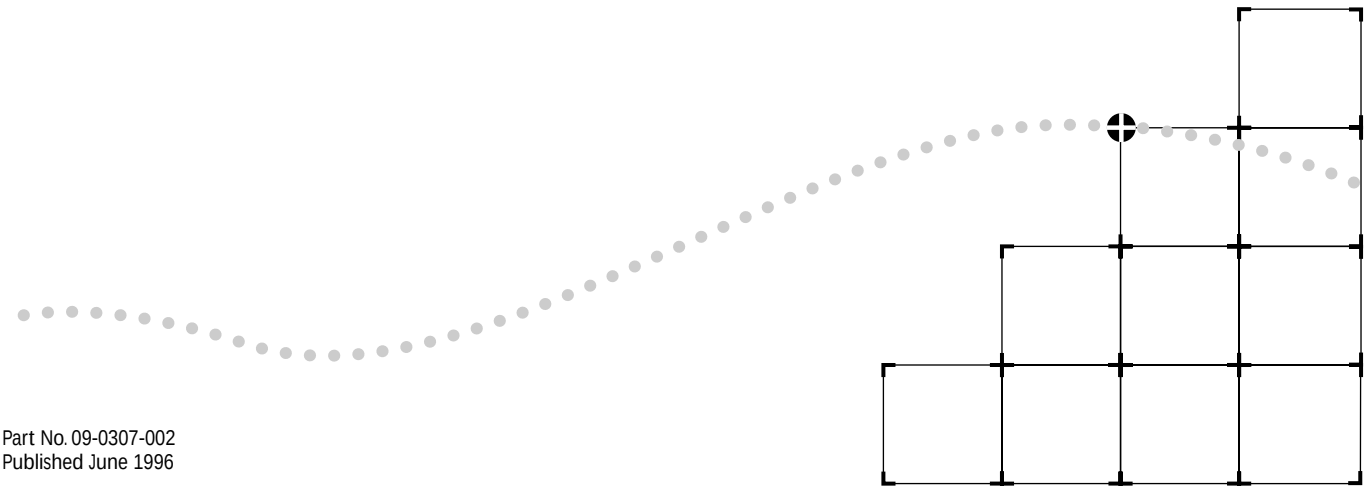
NETBUILDER II® COMMUNICATIONS ENGINE CARD (CEC20) MODULE INSTALLATION GUIDE



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ABOUT THIS GUIDE

Introduction

This guide provides information necessary to install, startup, troubleshoot, and maintain the NETBuilder II® Communications Engine Card (CEC20) module.

The CEC20 module is the central processor for all NETBuilder II systems.

This guide is intended for the system administrator, network equipment installer, or network manager who is responsible for installing and managing the network hardware. It assumes a working knowledge of network operations, but does not assume prior knowledge of 3Com® internetworking equipment.

If the information in the release notes shipped with your product differs from the information in this guide, follow the release notes.

Conventions

The following tables list conventions that are used throughout this guide.

Table 1 Text Conventions

Convention	Description
"Enter" vs. "Type"	When the word "enter" is used in this guide, it means type something, then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says "type."
"Syntax" vs. "Command"	When the word "syntax" is used in this guide, it indicates that the general form of a command syntax is provided. You must evaluate the syntax and supply the appropriate port, path, value, address, or string; for example: Enable RIPIP by using the following syntax: `SETDefault !<port> -RIPIP CONTrol = Listen` In this example, you must supply a port number for !<port>. When the word "command" is used in this guide, it indicates that all variables in the command have been supplied and you can enter the command as shown in text; for example: Remove the IP address by entering the following command: **`SETDefault !0 -IP NETaddr = 0.0.0.0`** *For consistency and clarity , the full form syntax (upper- and lowercase letters) is provided. However, you can enter the abbreviated form of a command by typing only the uppercase portion and supplying the appropriate port, path, address, value, and so forth. You can enter the command in either upper- or lowercase letters at the prompt.*
Text represented as `screen display`	`This typeface` is used to represent displays that appear on your terminal screen, for example: `NetLogin:`

Table 1 Text Conventions (continued)

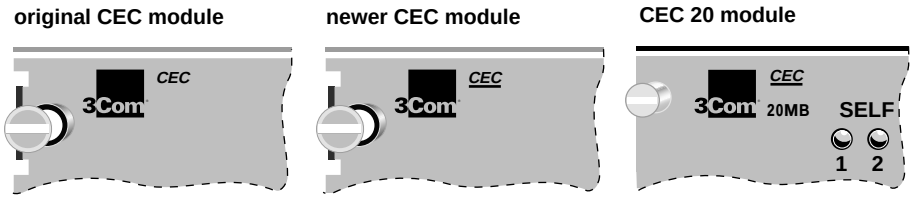
Convention	Description
Text represented as **`commands`**	**`This typeface`** is used to represent commands that you enter, for example: **`SETDefault !0 -IP NETaddr = 0.0.0.0`**
Keys	When specific keys are referred to in the text, they are called out by their labels, such as “the Return key” or “the Escape key,” or they may be shown as [Return] or [Esc]. If two or more keys are to be pressed simultaneously, the keys are linked with a plus sign (+), for example: Press [Ctrl]+[Alt]+[Del].
Italics	*Italics* are used to denote *new terms* or *emphasis*.

Table 2 Notice Icons

Icon	Type	Description
	Information Note	Information notes call attention to important features or instructions.
	Caution	Cautions contain directions that you must follow to avoid immediate system damage or loss of data.
	Warning	Warnings contain directions that you must follow for your personal safety. Follow all instructions carefully.

1 INSTALLATION

This chapter describes how to install the Communications Engine Card (CEC20) module into the NETBuilder II® system. The CEC20 module includes a premounted 8 MB memory expansion card and has connectors on the right half of the connector/LED panel and a line under the word "CEC", as shown in the following figure.



This chapter includes information on the following:

- Preinstallation procedure
- Installing in the NETBuilder II 4- or 8-Slot chassis
- Installing in the NETBuilder II 8-Slot Extended chassis
- Connecting a terminal or modem

Before Installing the Module

Before you install the CEC20 module into the NETBuilder II system, follow these steps:

1 Observe appropriate electrostatic discharge (ESD) precautions.

ESD can damage circuit board components. Failures resulting from ESD may not be covered under your warranty. To prevent ESD damage, follow these procedures:

- Keep the module in its antistatic shielded bag until you are ready to install it.
- Do not touch pins, leads, or solder connections on the board.
- Handle the board by the edges only.
- Store or ship the module in static-protective packaging.

Observe proper grounding techniques when handling the module: Use a foot strap and grounded mat, or wear a grounded static discharge wrist strap.

2 Unpack and inspect the module for shipping damage.

If you find any damage, file a report with the shipping company. If the module must be returned to your network supplier, ship it in its original shipping carton. If the original carton was damaged in shipment, repack the system in a carton that provides equivalent protection.

3 Verify that you have received all the following contents:

- CEC20 module
- *NETBuilder II Communications Engine Card (CEC20) Module Installation Guide*

If an item is missing from an undamaged carton, contact your network supplier to secure a replacement. Write down the serial number and MAC address from the labels on the component side of the module

You will need this information if you have to contact your network supplier.

Serial number example: S/N:1AE12345

MAC address example: 0800021A4B5C

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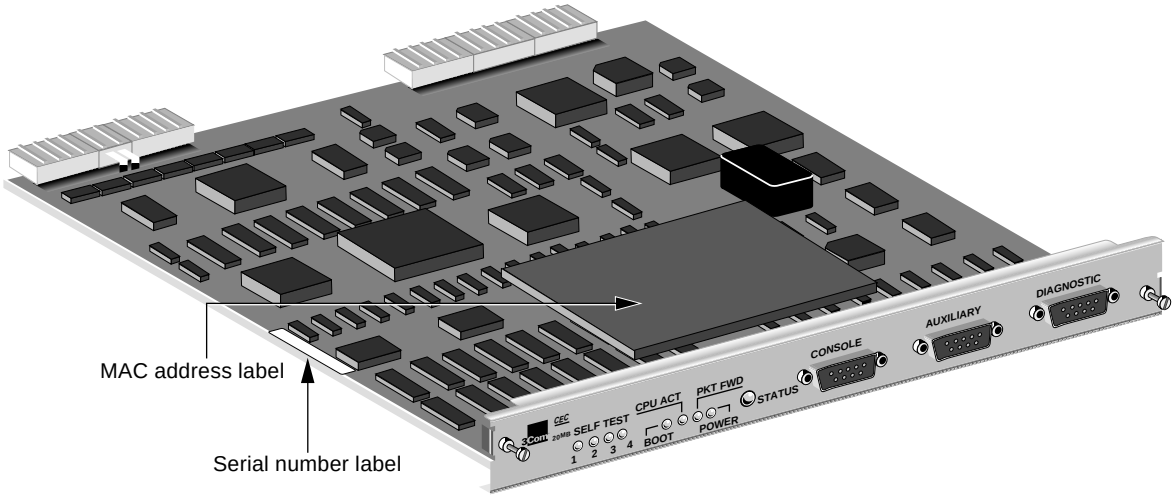
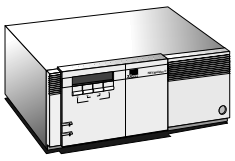


Installing in the NETBuilder II 4- or 8-Slot Chassis

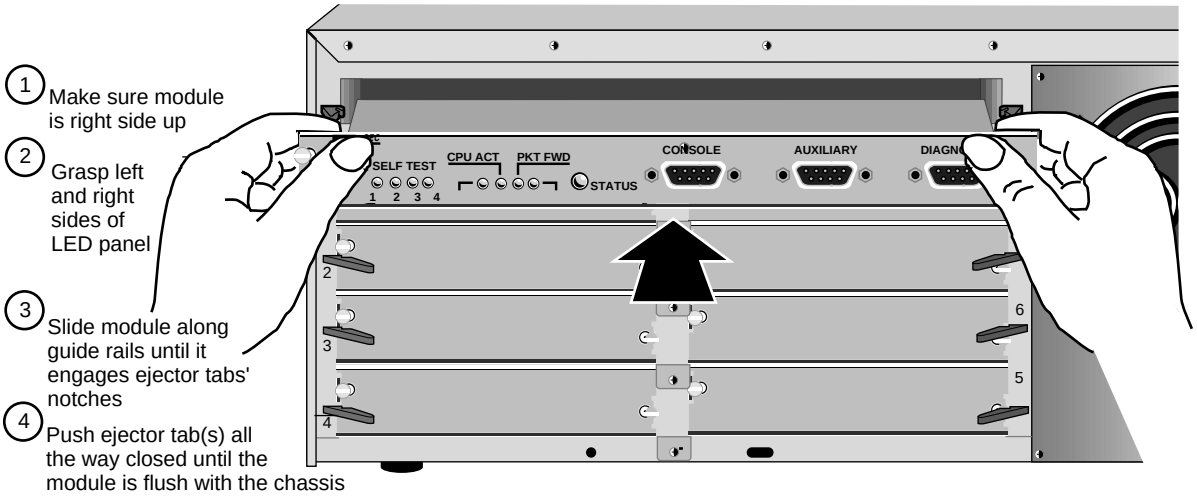


To install the CEC20 module into the NETBuilder II 4- or 8-Slot chassis, following these steps. If you own the Extended chassis, refer to the next section.

You will need a small flatblade screwdriver.

1 Insert the module into the top slot.

Although the figure shows an 8-Slot chassis, the procedure for the 4-Slot chassis is exactly the same.



2 Hand tighten the captive screws. Do not use a screwdriver.

A solid connection of the front panel to the chassis is required for proper operation. Do *not* use the screws to force the board into place.

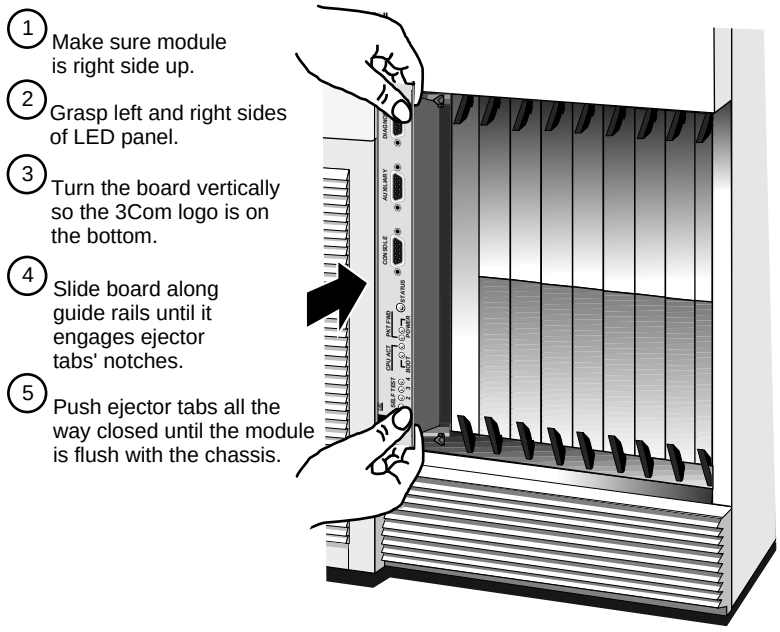
When you have completed the CEC20 module installation, you are ready to install the I/O modules. Refer to the appropriate I/O module installation guides.

Installing in the NETBuilder II 8-Slot Extended Chassis

To install the CEC20 module into the NETBuilder II Extended chassis, follow these steps. If you own the 4- or 8-Slot chassis, refer to the previous section.

You will need a small flatblade screwdriver.

1 Insert the module into the left-most slot.



2 Hand tighten the captive screws. Do not use a screwdriver.

A solid connection of the front panel to the chassis is required for proper operation. Do *not* use the screws to force the board into place.

When you have completed the CEC20 module installation, you are ready to install the I/O modules. Refer to the appropriate I/O module installation guides.

Connecting a Terminal or Modem

After the I/O modules are installed and cabled according to the appropriate I/O module installation guides, connect a terminal or modem to the CONSOLE port on the CEC module front panel.

You will use the terminal to:

- Check the firmware configuration.
- Modify firmware parameters.
- Make a copy of the bridge/router software as described in the *NETBuilder Family Bridge/Router Getting Started Guide.*
- Configure the bridge/router software as described in the *NETBuilder Family Bridge/Router Operation Guide.*
- Perform diagnostics using the Diagnostic Main menu as described in Appendix A.

The terminal also displays startup and system operation messages. Some of the messages displayed by the terminal are more detailed than information displayed on the LCD. These detailed messages may help you troubleshoot startup or operation problems.

To connect a terminal or modem to the CEC module, follow these steps:

1 Obtain a cable to connect the terminal or modem to the CONSOLE port on the CEC20 module front panel.

- For a terminal, use the standard IBM® PC AT® 9-pin serial printer cable.
- For a modem, use a standard IBM PC AT 9-pin to 25-pin modem cable.

WARNING: *To eliminate cable noise emission in excess of FCC Part 15, Subpart J, VDE Specifications 0871, and CISPR22 (EN55022) specification for Class A devices, this device cable should be shielded and have connectors with metallic backshells.*

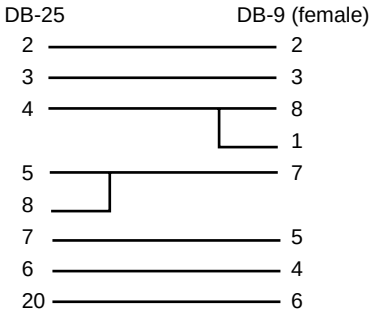
Table 1-1 lists the pinouts for the CONSOLE connector on the CEC20 module front panel.

Table 1-1 CONSOLE Connector Pin Assignments

Pin No.	Function
1	Carrier detect
2	Receive data
3	Transmit data
4	Data terminal ready
5	Signal ground
6	Data set ready
7	Request to send
8	Clear to send
9	Ring indicator

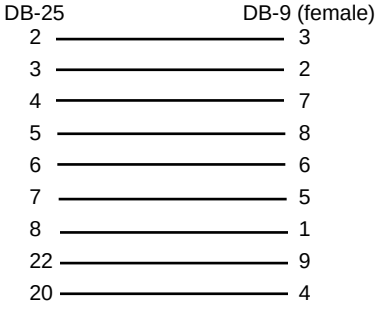
The following figures show the wiring diagrams of the terminal and modem cables.

Terminal Cable



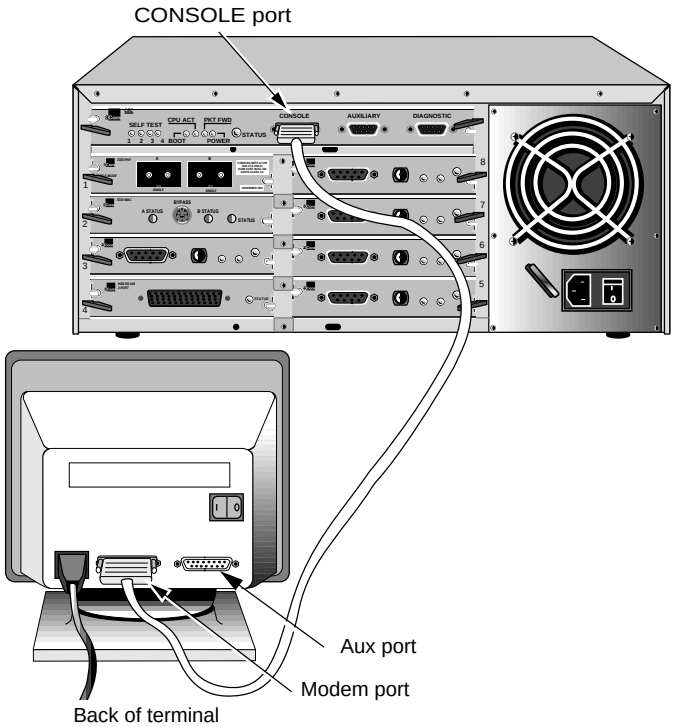
Note: A typical PC style (printer) serial cable can be used in this configuration.

Modem Cable



Note: A typical PC style (modem) serial cable can be used in this configuration.

2 Connect one end of the cable to the CONSOLE port on the CEC20 front panel and the other end to the modem port on the back of a terminal or modem.



3 Verify that configurable parameters of your terminal match the configuration settings of the terminal port specified in Table 1-2.

Table 1-2 Terminal Port Configuration Settings

Characteristic	Setting
Baud rate	9600
Databits	8
DTR	Ignored
Duplex	Full
Echo	Off
Flow control	X-on/X-off
Parity	None
Stop bits	1

4 Turn on the terminal or modem.

5 Connect a power cord to your system. Refer to *NETBuilder II Base System Installation Guide* for installation procedures for the whole system. Refer to the *NETBuilder Family Bridge/Router Getting Started Guide* for booting procedures.

Firmware Considerations

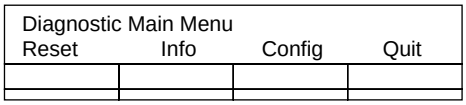
If you plan to use your CEC20 module on a network running pre-8.0 NETBuilder ® software vesion (6.x or 7.x), you must install firmware using the CEC20 module firmware diskette that shipped with the module. The diskette is labelled *NETBuilder II (For Previous Revision Software*).

Installing the Firmware

To install firmware for pre-8.0 NETBuilder software versions, follow these steps:

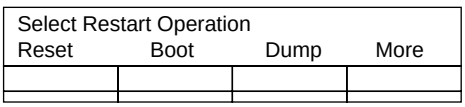
1 Display the Diagnostic Main menu.

Simultaneously press the two center buttons marked "Attention" on the front panel of the system. The LCD displays the following:



2 Press the Reset button.

The LCD displays the following:



3 Press the Boot button.

The LCD displays the following:

Select Boot Operation			
Norm	Flpy	Mon	Cancel

4 Press the Mon button.

5 You are now in the Monitor utility.

6 Insert the CEC20 module firmware diskette into the floppy drive of the NETBuilder II system.

7 Boot the system from the diskette by entering one of the following commands:

- If your system has a single floppy drive, enter **bt a: fpupdate.29k**
- If your system has a flash memory drive and a floppy drive, enter **bt b:fpupdate.29k.**

It takes approximately 5 minutes to completely install the firmware to the CEC EEPROMs.

When the firmware is complete, reboot to your regular boot source.

2 OVERVIEW

The CEC20 module is the central processor for the NETBuilder II system. This chapter describes the features and specifications of the CEC20 module.

Features

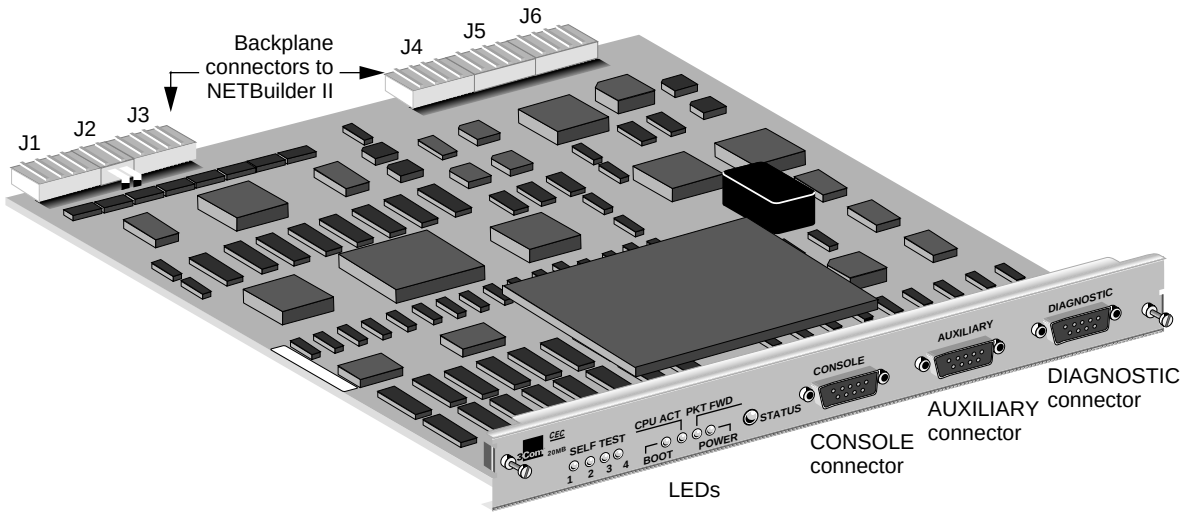
Table 2-1 summarizes the CEC20 module features.

Table 2-1 CEC20 Module Features

Feature	Summary
AMD® 29000 RISC main processor	Operates at 25 MHz and handles network interfaces and network protocol processing for supported media and protocols. It manages data down to the packet level.
20 MB memory	8 MB each of data memory, instruction memory, and 4 MB shared (packet) memory provides optimal performance compared with single memory-based systems. From the monitor utility, enter **`si`** to get system information, including board version and installed memory. This CEC20 module is identified as CEC* in the monitor utility, while original CEC modules are identified only as CEC.
Diagnostic processor	Acts as a reliable watchdog for the main processor.
EEPROM	Holds the following information: ■ Configurable firmware parameters ■ Current configuration of I/O modules installed in the NETBuilder II ■ Product information, MAC address, and repair data for CEC20 and I/O modules From the monitor utility, enter **`si`** to get system information from the EEPROM.
Flash EPROM	Allows update of boot and diagnostic code via a floppy disk rather than by swapping PROMs.
Real-time clock	Allows stamping of date and time for error logs regardless of the state of the network.
Floppy controller	Provides base media for software, diagnostic, and firmware updates.
Analog-to-digital converters	Allows voltage and temperature monitoring of the CEC20 module.

Specifications

The CEC20 module is composed of a processor board and a panel that contains connectors and LEDs.



LEDs

The nine LEDs display the diagnostic and operational activity of the NETBuilder II Bridge/Router. Table 2-2 lists each of the LEDs and their functions.

Table 2-2 CEC20 Module LEDS

LED Name	Color	Normal Behavior	Function
SELF TEST (LEDs 1, 2, 3, and 4)	Yellow	Off	LEDs flash in a particular sequence for less than one minute while early self-tests run. They remain lighted only if the system fails an early self-test; if this happens, refer to Chapter 3.
BOOT	Green	Off	On during boot from local floppy, host, or NCS/AT. Remains lit longer only if the system fails its boot sequence; if this happens, refer to Chapter 3.
CPU ACT	Green	Flashing	Indicates how busy the CPU is.
PKT FWD	Green	Flashing	Flashes when a packet is forwarded from one network to another.
POWER	Green	On continuously	On as long as the NETBuilder II base system is turned on.
STATUS	Tricolored:		
	Off		If the POWER LED is also off, indicates that there is no power in the system. If the POWER LED is on while the STATUS LED is off, indicates that the system is in monitor mode.
	Green	On continuously	On as long as the system runs normally.
	Yellow	Off	On for one to two minutes while the system is in self-test or boot mode. Remains lit longer only if the system fails its boot sequence; if this happens, refer to Chapter 3.
	Red	Off	On continuously when a fatal error has occurred; blinks when a memory error has occurred. If either situation occurs, refer to Chapter 3.

For your convenience, POWER and STATUS LEDs are on the front of the NETBuilder II system. These LEDs are the same color and indicate the same functions as the POWER and STATUS LEDs on the front panel of the CEC20. The Extended chassis has other LEDs as well; refer to the NETBuilder II Base System Installation Guide for more information about LEDs on the Extended chassis'

Connectors

Table 2-3 describes the module connectors.

Table 2-3 CEC20 Module Connectors

Location	Connector(s)	Features	Purpose
Backplane connectors	J1, J3, J4, J5, and J6	48-pin	Connects module to the core bus.
	J2	8-pin	Power connector.
Front LED/connector panel	CONSOLE connector	9-pin male D-subminiature (RS-232)	Connects module to a modem or terminal. To connect to a modem, use a standard IBM PC AT 9-pin to 25-pin modem cable. To connect to a terminal, use the standard IBM PC AT 9-pin serial printer cable. See Chapter 1 for more information.
	AUXILIARY connector	9-pin male D-subminiature (RS-232)	Reserved for internal 3Com use and is not operational.
	DIAGNOSTIC connector	9-pin male D-subminiature (RS-232)	Reserved for internal 3Com use and is not operational.

Physical Specifications

Table 2-4 and Table 2-5 list the physical attributes and the maximum current consumption of the module.

Table 2-4 Physical Attributes

Attribute*	Description
Length	9.3 in (23.8 cm)
Width	10.8 in (27.7 cm)
Height	1.0 in (2.6 cm)
Weight	1.4 lbs (0.6 kg)

* Includes connector/LED panel.

Table 2-5 Maximum Current Consumption

+5 Volts	+12 Volts	-12 Volts
3.5 amp	0.2 amp	0.1 amp

Electrical and Environmental Requirements

The electrical and environmental requirements listed in Appendix A of the *NETBuilder II Base System Installation Guide* apply to the CEC20 module.

3 TROUBLESHOOTING AND REPLACING THE CEC20 MODULE

This chapter provides information on troubleshooting and replacing the CEC20 module. For information on troubleshooting and maintaining the NETBuilder II base system and the I/O modules, refer to the *NETBuilder II Base System Installation Guide* and the appropriate I/O module installation guides, respectively.

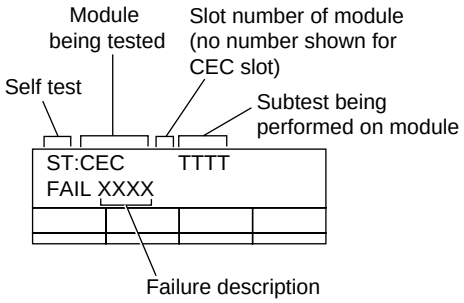
Troubleshooting

Table 3-1 lists symptoms of CEC20 module startup problems (abnormal LED patterns and error messages).

Table 3-1 Troubleshooting the CEC20 Module

Symptom	Cause	Action
Power, STATUS, and SELF-TEST LEDs fail to light at initial power-on or during a reset.	No power to the system or the CEC20 module connectors are not properly mated with the backplane connecters	Turn off the NETBuilder II base system, then do the following: Verify that the power cord is plugged properly into the system's power supply module and into a working outlet. Ensure that power is available at the outlet you are using. Inspect the system's in-line power fuse and replace it, if necessary. Use the appropriate procedure in the *NETBuilder II Base System Installation Guide*. If the LEDs still do not light, remove and reinstall the CEC20 module. Turn on the system. If the POWER, STATUS, and SELF-TEST LEDs still fail to light, contact your network supplier.
The LCD does not display normal startup messages or displays an unusual message such as "abcd..."	Failed a critical early self-test, which indicates a fatal error	Check the SELF-TEST LEDs to determine which LEDs remain lighted. Table 3-2 lists possible SELF-TEST LED patterns and the fatal self-test failure associated with each one.
At the same time, one or a combination of the four SELF-TEST LEDs remain lighted.		Once you have determined which self-test failed, contact your network supplier for further assistance.
A combination of the four SELF-TEST LEDs flashes in a particular pattern for approximately 10 seconds. The boot process then proceeds.	Failed a noncritical early self-test, which indicates a nonfatal error	Check the SELF-TEST LEDs to determine which LEDs remain lighted. Table 3-3 lists possible SELF-TEST LED patterns and what each pattern indicates. Once you have determined which self-test failed, contact your network supplier.

Table 3-1 Troubleshooting the CEC20 Module (continued)

Symptom	Cause	Action
The LCD displays a message in the format shown in the following figure, and the startup process stops:  	Self-test failure.	Replace the CEC20 module by using the procedure in "Replacing the CEC Module" on page 3-4. If you need a replacement CEC20 module, contact your network supplier. Table 3-4 lists the possible variables that make up these messages, and what each message means.
The following message is displayed on the terminal: `FATAL ERROR: CMC ASIC initialization.`	Self-test failure of the shared memory on the CEC20 module's processor board. The shared memory controller ASIC cannot initialize.	Contact your network supplier.
Boot LED remains lighted longer than five minutes, and the STATUS LED remains yellow longer than five minutes.	Boot sequence has failed.	Check the LCD and terminal for diagnostic messages, then contact your network supplier.
The LCD displays the following message:	The system starts the boot sequence and expects to find the working diskette in the floppy disk drive but for some reason does not.	Check the terminal for an additional message. The message that appears instructs you to perform a step to resolve the problem. For example, the terminal may display the following: `Please insert boot floppy in drive` Perform the step, then enter **N**, which results in the system attempting to reboot. If the step you take does not resolve the problem, contact your network supplier.
STATUS LED's red light is on continuously or blinks.	A continuous red light indicates a fatal error. A blinking red light indicates a memory error.	Reboot the system. Follow the procedure in "Rebooting the System" on page A-3. If this does not resolve the problem, call your network supplier.
LCD and terminal displays freeze and nothing happens when either the Enter or Return key is pressed.		Reboot the system. Follow the procedure in "Rebooting the System" on page A-3. If this does not resolve the problem, call your network supplier.
The STATUS LED and the CPU ACT and PKT FWD LEDs do not indicate any activity, despite being connected to an operational LAN.		Reboot the system. Follow the procedure in "Rebooting the System" on page A-3. If this does not resolve the problem, call your network supplier.
The monitor does not display an Upgrade Complete message after booting from the memory diskette.		Call your network supplier.
The Repair Data display in the si command indicates only 12 MB of RAM.		Call your network supplier.

Self-Test LED Patterns

Refer to Table 3-2, Table 3-3, and Table 3-4 for explanations of SELF-TEST LED patterns and associated fatal and nonfatal self-test failures.

Table 3-2 SELF-TEST LED Patterns and Associated Fatal Self-test Failures

SELF-TEST LED pattern 1 2 3 4*	Associated Fatal Self-test Failure
0 0 0 1	Write/read test of internal diagnostic processor RAM failed.
0 0 1 0	Push/pop test of diagnostic processor stack failed.
0 0 1 1	The current calculated diagnostic processor ROM checksum does not match the value stored at the time of device programming.
0 1 0 0	Counter/interrupt test of one of the three internal timers failed.
0 1 0 1	Diagnostic processor asynchronous serial channel test failed.
0 1 1 0	A to D converter test, which includes timeout and reference checking, failed.
0 1 1 1	EEPROM was erased, or the stored checksum does not match the current calculated value.
1 0 0 0	The current calculated physical FPROM0 checksum does not match the value stored in the directory of logical FPROM0.
1 0 0 1	The current calculated physical FPROM1 checksum does not match the value stored in the directory of logical FPROM1.
1 0 1 0	Backup/write/read/restore test of the external nonvolatile RAM failed.
1 1 0 1	Loopback test of the 29K/BSC/DMC failed.
1 1 1 0	Diagnostic processor firmware file was located with a zero length.
1 1 1 1†	Diagnostic processor detected a fatal error in the on-line state.

* In these columns, 0 indicates LED is off; 1 indicates LED is on.
† If this pattern appears, reset the system.

Table 3-3 SELF-TEST LED Patterns and Associated Nonfatal Self-test Failures

SELF-TEST LED Pattern 1 2 3 4*	Associated NonFatal Self-test Failures
1 0 1 1	The real-time clock device is not operating correctly.
1 1 0 0	The LCD is not responding, or the display data RAM is bad.

* In these columns, 0 indicates LED is off; 1 indicates LED is on.

Table 3-4 Self-test Failure Messages

Message	Meaning
ST:CEC IMEM FAIL	The self-test of the instruction memory on the CEC20 module's processor board failed.
ST:CEC DMEM FAIL	The self-test of the data memory on the CEC20 module's processor board failed.
ST:CEC EXT MEM FAIL	The self-test of the 8 MB memory on the CEC20 module's processor board failed.
ST:CEC SMEM FAIL	The self-test of the shared memory on the CEC20 module's processor board failed.
ST:CEC FLPY FAIL*	The self-test of the floppy chip controller on the CEC20 module's processor board failed.
ST:CEC SERIAL FAIL	The self-test of the serial UART on the CEC20module's processor board failed.

* An error message displays on the terminal simultaneously.

Replacing the CEC Module

This section discusses replacing the CEC20 module. In addition, refer to the *NETBuilder II Base System Installation Guide* for preventive maintenance tips that apply to the entire system (including the CEC20 module).

To replace the CEC20 module, follow these steps. You will need a small, flatblade screwdriver.

Although it is not required, 3Com recommends that you turn off the base system before you remove and reinstall a CEC20 module. Note that the system automatically resets when the replacement CEC20 module is installed.

1. Prevent ESD-related damage to the CEC20 module by following the ESD guidelines presented in Chapter 1.
2. Disconnect any cables, if necessary.
3. Remove the CEC20 module that is presently installed in your base system.
   a. Loosen the two captive screws with the flathead screwdriver.
   b. Press outward firmly and evenly on the ejector tabs.

      The CEC20 module will eject from the slot.
4. Install the new CEC20 module by following the procedure in Chapter 1.

When you replace the CEC20 module, the firmware parameters that were previously configured for your system are not automatically updated to the EEPROM of the replacement CEC20 module. You must reconfigure the appropriate firmware parameters. Refer to the NETBuilder Family Bridge/Router Getting Started Guide to configure your CEC20 module.

A DIAGNOSTIC MAIN MENU

This appendix discusses how to access and use the Diagnostic Main menu. This menu is useful during the following situations:

- The NETBuilder Bridge/Router system has failed (that is, the bridge/router software user interface is nonfunctional and cannot be controlled from the terminal). From the Diagnostic Main menu you can access the monitor utility and reset or reboot the system.
- Resetting or rebooting your system after performing a software upgrade.

The following tasks are described later in this appendix:

- Resetting your system
- Rebooting your system
- Disabling or initiating self-tests
- Accessing the monitor utility
- Adjusting the LCD's contrast setting

Displaying the Diagnostic Main Menu

The Diagnostic Main menu is a multilevel, tree-structured menu. This menu can be accessed only with the LCD and the LCD control panel, which is located on the front of your bridge/router and consists of four buttons immediately below the LCD.

Display the Diagnostic Main menu by simultaneously pressing the two center buttons marked "Attention" on the front panel of the NETBuilder II Bridge/Routersystem.

Pressing the "Attention" buttons causes the diagnostic processor to take control of the LCD and LCD control panel. Though the bridge/router still operates in the background, you cannot enter commands such as **`si`** or **`sf`** that use the diagnostic processor while you are using the Diagnostic Main menu.

The LCD displays the following:

Diagnostic Main Menu			
Reset	Info	Config	Quit

When you have accessed the Diagnostic Main menu, you are ready to perform any of the tasks listed at the beginning of this appendix.

Guidelines

Refer to the following second-level menu and the guidelines in this section to help you use the multilevel Diagnostic Main menu:

Select Restart Operation			
Reset	Boot	Dump	More

- The first line of all menus either identifies that you are at the Diagnostic Main menu or prompts you to select an option. For example, the first line in the sample menu is "Select Restart Operation."
- The second line of all menus identifies available options. Each option appears on the LCD directly above one of the four buttons that make up the LCD control panel.
- Select a menu option by pressing the button associated with it. For example, if you want to select the Reset option from the sample menu, press the leftmost button.
- Press the More button if you want to see more options for a particular menu.
- Once you have completed your task, press the Cancel button to return to previous menus until you return to the Diagnostic Main menu.
- Exit the Diagnostic Main menu by pressing the Quit button. After exiting the Diagnostic Main menu, the bridge/router software user interface is restored on the terminal.

Performing a Reset

To perform a reset, follow these steps:

1 Display the Diagnostic Main menu.

Simultaneously press the two center buttons marked "Attention" on the front panel of the system. The LCD displays the following:

Diagnostic Main Menu			
Reset	Info	Config	Quit

2 Press the Reset button.

The LCD displays the following:

Select Restart Operation			
Reset	Boot	Dump	More

3 Press the Reset button.

The LCD displays the following:

Confirm Platform Reset			
Yes			Cancel

4 Press the Yes button.

The system performs the self-test process determined by the Self-test parameter in the system's firmware. The system then attempts to boot from the source specified by the Initial Boot Type parameter in the system's firmware.

Rebooting the System

To reboot the system, follow these steps:

1 Display the Diagnostic Main menu.

Simultaneously press the two center buttons marked "Attention" on the front panel of the system. The LCD displays the following:

Diagnostic Main Menu			
Reset	Info	Config	Quit

2 Press the Reset button.

The LCD displays the following:

Select Restart Operation			
Reset	Boot	Dump	More

3 Press the Boot button.

The LCD displays the following:

Select Boot Operation			
Norm	Flpy	Mon	Cancel

4 Press one of the following buttons:

- **Norm.** Causes the system to boot from the boot source defined by the Initial Boot Type parameter in the system's firmware. For example, if this parameter is set to local floppy, pressing the Norm button causes the system to boot from the working diskette, which should be inserted in the floppy disk drive.
- **Flpy.** Causes the system to boot from drive a:, despite the setting of the Initial Boot Type parameter in the system's firmware. The setting of this parameter is overridden during this boot only.
- **Mon.** Causes the system to go into monitor mode despite the setting of the Initial Boot Type parameter in the system's firmware. At the angle bracket prompt (>) on the terminal's display, enter **`bt`** to boot from a local floppy or **`nb`** to boot from a network (host, NCS/AT). The setting of this parameter is overridden during this boot only.

Disabling or Initiating Self-tests

Disable or initiate self-tests by using the following procedure.

CAUTION: *Running self-tests clears the system's memory. If you need to perform a memory dump, perform it before you initiate self-tests.*

1 Display the Diagnostic Main menu.

Simultaneously press the two center buttons marked "Attention" on the front panel of the system. The LCD displays the following:

Diagnostic Main Menu			
Reset	Info	Config	Quit

2 Press the Reset button.

The LCD displays the following:

Select Restart Operation			
Reset	Boot	Dump	More

3 Press the More button.

The LCD displays the following:

Select Restart Operation			
Test	Debug	More	Cancel

4 Press the Test button.

The LCD displays the following:

Select Test Mode			
None	Norm	Loop	Cancel

5 Press one of the following buttons:

- **None.** Causes the system to initiate a platform boot operation. During this boot operation, self-tests for the 29K processor on the CEC20 module's processor board are skipped, despite the setting of the Self-test parameter in the system's firmware. The setting of this parameter is overridden during this boot only.
- **Norm** or **Loop.** Causes the system to initiate a platform boot operation. During this boot operation, self-tests are performed on the 29K processor on the CEC20module's processor board, despite the setting of the Self-test parameter in the system's firmware. The setting of this parameter is overridden during this boot only.

6 Once you learn what you need to from the self-tests, return to the Diagnostic Main menu, then reboot the system.

Press the Cancel button to retrieve previous menus until you return to the Diagnostic Main menu. Reboot the system by using the procedure in "Rebooting the System" on page A-3.

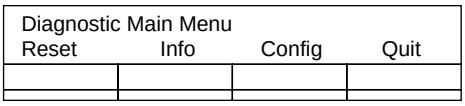
Accessing the Monitor Utility

From the monitor utility, you can enter **`bt`** to boot from a local floppy or **`nb`** to boot from a network (host, NCS/AT). Or you can access valuable system information by entering **`si`** at the monitor utility prompt.

To access the monitor utility, refer to "Rebooting the System" on page A-3, or follow these steps:

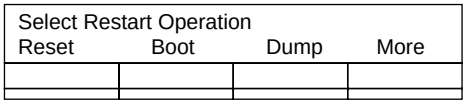
1 Display the Diagnostic Main menu.

Simultaneously press the two center buttons marked "Attention" on the front panel of the system. The LCD displays the following:



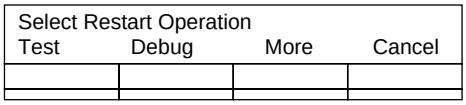
2 Press the Reset button.

The LCD displays the following:



3 Press the More button.

The LCD displays the following:



4 Press the Debug button.

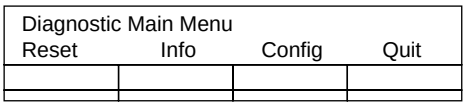
The terminal displays the following:

```
3Com Corporation -- NETBuilder II Monitor
>
```

Adjusting the Contrast for the LCD

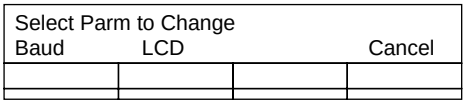
To adjust the contrast setting for the LCD, follow these steps.

Simultaneously press the two center buttons marked "Attention" on the front panel of the system. The LCD displays the following:



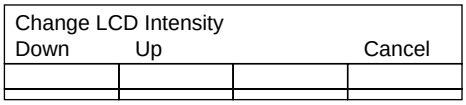
5 Press the Config button.

The LCD displays the following:



6 Press the LCD button.

The LCD displays the following:



Pressing the Down button causes the LCD background to lighten. Pressing the Up button causes the LCD background to darken.

7 Adjust the contrast setting for the LCD.

8 Exit from the Diagnostic Main menu.

Press the Cancel button to retrieve previous menus until you return to the Diagnostic Main menu. Press the Quit button. You will return to the bridge/router software user interface.

Baud Rate

This menu item is reserved for internal 3Com use.

Memory Dump

You should only access this menu if advised by 3Com Technical Support.

B TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Online Technical Services

3Com offers worldwide product support seven days a week, 24 hours a day, through the following online systems:

- 3Com Bulletin Board Service (3ComBBS)
- World Wide Web site
- 3ComForum on CompuServe®
- 3ComFacts℠ automated fax service

3Com Bulletin Board Service

3ComBBS contains patches, software, and drivers for all 3Com products, as well as technical articles. This service is available via modem or ISDN seven days a week, 24 hours a day.

Access by Modem

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number
Australia	up to 14400 bps	(61) (2) 9955 2073
France	up to 14400 bps	(33) (1) 69 86 69 54
Germany	up to 9600 bps	(49) (89) 627 32 188 (49) (89) 627 32 189
Hong Kong	up to 14400 bps	(852) 2537 5608
Italy (fee required)	up to 14400 bps	(39) (2) 273 00680
Japan	up to 14400 bps	(81) (3) 3345 7266
Singapore	up to 14400 bps	(65) 534 5693
Taiwan	up to 14400 bps	(886) (2) 377 5840
U.K.	up to 28800 bps	(44) (1442) 278278
U.S.	up to 28800 bps	(1) (408) 980 8204

Access by ISDN

ISDN users can dial-in to 3ComBBS using a digital modem for fast access up to 56 Kbps. To access 3ComBBS using ISDN, dial the following number:

(408) 654 2703

World Wide Web Site

Access the latest networking information on 3Com's World Wide Web site by entering our URL into your Internet browser:

`http://www.3Com.com/`

This service features news and information about 3Com products, customer service and support, 3Com's latest news releases, selected articles from 3TECH™ (3Com's award-winning technical journal) and more.

3ComForum on CompuServe

3ComForum is a CompuServe-based service containing patches, software, drivers, and technical articles about all 3Com products, as well as a messaging section for peer support. To use 3ComForum, you need a CompuServe account.

To use 3ComForum:

1. Log on to CompuServe.
2. Enter **`go threecom`** .
3. Press [Return] to see the 3ComForum main menu.

3ComFacts Automated Fax Service

3Com Corporation's interactive fax service, 3ComFacts, provides data sheets, technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, seven days a week.

Call 3ComFacts using your touch-tone telephone. International access numbers are:

Country	Telephone Number
Hong Kong	(852) 2537 5610
U.K.	(44) (1442) 278279
U.S.	(1) (408) 727 7021

Local access numbers are available within the following countries:

Country	Telephone Number
Australia	800 123853
Belgium	0800 71279
Denmark	800 17319
Finland	98 001 4444
France	05 90 81 58
Germany	0130 8180 63
Italy	1678 99085

Country	Telephone Number
Netherlands	06 0228049
Norway	800 11062
Portugal	0505 442607
Russia (Moscow only)	956 0815
Spain	900 964445
Sweden	020 792954
U.K.	0800 626403

Support from Your Network Supplier

If additional assistance is required, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Diagnostic error messages
- A list of system hardware and software, including revision levels
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to receive support from your network supplier, technical support contracts are available from 3Com.

In the U.S. and Canada, call **(800) 876-3266** for customer service.

If you are outside the U.S. and Canada, contact your local 3Com sales office to find your authorized service provider:

Country	Telephone Number
Australia (Sydney)	(61) (2) 9937 5000
(Melbourne)	(61) (3) 9653 9515
Belgium*	0800 71429
Brazil	(55) (11) 546 0869
Canada	(905) 882 9964
Denmark*	800 17309
Finland*	0800 113153
France*	05 917959
Germany*	0130 821502
Hong Kong	(852) 2501 1111
Ireland*	1 800 553117
Italy*	1678 79489

Country	Telephone Number
Japan	(81) (3) 3345 7251
Mexico	(525) 531 0591
Netherlands*	06 0227788
Norway*	800 13376
Singapore	(65) 538 9368
South Africa	(27) (11) 803 7404
Spain*	900 983125
Sweden*	020 795482
Taiwan	(886) (2) 577 4352
United Arab Emirates	(971) (4) 349049
U.K.*	0800 966197
U.S.	(1) (408) 492 1790

* These numbers are toll-free.

Returning Products for Repair

A product sent directly to 3Com for repair must first be assigned a Return Materials Authorization (RMA) number. A product sent to 3Com without an RMA number will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, call or fax:

Country	Telephone Number	Fax Number
U.S. and Canada	(800) 876 3266, option 2	(408) 764 7120
Europe	31 30 60 29900, option 5	(44) (1442) 275822
Outside Europe, U.S., and Canada	(1) (408) 492 1790	(1) (408) 764 7290

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LIMITED WARRANTY

HARDWARE: 3Com warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following lengths of time from the date of purchase from 3Com or its Authorized Reseller:

Internetworking products	One year
Network adapters	Lifetime
Ethernet stackable hubs and Unmanaged Ethernet fixed port repeaters	Lifetime* (One year if not registered)
*Power supply and fans in these stackable hubs and unmanaged repeaters	One year
Other hardware products	One year
Spare parts and spares kits	90 days

If a product does not operate as warranted during the applicable warranty period, 3Com shall, at its option and expense, repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com pursuant to any warranty.

SOFTWARE: 3Com warrants that the software programs licensed from it will perform in substantial conformance to the program specifications therefor for a period of ninety (90) days from the date of purchase from 3Com or its Authorized Reseller. 3Com warrants the magnetic media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation hereunder shall be (at 3Com's discretion) to refund the purchase price paid by Customer for any defective software products, or to replace any defective media with software which substantially conforms to 3Com's applicable published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty that its software products will work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product.

STANDARD WARRANTY SERVICE: Standard warranty service for hardware products may be obtained by delivering the defective product, accompanied by a copy of the dated proof of purchase, to 3Com's Corporate Service Center or to an Authorized 3Com Service Center during the applicable warranty period. Standard warranty service for software products may be obtained by telephoning 3Com's Corporate Service Center or an Authorized 3Com Service Center, within the warranty period. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid, insured, and packaged appropriately for safe shipment. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after receipt by 3Com.

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GOVERNING LAW: This Limited Warranty shall be governed by the laws of the state of California.

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1/1/94