DMS-100 Family
DMS SuperNode STP/SSP
Integrated Node
Recovery Procedures

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# Contents

**About this document** vii  
- When to use this document vii  
- How to check the version and issue of this document vii  
- References in this document vii  
- What precautionary messages mean viii  
- How commands, parameters, and responses are represented ix  
  - Input prompt (>) ix  
  - Commands and fixed parameters ix  
  - Variables ix  
  - Responses x  

**Recovery procedures** 1-1  
- Introduction to recovery procedures 1-1  
  - Explanatory and context-setting information 1-1  
  - Summary flowchart 1-1  
  - Step-action instructions 1-1  
- Booting a DMS SuperNode SE switch 1-2  
- Booting a DMS SuperNode switch 1-12  
- Checking for call completion 1-23  
- Checking for message throughput 1-34  
- Emergency power conservation 1-46  
  - Emergency shutdown of one SuperNode SE CM plane 1-52  
  - Emergency shutdown of one SuperNode SE MS plane 1-63  
  - Emergency shutdown of one DMS SuperNode MS plane 1-68  
  - Emergency shutdown of one enhanced network plane 1-73  
  - Emergency shutdown of maintenance trunk modules 1-80  
  - Emergency shutdown of one DMS SuperNode CM plane 1-85  
  - Emergency shutdown of one half of a line module pair 1-93  
  - Emergency shutdown of one junctored network plane 1-97  
  - Emergency shutdown of one LIM unit on each LPP 1-101  
  - Emergency shutdown of one MS plane 1-107  
  - Emergency shutdown of one remote oscillator shelf plane 1-113  
  - Emergency shutdown of one unit of LCMs 1-117  
  - Emergency shutdown of one unit of MSB7s 1-121  
  - Emergency switch shutdown 1-129  
- Performing a reload-restart on a DMS SuperNode SE 1-133  
- Performing a cold restart on a DMS SuperNode switch 1-142  
- Performing a reload-restart on a DMS SuperNode switch 1-152  
- Performing a warm restart on a DMS SuperNode switch 1-162
Performing a warm restart on a SuperNode SE switch  1-172
Recording a 16K ENET image on an SLM disk    1-181
Recovering a dead DIRP utility    1-205
Recovering AMA data with block numbers    1-209
Recovering AMA data without DIRP block numbers    1-216
Recovering a stuck LIU7    1-238
Recovering CCS7 linksets    1-246
Recovering data from a disk to tape    1-254
Recovering DS-0 clocking    1-260
Recovering from a dead system in a SuperNode switch    1-265
Recovering link peripheral processors    1-297
Recovering the enhanced network    1-318
Recovering volumes marked INERROR    1-334
Recovering from emergency power conservation measures
  Restoring the computing module to duplex operation    1-340
  Restoring the enhanced network to duplex operation    1-346
  Restoring the message switch to duplex operation    1-355
  Restoring the enhanced network to duplex operation    1-360
  Recovering from emergency power conservation    1-368
  Restoring the CM to duplex operation    1-373
  Restoring the junctored network to duplex operation    1-378
  Restoring LCMs to duplex operation    1-384
  Restoring line modules to duplex operation    1-388
  Restoring the LPP LIM to duplex operation    1-394
  Restoring the MS to duplex operation    1-399
  Restoring the MSB7 to duplex operation    1-404
  Restoring the remote oscillator shelf to duplex operation    1-411
  Returning maintenance trunk modules to service    1-414

System recovery controller    2-1
About the system recovery controller    2-2
  SRC functions    2-2
  SRC conditions    2-4
  SRC triggers    2-4
  SRC dependency manager    2-5
  Broadcast-loading    2-6
  Automatic broadcast-loading    2-7
  Limitation of concurrent load activities    2-8
  Example of automatic broadcast-loading    2-9
  Automatic single-loading    2-10
SRC recovery methods    2-10
  Series I PMs automatically recovered by the SRC    2-10
  Series II PMs automatically recovered by the SRC    2-11
  Series II XMS-based PMs automatically recovered by the SRC    2-11
Monitoring SRC operation    2-13
  Log reports    2-13
  Failure of SRC to recover a PM    2-13
  Manual override of the SRC    2-14
  MAP responses during automatic system recovery    2-15

Index    3-1
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:

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.
About this document

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

Summary of Booting a DMS SuperNode SE switch

- Boot CPU
  - CPU status A1?
    - Y: Synchronize MS clocks
      - Passed?
        - Y: Contact next level of support
        - N: End
    - N: End
  - Passed?
    - Y: Synchronize CPUs
      - Passed?
        - Y: Contact next level of support
        - N: End
    - N: End

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

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.

<table>
<thead>
<tr>
<th>If the most recent image file resides on</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLM disk</td>
<td>step 2</td>
</tr>
<tr>
<td>SLM tape</td>
<td>step 11</td>
</tr>
</tbody>
</table>

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 SLM\slm_no
   and pressing the Enter key.
   
   \textit{where}
   
   \slm_no is the number of the SLM (0 or 1) that contains the most recent image file

   \textit{Example input:}
   
   \\BOOT SLM1
   
   \textit{RTIF response:}
   
   BOOT PLEASE CONFIRM: (YES/NO)

5. Confirm the command by typing
   >YES
   and pressing the Enter key.
   
   \textit{RTIF response:}
   
   BOOT INITIATED

6. Release the jam on the inactive CPU by typing
   \RELEASE JAM
   and pressing the Enter key.
   
   \textit{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.
   
   \textit{RTIF response:}
   
   TEMP. RESET/JAM ENABLE

8. Jam the active CPU by typing
   \JAM
   and pressing the Enter key.
   
   \textit{RTIF response:}
   
   PLEASE CONFIRM: (YES/NO)
1-6 Recovery procedures

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 SLM\slm_no\T
      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)
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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 21</td>
</tr>
<tr>
<td>does not flash</td>
<td>step 34</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 22</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 26</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 28</td>
</tr>
<tr>
<td>failed</td>
<td>step 34</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 35</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If you are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 31</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 35</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 32</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 33</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 35</td>
</tr>
<tr>
<td>failed</td>
<td>step 34</td>
</tr>
</tbody>
</table>

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

Summary of Booting a DMS SuperNode switch

- **Booting CPU**
- **CPU status A1?**
  - **Y**
  - **N**
- **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.
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.

<table>
<thead>
<tr>
<th>If the most recent image file resides on</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLM disk</td>
<td>step 2</td>
</tr>
<tr>
<td>SLM tape</td>
<td>step 11</td>
</tr>
</tbody>
</table>

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 SLM\slm_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
Jamming the active CPU causes a switch of activity. The active CPU becomes inactive once it is jammed.

Confirm the command by typing

>YES
and pressing the Enter key.

RTIF response:

JAM DONE

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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 21</td>
</tr>
<tr>
<td>does not flash after</td>
<td>step 34</td>
</tr>
<tr>
<td>approximately 15 min</td>
<td></td>
</tr>
</tbody>
</table>

At the SLM shelf

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

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

14 Boot the inactive CPU by typing

>`\BOOT SLM{slm_no}T`

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
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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 21</td>
</tr>
<tr>
<td>does not flash after approximately 20 min</td>
<td>step 34</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 22</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 26</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If it is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 31</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 35</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 32</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 33</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 35</td>
</tr>
<tr>
<td>failed</td>
<td>step 34</td>
</tr>
</tbody>
</table>
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.
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.

1. Contact next level of support before starting
2. List problem LIU7s, linksets, and routesets
3. Are LIU7s offline?
   - If yes, Pass LIU7s to service
   - If no, Are links in-service or istb?
     - If yes, Are links in sync?
       - If yes, Ensure traffic is on links
         - If yes, Is traffic on links?
           - If yes, End
           - If no, Contact next level of support
         - If no, Activate links
     - If no, Return links to service
   - If no, Passed?
     - If yes, End
     - If no, Contact next level of support

1. Contact next level of support before starting
2. List problem LIU7s, linksets, and routesets
3. Are LIU7s offline?
   - If yes, Pass LIU7s to service
   - If no, Are links in-service or istb?
     - If yes, Are links in sync?
       - If yes, Ensure traffic is on links
         - If yes, Is traffic on links?
           - If yes, End
           - If no, Contact next level of support
         - If no, Activate links
     - If no, Return links to service
   - If no, Passed?
     - If yes, End
     - If no, Contact next level of support
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

rtreset_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:

<table>
<thead>
<tr>
<th>C7Routeset</th>
<th>SSP100_RT</th>
<th>SysB</th>
<th>Linkset</th>
<th>Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rte</td>
<td>State</td>
<td>Mode</td>
<td>Cost</td>
<td>Linkset</td>
</tr>
<tr>
<td>0</td>
<td>SysB</td>
<td>Assoc</td>
<td>0</td>
<td>SSP100_LK</td>
</tr>
<tr>
<td>1</td>
<td>SysB</td>
<td>Quasi</td>
<td>1</td>
<td>SSP101_LK</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>one or more linksets are out of service</td>
<td>step 8</td>
</tr>
<tr>
<td>there are no more out-of-service linksets and there are still routesets associated with call completion problems</td>
<td>step 4</td>
</tr>
<tr>
<td>there are no more out-of-service linksets and there are no more routesets associated with call completion problems</td>
<td>step 39</td>
</tr>
</tbody>
</table>

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

---

<table>
<thead>
<tr>
<th>Linkset</th>
<th>SSP100_LK</th>
<th>SYSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traf</td>
<td>Sync</td>
<td>Link</td>
</tr>
<tr>
<td>LK Stat</td>
<td>Stat</td>
<td>Stmt</td>
</tr>
<tr>
<td>Resource</td>
<td>Physical</td>
<td>Access</td>
</tr>
<tr>
<td>0</td>
<td>SysB</td>
<td>LIU7</td>
</tr>
<tr>
<td>1</td>
<td>SysB</td>
<td>LIU7</td>
</tr>
<tr>
<td>100</td>
<td>LIK</td>
<td>101</td>
</tr>
<tr>
<td>103</td>
<td>LIK</td>
<td>103</td>
</tr>
</tbody>
</table>

Size of Posted Set = 2

11 Determine which links are out of service.

12 Choose an out-of-service link.

<table>
<thead>
<tr>
<th>If the LIU7 associated with this link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>InSv or ISTb</td>
<td>step 26</td>
</tr>
<tr>
<td>ManB, SysB, or OffL</td>
<td>step 13</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If the state of the LIU7 is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>SysB or OffL</td>
<td>step 15</td>
</tr>
<tr>
<td>ManB</td>
<td>step 16</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 21</td>
</tr>
<tr>
<td>failed</td>
<td>step 17</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the PMRESET command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, and the LIU7 is ISTb or InSv</td>
<td>step 20</td>
</tr>
<tr>
<td>failed, and the LIU7 is ManB</td>
<td>step 19</td>
</tr>
</tbody>
</table>

19 Reload the LIU7 by typing
   >LOADPM
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 20</td>
</tr>
<tr>
<td>failed</td>
<td>step 38</td>
</tr>
</tbody>
</table>
Checking for call completion (continued)

20 Return the LIU7 to service by typing

>RTS
and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 21</td>
</tr>
<tr>
<td>failed</td>
<td>step 38</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>InSv or ISTb, and the link is</td>
<td>step 24</td>
</tr>
<tr>
<td>InSv or ISTb, and the link is out of service</td>
<td>step 25</td>
</tr>
<tr>
<td>out of service</td>
<td>step 26</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 29</td>
</tr>
<tr>
<td>failed</td>
<td>step 38</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If traffic on the link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>running, and the linkset is InSv or ISTb</td>
<td>step 31</td>
</tr>
<tr>
<td>running, and the linkset is out of service</td>
<td>step 32</td>
</tr>
<tr>
<td>not running</td>
<td>step 33</td>
</tr>
</tbody>
</table>

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*

<table>
<thead>
<tr>
<th>Link</th>
<th>Speed</th>
<th>Byte/sec</th>
<th>Erlang</th>
<th>MSU len</th>
<th>%RTx</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>7000</td>
<td>52</td>
<td>0.40</td>
<td>28</td>
<td>0</td>
</tr>
</tbody>
</table>

If traffic on the link is running, and the linkset is InSv or ISTb

Do step 31

running, and the linkset is out of service

Do step 32

not running

Do 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

Do step 12

no more out-of-service links in the linkset you are working on

Do step 7

36 Access the C7RTESET level of the MAP display by typing

>`C7RTESET`

and pressing the Enter key.
Checking for call completion

37 Determine the state of the routeset.

Example of a MAP display:

<table>
<thead>
<tr>
<th>C7Routeset</th>
<th>SSP100_RT</th>
<th>InSv</th>
<th>Linkset</th>
<th>Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rte</td>
<td>State</td>
<td>Mode</td>
<td>Cost</td>
<td>Linkset</td>
</tr>
<tr>
<td>0</td>
<td>InSv</td>
<td>Assoc</td>
<td>0</td>
<td>SSP100_LK</td>
</tr>
<tr>
<td>1</td>
<td>InSv</td>
<td>Quasi</td>
<td>1</td>
<td>SSP101_LK</td>
</tr>
</tbody>
</table>

If the state of the routeset is

<table>
<thead>
<tr>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>InSv</td>
</tr>
<tr>
<td>anything else</td>
</tr>
</tbody>
</table>

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 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 LIU7s, linksets, and routesets
- Select a linkset
- Return LIU7s to service
- Restore traffic to links
- Are all linksets in service?
  - Yes: Routesets in service?
    - Yes: End
    - No: Contact next level of support
  - No: Contact next level of support

This flowchart summarizes the procedure.
Use the instructions in the procedure that follows this flowchart to perform the procedure.
Checking for message throughput (continued)

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 LIU7s.

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.
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:*

```
<table>
<thead>
<tr>
<th>C7Route</th>
<th>SSP100_RT</th>
<th>SysB</th>
<th>Linkset</th>
<th>Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rte</td>
<td>State</td>
<td>Mode</td>
<td>Cost</td>
<td>Linkset</td>
</tr>
<tr>
<td>0</td>
<td>SysB</td>
<td>Assoc 0</td>
<td>SSP100_LK</td>
<td>SysB</td>
</tr>
<tr>
<td>1</td>
<td>SysB</td>
<td>Quasi 1</td>
<td>SSP101_LK</td>
<td>SysB</td>
</tr>
</tbody>
</table>
```

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

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>one or more linksets are out of service</td>
<td>step 8</td>
</tr>
<tr>
<td>there are no more out-of-service linksets, and there are still routesets associated with call completion problems</td>
<td>step 4</td>
</tr>
<tr>
<td>there are no more out-of-service linksets, and there are no more routesets on your list of routesets made in step 2</td>
<td>step 37</td>
</tr>
</tbody>
</table>

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.
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
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.

<table>
<thead>
<tr>
<th>If the LIU7 associated with this link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>InSv or ISTb</td>
<td>step 27</td>
</tr>
<tr>
<td>ManB, SysB, or Offl</td>
<td>step 13</td>
</tr>
<tr>
<td>anything else</td>
<td>step 39</td>
</tr>
</tbody>
</table>

13  Access the PM level of the MAP display

>`PM`

and pressing the Enter key.

*Example of a MAP response:

```
PM    SysB  ManB  OffL  CBsy  ISTb  InSv
10    0     12    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

<table>
<thead>
<tr>
<th>If the state of the LIU7 is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>SysB or Off1</td>
<td>step 15</td>
</tr>
<tr>
<td>ManB</td>
<td>step 16</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, and the LIU7 is ISTb or InSv</td>
<td>step 22</td>
</tr>
<tr>
<td>failed, and the LIU7 is ManB or SysB</td>
<td>step 17</td>
</tr>
<tr>
<td>anything else</td>
<td>step 39</td>
</tr>
</tbody>
</table>

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
   \texttt{>PMRESET}
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the PMRESET command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, and the LIU7 is ISTb or InSv</td>
<td>step 21</td>
</tr>
<tr>
<td>failed, and the LIU7 is ManB</td>
<td>step 20</td>
</tr>
<tr>
<td>failed, and the LIU7 is SysB</td>
<td>step 19</td>
</tr>
</tbody>
</table>

19 Force the LIU7 to busy by typing
   \texttt{>BSY FORCE}
   and pressing the Enter key.

20 Reload the LIU7 by typing
   \texttt{>LOADPM}
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 21</td>
</tr>
<tr>
<td>failed</td>
<td>step 39</td>
</tr>
</tbody>
</table>

21 Return the LIU7 to service
   \texttt{>RTS}
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 22</td>
</tr>
<tr>
<td>failed</td>
<td>step 39</td>
</tr>
</tbody>
</table>

22 Access the C7LKSET level of the MAP display by typing
   \texttt{>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.

<table>
<thead>
<tr>
<th>If the link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>InSv or ISTb, and the linkset is inSv or ISTb</td>
<td>step 25</td>
</tr>
<tr>
<td>InSv or ISTb, and the linkset is out of service</td>
<td>step 26</td>
</tr>
<tr>
<td>out of service</td>
<td>step 27</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the BSY command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 29</td>
</tr>
<tr>
<td>failed</td>
<td>step 39</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 30</td>
</tr>
<tr>
<td>failed</td>
<td>step 39</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>If the ACT command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 31</td>
</tr>
<tr>
<td>failed</td>
<td>step 39</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Link</th>
<th>Speed</th>
<th>Byte/sec</th>
<th>Erlang</th>
<th>MSU len</th>
<th>%RTx</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>7000</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If traffic on the link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>running, and the linkset is InSv or ISTb</td>
<td>step 32</td>
</tr>
<tr>
<td>running, and the linkset is out of service</td>
<td>step 33</td>
</tr>
<tr>
<td>not running</td>
<td>step 34</td>
</tr>
</tbody>
</table>

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.
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
```

<table>
<thead>
<tr>
<th>If traffic on the link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>running, and the linkset is <strong>InSv</strong> or <strong>ISTb</strong></td>
<td>step 32</td>
</tr>
<tr>
<td>running, and the linkset is out of service</td>
<td>step 33</td>
</tr>
<tr>
<td>not running</td>
<td>step 36</td>
</tr>
</tbody>
</table>

36 The link will not return to service.

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>more out-of-service links in the linkset on which you are working</td>
<td>step 12</td>
</tr>
<tr>
<td>no more out-of-service links in the linkset on which you are working</td>
<td>step 7</td>
</tr>
</tbody>
</table>

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
```
38 Determine the state of all recorded routesets.

<table>
<thead>
<tr>
<th>If the state of all recorded routesets is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>InSv</td>
<td>step 40</td>
</tr>
<tr>
<td>anything else</td>
<td>step 39</td>
</tr>
</tbody>
</table>

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 LIM or MSB7 unit

Shut down one plane of MS and CM

End

This flowchart summarizes the procedure.

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

<table>
<thead>
<tr>
<th>If a recent office image is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>available</td>
<td>step 6</td>
</tr>
<tr>
<td>not available</td>
<td>step 5</td>
</tr>
</tbody>
</table>

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.
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.

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

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.

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.

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.

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

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.

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

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.
Summary of Emergency shutdown of one SuperNode SE CM plane

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 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.)

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both CPU planes are fault free</td>
<td>step 7</td>
</tr>
<tr>
<td>the inactive CPU has a fault, and the active CPU is fault free</td>
<td>step 7</td>
</tr>
<tr>
<td>the active CPU has a fault, and the inactive CPU is fault free</td>
<td>step 5</td>
</tr>
<tr>
<td>both CPU 0 and CPU 1 have faults</td>
<td>step 4</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the CM is running on the</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>inactive clock</td>
<td>step 13</td>
</tr>
<tr>
<td>active clock</td>
<td>step 14</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>CM</th>
<th>Sync</th>
<th>Act</th>
<th>CPU1</th>
<th>CPU1</th>
<th>Jam</th>
<th>Memory</th>
<th>CMMnt</th>
<th>MC</th>
<th>PMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>no</td>
<td>cpu</td>
<td>0</td>
<td>.</td>
<td>.</td>
<td>yes</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>

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 same plane as the active CPU or the inactive CPU.

<table>
<thead>
<tr>
<th>If the primary autoload device is on the same plane as the</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>active CPU</td>
<td>step 18</td>
</tr>
<tr>
<td>inactive CPU</td>
<td>step 17</td>
</tr>
</tbody>
</table>
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 . . . .


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:
```
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.
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:

<table>
<thead>
<tr>
<th>Message Switch</th>
<th>Clock</th>
<th>Shelf 0</th>
<th>Inter-MS Link 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS 0</td>
<td>M Free</td>
<td>.</td>
<td>R</td>
</tr>
<tr>
<td>MS 1</td>
<td>Slave</td>
<td>F</td>
<td>S</td>
</tr>
</tbody>
</table>

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

3. Determine the state of the message switch planes.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both MS planes are fault free</td>
<td>step 8</td>
</tr>
<tr>
<td>the slave MS has a fault, and the master MS plane is fault free</td>
<td>step 8</td>
</tr>
<tr>
<td>the master MS has a fault, but the slave MS is fault free</td>
<td>step 5</td>
</tr>
<tr>
<td>both MS planes have faults</td>
<td>step 4</td>
</tr>
</tbody>
</table>
Recovery procedures

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
   \texttt{>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.

   \begin{tabular}{|c|c|}
     \hline
     If the SWMAST command & Do \\
     \hline
     passed & step 7 \\
     failed & step 6 \\
     \hline
   \end{tabular}

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
   \texttt{>BSY ms\_number}
   and pressing the Enter key.

   where
   \texttt{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

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 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

   \[ \text{>MAPCI;MTC;MS} \]

   and pressing the Enter key.

   *Example of a MAP display:*

   
<table>
<thead>
<tr>
<th>Message Switch</th>
<th>Clock</th>
<th>Shelf 0</th>
<th>Inter-MS Link 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS 0</td>
<td>.</td>
<td>M Free</td>
<td>.</td>
</tr>
<tr>
<td>MS 1</td>
<td>.</td>
<td>Slave</td>
<td>F</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both MS planes are fault free</td>
<td>step 8</td>
</tr>
<tr>
<td>the slave MS has a fault, and the master MS plane is fault free</td>
<td>step 8</td>
</tr>
<tr>
<td>the master MS has a fault, but the slave MS is fault free</td>
<td>step 5</td>
</tr>
<tr>
<td>both MS planes have faults</td>
<td>step 4</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SWMAST command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 7</td>
</tr>
<tr>
<td>failed</td>
<td>step 6</td>
</tr>
</tbody>
</table>

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
\texttt{>BSY ms\_number}
and pressing the Enter key.

\textit{where}\n
\texttt{ms\_number} is the number of the slave MS (0 or 1)

\textit{Example of a MAP response:}\n
Request to MAN BUSY MS: 0 submitted.
Request to MAN BUSY MS: 0 passed.

\textbf{At the MS shelf}\n
9

\textbf{WARNING}\n
\textit{Static electricity damage}\n
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.

\textbf{CAUTION}\n
\textit{Possible loss of service}\n
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 \textit{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

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

>MAPC;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.
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 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

1. Post TTP circuits on MTM
2. Busy TTP circuits on MTM
3. Post MTM
4. Busy MTM
5. Unseat MTM processor card
6. Power down MTM
7. 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 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  OTWA0N23DA00  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)

<table>
<thead>
<tr>
<th></th>
<th>SysB</th>
<th>ManB</th>
<th>OffL</th>
<th>CBsy</th>
<th>ISTb</th>
<th>InSv</th>
</tr>
</thead>
</table>
   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

Summary of Emergency shutdown of one DMS SuperNode CM plane

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.
Emergency shutdown of one DMS SuperNode 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.

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   cpu1  .  .  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.)

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both CPU planes are fault free</td>
<td>step 7</td>
</tr>
<tr>
<td>the inactive CPU has a fault, and</td>
<td>step 7</td>
</tr>
<tr>
<td>the active CPU is fault free</td>
<td></td>
</tr>
<tr>
<td>the active CPU has a fault, and</td>
<td>step 5</td>
</tr>
<tr>
<td>the inactive CPU is fault free</td>
<td></td>
</tr>
<tr>
<td>both CPU 0 and CPU 1 have faults</td>
<td>step 4</td>
</tr>
</tbody>
</table>

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.
11  Wait until A1 flashes on the reset terminal for the inactive CPU.
   \textbf{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
   >\texttt{INSYNC}
   and pressing the Enter key.
   \textit{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.

<table>
<thead>
<tr>
<th>If the CM is running on the</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>inactive clock</td>
<td>step 13</td>
</tr>
<tr>
<td>active clock</td>
<td>step 14</td>
</tr>
</tbody>
</table>

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

14  Access the MC level of the MAP display by typing
   >\texttt{MC}
   and pressing the Enter key.
   \textit{Example of a MAP display:}
   
   MC 0    MC 1
   .        .
Emergency shutdown of one DMS SuperNode CM plane (continued)

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 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 shutdown of one half of a line module pair

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 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
3 Manually busy the LM by typing
>BSY
and pressing the Enter key.

*Example of a MAP response:*
LM 0 Bsy
OK.

4

**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.

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:

<table>
<thead>
<tr>
<th>Net</th>
<th>11111</th>
<th>11111</th>
<th>22222</th>
<th>22222</th>
<th>33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plane</td>
<td>01234</td>
<td>56789</td>
<td>01234</td>
<td>56789</td>
<td>01234</td>
</tr>
<tr>
<td></td>
<td>....</td>
<td></td>
<td>....</td>
<td></td>
<td>....</td>
</tr>
<tr>
<td>JNET:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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)
pos_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.
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:

<table>
<thead>
<tr>
<th>SysB</th>
<th>ManB</th>
<th>OffL</th>
<th>CBsy</th>
<th>ISTb</th>
<th>InSv</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

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)

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:*

<table>
<thead>
<tr>
<th>Tap:</th>
<th>0</th>
<th>4</th>
<th>8</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>24</th>
<th>28</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBus0: InSv</td>
<td>....</td>
<td>....</td>
<td>....</td>
<td>....</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>FBus1: InSv</td>
<td>....</td>
<td>....</td>
<td>....</td>
<td>....</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the response is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIM x FBus y Busy initiated.</td>
<td>step 6</td>
</tr>
<tr>
<td>LIM x FBus y Busy passed.</td>
<td></td>
</tr>
<tr>
<td>LIM x FBus y Busy requires confirmation because the</td>
<td></td>
</tr>
<tr>
<td>following NIUs may be active on this bus...</td>
<td>step 5</td>
</tr>
<tr>
<td>NIU xx unit 0</td>
<td></td>
</tr>
<tr>
<td>NIU xx unit 1</td>
<td></td>
</tr>
<tr>
<td>Please confirm (YES, Y, NO, or N)</td>
<td></td>
</tr>
</tbody>
</table>

5  Confirm the command by typing

>YES

and pressing the Enter key.
6 Quit the F-bus level of the MAP display by typing

>QUIT

and pressing the Enter key.

7

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.

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

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.

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

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

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
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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both MS planes are fault free</td>
<td>step 8</td>
</tr>
<tr>
<td>the slave MS has a fault, and the master MS plane is fault free</td>
<td>step 8</td>
</tr>
<tr>
<td>the master MS has a fault, but the slave MS is fault free</td>
<td>step 5</td>
</tr>
<tr>
<td>both MS planes have faults</td>
<td>step 4</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the SWMAST command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 7</td>
</tr>
<tr>
<td>failed</td>
<td>step 6</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If you are working on a</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>SuperNode switch</td>
<td>step 10</td>
</tr>
<tr>
<td>SuperNode SE switch</td>
<td>step 11</td>
</tr>
</tbody>
</table>

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 converter in 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.

<table>
<thead>
<tr>
<th>If the slave MS is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS 0</td>
<td>step 12</td>
</tr>
<tr>
<td>MS 1</td>
<td>step 13</td>
</tr>
</tbody>
</table>
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 converter in 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:

<table>
<thead>
<tr>
<th>Message Switch</th>
<th>Clock</th>
<th>Shelf 0</th>
<th>Inter-MS Link</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS 0</td>
<td>.</td>
<td>M Free</td>
<td>.</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>MS 1</td>
<td>.</td>
<td>Slave</td>
<td>F</td>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

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.
Summary of Emergency shutdown of one unit of LCMs

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.
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

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

Post the MSB7

Unit to be powered down inactive? N Switch activity of units

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
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.

2. **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.

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:**

```plaintext
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.

<table>
<thead>
<tr>
<th>If the unit is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>active</td>
<td>step 4</td>
</tr>
<tr>
<td>inactive</td>
<td>step 8</td>
</tr>
</tbody>
</table>

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"):
```

<table>
<thead>
<tr>
<th>If the MAP response indicates</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a warm SwAct</td>
<td>step 7</td>
</tr>
<tr>
<td>anything else</td>
<td>step 5</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>If you want to</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>power down the inactive unit instead</td>
<td>step 8</td>
</tr>
<tr>
<td>leave both units of this MSB7 in service and work on the next MSB7</td>
<td>step 2</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>LINK</th>
<th>NET</th>
<th>CAP</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 3</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>1</td>
<td>1 3</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>2</td>
<td>0 3</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>3</td>
<td>1 3</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>4</td>
<td>0 3</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>1 3</td>
<td>MS</td>
<td>OK</td>
</tr>
</tbody>
</table>

Note: Links 5 to 30 are not shown.

Example of a MAP response for ENET:

<table>
<thead>
<tr>
<th>LINK</th>
<th>ENET</th>
<th>CAP</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 13</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>1</td>
<td>1 23</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>2</td>
<td>0 13</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>3</td>
<td>1 23</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>4</td>
<td>0 13</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>5</td>
<td>1 23</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>6</td>
<td>0 13</td>
<td>MS</td>
<td>OK</td>
</tr>
<tr>
<td>7</td>
<td>1 23</td>
<td>MS</td>
<td>OK</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If the network is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNET</td>
<td>step 11</td>
</tr>
<tr>
<td>ENET</td>
<td>step 18</td>
</tr>
</tbody>
</table>

DMS-100 Family INode Recovery Procedures  BCS38i
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

1. Notify network management of service loss
2. Notify essential services of service loss
3. Immediate shutdown necessary?
   - Y
   - N
4. Power down nonessential PMs
5. Power down remaining PMs
6. Power down network, LPP, and IOCs
7. Power down SuperNode core (CM and MS)
8. Disconnect A and B feeds

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

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>the switch must be shut down immediately due to dangerous environmental conditions</td>
<td>step 4</td>
</tr>
<tr>
<td>there is time (one half hour or more) to shut down the switch in an orderly fashion</td>
<td>step 6</td>
</tr>
</tbody>
</table>

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.
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

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

Restart switch

Active CPU status A1?

Synchronize MS clocks

Passed?

Synchronize CPUs

Passed?

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 reload-restart on a DMS SuperNode SE (continued)

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a MAP terminal is available</td>
<td>step 2</td>
</tr>
<tr>
<td>no MAP terminal is available</td>
<td>step 6</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash</td>
<td>step 29</td>
</tr>
</tbody>
</table>

   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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 7</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 12</td>
</tr>
</tbody>
</table>

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)
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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash</td>
<td>step 29</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 17</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 21</td>
</tr>
</tbody>
</table>

**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:

21 Access the MS Clock level of the MAP display by typing
   >MAP;MTC;MS;CLOCK
   and pressing the Enter key.

22 Synchronize the clocks by typing
   >SYNC
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 23</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 30</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 25</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If you are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 26</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 27</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 28</td>
</tr>
</tbody>
</table>

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
   \texttt{>SYNC}  
   and press the Enter key.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 30</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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

Summary of Performing a cold restart on a DMS SuperNode switch

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

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a MAP terminal is available</td>
<td>step 2</td>
</tr>
<tr>
<td>no MAP terminal is available</td>
<td>step 6</td>
</tr>
</tbody>
</table>

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"):

   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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash after</td>
<td>step 29</td>
</tr>
<tr>
<td>approximately 5 min</td>
<td></td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 7</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 12</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash after</td>
<td>step 29</td>
</tr>
<tr>
<td>approximately 5 min</td>
<td></td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 17</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 21</td>
</tr>
</tbody>
</table>

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
   >MAP;CI;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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 30</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 25</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If it is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 26</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 27</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 28</td>
</tr>
</tbody>
</table>

**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
```
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

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

Restart switch

Active CPU status A1? N

Synchronize MS clocks

Passed? N

Synchronize CPUs

Passed? N

End

Y

Contact next level of support
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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a MAP terminal is available</td>
<td>step 2</td>
</tr>
<tr>
<td>no MAP terminal is available</td>
<td>step 6</td>
</tr>
</tbody>
</table>

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

```shell
>RESTART RELOAD
```
and pressing the Enter key.

*RTIF response:*

Please confirm: (YES/NO)

14 Confirm the command by typing

```shell
>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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash after approximately 5 min</td>
<td>step 29</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 17</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 21</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 23</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the CUPs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 30</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 25</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If it is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 26</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 27</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 28</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 30</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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.
Summary of Performing a warm restart on a DMS SuperNode switch

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

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a MAP terminal is available</td>
<td>step 2</td>
</tr>
<tr>
<td>no MAP terminal is available</td>
<td>step 6</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash after</td>
<td>step 29</td>
</tr>
<tr>
<td>approximately 5 min</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 7</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 12</td>
</tr>
</tbody>
</table>
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:*
    LINUX

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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash after approximately 5 min</td>
<td>step 29</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 17</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 21</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 23</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 30</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 25</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If it is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 26</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 27</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 28</td>
</tr>
</tbody>
</table>

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

At the MAP

28 Synchronize the CPUs by typing

>SYNC

and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 30</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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

Summary of Performing a warm restart on a SuperNode SE switch

This flowchart summarizes the procedure.

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

1. Restart switch
2. Synchronize MS clocks
3. Check if Active CPU status is A1?
   - Yes: Proceed to step 4
   - No: Contact next level of support
4. Synchronize CPUs
5. Check if Passed?
   - Yes: Proceed to step 6
   - No: Contact next level of support
6. Contact next level of support

Pass: Restart switch

End
Performing a warm restart on a SuperNode SE switch

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>a MAP terminal is available</td>
<td>step 2</td>
</tr>
<tr>
<td>no MAP terminal is available</td>
<td>step 6</td>
</tr>
</tbody>
</table>

At the MAP terminal

2 Access the CI level of the MAP display by typing

>`QUIT ALL`
and pressing the Enter key.
3  Restart the switch by typing
   \texttt{>RESTART WARM}
   and pressing the Enter key.

   \textit{Example of a MAP response:}

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

4  Confirm the command by typing
   \texttt{>YES}
   and pressing the Enter key.

\textbf{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.

   \textbf{Note:} Wait about 5 minutes for A1 to start flashing.

   \begin{tabular}{|l|l|}
   \hline
   If A1 & Do  \\
   \hline
   flashes & step 16  \\
   does not flash & step 29  \\
   \hline
   \end{tabular}

\textbf{At the CM reset terminal for the inactive CPU}

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

   \textbf{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.

   \begin{tabular}{|l|l|}
   \hline
   If the CPUs are & Do  \\
   \hline
   in sync & step 7  \\
   not in sync & step 12  \\
   \hline
   \end{tabular}

7  Jam the inactive CPU by typing
   \texttt{>JAM}
   and pressing the Enter key.

   \textit{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.

<table>
<thead>
<tr>
<th>If A1</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 16</td>
</tr>
<tr>
<td>does not flash</td>
<td>step 29</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 17</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 21</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 23</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the CPUs are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 30</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 25</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If you are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 26</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 27</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 28</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 30</td>
</tr>
<tr>
<td>failed</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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

[Flowchart]

- 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)

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: Dumping Data Store.
   ENET0SH0: Dumping Program Store.
   ENET0SH0: Dumping Entry Record.
   ENET0SH0: Checking Data Store.
   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.

<table>
<thead>
<tr>
<th>If the file name begins with a</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>letter</td>
<td>step 7</td>
</tr>
<tr>
<td>number</td>
<td>step 8</td>
</tr>
</tbody>
</table>

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')
(STRRTOSYM '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')
(STRRTOSYM '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 }

<table>
<thead>
<tr>
<th>LAST FILE O R I O</th>
<th>FILE</th>
<th>NUM OF</th>
<th>MAX</th>
<th>FILE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODIFY CODE R E T P</td>
<td>SIZE</td>
<td>RECORDS</td>
<td>REC</td>
<td></td>
</tr>
<tr>
<td>DATE   G C O E IN</td>
<td>IN</td>
<td>LEN</td>
<td>C N</td>
<td>BLOCKS</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>---------</td>
<td>-----</td>
<td>--------------</td>
</tr>
<tr>
<td>930215</td>
<td>0 I F</td>
<td>49364</td>
<td>4682</td>
<td>1020 ENET_0215</td>
</tr>
<tr>
<td>930214</td>
<td>0 I F</td>
<td>72190</td>
<td>6095</td>
<td>1020 ENET_0214</td>
</tr>
<tr>
<td>930212</td>
<td>0 I F</td>
<td>69364</td>
<td>6730</td>
<td>1020 ENET_0212</td>
</tr>
<tr>
<td>930211</td>
<td>0 I F</td>
<td>75310</td>
<td>4682</td>
<td>1020 ENET_0211</td>
</tr>
<tr>
<td>930210</td>
<td>0 I F</td>
<td>99370</td>
<td>8890</td>
<td>1020 ENET_0210</td>
</tr>
</tbody>
</table>
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:
   
<table>
<thead>
<tr>
<th>FRTYPE</th>
<th>FRNO</th>
<th>FRPEC</th>
<th>SHPEC</th>
<th>MSCARD0</th>
<th>MSLINK0</th>
<th>MSPORT0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHELF0</td>
<td>LOAD0</td>
<td>MSCARD1</td>
<td>MSLINK1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRPOS1</td>
<td>SHELF1</td>
<td>LOAD1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>NT9X05AB</td>
<td>NT9X0801</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>ENET_0210</td>
<td></td>
<td>8</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>13</td>
<td>ENET_0210</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENC</td>
<td>0</td>
<td>NT9X05AB</td>
<td>NT9X0801</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>ENET_0210</td>
<td></td>
<td>12</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>00</td>
<td>ENET_0210</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   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.

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>more tuples</td>
<td>step 25</td>
</tr>
<tr>
<td>no more tuples</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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:
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
```

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

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>letter</td>
<td>step 41</td>
</tr>
<tr>
<td>number</td>
<td>step 42</td>
</tr>
</tbody>
</table>

40 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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>one ENET image is required</td>
<td>step 57</td>
</tr>
<tr>
<td>two ENET images (one for each</td>
<td>step 45</td>
</tr>
<tr>
<td>SLM disk) are required</td>
<td></td>
</tr>
</tbody>
</table>
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:
48 List the files stored on the SLM volume (to verify the new ENET image file name) by typing

```plaintext
>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 }

<table>
<thead>
<tr>
<th>LAST FILE O R I O</th>
<th>FILE</th>
<th>NUM OF</th>
<th>MAX</th>
<th>FILE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODIFY CODE R E T P</td>
<td>SIZE</td>
<td>RECORDS</td>
<td>REC</td>
<td></td>
</tr>
<tr>
<td>DATE</td>
<td>G C O E</td>
<td>IN</td>
<td>IN</td>
<td>LEN</td>
</tr>
<tr>
<td>C N</td>
<td>BLOCKS</td>
<td>FILE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>------</td>
<td>--------</td>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>930215</td>
<td>0 I F</td>
<td>49364</td>
<td>4682</td>
<td>1020 ENET_0215</td>
</tr>
<tr>
<td>930214</td>
<td>0 I F</td>
<td>72190</td>
<td>6095</td>
<td>1020 ENET_0214</td>
</tr>
<tr>
<td>930212</td>
<td>0 I F</td>
<td>69364</td>
<td>6730</td>
<td>1020 ENET_0212</td>
</tr>
<tr>
<td>930211</td>
<td>0 I F</td>
<td>75310</td>
<td>4682</td>
<td>1020 ENET_0211</td>
</tr>
<tr>
<td>930210</td>
<td>0 I F</td>
<td>99370</td>
<td>8890</td>
<td>1020 ENET_0210</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the file name begins with a</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>letter</td>
<td>step 50</td>
</tr>
<tr>
<td>number</td>
<td>step 51</td>
</tr>
</tbody>
</table>
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 (STRRTOSYM 'old_file_name')
(STRRTOSYM 'new_file_name')

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 (STRRTOSYM 'ENET_0215_ENET')
(STRRTOSYM 'ENET_0215')

52 List the files stored on the SLM volume to verify the new name by typing

>LISTFL disk_volume_name

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 }

<table>
<thead>
<tr>
<th>LAST FILE</th>
<th>O R I N</th>
<th>FILE</th>
<th>NUM OF</th>
<th>MAX</th>
<th>FILE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOD CODE</td>
<td>R E T P</td>
<td>SIZE</td>
<td>RECORDS</td>
<td>REC</td>
<td></td>
</tr>
<tr>
<td>DATE</td>
<td>G C O E</td>
<td>IN</td>
<td>IN</td>
<td>LEN</td>
<td></td>
</tr>
<tr>
<td>C N</td>
<td>BLOCKS</td>
<td>FILE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>------</td>
<td>--------</td>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>930215</td>
<td>0 I F</td>
<td>49364</td>
<td>4682</td>
<td>1020</td>
<td>ENET_0215</td>
</tr>
<tr>
<td>930214</td>
<td>0 I F</td>
<td>72190</td>
<td>6095</td>
<td>1020</td>
<td>ENET_0214</td>
</tr>
<tr>
<td>930212</td>
<td>0 I F</td>
<td>69364</td>
<td>6730</td>
<td>1020</td>
<td>ENET_0212</td>
</tr>
<tr>
<td>930211</td>
<td>0 I F</td>
<td>75310</td>
<td>4682</td>
<td>1020</td>
<td>ENET_0211</td>
</tr>
<tr>
<td>930210</td>
<td>0 I F</td>
<td>99370</td>
<td>8890</td>
<td>1020</td>
<td>ENET_0210</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the file name begins with a</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>letter</td>
<td>step 54</td>
</tr>
<tr>
<td>number</td>
<td>step 55</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If the tape is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>formatted</td>
<td>step 62</td>
</tr>
<tr>
<td>unformatted</td>
<td>step 61</td>
</tr>
</tbody>
</table>
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
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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>can obtain a tape cartridge</td>
<td>step 69</td>
</tr>
<tr>
<td>cannot obtain a tape cartridge</td>
<td>step 77</td>
</tr>
</tbody>
</table>

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

1. Check DIRP101 logs
2. Recreate DIRP process
3. Check DIRP101 logs
4. Contact next level of support
5. 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

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
   
   >MAP;C1;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

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

- Obtain block data
- Parallel volume is active device?
  - Y
    - Multiple volumes?
      - Y
        - Open new volume
          See appropriate NTP.
        - N
          - Close active volume
          - Close old volume
      - N
        - Open new volume
          See DIRP Routine Maintenance Procedures.
    - N
      - Change field PARVOL in DIRPSYSS
- Parallel volume is active device?
  - Y
    - Open new volume
      - Y
        - Copy parallel volume
        - N
          - Contact next level of support
      - N
        - End
  - N
    - Open new volume
      - Y
        - Close active volume
      - N
        - Close old volume

End
Recovery procedures

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
   \texttt{>QUERY AMA VOLUMES}
   
   and pressing the Enter key.

   \textit{Example of a MAP display:}
   
   \begin{verbatim}
   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
   \end{verbatim}

   
   \begin{tabular}{|l|l|}
   \hline
   \textbf{If the parallel volume is} & \textbf{Do} \\
   \hline
   the current file & step 7 \\
   not the current file & step 17 \\
   \hline
   
   \end{tabular}

7 Determine if your installation has multiple volumes.

\begin{tabular}{|l|l|}
\hline
\textbf{If your installation} & \textbf{Do} \\
\hline
has multiple volumes & step 8 \\
does not have multiple volumes & step 11 \\
\hline
\end{tabular}
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
   \texttt{>QUERY AMA VOLUMES}
   and pressing the Enter key.
   \textit{Example of a MAP display:}
   \texttt{QUERY AMA PARALLEL NONE}

15 Check the DIRP logs for details of closure of the active volume.
   \textit{Example of a MAP display:}
   \texttt{DIRP101 AUG13 19:50:33 nnnn INFO_DIRP_FLOW_LOG REASON= 16 S}
   \texttt{SSNAME= AMA POOL#= 0 VOLUME#= # 22 SOS-FILE-ID= nnnn nnnn n}
   \texttt{TEXT1= NEXT PARALLEL FILE BLOCK NUMBER: 1 PARM1=}
   \texttt{TEXT1= NEXT ACTIVE FILE BLOCK NUMBER: 4 PARM2=}
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.

<table>
<thead>
<tr>
<th>If the DIRPCOPY command was</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>successful</td>
<td>step 20</td>
</tr>
<tr>
<td>not successful</td>
<td>step 19</td>
</tr>
</tbody>
</table>

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

1. Obtain copy of AMA block from data center
2. AMA data on volume of active parallel device?
   - N
   - Y
     3. Determine name of parallel volume
     4. Add a new volume
     5. Rotate parallel volumes
     6. Determine block numbers of missing data
     7. Copy file to tape
8. 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)

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
Recovery procedures

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 DPP outage. 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.

<table>
<thead>
<tr>
<th>If the AMA blocks</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>are concurrent</td>
<td>step 11</td>
</tr>
<tr>
<td>are not concurrent</td>
<td>step 10</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the location of the AMA data</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>on the active parallel device</td>
<td>step 15</td>
</tr>
<tr>
<td>not on the active parallel device</td>
<td>step 34</td>
</tr>
<tr>
<td>unknown</td>
<td>step 15</td>
</tr>
</tbody>
</table>
## 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:*

<table>
<thead>
<tr>
<th>CC</th>
<th>CMC</th>
<th>IOD</th>
<th>Net</th>
<th>PM</th>
<th>Lns</th>
<th>Trks</th>
<th>Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDU</td>
<td>IOD</td>
<td>IOC</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>0</td>
<td>Quit</td>
<td>Stat</td>
<td>1DDUOS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>DIRP</td>
<td>XFER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>List Dev_</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>IOC Card</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Tst</td>
<td>Port 0123</td>
<td>0123</td>
<td>0123</td>
<td>0123</td>
<td>0123</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Bsy</td>
<td>Stat</td>
<td>.---</td>
<td>..SS</td>
<td>.---</td>
<td>SSSS</td>
<td>P---</td>
</tr>
<tr>
<td>8</td>
<td>RTS</td>
<td>Type</td>
<td>MTD</td>
<td>Cons</td>
<td>DDU</td>
<td>Cons</td>
<td>DDU</td>
</tr>
<tr>
<td>9</td>
<td>Offl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Start</td>
<td>Card 4</td>
<td>Unit</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Stop</td>
<td>User</td>
<td>SYSTEM</td>
<td>Drive_State</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Status</td>
<td>SBsy</td>
<td>drive-faults</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Alloc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Fcnt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Clrfcnt_</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>User ID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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

   \texttt{>IOC ioc\_no;CARD card\_no;ALLOC}

   and pressing the Enter key.

\textit{where}

\texttt{ioc\_no} is the input/output controller number of the DDU that was noted in

\texttt{step 1}

\texttt{card\_no} is the card number of the DDU that was noted in step 16

\textit{Example of a MAP display:}

\begin{verbatim}
  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 ..SS ..SS ..SS ..SS ..SS

  Card 4  Unit           1
  User    SYSTEM Drive\_State
  Status  Ready  on\_line

  Alloc

  VOL\_ID 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
\end{verbatim}

18  Repeat step 17 for each DDU.

19  Access the disk utility by typing

   \texttt{>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:

DIRPARRAYL_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 step 17.

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:

<table>
<thead>
<tr>
<th>SSNAME</th>
<th>SSNO</th>
<th>SEQNO</th>
<th>ROTATES</th>
<th>POOLNO</th>
<th>PARLPOOL</th>
<th>EMERGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMA</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>NO</td>
</tr>
</tbody>
</table>

REGULAR VOLUMES

<table>
<thead>
<tr>
<th>VOL#</th>
<th>VOLNAME</th>
<th>STATE</th>
<th>IOC</th>
<th>CARD</th>
<th>VOL</th>
<th>FSEG</th>
<th>ROOM</th>
<th>VLID</th>
<th>F</th>
</tr>
</thead>
</table>

PARALLEL VOLUME(S)

<table>
<thead>
<tr>
<th>VOL#</th>
<th>VOLNAME</th>
<th>STATE</th>
<th>IOC</th>
<th>CARD</th>
<th>VOL</th>
<th>FSEG</th>
<th>ROOM</th>
<th>VLID</th>
<th>CURR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>D00AMA2</td>
<td>READY</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>1</td>
<td>2400</td>
<td>YES</td>
<td></td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have available volumes</td>
<td>step 31</td>
</tr>
<tr>
<td>do not have available volumes</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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 **AMOUNT OF 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.

<table>
<thead>
<tr>
<th>Is the rotation confirmed?</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>step 34</td>
</tr>
<tr>
<td>no</td>
<td>step 72</td>
</tr>
</tbody>
</table>

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.
Recovery procedures

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 step 13. 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

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 DIRP_PARALLEL_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.

<table>
<thead>
<tr>
<th>If the DIRPCOPY command was</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>successful</td>
<td>step 73</td>
</tr>
<tr>
<td>not successful</td>
<td>step 72</td>
</tr>
</tbody>
</table>

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

Summary of Recovering a stuck LIU7

1. Post LIM associated with stuck LIU7
2. Manually busy F-bus taps
3. Return F-bus taps to service
4. Passed?
   - Yes: Reload LIU7
     - Passed?
       - Yes: End
       - No: Contact next level of support
   - No: Reseat cards

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.

<table>
<thead>
<tr>
<th>If the LIU7 shown is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>SysB (NA)</td>
<td>step 4</td>
</tr>
<tr>
<td>SysB</td>
<td>step 3</td>
</tr>
</tbody>
</table>

3  Display the next system-busy LIU7 by typing

>NEXT
and pressing the Enter key.

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

```plaintext
>POST LIM lim_no
```
and pressing the Enter key.

*where*

```plaintext
lim_no  is the number of the LIM (0 or 1)
```

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

```plaintext
>FBUS
```
and pressing the Enter key.

*Example of a MAP response:*

```
11111111112222
012345678901234567890123
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

```plaintext
>TRNSL fbus_no
```
and pressing the Enter key.

*where*

```plaintext
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

```plaintext
>BSY FBUS fbus_no tap_no
```
and pressing the Enter key.

*where*

```plaintext
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.

![Diagram of NT9X13 card being inserted]

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.

![Diagram of card being locked in place]

21 Repeat steps 19 and 20 for the NT9X76 and NT9X75 card belonging to the stuck LIU7.
Recovering a stuck LIU7

At the MAP

22  Reload the LIU7 by typing

   >LOADPM
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 23</td>
</tr>
<tr>
<td>failed</td>
<td>step 24</td>
</tr>
</tbody>
</table>

23  Return the LIU7 to service by typing

   >RTS
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 25</td>
</tr>
<tr>
<td>failed</td>
<td>step 24</td>
</tr>
</tbody>
</table>

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

1. Confirm traffic is running on linkset.
2. Post LIU7
3. Ensure LIU7 is in service
4. Post the linkset
5. Busy and RTS linkset
6. Activate linkset
7. Confirm traffic is running on linkset.
8. 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.

<table>
<thead>
<tr>
<th>If the state of the LIU7 is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>InSv</td>
<td>step 9</td>
</tr>
<tr>
<td>Off1</td>
<td>step 4</td>
</tr>
<tr>
<td>ManB</td>
<td>step 5</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 9</td>
</tr>
<tr>
<td>failed</td>
<td>step 6</td>
</tr>
</tbody>
</table>
6 Reset the LIU7 by typing

>PMRESET
and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the PMRESET command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 8</td>
</tr>
<tr>
<td>failed</td>
<td>step 7</td>
</tr>
</tbody>
</table>

7 Load the LIU7 by typing

>LOADPM
and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 8</td>
</tr>
<tr>
<td>failed</td>
<td>step 28</td>
</tr>
</tbody>
</table>

8 Force the LIU7 to return to service by typing

>RTS FORCE
and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 9</td>
</tr>
<tr>
<td>failed</td>
<td>step 28</td>
</tr>
</tbody>
</table>

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

\texttt{>POST C\ linkset\_name}

and pressing the Enter key.

where

linkset\_name is the name of the linkset

Example of a MAP display:

\begin{verbatim}
  Linkset  SSP100\_LK       ISTb
  Traf Sync
  0  \text{InSv Sync LIU7 101 InSv DS0A}
  1  \text{ISTb Sync LIU7 103 InSv DS0A}
\end{verbatim}

Size of Posted Set = 2

13 Determine if any links are out of service.

<table>
<thead>
<tr>
<th>If one or more links are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>\text{InSv or ISTb, and the linkset is}</td>
<td>step 14</td>
</tr>
<tr>
<td>\text{InSv or ISTb}</td>
<td>step 14</td>
</tr>
<tr>
<td>\text{InSv or ISTb, and the linkset is out of service}</td>
<td>step 15</td>
</tr>
<tr>
<td>out of service</td>
<td>step 16</td>
</tr>
</tbody>
</table>

14 You have restored traffic on the linkset.

<table>
<thead>
<tr>
<th>If there are out of service linksets and you have</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>worked on all the linksets</td>
<td>step 27</td>
</tr>
<tr>
<td>not worked on all the linksets</td>
<td>step 11</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 20</td>
</tr>
<tr>
<td>failed</td>
<td>step 26</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If traffic on the link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>running, and the linkset is InSv or ISTb</td>
<td>step 22</td>
</tr>
<tr>
<td>running, and the linkset is out of service</td>
<td>step 23</td>
</tr>
<tr>
<td>not running</td>
<td>step 24</td>
</tr>
</tbody>
</table>

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

```shell
>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
```

<table>
<thead>
<tr>
<th>If traffic on the link is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>running, and the linkset is InSv or ISTb</td>
<td>step 22</td>
</tr>
<tr>
<td>running, and the linkset is out of service</td>
<td>step 23</td>
</tr>
<tr>
<td>not running</td>
<td>step 26</td>
</tr>
</tbody>
</table>

26 Your next action depends on the state of other links in the linkset.

<table>
<thead>
<tr>
<th>If there are still out of service links in the linkset and you have</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>not worked on those links</td>
<td>step 16</td>
</tr>
<tr>
<td>worked on those links</td>
<td>step 28</td>
</tr>
</tbody>
</table>

27 Determine if there are any alarms present in the alarm banner.

<table>
<thead>
<tr>
<th>If alarms are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>present</td>
<td>step 28</td>
</tr>
<tr>
<td>not present</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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

1. Rotate volumes
2. Copy parallel volume
3. 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=

297-5141-545C Preliminary 38.01 December 1994
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

```shell
>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
```

<table>
<thead>
<tr>
<th>If the parallel volume from which data is to be recovered is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>the current device</td>
<td>step 6</td>
</tr>
<tr>
<td>not the current device</td>
<td>step 11</td>
</tr>
</tbody>
</table>

6 Determine whether you have parallel volumes in the available state.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have available volumes</td>
<td>step 8</td>
</tr>
<tr>
<td>do not have available volumes</td>
<td>step 7</td>
</tr>
</tbody>
</table>
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**
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.

<table>
<thead>
<tr>
<th>Is the rotation confirmed?</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>step 11</td>
</tr>
<tr>
<td>no</td>
<td>step 14</td>
</tr>
</tbody>
</table>
Recovering data from a disk to tape

(continued)

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 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.

13 Determine if the DIRPCOPY command was successful.

<table>
<thead>
<tr>
<th>If the DIRPCOPY command was</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>successful</td>
<td>step 15</td>
</tr>
<tr>
<td>not successful</td>
<td>step 14</td>
</tr>
</tbody>
</table>

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.
Summary of Recovering DS-0 clocking

Check log PM181

Determine LIM with SysB LIU7s

Is either F-bus in ISTb? N 1 1

Is the TSG working? Y

Wait for TSG to be fixed

Are problems clearing? 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 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.

<table>
<thead>
<tr>
<th>If a PM181 log has</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>been generated</td>
<td>step 3</td>
</tr>
<tr>
<td>not been generated</td>
<td>step 14</td>
</tr>
</tbody>
</table>

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:*

<table>
<thead>
<tr>
<th>PM</th>
<th>SysB</th>
<th>ManB</th>
<th>OffL</th>
<th>CBsy</th>
<th>ISTb</th>
<th>InSv</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>49</td>
</tr>
</tbody>
</table>

5 Post all system-busy LIU7s by typing

>POST LIU7 SYSB

and pressing the Enter key.

*Example of a MAP response:*

LIU7 31 SysB
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.

<table>
<thead>
<tr>
<th>If either F-bus is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in-service trouble</td>
<td>step 10</td>
</tr>
<tr>
<td>anything else</td>
<td>step 13</td>
</tr>
</tbody>
</table>
Recovering DS-0 clocking (end)

10 Contact the personnel responsible for maintaining the test signal generator (TSG) and determine if the TSG is working.

<table>
<thead>
<tr>
<th>If the TSG is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>working</td>
<td>step 12</td>
</tr>
<tr>
<td>not working</td>
<td>step 11</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If this change in state</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>occurs</td>
<td>step 14</td>
</tr>
<tr>
<td>does not occur</td>
<td>step 13</td>
</tr>
</tbody>
</table>

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

1. Proceed only after contacting your next level of support
2. Ensure power is restored at PDC
3. Recover the MS and CM
4. Is the switch booting?
   - Y: Recover IOC 0 and operator MAP
     - Sync MS clocks
     - Recover the network
     - Recover other IOCs and MAPs
   - N: Boot the switch
5. Recover PMs
6. Restart DIRP subsystems
7. Sync CM and release jam
8. 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

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.

<table>
<thead>
<tr>
<th>If power has</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>been restored</td>
<td>step 4</td>
</tr>
<tr>
<td>not been restored</td>
<td>step 3</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>any of the fuses have blown</td>
<td>step 5</td>
</tr>
<tr>
<td>none of the fuses are blown</td>
<td>step 12</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>fuses blow repeatedly</td>
<td>step 11</td>
</tr>
<tr>
<td>fuse replacement is successful</td>
<td>step 12</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the converters powered up</td>
<td>step 36</td>
</tr>
<tr>
<td>any converters did not power up</td>
<td>step 35</td>
</tr>
</tbody>
</table>

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 approx. | step 38                 |
    | 15 min                      |                         |

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashes</td>
<td>step 44</td>
</tr>
<tr>
<td>does not flash after approximately 15 min</td>
<td>step 162</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If you</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have to log in</td>
<td>step 49</td>
</tr>
<tr>
<td>are logged in automatically</td>
<td>step 53</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If the system time</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>correct</td>
<td>step 56</td>
</tr>
<tr>
<td>incorrect</td>
<td>step 55</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>If the system date is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>correct</td>
<td>step 58</td>
</tr>
<tr>
<td>incorrect</td>
<td>step 57</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 61</td>
</tr>
<tr>
<td>failed</td>
<td>step 60</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the network type is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENET</td>
<td>step 62</td>
</tr>
<tr>
<td>JNET</td>
<td>step 71</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the converters powered up</td>
<td>step 68</td>
</tr>
<tr>
<td>any converters did not power up</td>
<td>step 67</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If an alarm is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>present</td>
<td>step 69</td>
</tr>
<tr>
<td>not present</td>
<td>step 83</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If after 5 min the ENET has</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>recovered</td>
<td>step 83</td>
</tr>
<tr>
<td>not recovered</td>
<td>step 70</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the power converter is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>an NT2X70AE card</td>
<td>step 73</td>
</tr>
<tr>
<td>not an NT2X70AE card</td>
<td>step 76</td>
</tr>
</tbody>
</table>

73 Determine if the FSP or MSP has circuit breakers.

<table>
<thead>
<tr>
<th>If the FSP or MSP does</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have circuit breakers</td>
<td>step 74</td>
</tr>
<tr>
<td>not have circuit breakers</td>
<td>step 75</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the FSP or MSP does</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>have circuit breakers</td>
<td>step 77</td>
</tr>
<tr>
<td>not have circuit breakers</td>
<td>step 78</td>
</tr>
</tbody>
</table>

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:*

<table>
<thead>
<tr>
<th>Net</th>
<th>1111 1111 22222 22222 33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plane</td>
<td>01234 56789 01234 56789 01</td>
</tr>
<tr>
<td>0</td>
<td>0000</td>
</tr>
<tr>
<td>1</td>
<td>0000</td>
</tr>
</tbody>
</table>

[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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>there are additional IOCs and MAPs</td>
<td>step 84</td>
</tr>
<tr>
<td>to recover</td>
<td></td>
</tr>
<tr>
<td>all IOCs and MAPs are recovered</td>
<td>step 96</td>
</tr>
</tbody>
</table>

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).

<table>
<thead>
<tr>
<th>If the switch you are recovering</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>has LPPs</td>
<td>step 97</td>
</tr>
<tr>
<td>does not have LPPs</td>
<td>step 98</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>power has already been restored to the PM frames</td>
<td>step 114</td>
</tr>
<tr>
<td>power has not yet been restored to the PM frames</td>
<td>step 99</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>any alarm-indicating fuses have blown</td>
<td>step 104</td>
</tr>
<tr>
<td>no alarm-indicating fuses have blown</td>
<td>step 114</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the alarm indicating fuse</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>blows</td>
<td>step 162</td>
</tr>
<tr>
<td>does not blow</td>
<td>step 112</td>
</tr>
</tbody>
</table>

112 Determine if all the blown alarm-indicating fuses have been replaced.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the blown alarm-indicating fuses</td>
<td>step 113</td>
</tr>
<tr>
<td>have been replaced</td>
<td></td>
</tr>
<tr>
<td>there are more blown</td>
<td>step 104</td>
</tr>
<tr>
<td>alarm-indicating fuses to be</td>
<td></td>
</tr>
<tr>
<td>replaced</td>
<td></td>
</tr>
</tbody>
</table>

113 Determine if the fuse alarm indicator lamp is lit.

<table>
<thead>
<tr>
<th>If the fuse alarm indicator lamp is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>lit</td>
<td>step 162</td>
</tr>
<tr>
<td>not lit</td>
<td>step 114</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>If the FSP has</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>fuses</td>
<td>step 117</td>
</tr>
<tr>
<td>breakers</td>
<td>step 122</td>
</tr>
</tbody>
</table>
Recovering from a dead system in a SuperNode switch

Recovery procedures

DMS-100 Family INode Recovery Procedures   BCS38i

117 Determine if the power converters have Power Reset buttons or Power Reset switches.

<table>
<thead>
<tr>
<th>If the power converters have</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Reset buttons</td>
<td>step 118</td>
</tr>
<tr>
<td>Power Reset switches</td>
<td>step 120</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the converters powered up</td>
<td>step 124</td>
</tr>
<tr>
<td>any converters did not power up</td>
<td>step 125</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the converters powered up</td>
<td>step 124</td>
</tr>
<tr>
<td>any converters did not power up</td>
<td>step 125</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the converters powered up</td>
<td>step 124</td>
</tr>
<tr>
<td>any converters did not power up</td>
<td>step 125</td>
</tr>
</tbody>
</table>

124  Determine if all PM frames have been powered up.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all frames have been powered up</td>
<td>step 128</td>
</tr>
<tr>
<td>any frames have not been powered up</td>
<td>step 125</td>
</tr>
</tbody>
</table>

125  Determine if an attempt was made to power up the remaining frames.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>no attempt was made to power up the remaining frames</td>
<td>step 126</td>
</tr>
<tr>
<td>an attempt was made and failed</td>
<td>step 127</td>
</tr>
</tbody>
</table>

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

Recovery procedures

128 Determine the recovery status of the PMs by typing

>PM;STATUS

and pressing the Enter key.

Example of a MAP response

<table>
<thead>
<tr>
<th>Status</th>
<th>SysB</th>
<th>ManB</th>
<th>OffL</th>
<th>CBsy</th>
<th>ISTb</th>
<th>InSv</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>9</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>TM8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>MTM</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>DCM</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>OAU</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>LM</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>LCM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>DTC</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>LTC</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>MSB7</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>RMM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If a maintenance flag is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>present</td>
<td>step 132</td>
</tr>
<tr>
<td>not present</td>
<td>step 134</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If a maintenance flag is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>present</td>
<td>step 135</td>
</tr>
<tr>
<td>not present</td>
<td>step 134</td>
</tr>
</tbody>
</table>

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:*

<table>
<thead>
<tr>
<th>Status</th>
<th>SysB</th>
<th>ManB</th>
<th>OffL</th>
<th>CBsy</th>
<th>ISTb</th>
<th>InSv</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>TM8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>MTM</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>DCM</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>OAU</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>LM</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>LCM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>DTC</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>LTC</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>MSB7</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>RMM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of billing data</td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>SSNAME</th>
<th>SSNO</th>
<th>SEQNO</th>
<th>ROTATES</th>
<th>POOLNO</th>
<th>PARLPOOL</th>
<th>EMERGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMA</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>9</td>
<td>62</td>
<td><em><strong>YES</strong></em></td>
</tr>
</tbody>
</table>

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#
ACTIVE  NONE
STANDBY1 NONE

REGULAR VOLUME(S)

VOL# VOLNAME STATE IOC CARD VOL FSEG ROOM VLID FILES

REGULAR SPACE

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>no volumes are allocated, as</td>
<td>step 144</td>
</tr>
<tr>
<td>indicated by the word NONE under the state</td>
<td></td>
</tr>
<tr>
<td>header on the MAP display</td>
<td></td>
</tr>
<tr>
<td>any volume is IN ERROR, as</td>
<td>step 143</td>
</tr>
<tr>
<td>indicated under the REGULAR VOLUME(S) header</td>
<td></td>
</tr>
<tr>
<td>on the MAP display</td>
<td></td>
</tr>
<tr>
<td>all volumes are READY, as indicated</td>
<td>step 145</td>
</tr>
<tr>
<td>under the REGULAR VOLUME(S) header on the</td>
<td></td>
</tr>
<tr>
<td>MAP display</td>
<td></td>
</tr>
</tbody>
</table>
Recovering from a dead system in a SuperNode switch (continued)

143 Reset any volumes that are IN ERROR by typing

   \texttt{\textgreater RSETVOL \ vol\_name}

   and pressing the Enter key.

   \textit{where}

   \texttt{vol\_name} is the name of the volume to be reset

<table>
<thead>
<tr>
<th>If the RSETVOL command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 145</td>
</tr>
<tr>
<td>failed</td>
<td>step 162</td>
</tr>
</tbody>
</table>

144 Perform the procedure \textit{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

Recovery procedures

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

<table>
<thead>
<tr>
<th>If the RSETVOL command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 148</td>
</tr>
<tr>
<td>failed</td>
<td>step 162</td>
</tr>
</tbody>
</table>

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).

<table>
<thead>
<tr>
<th>If you are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>required to recover other DIRP subsystems</td>
<td>step 149</td>
</tr>
<tr>
<td>not required to recover other DIRP subsystems</td>
<td>step 152</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If DIRP logs were</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>generated</td>
<td>step 151</td>
</tr>
<tr>
<td>not generated</td>
<td>step 152</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If synchronization</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 155</td>
</tr>
<tr>
<td>failed</td>
<td>step 153</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 155</td>
</tr>
<tr>
<td>failed</td>
<td>step 162</td>
</tr>
</tbody>
</table>

155 Access the CM level of the MAP display by typing

>MAPC1;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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>in sync</td>
<td>step 161</td>
</tr>
<tr>
<td>not in sync</td>
<td>step 157</td>
</tr>
</tbody>
</table>
Recovering from a dead system in a SuperNode switch  

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

<table>
<thead>
<tr>
<th>If you are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>permitted to synchronize the CPUs</td>
<td>step 158</td>
</tr>
<tr>
<td>not permitted to synchronize the CPUs</td>
<td>step 161</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the inactive CPU is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>jammed</td>
<td>step 159</td>
</tr>
<tr>
<td>not jammed</td>
<td>step 160</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the SYNC command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>was successful</td>
<td>step 161</td>
</tr>
<tr>
<td>failed</td>
<td>step 162</td>
</tr>
</tbody>
</table>
Recovery procedures

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

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

Turn on LPP power converters

Select an LPP to work on

Monitor autorecovery of LIM units

LIM units recovered?

Busy, reload, and RTS LIM units

Restore F-buses

Verify that NIUs have recovered automatically

Busy, load and RTS LPP peripherals

Repeat for each SysB LIM

End
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.

<table>
<thead>
<tr>
<th>If all power converters</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>power up successfully</td>
<td>step 11</td>
</tr>
<tr>
<td>do not power up successfully</td>
<td>step 14</td>
</tr>
</tbody>
</table>
Recovering link peripheral processors (continued)

At the PDC

11 Check the PDC fuses that supply the LPP.

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>blown fuses</td>
<td>step 12</td>
</tr>
<tr>
<td>no blown fuses visible</td>
<td>step 13</td>
</tr>
</tbody>
</table>

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.

![Image of card being slid back into LIS](image-url)
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
   >MAP;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
```

<table>
<thead>
<tr>
<th>If the status (RU)</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>appears beside the <code>SysB</code> status in the MAP response</td>
<td>step 23</td>
</tr>
<tr>
<td>does not appear in the MAP response</td>
<td>step 24</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If PM181 logs indicate that</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>either LIM unit has failed one or more autorecovery attempts</td>
<td>step 25</td>
</tr>
<tr>
<td>both units of the LIM have successfully recovered automatically</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 28</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 29</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

29 Determine if both LIM units are in service.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both LIM units are InSv</td>
<td>step 30</td>
</tr>
<tr>
<td>one LIM unit is still SysB</td>
<td>step 25</td>
</tr>
<tr>
<td>multiple attempts have been made</td>
<td>step 97</td>
</tr>
<tr>
<td>to return the LIM to service</td>
<td></td>
</tr>
</tbody>
</table>
Recovering link peripheral processors

30 Access the F-bus level of the MAP display by typing
   \texttt{>FBUS}
   and pressing the Enter key.

31 Determine if the F-buses are in service.

\begin{tabular}{|l|l|}
\hline
If & Do \\
\hline
both F-buses are \texttt{InSv} & step 35 \\
one or both F-buses are \texttt{SysB} & step 32 \\
\hline
\end{tabular}

32 Manually busy the system-busy F-bus by typing
   \texttt{>BSY FBUS fbus\_no}
   and pressing the Enter key.
   \textit{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
   \texttt{>RTS FBUS fbus\_no}
   and pressing the Enter key.
   \textit{where}
   fbus\_no is the number of the F-bus (0 or 1) to be returned to service

\begin{tabular}{|l|l|}
\hline
If the RTS command & Do \\
\hline
passed & step 34 \\
failed & step 97 \\
\hline
\end{tabular}

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).

\begin{tabular}{|l|l|}
\hline
If the LPP is & Do \\
\hline
equipped with NIUs & step 36 \\
not equipped with NIUs & step 50 \\
\hline
\end{tabular}
Recovery procedures

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>three or more NIUs were recorded in step 38</td>
<td>step 41</td>
</tr>
<tr>
<td>less than three NIUs were recorded in step 38</td>
<td>step 42</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both the posted NIUs have recovered automatically, indicated by InSv</td>
<td>step 50</td>
</tr>
<tr>
<td>either of the NIUs have not recovered automatically, indicated by SysB</td>
<td>step 44</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 46</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>
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)

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 47</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

47  Determine if the other unit of the posted NIU is system busy or in service.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both units of the posted NIU are InSv</td>
<td>step 49</td>
</tr>
<tr>
<td>one unit of the posted NIU is still SysB</td>
<td>step 48</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>set is empty</td>
<td>step 50</td>
</tr>
<tr>
<td>next NIU in the set is posted</td>
<td>step 43</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 58</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

58 Return the LIU7 to service by typing

`>RTS`

and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, but not all LIU7s in the posted set are in service</td>
<td>step 59</td>
</tr>
<tr>
<td>passed and all LIU7s in the posted set are in service</td>
<td>step 61</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

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).

<table>
<thead>
<tr>
<th>If the LPP is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>equipped with EIUs</td>
<td>step 62</td>
</tr>
<tr>
<td>not equipped with EIUs</td>
<td>step 68</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 65</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, but not all EIUs in the posted set are in service</td>
<td>step 66</td>
</tr>
<tr>
<td>passed and all EIUs in the posted set are in service</td>
<td>step 68</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the LPP is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>equipped with ADAS or DMS-Mail</td>
<td>step 69</td>
</tr>
<tr>
<td>peripheral</td>
<td></td>
</tr>
<tr>
<td>not equipped with ADAS or DMS-Mail</td>
<td>step 82</td>
</tr>
<tr>
<td>peripheral</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 72</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>
Recovering link peripheral processors (continued)

72  Return the APU to service by typing

   >RTS

   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, but not all APUs in the posted set are in service</td>
<td>step 73</td>
</tr>
<tr>
<td>passed and all APUs in the posted set are in service</td>
<td>step 75</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

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).

<table>
<thead>
<tr>
<th>If the LPP is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>equipped with VPUs</td>
<td>step 76</td>
</tr>
<tr>
<td>not equipped with VPUs</td>
<td>step 82</td>
</tr>
</tbody>
</table>

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
   \texttt{>BSY ALL FORCE}
   and pressing the Enter key.

78 Load the first VPU in the posted set by typing
   \texttt{>LOADPM}
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 79</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

79 Return the VPU to service by typing
   \texttt{>RTS}
   and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, but not all VPUs in the posted set are in service</td>
<td>step 80</td>
</tr>
<tr>
<td>passed and all VPUs in the posted set are inservice</td>
<td>step 82</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

80 Display the next VPU in the posted set by typing
   \texttt{>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.

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>XLIUs on the LPP</td>
<td>step 83</td>
</tr>
<tr>
<td>no XLIUs on the LPP</td>
<td>step 89</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 86</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

86  Return the XLIU to service by typing

>`RTS
and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, but not all XLIUs in the posted set are in service</td>
<td>step 87</td>
</tr>
<tr>
<td>passed and all XLIUs in the posted set are in service</td>
<td>step 89</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRIUs on the LPP</td>
<td>step 90</td>
</tr>
<tr>
<td>no FRIUs on the LPP</td>
<td>step 96</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the LOADPM command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 93</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>
Recovering link peripheral processors (continued)

93 Return the FRIU to service by typing 
>RTS
and pressing the Enter key.

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed, but not all FRIUs in the posted set are in service</td>
<td>step 94</td>
</tr>
<tr>
<td>passed and all FRIUs in the posted set are in service</td>
<td>step 96</td>
</tr>
<tr>
<td>failed</td>
<td>step 97</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>additional LPPs to recover</td>
<td>step 18</td>
</tr>
<tr>
<td>no additional LPPs to recover</td>
<td>step 98</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>ENET</th>
<th>System Matrix</th>
<th>Shelf</th>
<th>Plane 0</th>
<th>Plane 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAULT</td>
<td></td>
<td>0 1 2 3</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C .</td>
<td>. -</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- -</td>
</tr>
</tbody>
</table>
Summary of Recovering the enhanced network

This flowchart summarizes the procedure.

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

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?

End

Contact next level of support
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.

<table>
<thead>
<tr>
<th>If a log book is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>kept</td>
<td>step 2</td>
</tr>
<tr>
<td>not kept</td>
<td>step 3</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>FRPOS0</th>
<th>SHELF0</th>
<th>LOAD0</th>
<th>MSCARD1</th>
<th>FLOOR1</th>
<th>ROW1</th>
<th>FRPOS1</th>
<th>SHELF1</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>39</td>
<td>ENC33BM</td>
<td>8</td>
<td>0</td>
<td>A</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
   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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>both SLMs are in service</td>
<td>step 24</td>
</tr>
<tr>
<td>one SLM is in service</td>
<td>step 19</td>
</tr>
<tr>
<td>neither SLM is in service</td>
<td>step 9</td>
</tr>
</tbody>
</table>
Recovering the enhanced network (continued)

9 Determine the status of the SLMs.

<table>
<thead>
<tr>
<th>If the status is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>step 10</td>
</tr>
<tr>
<td>M</td>
<td>step 12</td>
</tr>
<tr>
<td>O</td>
<td>step 14</td>
</tr>
<tr>
<td>I</td>
<td>step 16</td>
</tr>
</tbody>
</table>

10 Perform the procedure Clearing an IOD SLM by 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 by minor 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
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
       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.
29 Determine whether the latest ENET image file is present.

<table>
<thead>
<tr>
<th>If the latest image file is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>present</td>
<td>step 40</td>
</tr>
<tr>
<td>not present</td>
<td>step 30</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the latest image file is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>present</td>
<td>step 40</td>
</tr>
<tr>
<td>not present</td>
<td>step 32</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the file</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>has a date stamp</td>
<td>step 39</td>
</tr>
<tr>
<td>does not have a date stamp</td>
<td>step 40</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Shelf</th>
<th>Plane 0</th>
<th>Plane 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>S</td>
<td>.</td>
</tr>
<tr>
<td>01</td>
<td>S</td>
<td>.</td>
</tr>
<tr>
<td>02</td>
<td>S</td>
<td>.</td>
</tr>
<tr>
<td>03</td>
<td>S</td>
<td>.</td>
</tr>
</tbody>
</table>
```
**Recovering the enhanced network** (continued)

42 Determine which plane-shelves are system busy, indicated by the letter S in the Plane field.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>an entire plane is system busy (all shelves on the plane)</td>
<td>step 43</td>
</tr>
<tr>
<td>part of a plane is system busy (one or more shelves, but not all)</td>
<td>step 47</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the MAP response is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request to MAN BSYALL ENET Plane:n completed.</td>
<td>step 51</td>
</tr>
<tr>
<td>WARNING: You will be aborting the following maintenance action on ENET Plane:n Shelf:nn. Please confirm (&quot;Yes&quot; or &quot;No&quot;)</td>
<td>step 45</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the MAP response is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request to MAN BUSY ENET Plane:n Shelf:nn completed</td>
<td>step 51</td>
</tr>
<tr>
<td>WARNING: You will be aborting the following maintenance action on ENET Plane:n Shelf:nn. Please confirm (&quot;Yes&quot; or &quot;No&quot;)</td>
<td>step 49</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>more system-busy plane-shelves</td>
<td>step 43</td>
</tr>
<tr>
<td>all system-busy plane-shelves have been set to manual busy</td>
<td>step 52</td>
</tr>
</tbody>
</table>

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")
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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all nodes passed the software load</td>
<td>step 58</td>
</tr>
<tr>
<td>some nodes failed the software load</td>
<td>step 56</td>
</tr>
<tr>
<td>all nodes failed the software load</td>
<td>step 64</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all nodes passed the software load</td>
<td>step 58</td>
</tr>
<tr>
<td>some nodes failed the software load</td>
<td>step 64</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the PSLk alarms</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>clear</td>
<td>step 60</td>
</tr>
<tr>
<td>do not clear</td>
<td>step 63</td>
</tr>
</tbody>
</table>

60  Determine if any of the nodes failed to return to service.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>any of the nodes failed to return to</td>
<td>step 61</td>
</tr>
<tr>
<td>service</td>
<td></td>
</tr>
<tr>
<td>all nodes returned to service</td>
<td>step 65</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>If the RTS command</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>passed</td>
<td>step 65</td>
</tr>
<tr>
<td>failed</td>
<td>step 62</td>
</tr>
</tbody>
</table>
62 Determine if a card list was generated.

<table>
<thead>
<tr>
<th>If a card list was</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>generated</td>
<td>step 63</td>
</tr>
<tr>
<td>not generated</td>
<td>step 64</td>
</tr>
</tbody>
</table>

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.
Summary of Recovering volumes marked INERROR

- Reset volumes marked INERROR
- This flowchart summarizes the procedure.
  Use the instructions in the procedure that follows this flowchart to perform the procedure.
- End
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:*

<table>
<thead>
<tr>
<th>SSNAME</th>
<th>SSNO</th>
<th>SEQNO</th>
<th>ROTATES</th>
<th>POOLNO</th>
<th>PARLPOLL</th>
<th>EMERGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMA</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>No</td>
</tr>
</tbody>
</table>

**REGULAR**

<table>
<thead>
<tr>
<th>VOL#</th>
<th>VOLUMNAME</th>
<th>STATE</th>
<th>IOC</th>
<th>CARD</th>
<th>VOL</th>
<th>FSEG</th>
<th>ROOM</th>
<th>VLID</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>T0</td>
<td>INERROR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>2400</td>
</tr>
<tr>
<td>23</td>
<td>T1</td>
<td>INERROR</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>2400</td>
</tr>
</tbody>
</table>

**PARALLEL VOLUMES(S)**

<table>
<thead>
<tr>
<th>PARALLEL</th>
<th>STATE</th>
<th>IOC</th>
<th>CARD</th>
<th>VOL</th>
<th>FSEG</th>
<th>ROOM</th>
<th>VLID</th>
</tr>
</thead>
<tbody>
<tr>
<td>B910212061307AMA</td>
<td>READY</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>1</td>
<td>2400</td>
</tr>
</tbody>
</table>

5  Determine whether any of the volumes are marked INERROR?

<table>
<thead>
<tr>
<th>If there are</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>INERROR volumes</td>
<td>step 6</td>
</tr>
<tr>
<td>no INERROR volumes</td>
<td>step 12</td>
</tr>
</tbody>
</table>

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

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

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

1. Power up the inactive CPU
2. Return PMC port and SLM to service
3. Return message controller to service
4. Release jam
5. Sync the CM
6. 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 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:*

<table>
<thead>
<tr>
<th>Shelf</th>
<th>Slot</th>
<th>Module Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>12</td>
<td>NT9X14EA</td>
</tr>
<tr>
<td>00</td>
<td>13</td>
<td>NT9X14EA</td>
</tr>
</tbody>
</table>

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
```

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
```

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.

<table>
<thead>
<tr>
<th>If the autoload route was</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>changed</td>
<td>step 8</td>
</tr>
<tr>
<td>not changed</td>
<td>step 10</td>
</tr>
</tbody>
</table>

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

>AUTOLO D 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:*

```
<table>
<thead>
<tr>
<th>ENET System Matrix Shelf 0 1 2 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plane 0 Fault . C - -</td>
</tr>
<tr>
<td>Plane 1 . . . - -</td>
</tr>
</tbody>
</table>
```
Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

Summary of Restoring the enhanced network to duplex operation

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

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
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 0 .
  01 0 .
```
Recovering from emergency power conservation measures
Restoring the enhanced network to duplex operation (continued)

9  Determine which ENET plane shelves are offline.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the ENET shelves that are currently offline were shut down to conserve emergency power</td>
<td>step 12</td>
</tr>
<tr>
<td>any ENET shelves are offline for other reasons, and cannot be returned to service at this time</td>
<td>step 10</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If you want to load</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all manual-busy ENET plane shelves at once</td>
<td>step 17</td>
</tr>
<tr>
<td>individual manual-busy plane shelves</td>
<td>step 14</td>
</tr>
</tbody>
</table>
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

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

1. Power up MS shelf
2. Load the MS plane
3. Test the MS plane
4. Return the MS plane to service
5. Return to Recovering from EPC measures
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

  >MAPC1;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 MS 0.
  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 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.
Summary of Restoring the enhanced network to duplex operation

1. Return MS port chains to service
2. Busy offline ENET plane shelves
3. Load manual-busy ENET plane shelves
4. Return manual-busy plane shelves to serv.
5. Clear de-load status from shelves
6. 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 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 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 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      | .      
Restoring the enhanced network to duplex operation (continued)

9  Determine which ENET plane shelves are offline.

<table>
<thead>
<tr>
<th>If</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all the ENET plane shelves that are currently offline were shut down to conserve emergency power</td>
<td>step 12</td>
</tr>
<tr>
<td>any ENET plane shelves are offline for other reasons, and cannot be returned to service at this time</td>
<td>step 10</td>
</tr>
</tbody>
</table>

10 Manually busy the first offline plane shelf by 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.

<table>
<thead>
<tr>
<th>If you want to load</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all manual-busy ENET plane shelves at once</td>
<td>step 17</td>
</tr>
<tr>
<td>individual manual-busy plane shelves</td>
<td>step 14</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If you want to return to service</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>all manual-busy ENET plane shelves on one plane</td>
<td>step 19</td>
</tr>
<tr>
<td>individual manual-busy plane shelves</td>
<td>step 21</td>
</tr>
</tbody>
</table>
Restoring the enhanced network to duplex operation (continued)

19 Return all manual-busy plane shelves on the plane to service by typing
   \texttt{\textgreater{}RTS \textbackslash{} plane\_no \textbackslash{} ALL}
   and pressing the Enter key.

   \textit{where}
   
   \texttt{plane\_no} is the network plane number (0 or 1)

   \textit{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
   \texttt{\textgreater{}RTS \textbackslash{} plane\_no \textbackslash{} shelf\_no}
   and pressing the Enter key.

   \textit{where}
   
   \texttt{plane\_no} is the ENET plane number (0 or 1)
   \texttt{shelf\_no} is the ENET shelf number (0 to 7)

   \textit{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
   \texttt{\textgreater{}DELOAD \textbackslash{} plane\_no \textbackslash{} shelf\_no \textbackslash{} CLEAR}
   and pressing the Enter key.

   \textit{where}
   
   \texttt{plane\_no} is the ENET plane number (0 or 1)
   \texttt{shelf\_no} is the ENET shelf number (0 to 7)

   \textit{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

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.

<table>
<thead>
<tr>
<th>If the ENI shelf</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>contains LIUs</td>
<td>step 27</td>
</tr>
<tr>
<td>does not contain LIUs</td>
<td>step 29</td>
</tr>
</tbody>
</table>

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

Summary of Recovering from emergency power conservation

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

1. Restore power to all MAPs and printers
2. Restore CM and MS to duplex operation
3. Restore LIMs or MSB7 to duplex operation
4. Restore network to duplex operation
5. Restore XPMs to duplex operation
6. Restore LCMs to duplex operation
7. Restore LMs to duplex operation
8. Return MTMs to service
9. Clear any remaining alarms
10. End
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

This flowchart summarizes the procedure.
Use the instructions in the step-action table that follows this flowchart to perform the procedure.

- Power up the inactive CPU
- Return message controller to service
- Release jam
- Sync the CM
- Return to Recovering from Emergency Power Conservation
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:

<table>
<thead>
<tr>
<th>Shelf</th>
<th>Slot</th>
<th>00</th>
<th>12</th>
<th>NT9X14DB...</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>13</td>
<td>NT9X14DB...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>CM</th>
<th>Sync</th>
<th>Act</th>
<th>CPU0</th>
<th>CPU1</th>
<th>Jam</th>
<th>Memory</th>
<th>CMMnt</th>
<th>MC</th>
<th>PMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>no</td>
<td>cpu1</td>
<td>.</td>
<td>.</td>
<td>yes</td>
<td>.</td>
<td>mbsy</td>
<td>.</td>
<td>.</td>
</tr>
</tbody>
</table>

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.
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
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.

<table>
<thead>
<tr>
<th>If the power converter is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>an NT2X70AE card</td>
<td>step 2</td>
</tr>
<tr>
<td>not an NT2X70AE card</td>
<td>step 5</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the FSP or MSP</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>has circuit breakers</td>
<td>step 3</td>
</tr>
<tr>
<td>does not have circuit breakers</td>
<td>step 4</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the FSP or MSP</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>has circuit breakers</td>
<td>step 6</td>
</tr>
<tr>
<td>does not have circuit breakers</td>
<td>step 7</td>
</tr>
</tbody>
</table>
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)
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

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

Return to
Recovering from Emergency Power Conservation
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 >MAPC1; MTC;PM and pressing the Enter key.
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

Drwr: 01 23 45 67 89 01 23 45 67 89
      11 11 11 11

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

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

1. Power up LM controller
2. Load the LM
3. Return the LM to service
4. Repeat for each depowered LM controller
5. Return to Recovering from Emergency Power Conservation
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.

<table>
<thead>
<tr>
<th>If the power converter is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>an NT2X70AE card</td>
<td>step 2</td>
</tr>
<tr>
<td>not an NT2X70AE card</td>
<td>step 5</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>If the FSP or MSP</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>has circuit breakers</td>
<td>step 3</td>
</tr>
<tr>
<td>does not have circuit breakers</td>
<td>step 4</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>If the FSP or MSP</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>has circuit breakers</td>
<td>step 6</td>
</tr>
<tr>
<td>does not have circuit breakers</td>
<td>step 7</td>
</tr>
</tbody>
</table>
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

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:

<table>
<thead>
<tr>
<th>SysB</th>
<th>ManB</th>
<th>OffL</th>
<th>CBsy</th>
<th>ISTb</th>
<th>InSv</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>
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
   \texttt{>POST LIM \texttt{lim\_no}}
   and pressing the Enter key.
   \textit{where}
   \texttt{lim\_no} is the number of the LIM to be posted (0 to 16)

\textit{Example of a MAP response:}
\begin{verbatim}
LIM  1  ISTB    Links_OOS Taps_OOS
     Unit0: ManB  2   16
     Unit1: InSv   .   .
\end{verbatim}

4. Load the LIM unit that you powered up in step 1 by typing
   \texttt{>LOADPM UNIT \texttt{unit\_no}}
   and pressing the Enter key.
   \textit{where}
   \texttt{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
   \texttt{>RTS UNIT \texttt{unit\_no}}
   and pressing the Enter key.
   \textit{where}
   \texttt{unit\_no} is the number of the LIM unit (0 or 1)

6. Access the F-bus level of the MAP display by typing
   \texttt{>FBUS}
   and pressing the Enter key.

\textit{At the MAP}

7. Return the F-bus to service by typing
   \texttt{>RTS FBUS \texttt{fbus\_no}}
   and pressing the Enter key.
   \textit{where}
   \texttt{fbus\_no} is the number of F-bus (0 or 1)

\textit{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

1. Power up MS shelf
2. Load the MS plane
3. Test the MS plane
4. Return the MS plane to service
5. 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 #06045FC0
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 MS 0.
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

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?

<table>
<thead>
<tr>
<th>If the FSP or MSP</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>does have circuit breakers</td>
<td>step 3</td>
</tr>
<tr>
<td>does not have circuit breakers</td>
<td>step 5</td>
</tr>
</tbody>
</table>

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.

Recovering from emergency power conservation
Restoring the MSB7 to duplex operation

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

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

<table>
<thead>
<tr>
<th>If the network is</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNET</td>
<td>step 13</td>
</tr>
<tr>
<td>ENET</td>
<td>step 19</td>
</tr>
</tbody>
</table>

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

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**

1. Power up the MTM
2. Reseat the processor card
3. Load the MTM
4. Return the MTM to service
5. Return the TTP circuits on the MTM to service
6. Repeat for each MTM

---

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.

<table>
<thead>
<tr>
<th>If the FSP or MSP</th>
<th>Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>has circuit breakers</td>
<td>step 2</td>
</tr>
<tr>
<td>does not have circuit breakers</td>
<td>step 4</td>
</tr>
</tbody>
</table>
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

10 Post the TTP circuits associated with the MTM by typing
   \texttt{>POST P MTM pm\_no}
   and pressing the Enter key.
   \textit{where}
   \texttt{pm\_no} is the PM identification number (0 to 999)

11 Return the circuits busied in step 10 to service by typing
   \texttt{>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.
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 that 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: "Abort 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

<table>
<thead>
<tr>
<th>DTC</th>
<th>CM</th>
<th>MS</th>
<th>IOD</th>
<th>Net</th>
<th>PM</th>
<th>6LCM</th>
<th>2 RSC</th>
<th>110 GFC</th>
<th>12</th>
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<tbody>
<tr>
<td>Quit</td>
<td>0</td>
<td>0</td>
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<td>22</td>
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<td>Listset</td>
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</table>

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

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<tr>
<th>CM</th>
<th>MS</th>
<th>IOD</th>
<th>Net</th>
<th>PM</th>
<th>CCS</th>
<th>Lns</th>
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<td>6LCM</td>
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<td>2 RSC</td>
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<td>110 GC</td>
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<td>DTC</td>
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<td>DTC 0</td>
<td>PM</td>
<td>SysB</td>
<td>ManB</td>
<td>OffL</td>
<td>CBsy</td>
<td>ISTb</td>
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<td>4 Links_OOS: CSide0, PSide0</td>
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<td>5 Unit0: Act SysB Mtor ROM/RAM Query</td>
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<td>6 Unit1: Inact SysB Mtor ROM/RAM Query</td>
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</table>

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

<table>
<thead>
<tr>
<th>CM</th>
<th>MS</th>
<th>IOD</th>
<th>Net</th>
<th>PM</th>
<th>CCS</th>
<th>Lns</th>
<th>Trks</th>
<th>Ext</th>
<th>APPL</th>
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<td>6LCM</td>
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<td></td>
<td></td>
<td>110 GC</td>
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</tr>
</tbody>
</table>

DTC: CM MS IOD Net PM CCS Lns Trks Ext APPL
0 Quit | PM | DTC | SysB | ManB | OffL | CBsy | ISTb | InSv | - |
2 Post_ | DTC | 10 | 0 | 22 | 11 | 1 | 12 | 0 | - |
3 Listset | - | - | - | - | - | - | - | - | - |
4 DTC | 0SysB | Links_OOS: | CSide0,PSide0 | - |
5 Trns1_ | Unit0:Act | SysB Mtce | System Recovery | - |
6 Tst_ | Unit1:Inact | SysB Mtce | System Recovery | - |
7 Bay_ | - | - | - | - | - |
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.
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

<table>
<thead>
<tr>
<th>CM</th>
<th>MS</th>
<th>IOD</th>
<th>Net</th>
<th>PM</th>
<th>CCS</th>
<th>Lns</th>
<th>Trks</th>
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<td>6LCM</td>
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DTC
0 Quit
1 PM
2 Post_
3 Listset
4 DTC
5 Trnsl_
6 Tst_
7 Bay_
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

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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

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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.
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.
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

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

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

<table>
<thead>
<tr>
<th>CM</th>
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<th>IOD</th>
<th>Net</th>
<th>PM</th>
<th>CCS</th>
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DTC  
| 0 | Quit | PM | 10 | 0 | 22 | 11 | 1 | 12 |
| 2 | Post_ | DTC | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

### MAP display of a core downloading executable files into a DTC

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<th>IOD</th>
<th>Net</th>
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DTC  
| 0 | Quit | PM | 10 | 0 | 22 | 11 | 1 | 12 |
| 2 | Post_ | DTC | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

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

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<tr>
<th>CM</th>
<th>MS</th>
<th>IOD</th>
<th>Net</th>
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DTC  
| 0 | Quit | PM | 10 | 0 | 22 | 11 | 1 | 12 |
| 2 | Post_ | DTC | 3 | 0 | 0 | 0 | 0 | 0 | 0 |

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

<table>
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<th>MS</th>
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<td>6LCM</td>
<td>2 RSC</td>
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DTC
- Quit
- Post_
- Listset
- PM
- DTC
- 9
- 0
- 22
- 0
- 0
- 1

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.
Index

A
AMA data with block numbers, recovering service, 1-209
AMA data without DIRP block numbers, recovering service, 1-216

B
backup power, conservation. See emergency power conservation
booting procedure, DMS SuperNode SE switch, 1-2

C
call completion, checking for, 1-23
CCS7 linksets, recovering service, 1-246
checking for message throughput, recovering service, 1-34
cold restart procedure, DMS SuperNode switch, 1-142
computing module (CM)
eMERGENCY shutdown, 1-52
recovering service, 1-340

D
data from a disk to tape, recovering service, 1-254
dead system, recovering service, 1-265
DMS SuperNode SE switch, recovering service, 1-2
DMS SuperNode switch, recovering service, 1-12
DS-0 clocking, recovering service, 1-260

E
Emergency power conservation
ShutDOWn of MTMs, 1-80
ShutDOWn of one ENET plane, 1-73
ShutDOWn of one JNET plane, 1-97
ShutDOWn of one LPP LIM unit, 1-101
ShutDOWn of one remote oscillator shelf plane, 1-113
ShutDOWn of one SuperNode CM plane, 1-85
ShutDOWn of one SuperNode MS plane, 1-68
ShutDOWn of one unit of an LCM, 1-117
emergency power conservation
service recovery procedures, 1-368
shutDOWn procedures, 1-46
CM plane, 1-52
MS shelf, 1-63, 1-107
Emergency power shutdown
ShutDOWn of half of an LM pair, 1-93
ShutDOWn of one MSB7 unit, 1-121
emergency shutDOWn, of DMS SuperNode switch, 1-129
emergency switch shutDOWn, 1-129
ENET 16k image on an SLM disk, Recording, 1-181
enhanced network, recovering, 1-318
enhanced network (ENET), recovering service, 1-360

L
link peripheral processors (LPP), recovering service, 1-297
LIU7, stuck, recovering service, 1-238

M
message switch (MS)
eMERGENCY shutdown procedure, 1-63, 1-107
recovering service, 1-355

P
power conservation, emergency, recovery procedures, 1-368
power conservation, emergency, shutDOWn procedures, 1-46

R
RecovDerying from emergency power conservation
Restoring LCMs to duplex operation, 1-384
Restoring LMs to duplex operation, 1-388
Restoring the CM to duplex operation, 1-373
Restoring the ENET to duplex operation, 1-346
Restoring the JNET to duplex operation, 1-378
Restoring the LPP LIM to duplex operation, 1-394
Restoring the MS to duplex operation, 1-399
Restoring the MSB7 to duplex operation, 1-404
Restoring the remote oscillator to duplex operation, 1-411
Returning MTMs to service, 1-414
recovery procedures, enhanced network, 1-318
reload-restart procedure
DMS SuperNode SE, 1-133
DMS SuperNode switch, 1-152
restoring service, from emergency power conservation measures, 1-368
S
shutdown procedure, emergency, for DMS SuperNode switch, 1-129
stuck LIU7, recovering service, 1-238
SuperNode. See DMS SuperNode system recovery controller (SRC)
broadcast loading, 2-6
conditions, 2-4
dependency manager, 2-5
functions, 2-2
monitoring, 2-13
overview, 2-2
recovery methods, 2-10
triggers, 2-4
V
volumes marked INERROR, recovering service, 1-334
W
warm restart procedure
DMS SuperNode SE switch, 1-172
DMS SuperNode switch, 1-162