Meridian Mail

Message Services Module

Routine Maintenance Procedures

NORTEL

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Standard 02.01 of the *MSM Routine Maintenance Procedures*. This version documents Release 10.0 of Meridian Mail on the Message Services Module platform and makes all previous versions obsolete.

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Routine Maintenance Procedures (NTP 557-7001-501) released as Standard 1.0. This version documents Release 9.0 of Meridian Mail on the Message Services Module platform.

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About this document

This document describes the routine maintenance procedures to be performed on the Message Services Module (MSM). These procedures are usually performed by maintenance technicians.

Regulatory notices

1 The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

> **WARNING**
> **Risk of electrocution**
> Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

2   Notice for Installations in the United States:

The Northern Telecom Message Services Module (MSM) complies with Part 68 of the Federal Communications Commission (FCC) rules. On the inside door of the cabinet is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

REN represents the electrical load that will be applied to your telephone line once a Message Services Module modem port is connected to the network. The telephone line serving your premises will not operate properly if the total ringer load exceeds the capability of your telephone company's central office equipment. If you want to know the total REN allowed for your line, call your telephone company and they will inform you. Normally, no MSM modem port should share the line with any other device.

If your Northern Telecom MSM causes harm to the telephone network, the telephone company may disconnect your service temporarily. The telephone company may ask you to disconnect the equipment from the network until the problem has been corrected or may ask you to check for any equipment malfunction. If possible, the telephone company will notify you in advance of any loss of service; if not, you will be notified as soon as possible. You will then be advised of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect proper operation of your equipment. You will be given advanced notice of these changes in order to maintain uninterrupted service.

If you experience problems with your Northern Telecom MSM equipment, contact your authorized distributor or service center in the United States for repair and warranty information. If you are unable to contact your distributor, call 1-800-NORTHERN.

3   The load number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the sum of the LNs of all the devices does not exceed 100.

Chapter 1: Routine maintenance procedures

The following list provides the names of all the procedures in this chapter. To find the appropriate routine maintenance procedure, look for its name in the left column and go to the page number listed in the right column.

To perform	Go to page
Tape drive maintenance	1-3
Cooling fan filters replacement	1-9
Cooling fans replacement	1-11

This chapter contains routine maintenance procedures for the Meridian Mail MSM. For each routine maintenance task, with the exception of tape drive maintenance, you will find a procedure containing the following:

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

For tape drive maintenance, refer to the maintenance procedures applicable to your tape model (that is, either Archive Viper or Tandberg TDC4220). Note that the Tandberg TDC4220 (NTGX15BA) became available as of Meridian Mail Product release 10.0.

Explanatory and context-setting information

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

Summary flowchart

The flowchart is only a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare for it.

Step-action instructions

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

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure.

Tape drive maintenance

Task

Maintaining the tape drive is a routine maintenance task required for the Message Services Module. To replace the tape drive rather than maintain it, refer to *MSM Card Replacement Procedures* (NTP 557-7001-502).

The tape drive should be replaced when you receive repeated errors when attempting to write to tape. You should also consider replacing the tape drive if the light on the front of the tape drive is out or you cannot hear or see the tape spinning.

Interval

Preventive maintenance of the tape drive involves periodic cleaning (after every four to six hours of use). To ensure reliable tape drive performance, you should establish a regular cleaning schedule and observe the following precautions:

- Avoid mounting the tape drive where it is subjected to continuous shocks or vibrations.
- Maintain a clean, dust-free environment within the temperature and humidity limits listed in the specifications of the Meridian Mail system.
- Keep all liquids away from the drive and tapes to prevent spills into the equipment.
- Exercise reasonable care when using and storing tape cartridges. Do not place cartridges on the Meridian Mail or PBX cabinets or the monitor of the system administrator's terminal.
- When a stored tape is moved to an environment with a greatly different temperature, allow the tape to slowly reach room temperature before using it.
- Do not open the cartridge access door to touch the tape.
- Keep the tape drive turned on.

The tape cartridge cavity should be cleaned

- after an initial pass with a new tape cartridge
- after eight hours of normal use
- whenever dust or debris is visible inside the cartridge cavity

Tape drive maintenance

Cleaning supplies

To clean the Archive or Tandberg tape drive, you need the following supplies:

- low pressure aerosol air
- tapehead cleaning fluid or reagent grade chemically-pure isopropyl alcohol
- tape drive cleaning kit including a tape drive cleaning cartridge OR tapehead cleaning pads, lint-free cotton swabs, or any industry-acceptable head-cleaning swabs, six inches or longer

    Note: If you have a Tandberg tape drive, do not use Procedures 1-1 and 1-2 as they apply only to Archive tape drives.

    The tape drive cleaning kits are listed in Table 1-1.

Table 1-1
Tape drive cleaning kits

Type of tape drive	Tape drive cleaning kit CPC code
Archive Viper	A0378220
Tandberg TDC4220	A0633585

Cleaning the Archive Viper tape drive

If you are cleaning the Archive tape drive with the cleaning kit, follow the steps in Procedure 1-1; otherwise, refer to Procedure 1-2 if you are cleaning the tape drive with swabs and fluid. If you have a Tandberg tape drive, refer to Procedure 1-3.

Note: The NTGX15BA uses a Tandberg TDC4220 tape drive while the NTGX15AA uses the Archive Viper.

Procedure 1-1
Cleaning the Archive tape drive with the cleaning kit

1   If there is a tape cartridge in the tape drive, remove the cartridge.

2   Push the head loading lever down into the load position.

3   Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air.

4   Release the head loading lever.

5   Obtain the appropriate tape drive kit for your tape drive, as described in Table 1-1.

6   Moisten the flexible pad of the cleaning cartridge with 4 drops of the Streaming Tape Head Cleaning Fluid.

7   Insert the cleaning cartridge into the tape drive in the same way as a normal tape cartridge and lock into position.

Tape drive maintenance

8   Move the moistened pad using 4 strokes of the guide rod, moving the rod as far as it will go each time.

9   Remove the cleaning cartridge from the tape drive.

10   Remove the flexible pad by sliding it out of the holder. Discard the pad.

11   Insert a new, dry pad into the holder by sliding it into place.

12   Insert the cleaning cartridge into the tape drive and lock into place.

13   Move the dry pad using 4 strokes of the guide rod, moving the rod as far as it will go each time.

14   Remove the cleaning cartridge. Store it with the dry pad in its original carton until next use.

Procedure 1-2
Cleaning the Archive tape drive with swabs and fluid

This procedure should only be used if you have a Archive tape drive. If you have a Tandberg tape drive, refer to Procedure 1-3.

1   If there is a tape cartridge in the tape drive, remove the cartridge.

2   Push the head loading lever down into the load position.

3   Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air. (Refer to Figure 1-1.)

4   Moisten a pad or swab with the head-cleaning fluid until it is saturated but not dripping.

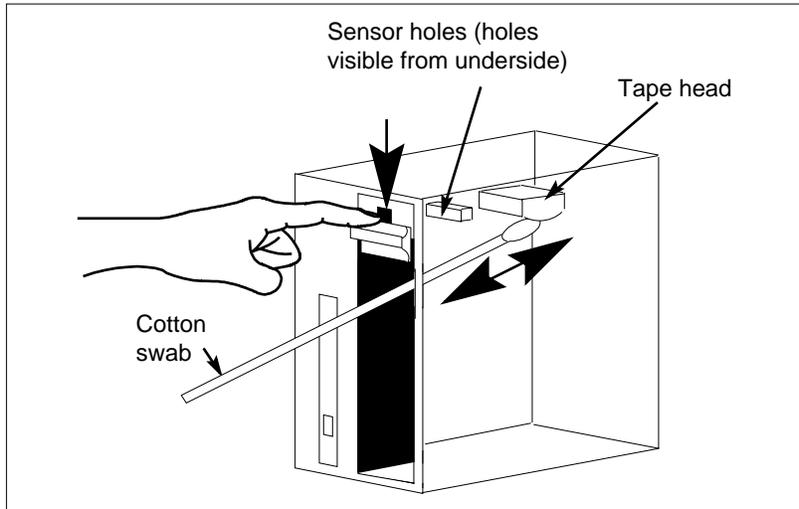5   Carefully wipe the head in the direction that the tape travels. (Refer to Figure 1-1).

WARNING
Risk of equipment damage
Do not wipe perpendicularly or use a circular scrubbing motion as this could seriously damage the tape heads.

Tape drive maintenance

Figure 1-1
Archive tape drive cleaning

6   Discard the used swab and repeat steps 4 and 5 with new swabs until the swab shows no signs of dirt.

7   Use a new, dry swab to remove any remaining cleaning fluid from the head.

8   Allow 2 minutes for the tape head to dry before inserting a tape.

9   Release the head loading lever away from the load position.

10 If there was a tape cartridge in the tape drive, reinsert it.

Cleaning the Tandberg TDC4220 tape drive

If you are cleaning the Tandberg TDC4220 tape drive, follow the steps in Procedure 1-3. If you have an Archive Viper tape drive, refer to Procedure 1-1 or 1-2.

Note: The NTGX15BA uses a Tandberg TDC4220 tape drive while the NTGX15AA uses the Archive Viper.

**Procedure 1-3**
Cleaning the Tandberg tape drive

1   Press the release button on the tape drive (see Figure 1-2).
    The tape drive door will spring open.

2   If there is a tape cartridge in the tape drive, remove the cartridge.

3   Prepare the cleaning cartridge as per the manufacturer's instructions.

4   Carefully blow out dust from the tape cartridge cavity with aerosol air.

Tape drive maintenance

Figure 1-2
Tandberg tape drive
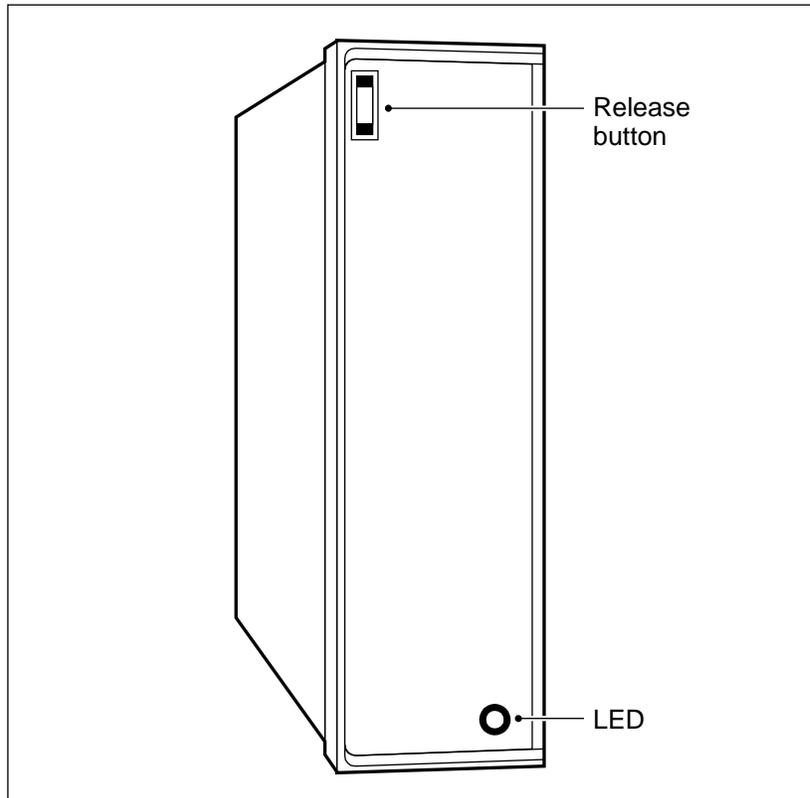
5   Insert the cleaning cartridge into the tape drive.

6   Close the door to engage the cartridge.

The tape drive will start to spin.

7   After a suitable period (that is, several minutes), press the release button to disengage the cartridge.

The door will spring open and the tape drive will stop running.

8   Remove the cartridge and store it in its original container.

The cleaning cartridge should be stored in its original container and put away until its next use.

9   Wait a couple of minute for the tape heads to dry before using the tape drive.

Tape drive maintenance

Replacing cooling fan filters

Task

The fan filters for the Message Services Module require regular replacement. To replace the cooling fan filters rather than maintain it, refer to *MSM Card Replacement Procedures* (NTP 557-7001-502).

The filter is a disposable unit consisting of the filter material and frame. Used filters should be handled gently during removal to prevent dust escaping into the air, and should be removed from the Equipment room immediately.

The tray which holds the filter is located outside of and below the fan enclosure so that the filter can be replaced more quickly and safely.

Interval

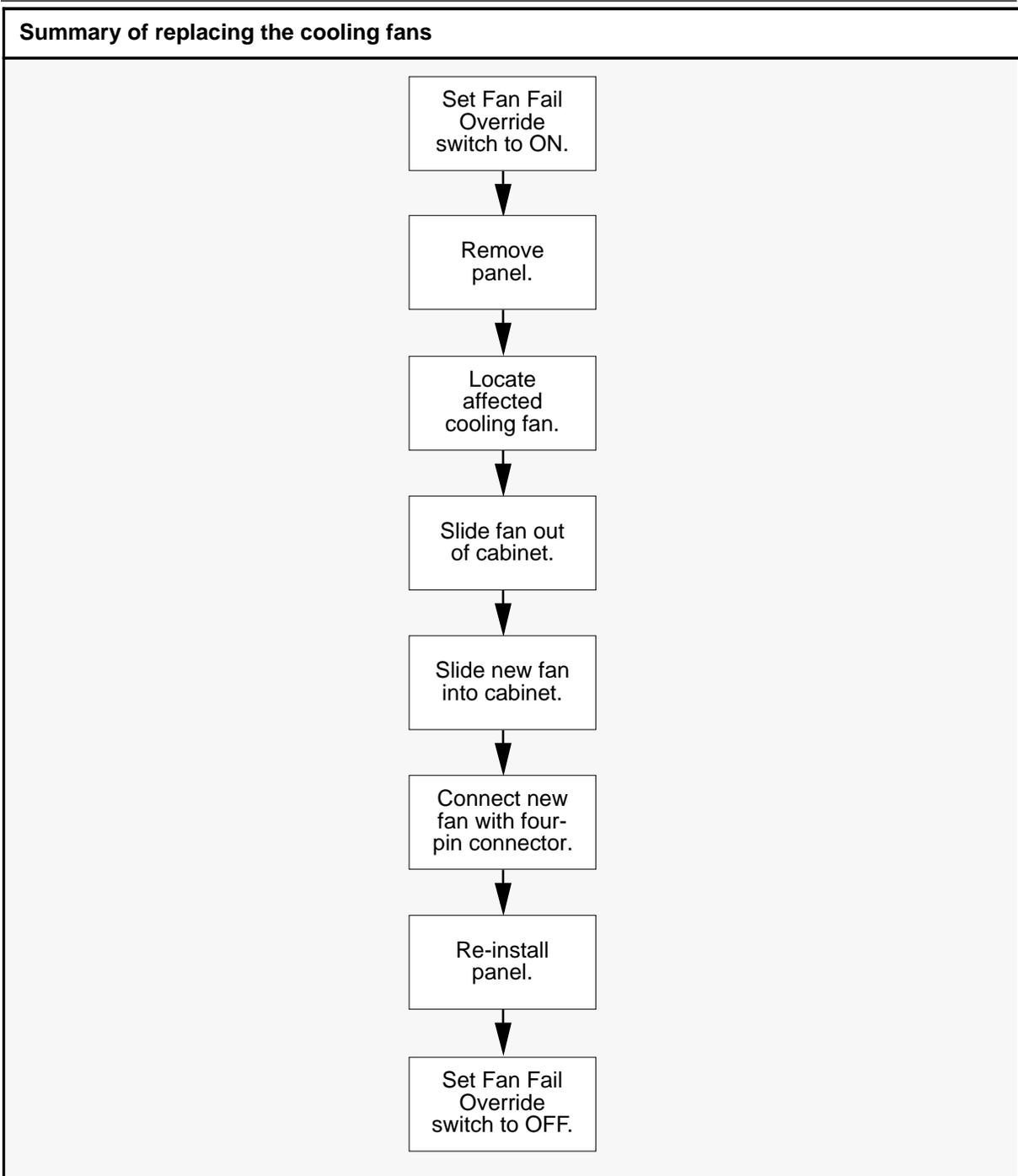The filter should be replaced once every three months.

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 procedures.

Step action table

Replacing cooling fan filters	
Step	**Action**
1	Grasp the two tabs on the front edge of the used filter and gently slide the filter out of its tray.
2	Slide the new filter into the tray.
3	Dispose of the used filter immediately, outside the equipment room.

Replacing cooling fan filters

Summary of replacing cooling fan filters

```
┌─────────────────┐
│ Slide used filter│
│ out of  tray.    │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Slide new filter │
│ into tray.       │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│ Dispose of used  │
│ filter.          │
└─────────────────┘
```

Replacing the cooling fans

Task

The cooling fans in the Message Services Module should be replaced if they are not operating properly. A light will turn on at the frame supervisory panel (FSP) to indicate a malfunction.

Interval

The cooling fans need only be replaced as required.

Action

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

Step action table

Replacing the cooling fans	
Step	**Action**
1	At the frame supervisory panel (FSP), set the Fan Fail Override switch to ON.
2	Remove the panel at the bottom of the cabinet by removing the nine screws on the panel using a 1/4-inch nut driver. This allows you access to the three cooling fans.
	⚠ **CAUTION** **Risk of system failure** Leaving the cooling fan disconnected could cause the equipment to overheat and possibly fail.
3	Locate the affected cooling fan and disconnect its four-pin connector, visible on the underside of the plenum.
4	Slide the cooling fan out of the cabinet.
5	Slide the replacement cooling fan into place.
6	Connect the new cooling fan with the four-pin connector.
7	Reinstall the panel.
8	At the FSP, set the Fan Fail Override switch to OFF.

Replacing the cooling fans

Summary of replacing the cooling fans

```
        ┌──────────────┐
        │ Set Fan Fail │
        │  Override    │
        │ switch to ON.│
        └──────┬───────┘
               ▼
        ┌──────────────┐
        │    Remove    │
        │    panel.    │
        └──────┬───────┘
               ▼
        ┌──────────────┐
        │    Locate    │
        │   affected   │
        │ cooling fan. │
        └──────┬───────┘
               ▼
        ┌──────────────┐
        │ Slide fan out│
        │  of cabinet. │
        └──────┬───────┘
               ▼
        ┌──────────────┐
        │ Slide new fan│
        │ into cabinet.│
        └──────┬───────┘
               ▼
        ┌──────────────┐
        │ Connect new  │
        │ fan with four-│
        │pin connector.│
        └──────┬───────┘
               ▼
        ┌──────────────┐
        │  Re-install  │
        │    panel.    │
        └──────┬───────┘
               ▼
        ┌──────────────┐
        │ Set Fan Fail │
        │  Override    │
        │switch to OFF.│
        └──────────────┘
```

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