Meridian 1

Option 11C

Upgrade Procedures

Document Number: 553-3021-250
Document status: Standard
Document Release: 5.00
Date: July 1999

Printed in Canada

Revision history

July 1999

Issue 5.00, Standard.

Updated to include Option 11C Mini content.

May 1999

Issue 4.0, Standard.

March 1998

Issue 3.0, Standard.

October 1997

Issue 2.0, Standard.

The *Software Installation Program Guide (553-3021-310)*, Standard 1.0 and the *Upgrade Procedures (553-3021-250)*, Standard 1.10 were combined to form this version of the ***Upgrade Procedures*** guide.

September 1996

Release 1.0, Standard.

Contents

About this guide

This *Upgrade Procedures* guide contains the following information required to upgrade existing Option 11 and Option 11E systems to an Option 11C.

- upgrade to Option 11C from an Option 11 or Option 11E
- upgrade to Option 11C compatible with Dual Port Expansion daughterboards from an existing Option 11C that is not compatible

This guide also contains the following procedures for updating software on Option 11C and Option 11C Mini systems:

- upgrade Option 11C software to a new release
- perform a same release software upgrade
- revert to a previous database
- restore a backed up database
- archive databases
- install archived databases
- review and clear upgrade information.

This guide does **not** describe how to add equipment (such as additional cabinets or line cards) to the system. If the system is to be expanded as part of the upgrade, complete the upgrade **first** (as described in this guide), then add equipment.

Related documents

Consult the *Option 11C Planning and Installation Guide, (553-3021-210)* when additional equipment is to be added as part of the upgrade (such as an additional expansion cabinet at a remote site). It also contains site planning information and new system installation details for Option 11C systems.

Consult the *Option 11C Mini Planning and Installation Guide* for site planning information and system installation details for the Option 11C Mini system.

Starting point for upgrades

"Chapter 1 - Start here to perform upgrades" on page 1 is the starting point for performing upgrades.

Chapter 1 - Start here to perform upgrades

General information

This chapter is the starting point for all Option 11, 11E, and 11C software and hardware upgrades. It indicates which procedure to follow in order to complete the desired upgrade.

> ***Note:*** Although this guide describes how to prepare the main cabinet of an Option 11C to accept a third (or fourth) expansion cabinet, it does **not** describe how to add equipment (such as additional cabinets or line cards) to the system. If the system is to be expanded as part of the upgrade, complete the upgrade **first** (as described in this guide) then add equipment as described in the *Option 11C Planning and Installation Guide*.

Systems being upgraded to accommodate three or more expansion cabinets

Only Option 11C systems running with X11 Release 24.22 or later software can be equipped with more than two expansion cabinets. If the existing system is not an Option 11C running with X11 Release 24.22 or later software, locate the appropriate procedure in the following lists and upgrade the system to Option 11C.

Once upgraded to Option 11C with fiber optic cable capabilities, follow the procedures to upgrade the hardware to accommodate three or more expansion cabinets.

Upgrade selection list

Select the appropriate upgrade from the following upgrade scenarios.

Upgrading an Option 11 or Option 11E

The existing Option 11 or 11E consists of one cabinet only

If the existing system is a single cabinet Option 11 or Option 11E consisting of one main cabinet only:

- refer to “Chapter 2 - Upgrading a single cabinet system to Option 11C” on page 5.

The existing Option 11 or 11E consists of two cabinets

If the existing system is a two-cabinet Option 11 or Option 11E consisting of one main and one expansion cabinet interconnected with a metal cable (not fiber optic cable):

- refer to “Chapter 3 - Upgrading a two-cabinet system with metal cable to Option 11C” on page 21.

The existing system is an Option 11E consisting of cabinets interconnected with fibre optic cable

If the existing system consists of a main cabinet and one or two expansion cabinets interconnected with fibre optic cable:

- refer to “Chapter 4 - Upgrading an Option 11E with fiber optic cable to Option 11C” on page 83.

Upgrading an existing Option 11C

The existing system is an Option 11C consisting of two cabinets interconnected with metal cable

If the existing system is a two-cabinet Option 11C interconnected with a metal cable:

- refer to “Chapter 3 - Upgrading a two-cabinet system with metal cable to Option 11C” on page 21

The existing system is a single-cabinet Option 11C

If the existing system is a single cabinet Option 11C and one or two expansion cabinets are to be added:

- refer to the *Option 11C Planning and Installation Guide* to add additional cabinets.

The existing system is an Option 11C and a third expansion cabinet is to be added

Note: The existing system must be at least an Option 11C with fiber optic cable capabilities before a third (or fourth) expansion cabinet can be added. Upgrade the existing system if necessary before attempting to add a third cabinet.

If the existing Option 11C is to be expanded to include more than two expansion cabinets (for a total of three or more expansion cabinets) complete the following steps:

1 Refer to "Chapter 5 – Upgrading cabinet hardware" on page 113 and upgrade the main cabinet (if required).

2 Refer to "Chapter 6 - Upgrading the NTDK20AB SSC to NTDK20CA" on page 121 and upgrade the SSC card (if required).

3 Refer to the *Option 11C Planning and Installation Guide* to add the additional cabinets.

Upgrading Software

Updating the Boot Code

To update the boot code on the NTDK20 SSC or NTDK97 MSC card:

- refer to "Chapter 15 - Using the flash boot ROM utility" on page 213.

Upgrading software to Option 11C from a Software Daughterboard or PCMCIA card

To upgrade software from an Option 11 or 11E to Option 11C:

- refer to "Chapter 8 - Option 11/11E upgrade from Software Daughterboard or PCMCIA" on page 147.

Updating to a new release of software

To update to a new release of software:

- refer to "Chapter 9 - Upgrading Option 11C/11C Mini software to a new release" on page 167.

Changing feature set and ISM parameters

To change the feature set or ISM parameters:

- refer to “Chapter 10 - Feature Set and ISM Parameters upgrade” on page 195.

Database Management

Restoring a backed up database

To restore the backed up database from the backup flash drive, a software delivery card (PCMCIA) or Customer Configuration Backup and Restore (CCBR) file:

- refer to “Chapter 11 - Restoring a backed up database” on page 199.

Archiving and removing databases

To archive a new customer database, list the databases that are archived or remove existing databases:

- refer to “Chapter 12 - Archiving and removing databases” on page 203.

Chapter 2 - Upgrading a single cabinet system to Option 11C

General information

This chapter describes how to upgrade a single cabinet Option 11 or Option 11E to an Option 11C.

Summary of items required

The following items are required to complete this upgrade:

- One NTDK20 Small System Controller (SSC) card
- One NTBK48 three-port SDI cable (if upgrading from Option 11E, this cable will already be present)
- One NTDK27 Ethernet cable (optional)
- A Software Daughterboard

  Note: Release 24 or later software is required if dual port expansion daughterboards are being installed as part of the upgrade.

- Security Device
- Keycode Data Sheet
- A Personal Computer (PC) equipped with XModem CRC software in order to run the CCBR X11 feature to extract the customer data from the existing system
  or
  A Database Upgrade Tool to extract the customer data from the cartridge on the existing system.

  Note: The PC can be on site or located remotely.

Upgrading to Option 11C

Summary of steps

The following list is a summary of the steps which should be followed when upgrading a single cabinet Option 11 or Option 11E to Option 11C:

- Perform a data dump (EDD) on the existing system.
- Extract the customer data from the existing system using the CCBR feature (unless the Database Upgrade Tool is being used).
- Install the NTDK20 Small System Controller (SSC) card
- Install the NTBK48 three-port SDI cable (if upgrading from Option 11E, this cable will already be present)
- Load the new system software and customer data in the system
- Install the NTDK27 Ethernet cable (optional).

Expansion cabinets and additional equipment

This chapter does not describe the installation of additional expansion cabinets or of additional equipment such as line cards. If additional expansion cabinets or other equipment is to be added as part of the upgrade to Option 11C, complete the upgrade as described in this chapter first. Once the system has been upgraded, refer to the Option 11C *Planning and Installation Guide (553-3021-210)* for information about adding expansion cabinets and other equipment to an existing Option 11C system.

Upgrade procedure

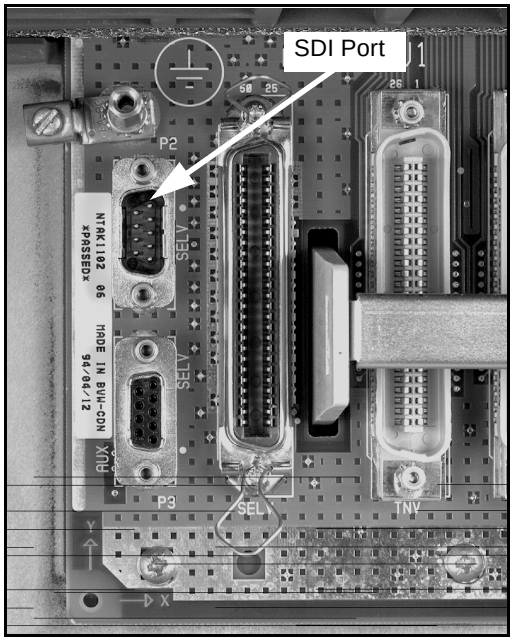
The following procedure (Procedure 1 on page 7) describes how to upgrade a single cabinet Option 11 or Option 11E to Option 11C.

Procedure 1— Single cabinet upgrade to Option 11C

1 Connect a TTY terminal to SDI Port 0.

The terminal must be connected to SDI Port 0 (see Figure 1 on page 7).

Figure 1
SDI Port 0



2 Login to the system and perform a Data Dump on the existing system.

This step must be performed. It is to make sure that any changes that were made since the last Data Dump are backed up. This is a precautionary measure in case the upgrade fails and you must revert to the former system.

a) Load Overlay program 43 (LD 43)

b) Enter command EDD

c) Once the Data Dump is completed, exit LD 43 by entering ****.

3 **Load overlay program 22 (LD 22) and print the ISM parameters. Make a note of the existing parameters.**

At the “REQ” prompt type “SLT” <CR> to print the ISM parameters.

The ISM parameters should also be indicated on the existing software cartridge.

4 **Disregard this step and go to Step 5 on page 9 if using the Database Upgrade Tool to extract customer database from the existing system.**
Extract the customer data from the existing system using the CCBR feature and a PC.

Refer to “How to backup the configuration database” section in the Option 11 *Customer Configuration Backup and Restore guide* for details about using CCBR feature to extract data. Below is a summary of the steps to follow when extracting data using the CCBR feature:

Note: The procedure in the *Customer Backup and Restore guide* includes a step where an EDD is performed. That step can be skipped since an EDD has already been performed in Step 2 on page 7 of this procedure.

Below is a summary of the steps to follow when extracting data using the CCBR feature:

a) Using a PC, and if not already logged in, login to the existing Option 11.

b) Load overlay 43 (LD 43) and enter XBK to start a configuration data backup.

c) At the INFO prompt, enter a name for the file (up to 128 characters) then press <cr> twice.

d) Using the communications software on the computer, receive the database file using XModem CRC protocol. (Follow instructions in the manual supplied with the communications software package to receive the database file.)

e) Wait for an ‘OK’ message indicating that the transfer is completed (can take up to 30 minutes). Once the backup is completed, enter XVR to verify the backed up data.

f) Once the data is verified, exit LD 43 by entering ****.

5 **Disconnect the power from the cabinet.**

Set the circuit breaker switch on the front of the power supply unit in the cabinet to OFF.

If equipped with reserve battery power, set the circuit breaker switch inside the reserve battery power unit to OFF.

6 **Attach the antistatic bracelet provided at the bottom of the cabinet to your wrist.**

7 **Remove the NTAK01 CPU/Conf or NTBK45 System Core card from the cabinet.**

8 **Set the baud rate switches on the new NTDK20 SSC card to match the settings on the NTAK01 CPU/Conf or NTBK45 System Core card that was removed.**

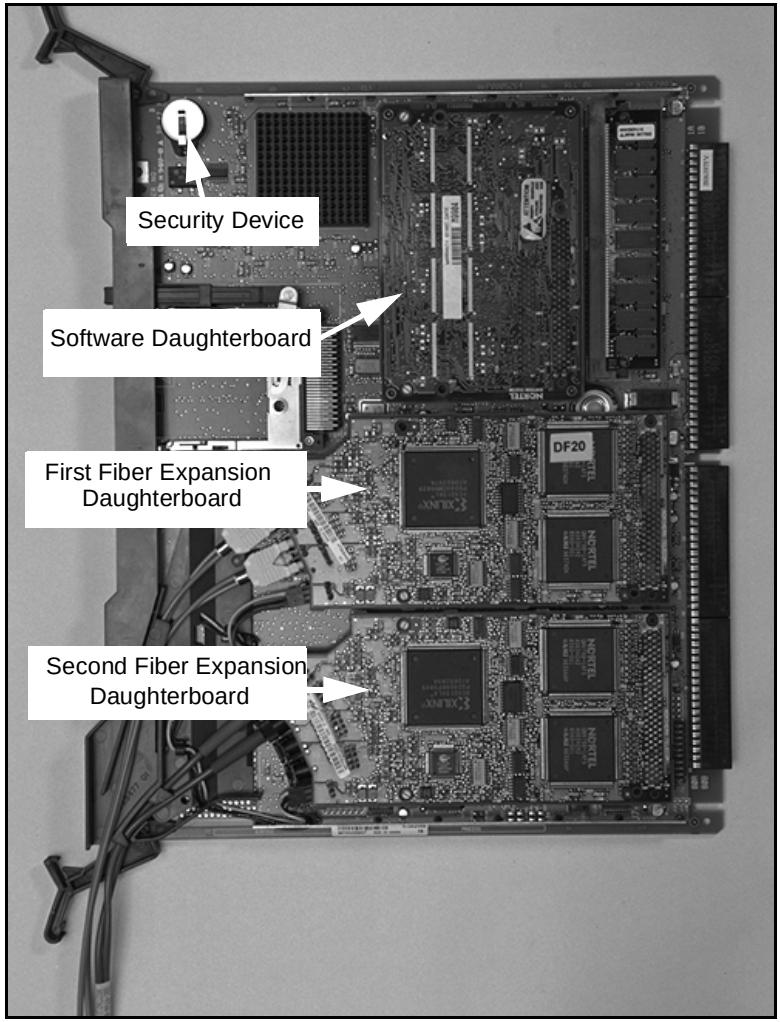
Note: The baud rate switches are located on the faceplate of the NTDK20 SSC card.

9 **Install the Software Daughterboard and the Security Device on the NTDK20 SSC card as shown in Figure 2 on page 10.**

CAUTION

The NTDK20 SSC card is equipped with components on both sides of the circuit board. Be careful not to damage any of the components when handling the card.

Figure 2
NTDK20 SSC card



10 This step is optional and applies only if one or more expansion cabinets are to be added as part of the upgrade.

Note: This step may be completed after the main cabinet has been upgraded to Option 11C. However, to prevent additional down time, it may be preferable to install any required Fiber Expansion Daughterboards now. Refer to the *Option 11C Planning and Installation Guide (553-3021-210)* for detailed information about adding expansion cabinets to an existing system.

WARNING

The fiber optic interface product used in Option 11C is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

Install the Fiber Routing Guide as shown in Figure 3 on page 13.

Note: The P0816832 Fibre Routing guide can accommodate a maximum of two fiber optic cables. It is typically used in cabinets that are operating with pre-X11 Rls 24 software. The P0888475 Cable Routing guide can accommodate up to four cables. It is typically used in cabinets operating with X11 Rls 24 and later versions of software.

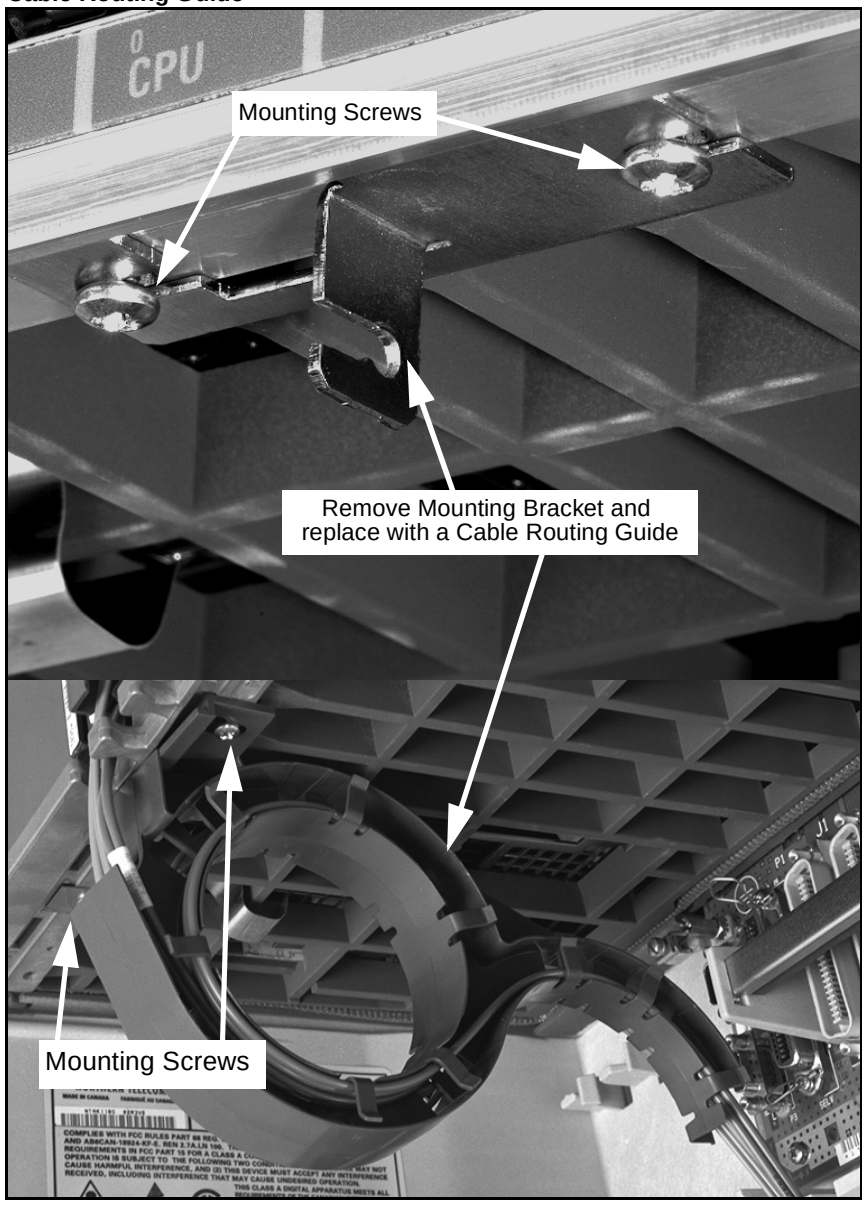
Install a Fiber Expansion Daughterboard on the NTDK20 SSC card for expansion cabinets being added as shown in Figure 2 on page 10.

Note: There are two types of Expansion daughterboards: single port and dual port. Single port expansion daughterboards are compatible with all version of NTDK20 SSC cards. Dual port expansion daughterboards require an NTDK20CA or later version of SSC card.

Connect the fiber optic cable to the daughterboard.

- **If using the A0632902 cable**, remove the two protective plugs from the Fiber Expansion Daughterboard.
  Connect the cable to the Fiber Expansion Daughterboard making sure that the 'V' shaped groove on the cable connector is facing outward and that the connector is fully seated.
  The black mark on the connector should not be visible when properly connected.
- **If using glass fiber optic cable**, remove the protective plug from the Fiber Expansion Daughterboard and remove the protective cap from the corresponding plug (Tx or Rx) on the fiber optic cable.
  Insert the plug in its designated connector on the daughterboard.
  Once inserted, lock the connector in place by turning it a half turn clockwise.
  Repeat this procedure for the remaining fiber optic connections.

Figure 3
Cable Routing Guide



11 Reconnect the power to the cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

The Software Installation Program is invoked automatically on power up.

Note: This program is menu driven allowing the easy installation of software and customer databases in the Option 11C. It is straight forward and includes a "Help" facility to assist in making proper selections. However, if more detailed information is required, refer to the Option 11C *Planning and Installation Guide (553-3021-210).*

12 Install the new NTDK20 SSC card in the slot vacated by the NTAK01 or NTBK45 card (Slot 0).

If a fiber optic cable is present (see optional step 10) make sure that it is placed in the Fiber Routing Guide.

Note: Do not staple or twist fiber optic cable. Do not bend it beyond a minimum 35 mm bend radius (90° soft bend).

13 Skip this step and go to Step 14 on page 15 if the Database Upgrade Tool is not being used to extract the customer database from the existing system.

Note: Perform this step only if the Database Upgrade Tool is to be used instead of a PC to extract the customer database from the existing system.

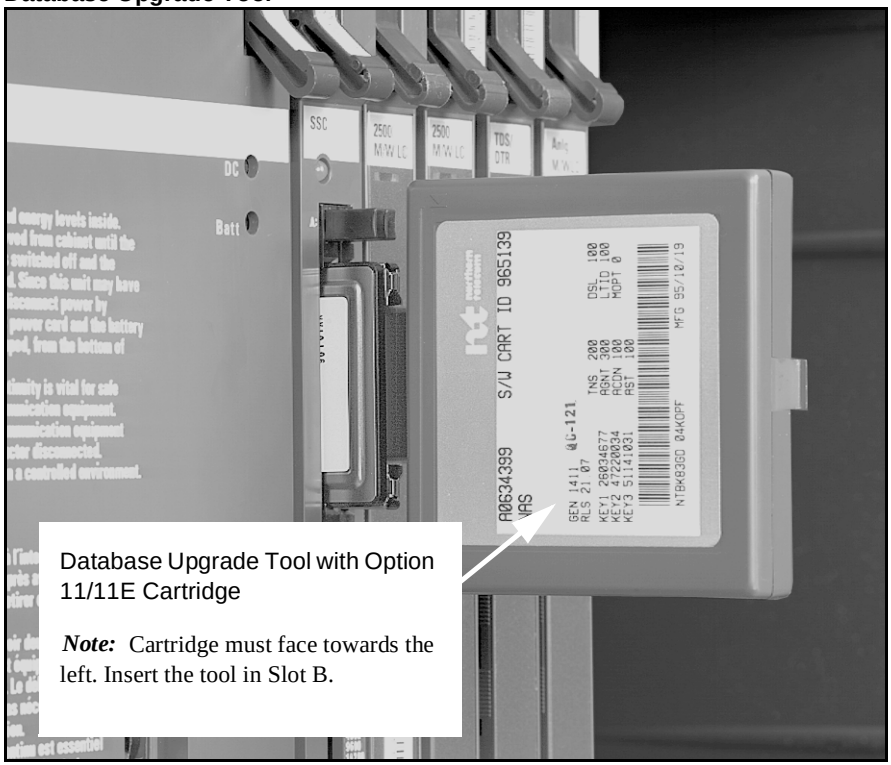
Install the Software Cartridge from the existing system to the Database Upgrade Tool.

a Remove the Software Cartridge from the existing NTAK01 CPU/Conf or NTBK45 System Core card

b Connect the Option 11 or Option 11E Software Cartridge to the connector on the Database Upgrade Tool.

c With the software cartridge on the Database Upgrade Tool facing towards the left, insert the Database Upgrade Tool in slot B of the PCMCIA socket located in the faceplate of the NTDK20 SSC card. See Figure 4 on page 15.

Figure 4
Database Upgrade Tool



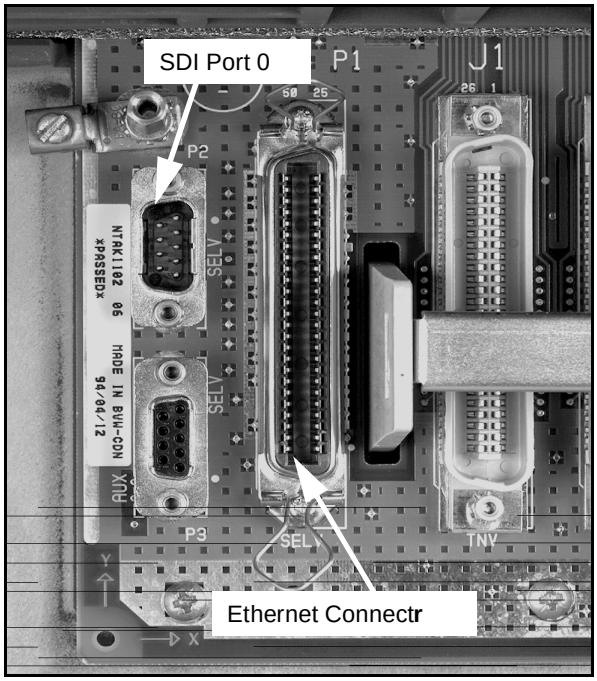
14 If not previously installed, install the NTBK48 three-port SDI cable to SDI port 0. Connect the TTY terminal to the connector on the NTBK48 cable labeled 'Port 0" (see Figure 5 on page 16).

Note: Since this cable is also used with Option 11E systems, it should already be present when upgrading from Option 11E.

CAUTION

The TTY must be connected to port 0 in order to access the Software Installation Program.

Figure 5
Cable connection



15 Observe the terminal screen.

The Software Installation Program is automatically invoked on power up.

Note: This program is menu driven allowing the easy installation of software and customer databases in the Option 11C. It is straight forward and includes a “Help” facility to assist in making proper selections. However, if more detailed information is required, refer to the *Option 11C Planning and Installation Guide (553-3021-210)*.

The following is a summary of the steps as described in that guide:

a Enter the system time and date if prompted. Skip this step if the Software Installation Main Menu appears instead.

Note: The system time and date prompt appears only when the Software Installation Program detects a system year date that is not in the range of 1995-2095.

b Select the type of upgrade to be performed.

— **If** using the Software Delivery (PCMCIA) Card,
select
'System Upgrade'
from the Software Installation Main Menu

then select

'Option 11/11E to Option 11C'
from the Select type of upgrade to be performed menu.

— **If** upgrading using the Software Daughterboard,
select
'New System Installation or Option 11/11E Upgrade - From Software Daughterboard'.

c Select the feature set to be enabled.

— Select the feature set from the 'Select Feature Set You Wish to Enable' menu.

Note: The feature set selected must match the one provided with keycodes.

d Select feature package numbers to be added (if any).

— Enter package numbers. Press <cr> twice to end package selection.

e Select the database source.
Select one of the following from the
'Select Option 11/11E Database Source' list;

— Select
CCBR Restore file
If the customer database was extracted using the CCBR feature. When this selection is chosen, the Data Transfer mode is accessed. The data restoration and upgrading process is initiated by entering <cr> when prompted to do so.

or

— Select
Option 11/11E Software Cartridge
If the Database Upgrade tool is being used to extract the customer database from the existing software cartridge.

f Select the ISM parameters.

— Compare the ISM parameters with those obtained in Step 3 on page 8.

— Make any required changes.

g Define the new AUX ID.

— The default AUX ID is the security ID provided with the Option 11C. It should be replaced with the previous Option 11 or Option 11E site ID.

h Confirm the information entered and enter the validation keycodes.

— A 'New Installation Information Summary' is displayed on the terminal.

— Make any necessary changes to the information then enter the keycodes.

i Complete the software installation when prompted.

CAUTION

If YES is entered, the system will reload (SYSLOAD) to complete the installation.

16 Wait for the software installation the be completed.

17 If installed, remove the Database Upgrade Tool from the PCMCIA socket on the faceplate of the SSC card.

18 If the optional NTDK27 Ethernet cable is provided, connect it to the expansion connector in the cabinet (see Figure 5 on page 16).

19 If required, rearrange the tone and SDI functions.

The NTDK20 SSC card consolidates many tone functions. Refer to "Chapter 7 - Assigning TDS/DTR, XTD and SDI functions" on page 131 for further information.

20 Load overlay 43 (LD 43) and perform a data dump (EDD).

———————— ***End of Procedure*** ————————

Restoring data due to an upgrade failure

This section explains how to revert back to an Option 11 or Option 11E in the event that the upgrade attempt failed. To revert back, the Option 11 NTAK01 CPU/Conf card or Option 11E NTBK45 System Core card and the software cartridge are inserted back into slot 0 of the main cabinet. The system is then reloaded.

Procedure 2— Reverting back to Option 11/11E

1 **Remove all power from the system.**

2 **Remove the NTDK20 SSC card from slot 0 in the main cabinet.**

3 **If previously removed, attach the software cartridge to the NTAK01 CPU/Conf card or NTBK45 System Core card.**

4 **Insert the NTAK01 CPU/Conf card or the NTDK45 System Core card in slot 0 and power up the system.**

5 **Restore the NTAK1118 SDI cable if previously equipped.**

———————— ***End of Procedure*** ————————

Chapter 3 - Upgrading a two-cabinet system with metal cable to Option 11C

General information

This chapter describes how to upgrade an existing two-cabinet system interconnected with an NTAK1204 or NTAK1205 cable.

It also describes how to upgrade to fiber optic connection a previously upgraded two-cabinet Option 11C that remained interconnected with an NTAK1204 or NTAK1205 cable.

Upgrade without fiber optic connection

With the upgrade without fiber optic connection, the existing NTAK12 expansion cabinet is retained as well as the NTAK1204 or NTAK1205 interconnecting cable. The new system resulting from this upgrade provides all the features offered with Option 11C with the following limitations:

- There is no Ethernet capability.
- There is no fiber optic interconnect cable capability thus limiting the distance between the main and expansion cabinets to the length of the existing NTAK1204 or NTAK1205 cable.
- The size of the system is limited to two cabinets (a main cabinet and one expansion cabinet).

How to do an upgrade without fiber optic connection is described in Procedure 3 on page 29.

Upgrade with fiber optic connection

With the upgrade of fiber optic connectivity, the new system is capable of providing all the features offered by Option 11C without limitations. However, the existing NTAK12 expansion cabinet must be replaced with an NTAK11 cabinet and connected to the main cabinet with fiber optic cable.

How to do an upgrade with fiber optic connection is described in Procedure 4 on page 38.

Upgrade to fiber optic connection on a previously upgraded Option 11C without fiber connection

With this upgrade, a previously upgraded Option 11C without fiber optic connection (one that remained connected to an NTAK12 expansion cabinet with an NTAK1204 or NTAK1205 cable) is upgraded to one with fiber optic connection. This allows the system to provide all the features offered by Option 11C without limitations. However, the existing NTAK12 expansion cabinet must be replaced with an NTAK11 cabinet.

How to do an upgrade to fiber optic connection is described in Procedure 5 on page 64.

Summary of items required

To upgrade a two cabinet system to Option 11C, and the existing expansion cabinet is connected with an NTAK1204 or NTAK1205 expansion cable, the following items are required.

Upgrade without fiber optic connection

For an upgrade without fiber optic connection the following items are required:

- One NTDK20 Small System Controller (SSC) card
- One NTBK48 three-port SDI cable (if upgrading from Option 11E, this cable may already be present)
- One NTDK26 Backwards Compatible Daughterboard
- A Software Daughterboard

  Note: Release 24 or later software is required if dual port expansion daughterboards are being installed as part of the upgrade.

- Security Device
- Keycode Data Sheet
- A Personal Computer (PC) equipped with XModem CRC software in order to run the CCBR X11 feature to extract the customer data from the existing system
  or
  A Database Upgrade Tool to extract the customer data from the cartridge on the existing system.

  Note: The PC can be on site or located remotely.

Upgrade with fiber optic connection

For an upgrade with fiber optic connection the following items are required:

- One NTDK20 Small System Controller (SSC) card

  Note: An NTDK20CA or later version of SSC card is required if dual port expansion daughterboards are used.

- One NTBK48 three-port SDI cable (if upgrading from Option 11E, this cable may already be present)
- One NTDK22 Single Port or NTDK84 Dual Port Fiber Expansion Daughterboard
- One NTDK79 Single Port or NTDK85 Dual Port Fiber Expansion Daughterboard

  Note: NTDK22 or NTDK84 Fiber Expansion Daughterboard is used when the expansion cabinet is within 10 m (33 ft) of the main cabinet. Use an NTDK24 (Multimode) or NTDK79 (Single Mode) or NTDK85 (Multimode) Fiber Expansion Daughterboard if the expansion cabinet is to be relocated up to 3 km (1.8 mi) of the main cabinet.

- One NTDK23 Fiber Receiver card

  Note: NTDK23 Fiber Receiver card is used when the expansion cabinet is within 10 m (33 ft) of the main cabinet. Use an NTDK25 (Multimode) or NTDK80 (Single Mode) Fiber Receiver card if the expansion cabinet is to be relocated up to 3 km (1.8 mi) of the main cabinet.

- One A0632902 (formerly A0618443) Fiber Optic cable

  Note: This cable is only used with the NTDK22 or NTDK84 daughterboard for distances up to 10 m (33 ft). A locally provided duplex glass fiber optic cable is required for distances up to 3 km (1.8 mi).

- Release 22 or later software on a Software Daughterboard

  Note: Release 24 or later software is required if dual port expansion daughterboards are being installed as part of the upgrade.

- Security Device
- Keycode Data Sheet

- A Personal Computer (PC) equipped with XModem CRC software in order to run the CCBR X11 feature to extract the customer data from the existing system
  or
  A Database Upgrade Tool to extract the customer data from the cartridge on the existing system

  Note: The PC can be on site or located remotely

- One NTAK11 cabinet
- Two Fiber Routing Guides (one is provided with the NTAK11 cabinet and an additional one is provided for the expansion cabinet)
- One NTDK27 Ethernet cable (optional).

Upgrade to fiber optic connection on a previously upgraded Option 11C without fiber connection

For an NTAK12 expansion cabinet upgrade on a previously upgraded Option 11C the following items are required:

- One NTAK11 cabinet
- Two Fiber Routing Guides
- One NTDK22 Single Port or NTDK84 Dual Port Fiber Expansion Daughterboard

  Note: NTDK22 or NTDK84 Fiber Expansion Daughterboard is used when the expansion cabinet is within 10 m (33 ft) of the main cabinet. Use an NTDK24 (Multimode) or NTDK79 (Single Mode) or NTDK85 (Multimode) Fiber Expansion Daughterboard if the expansion cabinet is to be relocated up to 3 km (1.8 mi) of the main cabinet.

- One NTDK23 Fiber Receiver card

  Note: NTDK23 Fiber Receiver card is used when the expansion cabinet is within 10 m (33 ft) of the main cabinet. Use an NTDK25 (Multimode) or NTDK80 (Single Mode) Fiber Receiver card if the expansion cabinet is to be relocated up to 3 km (1.8 mi) of the main cabinet.

- One A0632902 (formerly A0618443) Fiber Optic cable (only required with the NTDK22)

  Note: This cable is only used with the NTDK22 or NTDK84 daughterboard for distances up to 10 m (33 ft). A locally provided duplex glass fiber optic cable is required for distances up to 3 km (1.8 mi).

- One NTDK27 Ethernet cable (optional).

Upgrading to Option 11C

Summary of steps

Upgrade without fiber optic connection

The following list is a summary of the steps which should be followed when upgrading a two-cabinet Option 11 or Option 11E to Option 11C without fiber optic cabinet interconnection.

- Perform a data dump (EDD) on the existing system.
- Extract the customer data from the existing system using the CCBR feature (unless the Database Upgrade Tool is being used).
- Install the NTDK20 Small System Controller (SSC) card equipped with NTBK26 Backwards Compatible Daughterboard
- Install the NTBK48 three-port SDI cable (if upgrading from Option 11E, this cable will already be present)
- Load the new system software and customer data in the system

The steps are described in detail in Procedure 3 on page 29.

Upgrade with fiber optic connection

The following list is a summary of the steps which should be followed when upgrading a two-cabinet Option 11 or Option 11E to Option 11C with fiber optic cabinet interconnection.

- Perform a data dump (EDD) on the existing system.
- Extract the customer data from the existing system using the CCBR feature (unless the Database Upgrade Tool is being used).
- Disconnect the NTAK1204 or NTAK1205 cable from the main cabinet
- Install the NTDK20 Small System Controller (SSC) card equipped with Fiber Expansion Daughterboard
- Install the NTBK48 three-port SDI cable (if upgrading from Option 11E, this cable will already be present)
- Load the new system software and customer data in the system
- Replace the existing expansion cabinet with an NTAK11 cabinet
- Connect the expansion cabinet to the main cabinet

The steps are described in detail in Procedure 4 on page 38.

Upgrade to fiber optic connection on a previously upgraded Option 11C without fiber connection

The following list is a summary of the steps which should be followed when upgrading an NTAK12 expansion cabinet on a previously upgraded Option 11C system interconnected with an NTAK1204 or NTAK1205 cable to a fiber optic connection.

- Perform a data dump (EDD)
- Disconnect the NTAK1204 or NTAK1205 cable from the main cabinet
- Install the fiber expansion daughterboard on the NTDK20 Small System Controller (SSC) card
- Replace the existing expansion cabinet with an NTAK11 cabinet
- Connect the expansion cabinet to the main cabinet

The steps are described in detail in Procedure 4 on page 38.

Expansion cabinets and other additional equipment

This chapter does not describe the installation of additional expansion cabinets or of additional equipment such as line cards. If additional expansion cabinets or other equipment is to be added as part of the upgrade to Option 11C, complete the upgrade as described in this chapter first. Once the system has been upgraded, refer to the Option 11C Installation guide for information about adding expansion cabinets and other equipment to an existing Option 11C system.

Upgrade procedure

Upgrade without fiber optic connection

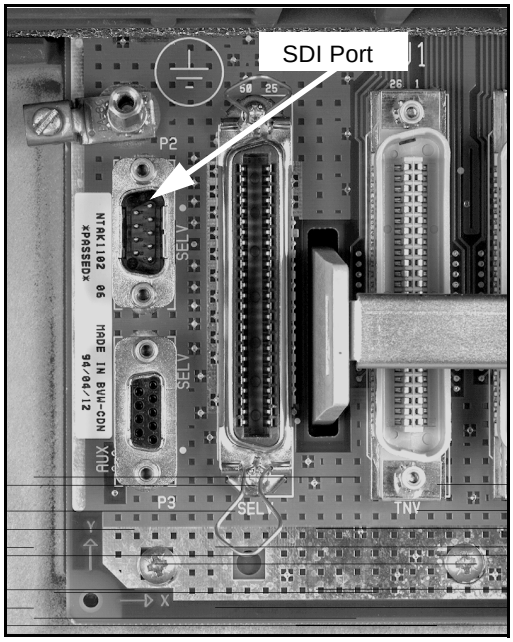
The following procedure (Procedure 3 on page 29) describes how to upgrade a two-cabinet Option 11 or Option 11E to Option 11C without fiber optic cabinet interconnection.

Procedure 3— Upgrade without fiber optic connection to Option 11C

1 Connect a TTY terminal to SDI Port 0 of the existing system.

The terminal must be connected to SDI Port 0 (see Figure 6 on page 29).

Figure 6
SDI Port 0



2 Login to the system and perform a Data Dump on the existing system.

This step must be performed. It is to make sure that any changes that were made since the last Data Dump are backed up. This is a precautionary measure in case the upgrade fails and you must revert to the former system.

a) Load Overlay program 43 (LD 43)

b) Enter command EDD

c) Once the Data Dump is completed, exit LD 43 by entering ****.

3 Load overlay program 22 (LD 22) and print the ISM parameters. Make a note of the existing parameters.

At the "REQ" prompt type "SLT" <CR> to print the ISM parameters. The ISM parameters should also be indicated on the existing software cartridge.

4 Disregard this step and go to Step 5 on page 31 if using the Database Upgrade Tool to extract customer database from the existing system.
Perform this step to extract the customer data from the existing system using the CCBR feature and a PC.

a) To extract the data with the CCBR feature:

b) Using a PC, login to the existing Option 11.

c) Load overlay 43 and enter XBK to start a configuration data backup.

d) At the INFO prompt, enter a name for the file (up to 128 characters).

e) Once the backup is completed, enter XVR to verify the backed up data.

f) Once the data is verified, exit LD 43 by entering ****.

Note: Refer to the Option 11 *Customer Configuration Backup and Restore guide* for details about the CCBR feature.

5 Disconnect the power from the cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to OFF.

If equipped with reserve battery power, set the circuit breaker switch inside the reserve battery power unit to OFF.

6 Attach the antistatic bracelet provided at the bottom of the cabinet to your wrist.

7 Remove the NTAK01 CPU/Conf or NTBK45 System Core card from the cabinet.

8 Set the baud rate switches on the new NTDK20 SSC card to match the settings on the NTAK01 CPU/Conf or NTBK45 System Core card that was removed.

9 Remove the jumper plug from connector J7 on the component side of the NTDK20 SSC card as shown in Figure 7 on page 32.

Note: Store the jumper plug in a secure location. It may be required in the future if an expansion cabinet using fiber optic cable is installed. The J7 connector plug is required to activate the ethernet capability (which is not available with copper connected cabinets).

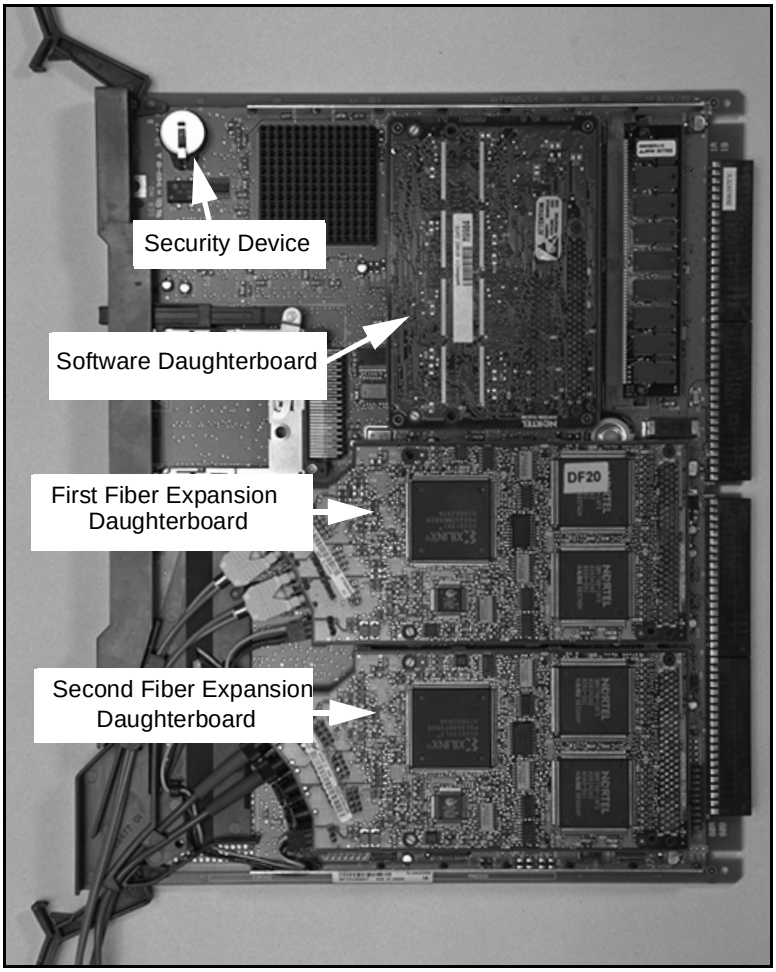
CAUTION

The NTDK20 SSC card is equipped with components on both sides of the circuit board. Be careful not to damage any of the components when handling the card.

10 Make sure that the J7 connector plug (see Step 9 on page 31) has been removed.
Install the NTDK26 Backwards Compatible Daughterboard on the NTDK20 SSC card as shown in Figure 7 on page 32.

11 Install the Software Daughterboard and the Security Device on the NTDK20 SSC Card as shown in Figure 7 on page 32.

Figure 7
NTDK20 SSC card



12 Install the new NTDK20 SSC card in the slot vacated by the NTAK01 or NTBK45 card (Slot 0).

13 Skip this step and go to Step 14 if the Database Upgrade Tool is not being used to extract the customer database from the existing system.

Note: Perform this step only if the Database Upgrade Tool is to be used instead of a PC to extract the customer database from the existing system.

Install the Software Cartridge from the existing system to the Database Upgrade Tool.

a) Remove the Software Cartridge from the existing NTAK01 CPU/Conf or NTBK45 System Core card

b) Connect the Option 11 or Option 11E Software Cartridge to the connector on the Database Upgrade Tool.

c) With the software cartridge on the Database Upgrade Tool facing towards the left, insert the Database Upgrade Tool in slot B of the PCMCIA socket located in the faceplate of the NTDK20 SSC card.

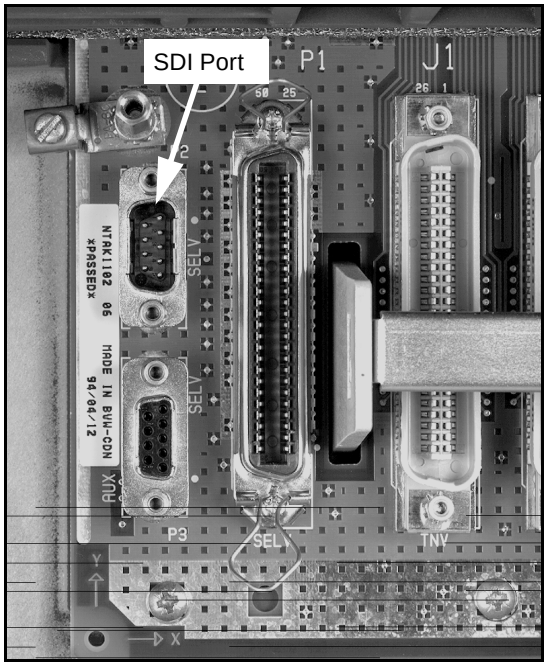
14 If not previously installed, install the NTBK48 three-port SDI cable to SDI port. Connect the TTY terminal to the connector on the NTBK48 cable labeled 'Port 0" (see Figure 8 on page 34).

Note: Since this cable is also used with Option 11E systems, it should already be present when upgrading from Option 11E.

CAUTION

The TTY must be connected to port 0 in order to access the Software Installation Program.

Figure 8
Cable connection



15 Reconnect the power to the cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

16 Observe the terminal screen.

The Software Installation Program is invoked automatically on power up.

Note: This program is menu driven allowing the easy installation of software and customer databases in the Option 11C. It is straight forward and includes a "Help" facility to assist in making proper selections. However, if more detailed information is required, refer to the *Option 11C Planning and Installation Guide (553-3021-210).*

The following is a summary of the steps as described in the aforementioned guide:

Enter the system time and date if prompted. Skip this step if the Software Installation Main Menu appears instead.

Note: The system time and date prompt appears only when the Software Installation Program detects a system year date that is not in the range of 1995-2095.

d) Select the type of upgrade to be performed.

- **If** using the Software Delivery (PCMCIA) Card,
  select
  'System Upgrade'
  from the Software Installation Main Menu

  Then select

  'Option 11/11E to Option 11C'
  from the Select type of upgrade to be performed menu.
- **If** upgrading using the Software Daughterboard,
  select
  'New System Installation or Option 11/11E Upgrade - From Software Daughterboard'.

e) Select the feature set to be enabled.

- Select the feature set from the 'Select Feature Set You Wish to Enable' menu.

Note: The feature set selected must match the one provided with keycodes.

f) Select feature package numbers to be added, if any.

- Enter package numbers. Press <cr> twice to end package selection.

g) Select the database source.
Select one of the following from the
'Select Option 11/11E Database Source' list;

- Select
  CCBR Restore file
  if the customer database was extracted using the CCBR feature. When this selection is chosen, the Data Transfer mode is accessed. The data restoration and upgrading process is initiated by entering <cr> when prompted to do so.

  or

- Select
  Option 11/11E Software Cartridge
  if the Database Upgrade tool is being used to extract the customer database from the existing software cartridge.

h) Select the ISM parameters.

- Compare the ISM parameters with those obtained in Step 3. Make any required changes.

i) Define the new AUX ID.

- The default AUX ID is the security ID provided with the Option 11C. It should be replaced with the previous Option 11 or Option 11E site ID.

j) Confirm the information entered and enter the validation keycodes.

- A 'New Installation Information Summary' is displayed on the terminal.
- Make any necessary changes to the information then enter the keycodes.

k) Complete the software installation when prompted.

CAUTION

If YES is entered, the system will reload (SYSLOAD) to complete the installation.

17 Wait for the software installation the be completed.

18 Load overlay program 43 (LD 43) and perform a data dump.

19 If required, rearrange the tone and SDI functions.

The NTDK20 SSC card consolidates many tone functions. Refer to “Chapter 7 - Assigning TDS/DTR, XTD and SDI functions” on page 131 for further information.

End of Procedure

Upgrade with fiber optic connection

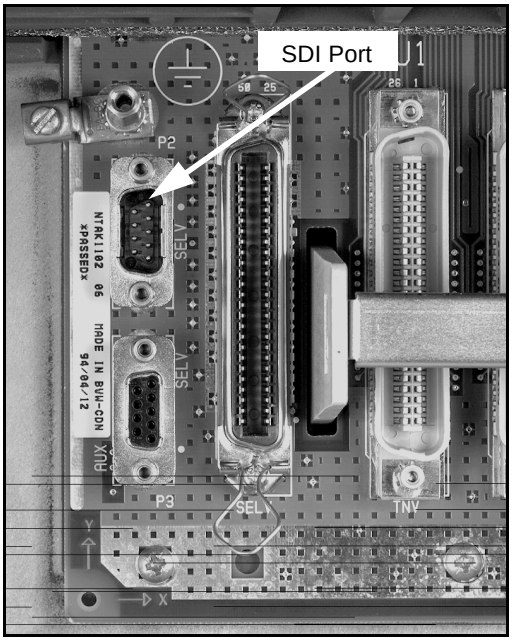
The following procedure (Procedure 4 on page 38) describes how to upgrade a two-cabinet Option 11 or Option 11E to Option 11C with fiber optic cabinet interconnection.

Procedure 4— Upgrade with fiber optic connection to Option 11C

1 Connect a TTY terminal to SDI Port 0 of the existing system.

The terminal must be connected to SDI Port 0 (see Figure 9 on page 38).

Figure 9
SDI Port 0



2 **Login to and perform a Data Dump on the existing system.**

This step must be performed. It is to make sure that any changes that were made since the last Data Dump are backed up. This is a precautionary measure in case the upgrade fails and you must revert to the former system.

a) Login to the system and load Overlay program 43 (LD 43)

b) Enter command EDD

c) Wait until the data dump is completed.

3 **Log into the system and load overlay 22 to print the ISM parameters. Make a note of the existing parameters.**

At the "REQ" prompt type "SLT" <CR> to print the ISM parameters.

The ISM parameters should also be indicated on the existing software cartridge.

4 **Disregard this step and go to Step 5 on page 40 if using the Database Upgrade Tool to extract customer database from the existing system.**
Perform this step to extract the customer data from the existing system using the CCBR feature and a PC.

a) To extract the data with the CCBR feature:

b) Using a PC, login to the existing Option 11.

c) Load overlay 43 and enter XBK to start a configuration data backup.

d) At the INFO prompt, enter a name for the file (up to 128 characters).

e) Once the backup is completed, enter XVR to verify the backed up data.

f) Once the data is verified, exit LD 43 by entering ****.

Note: Refer to the Option 11 *Customer Configuration Backup and Restore guide* for details about the CCBR feature.

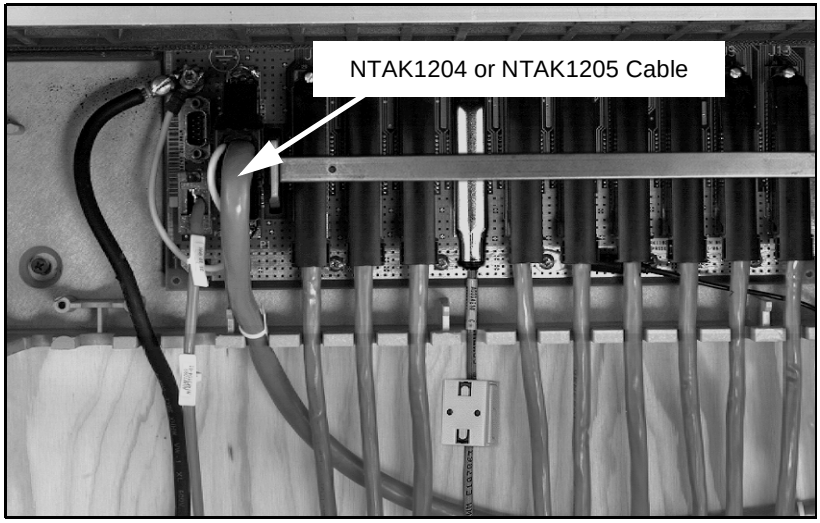
5 Disconnect the power from the main and expansion cabinets.

Set the circuit breaker switch on the front of the power supply unit in each cabinet to OFF.

If equipped with reserve battery power, set the circuit breaker switch inside the reserve battery power units to OFF.

6 Disconnect and remove the NTAK1204 or NTAK1205 cable from both cabinets (see Figure 10 on page 40).

Figure 10
NTAK1204 or NTAK1205 cable connection



7 Remove the ground connection from the ground lug in the main cabinet.

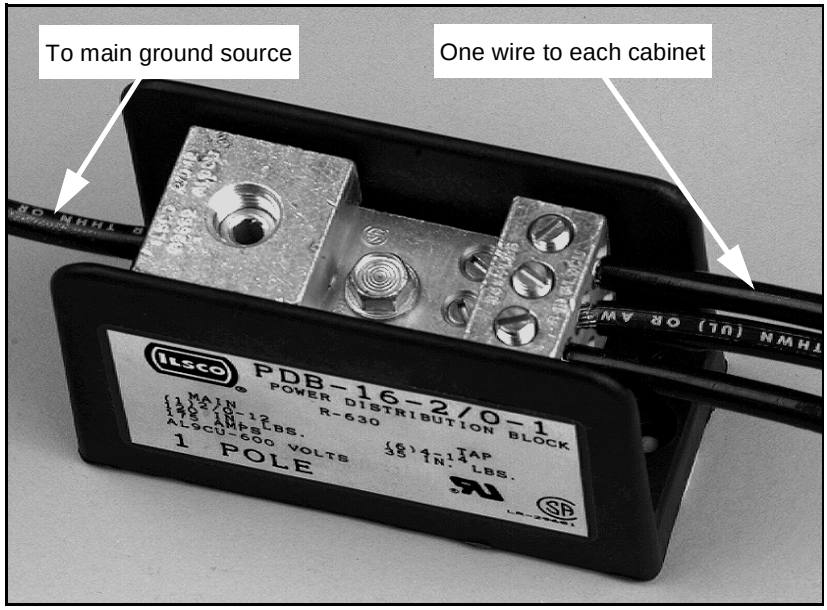
8 Install a ground block in the vicinity of the main cabinet. Re-route the ground wire to the ground block then install a ground wire from the block to the ground lug in the main cabinet (see Figure 11 on page 41).

Note: Grounding methods vary depending on the type of cross connecting terminal used. In certain cases (such as with the Krone Test Jack Frame used in some countries) an NTBK80 grounding bar may not be required. Refer to the *Option 11C Planning and Installation Guide (553-3021-210)* that came with the system for more information.

Use 6 AWG (40 Metric) ground wire. For more information on grounding, refer to the *Option 11C Planning and Installation Guide (553-3021-210).*

Note: Do not install a ground wire to the existing expansion cabinet. This will be done when the new expansion cabinet is in place.

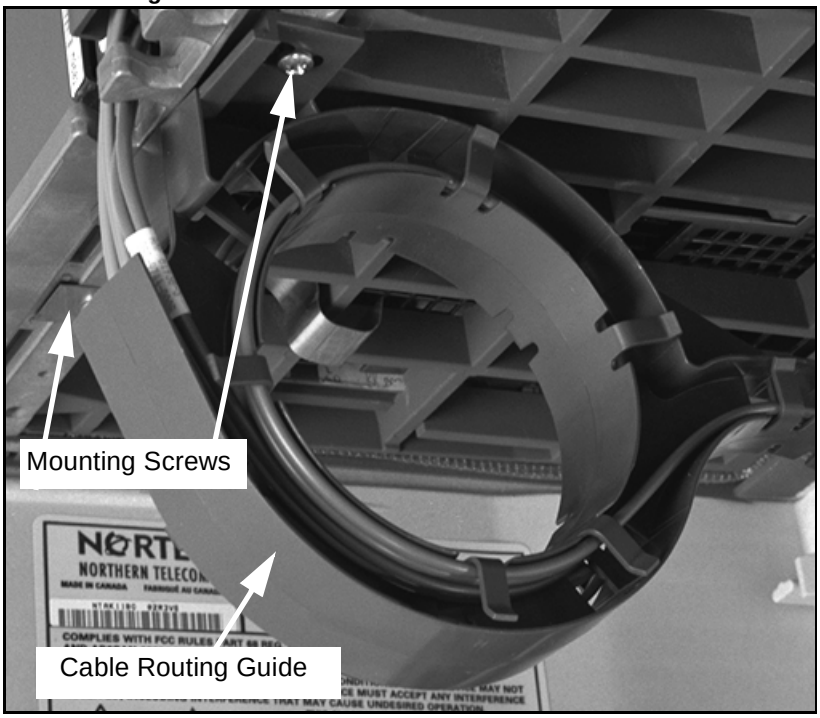
Figure 11
Ground Block



9 Install a P0816832 Fiber Routing Guide or P0888475 Multiple Cable Routing Guide beneath slot 0 (CPU) as shown in Figure 12.

The Routing Guide is designed to be mounted in the cable connector area below the circuit cards. Secure the Routing guide with the existing screws below the card slot.

Figure 12
Cable Routing Guide



10 **Remove the NTAK01 CPU/Conf or NTBK45 System Core card from the cabinet.**

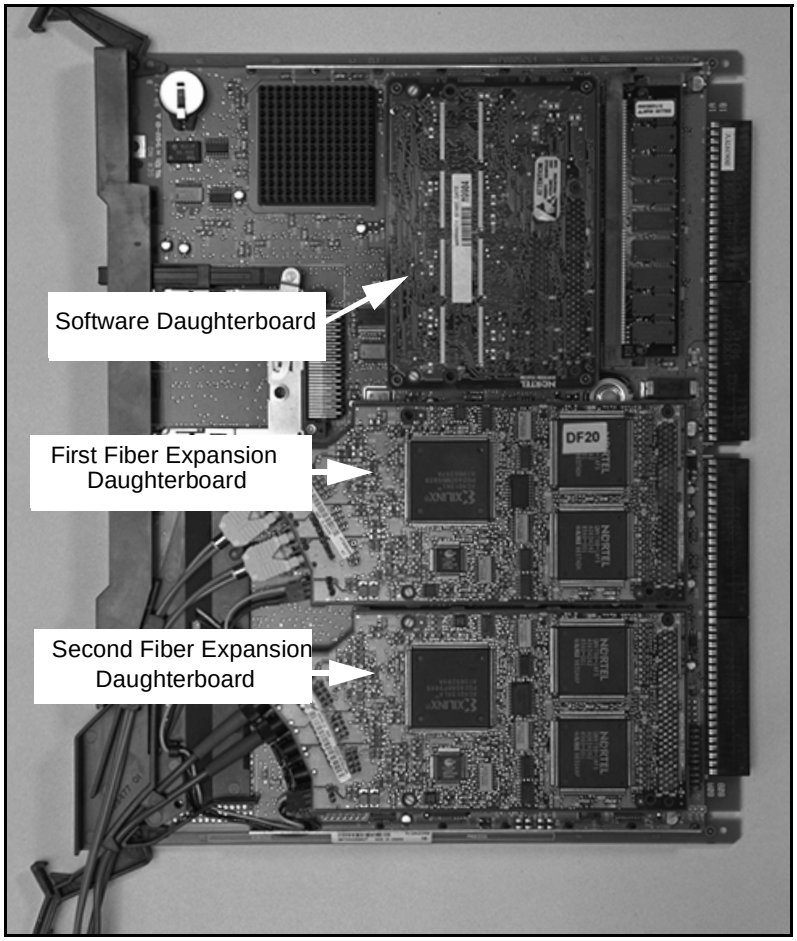
11 **Set the baud rate switches on the new NTDK20 SSC card to match the settings on the NTAK01 CPU/Conf or NTBK45 System Core card that was removed.**

12 **Install the Software Daughterboard and the Security Device on the NTDK20 SSC Card as shown in Figure 13 on page 44.**

CAUTION

The NTDK20 SSC card is equipped with components on both sides of the circuit board. Be careful not to damage any of the components when handling the card.

Figure 13
NTDK20 SSC card



13 Install a Fiber Expansion Daughterboard on the NTDK20 SSC card for the expansion cabinet (see Figure 13 on page 44).

Note: Dual port Fiber Expansion Daughterboards using glass fiber optic cable can be equipped with a Glass Fiber Extension equipped with plugs at each end to make installation easier. The extension should be connected to the daughterboard before it is installed on the SSC card.

Connect the first Fiber Expansion Daughterboard to the connector labeled ‘Fiber 1’.

Note: If a second Expansion daughterboard is to be added as part of the upgrade, it may be preferable to install it now to the connector labeled ‘Fiber 2’ to prevent additional down time later. Refer to the Option 11C Installation guide for detailed information about adding expansion cabinets to existing Option 11C systems.

14 Connect the fiber optic cable to the connector on the Fiber Expansion Daughterboard as shown in Figure 14 on page 47.

WARNING

The fiber optic interface product used in Option 11C is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

If using the A0632902 (formerly A0618443) cable, remove the two protective plugs from the Fiber Expansion Daughterboard. Connect the cable to the Fiber Expansion Daughterboard making sure that the 'V' shaped groove on the cable connector is facing outward and that the connector is fully seated.The mark (if equipped) on the connector should not be visible when properly connected. See Figure 15 on page 48.

If using glass fiber optic cable, remove the protective plug from the Fiber Expansion Daughterboard and remove the protective cap from the corresponding plug (Tx or Rx) on the glass fiber optic cable. Insert the plug in its designated connector on the daughterboard. Once inserted, lock the connector in place by turning it a half turn clockwise. See Figure 16 on page 49.
Repeat this procedure for the second fiber optic connection.

If using a glass fiber extension, connect the extension from the daughterboard to the main fiber optic cable making sure that the transmit and receive leads are not interchanged.

Figure 14
Fiber Optic Cable Connections

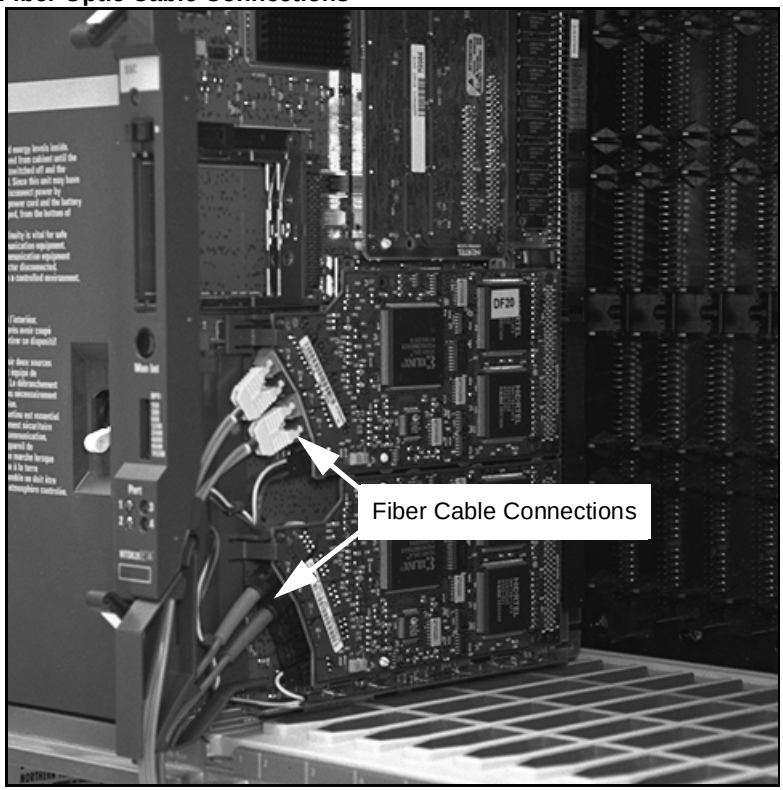


Figure 15
Plastic Fiber Optic Cable Connection

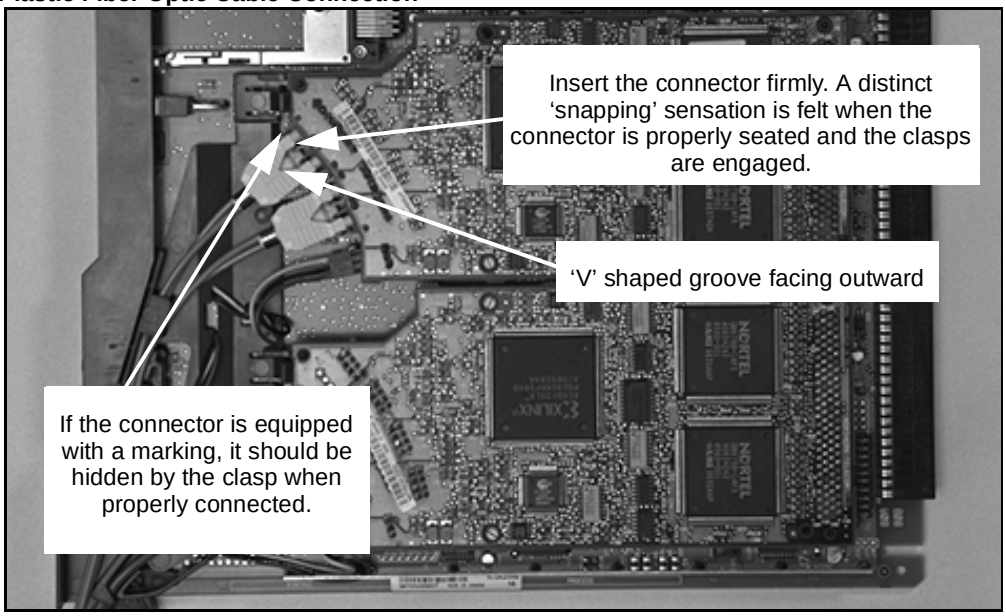
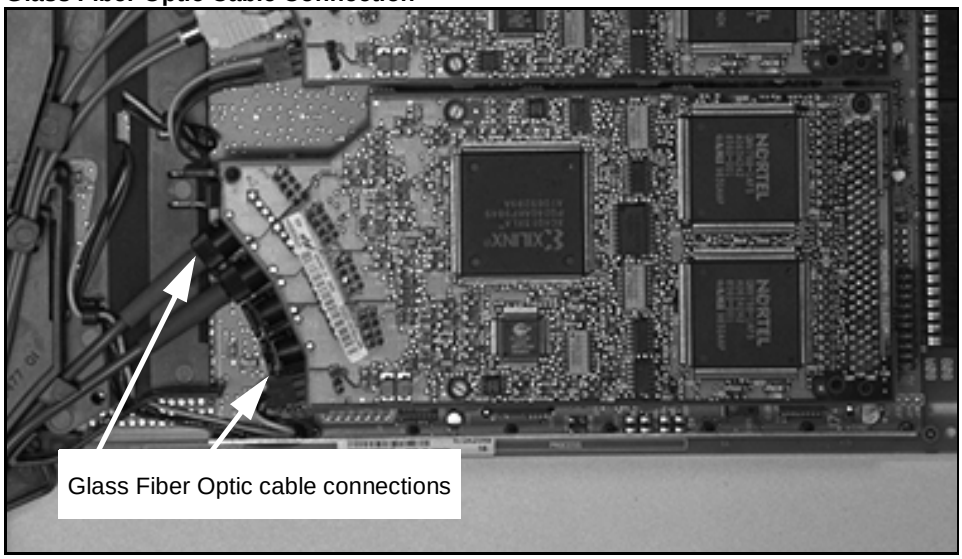


Figure 16
Glass Fiber Optic Cable Connection



15 Route each fiber optic cable through the Fiber Routing Guide.

An A0632902 (formerly A0618443) 10 m fiber optic cable is used to connect the main cabinet to an expansion cabinet located within 10 m (33 ft).

A glass fiber optic cable, supplied and installed by a local facilities provider, is required when connecting an expansion cabinet located up to (1.8 mi) from the main cabinet.

Note: Do not staple or twist fiber optic cable. Do not bend it beyond a minimum 35 mm bend radius (90° soft bend).

16 Install the new NTDK20 SSC card in the slot vacated by the NTAK01 or NTBK45 card (Slot 0).

Store the excess fiber optic cable on the Fiber Routing Guide.

17 Skip this step and go to Step 42 on page 63 if the Database Upgrade Tool is not being used to extract the customer database from the existing system.

Note: Perform this step only if the Database Upgrade Tool is to be used instead of a PC to extract the customer database from the existing system.

Install the Software Cartridge from the existing system to the Database Upgrade Tool.

a) Remove the Software Cartridge from the existing NTAK01 CPU/Conf or NTBK45 System Core card

b) Connect the Option 11 or Option 11E Software Cartridge to the connector on the Database Upgrade Tool. See Figure 17 on page 51.

c) With the software cartridge on the Database Upgrade Tool facing towards the left, insert the Database Upgrade Tool in slot B of the PCMCIA socket located in the faceplate of the NTDK20 SSC card. See Figure 18 on page 52.

Figure 17
Database Upgrade Tool

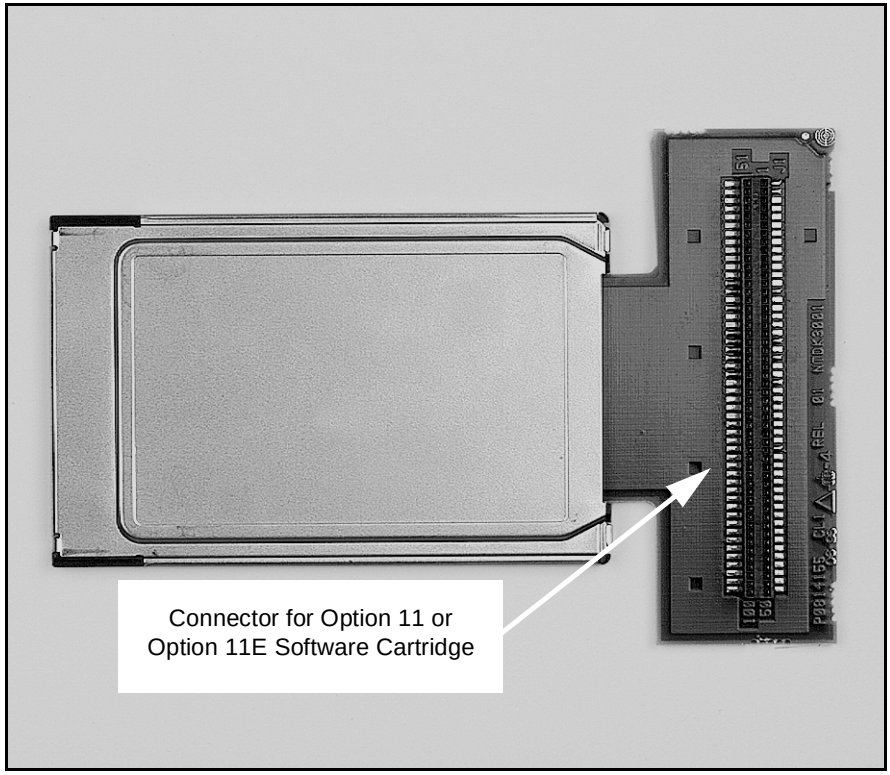
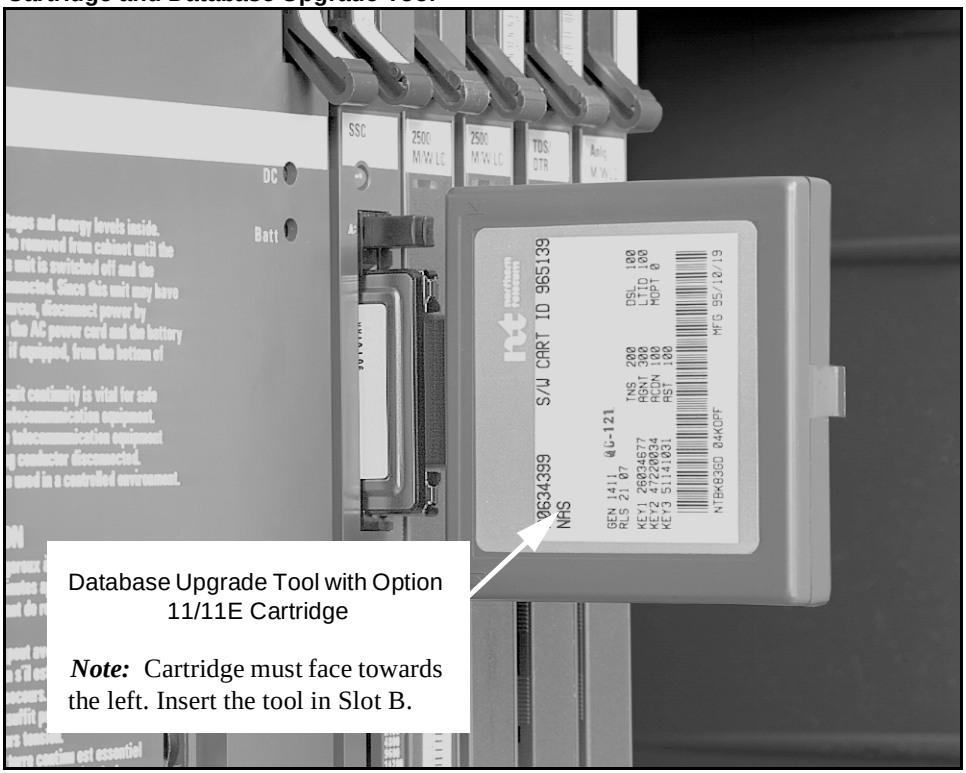


Figure 18
Cartridge and Database Upgrade Tool

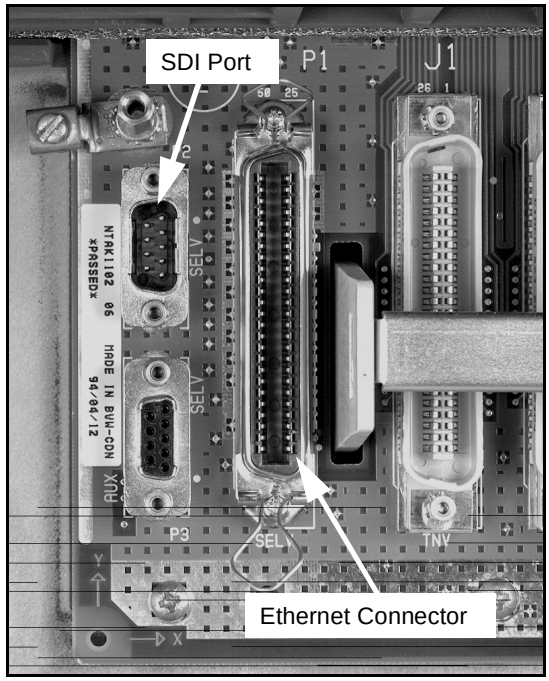


18 If not previously installed, install the NTBK48 three-port SDI cable to the SDI port. Connect the TTY terminal to the connector on the NTBK48 cable labeled 'Port 0" (see Figure 19 on page 53).

Note: Since this cable is also used with Option 11E systems, it should already be present when upgrading from Option 11E.

CAUTION
The TTY must be connected to port 0 in order to access the Software Installation Program.

Figure 19
Cable connection



19 Reconnect the power to the main cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

The Software Installation Program is invoked automatically on power up.

Note: This program is menu driven allowing the easy installation of software and customer databases in the Option 11C. It is straight forward and includes a “Help” facility to assist in making proper selections. However, if more detailed information is required, refer to the Option 11C *Planning and Installation Guide (553-3021-210)*.

20 Observe the terminal screen.

The Software Installation Program is invoked automatically on power up.

Note: This program is menu driven allowing the easy installation of software and customer databases in the Option 11C. It is straight forward and includes a “Help” facility to assist in making proper selections. However, if more detailed information is required, refer to the Option 11C *Planning and Installation Guide (553-3021-210)*.

The following is a summary of the steps described in the aforementioned guide:

a Enter the system time and date if prompted. Skip this step if the Software Installation Main Menu appears instead.

Note: The system time and date prompt appears only when the Software Installation Program detects a system year date that is not in the range of 1995-2095.

b Select the type of upgrade to be performed.

- **If** using the Software Delivery (PCMCIA) Card,
  select
  ‘System Upgrade’
  from the Software Installation Main Menu

  Then select

  ‘Option 11/11E to Option 11C’
  from the Select type of upgrade to be performed menu.
- **If** upgrading using the Software Daughterboard,
  select
  ‘New System Installation or Option 11/11E Upgrade - From Software Daughterboard’.

c) Select the feature set to be enabled.

- Select the feature set from the ‘Select Feature Set You Wish to Enable’ menu.

Note: The feature set selected must match the one provided with keycodes.

d) Select feature package numbers to be added, if any.

- Enter package numbers. Enter <cr> to end selection entry or if no packages are to be added.

e) Select the database source.
Select one of the following from the
'Select Option 11/11E Database Source' list;

- Select
CCBR Restore file
If the customer database was extracted using the CCBR feature. When this selection is chosen, the Data Transfer mode is accessed. The data restoration and upgrading process is initiated by entering <cr> when prompted to do so.

Or

- Select
Option 11/11E Software Cartridge
If the Database Upgrade tool is being used to extract the customer database from the existing software cartridge.

f) Select the ISM parameters.

- Compare the ISM parameters with those obtained in Step 3. Make any required changes.

g) Define the new AUX ID.

- The default AUX ID is the system ID provided with the Option 11C. It should be replaced with the previous Option 11 or Option 11E site ID.

h) Confirm the information entered and enter the validation keycodes.

- A 'New Installation Information Summary' is displayed on the terminal.
- Make any necessary changes to the information then enter the keycodes.

i) Complete the software installation when prompted.

21 **Wait for the software installation to be completed.**

> **CAUTION**
>
> If for any reason you must terminate the upgrade and revert back to the original Option 11 or Option 11E, do so now (see Procedure 6 on page 81). The remaining steps of this procedure involve major equipment changes making it difficult to revert back.

22 **If installed, remove the Database Upgrade Tool from the PCMCIA socket on the faceplate of the SSC card.**

23 **Select 'Utilities' from the Software Installation Main Menu and perform a backup.**

24 **Tag and disconnect all cables from connectors J11 through J20 in the expansion cabinet.**

Tag the cables J11, J12, J13 and so on.

25 **Disconnect the power connection from under the NTAK04, NTAK05, NTDK72 or NTDK78power supply unit in the expansion cabinet.**

26 **Remove the expansion cabinet from the wall (or pedestal).**

Set the cabinet aside.

27 **Mount the new NTAK11 Cabinet on the wall (or pedestal).**

If the cabinet is to be mounted on a pedestal, the door hinge opening tabs on each side of the cabinet must first be removed with a pair of pliers as shown in Figure 20 on page 57.

Figure 20
Door hinge opening

28 Connect a 6 AWG ground (40 Metric) ground wire from the ground lug in the expansion cabinet to the ground block installed in Step 8 on page 41.

29 Install a Fiber Routing Guide beneath slot 0 (Fbr Rx) as shown in Figure 12 on page 42.

The Fiber Routing Guide is designed to be mounted in the cable connector area below the circuit cards. Secure the Router with the existing screws below the card slot.

30 Reconnect all the cables that were tagged and disconnected from the old cabinet in Step 24 on page 56.

Note that the connectors in the cabinet for cables going to the cross connect terminal are numbered J1 to J10 (instead of J11 to J20 as in the old expansion cabinet). The tagged cables should now be connected as shown in the following table:

Table 1
Cable tags and connectors

Tag on cable	Connect to connector
J11	J1
J12	J2
J13	J3
J14	J4
J15	J5
J16	J6
J17	J7
J18	J8
J19	J9
J20	J10

31 Route the fiber optic cable from the main cabinet through the cable entry area of the expansion cabinet.

32 Put on the antistatic wrist strap located in the expansion cabinet.

33 Locate the Fiber Receiver card.

Note: Use an NTDK23 Fiber Receiver card is when the expansion cabinet is within 10 m (33 ft) of the main cabinet and is connected with an A0632902 (formerly A0618443) plastic fiber optic cable. Use an NTDK25 (Multimode) or NTDK89 (Single Mode) Fiber Receiver card if the expansion cabinet is to be connected with glass fiber optic cable up to 3 km (1.8 mi) of the main cabinet.

34 Connect the fiber optic cable to the Fiber Receiver card as shown in Figure 21 on page 60.

WARNING

The fiber optic interface product used in Option 11C is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

If using the A0632902 (formerly A0618443) cable, remove the two protective plugs from the Fiber Receiver card.
Connect the cable to the Fiber Receiver card making sure that the 'V' shaped groove on the cable connector is facing inward and that the connector is fully seated. See Figure 22 on page 61.
The mark (if equipped) on the connector should not be visible when properly connected.

If using glass fiber optic cable, remove the protective plug from the Fiber Receiver card and remove the protective cap from the corresponding plug (Tx or Rx) on the fiber optic cable.
Insert the plug in its designated connector on the Fiber Receiver card. Once inserted, lock the connector in place by turning it a half turn clockwise. See Figure 23 on page 62.
Repeat this procedure for the second fiber optic connection.

Once connected, wind excess fiber optic cable around the spool on the Fiber Receiver card. Leave enough slack to insert and remove the Fiber Receiver card from its slot.

Figure 21
Fiber optic cable (A0632902 shown) connector on Fiber Receiver card

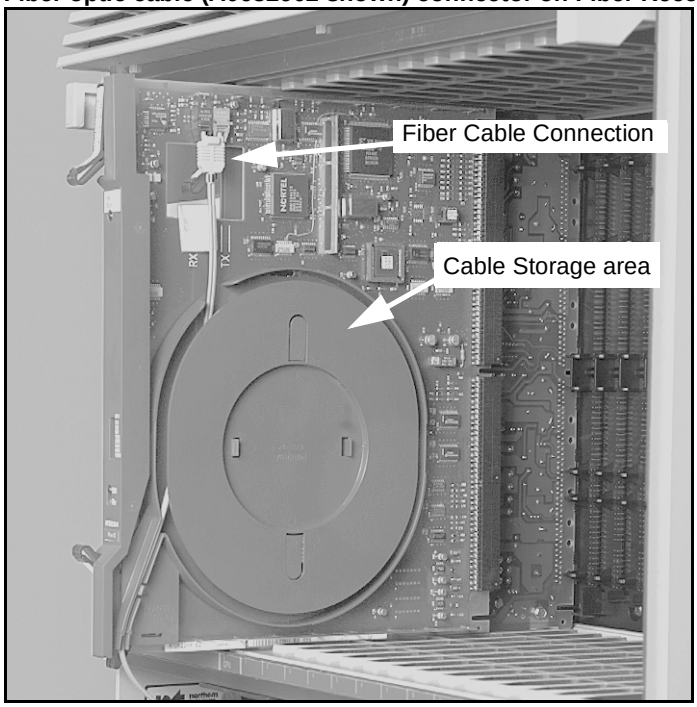


Figure 22
Plastic fiber optic cable connection

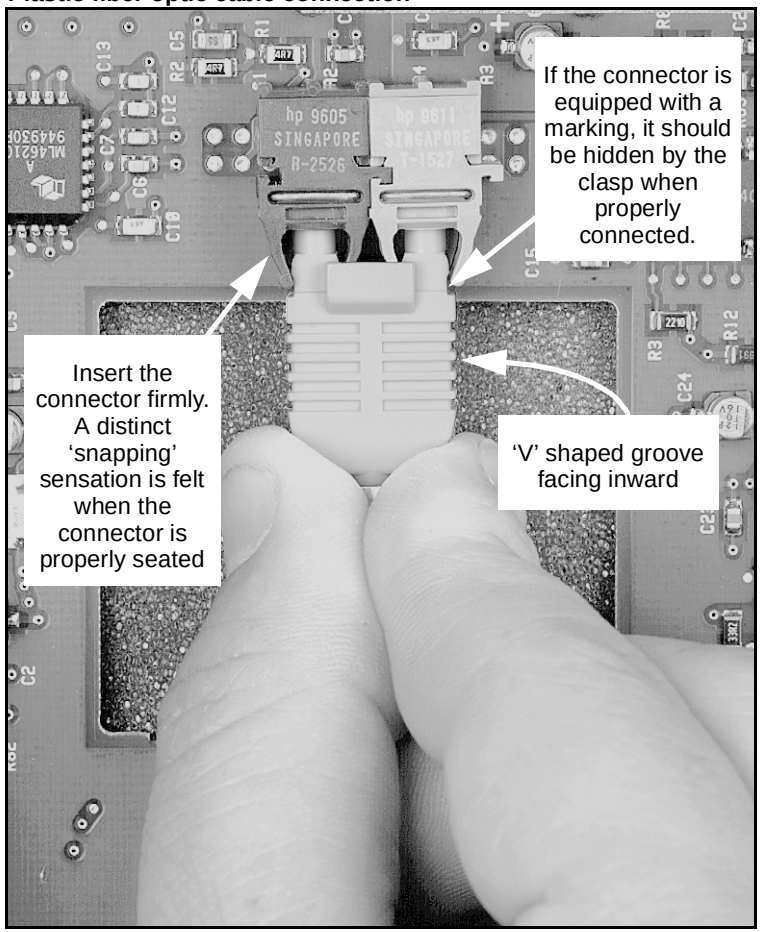
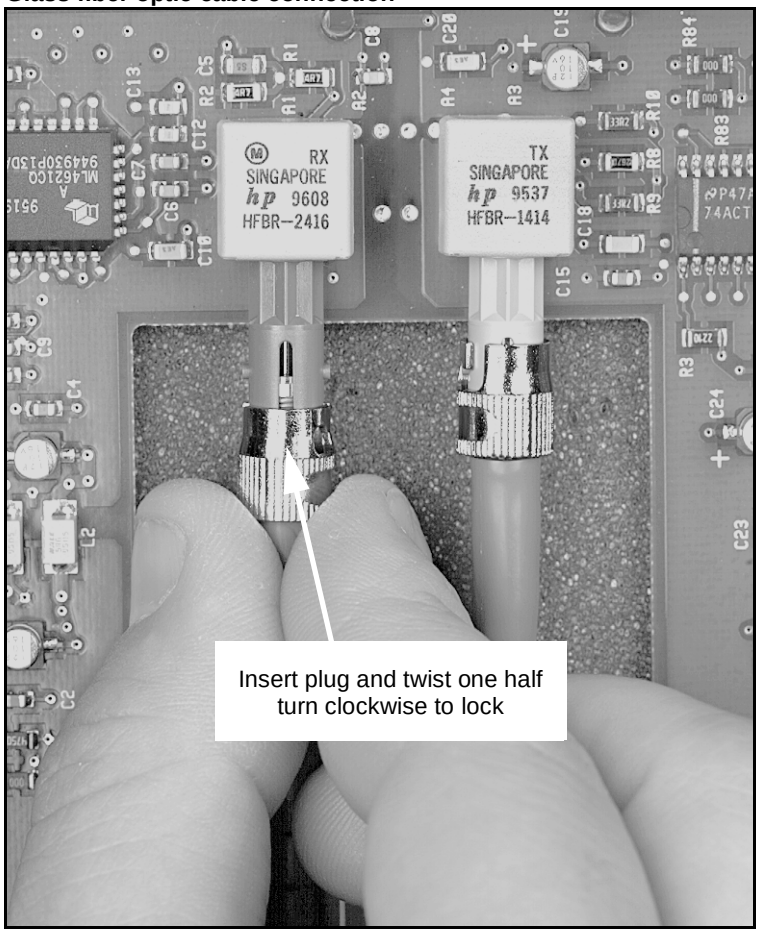


Figure 23
Glass fiber optic cable connection



35 **Install the Receiver card in the slot designated Fbr Rcvr.**

Wind the slack fiber optic cable around the Fiber Routing Guide once.

36 **Remove the NTAK04, NTDK78, NTAK05 or NTDK72 power supply from the old cabinet and install it in the new expansion cabinet. Connect the power cord to the bottom of the power supply unit.**

37 **Remove any circuit cards that are to be retained from the old expansion cabinet and install in the corresponding slots in the new cabinet.**

38 Connect the power to the expansion cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

39 Check the fiber related LEDs on the SSC card.

The LED for the equipped Expansion Daughterboard should be **green**.

If it is **red** (disabled indication);
Load overlay program 135 and enter ENL FL1 to enable expansion cabinet 1 (or ENL FL2 for expansion cabinet 2, if equipped).

If the LED is **yellow** (fault indication):
Check all fiber optic cable to make sure that it is properly connected and not damaged. If the LED remains yellow, go to the *Option 11C fault Clearing Guide.*

40 If required, rearrange the tone and SDI functions.

The NTDK20 SSC card consolidates many tone functions. Refer to “Chapter 7 - Assigning TDS/DTR, XTD and SDI functions” on page 131 for further information.

41 If required, install the single port TTY cable in the expansion cabinet (Figure 19 on page 53).

42 If the optional NTDK27 Ethernet cable is required, connect it to the expansion connector in the main cabinet (see Figure 19 on page 53).

End of Procedure

Upgrade to fiber optic connection on a previously upgraded Option 11C without fiber connection

The following procedure (Procedure 5 on page 64) describes how to upgrade to a fiber optic connection a two cabinet system that was previously upgraded to Option 11C,but remained connected to the expansion cabinet with an NTAK1204 or NTAK1205 intercabinet cable.

Procedure 5—Upgrading to fiber optic connection

1 Login and perform a Data Dump on the existing system.

This step must be performed. It is to make sure that any changes that were made since the last Data Dump are backed up.

a) Login to the system and load Overlay program 43 (LD 43)

b) Enter command EDD

c) Wait until the data dump is completed.

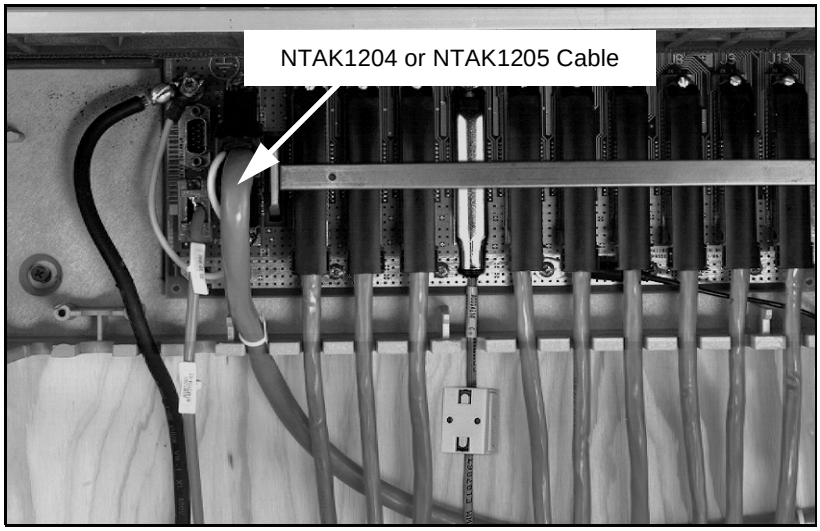
2 Disconnect the power from the main and expansion cabinets.

Set the circuit breaker switch on the front of the power supply unit in each cabinet to OFF.

If equipped with reserve battery power, set the circuit breaker switch inside the reserve battery power units to OFF.

3 Disconnect and remove the NTAK1204 or NTAK1205 cable from both cabinets (see Figure 24 on page 65).

Figure 24
NTAK1204 or NTAK1205 cable connection



4 **Remove the ground connection from the ground lug in the main cabinet.**

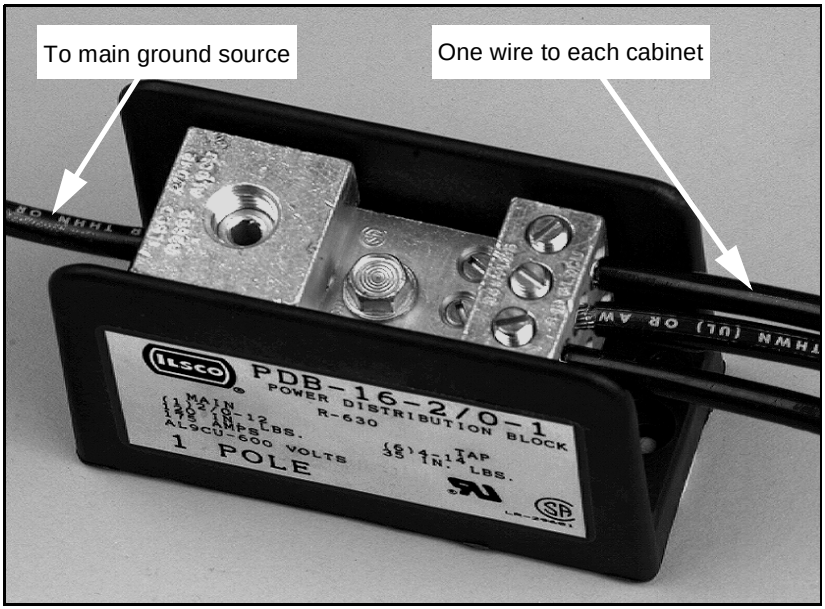
5 **Install a ground block in the vicinity of the main cabinet. Re-route the ground wire to the ground block then install a ground wire from the block to the ground lug in the main cabinet (see Figure 25 on page 66).**

Note: Grounding methods vary depending on the type of cross connecting terminal used. In certain cases (such as with the Krone Test Jack Frame used in some countries) an NTBK80 grounding bar may not be required. Refer to the Option 11C *Planning and Installation Guide (553-3021-210)* that came with the system for more information.

Use 6 AWG (40 Metric) ground wire. For more information on grounding, refer to the Option 11C *Planning and Installation Guide (553-3021-210)*.

Note: Do not install a ground wire to the existing expansion cabinet. This will be done when the new expansion cabinet is in place.

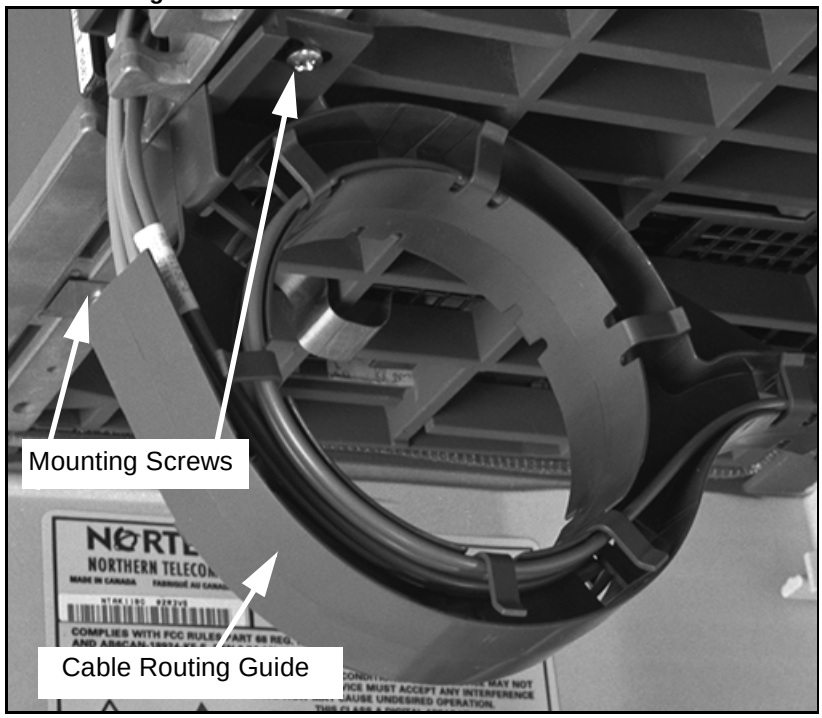
Figure 25
Ground Block



6 Install a Cable Routing Guide beneath slot 0 (CPU) as shown in Figure 26.

The Routing Guide is designed to be mounted in the cable connector area below the circuit cards. Secure the Routing guide with the existing screws below the card slot.

Figure 26
Cable Routing Guide



7 Put on the antistatic strap located in the main cabinet.

8 Remove the NTDK20 SSC card from the main cabinet and install a Fiber Expansion Daughterboard for the expansion cabinet (see Figure 27 on page 69).

CAUTION

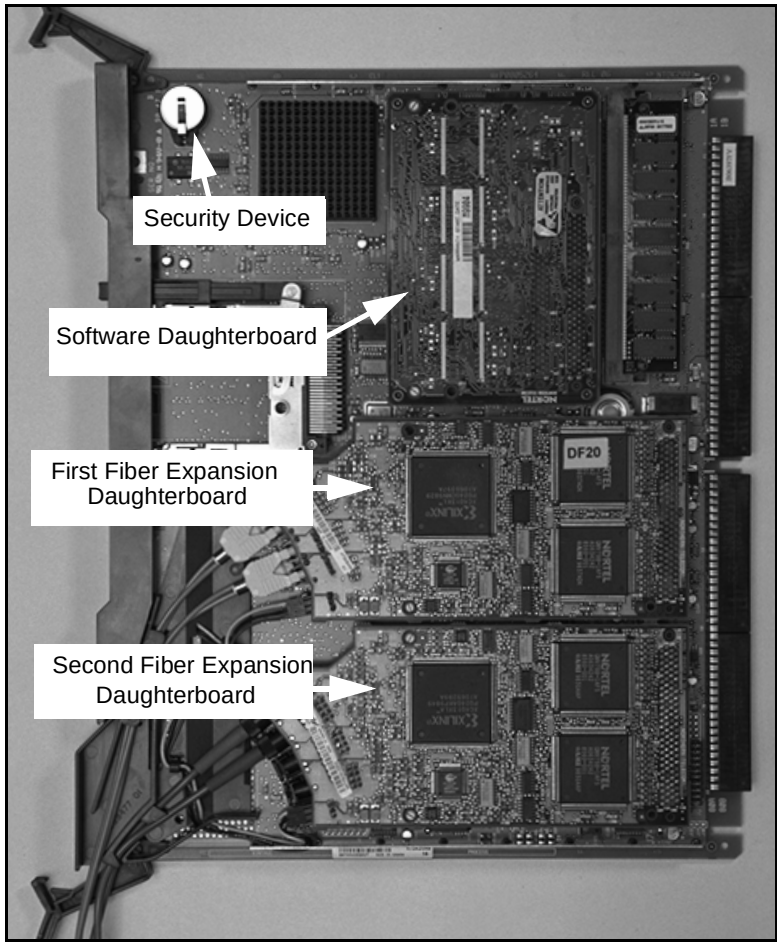
The NTDK20 SSC card is equipped with components on both sides of the circuit board. Be careful not to damage any of the components when handling the card.

Note: Dual port Fiber Expansion Daughterboards using glass fiber optic cable can be equipped with a Glass Fiber Extension equipped with plugs at each end to make installation easier. The extension should be connected to the daughterboard before it is installed on the SSC card.

Connect the first Fiber Expansion Daughterboard to the connector labeled 'Fiber 1'.

Note: If a second expansion daughterboard is to be added as part of the upgrade, it may be preferable to install it now to the connector labeled 'Fiber 2' to prevent additional down time later. Refer to the Option 11C Installation guide for detailed information about adding expansion cabinets to existing Option 11C systems.

Figure 27
NTDK20 SSC card



9 Connect the fiber optic cable to the connector on the Fiber Expansion Daughterboard as shown in Figure 28 on page 71 .

WARNING

The fiber optic interface product used in Option 11C is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

If using the A0632902 (formerly A0618443) cable, remove the two protective plugs from the Fiber Expansion Daughterboard. Connect the cable to the Fiber Expansion Daughterboard making sure that the 'V' shaped groove on the cable connector is facing outward and that the connector is fully seated.The mark (if equipped) on the connector should not be visible when properly connected. See Figure 29 on page 72.

If using glass fiber optic cable, remove the protective plug from the Fiber Expansion Daughterboard and remove the protective cap from the corresponding plug (Tx or Rx) on the glass fiber optic cable. Insert the plug in its designated connector on the daughterboard. Once inserted, lock the connector in place by turning it a half turn clockwise. See Figure 30 on page 73.
Repeat this procedure for the second fiber optic connection.

If using a glass fiber extension, connect the extension from the daughterboard to the main fiber optic cable making sure that the transmit and receive leads are not interchanged.

Figure 28
Fiber Optic Cable Connection on Dual Port daughterboards

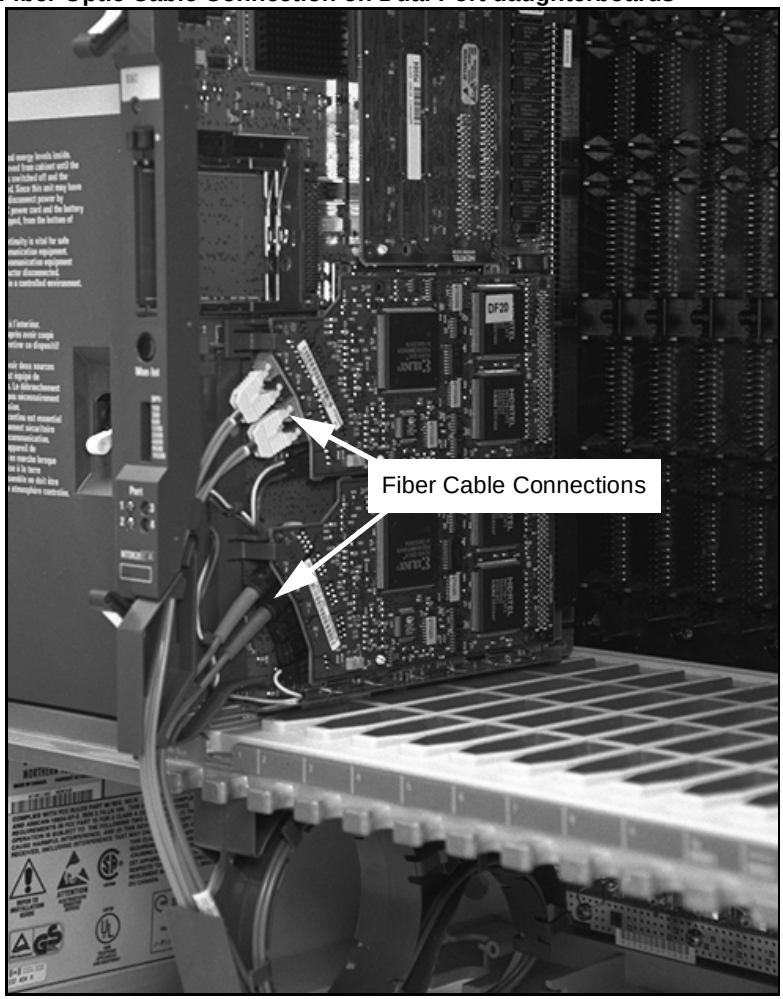


Figure 29
Plastic Fiber Optic Cable Connection

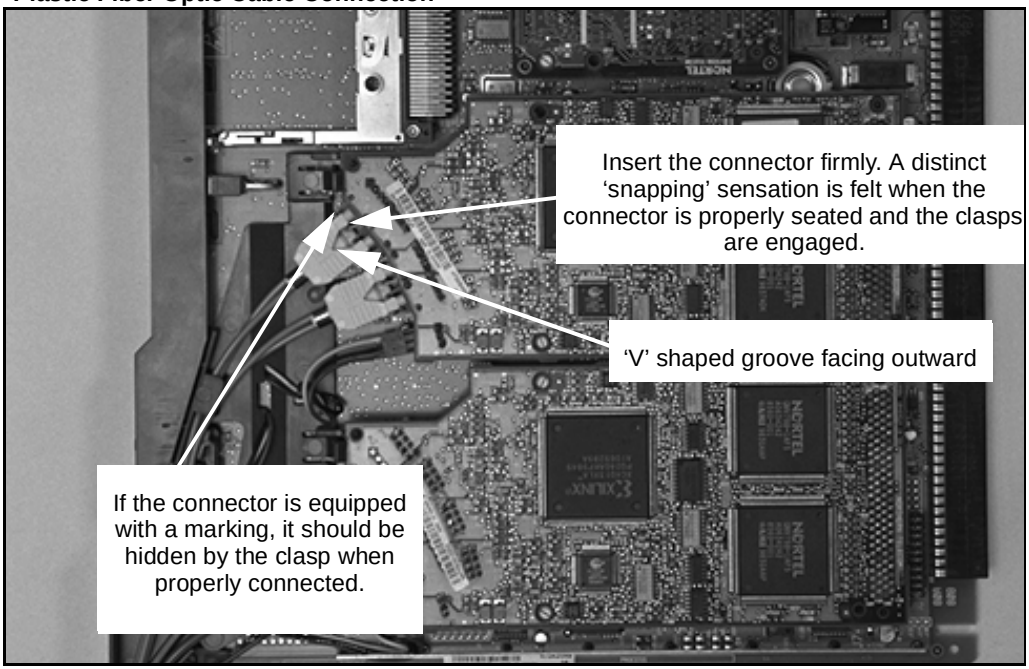
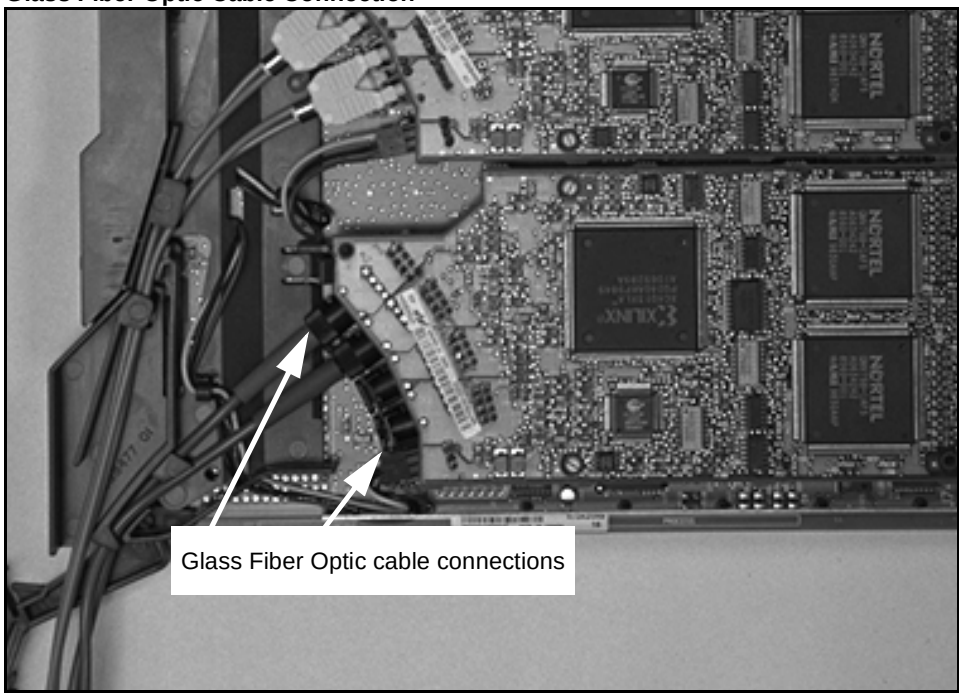


Figure 30
Glass Fiber Optic Cable Connection



10 Route each fiber optic cable through the Fiber Routing Guide.

An A0632902 (formerly A0618443) 10 m fiber optic cable is used to connect the main cabinet to an expansion cabinet located within 10 m (33 ft).

A glass fiber optic cable, supplied and installed by a local facilities provider, is required when connecting an expansion cabinet located up to (1.8 mi) from the main cabinet.

Note: Do not staple or twist fiber optic cable. Do not bend it beyond a minimum 35 mm bend radius (90° soft bend).

11 Install the new NTDK20 SSC card in its slot (Slot 0).

Store the excess fiber optic cable on the Fiber Routing Guide.

12 Reconnect the power to the main cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

13 Wait for the system reload (SYSLOAD) to be completed.

14 Tag and disconnect all cables from connectors J11 through J20 in the expansion cabinet.

Tag the cables J11, J12, J13 and so on.

15 Disconnect the power connection from under the NTAK04, NTAK05, NTDK72 or NTDK78 power supply unit in the expansion cabinet.

16 Remove the expansion cabinet from the wall (or pedestal).

Set the cabinet aside.

17 Mount the new NTAK11 Cabinet on the wall (or pedestal).

If the cabinet is to be mounted on a pedestal, the door hinge opening tabs on each side of the cabinet must first be removed with a pair of pliers as shown in Figure 31 on page 74.

Figure 31
Door hinge opening

18 Connect a 6 AWG ground (40 Metric) ground wire from the ground lug in the expansion cabinet to the ground block installed in Step 5 on page 66.

19 Install a Fiber Routing Guide beneath slot 0 (Fbr Rx) as shown in Figure 26 on page 67.

The Fiber Routing Guide is designed to be mounted in the cable connector area below the circuit cards. Secure the Router with the existing screws below the card slot.

20 Reconnect all the cables that were tagged and disconnected from the old cabinet in Step 14 on page 74.

Note that the connectors in the cabinet for cables going to the cross connect terminal are numbered J1 to J10 (instead of J11 to J20 as in the old expansion cabinet). The tagged cables should now be connected as shown in the following table:

Table 2
Tagged cable connections

Tag on cable	Connect to connector
J11	J1
J12	J2
J13	J3
J14	J4
J15	J5
J16	J6
J17	J7
J18	J8
J19	J9
J20	J10

21 Route the fiber optic cable from the main cabinet through the cable entry area of the expansion cabinet.

22 Put on the antistatic wrist strap located in the expansion cabinet.

23 Locate the Fiber Receiver card.

Note: Use an NTDK23 Fiber Receiver card is when the expansion cabinet is within 10 m (33 ft) of the main cabinet and is connected with an A0632902 (formerly A0618443) plastic fiber optic cable. Use an NTDK25 (Multimode) or NTDK80 (Single Mode) Fiber Receiver card if the expansion cabinet is to be connected with glass fiber optic cable up to 3 km (1.8 mi) of the main cabinet.

24 Connect the fiber optic cable to the Fiber Receiver card as shown in Figure 32 on page 77.

WARNING

The fiber optic interface product used in Option 11C is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

If using the A0632902 (formerly A0618443) cable, remove the two protective plugs from the Fiber Receiver card.
Connect the cable to the Fiber Receiver card making sure that the 'V' shaped groove on the cable connector is facing inward and that the connector is fully seated. See Figure 33 on page 78.
The mark (if equipped) on the connector should not be visible when properly connected.

If using glass fiber optic cable, remove the protective plug from the Fiber Receiver card and remove the protective cap from the corresponding plug (Tx or Rx) on the fiber optic cable.
Insert the plug in its designated connector on the Fiber Receiver card. Once inserted, lock the connector in place by turning it a half turn clockwise. See Figure 34 on page 79.
Repeat this procedure for the second fiber optic connection.

Once connected, wind excess fiber optic cable around the spool on the Fiber Receiver card. Leave enough slack to insert and remove the Fiber Receiver card from its slot.

Figure 32
Fiber optic cable (A0632902 shown) connector on Fiber Receiver card

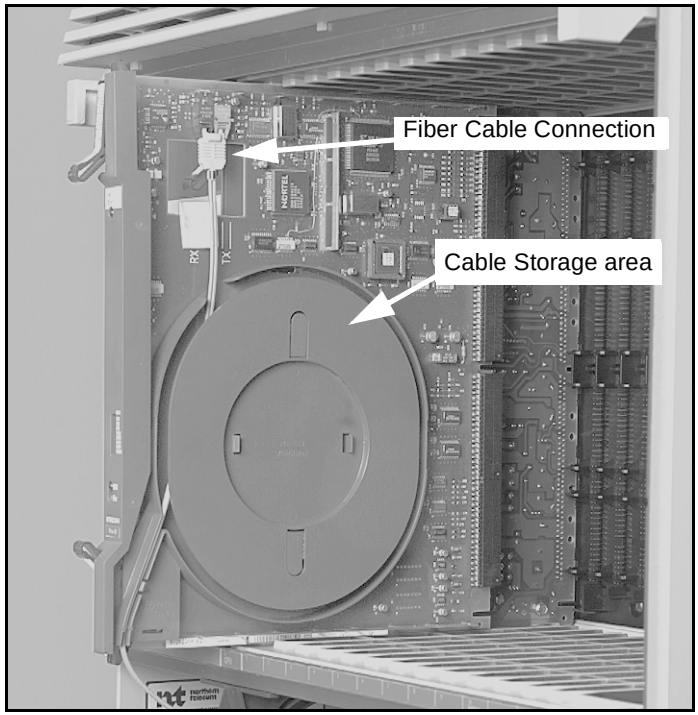


Figure 33
Plastic fiber optic cable connection

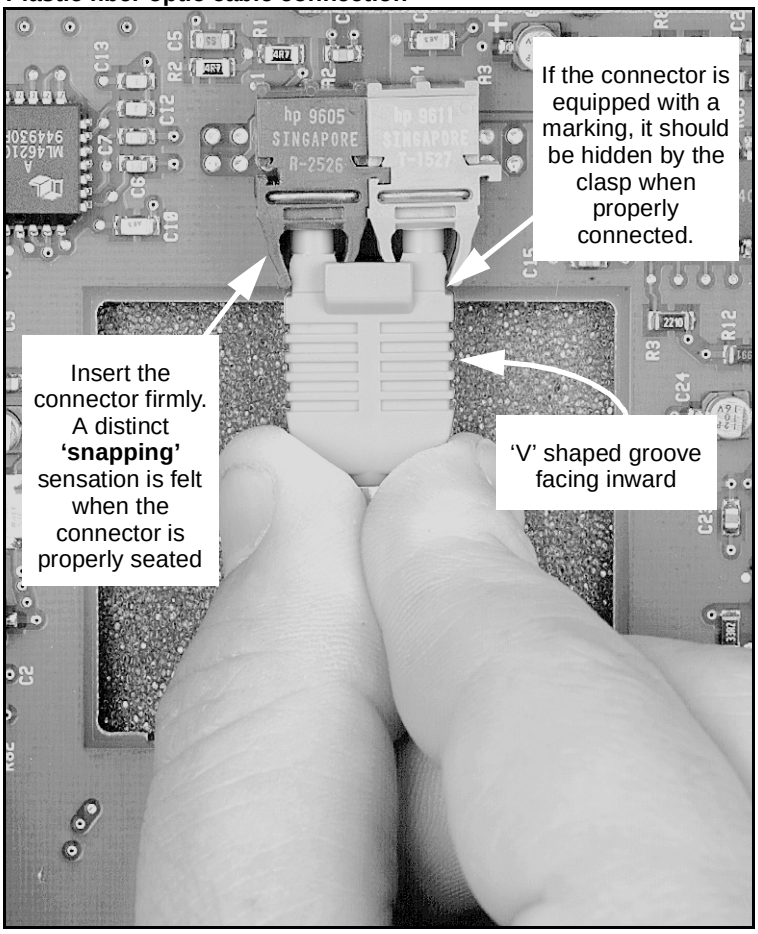
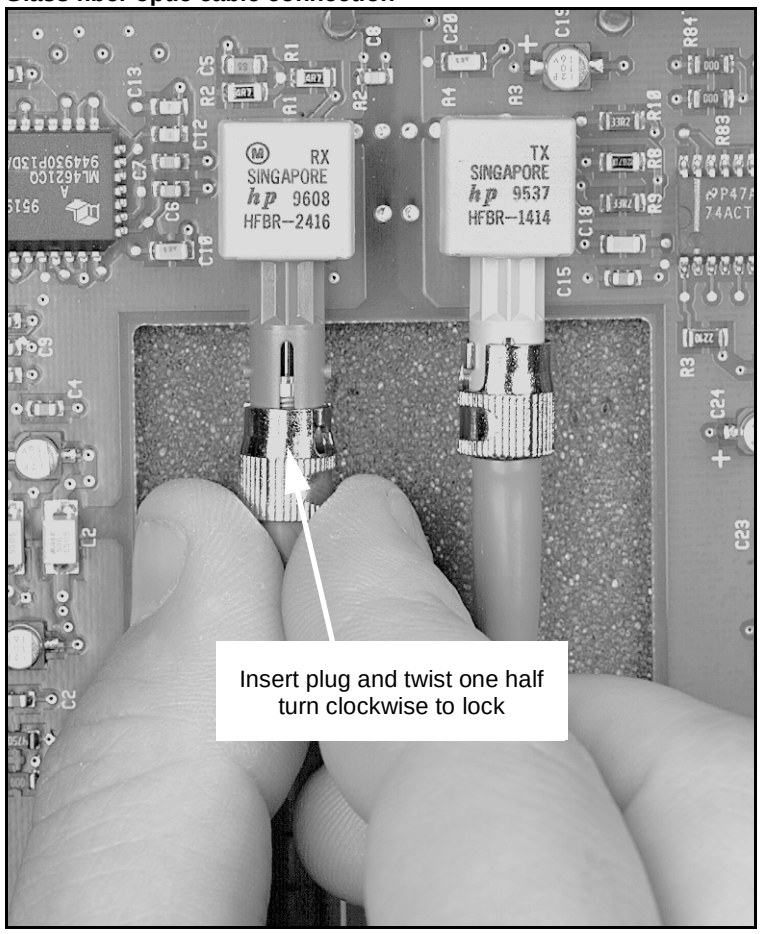


Figure 34
Glass fiber optic cable connection



25 **Install the Receiver card in the slot designated Fbr Rcvr.**

Wind the slack fiber optic cable around the Fiber Routing Guide once.

26 **Remove the NTAK04, NTAK05, NTDK72 or NTDK78 power supply from the old cabinet and install it in the new expansion cabinet.**

Connect the power cord to the bottom of the power supply unit.

27 Remove any circuit cards that are to be retained from the old expansion cabinet and install in the corresponding slots in the new cabinet.

28 Connect the power to the expansion cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

29 Check the fiber related LEDs on the SSC card.

The LED for the equipped Expansion Daughterboard should be **green**.

If it is **red** (disabled indication);
Load overlay program 135 and enter ENL FL1 to enable expansion cabinet 1 (or ENL FL2 for expansion cabinet 2, if equipped).

If the LED is **yellow** (fault indication):
Check all fiber optic cable to make sure that it is properly connected and not damaged. If the LED remains yellow, go to the *Option 11C fault Clearing Guide.*

30 If the optional NTDK27 Ethernet cable is required, connect it to the expansion connector in the main cabinet (see Figure 19 on page 53).

———————— ***End of Procedure*** ————————

Restoring data due to an upgrade failure

This section explains how to revert back to an Option 11 or Option 11E in the event that the upgrade attempt failed. To revert back, the Option 11 NTAK01 CPU/Conf card or Option 11E NTBK45 System Core card and the software cartridge is inserted back into slot 0 of the main cabinet and the system is reloaded.

Procedure 6— Reverting

1 **Remove all power from the system**

2 **Reconnect the NTAK1204 or NTAK1205 intercabinet cable (if it was previously disconnected).**

3 **Remove the NTBK20 SSC card from slot 0 in the main cabinet.**

4 **If previously removed, attach the software cartridge to the NTAK01 CPU/Conf card or NTBK45 System Core card.**

5 **Insert the NTAK01 CPU/Conf card or the NTBK45 System Core card in slot 0 and power up the system.**

6 **Restore the NTAK1118 SDI cable if previously equipped.**

——————————— ***End of Procedure*** ———————————

Chapter 4 - Upgrading an Option 11E with fiber optic cable to Option 11C

General information

This chapter describes how to upgrade an existing two- or three-cabinet Option 11E interconnected with NTBK78 (A0618443 or A0632902) fiber optic cables.

Summary of items required

The the existing NTAK12 expansion cabinets used with the Option 11E cannot be reused with the Option 11C. These cabinets must be removed and replaced with NTAK11 cabinets. However, the main cabinet, power supply and all IPE circuit cards can be retained and used in the new system.

The following items are required to complete this upgrade:

- One NTDK20 Small System Controller (SSC) card

  Note: An NTDK20CA or later version of SSC card is required if dual port expansion daughterboards are used.

- Security Device
- Keycode Data Sheet
- A Personal Computer (PC) equipped with XModem CRC software in order to run the CCBR X11 feature to extract the customer data from the existing system
  or
  A Database Upgrade Tool to extract the customer data from the cartridge on the existing system

  Note: The PC can be on site or located remotely.

- One NTAK11 cabinet for each existing NTAK12 expansion cabinet
- One Fiber Routing Guide for each cabinet
- One NTDK22 Single Port or NTDK84 Dual Port Fiber Expansion Daughterboard
- One NTDK79 Single Port or NTDK85 Dual Port Fiber Expansion Daughterboard

  Note: NTDK22 or NTDK84 Fiber Expansion Daughterboard is used when the expansion cabinet is within 10 m (33 ft) of the main cabinet. Use an NTDK24 (Multimode) or NTDK79 (Single Mode) or NTDK85 (Multimode) Fiber Expansion Daughterboard if the expansion cabinet is to be relocated up to 3 km (1.8 mi) of the main cabinet.

- One NTDK23 Fiber Receiver card

  Note: NTDK23 Fiber Receiver card is used when the expansion cabinet is within 10 m (33 ft) of the main cabinet. Use an NTDK25 (Multimode) or NTDK80 (Single Mode) Fiber Receiver card if the expansion cabinet is to be relocated up to 3 km (1.8 mi) of the main cabinet.

- One A0632902 (formerly A0618443) Fiber Optic cable (only required with the NTDK22)

  Note: This cable is only used with the NTDK22 or NTDK84 daughterboard for distances up to 10 m (33 ft). A locally provided duplex glass fiber optic cable is required for distances up to 3 km (1.8 mi).

- A Software Daughterboard

  Note: Release 24 or later software is required if dual port expansion daughterboards are being installed as part of the upgrade.

- One NTDK27 Ethernet cable (optional)
- One NTAK1118 Single Port SDI cable for each expansion cabinet (optional).

Upgrading to Option 11C

Summary of steps

The following list is a summary of the steps which should be followed when upgrading a two- or three-cabinet Option 11E to Option 11C:

- Perform a data dump (EDD) on the existing system
- Extract the customer data from the existing system using the CCBR feature (unless the Database Upgrade Tool is being used)
- Disconnect the NTAK1204 or NTAK1205 cables from the main cabinet
- Install the NTDK20 Small System Controller (SSC) card with Fiber Expansion Daughterboard
- Load the new system software and customer data in the system
- Replace the existing expansion cabinets with an NTAK11 cabinets
- Connect the expansion cabinet to the main cabinet.

Expansion cabinets and other additional equipment

This chapter does not describe the installation of additional expansion cabinets or of additional equipment such as line cards. If additional expansion cabinets or other equipment is to be added as part of the upgrade to Option 11C, complete the upgrade as described in this chapter first. Once the system has been upgraded, refer to the Option 11C *Planning and Installation Guide (553-3021-210)* for information about adding expansion cabinets and other equipment to an existing Option 11C system.

Upgrade procedure

The following procedure (Procedure 7 on page 86) describes how to upgrade a two- or three- cabinet Option 11 or Option 11E to Option 11C with fiber optic cabinet interconnection.

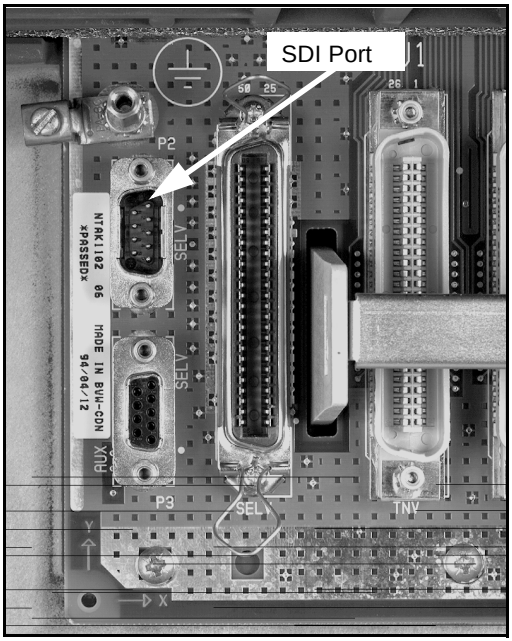
Procedure 7— Upgrading Option 11E to Option 11C

1 Connect a TTY terminal to SDI Port 0 of the existing system.

CAUTION

The TTY must be connected to SDI Port 0 (see Figure 35 on page 86) in order to access the Software Installation Program later in this procedure.

Figure 35
SDI Port 0



2 Login to the system and perform a Data Dump on the existing system.

This step must be performed. It is to make sure that any changes that were made since the last Data Dump are backed up. This is a precautionary measure in case the upgrade fails and you must revert to the former system.

a) Load Overlay program 43 (LD 43)

b) Enter command EDD

c) Once the Data Dump is completed, exit LD 43 by entering ****.

3 Load overlay program 22 (LD 22) and print the ISM parameters. Make a note of the existing parameters.

At the "REQ" prompt type "SLT" <CR> to print the ISM parameters.

The ISM parameters should also be indicated on the existing software cartridge.

4 Disregard this step and go to Step 5 on page 88 if using the Database Upgrade Tool to extract customer database from the existing system.
Perform this step to extract the customer data from the existing system using the CCBR feature and a PC.

To extract the data with the CCBR feature:

a) Using a PC, login to the existing Option 11.

b) Load overlay 43 and enter XBK to start a configuration data backup.

c) At the INFO prompt, enter a name for the file (up to 128 characters).

d) Once the backup is completed, enter XVR to verify the backed up data.

e) Once the data is verified, exit LD 43 by entering ****.

Note: Refer to the Option 11 *Customer Configuration Backup and Restore guide* for details about the CCBR feature.

5 **Disconnect the power from the main and expansion cabinets.**

Set the circuit breaker switch on the front of the power supply unit in each cabinet to OFF.

If equipped with reserve battery power, set the circuit breaker switch inside the reserve battery power units to OFF.

6 **Disconnect the NTAK78 fiber optic cables from the MFI unit in the main cabinet (one for each expansion cabinet).**

Note: Do not remove this cable. It will be required for the new expansion cabinet.

7 **Disconnect the NTBK62 fiber power cable from the MFI unit, from the cable to the battery backup unit (if provided) and from under the Power Supply unit.**

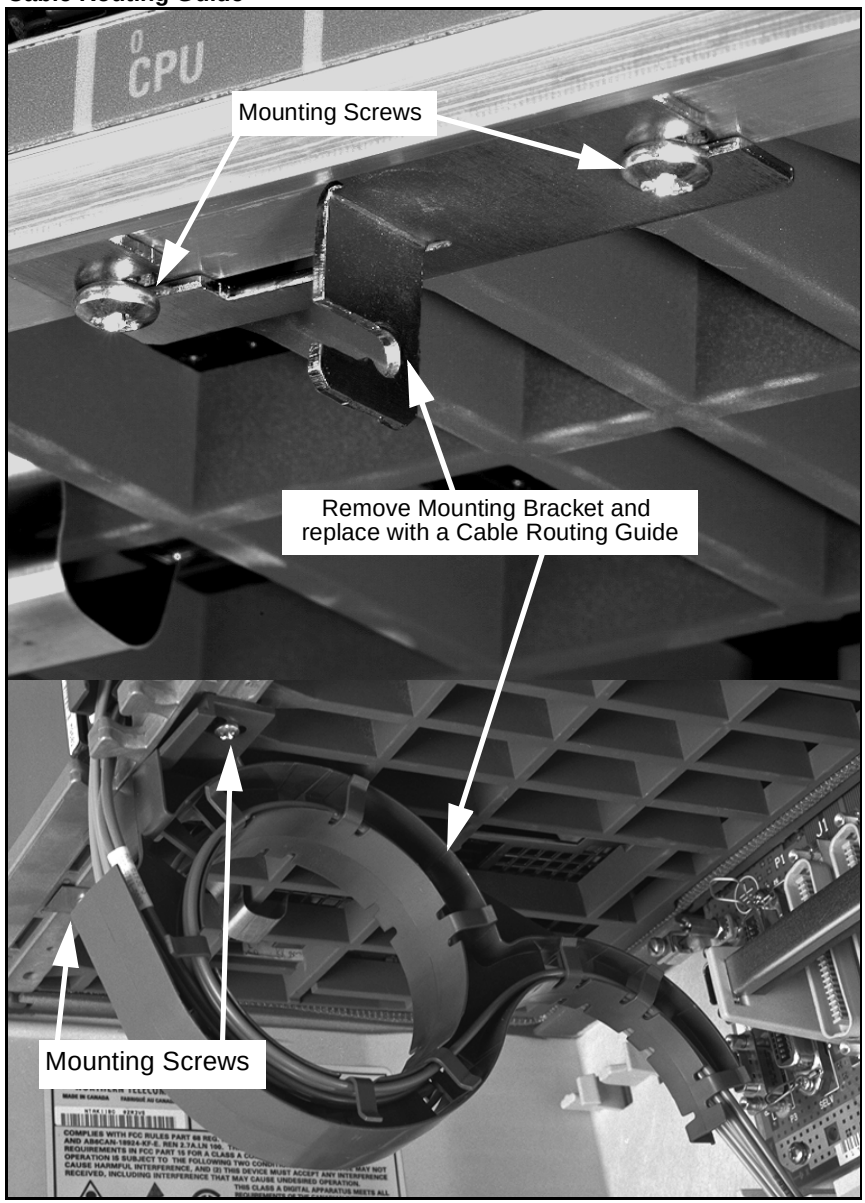
8 **If the cabinet is equipped with battery backup, reconnect the cable from the battery backup unit directly to the connector on the bottom of the Power Supply unit.**

9 **Remove the MFI from the cabinet.**

10 **Loosen the screws securing the MFI mounting bracket and remove the bracket (see Figure 36 on page 89).**

11 **Install a Cable Routing Guide in the location vacated by the MFI mounting bracket. Tighten the screws (see Figure 36 on page 89).**

Figure 36
Cable Routing Guide



12 Remove the NTBK45 System Core card from the main cabinet.

13 Set the baud rate switches on the new NTDK20 SSC card to match the settings on the NTAK01 CPU/Conf or NTBK45 System Core card that was removed.

14 Install the Software Daughterboard and the Security Device on the NTDK20 SSC Card as shown in Figure 38 on page 93.

CAUTION

The NTDK20 SSC card is equipped with components on both sides of the circuit board. Be careful not to damage any of the components when handling the card.

15 Install one or two Fiber Expansion Daughter Boards on the NTDK20 SSC card as required (see Figure 38 on page 93).

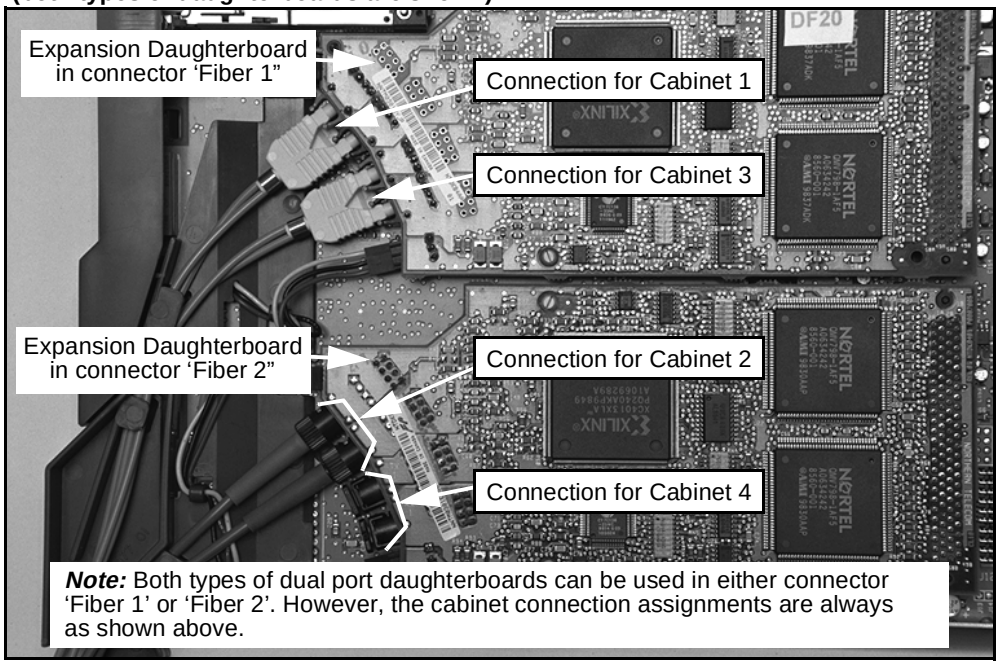
One single port expansion daughterboard can connect to 1 expansion cabinet.

One dual port expansion daughterboard can connect to 2 expansion cabinets.

When using single port expansion daughterboards, the daughterboard in connector ‘Fiber 1’ connects to expansion cabinet 1. The daughterboard in connector ‘Fiber 2’ connects to expansion cabinet 2.

When using dual port expansion daughterboards, the daughterboard in connector ‘Fiber 1’ connects to cabinet 1 (top connection on the daughterboard) and cabinet 3 (bottom connection on the daughterboard). The daughterboard in connector ‘Fiber 2’ connects to cabinet 2 (top connection on the daughterboard) and cabinet 4 (bottom connection on the daughterboard). See Figure 37 on page 91.

Figure 37
Cabinet assignments on Dual Port Daughterboards (both types of daughterboards are shown)



When upgrading a system equipped with 2 expansion cabinets (three cabinet system) make sure of the following:

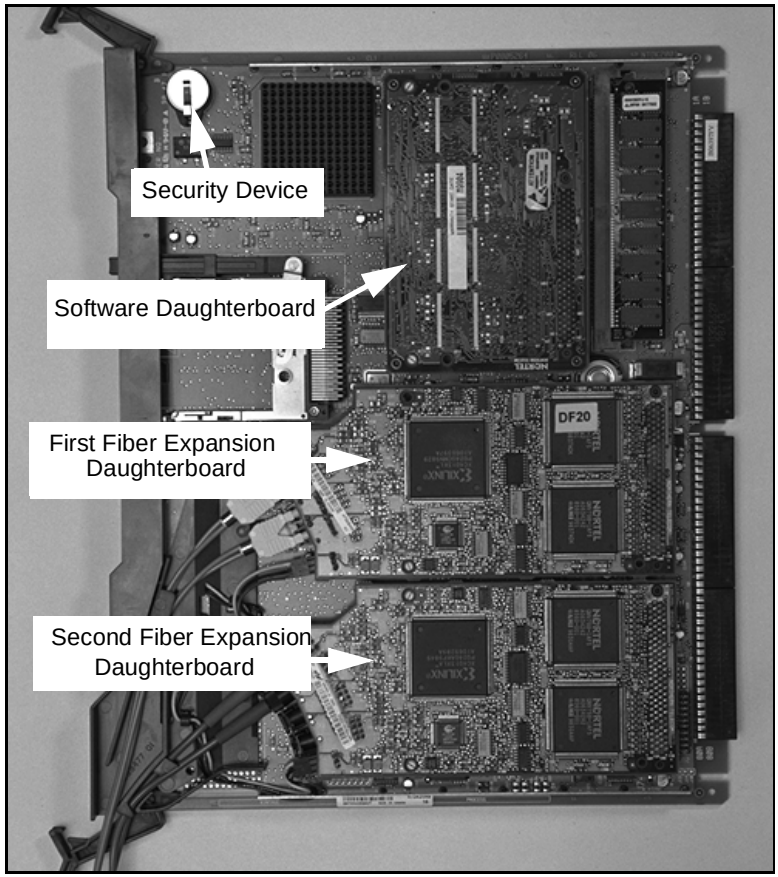
- **If the upgraded system is to be equipped with single port expansion daughterboards,** connect existing expansion cabinet 1 to the daughterboard in connector 'Fiber 1' and cabinet 2 to the daughterboard in connector 'Fiber 2'.
- **If the upgraded system is to be equipped with two dual port expansion daughterboards,** connect existing expansion cabinet 1 to the top connection on the daughterboard in connector 'Fiber 1'. Connect cabinet 2 to the top connection on the daughterboard in connector 'Fiber 2'.
- **If the upgraded system is to be equipped with only one dual port expansion daughterboard,** connect existing expansion cabinet 1 to the top connection on the daughterboard in connector 'Fiber 1'. Connect cabinet 2 to the bottom connection on the same daughterboard. Existing cabinet 2 becomes cabinet 3. The services formerly provided

on slots 21 to 30 must be reassigned to slots 31 to 40 in the upgraded system.

- **If the upgraded system is to be equipped with one dual port and one single port expansion daughterboard,** replace the single port daughterboard in connector ‘Fiber 1’ with a dual port expansion daughterboard. Connect the existing expansion cabinet 1 to the top connection in the dual port daughterboard. Leave existing connection for expansion cabinet 2 connected to the single port daughterboard in connector ‘Fiber 2’.

Note: If additional expansion cabinets are being added in conjunction with the upgrade, it may be preferable to install a second expansion daughterboard now (if one is required) to the connector labeled ‘Fiber 2’ to prevent additional down time later. Refer to the Option 11C Installation guide for detailed information about adding expansion cabinets to existing Option 11C systems.

Figure 38
NTDK20 SSC card



16 Connect each fiber optic cable to the connector on the Fiber Expansion Daughterboard as shown in Figure 39 on page 95.

WARNING

The fiber optic interface product used in Option 11C is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

If using the NTBK78 (A0618443 or A0632902) cable, remove the two protective plugs from the Fiber Expansion Daughterboard. Connect the cable to the Fiber Expansion Daughterboard making sure that the 'V' shaped groove on the cable connector is facing outward and that the connector is fully seated.
The mark (if equipped) on the connector should not be visible when properly connected. See Figure 40 on page 96.

If using glass fiber optic cable, remove the protective plug from the Fiber Expansion Daughterboard and remove the protective cap from the corresponding plug (Tx or Rx) on the glass fiber optic cable. Insert the plug in its designated connector on the daughterboard. Once inserted, lock the connector in place by turning it a half turn clockwise. See Figure 41 on page 97.
Repeat this procedure for the second fiber optic connection.

If using a glass fiber extension, connect the extension from the daughterboard to the main fiber optic cable making sure that the transmit and receive leads are not interchanged.

Figure 39
Fiber Optic Cable Connections

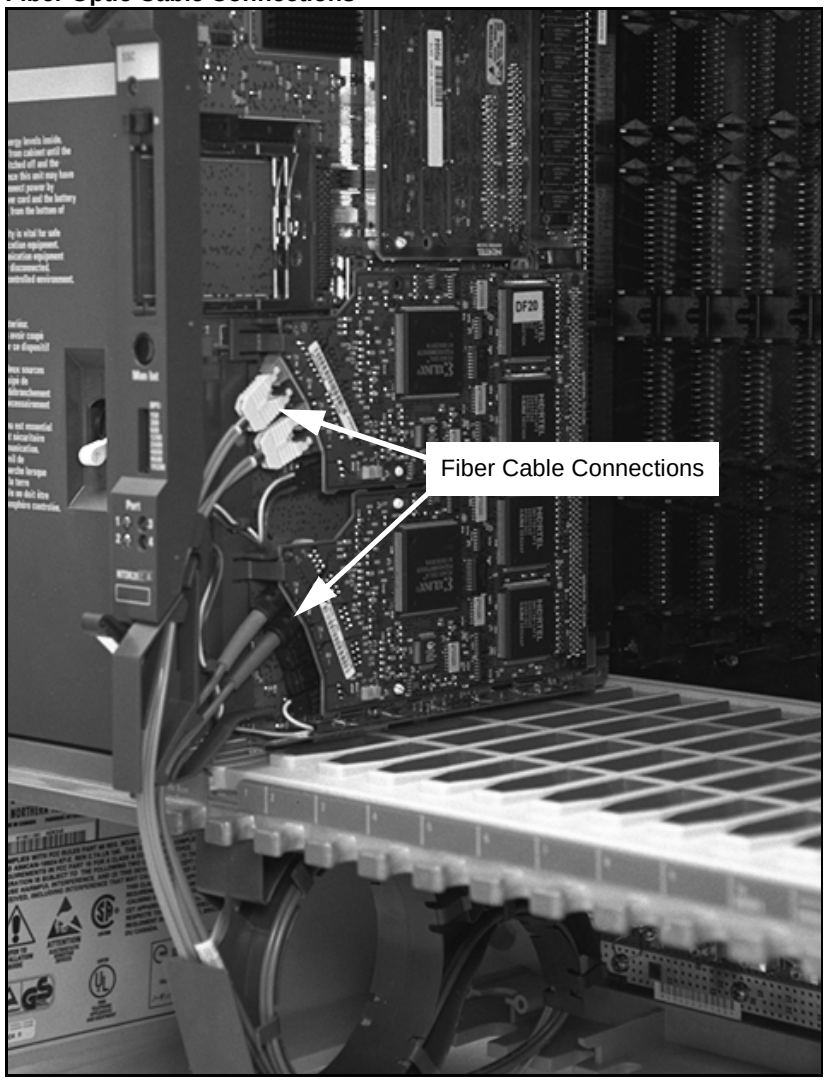


Figure 40
Plastic Fiber Optic Cable Connection

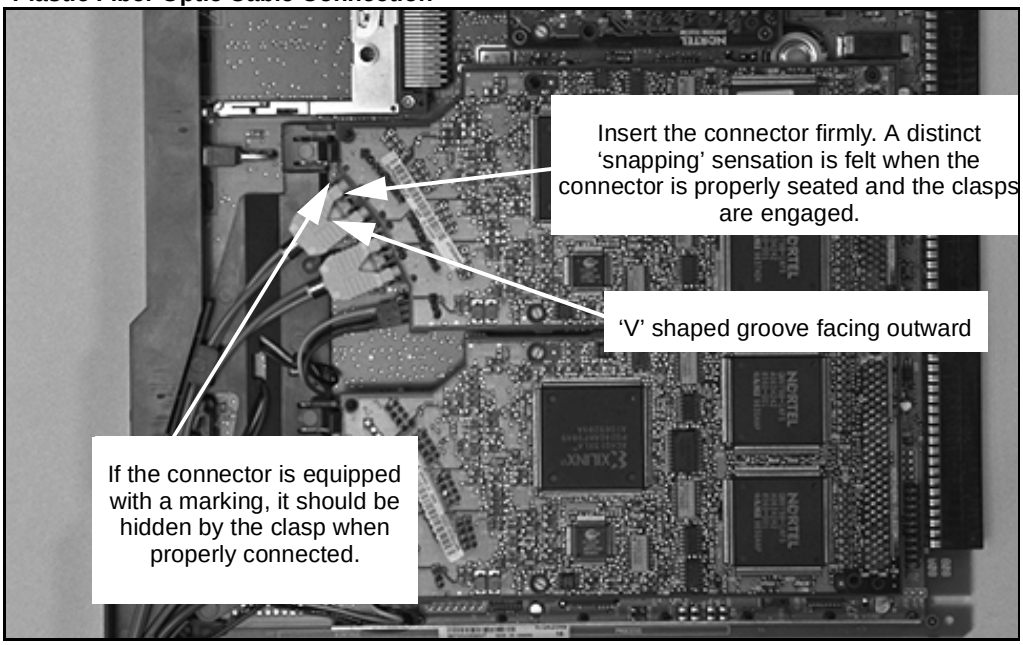
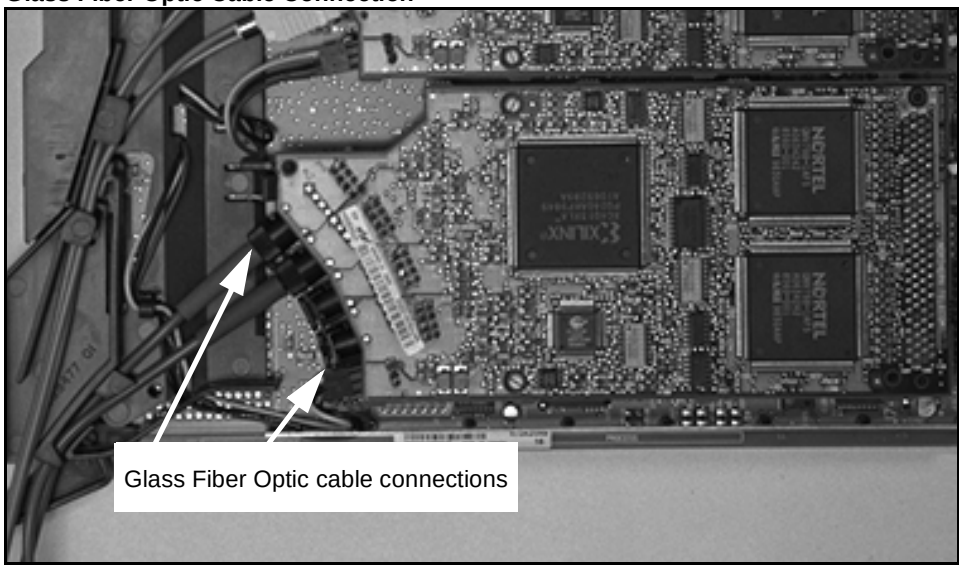


Figure 41
Glass Fiber Optic Cable Connection



17 Route each fiber optic cable through the Fiber Routing Guide.

An NTBK78 (A0632902) 10 m fiber optic cable is used to connect the main cabinet to an expansion cabinet located within 10 m (33 ft).

A glass fiber optic cable, supplied and installed by a local facilities provider, is required when connecting an expansion cabinet located up to 3 km (1.8 mi) from the main cabinet.

Note: Do not staple or twist fiber optic cable. Do not bend it beyond a minimum 35 mm bend radius (90° soft bend).

18 Install the new NTDK20 SSC card in the slot vacated by the NTAK01 or NTBK45 card (Slot 0).

Store the excess fiber optic cable on the Fiber Routing Guide.

19 Skip this step and go to Figure 20 on page 98 if the Database Upgrade Tool is not being used to extract the customer database from the existing system.

Note: Perform this step only if the Database Upgrade Tool is to be used instead of a PC to extract the customer database from the existing system.

Install the Software Cartridge from the existing system to the Database Upgrade Tool.

a) Remove the Software Cartridge from the existing NTAK01 CPU/Conf or NTBK45 System Core card

b) Connect the Option 11 or Option 11E Software Cartridge to the connector on the Database Upgrade Tool.

c) With the software cartridge on the Database Upgrade Tool facing towards the left, insert the Database Upgrade Tool in slot B of the PCMCIA socket located in the faceplate of the NTDK20 SSC card.

20 Reconnect the power to the main cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

21 Observe the terminal screen.

The Software Installation Program is invoked automatically on power up.

Note: This program is menu driven allowing the easy installation of software and customer databases in the Option 11C. It is straight forward and includes a "Help" facility to assist in making proper selections. However, if more detailed information is required, refer to "Upgrading the software" on page 148.

The following is a summary of the steps described in "Upgrading the software" on page 148:

a) Enter the system time and date if prompted. Skip this step if the Software Installation Main Menu appears instead.

Note: The system time and date prompt appears only when the Software Installation Program detects a system year date that is not in the range of 1995-2095.

b) Select the type of upgrade to be performed.

- **If** using the Software Delivery (PCMCIA) Card,
  select
  'System Upgrade'
  from the Software Installation Main Menu

  Then select

  'Option 11/11E to Option 11C'
  from the Select type of upgrade to be performed menu.
- **If** upgrading using the Software Daughterboard,
  select
  'New System Installation or Option 11/11E Upgrade - From Software Daughterboard'.

c) Select the feature set to be enabled.

- Select the feature set from the 'Select Feature Set You Wish to Enable' menu.

Note: The feature set selected must match the one provided with keycodes.

d) Select feature package numbers to be added, if any.

- Enter package numbers. Press <cr> twice to end package selection.

e) Select the database source.
Select one of the following from the 'Select Option 11/11E Database Source' list;

- Select
CCBR Restore file
if the customer database was extracted using the CCBR feature. When this selection is chosen, the Data Transfer mode is accessed. The data restoration and upgrading process is initiated by entering <cr> when prompted to do so.

Or

- Select
Option 11/11E Software Cartridge
if the Database Upgrade tool is being used to extract the customer database from the existing software cartridge.

f) Select the ISM parameters.

- Compare the ISM parameters with those obtained in Step 3. Make any required changes.

g) Define the new AUX ID.

- The default AUX ID is the security ID provided with the Option 11C. It should be replaced with the previous Option 11 or Option 11E site ID.

h) Confirm the information entered and enter the validation keycodes.

- A 'New Installation Information Summary' is displayed on the terminal.
- Make any necessary changes to the information then enter the keycodes.

i) Complete the software installation when prompted.

22 Wait for the software installation to be completed.

CAUTION

If for any reason you must terminate the upgrade and revert back to the original Option 11E, do so now (see Procedure 8 on page 112). The remaining steps of this procedure involve major equipment changes making it difficult to revert back.

23 If installed, remove the Database Upgrade Tool from the PCMCIA socket on the faceplate of the SSC card.

24 Load overlay program 43 (LD 43) and perform a data dump.

25 Disconnect the power connection from under the NTAK04, NTAK05, NTDK72 or NTDK78 power supply unit in each expansion cabinet.

26 Tag and disconnect all cables from connectors J11 through J20 in the first expansion cabinet, and if equipped, the second expansion cabinet.

Tag the cables J11, J12, J13 and so on for the first expansion cabinet and J21, J22 and so on for the second cabinet.

27 Disconnect the NTBK78 (A0618443 or A0632902) Fiber Optic cable from EFI units in the expansion cabinets.

28 Remove the expansion cabinets from the wall (or pedestal).

Set the cabinets aside.

29 Mount the new NTAK11 Cabinets on the wall (or pedestal).

If the cabinet is to be mounted on a pedestal, the door hinge opening tabs on each side of the cabinet must first be removed with a pair of pliers as shown in Figure 42 on page 102.

Figure 42
Door hinge opening

30 Install a Fiber Routing Guide in each expansion cabinet beneath slot 0 (Fbr Rx) as shown in Figure 43 on page 107.

31 Reconnect all the cables that were tagged and disconnected from the old cabinets in step 26.

Note that the connectors in the main and expansion cabinets for cables going to the cross connect terminal are numbered J1 to J10 (instead of J11 to J20 as in the old expansion cabinets).

When upgrading a system equipped with 2 expansion cabinets (three cabinet system) make sure of the following:

- **If the upgraded system is equipped with single port expansion daughterboards,** the existing expansion cabinet 1 should be connected to the daughterboard in connector 'Fiber 1' and cabinet 2 to the daughterboard in connector 'Fiber 2'. The cables should be tagged and connected as shown in Table 3 on page 104.
- **If the upgraded system is equipped with two dual port expansion daughterboards,** the first expansion cabinet (expansion cabinet 1) should be connected to the upper connection on the daughterboard in connector 'Fiber 1' (the top daughterboard). The second expansion cabinet (expansion cabinet 2) should be connected to the upper connection on the daughterboard in connector 'Fiber 2' (the bottom daughterboard). The cables from the expansion cabinets should be tagged and connected as shown in Table 3 on page 104.
- **If the upgraded system is equipped with only one dual port expansion daughterboard,** the first expansion cabinet (expansion cabinet 1) should be connected to the upper connection on the daughterboard in connector 'Fiber 1' (the top daughterboard). The second expansion cabinet (existing expansion cabinet 2) should be connected to the lower connection on the daughterboard in connector 'Fiber 2' (the bottom daughterboard). The existing cabinet 2 is re-assigned by the system as cabinet 3. The cables should be re-tagged and connected as shown in Table 4 on page 105. The services formerly provided on slots 21 to 30 must be reassigned in software to slots 31 to 40.

Table 3
Tagged cable connections — Main and Expansion cabinet 2

Expansion Cabinet 1		Expansion Cabinet 2	
Tag on cable	**Connect to connector**	**Tag on cable**	**Connect to connector**
J11	J1	J21	J1
J12	J2	J22	J2
J13	J3	J23	J3
J14	J4	J24	J4
J15	J5	J25	J5
J16	J6	J26	J6
J17	J7	J27	J7
J18	J8	J28	J8
J19	J9	J29	J9
J20	J10	J30	J10

Table 4
Tagged cable connections — Cabinet 2 re-assigned as Cabinet 3

Expansion Cabinet 2 Re-assigned as Cabinet 3		
Existing tag on cable	**Connect to connector**	**New tag on cable**
J21	J1	J31
J22	J2	J32
J23	J3	J33
J24	J4	J34
J25	J5	J35
J26	J6	J36
J27	J7	J37
J28	J8	J38
J29	J9	J39
J30	J10	J40

32 Put on the antistatic wrist strap located in the expansion cabinet.

33 Locate the Fiber Receiver card.

Note: Use an NTDK23 Fiber Receiver card is when the expansion cabinet is within 10 m (33 ft) of the main cabinet and is connected with an NTBK78 (A0618443 or A0632902) plastic fiber optic cable. Use an NTDK25 (Multimode) or NTDK80 (Single Mode) Fiber Receiver card if the expansion cabinet is to be relocated up to 3 km (1.8 mi) of the main cabinet.

34 In each expansion cabinet, connect the fiber optic cable to the Fiber Receiver card as shown in Figure 43 on page 107.

WARNING

The fiber optic interface product used in Option 11C is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

If using the NTBK78 (A0618443 or A0632902) cable, remove the two protective plugs from the Fiber Receiver card.
Connect the cable to the Fiber Receiver card making sure that the 'V' shaped groove on the cable connector is facing inward and that the connector is fully seated. See Figure 44 on page 108.
The mark (if equipped) on the connector should not be visible when properly connected.

If using glass fiber optic cable, remove the protective plug from the Fiber Receiver card and remove the protective cap from the corresponding plug (Tx or Rx) on the fiber optic cable.
Insert the plug in its designated connector on the Fiber Receiver card. Once inserted, lock the connector in place by turning it a half turn clockwise. See Figure 45 on page 109.
Repeat this procedure for the second fiber optic connection.

Once connected, wind excess fiber optic cable around the spool on the Fiber Receiver card. Leave enough slack to insert and remove the Fiber Receiver card from its slot.

Figure 43
Receiver card and fiber connection

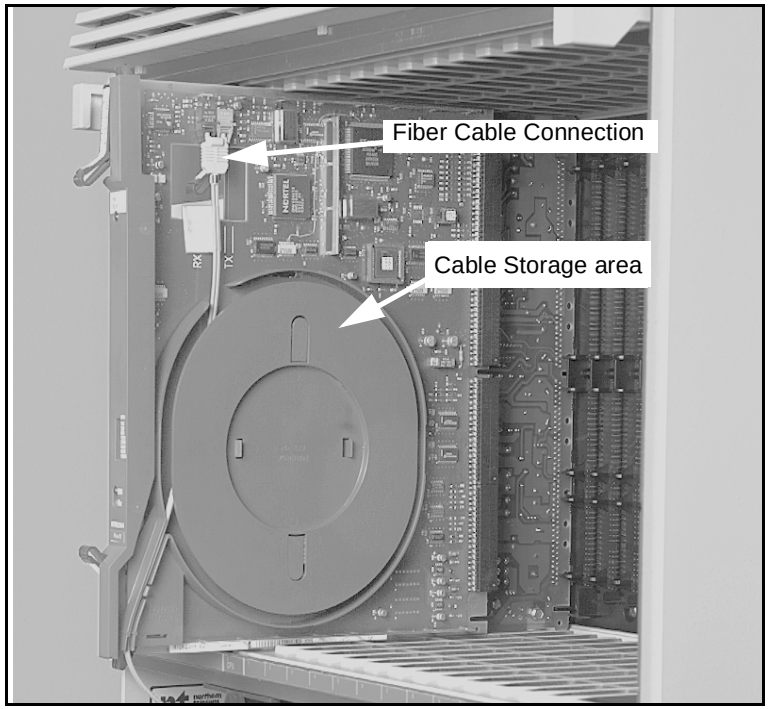


Figure 44
Plastic fiber optic cable connection

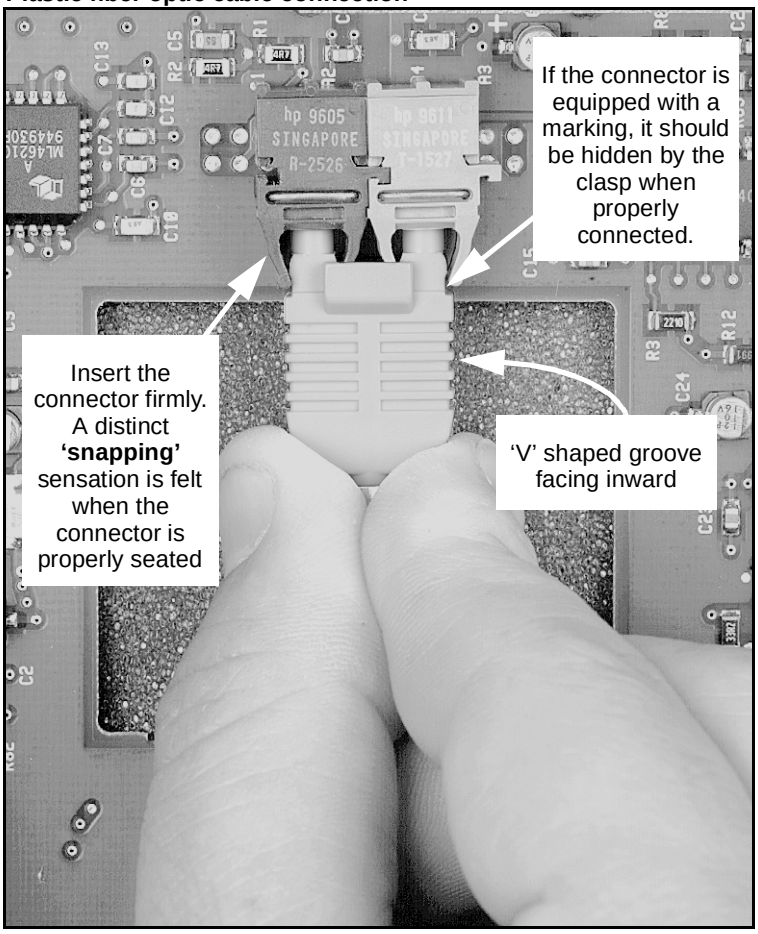
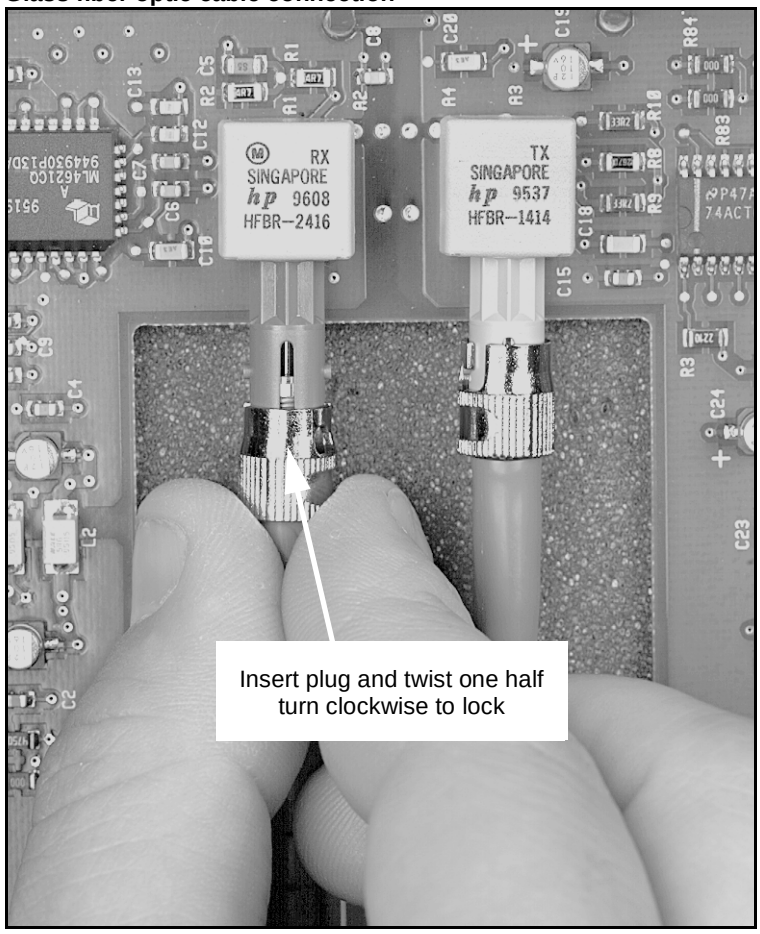


Figure 45
Glass fiber optic cable connection



35 **In each expansion cabinet, install the Fiber Receiver card in the slot designated Fbr Rcvr.**

Wind the slack fiber optic cable around the Fiber Routing Guide once.

36 **Remove the NTAK04, NTAK05, NTDK72 or NTDK78 power supply from the old expansion cabinets and install it in the new expansion cabinets.**

Connect the power cord to the bottom of the power supply unit.

37 Remove any circuit cards that are to be retained from the old expansion cabinets and install in the corresponding slots in the new cabinets.

38 Connect the power to the expansion cabinets.

Set the circuit breaker switch on the front of the power supply unit in each cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

39 Check the fiber related LEDs on the SSC card.

The LED for the equipped Expansion Daughterboard should be **green**.

If it is **red** (disabled indication);
Load overlay program 135 and enter ENL FL1 to enable expansion cabinet 1 (or ENL FL2 for expansion cabinet 2, if equipped).

If the LED is **yellow** (fault indication):
Check all fiber optic cable to make sure that it is properly connected and not damaged. If the LED remains yellow, go to the *Option 11C fault Clearing Guide.*

40 If required, rearrange the tone and SDI functions.

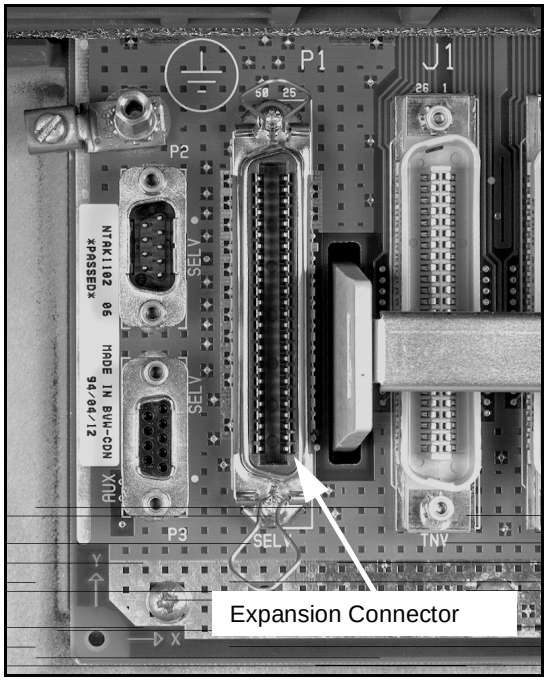
The NTDK20 SSC card consolidates many tone functions. Refer to “Chapter 7 - Assigning TDS/DTR, XTD and SDI functions” on page 131 for further information.

41 If required, install the single port TTY cable in the expansion cabinet (Figure 46 on page 111).

42 If required, install the NTDK27 Ethernet cable to the expansion connector in the cabinet (see Figure 46 on page 111).

End of Procedure

Figure 46
Cable connection



Restoring data due to an upgrade failure

This section explains how to revert back to an Option 11 or Option 11E in the event that the upgrade attempt failed. To revert back, the Option 11 NTAK01 CPU/Conf card or Option 11E NTBK45 System Core card and the software cartridge is inserted back into slot 0 of the main cabinet and the system is reloaded.

Procedure 8— Reverting

1 Remove all power from the system

2 Reconnect the NTAK1204 or NTAK1205 intercabinet cable (if it was previously disconnected).

3 Remove the NTDK20 SSC card from slot 0 in the main cabinet.

4 If previously removed, attach the software cartridge to the NTBK45 System Core card.

5 Insert the NTAK01 CPU/Conf card or the NTBK45 System Core card in slot 0 and power up the system.

6 Restore the NTAK1118 SDI cable if previously equipped.

——————————— ***End of Procedure*** ———————————

Chapter 5 – Upgrading cabinet hardware

General information

This chapter describes how to upgrade cabinets to accommodate dual port expansion daughterboards and 100 BaseT interconnections.

The cabinet upgrade is required when one or more of the following conditions apply:

- The system consists of three or more expansion cabinets.
- There is a need for additional space in the cabinet to accommodate circuit cards with faceplate cables.
- There is a desire to provide the ‘new look’ to an older cabinet.

Summary of items required

NTDK18AA Cabinet Upgrade Kit

The NTDK18AA Cabinet Upgrade Kit contains all the items needed to complete the cabinet upgrade. The kit consists of the following items:

- One Cabinet Door
- One Grill
- One Stiffener Rail
- One Cabinet Number Designation Label
- One Multiple Cable Routing Guide
- One bag of screws
- One set Upgrade Instructions

Tools needed

The following tools are needed to complete the cabinet upgrade:

- A large slot-type screwdriver
- A #2 Posidrive or Phillips screwdriver
- A 1/4 inch nut driver

Upgrading the cabinet

The following procedure describes how to upgrade the cabinet.

Procedure 9
Upgrading cabinet hardware

1 **If the cabinet being upgraded is presently in operation, go to Step 3.**

2 **If the cabinet being upgraded is not in operation go to Step 4.**

3 Login to system and perform a Data Dump.

Note: This step must be performed. It is to make sure that any changes that were made since the last Data Dump are backed up.

- Load Overlay program 43 (LD 43)
- Enter command EDD
- Once the Data Dump is completed, exit LD 43 by entering ****

4 **Remove the door from the cabinet.**

5 **Remove the drip tray.**

6 **Disconnect the power from the cabinet.**

Set the circuit breaker switch on the front of the power supply unit in the cabinet to OFF.

If equipped with reserve battery power, set the circuit breaker switch inside the reserve battery power unit to OFF.

7 Wait at least five minutes.

WARNING

Wait at least five minutes before proceeding with Step 8. Read the important **Caution** on the faceplate of the Power Supply unit.

8 Disconnect the ac power supply cord and, if equipped, the dc power supply cord from the power supply unit.

The cords are located at the bottom of the power supply unit as shown in Figure 48 on page 116.

9 Attach the antistatic bracelet provided at the bottom of the cabinet to your wrist.

CAUTION

Static electricity can damage circuit cards. An antistatic bracelet should be worn when handling circuit cards or any of their components.

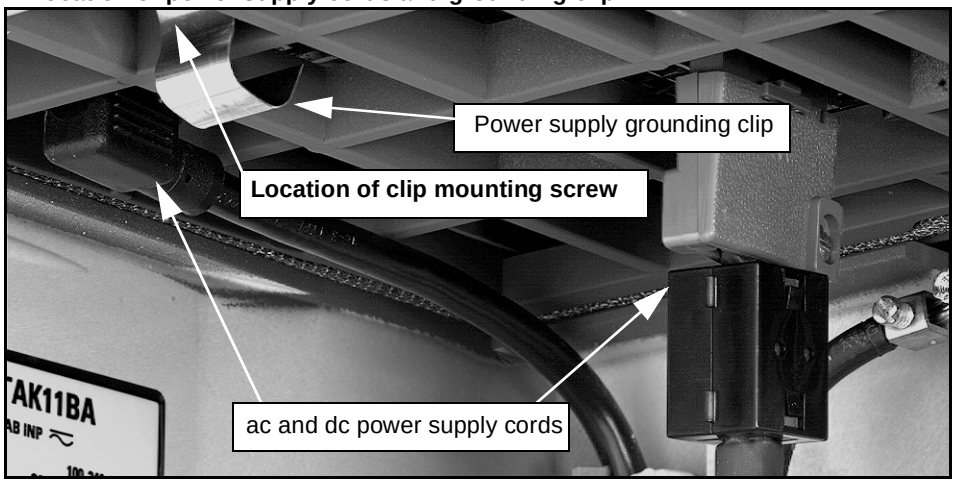
10 Remove the power supply unit from the cabinet.

11 With a large slot-type screwdriver, gently pry the latches on the grill at the top of the cabinet (Figure 47) until they release. Lift the grill upward to remove it and replace with the new grill.

Figure 47
Location of latches on top grill

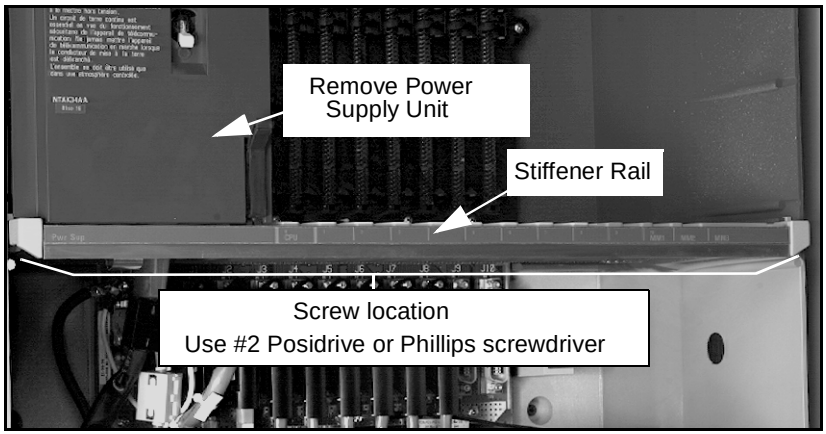
12 **Note the location and positioning of the power supply grounding clip located below the power supply unit (Figure 48).**
With a 1/4 inch nut driver (or in some cases a #2 Posidrive or Phillips screwdriver), remove the grounding clip from the stiffener rail (Figure 48).

Figure 48
Location of power supply cords and grounding clip



13 **With the #2 Posidrive (or #2 Phillips) screwdriver, remove the remaining screws securing the Stiffener Rail to the shelf and remove the rail (Figure 49).**

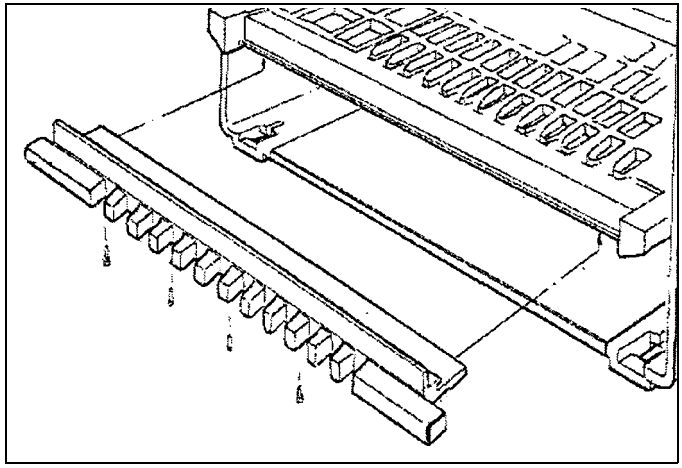
Figure 49
Location of Stiffener Rail



14 Install the new Stiffener Rail with the previously removed screws or with the screws supplied in the upgrade kit (Figure 50).

Install the center screw first (the hole for the center screw is round, while the remaining screw holes are slotted).

Figure 50
New Stiffener Rail



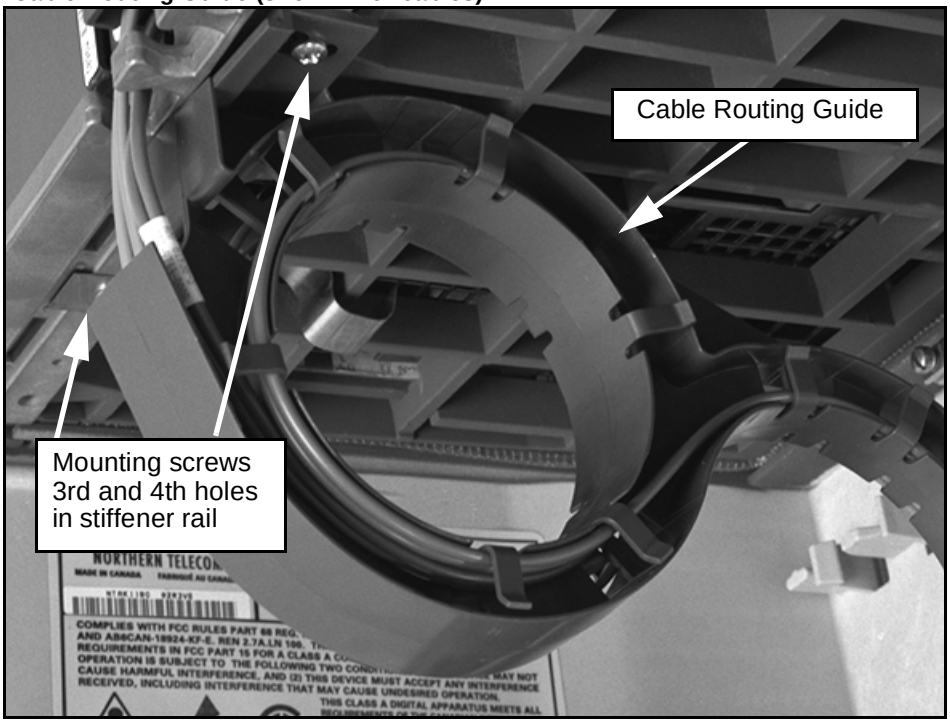
15 Re-install the power supply grounding clip (Figure 48 on page 116).

Note: Make sure that the grounding clip is positioned so that it will come in contact with the bottom of the Power Supply unit.

16 **Install a Multiple Cable Routing Guide in the location below Slot 0 (the SSC slot or in some cases, the Fbr Rcvr slot).**

The Routing Guide is mounted with the third and fourth Rail Stiffener mounting screws (see Figure 51).

Figure 51
Cable Routing Guide (shown with cables)



17 **Install the remaining screws to secure the Stiffener Rail.**

Extra screws are provided with the Upgrade Kit.

18 **Attach a Designation Label in the space provided at the right end of the stiffener rail showing the appropriate cabinet number (Main, 1, 2, 3, or 4).**

19 **Re- install the Power Supply unit.**

20 **Reconnect the power supply cords (Figure 48 on page 116).**

21 Reconnect the power to the cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to ON.

If equipped with reserve battery power, set the circuit breaker switch on the reserve battery power unit to ON.

The system should SYSLOAD and return to normal.

22 Install the new door on the cabinet.

End of Procedure

Chapter 6 - Upgrading the NTDK20AB SSC to NTDK20CA

General information

The procedure on page 123 describes how to upgrade NTDK20AB SSC to NTDK20CA with the NTDK19AA SSC Upgrade Kit in order to accommodate Dual Port Expansion daughterboards.

> ***Note:*** The NTDK20CA SSC supports both Single Port and Dual Port Expansion daughterboards.

Identifying a previously upgraded NTDK20 SSC

SSC cards that have been upgraded are identified by the letters CA in the product code.

Example:

- An NTDK20AB SSC becomes an NTDK20CA once it has been upgraded. The new manufactured equivalent is the NTDK20DA.

Boot Code

The updated Boot Code on the NTDK20CA SSC card supports single port and dual port expansion daughterboards as well as the NTDK81 and NTDK21 Flash daughterboards.

Updating the Boot Code is part of the procedure on page 123. Boot Code updating instructions are given in the *Option 11C Upgrade Procedures* guide provided with the Option 11C system. Refer to the chapter titled *'Using the flash boot ROM utility'*.

Note: It is important that the Boot Code on the NTDK20CA SSC be at least NDTK34FA Rel 01 or later. Checking and updating the Boot Code should be done at the start of the procedure on page 123.

NTDK19AA SSC Upgrade Kit

The NTDK19AA SSC Upgrade Kit contains all the items needed to complete the SSC upgrade. The kit consists of the following items:

- One Faceplate Assembly
- One LED Cable Assembly
- Three Plastic Rivets
- One 16 M SIMM
- One Label Kit, Upgrade Release Number
- One set Upgrade Instructions

Tools needed

The only tool needed to complete the SSC upgrade is a pair of needle or long nosed pliers.

Handling circuit cards

To prevent damaging circuit cards, always handle them as follows:

- Wear an antistatic bracelet before handling circuit cards (one is provided in the bottom of each Option 11 cabinet).
- Lay the card on an antistatic pad to perform the upgrade.
- Handle cards by the card stiffeners and edges only. Do not touch the contacts or components.
- Unpack or handle cards away from electric motors, transformers, or similar machinery.
- Store cards in protective packing. Do not stack cards on top of each other unless they are packaged.
- Store cards in a dry dust-free area.

Upgrading the SSC

The following procedure describes how to upgrade the SSC to NTDK20CA.

1 **If the NTDK20 SSC being upgraded is presently in an operating Option 11C, start at Step 4.**

2 **If the NTDK20 SSC being upgraded is not in an operating Option 11C, make sure that its Boot Code has been updated before proceeding.**

An operating system is usually needed to check and update the Boot Code on an SSC card. Information about updating the Boot Code is located in the *Option 11C Upgrade Procedures* guide provided with the Option 11C system. Refer to the chapter titled *'Using the flash boot ROM utility'* to check and update the Boot Code.

3 **Once the Boot Code has been checked and updated, attach an antistatic bracelet to your wrist and go to Step 9.**

CAUTION

Static electricity can damage circuit cards. An antistatic bracelet should be worn when handling circuit cards or any of its components. Be careful not damage any components on the SSC while handling the card.

4 **Login to the system and perform a Data Dump.**

This step must be performed. It is to make sure that any changes that were made since the last Data Dump are backed up. This is a precautionary measure.

a) Load Overlay program 43 (LD 43)

b) Enter command EDD

c) Once the Data Dump is completed, exit LD 43 by entering ****.

5 Check the Boot Code version on the NTDK20AB SSC. It must be at least an NTDK34FA Rel 01 or later. If it is not, update it.

Refer to the *Option 11C Upgrade Procedures* guide provided with the Option 11C system. See the chapter titled *'Using the flash boot ROM utility'* for information about checking and updating the Boot Code.

6 Disconnect the power from the cabinet.

Set the circuit breaker switch on the front of the power supply unit in the cabinet to OFF.

If equipped with reserve battery power, set the circuit breaker switch inside the reserve battery power unit to OFF.

7 Attach an antistatic bracelet to your wrist.

An antistatic bracelet is provided in the bottom of Option 11 cabinets.

CAUTION

An antistatic bracelet should be worn when handling circuit cards or any of its components. Be careful not damage any components on the SSC while performing the following steps.

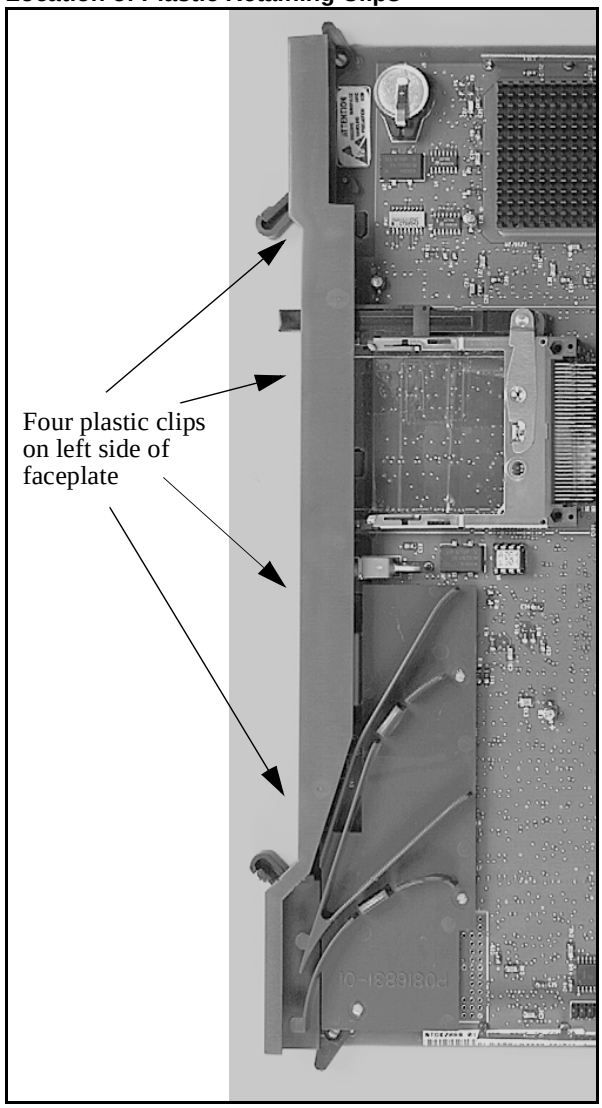
8 Remove the NTDK20 SSC card from the cabinet.

9 Remove any existing Fiber Expansion Daughterboards from the SSC card.

10 Remove the existing faceplate from the NTDK20 SSC.

11 To remove the faceplate, release the four plastic clips securing the faceplate to the circuit card (see Figure 52) and gently pull the faceplate forward.

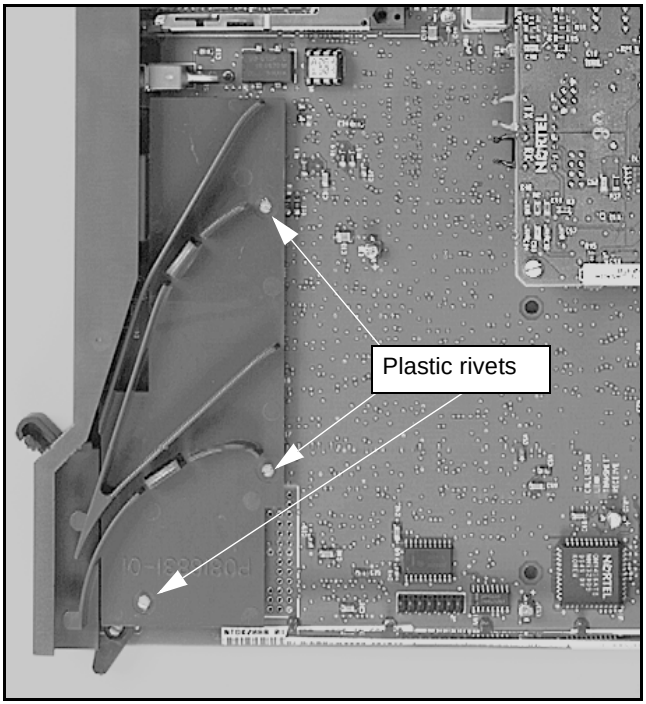
Figure 52
Location of Plastic Retaining Clips



12 **Note the location of the three plastic rivets securing the on-board fibre routing guide to the circuit card (see Figure 53). Remove the three rivets and remove the routing guide.**

One end of each rivet is slotted. With needle or long nosed pliers, squeeze the slotted end and gently push the rivet through the hole in the circuit card until it releases.

Figure 53
Location of Plastic Rivets



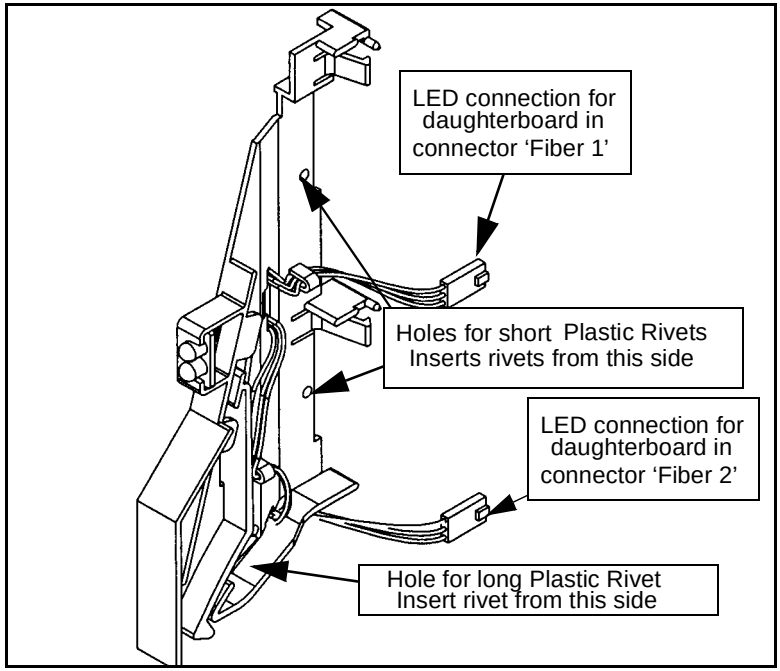
13 **Attach the NTDK8302 LED Cable Assembly (Figure 54) in the location vacated by the fiber router.**

Use the three Plastic Rivets supplied with the LED Cable Assembly.

Install the rivets in the holes in the circuit card noted in Step 12. Note that there are two short rivets and one that is longer. See **Figure 54** for proper location.

Secure the new router to the circuit card.

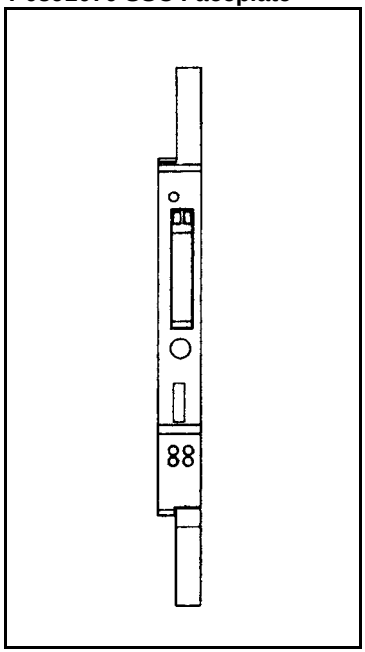
Figure 54
NTDK8302 LED Cable Assembly



14 Install the new faceplate (Figure 55) on the front of the SSC card.

The faceplate 'snaps' into place when properly seated. It is secured to the circuit card by four plastic clips similar to those on the old faceplate.

Figure 55
P0891070 SSC Faceplate

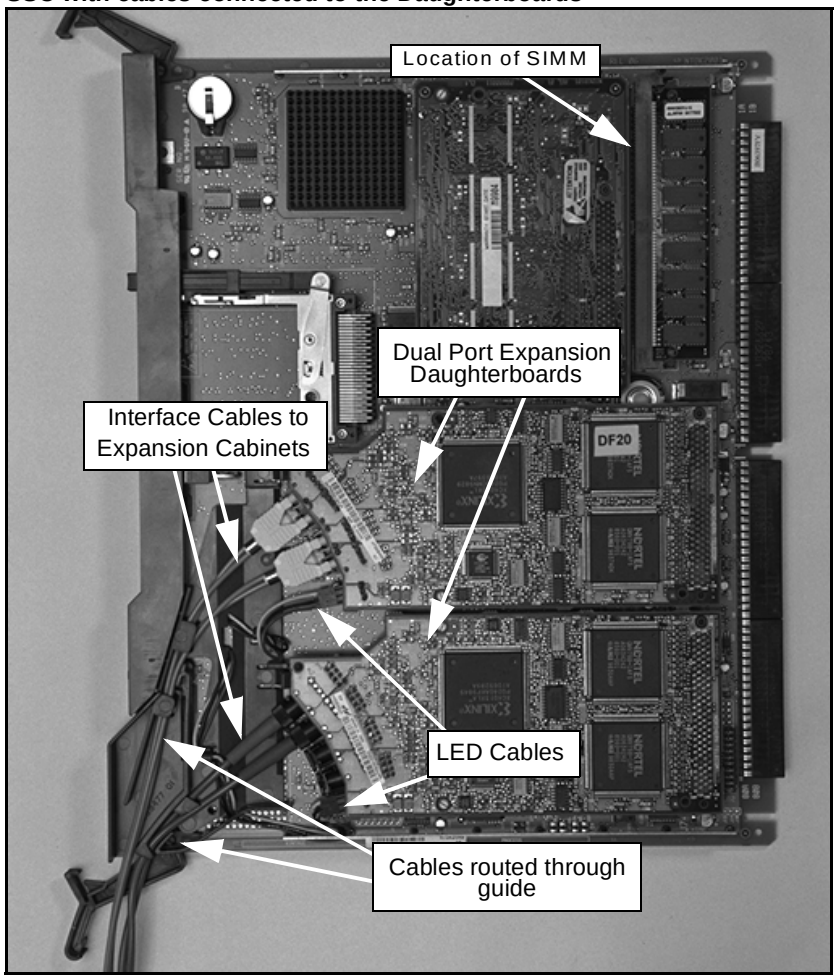


15 Remove the existing SIMM (see Figure 56 for location of SIMM) and replace it with the 16 M SIMM provided with the upgrade kit.

16 If required, install the expansion daughterboards in their assigned Fiber connector on the SSC card and connect LED cables (Figure 54) and interface cables (Figure 56).

Note: The LED cables are not used with single port daughterboards

Figure 56
SSC with cables connected to the Daughterboards



17 Attach the appropriate Upgrade Release Label from the Label Kit provided with the Upgrade Kit to the faceplate of the SSC in the space provided.

Attach the same Release number label as the original SSC: for example, if the original SSC was NTDK20AB RIse 9, the upgraded SSC becomes NTDK20CA RIse 9.

18 If required, reinsert the SSC card in its assigned slot in the cabinet and restore power to the system.

End of Procedure

Chapter 7 - Assigning TDS/DTR, XTD and SDI functions

General information

This chapter describes how to assign the TDS/DTR, XTD and SDI functions to the NTDK20 Small System Controller (SSC) card.

> ***Note:*** This Chapter applies only if there are tone related circuit cards remaining in the system.

The NTDK20 Small System Controller (SSC) card replaces the NTAK01 CPU/Conf card (used in Option 11) and the NTBK45 System Core card (used in Option 11E). It is also capable of providing the tone functions that are provided by the NTAK03 TDS/DTR card, the NT5K20 XTD card, the NT5K card, the NTAG26 XMFR card, and the NT5K48 XTD card. The SDI function is also incorporated in the NTDK20 SSC card.

Once the system has been upgraded to Option 11C the functions of any remaining TDS/DTR and XTD cards can be rearranged as follows:

- Any remaining NTAK03 TDS/DTR, NT5K20 XTD, NT5K21, NTAG26 XMFR, NT5K48 XTD cards can be removed and their functions assigned to the NTDK20 SSC card.

  Note: Minimum vintage must be NTAK03DA.

- Some of their functions can be moved to the NTDK20 SSC card.
- Additional functions can be assigned to the NTDK20 SSC card.

Summary of procedures

The following procedures in this Chapter describe how to rearrange the tone and SDI functions to meet the various requirements of the Option 11C. They are:

Removing the NTAK03 TDS/DTR card

Perform this procedure to remove the NTAK03 TDS/DTR card and use the NTDK20 SSC card for these functions instead. Doing this frees one card slot in the main cabinet.

Note: Perform the steps below in the order indicated. The TDS must be assigned to the SSC card in slot 0 before the DTR units are programmed. In addition, the TDS/DTR card must be disabled before removing the TDS from its card slot.

Procedure 10
Removing the NTAK03 TDS/DTR card

1 Print the existing SDI configuration in LD 22.

Use the PRT request and ADAN or PRT type (depending on software release) to obtain a printout.

2 Disable the TDS/DTR card in LD 34.

Use the DISX N command where N is the card slot number of the TDS/DTR card.

3 Disable SDI ports 1 and 2 in LD 37.

Use the DIS TTY N command, where N is 1 and 2 (the SDI port number).

4 Configure TDS on the SSC card using LD 17 (shown in Table 5 below):

Table 5
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
CEQU	YES	Changes to common equipment
TDS	0	Tone and Digit switch for the NTDK20 SSC card.

5 Remove the 8 DTR units on the TDS/DTR card using LD 13 (shown in Table 6 below):

Make sure all 8 units are removed.

Table 6
LD 13

Prompt	Response	Comments
REQ	OUT	Remove information
TYPE	DTR	Digitone Receivers data block
TN	c u	c= card slot occupied by the TDS/DTR card u= 0 to 7 (Repeat until all 8 units are removed)

6 Configure the 8 DTR units on the SSC card using LD 13 (shown in Table 7 below):

Make sure all 8 units are configured.

Table 7
LD 13

Prompt	Response	Comments
REQ	NEW	Add information
TYPE	DTR	Digitone Receivers data block
TN	c u	c= 0 u= 0 to 7 (Repeat until all 8 units are configured)

7 Remove the TDS function using LD 17

To remove the TDS function, follow the instructions in Table 8 below:

Note: If the TDS is not first disabled in LD 34 (see Step 2 on page 132) this step will fail. This step will also fail if DTRs are not first removed from the TDS/DTR slot.

Table 8
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
CEQU	YES	Changes to common equipment
TDS	Xn	n=1 to 9 (TDS card slot location) Precede with an X to remove

8 Remove the SDI ports using LD 17 (shown in Table 9 below):

To remove TTY ports 1 and 2, do the following for each port:

Table 9
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	ADAN	Change I/O device
ADAN	OUT TTY X	X=1 X=2

9 Remove the NTAK03 TDS/DTR card from the cabinet.

10 Configure SDI ports 1 and 2 on the SSC card using LD 17 (shown in Table 10 on page 135).

Refer to the SDI printout obtained in Step 1 on page 132.

Table 10
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
ADAN	NEW TTY X	X=1 X=2
CDNO	0	Card number 0
PORT	X	X=1 X=2
DES	aaa...a	AML port designation (can be up to 16 alphanumeric characters)
BPS	300, 600, 1200, 2400, (4800), 9600, 19200, 38400,	Bits per second data rate
BITL	5, 6, 7, (8)	Data bit length
STOP	(1), 1.5, 2	Number of stop bits
PARY	ODD, EVEN, (NONE)	Parity
ENL	(YES), NO	Auto enable SDI port
USER	BUG, SCH, MTC	
:		

11 **Enable the SDI ports in LD 37.**

Use the commands “ENL TTY 1” and “ENL TTY 2”

12 **Enable the TDS/DTRs on the SSC card using LD 34.**

Use the “ENLX 0” command.

13 **Perform an EDD backup in LD 43.**

Use the “EDD” command.

End of Procedure

Removing the NT5K20/48 XTD card

Perform this procedure to remove the NT5K20 XTD or NT5K48 XTD card and assign their functions to the NTDK20 SSC card instead. This procedure frees one card slot in the main cabinet.

Note: Perform the steps below in the order indicated. The TDS must be assigned to the SSC card in slot 0 before the XTD units are programmed.

Procedure 11
Removing the NT5K20/48 XTD card

1 Remove the 8 XTD units on the NT5K20/48 card using LD 13 (see Table 11 below):

Make sure all 8 units are removed.

Table 11
LD 13

Prompt	Response	Comments
REQ	OUT	Remove information
TYPE	XTD	Extended Dial Tone Detector and Digitone Receiver data block
TN	c u	c= card slot occupied by the XTD card u= 0 to 7 (Repeat until all 8 units are removed)

2 Configure TDS on the SSC card using LD 17 (see Table 12 below):

Table 12
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
CEQU	YES	Changes to common equipment
TDS	0	Tone and Digit switch for the NTDK20 SSC card.

3 Configure the 8 XTD units on the SSC card using LD 13 (see Table 13 below):

Make sure all 8 units are configured.

Note: The TDS loop must be configured in LD 17 before this step can be performed.

Table 13
LD 13

Prompt	Response	Comments
REQ	NEW	Add information
TYPE	XTD	Extended Dial Tone Detector and Digitone Receiver data block
TN	c u	c= 0 u= 0 to 7 (Repeat until all 8 units are configured)
XTDT	(0)-7	Extended Tone Detector Table Number. If a table other than 0 is entered, it must exist in LD 97.
_DTO	(NO), YES	Dial Tone Detection only. (NO) = Do not disable DTR detection YES = Disable DTR detection, only perform dial tone detection

4 Remove the NT5K20 or NT5K48 XTD card from the cabinet.

5 Perform an EDD backup in LD 43.

Use the “EDD” command.

——————————— ***End of Procedure*** ———————————

Retaining the TDS/DTR card while moving functions to the SSC card

Perform this procedure if the NTAK03DA (minimum vintage) TDS/DTR card is to remain in the system, but one of the its TDS/DTR or SDI port functions is to be moved to the NTDK20 SSC card:

Moving TDS/DTR and retaining SDI ports

To move TDS/DTR, you must remove the TDS/DTR function from the NTAK03 TDS/DTR card and then assign it to slot 0.

Note: Perform the steps below in the order indicated. The TDS must be assigned to the SSC card in slot 0 before the DTR units are programmed. In addition, the TDS/DTR card must be disabled before removing the TDS from that card slot.

Procedure 12
Moving TDS/DTR while keeping SDI ports

1 Disable the NTAK03 TDS/DTR card in LD 34.

Use the DISX N command where N is the card slot number of the TDS/DTR card.

2 Configure TDS on the SSC card using LD 17 (see Table 14 below);

Table 14
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
CEQU	YES	Changes to common equipment
TDS	0	Tone and Digit switch for the NTDK20 SSC card.

3 Remove the 8 DTR units on the TDS/DTR card using LD 13 (see Table 15 below):

Make sure all 8 units are removed.

Table 15
LD 13

Prompt	Response	Comments
REQ	OUT	Remove information
TYPE	DTR	Digitone Receivers data block
TN	c u	c= card slot occupied by the TDS/DTR card u= 0 to 7 (Repeat until all 8 units are removed)

4 Configure the 8 DTR units on the SSC card using LD 13 (see Table 16 below):

Make sure you configure all 8 units.

Note: The TDS loop **must** be configured in LD 17 before this step is performed.

Table 16
LD 13

Prompt	Response	Comments
REQ	NEW	Add information
TYPE	DTR	Digitone Receivers data block
TN	c u	c= 0 u= 0 to 7 (Repeat until all 8 units are configured)

5 Remove the TDS function using LD 17.

To remove the TDS function, follow the instructions in Table 17 below:

Note: If the TDS is not first disabled in LD 34 (see Step 1 on page 139) this step will fail. This step will also fail if DTRs are not first removed from the TDS/DTR slot.

Table 17
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
CEQU	YES	Changes to common equipment
TDS	Xn	n=1 to 9 (TDS card slot location) Precede with an X to remove

6 Enable the NTAK03 TDS/DTR to use the SDI port.

7 Enable the TDS/DTRs on the SSC card in LD 34. Use the "ENLX 0" command.

8 Perform an EDD backup in LD 43.

———————— ***End of Procedure*** ————————

Procedure 13
Moving SDI ports while keeping TDS/DTR

1 Disable SDI ports 1 and 2 in LD 37.

Use the DIS TTY N command, where N is the SDI port number.

2 Remove the SDI ports using LD 17.

To remove TTY ports 1 and 2, follow the instructions in Table 18 (shown below) for each port:

Table 18
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	ADAN	Change I/O device
ADAN	OUT TTY X	X=1 X=2

3 Configure SDI ports on the SSC card using LD 17 (see Table 19 below):

Table 19
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
ADAN	NEW TTY X	X=1 X=2
CDNO	0	Card number 0
PORT	X	X=1 X=2
DES	aaa...a	AML port designation (can be up to 16 alphanumeric characters)
BPS	300, 600, 1200, 2400, (4800), 9600, 19200, 38400,	Bits per second data rate
BITL	5, 6, 7, (8)	Data bit length
STOP	(1), 1.5, 2	Number of stop bits
PARY	ODD, EVEN, (NONE)	Parity
ENL	(YES), NO	Auto enable SDI port
USER	BUG, SCH, MTC	
:		

End of Procedure

Keeping the TDS/DTR card while configuring additional units or ports on the SSC card

Follow this procedure to retain the NTAK03 TDS/DTR card and the NT5K48 XTD card and take advantage of additional units or ports. Since these cards are already programmed, their functions will have to be moved to the NTDK20 SSC card.

Procedure 14
Defining TDS/DTR/XTD on the NTDK20 SSC

1 Configure TDS by entering 0 at the TDS prompt in LD 17 (see Table 20 below):

Table 20
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
CEQU	YES	Changes to common equipment
TDS	0	Tone and Digit switch for the NTDK20 SSC card.

2 Configure the DTR units on card 0, units 0 through 7 in LD 13 (see Table 21 below):

(This Step only applies if DTR is being used. If XTD is used instead, skip this step and proceed to Step 3 on page 145).

Note: DTRs are typically used in North America and allow the card to operate as a standard DTMF receiver. This step only applies if DTR is being used. If XTD is used instead, skip this step and proceed to Step 3 on page 145.

Table 21
LD 13

Prompt	Response	Comments
REQ	NEW	
TYPE	DTR	Define digitone receivers
TN	0 u	Card 0, u = 0-7

3 Configure the XTD units on card 0, units 0 through 7 in LD 13 (see Table 22 below). Make sure you configure all 8 units. (Do not perform this step if you are using DTR instead of XTD—you completed the procedure in Step 2).

Note: XTDs are typically used in markets outside North America. Do not perform this step if DTR is used instead of XTD (see Step 2 on page 144).

Table 22
LD 13

Prompt	Response	Comments
REQ	NEW	Add information
TYPE	XTD	Extended Dial Tone Detector and Digitone Receiver data block
TN	c u	c= 0 u= 0 to 7 (Repeat until all 8 units are configured)
XTDT	(0)-7	Extended Tone Detector Table Number. If a table other than 0 is entered, it must exist in LD 97.
_DTO	(NO), YES	Dial Tone Detection only. (NO) = Do not disable DTR detection YES = Disable DTR detection, only perform dial tone detection

End of Procedure

Procedure 15
Defining SDI ports 1 and 2

1 Load overlay program 17 (LD 17).

2 Configure SDI ports 1 and 2 as shown in the following Table:

Table 23
LD 17

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
ADAN	NEW TTY X	X=1 X=2
CDNO	0	Card number 0
PORT	X	X=1 X=2
DES	aaa...a	AML port designation (can be up to 16 alphanumeric characters)
BPS	300, 600, 1200, 2400, (4800), 9600, 19200, 38400,	Bits per second data rate
BITL	5, 6, 7, (8)	Data bit length
STOP	(1), 1.5, 2	Number of stop bits
PARY	ODD, EVEN, (NONE)	Parity
ENL	(YES), NO	Auto enable SDI port
USER	BUG, SCH, MTC	
:		

End of Procedure

Chapter 8 - Option 11/11E upgrade from Software Daughterboard or PCMCIA

General information

This chapter describes how to upgrade an existing Option 11 or 11E to Option 11C using the software daughterboard.

The Software Daughterboard is pre-programmed with the system software before being shipped to the customer site. This is the method used in most cases.

CAUTION

A Software Daughterboard, Security Device, and Keycode Data Sheet are required to allow proper installation of the software. A keycode data sheet is needed to complete the installation. Refer to the keycode data sheet when entering the ISM parameters, adding packages or changing the AUX ID.

How to upgrade to the Option 11C software system

Summary of steps

The Software Installation steps are summarized in the following list. They consist of:

- Installing the Software Daughterboard and Security Device.
- Setting the system time and date.
- Selecting the System Upgrade function.
- Selecting Feature Set and packages.
- Selecting a database.
- Selecting Incremental Software Management (ISM) parameters.
- Validating keycodes.
- Loading the software.

CAUTION

Wear the anti-static wrist strap provided in the bottom of the cabinet before handling circuit cards. Static electricity can damage the components of power supplies and circuit cards.

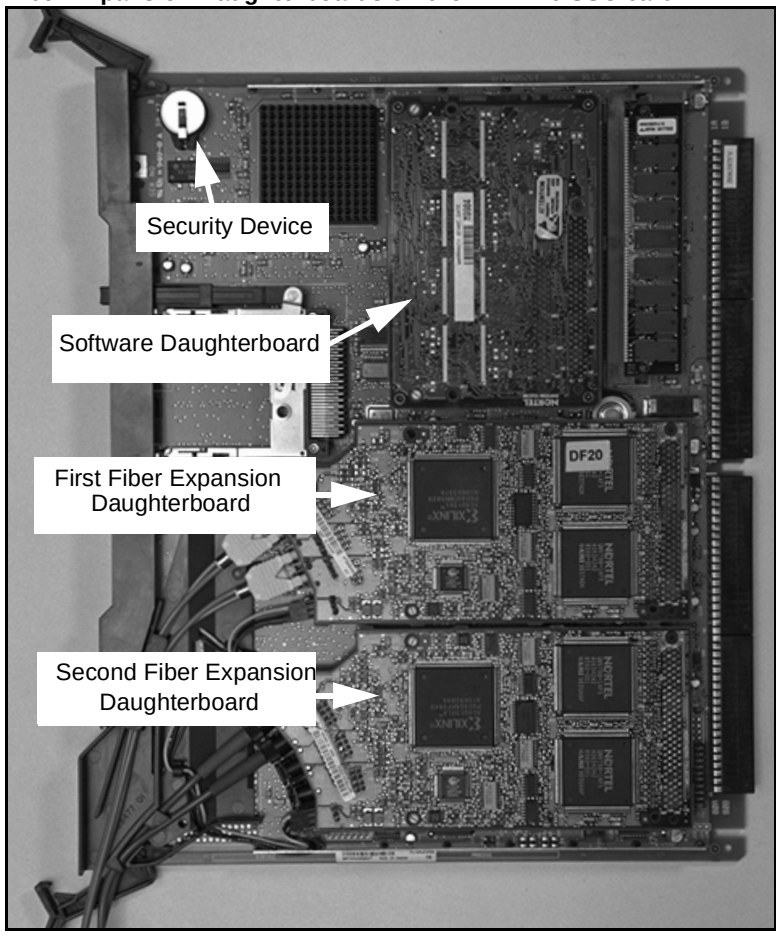
Upgrading the software

1 If not previously done, install the Software Daughterboard and Security Device on the NTDK20 Small System Controller (SSC) card.

To install the Software Daughterboard and Security Device refer to Figure 57 on page 149 and the following steps:

- Put on the anti-static wrist strap and insert the Software Daughterboard in the connector on the component side of the SSC card.
- Install any required Expansion Daughterboards.
- Insert the Security Device in the socket on the component side of the SSC card.

Figure 57
Fiber Expansion Daughterboards on the NTDK20 SSC card



2 If not previously done, install the NTDK20 Small System Controller (SSC) card in its slot (slot 0) of the main cabinet.

Note: If a fiber optic cable is present, make sure that it is placed in the Fiber Routing Guide.

3 If not previously done, power up the system.

To power up the system:

- Make sure that the power is connected to the cabinet then set the circuit breaker on the front of the power supply unit to ON.

4 Observe the terminal screen.

One of two messages will appear and the software installation proceeds accordingly. If the message is:

```
INSERT SOFTWARE DELIVERY CARD
```

proceed with Step 5 on page 150.

OR IF the following is displayed:

```
INSTALL SETUP PROGRAM
```

go to Step 6 on page 151.

5 Skip this step unless the Software Delivery (PCMCIA) card is being used to install the software.

If not previously done, install the Software Delivery card in the socket in the faceplate of the SSC card.

To install the Software Delivery card:

Insert the card in slot A in the PCMCIA socket located in the faceplate of the NTDK20 Small System Controller (SSC) card. Gently press on the Software Delivery card until it is firmly seated. Refer to Figure 58 on page 151 for correct placement of the SSC card.

Figure 58
PCMCIA card slot location

6 **Observe the terminal screen.**

If the following is displayed:

```
Current system time and date: 00:00:00 -- 00/00/00
```

proceed to Step 7 on page 152.

OR IF the following is displayed:

```
Software Installation Main Menu
```

proceed to Step 8 on page 152.

7 Set the system Time and Date.

Note: The Time and Date prompt appears only when the Install Setup Program detects a system Year Date that is not in the range of 1995-2095. The responses shown below are examples of how to enter the system Time and Date:

```
Enter new time (hh/mm/ss)
```

08:00:00 <cr>

```
Enter new date (yy/mm/dd)
```

95/05/01 <cr>

```
08:00:00 -- 95/05/01 is the new system time and date
```

y <cr>

8 Select item 1 or 2 from the Main Menu.

```
Software Installation Main Menu

1. New System Installation or Option 11/11E Upgrade
- From
   Software Daughterboard

2. System Upgrade

3. Utilities

4. New System Installation - From Software Delivery
Card

   [q]uit, [h]elp or [?], <cr> - redisplay
```

1 <cr> (Option 11/11E upgrade from Software Daughterboard)

2 <cr> (System Upgrade)

If the response was **ONE** proceed with Step 10 on page 153.

If the response was **TWO** proceed with Step 9 on page 153.

9 Select type of upgrade to be performed.

```
Meridian 1 Software Rls 24 will be installed.

Select type of upgrade to be performed:

1. Option 11/11E to Option 11C

2. Option 11C New Software Upgrade

3. Option 11C Feature/parameter upgrade

[q]uit, <cr> current menu, [m]ain menu, [h]elp or [?],
[p]revious menu
```

1 <cr> (Option 11/11E to Option 11C).

Proceed with the next step, Step 10 on page 153.

10 Select the Feature Set to be enabled.

Note: The Feature Set selected must match the ones provided with key codes. The Feature Set names shown below are **examples only**:

```
Select Feature Set You Wish to Enable:

1. General Business (NTSKxxxx)

2. Enhanced Business (NTSKxxxx)

3. Enterprise (NTSKxxxx)

4. NAS/VNS ( NTSKxxxx)

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr>
redisplay
```

(example only:)

```
Enter Selection:
```

2 <cr> (Enhanced Business).

11 Indicate whether or not packages are to be added.

```
Feature Set Selection: Enhanced Business

Do you wish to add packages?
```

Select no, yes or abort:

n <cr> (no)

y <cr> (yes)

a <cr> (abort)

Note: Abort returns you to the main menu.

If the response was **NO** go to Step 13 on page 155.

If the response was **YES** proceed with the next step, Step 11 on page 154.

12 Select the Feature packages to be added.

Summary of Packages selected is:

```
0-2 4-5 7-14 16-25 28-29 32-64 67 70-77 79-83 86-93
95 98-104 107-111 113-116 118-120 122-125 127-129
131-133 135 137-141

Enter packages (s) to be added, blank line to end:
```

215-235 <cr>

Note: **(<cr>** ends selection entry or if no packages are to be added).

13 Confirm Feature Set and packages.

```
Your Feature Set Selection is “Enhanced Business”:

Additional Packages selected: 215-235

Summary of Packages selected is:

0-2 4-5 7-14 16-25 28-29 32-64 67 70-77 79-83 86-93
95 100-104 107-111 113-116 118-120 122-125 127-129
131-133 135 137-141

...

...

200-208 215-235

Is this selection correct?
```

n <cr> (no)

y <cr> (yes)

a <cr> (abort, return to main menu).

If the response was **NO** go to Step 10 on page 153.

If the response was **YES** proceed with the next step, Step 14 on page 156.

14 Select a Database.

If you are installing from a Software Delivery (PCMCIA) Card go to Step 17 on page 159.

IF you are installing from a Software Daughterboard continue here:

```
Select database to Install:

1. Pre-Configured database - Enhanced Business

2. Basic Configuration

3. CCBR Restore File

4. Option 11/11E Software Cartridge

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr>
redisplay

Enter Selection: 3 or 4 <cr>
```

IF your selection was CCBR Restore File, go to Step 18 on page 159.

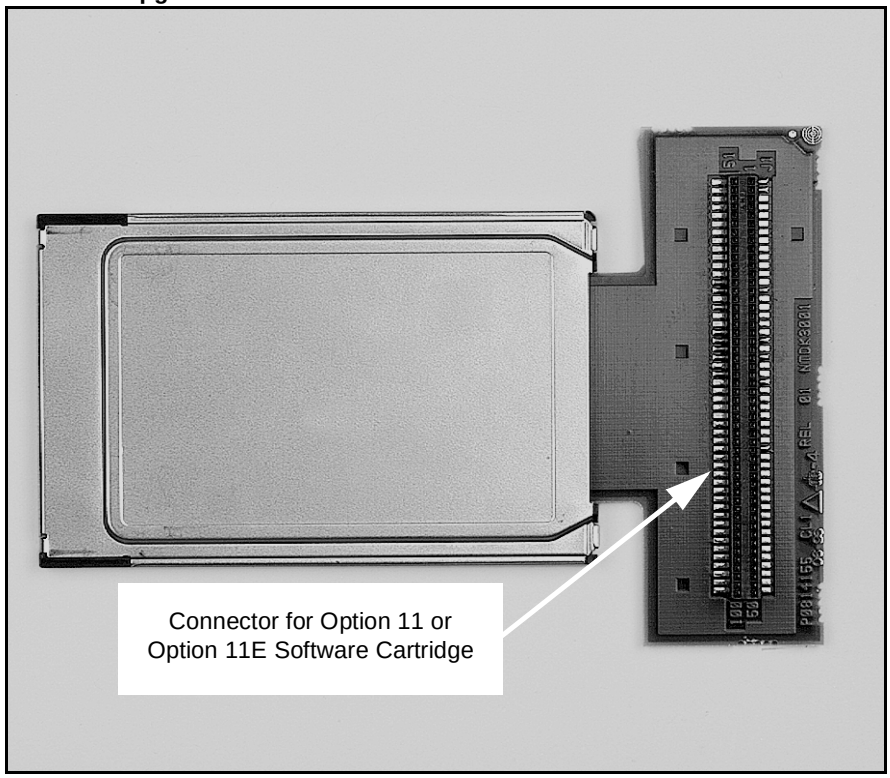
IF your selection was Option 11/11E Software Cartridge continue with the next step, Step 15 on page 157.

15 Connect the Option 11/11E Software Cartridge to the Database Upgrade Tool.

Perform this step only when upgrading using the Option 11/11E Software Cartridge as a database source. If upgrading using the CCBR Restore file as a database source, complete Step 18 on page 159, then do Step 19 on page 160.

Refer to Figure 59 (shown below) for correct connection of the Software Cartridge to the Database Upgrade Tool.

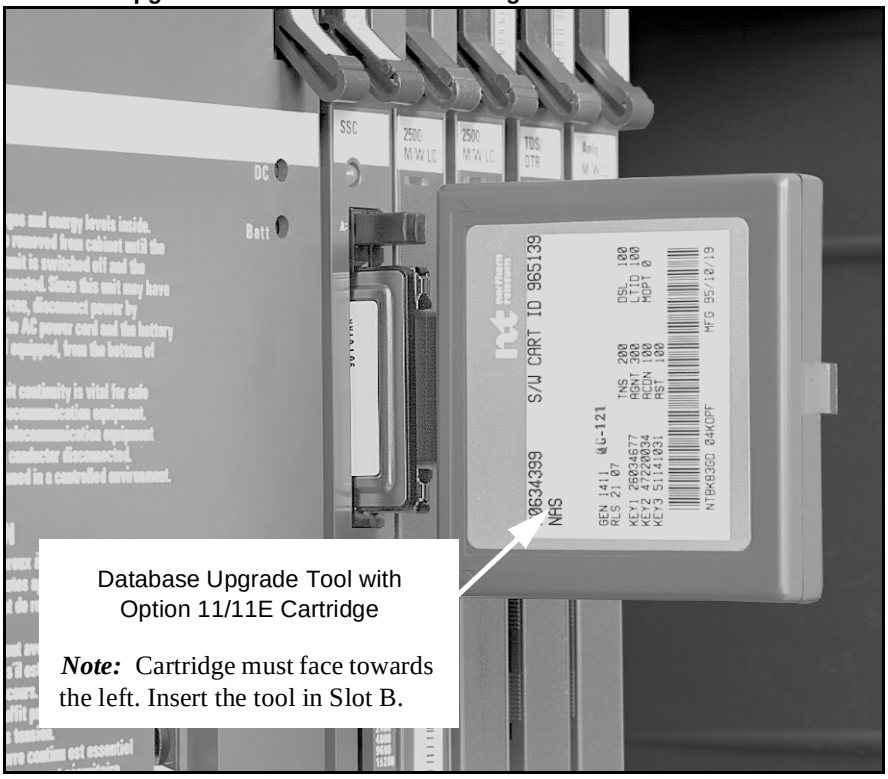
Figure 59
Database Upgrade Tool



16 Install the Database Upgrade Tool and cartridge.

Insert the Database Upgrade Tool with the attached Option 11/11E cartridge into drive b (see Figure 60 shown below).

Figure 60
Database Upgrade Tool inserted with cartridge



17 Select a Database using the PCMCIA card.

If you are installing from a Software Daughterboard go to Step 14 on page 156.

If you are installing from a Software Delivery (PCMCIA) card continue here:

```
Select database to Install:

1. CCBR Restore file

2. Option 11/11E Software Cartridge

[q]uit, [m]ain, [[p]revious menu, <cr> - redisplay

Enter Selection:
```

1 <cr> (CCBR Restore file)

2 <CR> (Option 11/11E Software Cartridge).

If the response was **ONE** continue with the next step, Step 18 on page 159.

If the response was **TWO** go to Step 15 on page 157.

18 Confirm database selection.

```
Warning: you must have an Option 11/11E database.

Do you wish to continue?
```

n <cr> (no)

y <cr> (yes)

a <cr> (abort, return to main menu).

If the response was **NO** go to Step 14 on page 156.

If the response was **YES** go to Step 19 on page 160.

19 Review ISM parameters.

Review the current ISM parameter settings to determine if they need changing.

```
Current ISM Parameters:
```

TNS (1000) **(maximum number of terminal numbers)**

ACDN (0300) **(maximum number of ACD DNs)**

AST (0100) **(maximum number of associate Sets)**

LTID (0100) **(maximum number of Logical Terminal IDs)**

RAN_CON (0012) **(default RAN connection)**

RAN_RTE (9999) **(default RAN routes)**

MUS_CON (0100) **(default MUS connection)**

BRAND (0) **(brandline)**

ACD AGENTS (1000) **(maximum number of ACD agents)**

ANALOGUE TELEPHONES (0100) **(maximum number of analogue sets)**

BRI DSL (0100) **(maximum number of Digital Subscriber Loops)**

DIGITAL TELEPHONES (0100) **(maximum number Digital sets)**

WIRELESS TELEPHONES (0) **(maximum number Wireless sets)**

TMDI D-CHANNELS (0) **(maximum number of channels)**

MOPT (0000) **(Meridian Mail option)**

```
Do you wish to change ISM parameters?
```

n <cr> (no change)

y <cr> (change)

a <cr> (abort, return to main menu).

Note: Depending on the type of upgrade you are performing the **a (abort, return to main menu)** selection may or may not be displayed.

If the response was **NO** go to Step 22 on page 163.

If the response was **YES** continue with the next step, Step 20 on page 161.

20 Select ISM parameters.

```
Enter new ISM parameters, <cr> to leave as is:
```

TNS (1000)

ACDN (0300)

AST (0100)

LTID (0100)

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT (0000)

21 Confirm ISM parameters.

```
New ISM parameters are:
```

TNS (1000)

ACDN (0300)

AST (0100)

LTID (0100)

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT (0000)

```
Is this correct?
```

n <cr> (no)

y <cr> (yes)

a <cr> (abort, return to main menu).

If the response was **NO** go to Step 19 on page 160.

If the response was **YES** go to Step 22 on page 163.

22 Define the AUX ID.

Note: The default AUX ID is the security ID provided with the Option 11C. It should be replaced with the previous Option 11 or Option 11E site ID.

```
Security ID: 20000326

Current AUX ID: 20000326

Do you wish to change the AUX ID?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu).

If the response was **YES** go to Step 23 on page 164.

If the response was **NO** go to Step 24 on page 164.

23 Enter the AUX ID.

Enter the Option 11/11E Security ID for the new AUX ID, **<cr>** to maintain

12121212 <cr>

New AUX ID: 12121212

Is this correct?

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu).

If the response was **NO** go to Step 22 on page 163.

If the response was **YES** continue with Step 24 on page 164.

24 Review and confirm information entered.

Software Upgrade Summary:

Security ID:20000326

Aux ID:12121212

Added Pkgs:215-235

Feature Set:Enhanced Business

Database:Company.ABC

The above Software Upgrade Summary is displayed (or the S/W Release information as shown below) to allow review and confirmation of data entered.

S/W Release: 2304C

ISM Parameters

TSN: 1000 1000

ACDN: 0300 0300

AST: 0100 0100

LTID: 0100 0100

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT: 0000 0000

Note: Both the old and the new parameters are displayed.

```
Is this correct?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu).

If the response was **YES** go to Step 25 on page 166.

If the response was **NO** go to Step 10 on page 153.

25 Enter the keycodes

Note: Enter keycodes in place of **x, y, z** shown below as examples only.

```
Enter new Keycodes:

Key 1:xxxxxxxx <cr>

Key 2:yyyyyyyy <cr>

Key 3:zzzzzzzz <cr>
```

After the last keycode is entered, the system displays a message of successful or unsuccessful, follow the instructions given below.

```
'Keycode validation successful'

***WARNING*** A system restart will be invoked as part
of the software installation process".
```

If the **successful** message appears go to Step 26 on page 166.

```
'Keycode validation unsuccessful'
```

If the **unsuccessful** message appears, repeat this step, Step 25 on page 166.

After three unsuccessful keycode validation attempts, the following message appears:

```
Keycode validation unsuccessful.

Installation aborted...returning to main menu.
```

26 Complete the software installation.

```
Are you sure you wish to perform the installation?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu).

If the response was **YES** this is the end of the Software Installation program.

If the response was **NO** go to Step 8 on page 152.

———————— ***End of Procedure*** ————————

Chapter 9 - Upgrading Option 11C/11C Mini software to a new release

General information

This chapter describes how to upgrade software on the Option 11C and the Option 11C Mini to another release using the Software Installation Program. This program is menu driven. It is straight forward and includes a “Help” facility to assist in making proper selections.

> ***Note:*** Information pertaining to software daughterboards does not apply to the Option 11C Mini.

This chapter contains the following procedure for the Option 11C:

- Procedure 16 on page 171 describes how to check existing program store and upgrade the software of an existing Option 11C to Release 24 using the Software Delivery (PCMCIA) card, or a software daughterboard. It also describes how to replace an existing NTDK21 software daughterboard with an NTDK81 daughterboard.

This chapter also contains the following procedures for the Option 11C and the Option 11C Mini:

- Procedure 17 on page 175 describes how to upgrade the software on an existing Option 11C or Option 11C Mini to a new release using the Software Delivery (PCMCIA) card.

- Procedure 18 on page 188 describes how to revert to the previous software version.

CAUTION

A new Keycode Data Sheet and Software Delivery (PCMCIA) card or software daughterboard programmed with the new software release are required to complete the upgrade. Refer to the keycode data sheet when entering the ISM parameters, adding packages or changing the AUX ID.

Summary of items required

The following items are required to perform software upgrades:

- A Software Delivery (PCMCIA) card containing the new software, or a pre-programmed Software Daughterboard
- A Keycode Data Sheet
- A TTY terminal connected to port 0.

Upgrading the software

Summary of steps

The following list is a summary of the steps which should be followed when upgrading from one software release to another. The steps consist of:

- Checking, and if necessary, updating the Boot ROM code (see “Reason for updating the Boot Code” on page 169)
- Checking the capacity of the installed daughterboard
- Installing the Software Delivery card
- Invoking the Software Installation Program
- Making changes to the Feature Set, if needed
- Selecting a database
- Making changes to the ISM parameters, if needed

- Validating keycodes
- Loading the software.

CAUTION
Please read this important message on Upgrades

When upgrading from Release 22 or Release 23 to Release 24 or higher, you MUST use the SYSLOAD method of upgrading as described below.

SYSLOAD method
Toggle Power Supply to OFF, then to ON. During the reboot, enter 'CONTROL-I' to access the Installation Program.

Upgrading from Release 22 or Release 23 to a higher Release cannot be achieved properly using the UPGRADE command.

UPGRADE method
Login to the system and select LD 143. Type UPGRADE to access the Installation Program.

If the 'UPGRADE' method is attempted, an invalid key code message will be displayed. If this occurs, reinitiate using the 'SYSLOAD' method.

Reason for updating the Boot Code

The Boot Code on the existing SSC card must be Release 09 or higher in order to support the NTDK81 Flash Daughterboard. Once updated, the Boot Code supports both the NTDK21 and NTDK81 Flash Daughterboards. It is strongly recommended that the Boot Code be updated to at least REL 09 when upgrading the software.

Note: X11 Rls 24 software requires an NTDK81 Flash Daughterboard.

Note: Although updating the Boot Code is not required if the NTK81AA Flash Daughterboard is not being used, it is strongly recommended that the update to Release 09 (or higher) be done when upgrading the software. This will significantly simplify any future change from the existing NTDK21 Flash Daughterboard to the NTDK81 Flash Daughterboard.

Software versions X11 Rls 24 and higher require the NTDK81 Flash Daughterboard. In addition, the boot code must be upgraded to the NTDK34FA Rel 01 or later when first moving to X11 Rls 24. The boot code will be included on the Release 24 PCMCIA card.

Reason for checking daughterboard capacity

Release 24 requires a 32 Mb configuration for Program Store. Option 11C systems equipped with the original NTDK21AA software daughterboard must be upgraded to the NTDK81 software daughterboard. The NTDK21 daughterboards are shipped with Release 22.08 to 23.18. Before loading Release 24 onto the Option 11C, check to see which daughterboard is equipped on the system. See Procedure 16. Procedure 16 has been added to describe how to upgrade software to Release 24 or higher on a system equipped with an NTDK21 based software daughterboard.

In all other cases, see Procedure 17 on page 175.

Upgrade procedure

The following procedures describe how to upgrade and install the software using a Software Daughterboard or a Software Delivery (PCMCIA) card.

Procedure 16
Upgrading software and changing the software daughterboard to an NTDK81

1 Check the existing program store by:

- logging into the switch and accessing overlay 135 (LD135)
- typing `stat mem` at the prompt.

The output indicates the amount of program store available on the system.

If the output indicates that the program store size is 24 Mb, the system is equipped with an NTDK21. You must upgrade the system's daughterboard before proceeding.

If the output indicates that the program store size is 32 Mb, the system is equipped with an NTDK81. You can proceed with Procedure 17 on page 175.

2 Perform a Data Dump (EDD).

To perform an EDD:

- Load overlay program 43 (LD 43 or 143)
- Enter command EDD.

3 Disable all DCH using LD 60.

4 Disable and AML links using LD 48.

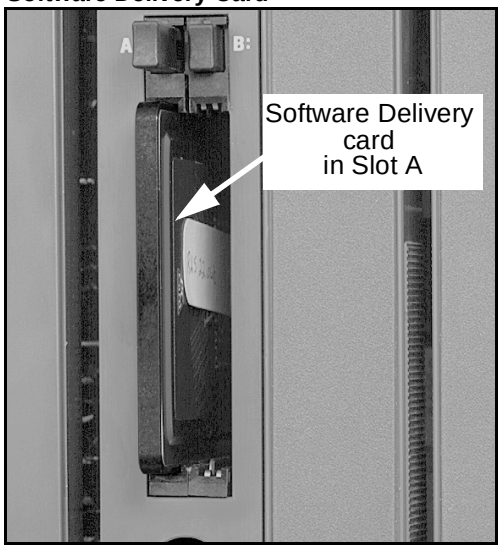
5 Check the release number on the faceplate of the NTDK20 SSC. If the release number is 11 or later, or if you have already upgraded the boot ROM release to 09 or higher, go to Step 9.

6 Insert the Software Delivery card for the desired release of software (see Table 24 on page 173) in slot A in the PCMCIA socket located in the faceplate of the NTDK20 SSC.

See Figure 61 on page 172 for correct placement.

Note: Gently press on the PCMCIA card until it is firmly seated.

Figure 61
Software Delivery Card



7 Invoke the Software Installation Program using Overlay 143 (LD 143).

8 Check the Boot Code version as described in "Chapter 15 - Using the flash boot ROM utility" on page 213.

The following list is a summary of the Steps which should be followed when checking the Boot Code:

- Select 'Utilities' from the Main menu.
- Select '7-Flash Boot ROM Utilities' from the Utilities menu.
- Select '1-List Flash Boot ROM' from the Flash Boot ROM menu.

The Active, Backup and Software Delivery Card Boot Code versions will be displayed.

Use Table 25 to determine whether the Boot Code needs to be updated.

Table 24
Minimum Boot Code requirements

Software being loaded	Minimum Boot Code required
Pre-Release 23	Any
Release 23	REL 09
Release 24	NTDK34FA REL 01

Note: For Rls 23 and higher software, it is recommended that the Boot Code be updated to the version on the PCMCIA card. All versions of Boot Code are backwards compatible.

- Select '2- Upgrade Flash Boot ROM'
- Enter 'Yes' in response to the prompt asking if the Flash Boot ROM is to be updated.
- Return to the 'Main' menu.

Note: There may or may not be anything in the 'Backup' Boot ROM. However, the 'Software Delivery Card' should show the version shown in Table 25 or a higher release number. If it is lower, the upgrade cannot be done and the version of the Software Delivery Card should be checked for authenticity.

9 Change the Software Daughterboard. Perform the following steps:

- Power down the system.
- Remove the NTDK20 SSC.
- Remove the NTDK21 from the SSC card and replace it with the NTDK81.
- Reinstall the NTDK20 SSC card in slot 0 of the main cabinet.
- Power up the system.

10 If the target software is pre-programmed on a new software daughterboard (NTSKxxAJ or higher), the card appears in the install menu. From the main menu, select "New System Installation - From Software Daughterboard" (Item 1) and go to Step 13 on page 174.

11 **If an NTDK81 blank daughterboard has been installed, insert the Software Delivery card with Release 24 software into slot A of the SSC card and log onto system.**

12 **From the main menu, select “New System Installation - From Software Delivery Card” (item 4).**

13 **Proceed with the Installation Menu choices as described for a new system installation in Chapter 18 of the Planning and Installation guide. When prompted for the choice of database, select “Basic Configuration” (item 2).**

CAUTION

It is important that you choose Basic Configuration at this point. Otherwise the system may invoke an EDD after loading the new software and may overwrite the customer data stored on the CPU.

14 **Once the software is installed and the system is rebooted, you must restore the customer's backup configuration files.**

- Login and LD 143 to access the Main Menu
- Select “Utilities” (Item 3)
- Select “Restore” (Item 1)
- Select “Backup Flash Drive” (Item 1)
- Confirm Restore Database from the Backup Flash Drive
- Reboot system by powering down and up.

——————————— *End of Procedure* ———————————

Procedure 17
Upgrading the software using a PCMCIA card

Note: This procedure assumes that the NTDK81 Software Daughterboard is already installed on the SSC card. To verify that the NTDK81 is installed, see Procedure 16 on page 171.

1 Perform a Data Dump (EDD).

To perform an EDD:

- Load overlay program 43 (LD 43 or 143)
- Enter command EDD.

2 Disable all DCH using LD 60.

3 Disable any AML links using LD 48.

4 Insert the Software Delivery card in slot A in the PCMCIA socket located in the faceplate of the NTDK20 SSC or the NTDK97 MSC card.

See Figure 61 on page 172 for the correct placement.

Note: Gently press on the PCMCIA card until it is firmly seated.

5 Select the method of invoking the Software Installation Program.

CAUTION
Please read this important message on Upgrades

When upgrading from Release 22 or Release 23 to Release 24 or higher, you MUST use the SYSLOAD method of upgrading as described below.

SYSLOAD method
Toggle Power Supply to OFF, then to ON. During the reboot, enter 'CONTROL-I' to access the Installation Program.

Upgrading from Release 22 or Release 23 to a higher Release cannot be achieved properly using the UPGRADE command.

UPGRADE method
Login to the system and select LD 143. Type UPGRADE to access the Installation Program.

If the 'UPGRADE' method is attempted, an invalid key code message will be displayed. If this occurs, reinitiate using the 'SYSLOAD' method.

There are two methods of invoking the Software Installation Program:

By using the UPGRADE command in Overlay 143

—**or**—

By pressing the 'control' and 'I' keys on the keyboard when prompted during a SYSLOAD (go to Step 7 on page 177).

6 **Login to the system by entering LOGI <cr> then proceed with the following:**

Note: The response to PASS? is unique to each system. The response shown below is an *example* only.

PASS?

0000 <cr>

LD 143 <cr>

UPGRADE <cr>

IF the message SOFTWARE INSTALLATION PROGRAM is displayed go to Step 7 on page 172.

IF the message SOFTWARE INSTALLATION PROGRAM is **NOT** displayed repeat Step 6 on page 177 (this step) and make sure correct information is entered.

7 **Invoke the Software Installation Program during a SYSLOAD.**

Note: Perform this step only when invoking the Software Installation Program during a **SYSLOAD**. To invoke the program using Overlay 143, disregard this step and do Step 6 on page 177 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply to OFF then to ON.

Note: A SYSLOAD can take from 20 to 30 minutes.

During SYSLOAD, the following prompt will appear:

FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM

Press and hold ‘control’ key and press ‘I’.

8 Update the Boot Code.
Check the Boot Code version as described in "Chapter 15 - Using the flash boot ROM utility" on page 213.

The following list is a summary of the Steps which should be followed when checking the Boot Code:

- Select 'Utilities' from the Main menu.
- Select '7-Flash Boot ROM Utilities' from the Utilities menu.
- Select '1-List Flash Boot ROM' from the Flash Boot ROM menu.

The Active, Backup and Software Delivery Card Boot Code versions will be displayed.

Use Table 25 to determine whether the Boot Code needs to be updated.

Table 25
Minimum Boot Code requirements

Software being loaded	Minimum Boot Code required
Pre-Release 23	Any
Release 23	REL 09
Release 24	NTDK34FA REL 01

Note: For Rls 23 and higher software it is recommended that the Boot Code be updated to the version on the PCMCIA card. All versions of Boot Code are backwards compatible.

- Select '2- Upgrade Flash Boot ROM'
- Enter 'Yes' in response to the prompt asking if the Flash Boot ROM is to be updated.
- Return to the 'Main' menu.

Note: There may or may not be anything in the 'Backup' Boot ROM. However, the 'Software Delivery Card' should show the version shown in Table 25 or a higher release number. If it is lower, the upgrade cannot be done and the version of the Software Delivery Card should be checked for authenticity.

9 **Select item 2 from the 'Select Type of Upgrade to be Performed' menu.**

```
Select type of upgrade to be performed:

1. Option 11/11E to Option 11C

2. Option 11C New Software Upgrade

3. Option 11C Feature/parameter Upgrade

[q]uit, <cr> current menu, [m]ain menu, [h]elp or
[?],[p]revious menu

Enter Selection:
```

2 <cr> (Option 11C New Software Upgrade).

Note: In the software menu, Option 11C appears for both Option 11C and Option 11C Mini.

10 **The 'Select the Feature Set You Wish to Enable' menu will be displayed.**

Select the Feature Set to be enabled from the list displayed. The Feature Set selected must match the ones provided with keycodes.

Note 1: *** The following questions require information on the Keycode Data Sheet. Please have it available.***

Note 2: *** If an External Data Card is being used for this system, please insert it into drive b: **NOW**.***

11 **Select the packages to be added, if any.**

Feature Set Selection: Enhanced Business

```
Do you wish to add packages?
```

n <cr> (no)

y <cr> (yes)

a <cr> (abort, return to main menu).

Note: **<cr>** ends selection entry or if no packages are to be added.

IF the response was **NO** go to Step 13 on page 181.

IF the response was **YES** go to Step 12 on page 180.

12 Confirm Feature Set and added packages.

The Feature Set and any added packages you selected are now displayed so you can review and confirm that they are entered correctly.

Note: The selections below are shown as *examples* only.

```
Summary of Packages selected is:

0-2 4-5 7-14 16-25 28-29 32-64 67 70-77 79-83 86-93
95 100-104 107-111 113-116 118-120 122-125 127-129
131-133 135 137-141...

...

200-208 215-235

Is this correct?
```

n <cr> (no)

y <cr> (yes).

If the response was **NO** go to Step 10 on page 179.

If the response was **YES** continue with the next step, Step 13 on page 181.

13 Review ISM parameters.

The ISM parameters displayed on the terminal screen are the default settings associated with the Feature Set selection. These settings can be accepted without changes or changed to suit the requirements of the system.

```
Current ISM Parameters:
```

TNS (1000) **(maximum number of terminal numbers)**

ACDN (0300) **(maximum number of ACD DNs)**

AST (0100) **(maximum number of associate Sets)**

LTID (0100) **(maximum number of Logical Terminal IDs)**

RAN_CON (0012) **(default RAN connection)**

RAN_RTE (9999) **(default RAN routes)**

MUS_CON (0100) **(default MUS connection)**

BRAND (0) **(brandline)**

ACD AGENTS (1000) **(maximum number of ACD agents)**

ANALOGUE TELEPHONES (0100) **(maximum number of analogue sets)**

BRI DSL (0100) **(maximum number of Digital Subscriber Loops)**

DIGITAL TELEPHONES (0100) **(maximum number Digital sets)**

WIRELESS TELEPHONES (0) **(maximum number Wireless sets)**

TMDI D-CHANNELS (0) **(maximum number of channels)**

MOPT (0000) **(Meridian Mail option)**

```
Do you wish to change ISM parameters?
```

n <cr> (no change)

y <cr> (change).

If the response was **NO** go to Step 16 on page 183.

If the response was **YES** continue with the next step, Step 14 on page 182.

14 Select ISM parameters.

```
Enter new ISM parameters, <cr> to leave as is:
```

TNS (1000)

ACDN (0300)

AST (0100)

LTID (0100)

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT (0000)

Note: The only value that changes is for **AST**, enter **100 <cr>** to change.

15 Confirm ISM parameters.

```
New ISM parameters are:
```

TNS (1000)

ACDN (0300)

AST (0100)

LTID (0100)

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT (0000)

Is this correct?

n <cr> (no)

y <cr> (yes)

a <cr> (abort, return to main menu).

If the response was **NO** go to Step 13 on page 181.

If the response was **YES** continue with Step 16 on page 183.

16 Define the AUX ID.

The default AUX ID is either the security ID provided with the Option 11C or Option 11C Mini, or the original 11/11E site ID.

Note: The AUX ID is also printed on your keycode sheet and must match either the security ID (11C or 11C Mini) or the original site ID (11, 11E).

Security ID: 20000326

Current AUX ID: 20000326

Note: For the Option 11C Mini, the Security ID and the Current AUX ID numbers are always the same.

Do you wish to change the AUX ID?

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu).

If the response was **YES** continue with Step 17 on page 184.

If the response was **NO** go to Step 18 on page 185.

17 Enter the AUX ID.

```
Enter the Option 11/11E Security ID for the new AUX
ID, <cr> to maintain.

New AUX ID: 12121212

Is this correct?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu).

If the response was **YES** continue with Step 18 on page 185.

If the response was **NO** go to Step 16 on page 183.

18 Review and confirm information entered.

```
Software Upgrade Summary:
```

Security ID: 20000326

Aux ID: 12121212

Database: Pre-Configured Database - Enhanced Business

S/S Release: 2202b2308b

Feature Set: Enhanced Business

Added Pkgs: none

ISM Parameters:

TSN: 1000 1000

ACDN: 0300 0300

AST: 0100 0100

LTID: 0100 0100

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT: 0000 0000

```
Is this correct?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu)

If the response was **YES** continue with Step 19 on page 186.

If the response was **NO** go to Step 10 on page 179.

19 Enter the keycodes

Enter keycodes in place of **x, y, z**, shown below as examples only.

```
Enter new Keycodes:

Key 1:xxxxxxxx<cr>

Key 2:yyyyyyyy<cr>

Key 3:zzzzzzzz<cr>
```

After the last keycode is entered the system displays a message of successful or unsuccessful keycode validation.

IF the following is displayed:

```
‘Keycode validation successful”

***WARNING*** A system restart will be invoked as

part of the software installation process”
```

continue with the next step, Step 20 on page 187.

IF the following is displayed:

```
‘Keycode validation unsuccessful’
```

go back to repeat this step, Step 19 on page 186 to re-enter correct keycodes.

Note: After three unsuccessful keycode validation attempts, the following message appears:

```
Keycode validation unsuccessful.

Installation aborted...returning to main menu.
```

20 Complete the software installation.

```
Are you sure you wish to perform the installation?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort)

If the response was **YES** this procedure is ended.

If the response was **NO** go to Step 8 on page 178.

End of Procedure

How to revert to the previous release of software

The following procedures describe how to revert to the previous release of software, Feature Set, Customer data and ISM Parameters using the Undo Installation option.

For an upgrade done using a PCMCIA card

This option requires that the same Software Delivery (PCMCIA) card that was used to upgrade this Option 11C/Option 11C Mini be installed and used to revert it to its former database. The Software Delivery (PCMCIA) card must not have been used to upgrade a subsequent Option 11C/Option 11C Mini, since the Security ID will no longer match this system.

Note: When upgrading, the existing Option 11C/Option 11C Mini database is saved (backed-up) on the Software Delivery (PCMCIA) card. The card contains only the backed-up database and Security ID of the last Option 11C/Option 11C Mini with which it was used.

Summary of steps

The steps to revert to the previous database are summarized in the following list. They consist of:

- Checking to make sure the correct Software Delivery (PCMCIA) card is installed.
- Selecting the Utilities menu.
- Selecting Undo Installation option.
- Reverting to the previous database.

Reverting to previous release of software

The following procedure describes how to revert to the previous release of software using PCMCIA card.

Procedure 18
Reverting to Previous Software Procedure

1 If not previously done, install the Software Delivery (PCMCIA) card in slot A in the PCMCIA socket in the faceplate of the SSC or MSC card.

Note: This Software Delivery card must be the same one that was used to upgrade this Option 11C/Option 11C Mini. It must not have been used to upgrade a subsequent Option 11C/Option 11C Mini because the Security ID will no longer match and the “undo” function will fail.

To install the Software Delivery (PCMCIA) card:

- Insert the PCMCIA card in slot A in the PCMCIA socket located in the faceplate of the NTDK20 SSC or the NTDK97 MSC card. Gently press on the PCMCIA card until it is firmly seated.

2 Select the method of invoking the Software Installation Program

There are two methods of invoking the Software Installation Program as follows:

- By using the UPGRADE command in Overlay 143

OR

- By pressing the ‘control’ and ‘l’ keys on the keyboard when prompted after the Software Delivery card is installed.

If you wish to invoke the program using Overlay 143 continue to Step 3 on page 189.

If you wish to invoke the program when prompted go to Step 4 on page 190.

3 Invoke the Software Installation Program using Overlay 143.

Note: Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and go to Step 7 on page 177.

Login to the system by entering **LOGI <cr>** then proceed with the following:

Note: The response to PASS? is unique to each system. The response shown below is an example.

PASS?

0000 <cr>

LD 143 <cr>

UPGRADE <cr>

If the following message is displayed:

SOFTWARE INSTALLATION PROGRAM

go to Step 5 on page 190.

If the above message does not appear repeat this step, Step 3 on page 189 and make sure the correct information is entered.

4 Invoke the Software Installation Program when prompted.

Note: Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and go to Step 3 on page 189 instead.

Start system reload (SYSLOAD). For Option 11C systems, set the circuit breaker on the front of the power supply to OFF and then to ON. For Option 11C Mini systems, remove the power cord and then plug it back in.

Note: When the `FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM` message appears a response must be entered within 5 seconds to invoke the program.

During SYSLOAD, the following prompt will appear:

```
FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM
```

Press and hold '**control**' key and press '**I'.**

5 Select Utilities from the Main Menu.

```
SOFTWARE INSTALLATION PROGRAM

********************************

Verify Security ID: 12345678

********************************

Software Installation Main Menu

1. New System Installation or Option 11/11E Upgrade
- From Software Daughterboard

2. System Upgrade

3. Utilities

4. New System Installation - From Software Delivery

Card

[q]uit, [h]elp or [?], <cr> redisplay

Enter Selection:
```

3 <cr> (Utilities)

6 **Select item 6 from the Utilities Menu.**

```
Utilities Menu:
1. Restore backed Up database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
[q]uit, [p]revious, [m]ain, [h]elp [?], <cr> redisplay
Enter Selection:
```

6 <cr> (Undo Installation)

7 **Complete the software installation.**

```
*** WARNING *** A system restart will be invoked as
part of the Undo Installation process.
Are you sure you wish to undo the installation?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort)

If the response was **YES** that is the end of this procedure.

If the response was **NO** go to Step 6 on page 191.

End of Procedure

For an upgrade done using a programmed software daughterboard (Option 11C)

Summary of steps

The steps to revert to the previous database are summarized in the following list. They consist of:

- Shutting down the system

- Installing the old daughterboard
- Powering the system back up.

Reverting to previous release of software

The following procedure describes how to revert to the previous release of software if a programmed Software Daughterboard was used to perform the upgrade.

Procedure 19
Reverting to Previous Software Procedure

1 **Disable all DCH using overlay 60 (LD60).**

2 **Disable all AML links using LD48.**

3 **Power down the system.**

4 **Change the Software Daughterboard, replacing the one used to deliver the upgrade with the one that was originally installed.**

5 **Power up the system.**

End of Procedure

Chapter 10 - Feature Set and ISM Parameters upgrade

General information

This chapter describes how to upgrade the Feature Set and ISM Parameters on an Option 11C or an Option 11C Mini when the software is not being upgraded to a new release (same release upgrade). The Software Delivery (PCMCIA) card is not required to perform this type of upgrade. This upgrade uses the Software Installation Program (LD 143). This program is menu driven. It is straight forward and includes a "Help" facility to assist in making proper selections.

> ***Note:*** If more detailed information is required, refer to "Chapter 9 - Upgrading Option 11C/11C Mini software to a new release" on page 167, which contains complete details of the Software Installation Program (LD 143).

How to upgrade Feature Set and ISM Parameters

Summary of steps

The Upgrading and Installation steps are summarized in the following list. They consist of:

- Invoking the Software Installation Program.
- Selecting the System Upgrade function.
- Selecting Feature Set and packages (optional).
- Selecting Incremental Software Management (ISM) parameters (optional).
- Validating keycodes.

- Loading the software.

Upgrading Feature Set and ISM Parameters

The following procedure describes how to upgrade the Feature Set and ISM Parameters without upgrading the software release.

Note: *** The following questions require information on the Keycode Data Sheet. Please have it available.***

Procedure 20
Upgrading Feature Set and ISM Parameters

1 Invoke the Software Installation Program using Overlay 143.

Login to the system by entering **LOGI <cr>**.

Enter the unique system password in response to the prompt **PASS?**.

2 Select 'System Upgrade' (item 2) from the Software Installation Main Menu.

The 'Select Type of Upgrade to be Performed' menu is displayed.

3 Select 'Option 11C Feature/parameter Upgrade' (item 3) from the 'Select Type of Upgrade to be Performed' menu.

Note: In the software menu, Option 11C appears for both Option 11C and Option 11C Mini.

4 Indicate whether you wish to change the current Feature Set.

Note: The Feature Set selected must match the ones provided with the keycodes.

IF the current Feature Set is to be changed enter **'y'** (YES) and you will be prompted to choose the new Feature Set.

IF the current Feature Set is to be retained enter **'n'** (NO).

5 Indicate whether or not packages are to be added.

6 Review and make changes to the ISM parameters, if needed.

Note: The ISM parameters displayed on the terminal screen are the default settings associated with the Feature Set selection. If Feature Set is not changed, the parameters displayed remain as the current ISM parameters. These settings can be accepted without changes or changed to suit the requirements of the system.

7 Define the AUX ID.

The default AUX ID is either the security ID provided with the Option 11C or the Option 11C Mini, or the original 11/11E site ID.

Note: The AUX ID is also printed on your keycode sheet and must match either the security ID (11C or 11C Mini) or the original site ID (11, 11E).

8 Review and confirm information entered.

The Same Release Upgrade Summary is displayed. Review and confirm the information displayed.

9 Enter the keycodes when prompted.

Once the system confirms and accepts the keycodes, the 'Are you sure you wish to perform the installation?' prompt appears.

10 Enter 'y' in response to the 'Are you sure you wish to perform the installation?' prompt.

Note: If the only change is an increase in ISM parameter values, then a message appears stating that a sysload is not required. Changes to the ISM values have been implemented.

Note: If a system reload (SYSLOAD) is required, it need not be invoked immediately since the information is stored in the Option 11C or the Option 11C Mini until the SYSLOAD is performed. Since a SYSLOAD interrupts service on the system, it may be preferable to invoke it later when a service interruption is less inconvenient.

——————————— ***End of Procedure*** ———————————

Chapter 11 - Restoring a backed up database

General information

This chapter describes how to use the Restore Backed Up database utility to restore a database from any of the following sources:

- the backup Flash Drive (using LD 43)
- a Software Delivery (PCMCIA) card (using LD 43)
- a Customer Configuration Backup and Restore (CCBR) file (using LD 143).

How to restore a backed up database

Summary of steps

The steps to restore a backed up database are summarized in the following list. They consist of:

- Selecting the Utilities function.
- Selecting the database source
- Restoring the database.

Restoring the database

The following procedure describes how to restore the database.

Procedure 21
Database Restoration Procedure

1 Invoke the Install Setup Program using Overlay 143.

Login to the system by entering **LOGI <cr>**.

Enter the unique system password in response to the prompt **PASS?**.

2 Select 'Utilities' (item 3) from the Main Menu.

3 Select Restore backed up database (item 1) from the Utilities Menu.

4 Select source of database.

The selections are displayed as follows:

```
Select Restore Database Source:

1. Backup Flash Drive

2. External Drive

3. Option 11C CCBR Restore file

4. Option 11/11E CCBR File

5. Option 11/11E Software Cartridge.
```

Enter your selection and continue accordingly.

Note 1: In the software menu, Option 11C appears for both Option 11C and Option 11C Mini.

Note 2: Selections 4 and 5 do not apply to the Option 11C Mini.

5 Confirm Restore Database from the Backup Flash Drive.

The date of the backed up database is displayed and the following prompt:

```
Are you sure you wish to perform the Restore?
```

If your response was **NO** return to Step 3 on page 200.

If your response was **YES** continue with the next step, Step 6 on page 201.

Note: You may also respond with **<a>**bort to return to the main menu.

6 Complete restore from Flash Drive.

The system restores the backed up database selected and a message indicating the success or failure of the restoration is displayed.

If the restoration is successful this procedure is completed.

If the restoration was unsuccessful return to Step 2 on page 200.

Note: The 'Restore successful' message indicates that the database has been successfully restored and no further action is required.

7 Confirm Restore Database from the External Drive (PCMCIA card).

The following message is displayed:

```
Restoring primary drive from External Drive..
(Date and time)

System Restart required to activate restored
database

Are you sure you wish to perform the Restore?
```

Confirm that you wish to continue with the restoration.

8 Restore Database from the CCBR Restore file.

The following message is displayed:

```
WARNING: You must have an Option 11C CCBR file backed
up.

WARNING: Your internal backup will be erased.

Are you sure you wish to Restore?
```

As the restoration progresses the following is displayed:

```
Entering receive mode for data transfer...

Escape back to host machine and commence upload...

Database transfer complete...

Restoring Primary drive from CCBR file...

Restore successful.

System Restart required to activate restored

database.
```

If the restoration was **successful** continue with the next step, Step 9 on page 202.

If the restoration was **unsuccessful** and the BKP011 message is displayed go to Step 1 on page 200.

If the restoration was unsuccessful and any message other than BKP011 is displayed go to Step 2 on page 200.

Definition of BKP011 message is: Restore successful but site ID in backup image differs from that of the switch. This is expected if the restored database is of a system with a different site ID.

9 Invoke a system restart (SYSLOAD).

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

If the SYSLOAD was **successful** this procedure is completed.

If the SYSLOAD was **unsuccessful** go to Step 1 on page 200.

———————— ***End of Procedure*** ————————

Chapter 12 - Archiving and removing databases

General information

This chapter describes how to use the Archive feature to:

- archive a new customer database
- list the databases that are archived
- remove existing archived databases.

The database can be defined in an off-site lab environment and saved (archived) on a Software Delivery (PCMCIA) card until it is required. It can then be loaded in the customer's system using the Software Delivery card.

How to use archive feature

The customer database must first be defined and loaded into the flash ROM on the NTDK20 Small System Controller (SSC) or the NTDK97 Mini System Controller (MSC) card before it can be archived on the Software Delivery card.

Summary of steps

The steps to archive a customer database are summarized in the following list. They consist of:

- Checking to make sure the correct Software Delivery card is installed.
- Selecting the Utilities function.
- Selecting the Archive option.

Using the archive feature

The following procedure describes how to use the archive feature to list, add and remove customer databases.

Procedure 22
Using the archive feature

1 If not previously done, install the Software Delivery card in slot A of the PCMCIA socket in the faceplate of the SSC or MSC card.

Note: When adding a customer database to the archive, it must first be loaded in the SSC card or the MSC card of this system.

Only a customer database that is already defined and loaded in the SSC or MSC card can be added to the archive. Make sure that the desired database is defined and loaded before attempting to archive it.

Note: Methods used to define and load customer databases are described in previous chapters and are not repeated here.

Archived databases can be listed and removed from the archive directly from the Software Delivery card without being loaded in the SSC or MSC card.

Note: Complete instructions for the installation of the Software Delivery (PCMCIA) card can be found in Procedure 17 Upgrading the software using a PCMCIA card on page 175.

2 Select the method of invoking the Software Installation Program.

Note: More detailed instructions for this and the following steps can be found in Procedure 17 Upgrading the software using a PCMCIA card on page 175.

3 Invoke the Software Installation Program using Overlay 143.

4 Select Utilities from the Main Menu.

5 Select item 2 from the Utilities Menu.

6 Select archive function.

```
Customer Database Archives:
1. List customer databases
2. Remove customer database
3. Archive a customer database
[q]uit, [p]revious, [m]ain, [h]elp or [?]
<cr> - redisplay
Enter Selection:
```

1 <cr> (List Customer databases)

2 <cr> (Remove Customer database)

3 <cr> (Archive a Customer database).

If your response was **ONE** continue with the next step, Step 7 on page 205.

If your response was **TWO** go to Step 8 on page 206.

If your response was **THREE** go to Step 9 on page 206.

7 Review list of archived databases.

The list of archived customer databases are displayed. The 'Customer Database Archives' menu is also displayed.

If a database is to be removed from the archive continue with the next step, Step 8 on page 206.

If a database is to be added to the archive go to Step 9 on page 206.

If it's the end of activity enter the following:

q <cr> (End).

8 Remove the desired customer database from the archive.

The archived databases and the following prompt are displayed:

```
q]uit, <cr>current menu, [m]ain, [p]revious menu

Enter selection:

Remove database
'Name of archived database'
database?
```

Enter your selection and respond to the confirm removal prompt.

9 Add the customer database to the archive.

When you select to add a customer database to the archive the following prompt is displayed:

```
Enter a Customer name for your customized data:
```

Type in the name for this archived database and the system displays the name for confirmation. When confirmed the following message is displayed:

```
Copying database from primary drive to 'Name of
archived database'.
```

End of Procedure

Chapter 13 - Installing an archived database

General information

This chapter describes how to install an archived Customer Database in a designated Option 11C or Option 11C Mini system using the Software Delivery (PCMCIA) card.

How to install an archived database

Summary of steps

The archived customer database installation steps are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery card is installed.
- Selecting the Utilities menu.
- Selecting Install Archived database option.
- Loading the database.

Installing the database

The following procedure describes how to install an archived database using a Software Delivery card.

Procedure 23
Installing an archived database

1 If not previously done, install the Software Delivery card in slot A of the PCMCIA socket in the faceplate of the SSC or MSC card.

Note: Complete instructions for the installation of the Software Delivery (PCMCIA) card can be found in Procedure 17 on page 175.

2 Select the method of invoking the Software Installation Program.

Note: More detailed instructions for this and the following steps can be found in Procedure 17 on page 175.

3 Invoke the Software Installation Program using Overlay 143.

4 Select Utilities from the Main Menu.

The Utilities Menu is displayed as shown below:

```
Utilities Menu:

1. Restore Backed Up database

2. Archive Customer defined databases

3. Install Archived database

4. Review Upgrade Information

5. Clear Upgrade Information

6. Undo Installation

7. Flash Boot ROM Utilities

[q]uit, <cr>current menu, [m]ain, [p]revious menu
```

5 Select item 3 (Install Archived Database) from the Utilities Menu.

The system displays the list of archived customer databases.

6 Select the Customer Database.

Type in the name of the database you wish to restore.

7 **Confirm database selection.**

The system prompts you to confirm the name of the database to be restored.

If your response was **YES** continue with the next step, Step 8 on page 209.

If your response was **NO** go to Step 6 on page 208 to select a customer database.

8 **Restore the archived database.**

The following is displayed:

```
Restoring Archived database to Primary drive...

Restore successful.

System Restart required to activate database.
```

If the restore was successful that is the end of this procedure.

If the restore was unsuccessful go to Step 4 on page 208.

End of Procedure

Chapter 14 - Reviewing and clearing upgrade information

General information

This chapter describes how to use the Review Upgrade Information and Clear Upgrade Information options.

These options provide a means of reviewing the upgrade information that was entered and, if required, a means of clearing the upgrade information from the Software Installation Program.

How to review and clear upgrade information

Summary of steps

The steps to review and clear upgrade information are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery (PCMCIA) card is installed.
- Selecting the Utilities menu.
- Selecting Review Upgrade Information option.
- Selecting Clear Upgrade Information option (if required).

Reviewing and clearing upgrade information

The following procedure describes how to review and, if desired, clear the upgrade information.

Procedure 24
Reviewing and clearing upgrade information

1 If not previously done, install the Software Delivery card in slot A of the PCMCIA socket in the faceplate of the SSC or MSC card.

Note: Complete instructions for the installation of the Software Delivery (PCMCIA) card can be found in Procedure 17 Upgrading the software using a PCMCIA card on page 175.

2 Select the method of invoking the Software Installation Program.

Note: More detailed instructions for this and the following steps can be found in Procedure 17 Upgrading the software using a PCMCIA card on page 175.

3 Invoke the Software Installation Program using Overlay 143.

4 Select Utilities from the Main Menu.

5 Select the Review (item 4) or Clear (item 5) option from the Utilities Menu.

If your response was **FOUR** go to Step 6 on page 212.

If your response was **FIVE** go to Step 7 on page 212.

6 Review summary of upgrade information.

The upgrade information is displayed for your review. When finished go to Step 5 on page 212.

7 Review and clear or retain upgrade information.

The upgrade information selected is displayed and the following prompt displayed:

```
Do you wish to clear the Upgrade information?
```

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu).

If your response was **YES** that is the end of this procedure.

If your response was **NO** go to Step 4 on page 212.

End of Procedure

Chapter 15 - Using the flash boot ROM utility

General information

This chapter describes how to use the Flash Boot ROM utility for the Option 11C or Option 11C Mini to:

- display a list showing the status and version of the Flash Boot ROMs installed in the system and on the Software Delivery (PCMCIA) card (if it is present)
- upgrade the Flash Boot ROM (the Flash Boot ROM is not automatically upgraded when the software is upgraded)

This chapter also describes how to use the Flash Boot ROM utility for the Option 11C to:

- update the Boot Code on the SSC card in conjunction with a Software Daughterboard change from an NTDK21 Software Daughterboard to an NTDK81 Software Daughterboard

  Note: The updated Boot Code supports both the NTDK21 and NTDK81 Software Daughterboards. It is recommended that, whenever possible, the Boot Code be updated even if the existing NTDK21 Software Daughterboard is not presently being replaced with the NTDK81 Software Daughterboard. This will simplify any future Daughterboard replacement.

- restore a Flash Boot ROM.

How to use the flash boot ROM utility

Summary of steps

The steps to follow to perform the Flash Boot ROM functions are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery (PCMCIA) card is installed, if one is provided.
- Invoking the Software Installation program.
- Selecting the Utilities function.
- Selecting Flash Boot ROM utility.
- Selecting the desired Flash Boot ROM option.
- Invoking the selected Flash Boot ROM function.

Using the Flash Boot ROM Utility

The following procedure describes how to use the Flash Boot ROM utility.

Procedure 25
Using flash boot ROM utility

1 If one is provided and has not been installed, install the Software Delivery card in the socket in the faceplate of the SSC or MSC card.

Gently press on the PCMCIA card until it is firmly seated.

2 Invoke the Software Installation Program using Overlay 143.

Note: The response to PASS? is unique to each system. The response shown below is an *example* only.

```
LOGI

PASS?

0000 <cr>

LD 143 <cr>

UPGRADE <cr>
```

IF the message SOFTWARE INSTALLATION PROGRAM is displayed go to Step 3.

IF the message SOFTWARE INSTALLATION PROGRAM is **NOT** displayed repeat Step 2 (this step) and make sure correct information is entered.

3 Select item 3- 'Utilities' from the main menu.

4 Select item 7 - 'Flash Boot ROM Utilities' from the Utilities menu.

5 Select an option from the Flash Boot ROM Utilities menu.

The options are displayed as shown below:

```
Flash Boot ROM Utilities Menu:

1. List Flash Boot ROM

2. Upgrade Flash Boot ROM

3. Restore Flash Boot ROM

[q]uit, <cr>current menu, [m]ain, [p]revious menu

Enter Selection:
```

1 <cr> (List Flash Boot ROM)

2 <cr> (Upgrade Flash Boot ROM)

3 <cr> (Restore Flash Boot ROM)

If your response was **1** go to Step 6 on page 216.

If your response was **2** go to Step 7 on page 218.

If your response was **3** go to Step 8 on page 218.

6 Review the Flash Boot ROM summary.

The following information is displayed when the 'List Flash Boot ROM' utility is selected in Step 5 on page 215:

- the version of the active Flash Boot ROM
- the version of the backup Flash Boot ROM (if it exists)
- the version of the Flash Boot ROM residing on the Software Delivery (PCMCIA) card (if it exists).

The following are four examples of what might be displayed on the screen:

Example 1:

The Software Delivery Card (PCMCIA) contains a new version of the Flash Boot ROM. There is also an older backed-up version of the Flash Boot ROM.

```
Flash Boot ROM Summary:

Active -- NTDK34AA REL 02
```

(the version which is active)

```
Backup -- NTDK34AA REL 01
```

(the previous active version)

```
Software Delivery Card -- NTDK34AA REL 03
```

(a newer version)

Return to Step 5 on page 215.

Example 2:

The Software Delivery Card (PCMCIA) is not installed.

```
Flash Boot ROM Summary:
Active -- NTDK34AA REL 02
```

(the version which is active)

```
Backup -- NTDK34AA REL 01
```

(the previous active version

```
Software Delivery Card -- card not installed
```

(Software Delivery not installed).

Return to Step 5 on page 215.

Example 3:

There is no Flash Boot ROM on the Software Delivery Card (PCMCIA).

```
Flash Boot ROM Summary:
Active -- NTDK34AA REL 02
```

(the version which is active)

```
Backup -- NTDK34AA REL 01
```

(the previous active version)

```
Software Delivery Card -- no Flash Boot ROM on card
```

(no Flash Boot ROM on Software Delivery card).

Return to Step 5 on page 215.

Example 4:

The Software Delivery Card (PCMCIA) has the same version as the current active Flash Boot ROM.

```
Flash Boot ROM Summary:

Active -- NTDK34AA REL 03
```

(the version which is active)

```
Backup -- NTDK34AA REL 02
```

(the previous active version)

```
Software Delivery Card -- NTDK34AA REL 03
```

(same version as on Software Delivery)

Return to Step 5 on page 215.

7 Perform or terminate Flash Boot ROM upgrade.

```
Upgrading Active Boot ROM to NTDK34AA REL 03

System Restart required to activate Flash Boot ROM
upgrade.

*** WARNING *** A system restart will be invoked as
part of the Flash Boot ROM Upgrade.
```

You are prompted to perform the Flash Boot ROM upgrade.

If your response was **NO** go to Step 3 on page 215.

If your response was **YES** that is the end of this procedure.

8 Perform or terminate Flash Boot ROM restore.

```
Restoring Flash Boot ROM to NTDK34AA REL 01

System Restart required to activate restored Flash
Boot ROM.

*** WARNING *** A system restart will be invoked as
part of the Flash Boot ROM Restore.
```

You are prompted to perform the Flash Boot ROM Restore.

If your response was **YES** that is the end of this procedure.

If your response was **NO** go to Step 3 on page 215.

———————— ***End of Procedure*** ————————

Updating the Boot Code to support the NTDK81 Software Daughterboard (Option 11C)

Reason for updating the Boot Code

The Boot Code on the existing SSC card must be Release 09 or higher in order to support the NTDK81 Flash Daughterboard. Once updated, the Boot Code will support both the NTDK21 and NTDK81 Flash Daughterboards.

Although updating the Boot Code is not required if the NTK81AA Flash Daughterboard is not being used, it is strongly recommended that the update to Release 09 (or higher) be done when possible. This will significantly simplify any future change from the existing NTDK21 Flash Daughterboard to the NTDK81 Flash Daughterboard.

Procedure 26 on page 220 describes the steps to follow when updating the Boot Code to support the NTDK81 Software Daughterboard.

Procedure 27 on page 222 describes the steps to follow when updating the Boot Code and installing an NTDK81 as part of upgrading the system software.

Procedure 26
Updating the Boot Code

Note: Service on the system is not interrupted while performing this procedure.

1 If not previously done, insert the Software Delivery card in slot A of the PCMCIA socket located in the faceplate of the NTDK20 SSC card.

Gently press on the PCMCIA card until it is firmly seated.

2 Proceed with the following to login and load overlay program 143 (LD 143).

Note: The response to PASS? is unique to each system. The response shown below is an *example* only.

```
LOGI

PASS?

0000 <cr>

LD 143 <cr>

UPGRADE <cr>
```

IF the message SOFTWARE INSTALLATION PROGRAM is displayed go to Step 3.

IF the message SOFTWARE INSTALLATION PROGRAM is **NOT** displayed repeat Step 2 (this step) and make sure correct information is entered.

3 Select item 3- 'Utilities' from the main menu.

4 Select item 7 - 'Flash Boot ROM Utilities' from the Utilities menu.

5 **Select item 1 - 'Flash Boot ROM Summary' from the Flash Boot ROM Utilities menu to determine the Release (REL) number of the active Boot Code.**

A response of the following form will be received:

```
Active –- NTDK34AA REL 05  (REL number will vary)

Backup -- NTDK34AA REL 02 (REL number, if one is listed, will
                           vary)

Software Delivery Card -- NTDK34AA REL 09
```

If the Active Boot Code release is REL 09 or later, no further action is needed. Go to Step 8.

If the Active Boot Code release is REL 08 or earlier, go to Step 6.

Note: There may not be anything in the backup Boot ROM. The Software Delivery (PCMCIA) Card should indicate release REL 09 or later — if not, an upgrade cannot be done, and the PCMCIA card version should be checked.

6 **Select item 2 -'Upgrade the Boot Flash ROM' from the Flash Boot ROM Utilities manu.**

7 **Respond 'yes' to prompt asking you to confirm that you wish to update the Boot ROM.**

8 **Exit Overlay 143 and log off.**

Note: If the system software is to be upgraded, go to "Chapter 9 - Upgrading Option 11C/11C Mini software to a new release" on page 167.

——————————— ***End of Procedure*** ———————————

Procedure 27
Updating the Boot Code and installing an NTDK81 as part of upgrading the system software

1 Perform a Data Dump (EDD).

To perform an EDD:

- Load overlay program 43 (LD 43 or 143)
- Enter command EDD.

2 Disable all DCH using LD 60.

3 Disable and AML links using LD 48.

4 If not previously done, insert the Software Delivery card in slot A in the PCMCIA socket located in the faceplate of the NTDK20 Small System Controller (SSC) card.

5 If not previously done, load the Software Installation Program (LD 143).

6 Select item 3- 'Utilities' from the main menu.

7 Select item 7 - Flash Boot ROM Utilities - from the Utilities menu.

8 Select item 1 - 'Flash Boot ROM Summary' from the Flash Boot ROM Utilities menu to determine the Release (REL) number of the currently active Boot Code.

A response of the following form will be received:

`Active –- NTDK34AA REL 05` (REL number will vary)

`Backup -- NTDK34AA REL 02` (REL number, if one is listed, will vary)

`Software Delivery Card -- NTDK34AA REL 09`

If the Active Boot Code release is REL 09 or later, no further action is needed. Go to Step 11.

If the Active Boot Code release is REL 08 or earlier, go to Step 9.

Note: There may not be anything in the backup Boot ROM. The Software Delivery (PCMCIA) Card should indicate release REL 09 or later — if not, an upgrade cannot be done, and the PCMCIA card version should be checked.

9 Select item 2 - 'Upgrade the Boot Flash ROM' from the Flash Boot ROM Utilities menu.

10 **Respond 'yes' to prompt asking you to confirm that you wish to update the Boot ROM.**

11 **Set the breaker on the power supply to 'OFF' and change the Flash Daughterboard.**

12 **Do one of the following:**

- If the Release 23 software is pre-programmed on the new Flash Daughterboard, restore service on the system by setting the breaker on the power supply to 'ON'.
- If the daughterboard is blank, the Release 23 software can be loaded following the instructions found in the 'Starting up and Testing the System' chapter of *Option 11C Planning and Installation Guide*.
- If the daughterboard has an earlier release of software, proceed to load Release 23.30 as described in "Chapter 9 - Upgrading Option 11C/11C Mini software to a new release" on page 167.

——————————— ***End of Procedure*** ———————————

Chapter 16 - Installation summary

General information

This chapter describes how to obtain an installation summary for the Option 11C or Option 11C Mini using the Utilities menu.

How to use the installation summary utility

Summary of steps

Use the following steps to obtain an installation summary:

- Select the Utilities function.
- Select Current Installation Summary utility.

Using the Installation Summary Utility

Procedure 28
Current installation summary utility

Note: More detailed instructions for this and the following steps can be found in Procedure 17 Upgrading the software using a PCMCIA card on page 175.

1 Invoke the Software Installation Program using Overlay 143.

2 **Invoke the Software Installation Program when prompted.**

3 **Select Utilities from the Main Menu.**

4 **Select item 8 (Current Installation Summary) from the Utilities Menu.**

5 **Review the Installation summary.**

The Installation Summary is displayed on the screen for your review.

——————————— ***End of Procedure*** ———————————

Meridian 1

Option 11C

Upgrade Procedures

Publication number: 553-3021-250
Document release: Standard 5.00
Date: July 1999
Printed in Canada

NORTEL NETWORKS™