEQNO ROTATES POOLNO PARLPOOL EMERGENCY
DLOG     2    1     102     10   NONE    ***YES***
.
REGULAR
FILE(S) STATE VOLUME RECCOUNT BLOCK E V V_B VLID FNUM FRN#
ACTIVE  AVAIL S01DDLOG    6      6  0 22 NO  8447 0013 204D
STANDBY1 AVAIL S00DDLOG   0      0  0 23 NO  8408 0014 309B
.
REGULAR VOLUME(S)
VOL# VOLNAME  STATE     IOC CARD VOL FSEG ROOM VLID FILES
  22 S01DDLOG READY     N/A N/A   7    5   18 8447 A
  23 S00DDLOG READY     N/A N/A   8    4   18 8408 S1

REGULAR SPACE
VOL# VOLNAME  STATE     SEGS   EXP UNEXP TOTAL
  22 S01DDLOG READY      5     13    0    18
  23 S00DDLOG READY      4     14    0    18
```

If	Do
no volumes are allocated, as indicated by the word NONE under the STATE header on the MAP display	step 147
any volume is IN ERROR, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 146
all volumes are READY, as indicated under the REGULAR VOLUME(S) header on the MAP display	step 148

Recovering from a dead system in a SuperNode switch (continued)

146 Reset any volumes that are IN ERROR by typing

>RSETVOL vol_name
and pressing the Enter key.

where

vol_name is the name of the volume to be reset

If the RSETVOL command	Do
passed	step 148
failed	step 162

147 Perform the procedure *Allocating recording volumes Device Independent Recording Package (DIRP) Routine Maintenance Procedures*. When you have completed the procedure, return to this point.

148 Determine from your next level of support if you are required to recover other DIRP subsystems at this point (for example, JF, OM).

If you are	Do
required to recover other DIRP subsystems	step 149
not required to recover other DIRP subsystems	step 152

149 Perform the appropriate procedures in *Alarm and Performance Monitoring Procedures*. When you have completed the procedures, return to this point.

150 Determine if DIRP logs were generated by typing

>LOGUTIL;OPEN DIRP
and pressing the Enter key.

If DIRP logs were	Do
generated	step 151
not generated	step 152

151 Go to the *Log Report Reference Manual* and take the appropriate action. When you have completed the log report activities, return to this point.

Recovering from a dead system in a SuperNode switch (continued)

152 Determine if the attempt to synchronize the clocks in step 59 was successful.

If synchronization	Do
was successful	step 155
failed	step 153

153 Access the MS Clock level of the MAP display by typing

>MS;CLOCK
and pressing the Enter key.

154 Synchronize the clocks by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 155
failed	step 162

155 Access the CM level of the MAP display by typing

>MAPCI;MTC;CM
and pressing the Enter key.

156 Determine if the CPUs are in sync.

Note: A dot symbol under the Sync header indicates that the CPUs are in sync. The word no indicates that the CPUs are not in sync.

If	Do
in sync	step 161
not in sync	step 157

Recovering from a dead system in a SuperNode switch (continued)

157 Determine from the personnel responsible for your next level of support if you are permitted to synchronize the CPUs.

If you are	Do
permitted to synchronize the CPUs	step 158
not permitted to synchronize the CPUs	step 161

158 Determine if the inactive CPU is jammed.

Note: The word yes under the Jam header indicates that the CPU is jammed. The area is blank if the CPU is not jammed.

If the inactive CPU is	Do
jammed	step 159
not jammed	step 160

At the CM reset terminal for the inactive CPU

159 Release the jam on the inactive CPU by typing

>\RELEASE JAM
and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

At the MAP

160 Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

If the SYNC command	Do
was successful	step 161
failed	step 162

Recovering from a dead system in a SuperNode switch (end)

161 Turn off priority by typing

>PRIORITY OFF

and pressing the Enter key.

Go to step 163.

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

163 You have completed this procedure.

Recovering link peripheral processors

Application

Use this procedure to recover link peripheral processors (LPP) in which both link interface module (LIM) units are system busy, as a result of loss of A and B power feeds to the LPP.

To recover LPPs in which both LIMs are system-busy due to other types of faults, refer to the procedure for clearing a PM LIM critical alarm in *Alarm and Performance Monitoring Procedures*.

If the entire switch has lost power, do not use this procedure until you have first restored primary switching functions using the procedure *Recovering from a dead system in a DMS SuperNode switch* in this document. Recover the LPP when directed to do so by that procedure.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering link peripheral processors (continued)

Summary of Recovering link peripheral processors

```
┌─────────────────┐
│ Turn on LPP     │
│ power           │
│ converters      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Select an LPP to│
│ work on         │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Monitor         │
│ autorecovery of │
│ LIM units       │
└─────────────────┘
         │
         ▼
     ╱─────────╲
    ╱ LIM units ╲        Y
    ╲ recovered? ╱────────────┐
     ╲─────────╱              │
         │ N                  │
         ▼                    │
┌─────────────────┐           │
│ Busy, reload,   │           │
│ and RTS         │           │
│ LIM units       │           │
└─────────────────┘           │
         │◄───────────────────┘
         ▼
┌─────────────────┐
│ Restore         │
│ F-buses         │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Verify that NIUs│
│ have recovered  │
│ automatically   │
└─────────────────┘
         │
         ▼
┌──────────────┐   ┌──────────────┐   ┌──────────┐
│ Busy, load and│──▶│ Repeat for each│──▶│ End     │
│ RTS LPP      │   │ SysB LIM      │   │         │
│ peripherals  │   │              │   │          │
└──────────────┘   └──────────────┘   └──────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
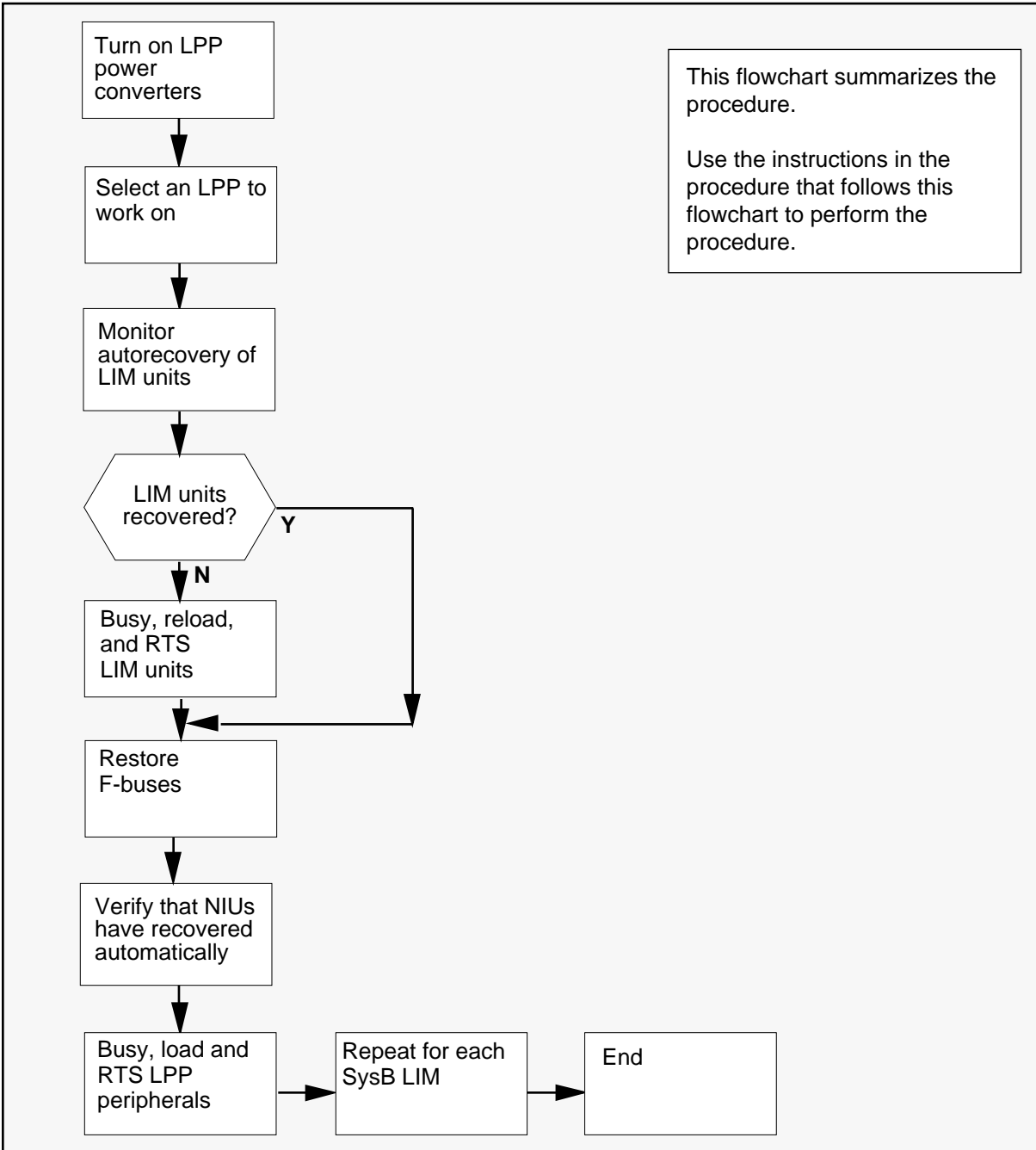
Recovering link peripheral processors (continued)

Recovering link peripheral processors

> ⚠️ **WARNING**
> **Possible equipment damage or service interruption**
> To ensure that the LPP is recovered as quickly as possible, contact Northern Telecom ETAS or your next level of support before beginning this procedure.

1 Locate the LPP to be recovered.

At the LPP cabinet

2

> ⚠️ **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

Locate the first NT9X74 card to be unseated on the first link interface shelf (LIS).

Note: NT9X74 cards are located in shelf positions 7 and 32.
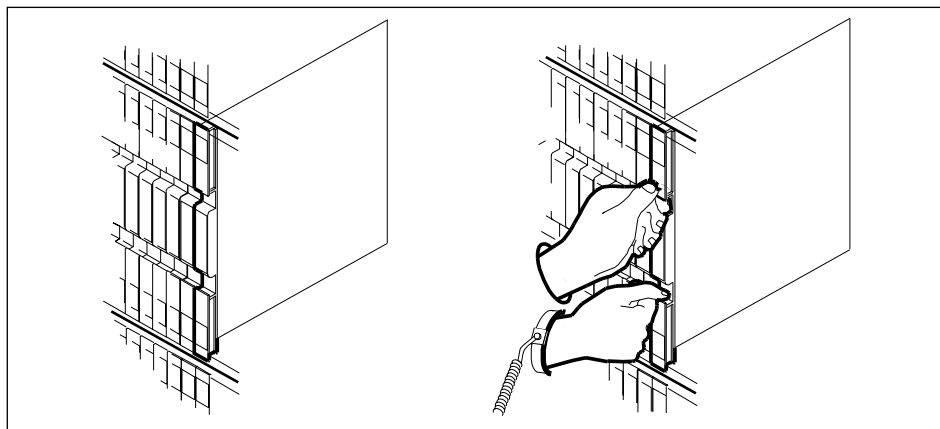
Recovering link peripheral processors (continued)

3   Gently pull the card towards you about 25 mm (1 in.).
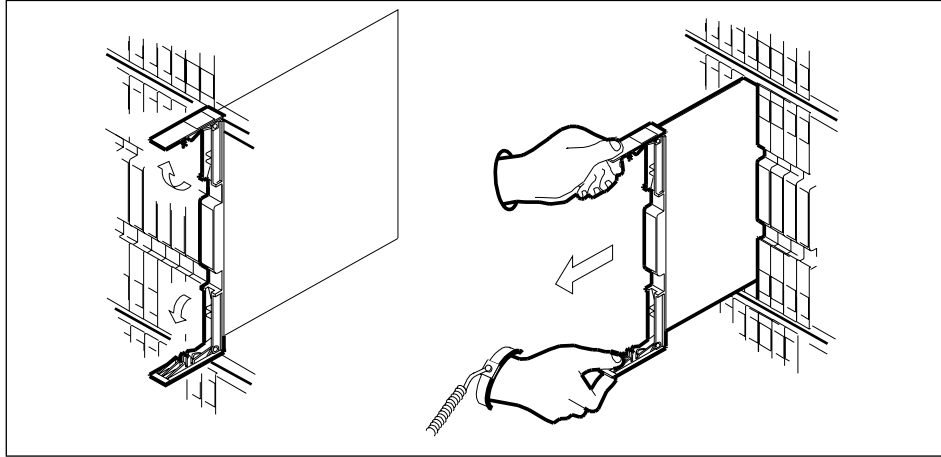
4   Leave the NT9X74 card sitting in its slot.

5   Repeat steps 2, 3, and 4 for both NT9X74 cards in each LIS in the LPP.

6   Locate both NT9X30 power converters for the LIM units.

7   Turn on the power converters by toggling the switch on each NT9X30 power converter on the LIM unit shelf.

8   Locate both NT9X30 power converters for the first LIS in the LPP.

9   Turn on the power converters by toggling the switch on each NT9X30 power converter on the LIS.

10 Repeat steps 8 and 9 for each LIS in the LPP.

If all power converters	Do
power up successfully	step 11
do not power up successfully	step 14

Recovering link peripheral processors (continued)

At the PDC

11   Check the PDC fuses that supply the LPP.

If there are	Do
blown fuses	step 12
no blown fuses visible	step 13

12   Replace the blown fuses, then go to step 6.

Note: If fuses blow repeatedly, contact your next level of support for assistance.

13   Contact the personnel responsible for maintaining power at your site, or consult your next level of support for assistance. When power has been restored to the LPP, go to step 6.

14   Gently slide the first NT9X74 card back into the first LIS.
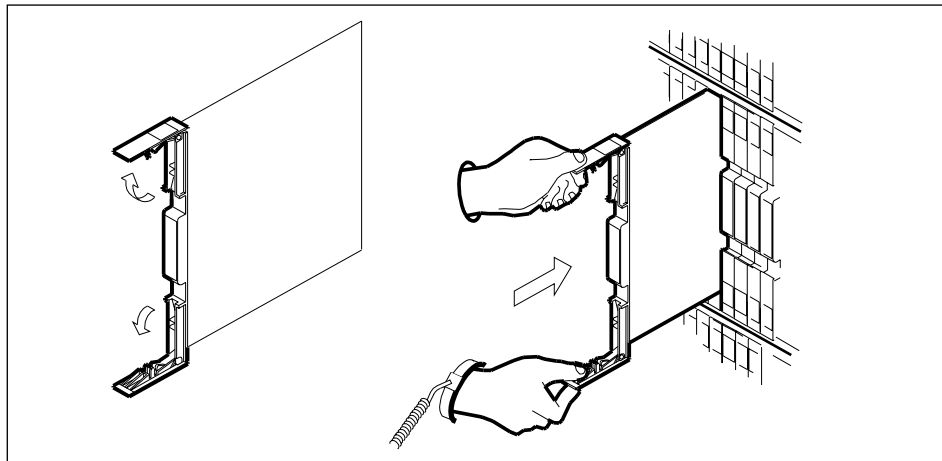
Recovering link peripheral processors (continued)

15 Seat and lock the card, as follows:

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

   b. Close the locking levers.
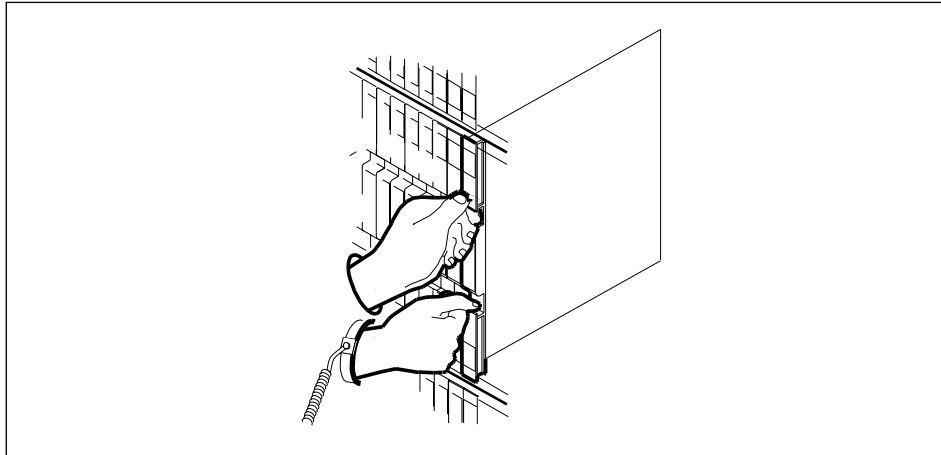
16 Repeat steps 14 and 15 for both NT9X74 cards in each LIS in this LPP.

17 Repeat steps 1 through 16 for each LPP in your office, then continue at step 18.

   At the MAP

18 Access the PM level of the MAP display by typing

   >MAPCI;MTC;PM
   and pressing the Enter key.

19 Display a list of all system-busy PMs by typing

   >DISP STATE SYSB
   and pressing the Enter key.

   Example of a MAP response:

   ```
   SysB LIM   : 0
   SysB LIU7  : 102, 202, 207, 302, 308
   ```

20 Record the numbers of all system-busy LIMs.

21 Select a system-busy LIM to work on.

Recovering link peripheral processors (continued)

22 Post the system-busy LIM 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 response:

```
LIM  1  SysB
                Links_OOS    Taps_OOS
Unit0: SysB          6           5
Unit1: SysB          6           5
```

If the status (RU)	Do
appears beside the SysB status in the MAP response	step 23
does not appear in the MAP response	step 24

23 The LIM is system-busy due to a fault other than the loss of A and B power feeds to the LPP. Clear the fault using the procedure for *Clearing a PM LIM critical alarm* in *Alarm and Performance Monitoring Procedures*.

24 The system will automatically attempt to reload the system-busy LIM units and return them to service. Monitor PM181 logs to determine if the system has attempted at least one autorecovery sequence.

If PM181 logs indicate that	Do
either LIM unit has failed one or more autorecovery attempts	step 25
both units of the LIM have successfully recovered automatically	step 30

25 Manually busy the system-busy LIM unit that has failed to autorecover by typing

>**BSY UNIT unit_no**
and pressing the Enter key.

where
unit_no   is the number of the affected LIM unit (0 or 1)

Recovering link peripheral processors (continued)

26 Confirm the command by typing

>YES

and pressing the Enter key.

27 Load the LIM unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no   is the number of the affected LIM unit (0 or 1)

If the LOADPM command	Do
passed	step 28
failed	step 97

28 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 affected LIM unit (0 or 1)

If the RTS command	Do
passed	step 29
failed	step 97

29 Determine if both LIM units are in service.

If	Do
both LIM units are `InSv`	step 30
one LIM unit is still `SysB`	step 25
multiple attempts have been made to return the LIM to service	step 97

Recovering link peripheral processors (continued)

30   Access the F-bus level of the MAP display by typing

>FBUS

and pressing the Enter key.

31   Determine if the F-buses are in service.

If	Do
both F-buses are `InSv`	step 35
one or both F-buses are `SysB`	step 32

32   Manually busy the system-busy F-bus by typing

>BSY FBUS fbus_no

and pressing the Enter key.

where
fbus_no   is the number of the F-bus (0 or 1) to be busied

33   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) to be returned to service

If the RTS command	Do
passed	step 34
failed	step 97

34   If the other F-bus is system busy, repeat steps 32 and 33 for the other F-bus. When both F-buses are in service, continue at step 35.

35   Determine if the LPP you are recovering is equipped with network interface units (NIU).

If the LPP is	Do
equipped with NIUs	step 36
not equipped with NIUs	step 50

Recovering link peripheral processors (continued)

36 Access the NIU inventory table by typing

>**TABLE NIUINV**

and pressing the Enter key.

37 List the contents of the inventory table by typing

>**LIST ALL**

and pressing the Enter key.

38 Record the NIUNO (NIU number) of each NIU associated with the LIM that you returned to service.

39 Return to the MAP maintenance level by typing

>**QUIT**

and pressing the Enter key.

40 Access the PM level of the MAP display by typing

>**PM**

and pressing the Enter key.

If	Do
three or more NIUs were recorded in step 38	step 41
less than three NIUs were recorded in step 38	step 42

41 Post the first two NIUs recorded in step 38 by typing

>**POST NIU niu_nos**

and pressing the Enter key.

where

niu_nos   are the numbers of the NIUs (0 to 29) associated with the LIM, which you obtained in step 38

Note: Use a space to separate each number from the preceding number.

Example input

>**POST NIU 4 12**

Go to step 43.

Recovering link peripheral processors (continued)

42   Post the NIUs recorded in step 38 by typing

>POST   NIU   niu_nos
and pressing the Enter key.

where
niu_nos   are the numbers of the NIUs (0 to 29) associated with the LIM,
            which you obtained in step 38

Note: Use a space to separate each number from the preceding number.

Example input:

>POST   NIU   4 12

43   The system automatically attempts to reload the NIUs and return them to service.

Note: A maximum of four NIU units (two NIU peripheral modules) can be loaded simultaneously. Attempts to bulk load more than four NIU units will fail.

If	Do
both the posted NIUs have recovered automatically, indicated by `InSv`	step 50
either of the NIUs have not recovered automatically, indicated by `SysB`	step 44

44   Manually busy one of the units of the affected NIU by typing

>BSY   UNIT   unit_no FORCE
and pressing the Enter key.

where
unit_no   is the unit number of the NIU unit (0 or 1)

45   Load the NIU unit by typing

>LOADPM   UNIT   unit_no
and pressing the Enter key.

where
unit_no   is the unit number of the unit you busied (0 or 1)

If the LOADPM command	Do
passed	step 46
failed	step 97

Recovering link peripheral processors (continued)

46 Return the NIU to service by typing

>RTS UNIT unit_no
and pressing the Enter key.

where
unit_no   is the unit number of the NIU unit you busied (0 or 1)

If the RTS command	Do
passed	step 47
failed	step 97

47 Determine if the other unit of the posted NIU is system busy or in service.

If	Do
both units of the posted NIU are `InSv`	step 49
one unit of the posted NIU is still `SysB`	step 48

48 Manually busy the system-busy NIU unit by typing

>BSY UNIT unit_no FORCE
and pressing the Enter key.

where
unit_no   is the number of the system-busy NIU unit (0 or 1)

Go to step 45.

49 Access the next NIU in the posted set by typing

>NEXT
and pressing the Enter key.

If the	Do
set is empty	step 50
next NIU in the set is posted	step 43

Recovering link peripheral processors (continued)

50 Access the link interface unit inventory table by typing

>**TABLE LIUINV**

and pressing the Enter key.

51 List the contents of the inventory table by typing

>**LIST ALL**

and pressing the Enter key.

52 Record the LIUNO (LIU number) of each LIU7, EIU, VPU, APU, XLIU, and
FRIU associated with the LIM that you returned to service.

Note: Depending on the applications running on the LPP, some or all of these
peripheral modules will be provisioned.

53 Return to the MAP maintenance level by typing

>**QUIT**

and pressing the Enter key.

54 Access the PM level of the MAP display by typing

>**PM**

and pressing the Enter key.

55 Post the LIU7s associated with the LIM that has been returned to service by
typing

>**POST LIU7 liu_nos**

and pressing the Enter key.

where
liu_nos   are the numbers of the LIU7s (0 to 511) associated with the LIM,
             which you obtained in step 52

Note: Use a space to separate each number from the preceding number.

Example input:

>**POST LIU7   101 102 103 104 105 106 107 108**

56 Manually busy the LIU7s in the posted set by typing

>**BSY ALL FORCE**

and pressing the Enter key.

Recovering link peripheral processors (continued)

57 Load the first LIU7 in the posted set by typing

>LOADPM
and pressing the Enter key.

If the LOADPM command	Do
passed	step 58
failed	step 97

58 Return the LIU7 to service by typing

>RTS
and pressing the Enter key.

If the RTS command	Do
passed, but not all LIU7s in the posted set are in service	step 59
passed and all LIU7s in the posted set are in service	step 61
failed	step 97

59 Display the next LIU7 in the posted set by typing

>NEXT
and pressing the Enter key.

60 Repeat steps 57, 58, and 59 until all LIU7s in the posted set have been loaded and returned to service.

61 Determine if the LPP you are recovering is equipped with Ethernet interface units (EIU).

If the LPP is	Do
equipped with EIUs	step 62
not equipped with EIUs	step 68

Recovering link peripheral processors (continued)

62   Post the system-busy EIUs associated with the LIM that has been returned to service by typing

>POST EIU eiu_nos

and pressing the Enter key.

where

eiu_nos   are the numbers of the EIUs (0 to 511) associated with the LIM that you obtained in step 52

Note: Use a space to separate each number from the preceding number.

Example input:

>POST EIU 101 102 103 104 105 106 107 108

63   Manually busy the EIUs in the posted set by typing

BSY ALL FORCE

and pressing the Enter key.

64   Load the first EIU in the posted set by typing

>LOADPM

and pressing the Enter key.

If the LOADPM command	Do
passed	step 65
failed	step 97

65   Return the EIU to service by typing

>RTS EIU eiu_no

and pressing the Enter key.

where

eiu_no   is the number of the EIU (0 to 511) to be returned to service

If the RTS command	Do
passed, but not all EIUs in the posted set are in service	step 66
passed and all EIUs in the posted set are in service	step 68
failed	step 97

Recovering link peripheral processors (continued)

66 Display the next EIU in the posted set by typing

>**NEXT**

and pressing the Enter key.

67 Repeat steps 64, 65, and 66 until all EIUs in the posted set have been loaded and returned to service.

68 Determine if the LPP you are recovering is equipped with Automated Directory Assistance Service (ADAS) or DMS-Mail peripherals.

If the LPP is	Do
equipped with ADAS or DMS-Mail peripherals	step 69
not equipped with ADAS or DMS-Mail peripherals	step 82

69 Post the system-busy APUs associated with the LIM that has been returned to service by typing

>**POST APU apu_nos**

and pressing the Enter key.

where

apu_nos   are the numbers of the APUs (0 to 511) associated with the LIM that you obtained in step 52

Note: Use a space to separate each number from the preceding number.

Example input

>**POST APU 101 102 103 104 105 106 107 108**

70 Manually busy the APUs in the posted set by typing

>**BSY ALL FORCE**

and pressing the Enter key.

71 Load the first APU in the posted set by typing

>**LOADPM**

and pressing the Enter key.

If the LOADPM command	Do
passed	step 72
failed	step 97

Recovering link peripheral processors (continued)

72   Return the APU to service by typing

>**RTS**

and pressing the Enter key.

If the RTS command	Do
passed, but not all APUs in the posted set are in service	step 73
passed and all APUs in the posted set are in service	step 75
failed	step 97

73   Display the next APU in the posted set by typing

>**NEXT**

and pressing the Enter key.

74   Repeat steps 71, 72, and 73 until all APUs in the posted set that did not automatically recover have been loaded and returned to service.

75   Determine if the LPP you are recovering is equipped with voice processor units (VPU).

If the LPP is	Do
equipped with VPUs	step 76
not equipped with VPUs	step 82

76   Post the VPUs associated with LIM that has been returned to service by typing

>**POST VPU vpu_nos**

and pressing the Enter key.

where
vpu_nos   are the numbers of the VPUs (0 to 215) associated with the LIM that you obtained in step 52

Note: Use a space to separate each number from the preceding number.

Example input:

>**POST VPU 101 102 103 104 105 106 107 108**

Recovering link peripheral processors (continued)

77 Manually busy the VPUs in the posted set by typing

>**BSY ALL FORCE**

and pressing the Enter key.

78 Load the first VPU in the posted set by typing

>**LOADPM**

and pressing the Enter key.

If the LOADPM command	Do
passed	step 79
failed	step 97

79 Return the VPU to service by typing

>**RTS**

and pressing the Enter key.

If the RTS command	Do
passed, but not all VPUs in the posted set are in service	step 80
passed and all VPUs in the posted set are inservice	step 82
failed	step 97

80 Display the next VPU in the posted set by typing

>**NEXT**

and pressing the Enter key.

81 Repeat steps 78, 79, and 80 until all VPUs in the posted set have been loaded and returned to service.

82 Determine if there are XLIUs on the LPP you are recovering.

If there are	Do
XLIUs on the LPP	step 83
no XLIUs on the LPP	step 89

Recovering link peripheral processors (continued)

83 Post the XLIUs associated with the LIM that has been returned to service by typing

>POST XLIU xliu_nos
and pressing the Enter key.

where
xliu_nos   are the numbers of the XLIUs (0 to 511) associated with the LIM that you obtained in step 52

Note: Use a space to separate each number from the preceding number.

Example input:

>POST XLIU   101 102 103 104 105 106 107 108

84 Manually busy the XLIUs in the posted set by typing

>BSY ALL FORCE
and pressing the Enter key.

85 Load the first XLIU in the posted set by typing

>LOADPM
and pressing the Enter key.

If the LOADPM command	Do
passed	step 86
failed	step 97

86 Return the XLIU to service by typing

>RTS
and pressing the Enter key.

If the RTS command	Do
passed, but not all XLIUs in the posted set are in service	step 87
passed and all XLIUs in the posted set are in service	step 89
failed	step 97

Recovering link peripheral processors (continued)

87 Display the next XLIU in the posted set by typing

>**NEXT**

and pressing the Enter key.

88 Repeat steps 85, 86, and 87 until all XLIUs in the posted set have been loaded and returned to service.

89 Determine if there are FRIUs on the LPP you are recovering.

If there are	Do
FRIUs on the LPP	step 90
no FRIUs on the LPP	step 96

90 Post the FRIUs associated with the LIM that you have returned to service by typing

>**POST FRIU friu_nos**

and pressing the Enter key.

friu_nos   are the numbers of the FRIUs (0 to 511) associated with the LIM that you obtained in step 52

friu_nos   are the numbers of the FRIUs (0 to 511) associated with the LIM that you obtained in step 52

Note: Use a space to separate each number from the preceding number.

Example input

>**POST FRIU   101 102 103 104 105 106 107 108**

91 Manually busy the FRIUs in the posted set by typing

>**BSY ALL FORCE**

and pressing the Enter key.

92 Load the first FRIU in the posted set by typing

>**LOADPM**

and pressing the Enter key.

If the LOADPM command	Do
passed	step 93
failed	step 97

Recovering link peripheral processors (end)

93 Return the FRIU to service by typing

>**RTS**

and pressing the Enter key.

If the RTS command	Do
passed, but not all FRIUs in the posted set are in service	step 94
passed and all FRIUs in the posted set are in service	step 96
failed	step 97

94 Display the next FRIU in the posted set by typing

>**NEXT**

and pressing the Enter key.

95 Repeat steps 92, 93, and 94 until all FRIUs in the posted set have been loaded and returned to service.

96 Determine if there are additional LPPs to recover.

If there are	Do
additional LPPs to recover	step 18
no additional LPPs to recover	step 98

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

98 You have completed this procedure.

Recovering the enhanced network

Application

Use this procedure to manually recover the enhanced network (ENET) if the automatic ENET system recovery fails, or if instructed to do so by your next level of support.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Note: MAP displays in this procedure are for the 128K ENET. Displays for the 64K ENET are identical to the 128K ENET except that only shelves 0 and 1 are equipped. Therefore, in a MAP display, shelves 2 and 3 are shown as unequipped (-), as follows:

Example of a 64K ENET MAP display:

```
ENET    System  Matrix     Shelf   0 1 2 3
 Plane 0    Fault      .             C . - -
 Plane 1              .    .         . . - -
```

Recovering the enhanced network (continued)

Summary of Recovering the enhanced network

Determine image file name

↓

Determine if SLMs are in service

↓

In service? → Clear alarm. Refer to appropriate NTP.

↓

Image file present? → Copy file from tape backup

↓

Load ENET image file

↓

Return ENET to service

↓

Passed?

↓ → Contact next level of support

End

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
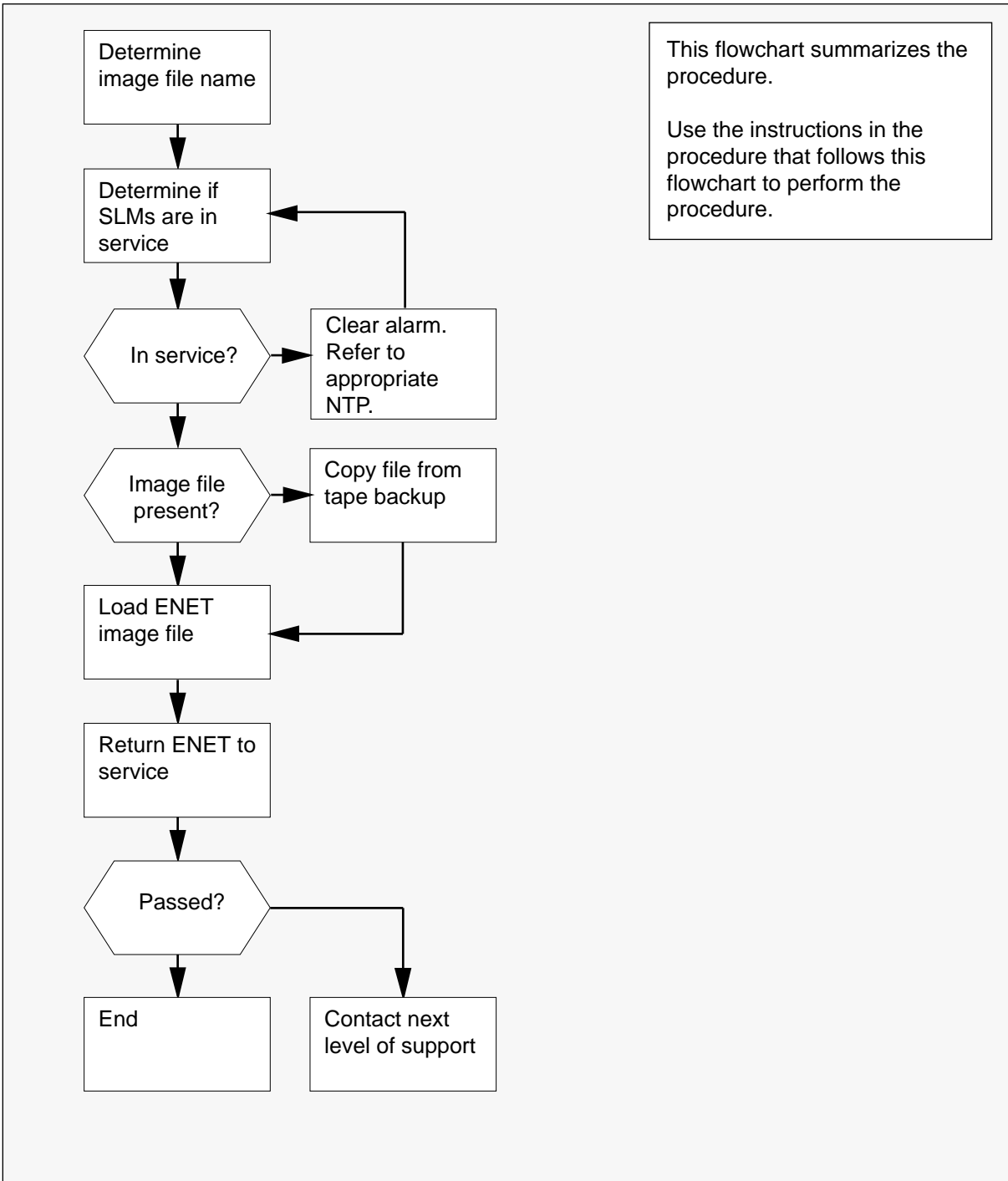
Recovering the enhanced network (continued)

Recovering the enhanced network

⚠ **CAUTION**
Contact ETAS or your next level of support
In the event of a service-affecting equipment outage,
contact Northern Telecom's Emergency Technical
Assistance Service (ETAS) or your next level of
support before performing this procedure.

⚠ **CAUTION**
Loss of service
Manual intervention during automatic system recovery
actions may interrupt or hamper automatic recovery
and prolong service outage.

⚠ **CAUTION**
Potential service interruption
Do not perform this procedure while a restart is in
process. When you log on after a restart, wait 5 min to
allow the ENET time to try to recover itself.

---

1   Determine whether the local operating company keeps a log book of office
    image files.

If a log book is	Do
kept	step 2
not kept	step 3

Recovering the enhanced network (continued)

2 From the local office log book, record the most recent image file name, then go to step 7.

At the MAP

3 Access table ENINV by typing

>TABLE ENINV

and pressing the Enter key.

4 Display all the tuples in table ENINV by typing

>LIST ALL

and pressing the Enter key.

Example of a MAP response:

```
FRPOS0 SHELF0 LOAD0 MSCARD1 FLOOR1 ROW1     FRPOS1 SHELF1
------ ------ ----- ------- ------  ----     ------ ------
   5      39    ENC33BM   8      0              A     5
   ENC33BM
```

Note: Every equipped ENET shelf has a tuple.

5 Record the most recent file name that appears under the headings LOAD0 and LOAD1.

6 Quit table ENINV by typing

>QUIT

and pressing the Enter key.

7 Access the SLM level of the MAP display by typing

>MAPCI;MTC;IOD;SLM

and pressing the Enter key.

Example of a MAP response:

```
SLM         0        1
Stat        .        .
```

8 Determine which system load modules (SLM) are in service, indicated by a dot in the SLM status fields.

If	Do
both SLMs are in service	step 24
one SLM is in service	step 19
neither SLM is in service	step 9

Recovering the enhanced network (continued)

9   Determine the status of the SLMs.

If the status is	Do
S	step 10
M	step 12
O	step 14
I	step 16

10   Perform the procedure *Clearing an IOD SLM bsy major alarm* in *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

11   Go to step 18.

12   Perform the procedure *Clearing an IOD SLM bsyminor alarm* in *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

13   Go to step 18.

14   Perform the procedure *Clearing an IOD SLMoff minor alarm* in *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

15   Go to step 18.

16   Perform the procedure *Clearing an IOD SLMtbl minor alarm* in *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.

17   Go to step 18.

18   Access the CI level of the MAP display by typing

     >QUIT ALL

     and pressing the Enter key.

19   Access the disk utility level of the MAP display by typing

     >DISKUT

     and pressing the Enter key.

     Example of a MAP response:

     ```
     Disk utility is now active.
     DISKUT:
     ```

Recovering the enhanced network (continued)

20   List the volumes on the SLMs by typing

   >LISTVOL CM

   and pressing the Enter key.

21   Record the SLM volume names.

22   List the files on the in-service SLM by typing

   >LISTFL disk_volume_name

   and pressing the Enter key.

   where

   disk_volume_name   is the name of the SLM disk (S00D or S01D) and
                      the name of the volume on the disk (for example,
                      S00DENET)

Example of a MAP response:

```
File information for file S00DENET:
(Note:  1 BLOCK = 512 BYTES )
-----------------------------------------------
CREATE     MODIFY     NUM     NUM    MAX.    IN    FILE
                                     RECORD
DATE       DATE       BLKS    REC    LENGTH  ITOC  NAME
-----------------------------------------------------
92/08/24   92/08/20   49364   4682   1020    N     ENET_0820
92/08/24   92/08/24   72190   6095   1020    N     ENET_0824
92/08/30   92/08/25   69364   4682   1020    N     ENET_0825
92/08/30   92/08/26   75310   7655   1020    N     ENET_0826
92/08/30   92/08/30   99370   8890   1020    N     ENET_0830
```

   Note: In the example above, the FILE ORG, FILE CODE , REC TYPE, and
   FILE STATUS columns of the MAP display are not shown due to space
   constraints.

23   Record the latest ENET image file name of the in-service SLM.

   Note: In the example in step 22, the latest ENET image file name is
   ENET_0830.

   Go to step 31.

Recovering the enhanced network (continued)

24 Access the disk utility level of the MAP display by typing

>**DISKUT**

and pressing the Enter key.

25 List the volumes on both SLMs by typing

>**LISTVOL CM**

and pressing the Enter key.

26 Record the SLM volume names.

27 List the files on a specific volume by typing

>**LISTFL disk_volume_name**

and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
the name of the volume on the disk (for example,
S00DENET)

Example of a MAP response:

```
File information for file S00DENET:
(Note:  1 BLOCK = 512 BYTES )
--------------------------------------------
CREATE     MODIFY      NUM   NUM    MAX       IN    FILE
                                    RECORD
DATE       DATE        BLKS  REC    LENGTH    ITOC  NAME
--------------------------------------------------------
92/08/24   92/08/20    49364    4682  1020      N    ENET_0820
92/08/24   92/08/24    72190    6095  1020      N    ENET_0824
92/08/30   92/08/25    69364    4682  1020      N    ENET_0825
92/08/30   92/08/26    75310    7655  1020      N    ENET_0826
92/08/30   92/08/30    99370    8890  1020      N    ENET_0830
```

Note: In the example above, the FILE ORG, FILE CODE, REC TYPE, and FILE STATUS columns of the MAP display are not shown due to space constraints.

28 Record the latest ENET image file name of the SLM.

Note: In the example in step 27, the latest ENET image file name is ENET_0830.

Recovering the enhanced network (continued)

29   Determine whether the latest ENET image file is present.

If the latest image file is	Do
present	step 40
not present	step 30

30   List the files on the other volume by typing

>**LISTFL disk_volume_name**

and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
the name of the volume on the disk (for example,
S00DENET)

31   Determine whether the latest ENET image file is present.

If the latest image file is	Do
present	step 40
not present	step 32

32   Obtain the latest backup tape that contains an ENET image.

At the SLM

33   Insert the backup tape into the appropriate SLM tape drive unit.

At the CI level of the MAP

34   Mount the tape by typing

>**INSERTTAPE device_name**

and pressing the Enter key.

where

device_name   is S00T if you are working on SLM 0, or S01T if you
are working on SLM 1

Example of a MAP response:

```
The INSERT operation may take up to 5 minutes to tension
the tape.
```

Recovering the enhanced network (continued)

35 List the files on the backup tape by typing

>**LISTFL device_name**

and pressing the Enter key.

where

device_name   is S00T or S01T

36 Copy the file from tape to disk by typing

>**RESTORE FILE disk_volume_name file_name**

and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
the name of the volume on the disk (for example,
S00DENET)

file_name   is the image file name

37 List the files on the volume to confirm that the ENET image file is there by typing

>**LISTFL disk_volume_name**

and pressing the Enter key.

where

disk_volume_name   is the name of the SLM disk (S00D or S01D) and
the name of the volume on the disk (for example,
S00DENET)

38 Determine whether the image file name has a date stamp.

If the file	Do
has a date stamp	step 39
does not have a date stamp	step 40

Recovering the enhanced network (continued)

39

> ⚠ **CAUTION**
> **Improper image file name prohibits download of patches**
> The date stamp, or any other identifying information added to the file name on tape, must be removed when the file is copied to disk. Failure to remove excess information prohibits the automatic download of patches to the local operating company switch.
>
> For further information, refer to *Recording a 16K ENET image on an SLM disk* in *Routine Maintenance Procedures*.

Rename the image file name to the correct file name by typing

>RENAMEFL FILE old_file_name new_file_name

and pressing the Enter key.

where

old_file_name   is the name of a previous image file with a date
                stamp (for example, ENC33BM_0227)
new_file_name is the correct file name (for example, ENC33BM)

Example of a MAP response:

```
File ENC33BM_0227 on volume S01DISLOADS has been renamed
to ENC33BM.
```

40 Quit the disk utility level of the MAP display by typing

>QUIT

and pressing the Enter key.

41 Access the SYSTEM level of the MAP display by typing

>MAPCI;MTC;NET;SYSTEM

and pressing the Enter key.

Example of a MAP response:

```
SYSTEM
   Shelf         Plane 0          Plane 1
   00            S                    .
   01            S                    .
   02            S                    .
   03            S                    .
```

Recovering the enhanced network (continued)

42   Determine which plane-shelves are system busy, indicated by the letter S in the Plane field.

If	Do
an entire plane is system busy (all shelves on the plane)	step 43
part of a plane is system busy (one or more shelves, but not all)	step 47

43   Manually busy all shelves on the affected plane by typing

>BSY plane_number ALL

and pressing the Enter key.

where

plane_number   is 0 or 1

44   Determine whether the shelves you specified were busied successfully.

If the MAP response is	Do
``Request to MAN BSYALL ENET Plane:n completed.``	step 51
``WARNING: You will be aborting the following maintenance action on ENET Plane:n Shelf:nn. Please confirm ("Yes" or "No")``	step 45

WARNING

Recovering the enhanced network (continued)

45 Another maintenance action is already in progress on one or more of the plane-shelves you specified. Cancel the BSY command by typing

>NO

and pressing the Enter key.

46 Wait a few minutes for the in-progress maintenance action to complete, then go to step 42.

47 Select a system busy plane-shelf and set it to manual busy by typing

>BSY plane_number shelf_number

and pressing the Enter key.

where

plane_number   is 0 or 1
shelf_number   is 0 to 1 for 64K ENET, or 0 to 7 for 128K ENET

48 Determine whether the shelf you specified was busied successfully.

If the MAP response is	Do
| ```
Request to MAN BUSY ENET
Plane:n Shelf:nn
completed.
``` | step 51 |
| ```
WARNING: You will be
aborting the following
maintenance action on ENET
Plane:n Shelf:nn. Please
confirm ("Yes" or "No")
``` | step 49 |

Recovering the enhanced network (continued)

49 Another maintenance action is already in progress on the plane-shelve you specified. Cancel the BSY command by typing

>NO

and pressing the Enter key.

50 Wait a few minutes for the in-progress maintenance action to complete, then go to step 42.

51 Determine whether there are more system busy plane-shelves.

If there are	Do
more system-busy plane-shelves	step 43
all system-busy plane-shelves have been set to manual busy	step 52

52 Load each node with the latest ENET image file by typing

>LOADENALL file_name

and pressing the Enter key.

where

file_name   is the latest ENET image file name

Example of a MAP response:

```
WARNING: This action will be performed on ALL ENET shelves
that are MBSY.  Please confirm ("YES" OR "NO")
```

53 Confirm the command by typing

>YES

and pressing the Enter key.

Example of a MAP response:

```
WARNING: Any software load in the MBSY ENETS will be
destroyed. Please confirm ("YES" or "NO" )
```

Recovering the enhanced network (continued)

54 Confirm the command by typing

>YES

and pressing the Enter key.

Example of a MAP response:

```
Request to LOADENALL ENET in both planes submitted.
Request to LOADENALL ENET in both planes completed.
Plane:0 Shelf:00 Passed.
Plane:0 Shelf:01 Passed.
Plane:0 Shelf:02 Passed.
Plane:0 Shelf:03 Passed.
```

55 Determine whether any nodes failed to load the ENET image file.

If	Do
all nodes passed the software load	step 58
some nodes failed the software load	step 56
all nodes failed the software load	step 64

56 Return to service all nodes that passed the software load by typing

>RTS plane_number shelf_number

and pressing the Enter key.

where

plane_number   is 0 or 1
shelf_number   is 0 to 1 for 64K ENET, or 0 to 7 for 128K ENET

57 Determine whether all nodes passed the software load.

If	Do
all nodes passed the software load	step 58
some nodes failed the software load	step 64

Recovering the enhanced network (continued)

58 Return all manual-busy nodes to service by typing

>RTS plane_number ALL

and pressing the Enter key.

where

plane_number   is 0 or 1

59 Wait for the peripheral-side busy (PSLk) alarms to clear.

If the PSLk alarms	Do
clear	step 60
do not clear	step 63

60 Determine if any of the nodes failed to return to service.

If	Do
any of the nodes failed to return to service	step 61
all nodes returned to service	step 65

61 Return to service the individual node that failed by typing

>RTS plane_number shelf_number

and pressing the Enter key.

where

plane_number   is 0 or 1
shelf_number   is 0 to 1 for 64K ENET, or 0 to 7 for 128K ENET

If the RTS command	Do
passed	step 65
failed	step 62

Recovering the enhanced network (end)

62 Determine if a card list was generated.

If a card list was	Do
generated	step 63
not generated	step 64

63 Determine which alarm was generated under the Net header and perform the appropriate alarm clearing procedure in *Alarm and Performance Monitoring Procedures*.

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

65 You have completed this procedure.

Recovering volumes marked INERROR

Application

Use this procedure to recover volumes marked INERROR. A restart recovery of the DIRP utility requires a verification check of all volumes and files to determine if the volume recovery has succeeded.

Action

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

Recovering volumes marked INERROR
(continued)

Summary of Recovering volumes marked INERROR

Reset volumes marked INERROR

↓

End

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Recovering volumes marked INERROR
 (continued)

Recovering volumes marked INERROR

At the MAP

1

⚠ **CAUTION**
Possible loss or corruption of AMA data
If you fail either to use this procedure or to follow it
exactly, you may lose or corrupt automatic message
accounting (AMA) data. Because AMA data is used
to produce billings, loss or corruption of AMA data
results in revenue loss for the operating company.

Access the DIRP level of the MAP by typing

>MAPCI;MTC;IOD;DIRP
and pressing the Enter key.

2   Access the DIRP logs by typing

>LOGUTIL;OPEN DIRP
and pressing the Enter key.

3   Enable the printer by typing

>RECORD START ONTO device
and pressing the Enter key.

where

device   is the printer type

Recovering volumes marked INERROR

(continued)

4   Query the volumes that are currently mounted in the subsystem by typing

>QUERY ssys VOLUMES
and pressing the Enter key.

Example of a MAP display:

ssys   is the affected subsystem

```
SSNAME  SSNO  SEQNO  ROTATES  POOLNO  PARLPOOL  EMERGENCY
AMA       0     1       2       0        6         No
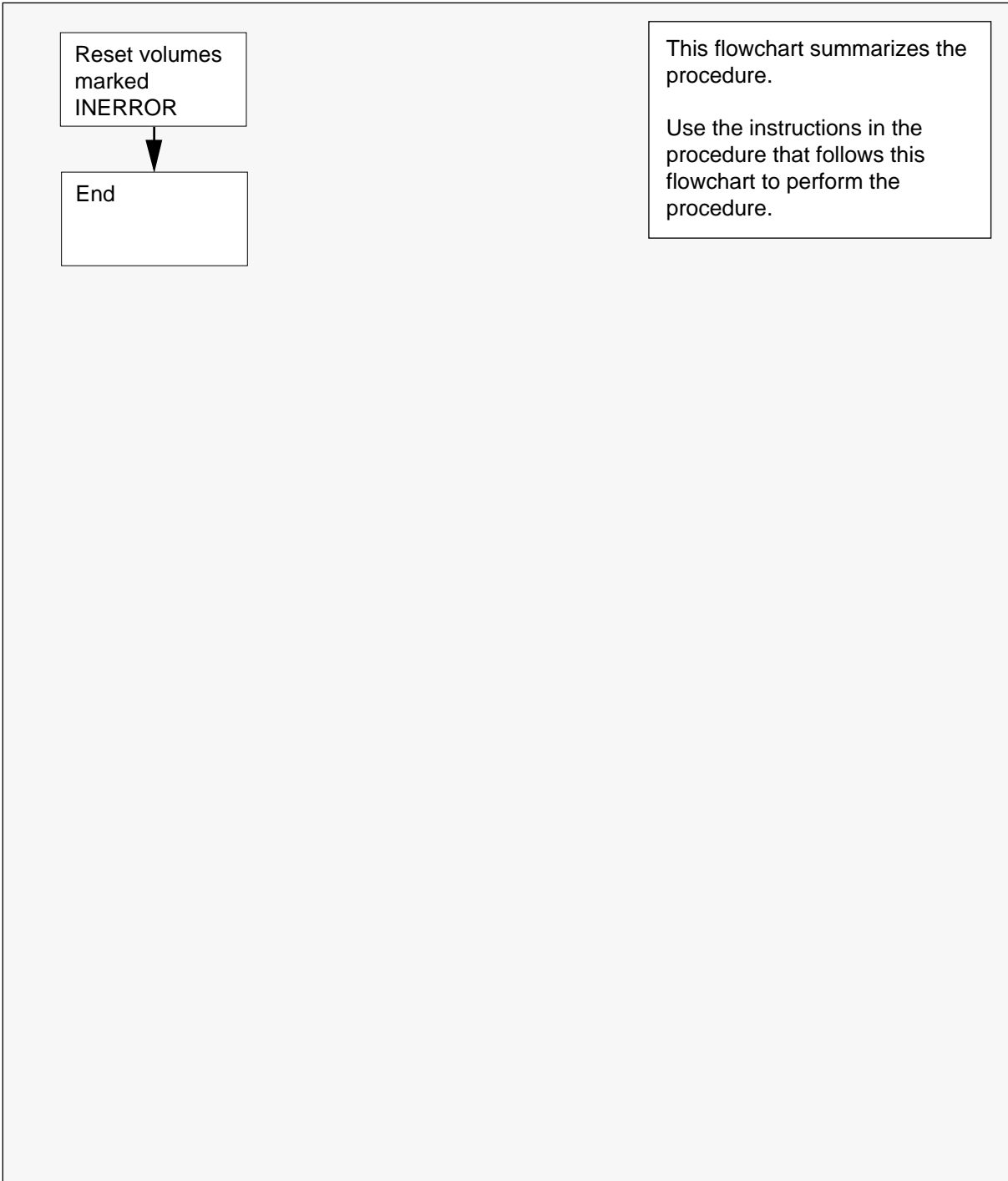

REGULAR
VOL#  VOLUMNAME  STATE     IOC   CARD   VOL   FSEG   ROOM   VLID
22      T0   INERROR      0      0      0    N/A      0    2400
23      T1   INERROR      2      1      0    N/A      0    2400


PARALLEL VOLUMES(S)
PARALLEL           STATE   IOC   CARD   VOL   FSEG   ROOM   VLID
B910212061307AMA   READY    0      0      0    N/A      1    2400
```

5   Determine whether any of the volumes are marked INERROR?

If there are	Do
INERROR volumes	step 6
no INERROR volumes	step 12

6   Make a note of the names of the INERROR volumes.

7   Reset the INERROR volume(s) by typing

>RSETVOL vol_name
and pressing the Enter key.

where

vol_name is the volume name

Example of a MAP response:

```
FILE SYSTEM ERRORS HAVE OCCURRED ON THIS VOLUME WHICH MAY A
ABILITY TO RECORD DATA RELIABILITY OR MAY HAVE CORRUPTED EX
THE VOLUME.  THE CAUSE OF THESE ERRORS SHOULD BE INVESTIGAT
PROBLEMS SHOULD BE RESOLVED BEFORE RESETTING THIS VOLUME.

Please confirm ("YES" or "NO")
```

Recovering volumes marked INERROR
 (continued)

8 Confirm the reset by typing

>YES
and pressing the Enter key.

Example of a MAP response:

```
REGULAR AMA VOLUME WILL BE MARKED AS "READY"
vol_name: VOLUME nn IN REGULAR POOL n, pool_name

DONE - AUDITING AFFECTED VOLUME/SUBSYSTEM(S).
```

If there are	Do
more INERROR volumes	step 7
no more INERROR volumes	step 9

9 Query the subsystem again and verify the status of the reset volumes by typing

>QUERY ssys VOLUMES
and pressing the Enter key.

where

ssys   is the affected subsystem

If the INERROR volumes are	Do
all marked READY	step 12
not all marked READY	step 11

10 Determine if there are any other volumes marked INERROR.

If	Do
yes	step 7
no	step 12

Recovering volumes marked INERROR

(end)

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

12   You have completed this procedure.

Restoring the computing module to duplex operation

Application

Use this procedure to restore the computing module (CM) to normal duplex operation, after having shut down one central processing unit (CPU) to conserve emergency backup power.

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Restoring the computing module to duplex operation (continued)

Summary of Restoring the computing module to duplex operation

```
┌─────────────────────┐        ┌──────────────────────────────┐
│ Power up the        │        │ This flowchart summarizes the  │
│ inactive CPU        │        │ procedure.                     │
└─────────────────────┘        │                                │
          │                    │ Use the instructions in the    │
          ▼                    │ procedure that follows this    │
┌─────────────────────┐        │ flowchart to perform the       │
│ Return PMC          │        │ procedure.                     │
│ port and SLM to     │        └──────────────────────────────┘
│ service             │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Return message      │
│ controller to       │
│ service             │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Release jam         │
│                     │
│                     │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Sync the CM         │
│                     │
│                     │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Return to           │
│ Recovering from     │
│ EPC measures        │
└─────────────────────┘
```

Restoring the computing module to duplex operation (continued)

Restoring the computing module to duplex operation

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom
> recommends that you perform this procedure under the
> supervision of Northern Telecom's Emergency Technical
> Assistance Services (ETAS).

> **CAUTION**
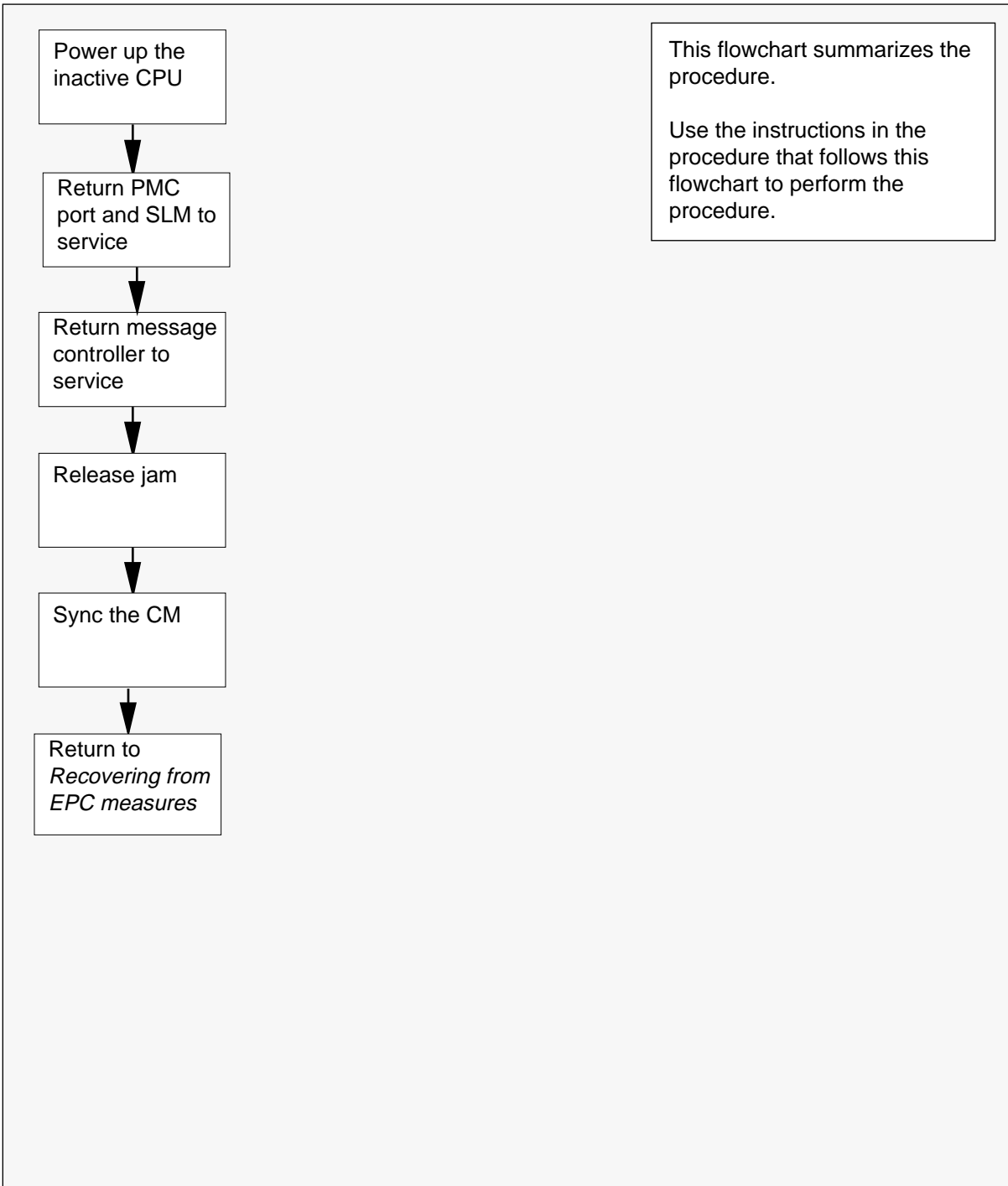> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal
> operation after performing emergency power conservation
> measures. Do not use this procedure or portions thereof
> for equipment maintenance purposes.

At the CMISLM shelf

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding
> point of the frame supervisory panel (FSP) while handling
> cards. This protects the cards against damage caused by
> static electricity.

1   Power up the inactive CPU plane by lifting and releasing the power switch
located on the faceplate of the NTDX15 power converter.

Note: For plane 0, the power converter is located in slots 4F through 6F. For
plane 1, the power converter is located in slots 33F through 35F.

Restoring the computing module to duplex operation (continued)

At the CM reset terminal for the inactive CPU

2 Allow the system to complete memory tests. Continue this procedure when the message Waiting for activity is displayed.

Example of an RTIF response:

```
Testing Memory:
Shelf     Slot          PEC        Module Status
 00        12        NT9X14EA      ...
 00        13        NT9X14EA      ...
Waiting for activity...
```

At the MAP terminal

3 Access the PMC level of the MAP display by typing

>CM;PMC
and pressing the Enter key.

Example of a MAP display:

```
          PMC 0
            .

PORT0:   mbsy
PORT1:      .
```

4 Return the manual-busy peripheral message controller (PMC) port to service by typing

>RTS pmc_number PORT port_number
and pressing the Enter key.

where

pmc_number   is the PMC number (0 or 1)
port_number   is the number of the manual-busy port (0 or 1)

5 Access the MAP display for the manual-busy system load module (SLM) by typing

>IOD;SLM slm_number
and pressing the Enter key.

where

slm_number   is the number of the manual-busy SLM (0 or 1)

6 Return the manual-busy SLM to service by typing

>RTS
and pressing the Enter key.

Restoring the computing module to duplex operation (continued)

    7   Determine if the autoload route was changed when the inactive CM plane was shut down to conserve emergency backup power.

If the autoload route was	Do
changed	step 8
not changed	step 10

    8   Access the CMMNT level of the MAP display by typing

    >CM;CMMNT
    and pressing the Enter key.

    9   Reset the primary autoload route to the appropriate storage device by typing

    >AUTOLD SLM slm_number device_type
    and pressing the Enter key.

    where

    slm_number   is the number of the SLM (0 or 1) that was originally the primary SLM
    device_type   is the type of SLM device (DISK or TAPE)

    10   Access the MC level of the MAP display by typing

    >CM;MC
    and pressing the Enter key.

    11   Return the manual-busy message controller (MC) to service by typing

    >RTS mc_ number
    and pressing the Enter key.

    where

    mc_number   is the number of the manual-busy MC (0 or 1)

    At the CM reset terminal for the inactive CPU

    12   Release the jam on the inactive CPU by typing

    >\RELEASE JAM
    and pressing the Enter key.

    RTIF response:

```
JAM RELEASE DONE
```

Restoring the computing module to duplex operation (end)

At the MAP terminal

13   Synchronize the CPUs by typing

>SYNC
and pressing the Enter key.

Example of a MAP response:

```
Maintenance action submitted.
Synchronization successful.
```

14   Return to the procedure *Recovering from emergency power conservation measures* in this document and proceed as directed.

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation

Application

Use this procedure to restore the enhanced network (ENET) to duplex operation, after having shut down one ENET plane to conserve emergency power.

> ⚠️ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> ⚠️ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Note: MAP displays in this procedure are for the 128k ENET. Displays for the 64k ENET are identical to the 128k ENET except that only shelves 0 and 1 are equipped. Therefore, in a 64k ENET MAP display, shelves 2 and 3 are shown as unequipped (-), as follows:

Example of a 64k ENET MAP display:

```
ENET            System      Matrix  Shelf   0 1 2 3
Plane   0   Fault            .   C .  - -
Plane   1       .            .   . .  - -
```

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

Summary of Restoring the enhanced network to duplex operation

```
┌─────────────────┐
│ Return MS port  │
│ chains to       │
│ service         │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Busy offline    │
│ ENET plane      │
│ shelves         │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Load manual-    │
│ busy ENET       │
│ plane shelves   │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Return manual-  │
│ busy plane      │
│ shelves to service│
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Clear deload    │
│ status from     │
│ shelves         │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ *Recovering from*│
│ *EPC measures*  │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

Restoring the enhanced network to duplex operation

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom
> recommends that you perform this procedure under
> the supervision of Northern Telecom's Emergency
> Technical Assistance Services (ETAS).

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal
> operation after performing emergency power
> conservation measures. Do not use this procedure or
> portions thereof for equipment maintenance purposes.

At the ENET cabinets

1

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap
> grounding point of a frame supervisory panel (FSP) or
> a modular supervisory panel (MSP) while handling
> circuit cards. This protects the cards against damage
> caused by static electricity.

Ensure that the cooling fans for the ENET cabinets are operating.

2   At each shelf you powered down to conserve emergency power, restore power
to the shelf by pressing upward on the power switches on the faceplates of the
power converter cards. As each card is powered up, the LED labeled
CONVERTER OFF goes out.

At the MAP

3   Access the MS Shelf level by typing

>MAPCI;MTC;MS;SHELF
and pressing the Enter key.

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

4   Identify the message switch card chain associated with each plane shelf that was powered down to conserve emergency power by typing

>TRNSL plane_no shelf_no
and pressing the Enter key.

where

plane_no   is the ENET plane number (0 or 1)
shelf_no   is the ENET shelf number (0 or 1 for 64K ENET, or
                  0 to 7 for 128K ENET)

Example of a MAP response:

```
Request to TRNSL ENET Plane:0 Shelf:00 passed.
ENET Plane:0 Shelf:00 MS:0 and 1 Card:20 Link:00
Port:00
```

5   Return the head card in the associated chain on MS 0 to service by typing

>RTS 0 card_no CHAIN
and pressing the Enter key.

where

card_no   is the card number shown in the MAP response in
                step 4

6   Return the head card in the associated chain on MS 1 to service by typing

RTS 1 card_no CHAIN
and pressing the Enter key.

where

card_no   is the card number shown in the MAP response in
                step 4

7   Repeat steps 4 to 6 for each plane shelf that was powered down to conserve emergency power, then continue with this procedure.

8   Access the network System level of the MAP display by typing

>NET;SYSTEM
and pressing the Enter key.

Example of a MAP display:

```
SYSTEM
   Shelf     Plane 0 Plane 1
   00   O    ·
   01   O    ·
```

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

9   Determine which ENET plane shelves are offline.

If	Do
all the ENET shelves that are currently offline were shut down to conserve emergency power	step 12
any ENET shelves are offline for other reasons, and cannot be returned to service at this time	step 10

10   Manually busy the first offline shelf by typing

>BSY plane_no shelf_no
and pressing the Enter key.

where

plane_no   is the number of the plane in this node
shelf_no   is 0 or 1 for 64k ENET, or 0 to 7 for 128k ENET

MAP response:

```
Request to MAN BUSY ENET Plane:0 Shelf:00 submitted.
Request to MAN BUSY ENET Plane:0 Shelf:00 passed.
```

11   Repeat step 10 for each plane shelf that was shut down to conserve emergency power, then continue at step 13.

12   Manually busy all offline plane shelves by typing

>BSY ALL OFFL
and pressing the Enter key.

13   Determine if all manual-busy ENET plane shelves are in that state as a result of being shut down to conserve emergency power. If so, they can be loaded as a group. If any plane shelves are manual-busy for other reasons, the plane shelves must be loaded individually.

If you want to load	Do
all manual-busy ENET plane shelves at once	step 17
individual manual-busy plane shelves	step 14

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

14 Load software into the selected plane shelf by typing

>LOADEN plane_no shelf_no
and pressing the Enter key.

where

plane_no   is 0 or 1
shelf_no   is 0 to 7

MAP response:

```
WARNING  Any software load in the ENET will be
destroyed.
Please confirm ("YES" or "NO"):
```

15 Confirm the load by typing

>YES
and pressing the Enter key.

16 Repeat steps 14 and 15 for each plane shelf that was shut down to conserve emergency power, then continue at step 18.

17 Load software into all manual-busy plane shelves by typing

>LOADENALL NOPROMPT NOWAIT
and pressing the Enter key.

18 Determine if an entire ENET plane was removed from service to conserve emergency power. If so, all plane shelves on that plane can be returned to service as a group. If any plane shelves are manual-busy for other reasons, the plane shelves must be loaded individually.

If you want to return to service	Do
all manual-busy ENET plane shelves on one plane	step 19
individual manual-busy plane shelves	step 21

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

19 Return all manual-busy plane shelves on the plane to service by typing

>RTS plane_no ALL
and pressing the Enter key.

where

plane_no   is the plane number (0 or 1)

MAP response:

```
Request to RTS ENET Plane:0 Shelf:00 submitted.
Request to RTS ENET Plane:0 Shelf:00 passed.
```

20 Go to step 23.

21 Return the selected plane shelf to service by typing

>RTS plane_no shelf_no
and pressing the Enter key.

where

plane_no   is the plane number (0 or 1)
shelf_no   is 0 to 7

MAP response:

```
Request to RTS ENET Plane:0 Shelf:00 submitted.
Request to RTS ENET Plane:0 Shelf:00 passed.
```

22 Repeat step 21 for each plane shelf shut down to conserve emergency power, then continue with this procedure.

23 Clear the deload condition on all cards in the node by typing

>DELOAD plane_no shelf_no CLEAR
and pressing the Enter key.

where

plane_no   is 0 or 1
shelf_no   is 0 to 7

MAP response:

```
Request to CLEAR DELOAD ENET Plane:0 Shelf:00
submitted.
Request to CLEAR DELOAD ENET Plane:0 Shelf:00 passed.
```

Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (end)

24 Repeat step 23 for each plane shelf powered down to conserve emergency backup power.

25 Return to the procedure *Recovering from emergency power conservation measures* in this document and proceed as directed.

Restoring the message switch to duplex operation

Application

Use this procedure to restore the message switch (MS) to duplex operation, after having shut down one plane of the MS to conserve emergency power.

> ⚠️ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> ⚠️ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Restoring the message switch to duplex operation (continued)

Summary of Restoring the message switch to duplex operation

Power up MS shelf

↓

Load the MS plane

↓

Test the MS plane

↓

Return the MS plane to service

↓

Return to *Recovering from EPC measures*

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Restoring the message switch to duplex operation (continued)

Restoring the message switch to duplex operation

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom
> recommends that you perform this procedure under
> the supervision of Northern Telecom's Emergency
> Technical Assistance Services (ETAS).

> **CAUTION**
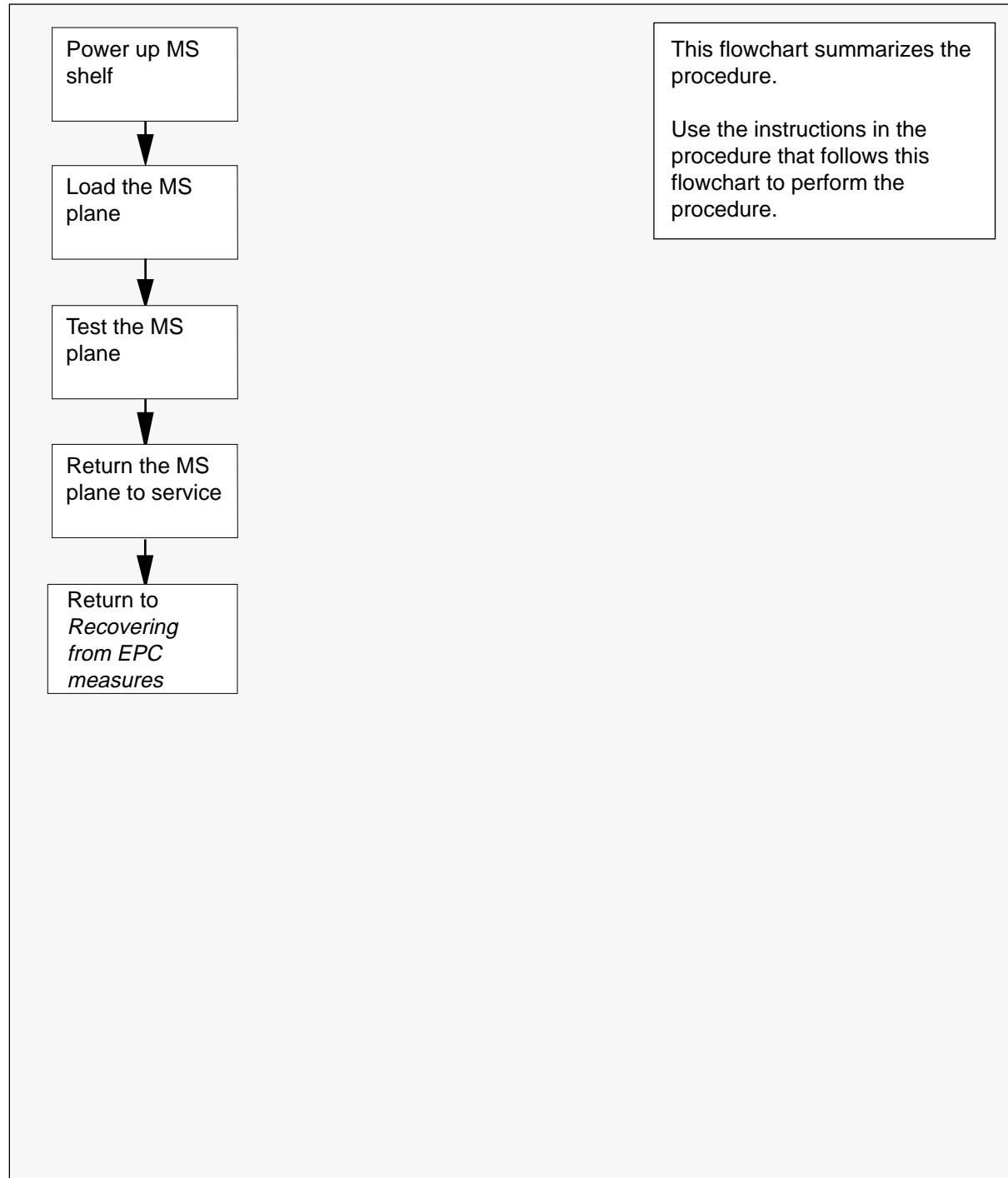> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal
> operation after performing emergency power
> conservation measures. Do not use this procedure or
> portions thereof for equipment maintenance purposes.

At the MS shelf

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap
> grounding point of the frame supervisory panel (FSP)
> while handling cards. This protects the cards against
> damage caused by static electricity.

1   If you powered down half of the remote oscillator (Bliley) shelf (ROS) to
    conserve emergency power, restore the ROS to duplex operation before the
    MS, by performing the procedure *Restoring the remote oscillator shelf to duplex
    operation* in this document. When both halves of the ROS are powered up,
    continue with this procedure.

2   Power up the slave MS, as follows:

    a.   Lift and release the switch on the faceplate of the NT9X31 power converter.

    b.   Lift and release the switch on the faceplate of the NT9X30 power converter.

    Note: The power converters for MS 0 are located in slots 1 and 4. The power
    converters for MS 1 are located in slots 33 and 36.

Restoring the message switch to duplex operation (continued)

3   Access the MS level of the MAP display by typing

>**MAPCI;MTC;MS**
and pressing the Enter key.

4   Reload the most recent MS image file by typing

>**LOADMS ms_number**
and pressing the Enter key.

where

ms_number   is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

```
Request to Load MS: 0 submitted.
Request to Load MS: 0 passed.
Loading completed, entry point is
#06045FCO
```

5   Perform an out-of-service test on the manual-busy MS by typing

>**TST ms_number**
and pressing the Enter key.

where

ms_number   is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

```
Request to TEST OOS MS: 0
submitted.
Request to TEST OOS MS: 0 passed.
No node faults were found on MS 0.
No cards were found to be faulty on
MS0.
Request to TEST VIA MATE MS: 0
submitted.
Request to TEST VIA MATE MS: 0
passed.
No node faults were found on MS 0.
No cards were found to be faulty on
MS 0.
```

Restoring the message switch to duplex operation (end)

6   Return the manual-busy MS to service by typing

>RTS ms_number
and pressing the Enter key.

where

ms_number   is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

```
Request to RTS MS: 0 submitted.
Request to RTS MS: 0 passed.
No node faults were found on MS 0.
No cards were found to be faulty on
MS 0.
```

7   Return to the procedure *Recovering from emergency power conservation measures* in this document and proceed as directed.

Restoring the enhanced network to duplex operation

Application

Use this procedure to restore the enhanced network (ENET) to duplex operation, after having shut down one ENET plane to conserve emergency power.

> ⚠️ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> ⚠️ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Restoring the enhanced network to duplex operation (continued)

Summary of Restoring the enhanced network to duplex operation

Return MS port
chains to
service

↓

Busy offline
ENET
plane shelves

↓

Load manual-
busy ENET
plane shelves

↓

Return manual-
busy plane
shelves to serv.

↓

Clear deload
status from
shelves

↓

Return to
*Recovering
from EPC
measures*

This flowchart summarizes the
procedure.

Use the instructions in the
procedure that follows this
flowchart to perform the
procedure.

Restoring the enhanced network to duplex operation (continued)

Restoring the enhanced network to duplex operation

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform his procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

> ⚠ **CAUTION**
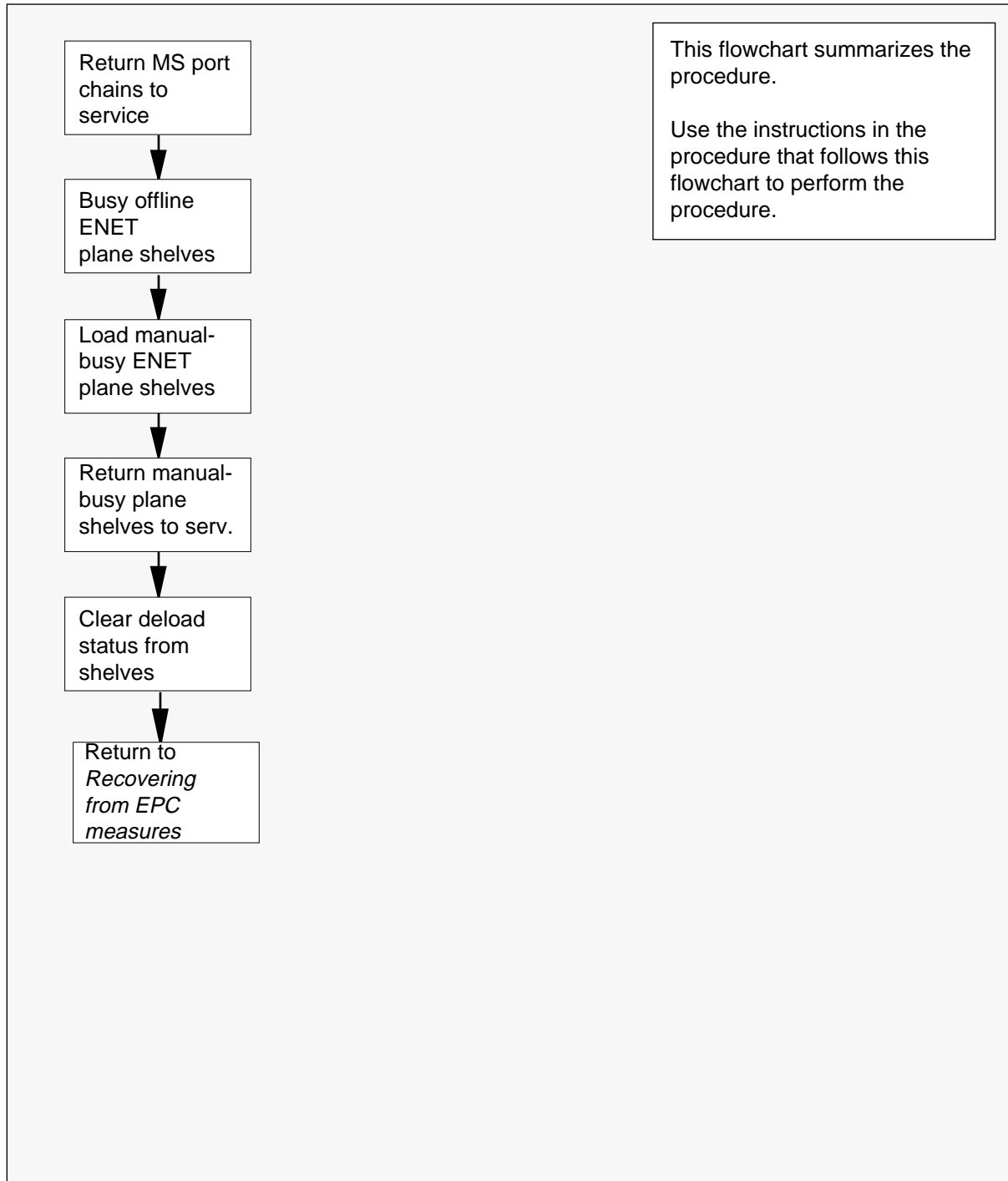> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

At the external ENET cabinets, if provided

1 Ensure that the cooling fans for the ENET cabinets are operating.

At the external ENET shelves

> ⚠ **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory (FSP) or a modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage by static electricity.

2 Restore power to each ENET node that was shut down to conserve emergency backup power, by pressing upward on the power switches on the faceplates of the power converters.

   Note: As each power converter is powered up, the LED labeled CONVERTER OFF goes out.

Restoring the enhanced network to duplex operation (continued)

At the MAP

3   Access the MS Shelf level

>MAPCI;MTC;MS;SHELF
and pressing the Enter key.

4   Identify the message switch card chain associated with each plane shelf that
was powered down to conserve emergency power by typing

>TRNSL plane_no shelf_no
and pressing the Enter key.

where

plane_no   is the ENET plane number (0 or 1)
shelf_no   is the ENET shelf number (0 to 7)

Example of a MAP response:

```
Request to TRNSL ENET Plane:0 Shelf:00 passed.
ENET Plane:0 Shelf:00 MS:0 and 1 Card:20 Link:00 Port:00
```

5   Return the head card in the associated chain on MS 0 to serviceby typing

>RTS 0 card_no CHAIN
and pressing the Enter key.

where

card_no   is the card number shown in the MAP response in step 4

6   Return the head card in the associated chain on MS 1 to service by typing

>RTS 1 card_no CHAIN
and pressing the Enter key.

where

card_no   is the card number shown in the MAP response in step 4

7   Repeat steps 4 to 6 for each plane shelf that was powered down to conserve
emergency power, then continue with this procedure.

8   Access the network System level of the MAP displayby typing

>NET;SYSTEM
and pressing the Enter key.

Example of a MAP display:

```
SYSTEM
Shelf            Plane 0            Plane 1
 00                 O                    .
 01                 O                    .
```

Restoring the enhanced network to duplex operation (continued)

    9   Determine which ENET plane shelves are offline.

If	Do
all the ENET plane shelves that are currently offline were shut down to conserve emergency power	step 12
any ENET plane shelves are offline for other reasons, and cannot be returned to service at this time	step 10

  10 Manually busy the first offline plane shelfby typing

    >BSY plane_no shelf_no
    and pressing the Enter key.

    where

    plane_no is the ENET plane number (0 or 1)
    shelf_no is the ENET shelf number (0 to 7)

    MAP response:

```
Request to MAN BUSY ENET Plane:0 Shelf:00 submitted.
Request to MAN BUSY ENET Plane:0 Shelf:00 passed.
```

  11 Repeat step 10 for each plane shelf that was shut down to conserve emergency power, then continue at step 13.

  12 Manually busy all offline plane shelves by typing

    >BSY ALL OFFL
    and pressing the Enter key.

  13 Determine if all manual-busy ENET plane shelves are in that state as a result of being shut down to conserve emergency power. If so, they can be loaded as a group. If any plane shelves are manual-busy for other reasons, the plane shelves must be loaded individually.

If you want to load	Do
all manual-busy ENET plane shelves at once	step 17
individual manual-busy plane shelves	step 14

Restoring the enhanced network to duplex operation (continued)

14 Load software into the selected plane shelf by typing

>LOADEN plane_no shelf_no
and pressing the Enter key.

where

plane_no   is the ENET plane number (0 or 1)

shelf_no   is the ENET shelf number (0 to 7)

MAP response:

```
WARNING  Any software load in the ENET will be destroyed.
Please confirm ("YES" or "NO"):
```

15 Confirm the load by typing

>YES
and pressing the Enter key.

16 Repeat steps 14 and 15 for each plane shelf that was shut down to conserve emergency power, then continue at step 18.

17 Load software into all manual-busy plane shelves by typing

>LOADENALL NOPROMPT NOWAIT
and pressing the Enter key.

18 Determine if an entire ENET plane was removed from service to conserve emergency power. If so, all plane shelves on that plane can be returned to service as a group. If any plane shelves are manual-busy for other reasons, the plane shelves must be loaded individually.

If you want to return to service	Do
all manual-busy ENET plane shelves on one plane	step 19
individual manual-busy plane shelves	step 21

Restoring the enhanced network to duplex operation (continued)

19 Return all manual-busy plane shelves on the plane to service by typing

>**RTS plane_no ALL**
and pressing the Enter key.

where

plane_no   is the network plane number (0 or 1)

MAP response:

```
Request to RTS ENET Plane:0 Shelf:00 submitted.
Request to RTS ENET Plane:0 Shelf:00 passed.
```

20 Go to step 23.

21 Return the selected plane shelf to service by typing

>**RTS plane_no shelf_no**
and pressing the Enter key.

where

plane_no   is the ENET plane number (0 or 1)
shelf_no   is the ENET shelf number (0 to 7)

MAP response:

```
Request to RTS ENET Plane:0 Shelf:00 submitted.
Request to RTS ENET Plane:0 Shelf:00 passed.
```

22 Repeat step 21 for each plane shelf shut down to conserve emergency power, then continue with this procedure.

23 Clear the deload condition on all cards in the node by typing

>**DELOAD plane_no shelf_no CLEAR**
and pressing the Enter key.

where

plane_no is the ENET plane number (0 or 1)
shelf_no   is the ENET shelf number (0 to 7)

MAP response:

```
Request to CLEAR DELOAD ENET Plane:0 Shelf:00 submitted.
Request to CLEAR DELOAD ENET Plane:0 Shelf:00 passed.
```

24 Repeat step 23 for each plane shelf powered down to conserve emergency backup power.

Restoring the enhanced network to duplex operation (end)

25 Determine if there are link interface units (LIU) residing on the ENET Interface (ENI) shelf in the SCC cabinet. If provisioned, the LIUs reside in ENI shelf slots 7 to 9, and 30 to 32.

If the ENI shelf	Do
contains LIUs	step 27
does not contain LIUs	step 29

At the MAP terminal

26 Access the F-bus level by typing

>**MS;SHELF;CARD 12**
and pressing the Enter key.

27 Return the F-bus associated with the ENET node that was powered down to service by typing

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

where

ms_no   is the message switch number. Enter 0 if plane 0 of the ENI shelf was powered down, or 1 if plane 1 of the ENI shelf was powered down.

28 Return the busied taps on the other F-bus to service by typing

>**RTS ms_no TAP tap_no**
and pressing the Enter key.

where

ms_no   is the message switch number NOT entered in step 27.
             Enter 0 if plane 1 of the ENI shelf was powered down,
             or 1 if plane 0 of the ENI shelf was powered down.

tap_no   is the tap number. Enter 0 if plane 0 of the ENI shelf was
             powered down, or 11 if plane 1 of the ENI shelf was
             powered down.

29 Return to the procedure *Recovering from emergency power conservation measures* in this document and proceed as directed.

Recovering from emergency power conservation

Application

Use this procedure to return a DMS SuperNode switch to normal operation after having performed all or portions of the procedure *Emergency power conservation* to conserve emergency backup power.

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure consists of a top level procedure and a number of subprocedures. The top level procedure, *Recovering from emergency power conservation* in this document, specifies the equipment to be restored, and the order in which to do so. The top level procedure refers out to a number of subprocedures, listed in the table of contents, that provide detailed instructions for restoring individual elements of the switch.

Usage notes

This procedure specifies equipment recovery in descending order based on its effect on overall system reliability -that is, beginning with highly essential equipment such as the inactive CM plane, and ending with less essential equipment such maintenance trunk modules. Depending on the configuration of your office and the priorities of your operating company, you may, however, elect to return switching subsystems to service in an alternate order.

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, the instructions provided to restore normal operation assume that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

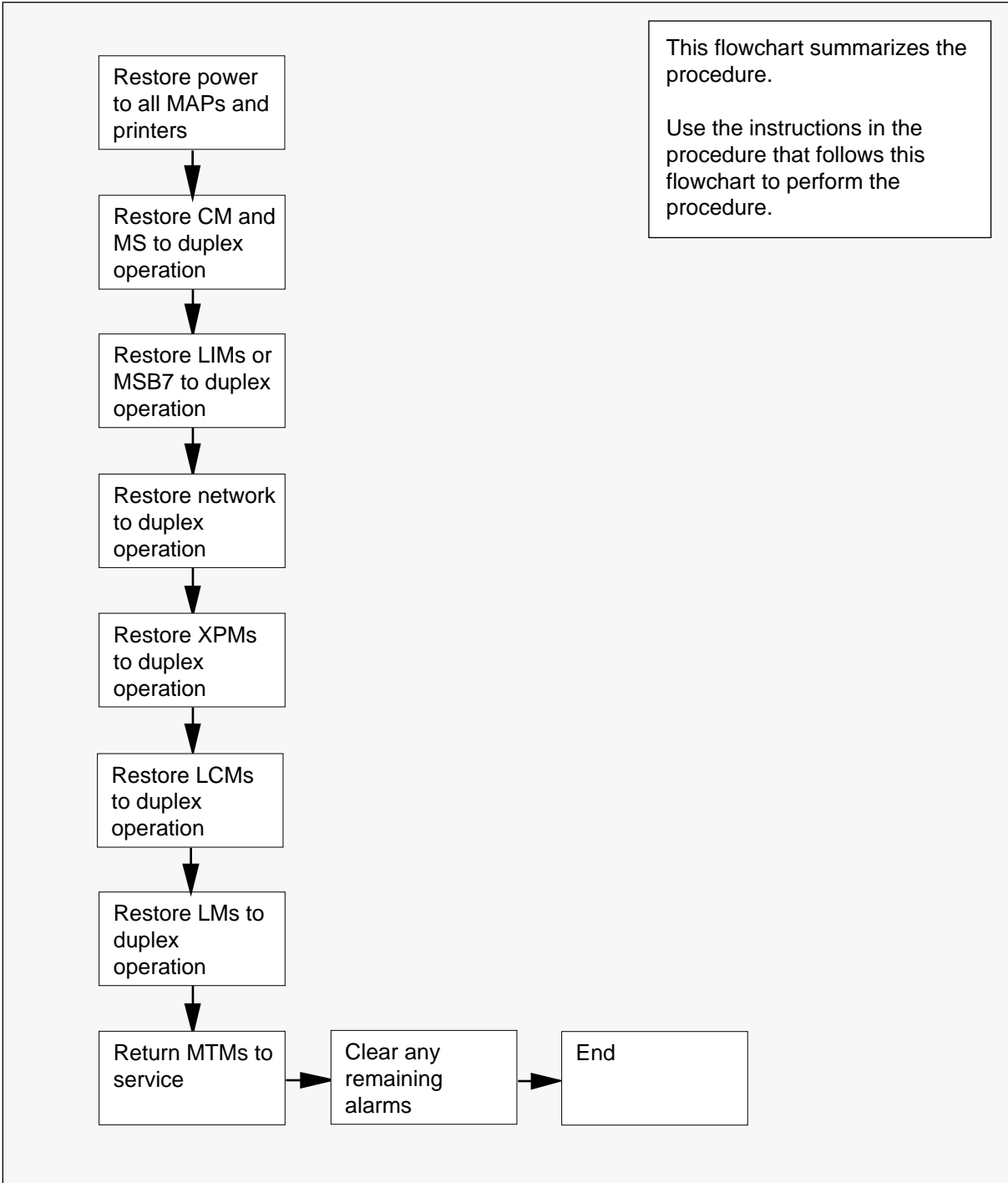## **Recovering from emergency power conservation** (continued)

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering from emergency power conservation (continued)

Summary of Recovering from emergency power conservation

```
┌─────────────────┐          This flowchart summarizes the
│ Restore power   │          procedure.
│ to all MAPs and │
│ printers        │          Use the instructions in the
└────────┬────────┘          procedure that follows this
         │                   flowchart to perform the
         ▼                   procedure.
┌─────────────────┐
│ Restore CM and  │
│ MS to duplex    │
│ operation       │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Restore LIMs or │
│ MSB7 to duplex  │
│ operation       │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Restore network │
│ to duplex       │
│ operation       │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Restore XPMs    │
│ to duplex       │
│ operation       │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Restore LCMs    │
│ to duplex       │
│ operation       │
└────────┬────────┘
         │
         ▼
┌─────────────────┐
│ Restore LMs to  │
│ duplex          │
│ operation       │
└────────┬────────┘
         │
         ▼
┌─────────────────┐    ┌─────────────┐    ┌─────────┐
│ Return MTMs to  │───▶│ Clear any   │───▶│ End     │
│ service         │    │ remaining   │    │         │
│                 │    │ alarms      │    │         │
└─────────────────┘    └─────────────┘    └─────────┘
```

Recovering from emergency power conservation (continued)

Recovering from emergency power conservation

⚠️ **CAUTION**
Potential extended equipment outage
To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

⚠️ **CAUTION**
Potential loss of service or extended outage
This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

At the MAP

1   Read the section Usage notes at the start of this procedure.

2   Restore power to the inverters that supply printers and spare MAPs.

3   If you shut down one plane of the computing module (CM) to conserve emergency backup power, recover it by performing the procedure *Restoring the CM to duplex operation* in this document.

4   If you shut down one side of the remote oscillator (Bliley) shelf to conserve emergency backup power, recover it by performing the procedure *Restoring the remote oscillator shelf to duplex operation* in this document.

5   If you shut down one message switch (MS) shelf to conserve emergency backup power, recover it by performing the procedure *Restoring the MS to duplex operation* in this document.

6   If you shut down one unit of a CCS7 message switch and buffer (MSB7) to conserve emergency backup power, recover it by performing the procedure *Restoring the MSB7 to duplex operation* in this document.

7   If you shut down one link interface module (LIM) unit on one or more link peripheral processors (LPP) to conserve emergency backup power, recover them by performing the procedure *Restoring the LPP LIM to duplex operation* in this document.

8   If you removed power from one or more network frames, restore power to the affected frames at the power distribution center (PDC).

Recovering from emergency power conservation (end)

9   If you shut down one or more junctored network (JNET) shelves to conserve emergency backup power, recover them by performing the procedure *Restoring the junctored network to duplex operation* in this document.

10 If you shut down one or more enhanced network (ENET) shelves to conserve emergency backup power, recover them by performing the procedure *Restoring the enhanced network to duplex operation* in this document.

11 If you shut down one or more line group controller (LGC), line trunk controller (LTC), or digital trunk controller (DTC) units to conserve emergency power, recover them by performing the procedure *Restoring LGCs, LTCs and DTCs to duplex operation* in this document.

12 If you shut down one or more line concentrating module (LCM) units to conserve emergency power, recover them by performing the procedure *Restoring LCMs to duplex operation* in this document.

13 If you shut down one or more line module (LM) controllers to conserve emergency power, recover them by performing the procedure *Restoring line modules to duplex operation* in this document.

14 If you shut down one or more maintenance trunk modules (MTM) to conserve emergency power, recover them by performing the procedure *Returning maintenance trunk modules to service* in this document.

15 Clear any remaining alarms on the MAP using the appropriate alarm clearing NTPs.

16 You have completed this procedure.

Recovering from emergency power conservation
Restoring the CM to duplex operation

Application

Use this procedure to restore the computing module (CM) to normal duplex operation after having shut down one central processing unit (CPU) to conserve emergency backup power.

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.
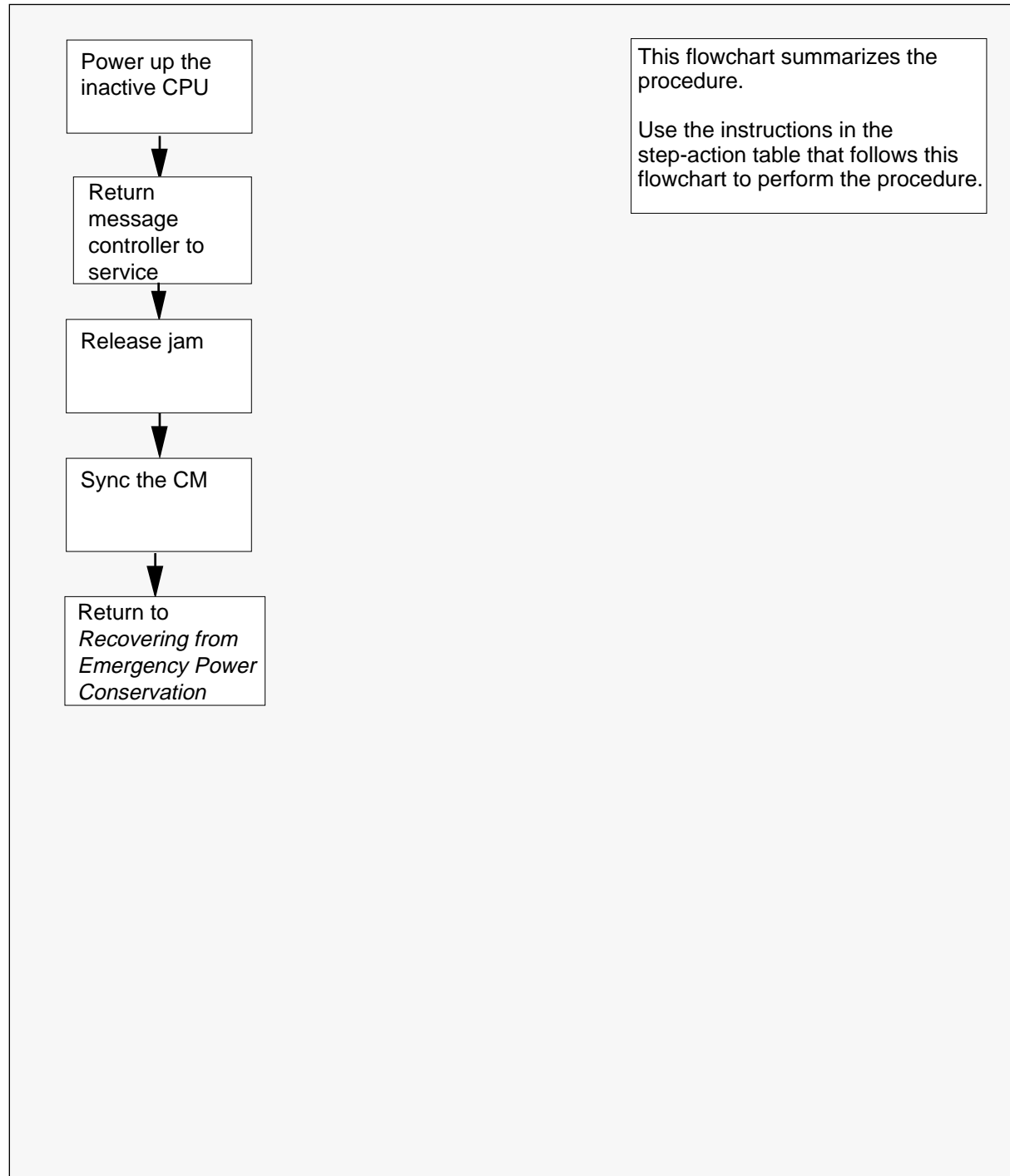
Action

The following flowchart is only a summary of the procedure. Use the instructions in the step-action procedure to complete this action.

Recovering from emergency power conservation
Restoring the CM to duplex operation (continued)

Summary of Restoring the CM to duplex operation

```
┌─────────────────┐
│ Power up the    │
│ inactive CPU    │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return          │
│ message         │
│ controller to   │
│ service         │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Release jam     │
│                 │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Sync the CM     │
│                 │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ Recovering from │
│ Emergency Power │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the step-action table that follows this flowchart to perform the procedure.

Recovering from emergency power conservation
Restoring the CM to duplex operation (continued)

Restoring the CM to duplex operation

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

At your CM shelf

1

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

Power up the inactive CPU, as follows:

- Lift and release the power switch on the faceplate of the NT9X31 power converter on the inactive side of the CM shelf.

   Note: For CPU 0, the power converter is located in slots 1F through 3F. For CPU 1, the power converter is located in slots 33F through 35F.

- Lift and release the power switch on the faceplate of the NT9X30 power converter on the inactive side of the CM shelf.

   Note: For CPU 0, the power converter is located in slots 4F through 6F. For CPU 1, the power converter is located in slots 36F through 38F.

Recovering from emergency power conservation
Restoring the CM to duplex operation (continued)

At the CM reset terminal for the inactive CPU

2 After powering up the inactive CPU, wait a few minutes for the switch to complete memory card tests.

Example of an RTIF response:

```
Shelf       Slot
00          12          NT9X14DB...
00          13          NT9X14DB...
Waiting for activity...
```

Note: When the CPU has successfully powered up, the Waiting for activity message is displayed.

At the MAP

3 Access the CM level of the MAP display by typing

>MAPCI;MTC;CM
and pressing the Enter key.

Example of a MAP display:

```
CM  Sync  Act  CPU0  CPU1 Jam Memory CMMnt  MC   PMC
 0   no  cpu 1   .     .  yes   .      .    mbsy  .
```

4 Access the MC level of the MAP display by typing

>MC
and pressing the Enter key.

5 Return the manual-busy MC to service by typing

>RTS mc_number
and pressing the Enter key.

where

mc_number   is the number of the manual-busy MC (0 or 1)

Example of a MAP response:

```
Maintenance action submitted.
MC RTS ok.
```

Recovering from emergency power conservation
Restoring the CM to duplex operation (end)

At the CM reset terminal for the inactive CPU

6   Release the jam on the inactive CPU by typing

>   **>\RELEASE JAM**
>   and pressing the Enter key.

RTIF response:

```
JAM RELEASE DONE
```

At the MAP

7   Synchronize the CM by typing

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

Example of a MAP response:

```
Maintenance action submitted.
Synchronization successful.
```

8   Return to the procedure *Recovering from emergency power conservation* in this document and proceed as directed.

Recovering from emergency power conservation
Restoring the junctored network to duplex operation

Application

Use this procedure to restore the junctored network (JNET) to duplex operation, after having shut down one JNET plane to conserve emergency power.

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.
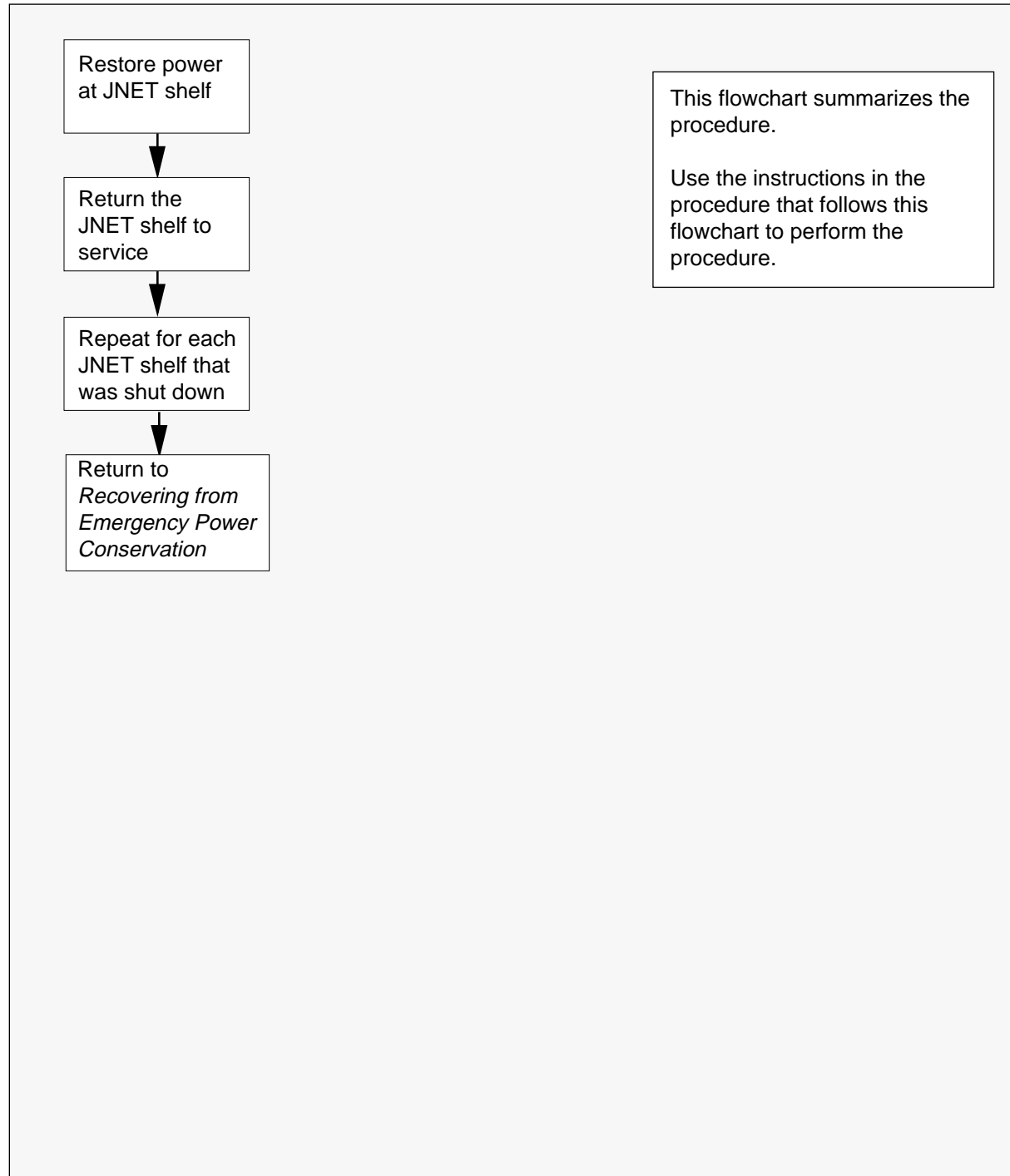
Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering from emergency power conservation
Restoring the junctored network to duplex operation (continued)

Summary of Restoring the junctored network to duplex operation

```
┌─────────────────┐
│ Restore power   │
│ at JNET shelf   │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return the      │
│ JNET shelf to   │
│ service         │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Repeat for each │
│ JNET shelf that │
│ was shut down   │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ *Recovering from* │
│ *Emergency Power* │
│ *Conservation*    │
└─────────────────┘
```

┌──────────────────────────────┐
│ This flowchart summarizes the │
│ procedure.   │
│   │
│ Use the instructions in the   │
│ procedure that follows this   │
│ flowchart to perform the   │
│ procedure.   │
└──────────────────────────────┘

Recovering from emergency power conservation
Restoring the junctored network to duplex operation (continued)

Restoring the junctored network to duplex operation

> ### CAUTION
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

> ### CAUTION
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

At the JNET shelf

1

> ### WARNING
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

Determine if the power converter is an NT2X70AE card.

If the power converter is	Do
an NT2X70AE card	step 2
not an NT2X70AE card	step 5

Recovering from emergency power conservation
Restoring the junctored network to duplex operation (continued)

2   Determine if the frame supervisory panel (FSP) or modular supervisory panel (MSP) has circuit breakers.

If the FSP or MSP	Do
has circuit breakers	step 3
does not have circuit breakers	step 4

3   Power up the converter, as follows:

   a.   Pull and set the handle of the POWER switch upward to the RESET position and hold.

   b.   Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

   c.   Release the handle.

   Go to step 8.

4   Power up the converter, as follows:

   a.   Pull and set the handle of the POWER switch upward to the RESET position and hold until the CONVERTER FAIL LED goes off.

   b.   Release the handle.

   Go to step 8.

5   Determine if the FSP or MSP has circuit breakers.

If the FSP or MSP	Do
has circuit breakers	step 6
does not have circuit breakers	step 7

Recovering from emergency power conservation
Restoring the junctored network to duplex operation (continued)

6 Power up the converter, as follows:

    a.   Pull and set the handle of the POWER switch upward to the ON position.

    b.   Press and hold the RESET button on the power converter

    c.   Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

    d.   Release the RESET button.

    Go to step 8.

7 Power up the converter, as follows:

    a.   Pull and set the handle of the POWER switch upward to the ON position.

    b.   Press the RESET button on the power converter until the CONVERTER FAIL LED goes off.

    c.   Release the RESET button.

At the MAP

8 Access the NET level of the MAP display by typing

>MAPCI;MTC;NET
and pressing the Enter key.

Example of a MAP response:

```
Net
             11111   11111   22222   22222   33
Plane   01234   56789   01234   56789      01234   56
789 01
   0    0000
   1    0000
JNET:
```

9 Return the network module to service by typing

>RTS plane_no pair_no
and pressing the Enter key.

where

plane_no   is the network plane number (0 or 1)
pair_no   is the network plane pair number (0 to 31)

Recovering from emergency power conservation
Restoring the junctored network to duplex operation (end)

10   Repeat steps 1 to 9 for each plane pair removed from service to conserve emergency power.

11   Return to the procedure *Recovering from emergency power conservation* in this document and proceed as directed.

Recovering from emergency power conservation
Restoring LCMs to duplex operation

Application

Use this procedure to restore line concentrating modules (LCM) to duplex operation, after having shut down one unit of each LCM to conserve emergency power.

⚠ **CAUTION**
Potential extended equipment outage
To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

⚠ **CAUTION**
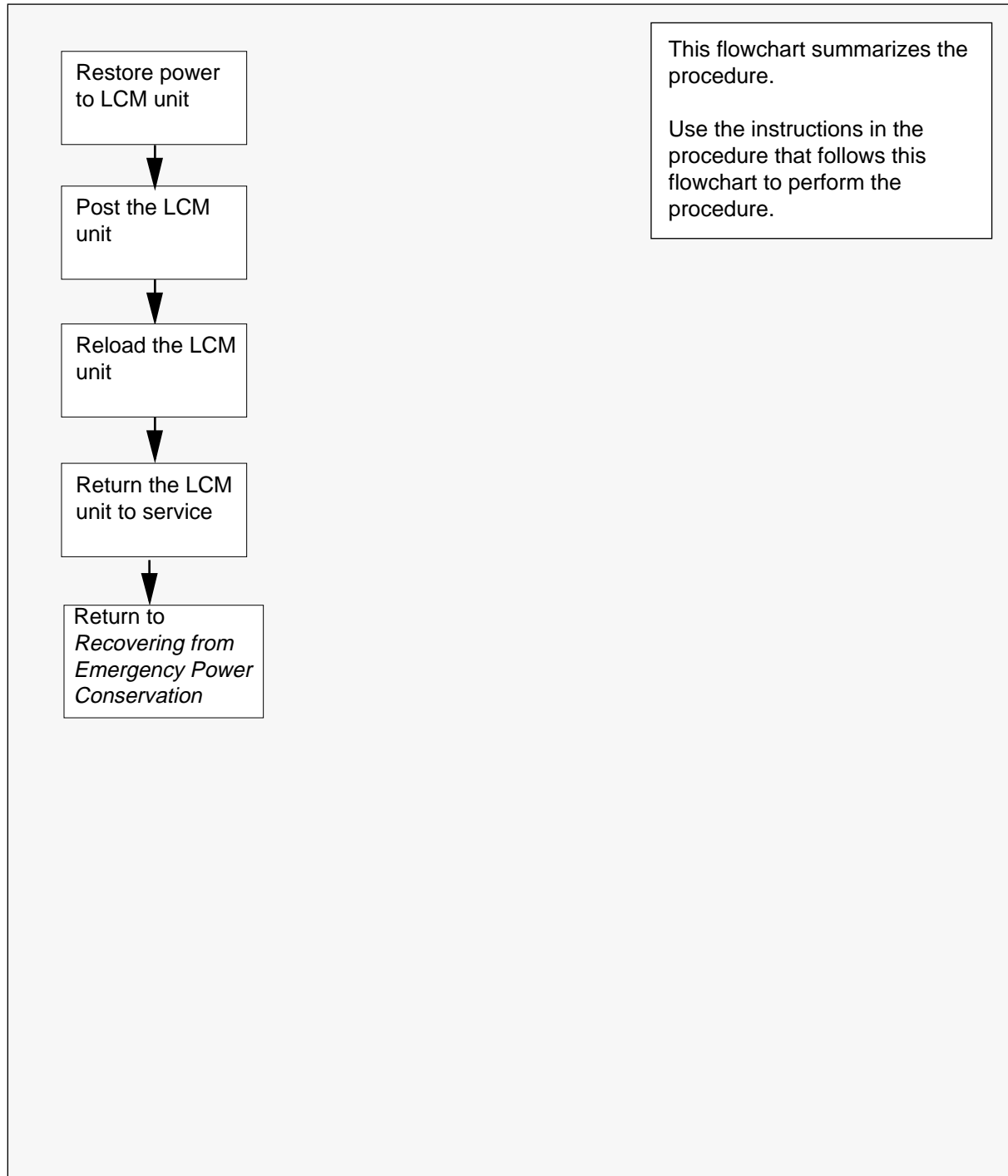**Potential loss of service or extended outage**
This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering from emergency power conservation
Restoring LCMs to duplex operation (continued)

Summary of Restoring LCMs to duplex operation

```
┌─────────────────┐
│ Restore power   │
│ to LCM unit     │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Post the LCM    │
│ unit            │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Reload the LCM  │
│ unit            │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return the LCM  │
│ unit to service │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ Recovering from │
│ Emergency Power │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Recovering from emergency power conservation
Restoring LCMs to duplex operation (continued)

Restoring LCMs to duplex operation

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

At the LCM

1

> ⚡ **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

At the FSP or MSP, turn on the appropriate circuit breakers.

At the MAP

2 Access the PM level of the MAP display by typing

>MAPCI; MTC;PM
and pressing the Enter key.

Recovering from emergency power conservation
Restoring LCMs to duplex operation (end)

3 Post the LCM by typing

  >POST LCM HOST frame pair
  and pressing the Enter key.

  where

  frame   is the frame number (00 to 99)
  pair   is the frame pair number (0 to 1)

  Example of a MAP response:

```
LCM HOST 00 0 InSv Links  OOS: Cside 0 Pside 0
Unit 0: InSv        /RG:0
Unit 1: InSv    /RG:1
                      11 11 11 11 11
Drwr:   01 23 45 67 89 01 23 45 67 89   RG:Pref 0 InSv
                                          Stby 1 InSv
```

4 Load the LCM unit by typing

  >LOADPM UNIT unit_no
  and pressing the Enter key.

  where

  unit_no   is the PM unit number (0 or 1)

5 Return the LCM to service by typing

  >RTS UNIT unit_no
  and pressing the Enter key.

  where

  unit_no   is the PM unit number (0 or 1)

6 Repeat steps 1 to 5 for each LCM unit that you shut down to conserve emergency power.

7 Return to the procedure *Recovering from emergency power conservation* in this document and proceed as directed.

Recovering from emergency power conservation
Restoring line modules to duplex operation

Application

Use this procedure to restore line modules (LM) to duplex operation, after having shut down one unit of each LM controller to conserve emergency power.

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.
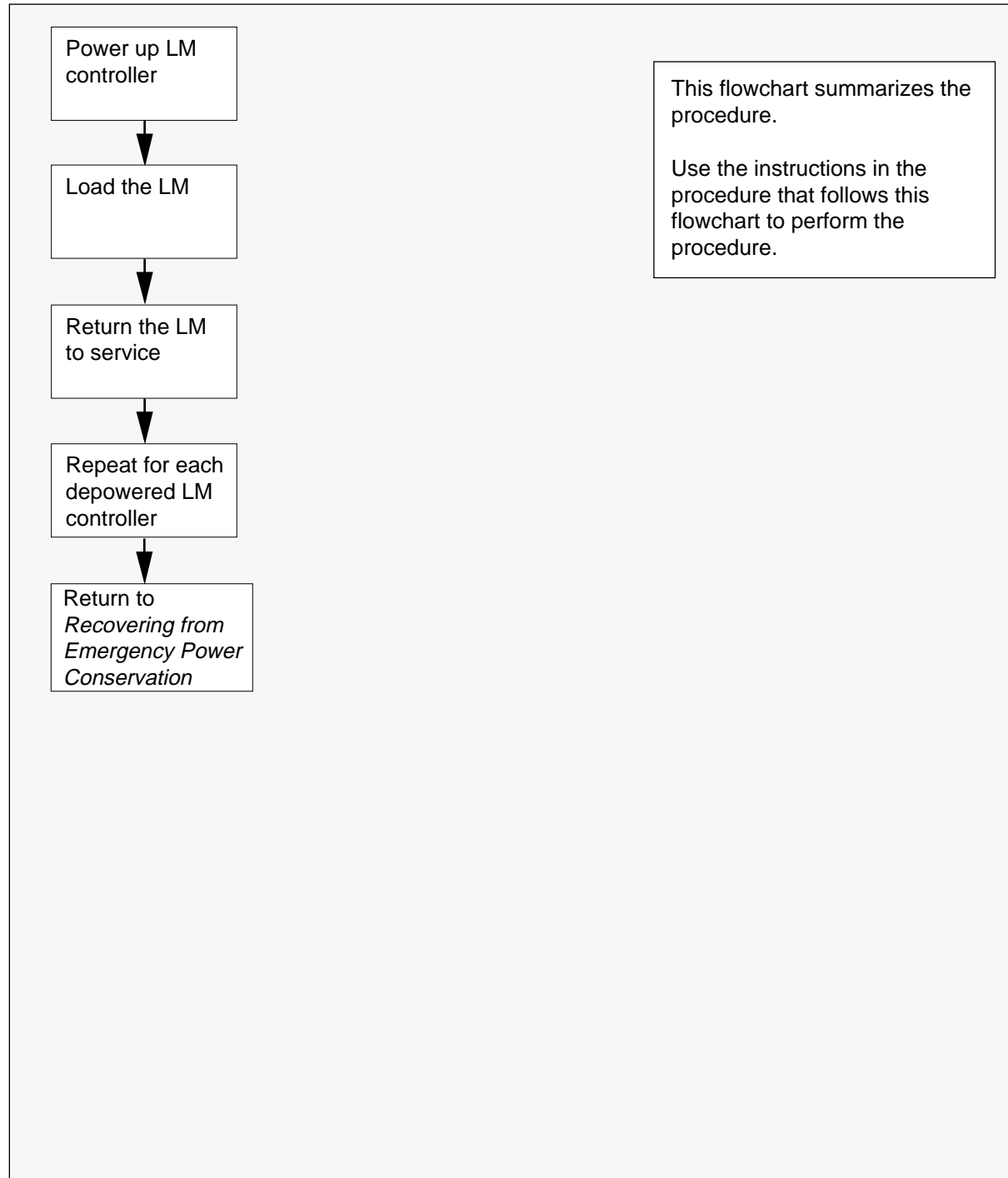
Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering from emergency power conservation
Restoring line modules to duplex operation (continued)

Summary of Restoring line modules to duplex operation

```
┌──────────────┐
│ Power up LM  │
│ controller   │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Load the LM  │
│              │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Return the LM│
│ to service   │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Repeat for   │
│ each         │
│ depowered LM │
│ controller   │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│ Return to    │
│ Recovering   │
│ from         │
│ Emergency    │
│ Power        │
│ Conservation │
└──────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Recovering from emergency power conservation
Restoring line modules to duplex operation (continued)

Restoring line modules to duplex operation

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom
> recommends that you perform this procedure under
> the supervision of Northern Telecom's Emergency
> Technical Assistance Services (ETAS).

> **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal
> operation after performing emergency power
> conservation measures. Do not use this procedure or
> portions thereof for equipment maintenance purposes.

At the LM controller shelf

1
> **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap
> grounding point of a frame supervisory panel (FSP) or
> a modular supervisory panel (MSP) while handling
> circuit cards. This protects the cards against damage
> caused by static electricity.

Determine if the power converter is an NT2X70AE card.

If the power converter is	Do
an NT2X70AE card	step 2
not an NT2X70AE card	step 5

Recovering from emergency power conservation
Restoring line modules to duplex operation (continued)

2   Determine if the frame supervisory panel (FSP) or modular supervisory panel (MSP) has circuit breakers.

If the FSP or MSP	Do
has circuit breakers	step 3
does not have circuit breakers	step 4

3   Power up the converter in slot 20, as follows:

a.   Pull and set the handle of the POWER switch upward to the RESET position and hold.

b.   Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

c.   Release the handle.

Go to step 8.

4   Power up the converter in slot 20, as follows:

a.   Pull and set the handle of the POWER switch upward to the RESET position and hold until the CONVERTER FAIL LED goes off.

b.   Release the handle.

Go to step 8.

5   Determine if the FSP or MSP has circuit breakers.

If the FSP or MSP	Do
has circuit breakers	step 6
does not have circuit breakers	step 7

Recovering from emergency power conservation
Restoring line modules to duplex operation (continued)

6 Power up the converter in slot 20, as follows:

    a. Pull and set the handle of the POWER switch upward to the ON position.

    b. Press and hold the RESET button on the power converter.

    c. Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

    d. Release the RESET button.

    Go to step 8.

7 Power up the converter in slot 20, as follows:

    a. Pull and set the handle of the POWER switch upward to the ON position.

    b. Press the RESET button on the power converter until the CONVERTER FAIL LED goes off.

    c. Release the RESET button.

At the MAP

8 Access the PM level of the MAP display by typing

    >MAPCI;MTC;PM
    and pressing the Enter key.

9 Post the affected LM by typing

    >POST LM HOST frame pair
    and pressing the Enter key.

    where

    frame   is the frame number (00 to 99)
    pair   is the frame pair number (0 to 1)

    Example of a MAP response:

```
LM  HOST 00 0  ManB
```

10 Load the PM by typing

    >LOADPM
    and pressing the Enter key.

Recovering from emergency power conservation
Restoring line modules to duplex operation (end)

11 Return the PM to service by typing

>RTS
and pressing the Enter key.

12 Repeat steps 1 to 11 for each line module controller that was shut down to conserve emergency power.

13 Return to the procedure *Recovering from emergency power conservation* in this document and proceed as directed.

Recovering from emergency power conservation
Restoring the LPP LIM to duplex operation

Application

Use this procedure to restore the link interface module (LIM) in each link peripheral processor (LPP) to duplex operation, after having shut down one unit of the LIM to conserve emergency power.

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> **CAUTION**
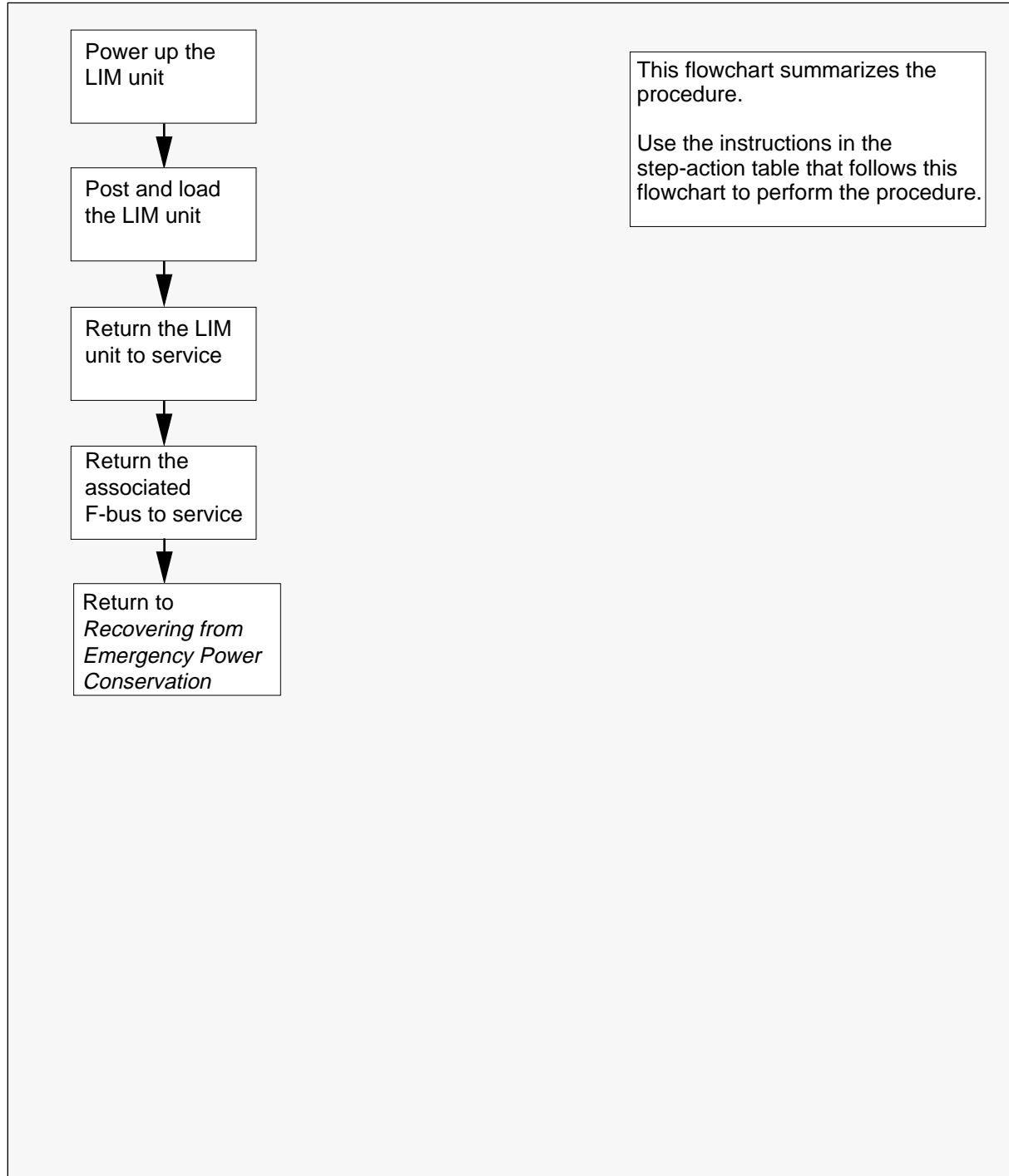> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

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.

Recovering from emergency power conservation
Restoring the LPP LIM to duplex operation (continued)

Summary of Restoring the LPP LIM to duplex operation

```
┌─────────────┐
│ Power up the│
│ LIM unit    │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Post and load│
│ the LIM unit │
└─────────────┘
       │
       ▼
┌─────────────┐
│ Return the LIM│
│ unit to service│
└─────────────┘
       │
       ▼
┌─────────────┐
│ Return the   │
│ associated   │
│ F-bus to service│
└─────────────┘
       │
       ▼
┌─────────────┐
│ Return to    │
│ Recovering from│
│ Emergency Power│
│ Conservation │
└─────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the step-action table that follows this flowchart to perform the procedure.

Recovering from emergency power conservation
Restoring the LPP LIM to duplex operation (continued)

Restoring the LPP LIM to duplex operation

At the LPP

> ⚠️ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom
> recommends that you perform this procedure under
> the supervision of Northern Telecom's Emergency
> Technical Assistance Services (ETAS).

> ⚠️ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal
> operation after performing emergency power
> conservation measures. Do not use this procedure or
> portions thereof for equipment maintenance purposes.

1   Power up the LIM unit you shut down to conserve emergency power, as follows:

   * If you powered down unit 0, lift and release the power switch on the
     faceplate of the NT9X30 power converter in slot 4F.
   * If you powered down unit 1, lift and release the power switch on the
     faceplate of the NT9X30 power converter in slot 36F.

At the MAP

2   Access the PM level of the MAP display by typing

   >MAPCI;MTC;PM
   and pressing the Enter key.

   Example of a MAP display:

```
          SysB    ManB    OffL    CBsy    ISTb    InSv
   PM         1      10      12       0       6      49
```

Recovering from emergency power conservation
Restoring the LPP LIM to duplex operation (continued)

3   Post the LIM to be restored to duplex operation by typing

   >POST LIM lim_no
   and pressing the Enter key.

   where

   lim_no   is the number of the LIM to be posted (0 to 16)

   Example of a MAP response:

```
 LIM  1  ISTB
                  Links_OOS Taps_OOS
     Unit0: ManB     2        16
     Unit1: InSv     .         .
```

4   Load the LIM unit that you powered up in step 1 by typing

   >LOADPM UNIT unit_no
   and pressing the Enter key.

   where

   unit_no   is the number of the LIM unit (0 or 1)

5   Return the LIM unit that you powered up in step 1 to service by typing

   >RTS UNIT unit_no
   and pressing the Enter key.

   where

   unit_no   is the number of the LIM unit (0 or 1)

6   Access the F-bus level of the MAP display by typing

   >FBUS
   and pressing the Enter key.

At the MAP

7   Return the F-bus to service by typing

   >RTS FBUS fbus_no
   and pressing the Enter key.

   where

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

   Note: F-bus 0 is associated with LIM unit 0; F-bus 1 is associated with LIM
   unit 1.

Recovering from emergency power conservation
Restoring the LPP LIM to duplex operation (end)

    8   Repeat steps 1 to 7 for each LPP that was converted to simplex operation to conserve emergency power.

    9   Return to the procedure *Recovering from emergency power conservation* in this document and proceed as directed.

Recovering from emergency power conservation
Restoring the MS to duplex operation

Application

Use this procedure to restore the message switch (MS) to duplex operation, after having shut down one plane of the MS to conserve emergency power.

!

CAUTION
Potential extended equipment outage
To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

!

CAUTION
Potential loss of service or extended outage
This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.
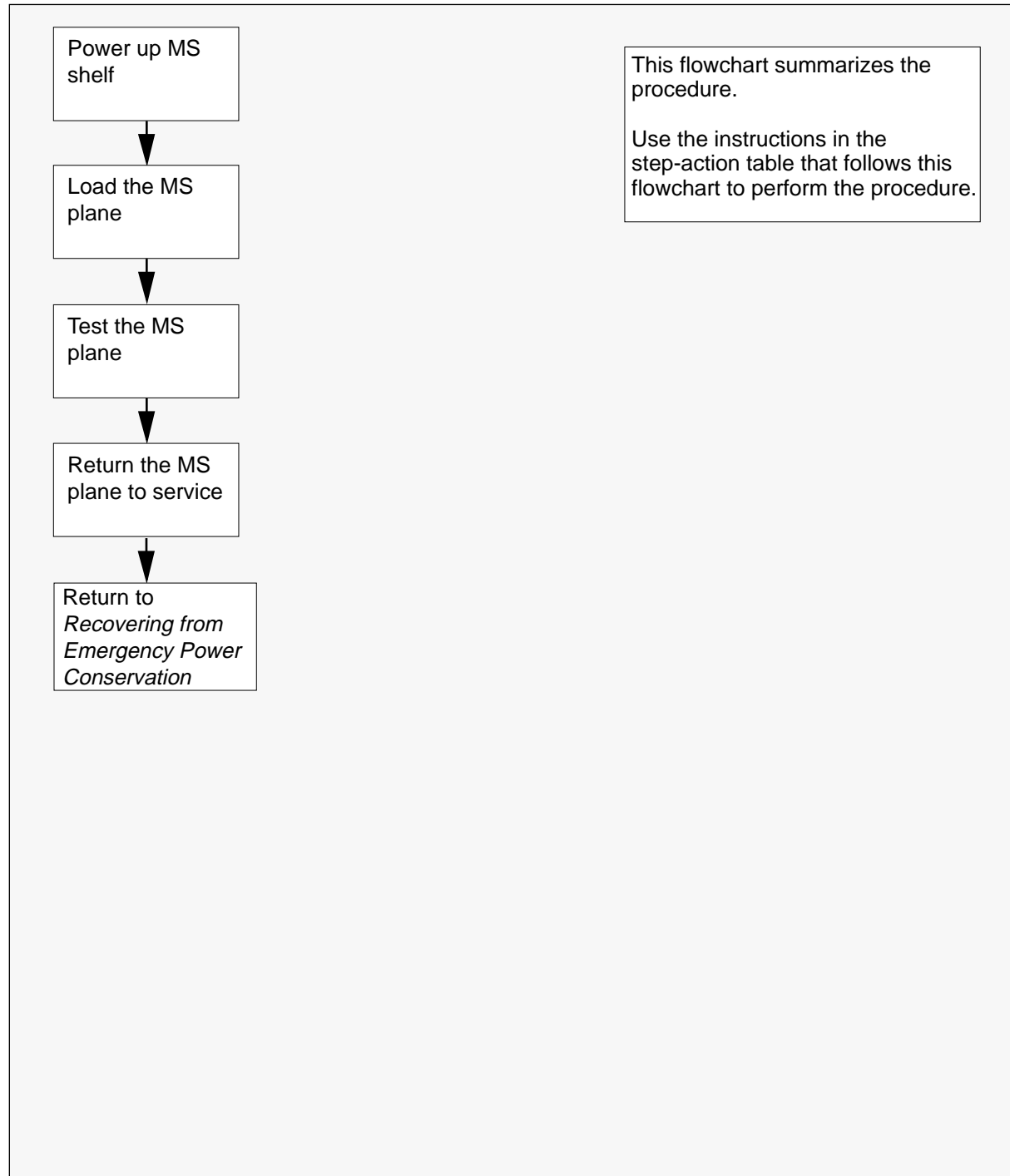

Action

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.

Recovering from emergency power conservation
Restoring the MS to duplex operation (continued)

Summary of Restoring the MS to duplex operation

```
┌─────────────────┐
│ Power up MS     │
│ shelf           │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Load the MS     │
│ plane           │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Test the MS     │
│ plane           │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return the MS   │
│ plane to service│
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ Recovering from │
│ Emergency Power │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the step-action table that follows this flowchart to perform the procedure.

Recovering from emergency power conservation
Restoring the MS to duplex operation (continued)

Restoring the MS to duplex operation

1

> ⚠️ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

> ⚠️ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

If you powered down half of the remote oscillator (Bliley) shelf (ROS) to conserve emergency power, restore the ROS to duplex operation before the MS, by performing the procedure *Restoring the remote oscillator shelf to duplex operation* in this document. When both halves of the ROS are powered up, continue with this procedure.

Recovering from emergency power conservation
Restoring the MS to duplex operation (continued)

At the MS shelf

2

> **WARNING**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of the frame supervisory panel (FSP) while handling cards. This protects the cards against damage caused by static electricity.

Power up the slave MS, as follows:

a. Simultaneously lift and release the switches on the faceplates of both power converters in slots 33 and 36.

b. Lift and release the switch on the faceplate of the NT9X31 -5V power converter in slot 1.

c. Lift and release the switch on the faceplate of the NT9X30 +5V power converter in slot 4.

At the MAP

3 Access the MS level of the MAP display by typing

>MAPCI;MTC;MS
and pressing the Enter key.

4 Reload the most recent MS image file by typing

>LOADMS ms_number
and pressing the Enter key.

where

ms_number   is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

```
Request to Load MS: 0 submitted.
Request to Load MS: 0 passed.
Loading completed, entry point is #06045FCO
```

Recovering from emergency power conservation
Restoring the MS to duplex operation (end)

5   Perform an out-of-service test on the manual-busy MS by typing

>TST ms_number
and pressing the Enter key.

where

ms_number   is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

```
Request to TEST OOS MS: 0 submitted.
Request to TEST OOS MS: 0 passed.
No node faults were found on MS 0.
No cards were found to be faulty on MS0.
Request to TEST VIA MATE MS: 0 submitted.
Request to TEST VIA MATE MS: 0 passed.
No node faults were found on MS 0.
No cards were found to be faulty on MS 0.
```

6   Return the manual-busy MS to service by typing

>RTS ms_number
and pressing the Enter key.

where

ms_number   is the number of the manual-busy MS (0 or 1)

Example of a MAP response:

```
Request to RTS MS: 0 submitted.
Request to RTS MS: 0 passed.
No node faults were found on MS 0.
No cards were found to be faulty on MS 0.
```

7   Return to the procedure *Recovering from emergency power conservation* in this document and proceed as directed.

Recovering from emergency power conservation
Restoring the MSB7 to duplex operation

Application

Use this procedure to restore the CCS7 message switch and buffer (MSB7) to duplex operation, after having shut down one plane of the MSB7 to conserve emergency backup power.

⚠️ **CAUTION**
Potential extended equipment outage
To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this procedure has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

⚠️ **CAUTION**
Potential loss of service or extended outage
This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.
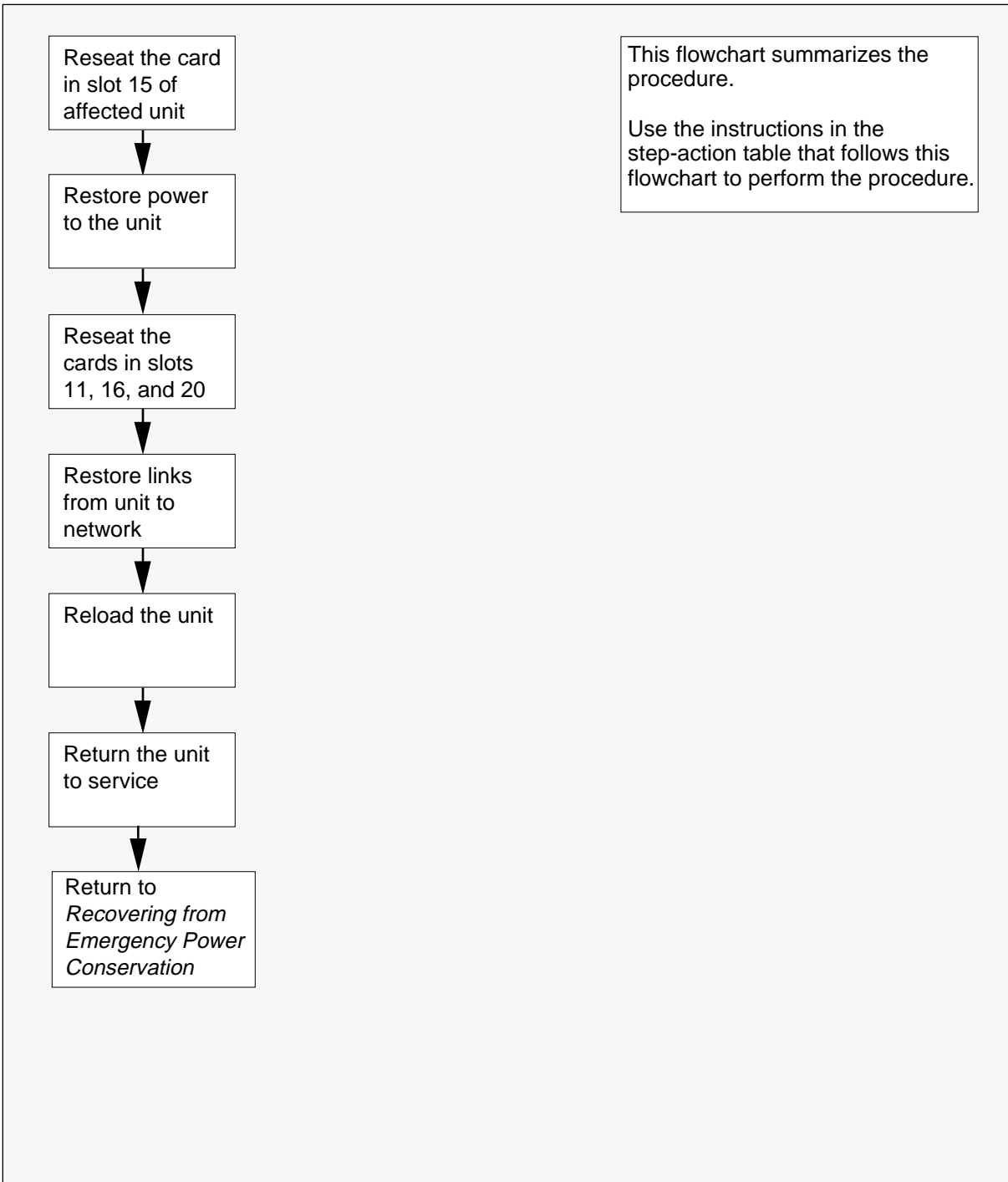

Action

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.

Recovering from emergency power conservation
Restoring the MSB7 to duplex operation (continued)

Summary of Restoring the MSB7 to duplex operation

Reseat the card
in slot 15 of
affected unit

↓

Restore power
to the unit

↓

Reseat the
cards in slots
11, 16, and 20

↓

Restore links
from unit to
network

↓

Reload the unit

↓

Return the unit
to service

↓

Return to
*Recovering from
Emergency Power
Conservation*

This flowchart summarizes the
procedure.

Use the instructions in the
step-action table that follows this
flowchart to perform the procedure.

Recovering from emergency power conservation
Restoring the MSB7 to duplex operation (continued)

Restoring the MSB7 to duplex operation

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom
> recommends that you perform this procedure under the
> supervision of Northern Telecom's Emergency Technical
> Assistance Services (ETAS).

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal
> operation after performing emergency power conservation
> measures. Do not use this procedure or portions thereof
> for equipment maintenance purposes.

At the MSB7 shelf

1 Reseat the NT6X46 signaling processor memory card in slot 15.

2 Does the frame supervisory panel (FSP) or modular supervisory panel (MSP) have circuit breakers?

If the FSP or MSP	Do
does have circuit breakers	step 3
does not have circuit breakers	step 5

3 Power up the converter, in the following order:

    a. Pull and set the handle of the POWER switch upward to the RESET position and hold.

    b. Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

    c. Release the handle.

    Note: The power converter is located in slot 25.

4 Go to step 6.

Recovering from emergency power conservation
Restoring the MSB7 to duplex operation (continued)

5   Power up the converter, as follows:

   a.   Pull and set the handle of the POWER switch upward to the RESET position and hold until the CONVERTER FAIL LED goes off.

   b.   Release the handle.

6   Reseat the NT6X45 master processor card in slot 11.

7   Reseat the NT6X45 signaling processor card in slot 16.

8   Reseat the NT6X69 message protocol card in slot 20.

At the MAP

9   Access the PM level of the MAP display by typing

   >MAPCI;MTC;PM
and pressing the Enter key.

10   Post the MSB7 by typing

   >POST MSB7 pm_no
and pressing the Enter key.

where

pm_no   is the PM identification number (0 to 999)

Example of a MAP response:

```
MSB7    0 ISTb  Links_OOS: CSide  0
, PSide  0

Unit0:          ManB  Mtce
Unit1:          Insv
```

**Recovering from emergency power conservation
Restoring the MSB7 to duplex operation** (continued)

11 Identify the network type and network links associated with the manual-busy MSB7 unit by typing

>TRNSL C
and pressing the Enter key.

Example of a MAP response for JNET:

```
LINK 0: NET 0 3 12;CAP MS;Status:OK
LINK 1: NET 1 3 12;CAP MS;Status:MBsy
LINK 2: NET 0 3 28;CAP MS;Status:OK
LINK 3: NET 1 3 28;CAP MS;Status:MBsy
LINK 4: NET 0 3 44;CAP MS;Status:OK
 ...
LINK 31 NET 1 3 63;CAP MS;Status:MBsy
```

Note: Links 5 to 30 are not shown.

Example of a MAP response for ENET:

```
LINK 0: ENET 0  0 13 00;CAP MS;Status:OK
LINK 1: ENET 1  0 23 00;CAP MS;Status:MBsy
LINK 2: ENET 0  0 13 01;CAP MS;Status:OK
LINK 3: ENET 1  0 23 01;CAP MS;Status:MBsy
LINK 4: ENET 0  0 13 02;CAP MS;Status:OK
LINK 5: ENET 1  0 23 02;CAP MS;Status:MBsy
LINK 6: ENET 0  0 13 03;CAP MS;Status:OK
LINK 7: ENET 1  0 23 03;CAP MS;Status:MBsy
```

12 Determine if the network on your switch is a junctored network (JNET) or enhanced network (ENET).

If the network is	Do
JNET	step 13
ENET	step 19

13 Determine which MSB7 unit is manual-busy (0 or 1) and note the manual-busy speech link numbers (0 to 31) associated with it. Even numbered speech links (0, 2, 4 ... 30) are associated with MSB7 unit 0. Odd numbered speech links (1, 3, 5 ... 31) are associated with MSB7 unit 1.

Note: In the example shown in step 11, speech link numbers 5 to 30 are not shown. The speech links associated with MSB7 unit 1 are manual-busy.

Recovering from emergency power conservation
Restoring the MSB7 to duplex operation (continued)

14 For each speech link recorded in step 13, record the network plane number, the network module (pair) number, and the network link number.

Note: In the JNET example response shown in step 11, speech link 2 is associated with network plane 0, network module number 3, and network link number 28.

15 Access the NET level of the MAP display by typing

>NET

and pressing the Enter key.

16 Access the network link level for the first network link to be returned to service by typing

>LINKS n

and pressing the Enter key.

where

n   is the network module number recorded in step 12

17 Return the first network link to service by typing

>RTS plane_no link_no

and pressing the Enter key.

where

plane_no   is the network plane (0 or 1)
link_no   is the network link number

18 Repeat steps 16 and 17 until all links between the manual-busy MSB7 unit and the network are returned to service, then go to step 26.

19 Determine the speech link numbers associated with the manual-busy MSB7 unit. Even numbered speech links are associated with unit 0. Odd numbered speech links are associated with unit 1.

Note: In the ENET example response in step 11, speech links 0, 2, 4 and 6 are associated with MSB7 unit 0. Speech links 1, 3, 5, and 7 are associated with MSB7 unit 1. The speech links associated with MSB7 unit 1 are manual-busy.

20 For each speech link recorded in step 19, record the ENET plane number, shelf number, card number, and network link number associated with it.

Note: In the ENET example response shown in step 11, speech link 3 is associated with ENET plane 1, shelf 0, card 23, and network link number 01.

21 Access the NET level of the MAP display by typing

>NET

and pressing the Enter key.

Recovering from emergency power conservation
Restoring the MSB7 to duplex operation (end)

22 Access the MAP display for the ENET card associated with the first link to be returned to service by typing

>SHELF shelf_no; CARD card_no
and pressing the Enter key.

where

shelf_no   is the ENET shelf number recorded in step 20
card_no   is the ENET card number recorded in step 20

23 Return the first link recorded in step 19 to service by typing

>RTS plane_no LINK link_no
and pressing the Enter key.

where

plane_no   is the ENET plane number, recorded in step 20
link_no   is the network link number, recorded in step 20

24 Remove the deload status from the ENET card by typing

>DELOAD plane_no CLEAR
and pressing the Enter key.

where

plane_no   is the ENET plane number

25 Repeat steps 22 to 24 for each speech link recorded in step 19, then continue this procedure.

26 Reload the manual-busy MSB7 unit by typing

>PM;LOADPM UNIT unit_no
and pressing the Enter key.

where

unit_no   is the number of the manual-busy unit (0 or 1)

27 Return the manual-busy MSB7 unit to service by typing

>RTS UNIT unit_no
and pressing the Enter key.

where

unit_no   is the number of the manual-busy unit (0 or 1)

28 Return to the procedure *Recovering from emergency power conservation* in this document and proceed as directed.

Recovering from emergency power conservation
Restoring the remote oscillator shelf to duplex operation

Application

Use this procedure to restore the remote oscillator shelf (ROS) to duplex operation, after having shut down one plane of the ROS to conserve emergency power.

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.
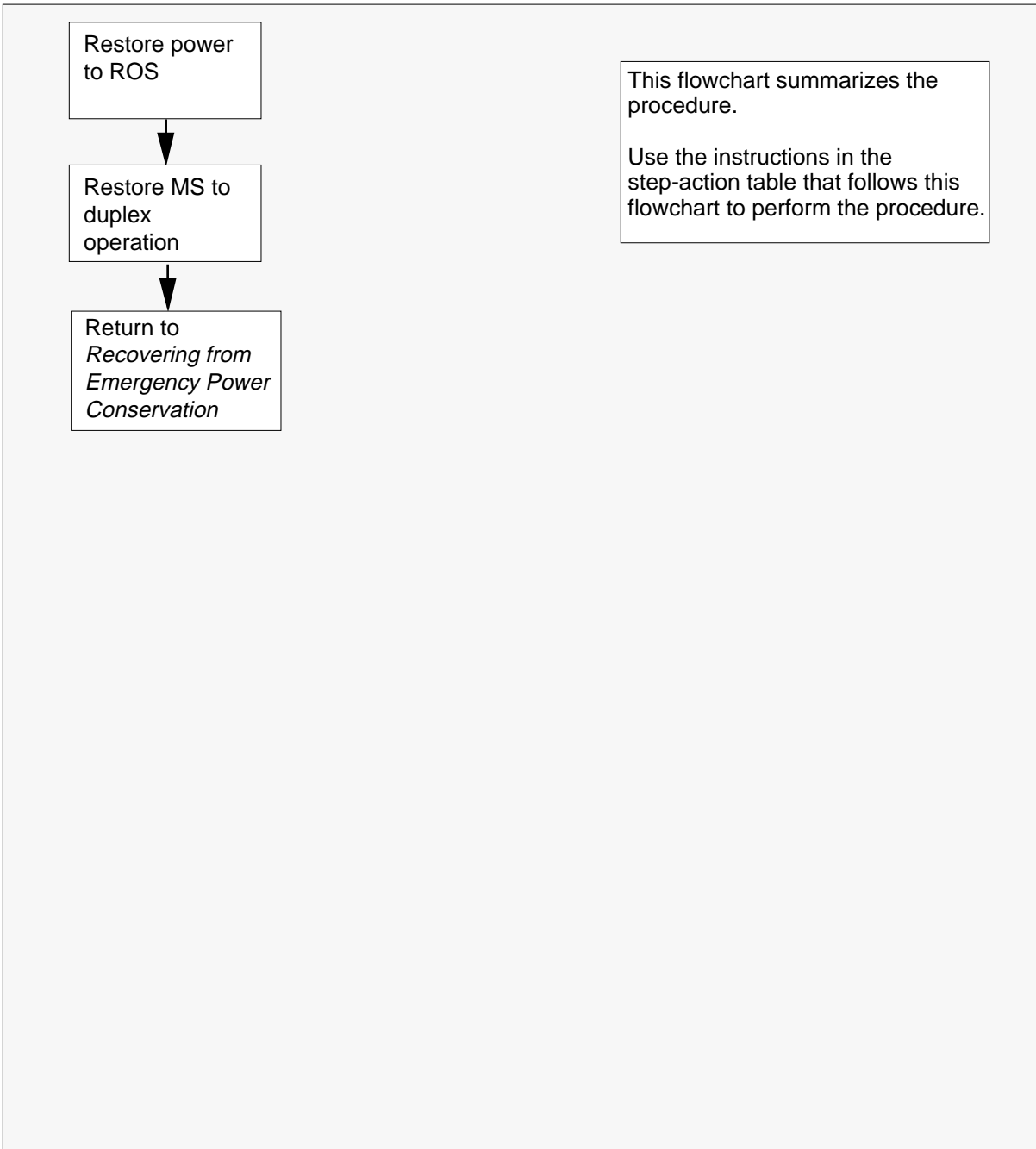
Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering from emergency power conservation
Restoring the remote oscillator shelf to duplex operation (continued)

Summary of Restoring the remote oscillator shelf to duplex operation

```
┌─────────────────┐
│ Restore power   │
│ to ROS          │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Restore MS to   │
│ duplex          │
│ operation       │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ *Recovering from* │
│ *Emergency Power* │
│ *Conservation*   │
└─────────────────┘
```

┌─────────────────────────────────┐
│ This flowchart summarizes the   │
│ procedure.   │
│   │
│ Use the instructions in the   │
│ step-action table that follows this │
│ flowchart to perform the procedure. │
└─────────────────────────────────┘

Recovering from emergency power conservation
Restoring the remote oscillator shelf to duplex operation (end)

Restoring the remote oscillator shelf to duplex operation

> ### CAUTION
> **Potential service interruption or extended outage**
> Northern Telecom recommends that you contact
> Northern Telecom's Emergency Technical Assistance
> Services (ETAS) or your next level of support before
> performing this procedure.

> ### CAUTION
> **Potential loss of service or extended outage**
> This procedure is intended only for conservation of
> emergency backup power. Do not use this procedure
> or portions thereof for equipment maintenance
> purposes.

At the ROS

> ### WARNING
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap
> grounding point of the frame supervisory panel (FSP)
> while handling cards. This protects the cards against
> damage caused by static electricity.

1   Power up the half of the remote oscillator shelf that you powered down to
conserve emergency backup power.

Note: Slots 1 to 13 are associated with MS 0. Slots 14 to 26 are associated
with MS 1.

2   Restore service to the message switch associated with the half of the remote
oscillator shelf that you powered up in step 1, by performing the procedure
Restoring the MS to duplex operation in this document.

Recovering from emergency power conservation
Returning maintenance trunk modules to service

Application

Use this procedure to recover maintenance trunk modules that were shut down to conserve emergency power.

> **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

This procedure assumes that the procedure *Emergency power conservation* in this document has been followed to take equipment out of service. In addition, this procedure assumes that all equipment was in normal in-service operation before the need to perform the emergency power conservation procedure arose.

> **CAUTION**
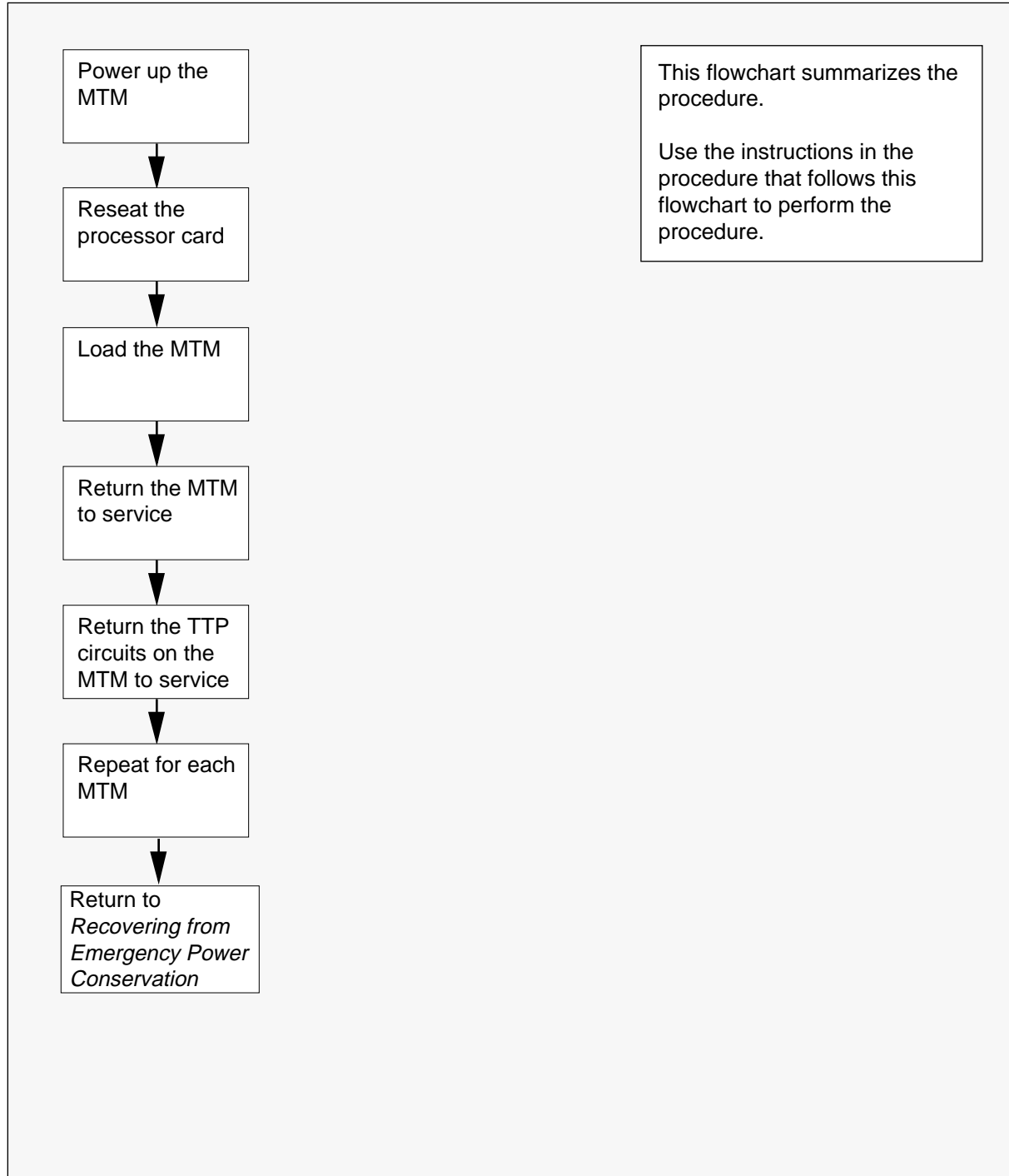> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

Action

The following flowchart provides an overview of the procedure. Use the instructions in the step-action procedure that follows the flowchart to perform the recovery task.

Recovering from emergency power conservation
Returning maintenance trunk modules to service (continued)

Summary of Returning maintenance trunk modules to service

```
┌─────────────────┐
│ Power up the    │
│ MTM             │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Reseat the      │
│ processor card  │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Load the MTM    │
│                 │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return the MTM  │
│ to service      │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return the TTP  │
│ circuits on the │
│ MTM to service  │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Repeat for each │
│ MTM             │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Return to       │
│ Recovering from │
│ Emergency Power │
│ Conservation    │
└─────────────────┘
```

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Recovering from emergency power conservation
Returning maintenance trunk modules to service (continued)

Returning maintenance trunk modules to service

> ⚠ **CAUTION**
> **Potential extended equipment outage**
> To expedite recovery of equipment, Northern Telecom recommends that you perform this procedure under the supervision of Northern Telecom's Emergency Technical Assistance Services (ETAS).

> ⚠ **CAUTION**
> **Potential loss of service or extended outage**
> This procedure is intended only for restoring normal operation after performing emergency power conservation measures. Do not use this procedure or portions thereof for equipment maintenance purposes.

At the MTM

1.
> ⚠ **CAUTION**
> **Static electricity damage**
> Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel (FSP) or a modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

Determine if the frame supervisory panel (FSP) or modular supervisory panel (MSP) has circuit breakers.

If the FSP or MSP	Do
has circuit breakers	step 2
does not have circuit breakers	step 4

Recovering from emergency power conservation
Returning maintenance trunk modules to service (continued)

2   Power up the NT2X09 power converter in slot 20, as follows:

    a.   Pull and set the handle of the POWER switch upward to the ON position.

    b.   Press and hold the RESET button on the power converter.

    c.   Set the handle of the converter circuit breaker on the FSP or MSP upwards until it clicks into place.

    d.   Release the RESET button.

3   Go to step 5.

4   Power up the NT2X09 power converter in slot 20, as follows:

    a.   Pull and set the handle of the POWER switch upward to the ON position.

    b.   Press the RESET button on the power converter until the CONVERTER FAIL LED goes off.

    c.   Release the RESET button.

5   Reseat the NT0X70 processor and memory card.

At the MAP

6   Post the MTM by typing

    >POST MTM pm_no
    and pressing the Enter key.

    where

    pm_no   is the PM identification number (0 to 999)

7   Load the PM by typing

    >LOADPM
    and pressing the Enter key.

8   Return the PM to service by typing

    >RTS
    and pressing the Enter key.

9   Access the TTP level of the MAP display by typing

    >TRKS;TTP
    and pressing the Enter key.

Recovering from emergency power conservation
Returning maintenance trunk modules to service (end)

10 Post the TTP circuits associated with the MTM by typing

>POST P MTM pm_no
and pressing the Enter key.

where

pm_no   is the PM identification number (0 to 999)

11 Return the circuits busied in step 10 to service by typing

>RTS ALL
and pressing the Enter key.

12 Repeat steps 1 to 11 for each MTM that was shut down to conserve emergency power.

13 You have completed this procedure.

System recovery controller

This chapter describes the operation of the system recovery controller (SRC) for peripheral modules (PM). Its operation is discussed in subsequent sections as follows:

About the system recovery controller on page 2-2 describes the functions of the SRC, its triggers and dependencies, and broadcast-loading and single-loading.

SRC recovery methods on page 2-10 describes how the SRC recovers PMs and which PMs it recovers.

Monitoring SRC operation on page 2-13 describes the responses on the MAP (maintenance and administration position) display when the SRC is recovering a PM, the logs generated during PM recovery, SRC failure, and how to manually override the SRC.

About the system recovery controller

The SRC coordinates recovery activities in a DMS switch. Its purpose is to optimize recovery through effective and efficient use of resources and automation.

The SRC schedules recovery activities to run at appropriate times, thereby reducing the length of outages. As well, it initializes software recovery applications.

The SRC will make several attempts to recover a PM. With each recovery attempt, the SRC performs a more detailed analysis. If necessary, the SRC reloads a PM's software and returns the PM to service as part of a full recovery process. Reloading a PM removes the PM from service for a period of time and so the SRC reloads PMs only when required.

SRC functions

The SRC coordinates the recovery activities of various subsystems outside of the DMS-core. These subsystems include the series I and II PMs. Figure 1 shows how the SRC interfaces with the DMS-core and with the subsystems.

The SRC performs the following functions:

- Its dependency manager enforces inter-subsystem dependencies. Before the SRC recovers a PM, the subsystems on which the PM depends must be operating.

- The group manager groups subsystems together for broadcast-loading. Common commands are sent to a group of PMs at the same time, instead of one after another.

- The concurrent activity manager balances the amount of recovery work against other activities occurring on the switch. The SRC attempts recovery of as many critical subsystems as the DMS-core operating system will allow.

- The SRC initiates recovery applications and monitors each step in the application to ensure that the application completes as quickly as possible.

Two separate activities are coordinated by the SRC for series II XMS-based PMs (XPM) and line concentrating modules (LCM):

- system recovery of PM nodes following core restart or core switch of activity, using the dependency manager

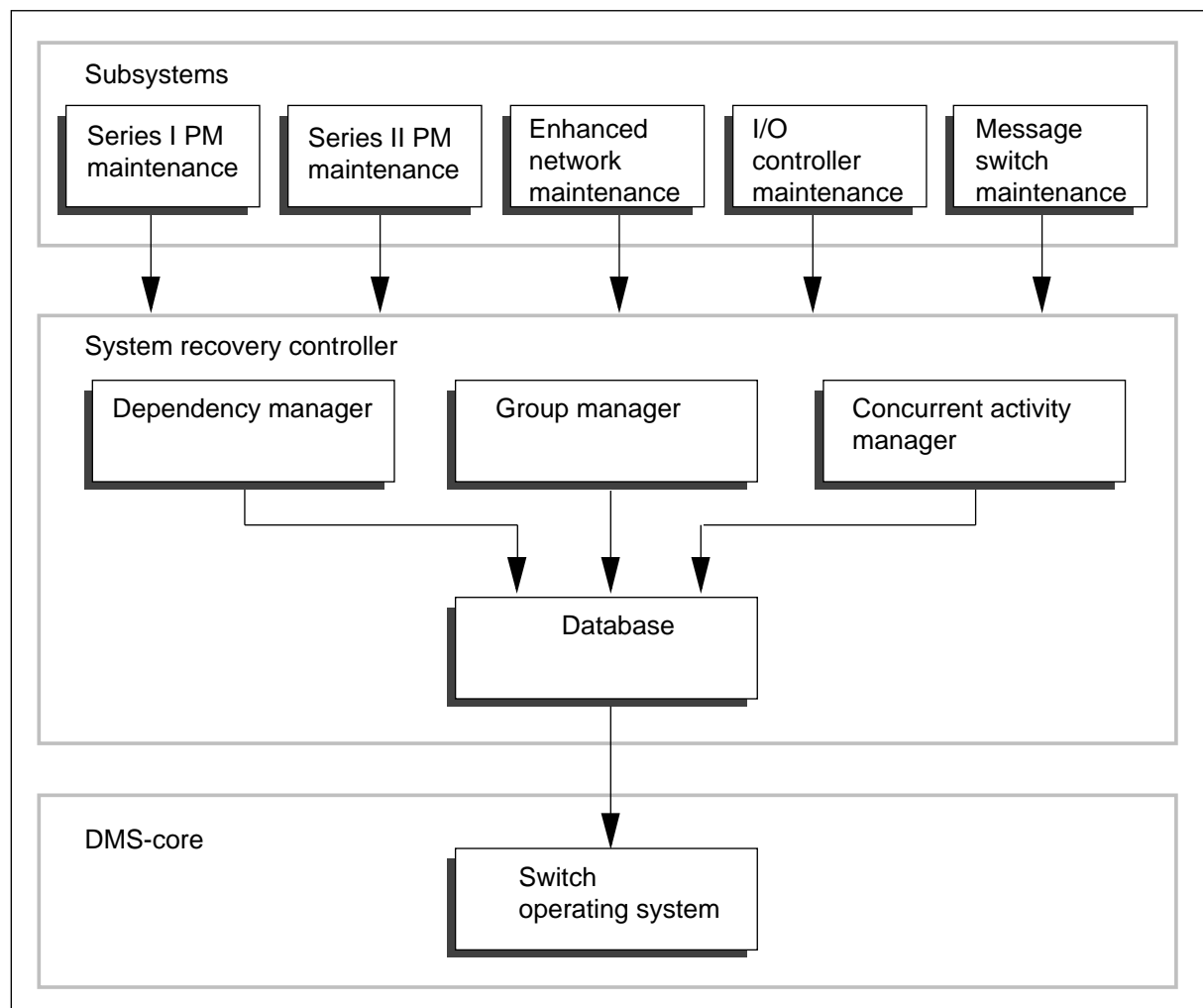- loading of PM units after a loss of load has been detected by system maintenance, using the group manager

- For LCM, an audit will verify the node status of the individual LCM units prior to execution of the recovery activity. If both units are SysB, the audit will execute and force the units into service. If one unit is SysB, the fault will be evaluated and a recovery attempt will possibly be made. Recovery will be attempted up to three times in one-minute intervals.

The only connection between the two activities is that maintenance on a PM initiated through the dependency manager can lead to the loading of one or more PM units.

For example, after a total office power outage, the dependency manager begins to return a PM to service after completion of the reload restart. The system maintenance task that is performing the return-to-service detects the loss of load and initiates the reload request for the PM units to the SRC.

Figure 1   System recovery controller

SRC conditions

The following prerequisite conditions must be met for SRC-coordinated recovery of PMs:

- all equipment must have power

- NT6X45BA or newer processor cards must be installed in series II XPMs to allow automatic broadcast-loading

- all PM load names (including series I PM loadnames) must be datafilled in table PMLOADS

   Series II XPMs with pre-NT6X45BA control cards are single-loaded rather than grouped for broadcast-loading.

SRC triggers

The following events trigger the SRC to begin recovery of subsystems if necessary:

- warm restart of the core

- cold restart of the core

- reload-restart of the core

- loss of load in a PM

- manual RESTART SWACT, ABORT SWACT, or NORESTART SWACT of the core

Additional SRC triggers to reload series II XMS-based PMs

There are four additional triggers for the SRC to reload series II XPMs:

- the XPM reports a memory parity error during a periodic audit by the switch operating system

- the ROM/RAM query step in the series II XPM return-to-service task detects a loss of load

- the failure two times in a row to initialize the series II XPM during a return-to-service task, indicating that something is wrong with the software load

- the ROM/RAM query step in the series II XPM system-busy task detects a loss of load

Core restarts

During a restart, the switch operating system reinitializes itself. Reinitialization restores both the operating system software and the subsystems outside the DMS-core to a known, stable state.

A restart of the system includes initialization of the modules in the DMS-core, initialization of the PMs, and restoration of services. The period

of a restart is the time taken to recover the entire system to the point that all services are available again. A flashing A1 appears on the reset terminal interface (RTIF) when initialization of the software on the DMS-core is complete. The recovery of the entire system continues after the flashing A1 appears.

The following list describes what happens to each PM during each type of restart:

- A warm restart of the core is the least severe of restarts. XPMs are audited and generally stay in service during a warm restart. During this type of restart, calls in progress that have reached the talking state continue. Calls that have not yet reached the talking state are disconnected. Any calls that disconnect during the restart are disconnected after the restart is complete and the billing data is recorded.

- A cold restart of the core is more severe than a warm restart. XPMs are audited and generally stay in service during a cold restart. During this restart, calls in progress that have reached the talking state retain their connections during the restarts, but they may be disconnected if their connections are reused by new calls after the restart. There is no record made of calls in progress during a cold restart and no billing data is recorded for these calls.

- A reload-restart of the core is the most severe restart. All PMs are reinitialized during a reload-restart. All calls in progress are dropped, and billing data for the dropped calls is lost.

Loss of load in a PM
Normally a loss of load occurs when a card (loaded with software) is removed or the power to a card is interrupted. A PM becomes system busy when a loss of load occurs. The SRC begins recovery when system maintenance detects a loss of load.

Manual commands
The SRC reinitializes PMs if any of the manual commands RESTART SWACT, ABORT SWACT, or NORESTART SWACT are used during an upgrade of BCS software.

SRC dependency manager
Some recovery actions on objects are dependent on other objects to be in a particular state to support the action. The dependency manager of the SRC manages object dependencies using the applicable set of dependencies for the type of restart. Thus, the SRC dependency manager prevents failure due to premature starts, and reduces recovery times.

Objects

An object is any entity in the DMS switch. An object can be

- physical, such as an ENET plane, an XPM, an IPML, or a set of lines

- a service, such as line trunk server (LTS) call processing

- software, such as entry code

- an event, such as the initialization of core software

Managing dependencies

The action on the dependent object must not proceed until the object depended upon is in the required state. The dependency manager ensures that the dependencies for an action on an object are satisfied before the action is allowed to proceed.

Dependencies are specified for each action for each object. Examples of dependencies in DMS include

- one part of the software that must initialize before another

- node initialization (at the PM level) after the DMS-core software initialization completes and the C-side node returns to service

- data that must be downloaded to a node after other nodes have returned to service

- recovering a service in one node after other parts of the service in other nodes have been recovered

A dependency can change when it is needed for one type of recovery but not for another. For example, an action can have different dependencies in different restart types. The SRC provides the applications with the means of indicating which dependencies are applicable.

Broadcast-loading

Broadcast-loading is a bulk action, that is, it can operate on more than one PM at the same time. Time is saved by performing an action on a group of PMs rather than on many PMs individually.

Grouping is coordinated by the group manager. PMs are grouped so that one PM is a "seed" PM. The DMS-core sends messages to the seed PM and the seed PM forwards the messages to the other PMs in the broadcast chain.

Several criteria are used when PMs are grouped for a bulk action. For example, when the SRC broadcast-loads to nodes, the following different groupings can be used by the group manager:

- grouping by the same node type

- grouping by the same load file name

- grouping by the same loading method

Grouping series II XMS-based PMs
The criteria for grouping series II XPMs together for broadcast loading are

- grouping by the load file name

- grouping by the CMR (class modem resource) file name

- grouping by the presence of 6X45BA or higher controller cards

For example, two XPMs that have the same load file name and that have NT6X45BA controller cards, but have different CMR file names are put into different groups.

XPM units that cannot be grouped with other XPM units for broadcast-loading are single-loaded. This can happen if the XPM units do not have the hardware to support broadcast-loading or if they cannot be grouped with other units during dynamic grouping. Grouping occurs only for XPMs that have NT6X45BA or higher controller cards. XPMs that do not have NT6X45BA or higher controller cards are not grouped with other XPMs even if the other XPMs use the same load files. The SRC still coordinates single-loading for purposes of concurrency management.

Static and dynamic groups
PMs that can be grouped together are identified from datafill, which specifies their load file names and their hardware configurations. These groups (called static groups) are maintained automatically over time as the datafill changes. During recovery, the SRC forms dynamic groups from the subgroups based on which elements require recovery and availability of resources to perform the recovery.

Automatic broadcast-loading
Automatic broadcast-loading sends a request to load software to several PMs simultaneously.

After receiving a request to load a member of a static group, the SRC builds a dynamic group, using a combination of two methods:

- querying the group members for loss of load using the ROM/RAM query message (only on XPMs equipped with NT6X45BA or higher controller cards)

- waiting for autoload requests from the group members over a short period of time (the autoload requests are submitted after failure to return-to-service, where the failure is suspected to be due to loss of load or load corruption)

When a system-busy unit is identified as needing loading, the SRC is notified. The SRC group manager creates a group of PMs that can be broadcast-loaded.

When a group is formed, the SRC coordinates the broadcast-loading. If a PM has only one unit requiring loading, then that PM is dropped from the group and a regular load request is submitted for the unit. System resources are saved by using broadcast-loading even when the group consists of only one PM, because if both units need loading, unit 0 sends the load messages to unit 1.

Automatic broadcast-loading is reattempted once if a group of PMs is not recovered. If the second attempt also fails, the SRC attempts to recover the PMs individually.

Note: XPMs datafilled in table LTCINV and line concentrating modules (LCM) datafilled in table LCMINV are automatically broadcast-loaded by the SRC. There is a limit of eight broadcast load groups in a DMS switch at any one time.

Note: Series I PMs do not support broadcast-loading.

Note: LCMs that subtend remote cluster controller (RCC) can be broadcast-loaded only with other LCMs that subtend RCCs. Similarly, LCMs that subtend line group controller/ line trunk controller (LGC/LTC) XPMs can be broadcast-loaded only with other LCMs that subtend LGC/LTC XPMs. LCMs that subtend RCCs and LCMs that in turn subtend LGC/LTC XPMs cannot be broadcast-loaded together.

Limitation of concurrent load activities

The SRC is used to monitor and control the number of concurrent PM loading tasks. Although single-loading of XPMs does not use the grouping capability of the SRC, the SRC still provides coordination in the form of concurrency management.

The SRC queues single units and groups of PMs while waiting for resources if the system is currently using all of its resources for loading other units or groups. The SRC can load eight load sets (a set is a single unit hat is not grouped or several units that are grouped) at the same time.

While the units are in the queue waiting for resources, a system recovery progress message is displayed at the MAP for each queued unit. The queued units or groups proceed with loading as soon as the resources become available. Groups have priority over single units when the resources are allocated.

Example of automatic broadcast-loading

Examples of how automatic broadcast-loading recovers series II PMs from dead and partially dead offices are detailed below.

Dead office

A dead office occurs when the -48 V dc A and B power feeds to the power distribution centers (PDC) are lost or interrupted, resulting in a complete switch outage. The following occurs when power is restored:

- The DMS-core (computing module (CM) and message switch (MS)) reboots itself.

- The reboot of the DMS-core triggers a reload-restart of the DMS-core software.

- The reload-restart of the DMS-core starts the SRC.

- The SRC attempts to recover each node in the system in order based on dependencies enforced by the dependency manager.

- When the SRC begins recovery of the PMs, the absence of a software load in the PM is noted.

- The SRC adds the PM to a group for broadcast-loading.

- When all PMs that need loading are in the group, or 6 min after the first PM joined the group, the SRC begins the broadcast-load.

- PM software in the DMS-core starts the return-to-service when broadcast-loading is complete. PMs that failed to broadcast-load are single-loaded.

- If more than eight automatic broadcast-loading requests are needed simultaneously, the concurrent activity manager queues the excess.

Partial outage

A partial outage occurs when one or more PM frames loses DC power. The following occurs after power is returned to the PM:

- The PM maintenance base software on the DMS-core detects the absence of a software load in the PM.

- The PM maintenance base software on the DMS-core triggers the SRC to group these PMs for broadcast-loading.

- The SRC queries other PMs with the same grouping criteria to see if they also need reloading.

- When all PMs that need loading are in the group, or 6 min after first PM joined the group, the SRC begins the broadcast-load.

- PM software in the DMS-core starts the return-to-service when broadcast-loading is complete. PMs that failed to load successfully are single-loaded.

- If more than eight automatic broadcast-loading requests are needed simultaneously, the concurrent activity manager queues the additional groups.

Automatic single-loading

PMs that cannot be grouped for broadcast-loading are single-loaded.

Note: Series II XPMs that have pre-NT6X45BA controller cards and that are datafilled in table LTCINV are automatically single-loaded.

Note: The enhanced network (ENET) is automatically broadcast-loaded during DMS-core reload-restarts if the first return-to-service task fails. For other types of recovery, ENET is single-loaded.

SRC recovery methods

The SRC recovers PMs by either single- or broadcast-loading. However, the type of recovery depends on the version of controller card of the PM. Some features of the SRC do not work on certain PMs that have pre-NT6X45BA controller cards.

Series I PMs automatically recovered by the SRC

The SRC automatically single-loads the following PMs if they are not carrying traffic, regardless of the type of controller card:

- Austrian digital line module (ATM)

- digital carrier module Austria (DCA)

- digital carrier module Austria (DCM250)

- digital carrier module (DCM)

- digital carrier module (DCMT)

- digital echo suppressor (DES)

- digital line module (DLM)

- digital trunk module (DTM)

- integrated services module (ISM)

- intelligent peripheral equipment (IPE)

- line digital trunk (LDT)

- line module (LM)

- maintenance (trunk) module Austria (MMA)

- maintenance trunk module (MTM)

- maintenance trunk module Austria (MTMA)

- office alarm unit (OAU)

- package trunk module (PTM)

- remote carrier module SLC-96 (RCS)

- remote concentrator terminal (RCT)

- remote digital terminal (RDT (IDT))

- remote line module (RLM)

- small remote unit (SRU)

- service trunk module (STM)

- trunk module (TM)

- trunk module 2 (TM2)

- trunk module 4 (TM4)

- trunk module 8 (TM8)

Series II PMs automatically recovered by the SRC

The DMS-100 system automatically groups and broadcast-loads the
following PMs if their C-side PMs support broadcast-loading. To support
broadcast-loading, the C-side PMs must have an NT6X45BA or higher
controller card and the appropriate tables must be datafilled.

- Austrian LCM (ALCM)

- enhanced LCM (ELCM)

- international LCM (ILCM)

- line concentrating module (LCM)

- enhanced LCM (LCME)

- LCM for ISDN offices (LCMI)

Series II XMS-based PMs automatically recovered by the SRC

The SRC automatically recovers the following series II XPMs if they are not
carrying traffic. They are grouped and broadcast-loaded if a NT6X45BA
controller card is present. They are single-loaded if a pre-NT6X45BA
controller card is present.

- Austrian digital trunk controller (ADTC)

- Austrian line group controller (ALGC)

- digital trunk controller (DTC)

- ISDN digital trunk controller (DTCI)
- international digital trunk controller (IDTC)
- international line group controller (ILGC)
- international line trunk controller (ILTC)
- line group controller (LGC)
- ISDN line group controller (LGCI)
- line trunk controller (LTC)
- ISDN line trunk controller (LTCI)
- PCM30 digital trunk controller (PDTC)
- PCM30 line group controller (PLGC)
- subscriber carrier module-100 rural (SMR)
- subscriber carrier module-100S (SMS)
- subscriber carrier module-100 urban (SMU)
- Turkish digital trunk controller (TDTC)
- Turkish line trunk controller (TLTC)
- Turkish line group controller (TLGC)
- TOPS message switch (TMS)

The following series II XPMs are single-loaded regardless of the type of NT6X45 card and without assistance of the SRC:

- Austrian RCC (ARCC)
- emergency standalone (ESA)
- RCC with ESA forced down option (FRCC)
- message switch and buffer (MSB)
- remote cluster controller (RCC)
- RCC for ISDN offices (RCCI)
- dual RCC-CPM based domestic (RCC2)
- RCC offshore (RCO2)
- SONET RCC (SRCC)
- TOPS message switch (TMS)
- Turkish RCC (TRCC)

Monitoring SRC operation

You can monitor the SRC recovery of PMs using the MAP (maintenance and administration position) terminal and log reports. This section describes the indicators used by the SRC when the automatic recovery of a subsystem is unsuccessful and how manual attempts to override the SRC are indicated.

Log reports

Log reports are generated during the SRC recovery process for both successful and unsuccessful recovery attempts. Monitor the log reports to determine whether or not particular PMs are successfully recovered.

The following logs are generated during the successful recovery of a PM:

- PM181 (indicating that a PM is found at the ROM level)
- PM181 (indicating that the PM is not loaded)
- PM181 (indicating that the PM is reset)
- PM181 (indicating that load files have been transferred to the PM)
- PM181 (indicating that static data cleared)
- PM181 (indicating that static data updated)

The following logs are generated when the SRC fails to recover a PM:

- PM117 (indicating that the recovery failed before loading)
- PM181 (indicating that loading failed during recovery)
- PM117 (indicating that the recovery failed after loading)

Log reports are documented in *Log Report Reference Manual*.

Failure of SRC to recover a PM

During recovery, the system recovery message appears next to the name of the posted PM. If the system cannot recover the failed PM, the PM stays system busy, a log is generated, and the system recovery message disappears.

Note: If a series II XPM does not automatically recover, no alarms or messages are generated. There is still an alarm if the XPM is system busy or manual busy.

Normally, the failure of the SRC to recover a PM is due to a problem for which a log report or alarm has been generated. The problem must be cleared by operating company personnel before the PM can be recovered. For information about clearing alarms, refer to *Alarm and Performance Monitoring Procedures*.

If the failed PM remains system busy after the alarm is cleared, do not attempt manual recovery. Contact your next level of support to determine the next action to take.

Manual override of the SRC

CAUTION
Contact ETAS or your next level of support
In the event of a service-affecting equipment outage, contact Northern Telecom's Emergency Technical Assistance Service (ETAS) or your next level of support before manually overriding the software recovery controller (SRC).

CAUTION
Loss of service
Manual intervention during automatic system recovery actions may interrupt or hamper automatic recovery and prolong service outage.

You can recover a PM manually while the SRC is recovering other PMs. Do not attempt manual recovery of a PM during SRC operation without contacting your next level of support, because errors during manual recovery can prolong service outage and hamper the SRC's optimum recovery steps.

Manual override of the SRC is warranted if it intervenes during manual maintenance activity on a PM (for example, if operating company personnel accidently put a PM out of service). You can manually override the SRC at the PM level of the MAP display. Warnings are presented to inform you of any consequences that manual commands may have on the SRC.

The three commands that override the SRC are documented in the *DMS-100 Family Commands Reference Manual,* 297-1001-822. They are:

- RECOVER
- BSY with the FORCE option
- the abort task (ABTK) command for series II PMs

Note: The following warning appears on the MAP display when any of the above commands cancels a broadcast-load: "Aborting maintenance on this PM will affect maintenance on other PMs."

MAP responses during automatic system recovery

You can view the progress of the automatic recovery of individual PMs on the MAP display by posting the PMs. The MAP displays on the following pages show MAP responses for a DTC during automatic recovery.

Note: During an inquiry about a PM in a group, the MAP terminal displays the status and progress of the first (seed) PM in that group. The status of the PM is not displayed until the SRC has completed the broadcast-load for the entire group.

MAP display of a system-busy DTC

```
        CM     MS      IOD     Net     PM      CCS     Lns     Trks    Ext    APPL
    ●        ●       ●       ●       6LCM    2 RSC           110 GC          ●
                                     *C*     *C*             *C*
DTC                                  SysB    ManB    OffL    CBsy    ISTb   InSv
 0  Quit                  PM          10       0      22      11       1     12
 2  Post_                 DTC          3       0       0       0       0      0
 3  Listset
 4            DTC    0SysB  Links_OOS:       CSide0,PSide0
 5  Trnsl_    Unit0:Act         SysB
 6  Tst_      Unit1:Inact       SysB
 7  Bsy_
 8  RTS_
 9  OffL
10  LoadPM_
11  Disp_
12  Next
13  SwAct
14  QueryPM
15
16
17  Perform
18
    TEAM22
Time 18:35
```

In the MAP display above, several critical alarms are displayed. Unit 0 and unit 1 of the posted DTC are system busy. The system-busy state of the DTC produces a critical alarm. The SRC also triggers recovery activity for the other PMs it is capable of recovering.

MAP display of a system-busy DTC undergoing a ROM/RAM query

```
          CM       MS       IOD      Net      PM       CCS      Lns      Trks      Ext      APPL
          •        •        •        •        6LCM     2 RSC •           110 GC •           •
                                              *C*      *C*               *C*
DTC                                           SysB     ManB     OffL     CBsy      ISTb     InSv
 0  Quit                     PM                10       0        22       11        1        12
 2  Post_                    DTC                3        0        0        0         0        0
 3  Listset
 4            DTC    0SysB   Links_OOS:        CSide0,PSide0
 5  Trnsl_    Unit0:Act      SysB    Mtce      ROM/RAM Query
 6  Tst_      Unit1:Inact    SysB    Mtce      ROM/RAM Query
 7  Bsy_
 8  RTS_
 9  OffL
10  LoadPM_
11  Disp_
12  Next
13  SwAct
14  QueryPM
15
16
17  Perform
18
    TEAM22
Time 18:35
```

The figure above shows a MAP display during a ROM/RAM query of a system-busy DTC. The next switch operating system (SOS) audit notes the system-busy state. The audit initiates system maintenance in order to return the DTC to service.

During return-to-service task a ROM/RAM query determines what state the PM is in, and whether it needs to be reloaded. The ROM/RAM query normally requires less than 1 min to finish. This illustration shows a loss of software load.

MAP display of a system-busy DTC waiting for the SRC to begin recovery

```
        CM      MS      IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
        ●       ●       ●       ●       6LCM    2 RSC●          110 GC●         ●
                                        *C*     *C*             *C*
DTC                                     SysB    ManB    OffL    CBsy    ISTb    InSv
  0  Quit                  PM           10      0       22      11      1       12
  2  Post_                 DTC          3       0       0       0       0       0
  3  Listset
  4            DTC    0SysB  Links_OOS:       CSide0,PSide0
  5  Trnsl_    Unit0:Act      SysB   Mtce    System Recovery
  6  Tst_      Unit1:Inact    SysB   Mtce    System Recovery
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
    TEAM22
Time 18:35
```

The figure above shows a MAP display of system maintenance determining if autoloading is necessary after detecting a loss of load during the return-to-service task. The DMS-core displays a system recovery message for the DTC until the recovery process is underway.

The message indicates that the load coordination for the DTC has been flagged to the SRC. While the message is displayed, the group manager dynamically groups similar PMs, if necessary, and allocates DMS-core resources.

MAP display of the load process resetting a system-busy DTC

```
          CM      MS      IOD     Net     PM      CCS     Lns     Trks    Ext    APPL
                                          6LCM    2 RSC           110 GC
                                          *C*     *C*             *C*
DTC                                       SysB    ManB    OffL    CBsy    ISTb   InSv
  0   Quit              PM                  10      0       22      11      1      12
  2   Post_             DTC                  3      0       0        0      0       0
  3   Listset
• 4               DTC    0SysB  Links_OOS:        CSide0,PSide0   •       •
  5   Trnsl_     Unit0:Act       SysB    Mtce    /Reset
  6   Tst_       Unit1:Inact     SysB    Mtce    /Reset
  7   Bsy_
  8   RTS_
  9   OffL
 10   LoadPM_
 11   Disp_
 12   Next
 13   SwAct
 14   QueryPM
 15
 16
 17   Perform
 18
      TEAM22
Time 18:35
```

The figure above shows a MAP display after the SRC has initiated a maintenance action to perform the loading. As part of the loading process, a reset is performed to reinitialize the firmware of the DTC to a known stable state. The reset can last 15 to 20 s.

MAP display of the DMS-core identifying a DTC

```
        CM      MS      IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
        ●       ●       ●       ●       6LCM    2 RSC ● 110 GC ●       ●
                                        *C*     *C*             *C*
DTC                                     SysB    ManB    OffL    CBsy    ISTb    InSv
  0  Quit                PM              10      0       22      11      1       12
  2  Post_               DTC             3       0       0       0       0       0
  3  Listset
  4              DTC     0SysB  Links_OOS:       CSide0,PSide0
  5  Trnsl_      Unit0:Act      SysB    Mtce    /Status
  6  Tst_        Unit1:Inact    SysB    Mtce    /Status
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
    TEAM22
Time 18:35
```

The figure above shows a MAP display during the identification of a DTC as part of the loading process. The loading process sends a status to the DTC. The message gives the DTC a node number. The node number is used for communication between the DTC and the DMS-core. This process can last from 2 s up to 1 min.

MAP display of the DMS-core querying the ROM firmware of a DTC

```
          CM      MS      IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
          ●       ●       ●       ●       6LCM    2 RSC ● 110 GC ●       ●
                                          *C*     *C*             *C*
DTC                                       SysB    ManB    OffL    CBsy    ISTb    InSv
  0  Quit               PM                10      0       22      11      1       12
  2  Post_              DTC               3       0       0       0       0       0
  3  Listset
  4               DTC     0SysB  Links_OOS:       CSide0,PSide0
  5  Trnsl_       Unit0:Act       SysB    Mtce    ROM/RAM Query
  6  Tst_         Unit1:Inact     SysB    Mtce    ROM/RAM Query
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
     TEAM22
Time 18:35
```

The figure above shows a MAP display of the load process performing a
ROM/RAM query to determine which ROM firmware is present in the DTC.
This is necessary before the ROM tests begin because there are different
ROM tests for different firmware. This query lasts less than 1 min.

MAP display of the load process testing the firmware of a DTC

```
          CM      MS      IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
          ●       ●       ●       ●       6LCM    2 RSC ● 110 GC ●       ●
                                          *C*     *C*             *C*
DTC                                       SysB    ManB    OffL    CBsy    ISTb    InSv
  0  Quit               PM                10      0       22      11      1       12
  2  Post_              DTC               3       0       0       0       0       0
  3  Listset
  4               DTC     0SysB  Links_OOS:       CSide0,PSide0
  5  Trnsl_       Unit0:Act       SysB    Mtce    NonDestr ROMtst
  6  Tst_         Unit1:Inact     SysB    Mtce    NonDestr ROMtst
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
     TEAM22
Time 18:35
```

The figure above shows a MAP display during the testing of the DTC
firmware by the load process. The load process tests the firmware with a
nondestructive ROM test. Depending on the firmware, this test can last
from 1 to 10 min.

MAP display of the DMS-core reloading software into a DTC

```
          CM      MS      IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
          ●       ●       ●       ●      6LCM    2 RSC ●       110 GC ●       ●
                                         *C*     *C*             *C*
DTC                                      SysB    ManB    OffL    CBsy    ISTb    InSv
  0  Quit                 PM              10      0       22      11      1       12
  2  Post_                DTC             3       0       0       0       0       0
  3  Listset
  4             DTC    0SysB  Links_OOS:          CSide0,PSide0
  5  Trnsl_     Unit0:Act        SysB    Mtce    /Loading:520K
  6  Tst_       Unit1:Inact      SysB    Mtce    /Loading:520K
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
     TEAM22
Time 18:35
```

The figure above shows a MAP display during the reloading of software into
a DTC. The load process reloads the software after the memory has passed
the ROM test. The size of the software loaded increases from 0 kbyte to its
final size in 13-kbyte increments, and the display value is updated with each
increment. The loading time for a PM varies depending on the PM type, its
load size, and the CPU resources available.

MAP display of the load process running a new software load on a DTC

```
         CM     MS      IOD     Net     PM      CCS     Lns     Trks    Ext    APPL
          ●      ●       ●       ●     6LCM    2 RSC ●       110 GC ●      ●
                                      *C*     *C*             *C*
DTC                                   SysB    ManB    OffL    CBsy    ISTb   InSv
  0  Quit               PM              10      0      22      11       1     12
  2  Post_              DTC              3      0       0       0       0      0
  3  Listset
  4             DTC     0SysB  Links_OOS:      CSide0,PSide0
  5  Trnsl_     Unit0:Act      SysB    Mtce    /Run
  6  Tst_       Unit1:Inact    SysB    Mtce    /Run
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
     TEAM22
Time 18:35
```

The figure above shows a MAP display during the running of a new DTC software load. After the RAM is loaded, the load process signals the DTC to run the new software load. This begins the initialization of the modules in the DTC. This display lasts for less than 5 s, then the DTC begins initialization.

MAP display of a DTC initializing its modules after a software load

```
        CM      MS      IOD      Net      PM       CCS      Lns      Trks     Ext     APPL
        ●       ●       ●        ●        6LCM     2 RSC●            110 GC●          ●
                                          *C*      *C*              *C*
DTC                                       SysB     ManB     OffL     CBsy     ISTb    InSv
 0  Quit                PM                 10        0        22       11       1      12
 2  Post_               DTC                 3        0        0        0        0       0
 3  Listset
 4              DTC     0SysB    Links_OOS:         CSide0,PSide0
 5  Trnsl_      Unit0:Act        SysB     Mtce     Initializing
 6  Tst_        Unit1:Inact      SysB     Mtce     Initializing
 7  Bsy_
 8  RTS_
 9  OffL
10  LoadPM_
11  Disp_
12  Next
13  SwAct
14  QueryPM
15
16
17  Perform
18
    TEAM22
Time 18:35
```

The figure above shows a MAP display during the initialization of DTC modules after a software load. The initializing message is displayed until the modules are initialized. The DTC sends a message to the DMS-core when initialization is completed. The initialization time varies from 1 to 2.5 min.

MAP display of the load process resetting the data areas of a DTC

```
        CM      MS      IOD      Net      PM       CCS      Lns      Trks     Ext     APPL
        ●       ●       ●        ●        6LCM     2 RSC●            110 GC●          ●
                                          *C*      *C*              *C*
DTC                                       SysB     ManB     OffL     CBsy     ISTb    InSv
 0  Quit                PM                 10        0        22       11       1      12
 2  Post_               DTC                 3        0        0        0        0       0
 3  Listset
 4              DTC     0SysB    Links_OOS:         CSide0,PSide0
 5  Trnsl_      Unit0:Act        SysB     Mtce     /Clear Data
 6  Tst_        Unit1:Inact      SysB     Mtce     /Clear Data
 7  Bsy_
 8  RTS_
 9  OffL
10  LoadPM_
11  Disp_
12  Next
13  SwAct
14  QueryPM
15
16
17  Perform
18
    TEAM22
Time 18:35
```

The figure above shows a MAP display of the load process resetting DTC static data areas. The load process resets the static data areas of the DTC to a nil state. Resetting the data takes less than 30 s.

MAP display of a static data download to a DTC

```
          CM     MS     IOD     Net     PM      CCS      Lns      Trks       Ext      APPL
          •      •      •       •       6LCM    2 RSC•            110 GC•             •
                                        *C*     *C*              *C*
DTC                                     SysB    ManB    OffL     CBsy       ISTb     InSv
  0  Quit              PM                10      0       22       11          1       12
  2  Post_             DTC               3       0       0        0           0       0
  3  Listset
  4             DTC     0SysB   Links_OOS:       CSide0,PSide0
  5  Trnsl_     Unit0:Act       SysB    Mtce    /Static Data
  6  Tst_       Unit1:Inact     SysB    Mtce    /Static Data
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
     TEAM22
Time 18:35
```

The figure above shows a MAP display of the maintenance load process downloading static data from the DMS-core to the DTC. Static data is unique to each PM and is not broadcast-loaded. The time to datafill can vary from less than 30 s to several minutes depending on how the data is sent. The size of data varies with the configuration.

MAP display of a core downloading executable files into a DTC

```
          CM     MS     IOD     Net     PM      CCS      Lns      Trks       Ext      APPL
          •      •      •       •       6LCM    2 RSC•            110 GC•             •
                                        *C*     *C*              *C*
DTC                                     SysB    ManB    OffL     CBsy       ISTb     InSv
  0  Quit              PM                10      0       22       11          1       12
  2  Post_             DTC               3       0       0        0           0       0
  3  Listset
  4             DTC     0SysB   Links_OOS:       CSide0,PSide0
  5  Trnsl_     Unit0:Act       SysB    Mtce    Loading:Execs
  6  Tst_       Unit1:Inact     SysB    Mtce    Loading:Execs
  7  Bsy_
  8  RTS_
  9  OffL
 10  LoadPM_
 11  Disp_
 12  Next
 13  SwAct
 14  QueryPM
 15
 16
 17  Perform
 18
     TEAM22
Time 18:35
```

The figure above shows a MAP display of the maintenance load process downloading executable files into the data memory of the DTC.

MAP display of an in-service DTC

```
        CM      MS      IOD     Net     PM      CCS     Lns     Trks    Ext     APPL
        •       •       •       •       6LCM    2 RSC •         110 GC •        •
                                        *C*     *C*             *C*
DTC                                     SysB    ManB    OffL    CBsy    ISTb    InSv
 0  Quit                PM              9       0       22      11      1       13
 2  Post_               DTC             2       0       0       0       0       1
 3  Listset
 4          DTC     0InSv   Links_OOS:      CSide0,PSide0
 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
16
17  Perform
18
    TEAM22
Time 18:35
```

The figure above shows a MAP display of the DTC after the
SRC-coordinated load process has finished and the DTC has been returned
to service. The in-service message indicates that the SRC successfully
recovered the DTC.

The time for recovery for a PM can vary from 15 to 60 min or longer, from
reset to in service. The time varies depending on the amount of call
processing occurring in the DMS-core, the amount of CPU available in the
DMS-core, how much parallel recovery is occurring, and how large the
PM's load file is.

Critical alarms are still displayed for other PMs. Since the SRC has
completed the recovery of the DTC, resources to recover other PMs are
available.

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DMS-100 Family

DMS SuperNode STP/SSP Integrated Node

Recovery Procedures

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