COLOR CONTROLLER E-820
INSTALLATION AND SERVICE GUIDE

for Ricoh Aficio Color 6513
Gestetner CS213d
nashuatec CS513d
RexRotary CS813D
infotec 7513
Savin SDC413

A guide for service technicians

Part Number: 45027969

FCC Information

WARNING: FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Class B Declaration of Conformity

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Industry Canada Class B Notice

This Class B digital apparatus complies with Canadian ICES-003.

Avis de Conformation Classe B de l'Industrie Canada

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

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This equipment has been tested concerning compliance with the relevant RFI protection requirements both individually and on system level (to simulate normal operation conditions). However, it is possible that these RFI Requirements are not met under certain unfavorable conditions in other installations. It is the user who is responsible for compliance of his particular installation.

Dieses Gerät wurde sowohl einzeln als auch in einer Anlage, die einen normalen Anwendungsfall nachbildet, auf die Einhaltung der Funkentstörbestimmungen geprüft. Es ist jedoch möglich, dass die Funkentstörbestimmungen unter ungünstigen Umständen bei anderen Gerätekombinationen nicht eingehalten werden. Für die Einhaltung der Funkentstörbestimmungen einer gesamten Anlage, in der dieses Gerät betrieben wird, ist der Betreiber verantwortlich.

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Contents

Chapter 4: Service Procedures

Chapter 5: Troubleshooting

Appendix A: Specifications

Appendix B: Controller Interface

Appendix C: Using the E-810 to E-820 Upgrade Kit

Appendix D: Using the Fiery Diagnostic Software Tool

Preface

The *Installation and Service Guide* is intended for certified Color Controller E-820 and copier service technicians installing or servicing the Color Controller E-820. If you have not received installation and service certification, you should not attempt to install or service the Color Controller E-820. Electronics For Imaging does not warrant the performance if the Color Controller E-820 installed or serviced by non-certified personnel.

NOTE: The term "E-820" is used in this manual to refer to the Color Controller E-820.

About this guide

This guide is divided into the following topics:

- "Preface"

  General information about this guide and about installing the E-820

- Chapter 1, "Introduction"

  General information about the E-820

- Chapter 2, "Preparing for Installation"

  Unpacking and the steps you need to take before you install the unit

- Chapter 3, "Connecting the E-820"

  How to connect the E-820 to the copier and the network and verify that the system is working correctly; overview of the Control Panel

- Chapter 4, "Service Procedures"

  Removal and replacement procedures for E-820 components; system software installation

- Chapter 5, "Troubleshooting"

  Common problems and ways of correcting them; startup error codes; diagnostic tools

- Appendix A, "Specifications"

  Hardware and network specifications; safety and emission compliance information.

- Appendix B, "Controller Interface"

  Installation procedures for the Controller Interface that provides the electrical interface between the E-820 and the copier.

NOTE: E-820 customers should not use the technical service documentation. Do not leave your copy of the *Installation and Service Guide* at the customer site after you make a service call.

About the illustrations in this guide

The illustrations in this guide reflect the current shipping version of the E-820 at the time of publication. Components shown in these illustrations are subject to change. To receive information about any E-820 components that do not match the illustrations in this guide, contact your authorized service/support center.

Terminology and conventions

The terms "replace" and "replacing" are typically used throughout this manual to mean reinstallation of existing components. Install new components only when necessary.

The term "network administrator" refers to the person responsible for maintaining the network at the customer site.

The term "Control Panel" refers to the area on the front of the E-820, including the green/red activity light, the display window (LCD—liquid crystal display), and the buttons to the right of and below the display window.

The term "system software" refers to the software installed on the E-820 hard disk drive.

Client utilities can be installed onto the E-820 from the User Software CD if the Fiery Advanced Controller Interface option is installed. Do not install any other applications onto the E-820. Other applications are not supported and can cause system problems.

The term "100BaseT" is used throughout this manual to refer to 100BaseTX.

References to other E-820 manuals, such as the *Configuration Guide*, are displayed in italics.

Connectors labeled "not used" cannot be used. For example, the COM2 serial port on the back panel cannot be used because it is hardware-disabled.

NOTE: The note format highlights important messages and additional information.

The Caution icon indicates a need for special care and safety when handling the equipment.

Precautions

Always observe the following general precautions when installing and servicing the E-820:

1. **Report any shipping damage.**

   If there is any evidence of shipping or handling damage to the packing boxes or their contents, save the damaged boxes and parts, call the shipper immediately to file a claim, and notify your authorized service/support center.

2. **Never alter an existing network without permission.**

   The E-820 will probably be connected to an existing Local Area Network (LAN) based on Ethernet hardware. The network is the link between the customer's computer, existing laser printers, and other prepress equipment. Never disturb the LAN by breaking or making a network connection, altering termination, installing or removing networking hardware or software, or shutting down networked devices without the knowledge and express permission of the system or network administrator or the shop supervisor.

3. **Never assign an IP address in the E-820 Network Setup.**

   Only the network administrator should assign an IP address to a network device. Assigning the E-820 an incorrect IP address may cause unpredictable errors on any or all devices connected to the network.

4. **Always disconnect power before opening the E-820.**

5. **Handle the E-820 LCD Control Panel display window with care.**

   The LCD display window is made of glass. If the glass breaks and the liquid crystal inside leaks out, avoid contact with it. If you do come in contact with the liquid crystal, wash it off with soap and water immediately.

6. **Avoid pressing the surface of the display window.**

   Applying pressure to the display window will cause it to change color.

7. **Use a soft cloth moistened with isopropyl or ethyl alcohol to clean the surface of the display window.**

   Other solvents, such as water, may damage the polarizer on the display window.

8. **Use care when handling parts of the E-820, as some edges on the unit may be sharp. For example, be careful when:**

   - Accessing the CD-ROM/ZIP drive (keep the drive door closed when not in use)
   - Plugging in cables at the back of the unit
   - Using the power switch to power on/off the unit

9. **Follow standard electrostatic discharge (ESD) precautions while working on the internal components.**

   Static is always a concern when servicing electronic devices. It is highly unlikely that the area around the copier and the E-820 is static-free. Carpeting, leather-soled shoes, synthetic clothing fibers, silks, and plastics may generate a static charge of more than 10,000 volts. Static discharge is capable of destroying the circuits etched in silicon microchips, or dramatically shortening their life span. By observing standard precautions, you may avoid extra service calls and save the cost of a new board.

   When possible, work on a ground-connected antistatic mat. Wear an antistatic grounding strap, grounded at the same place as the antistatic mat. If that is not possible:

   - Attach a grounding strap to your wrist. Attach the other end to a good ground.
   - When you unpack the E-820 from the carton for the first time, touch a metal area of the copier to discharge the static on your body.
   - Before you remove the side panel and handle internal components, touch a metal part of the E-820.
   - Leave new electronic components inside their antistatic bags until you are ready to install them. When you remove components from an antistatic bag, place them on a grounded antistatic surface, component-side up.
   - When you remove an electronic component, place it into an antistatic bag immediately. Do not walk across a carpet or vinyl floor while carrying an unprotected board.

10. **Handle printed circuit boards by their opposing edges only, and avoid touching the contacts on the edge of the board.**

11. **Never set any liquid on or near the E-820 or the copier.**

Tools you will need

To install or service the E-820, you should bring the following tools and parts:

- ESD wrist grounding strap and antistatic mat
- Wire cutters
- Needle nose pliers
- #0 and #1 Phillips head screwdrivers (non-magnetic)
- Flathead screwdriver

You should also bring this guide, documentation for any optional service kits you may be installing, and any technical notes for the E-820.

Chapter 1: Introduction

The E-820 adds computer connectivity and highly efficient Adobe PostScript 3 printing capability to copiers. It is optimized for high-speed network communications, processing, rasterization, and printing of continuous tone color and monochrome pages.

Features

The E-820, as an integral part of your organization's printing system, enables users to:

- Send images over AppleTalk, TCP/IP, and IPX networks to print on E-820-supported devices.
- Spool print jobs and select a printing priority for each job. Users can control spooled print jobs sent to the E-820 with remote user software running on networked PC and Mac OS computers.
- Print files in color and gray-scale.
- Use the copier as a high-resolution color scanner with Fiery Scan™ software.
- Use 136 resident fonts (126 Adobe Type 1 PostScript and 10 TrueType), plus two Adobe Multiple Master fonts used for font substitution when printing PDF files.

  Fiery Downloader™ or any third-party LaserWriter downloader, such as the Adobe Font Downloader, can be used to download additional fonts.
- Use built-in ColorWise® color management and NetWise™ network features.

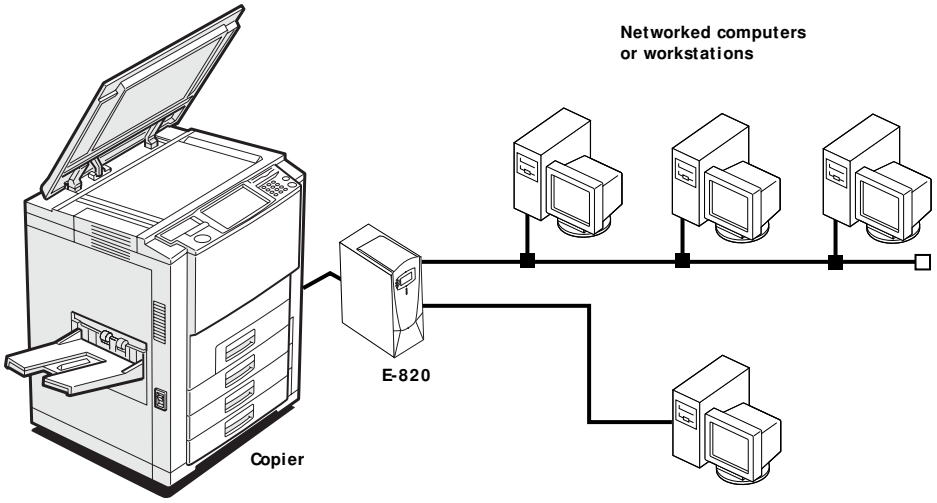


FIGURE 1-1 E-820 printing system

The E-820 is one of several imaging products engineered and manufactured by Electronics For Imaging.

How the E-820 operates

The E-820 enables the customer to use a copier as a printer and scanner. Users can print to the E-820 from networked PCs running Microsoft Windows, from networked Mac OS computers, and from networked UNIX workstations running TCP/IP.

The E-820 custom-designed boards and system software are responsible for efficient image processing and printing controls. The main functions of components and software are described below.

The E-820 uses specialized circuit boards, the motherboard, and the copier interface board to process image data for printing and scanning images.

The motherboard includes an 866MHz CPU that controls the image data transfer to and from the copier interface board and runs the interpreter. The interpreter rasterizes the page description file and then compresses the image pattern into memory using compression technology.

The interpreter sends compressed raster data through the image frame buffer memory to the copier interface board. The copier interface board decompresses the image data and sends it to the copier through the copier interface cable. The raster data supplied to the laser in the copier charges the drum and renders the final image on paper at full copier engine speed.

High-speed DIMMs (dual in-line memory modules) on the motherboard hold the image data during printing. The E-820 is configured with four 128MB Dual-Channel PC133 Registered ECC DIMMS for a total of 512MB of memory.

When Fiery Scan uses the copier as a scanner, the E-820 acquires red, green, and blue (RGB) image data from the copier, stores it in memory, and transmits it to the computer that requested the scan.

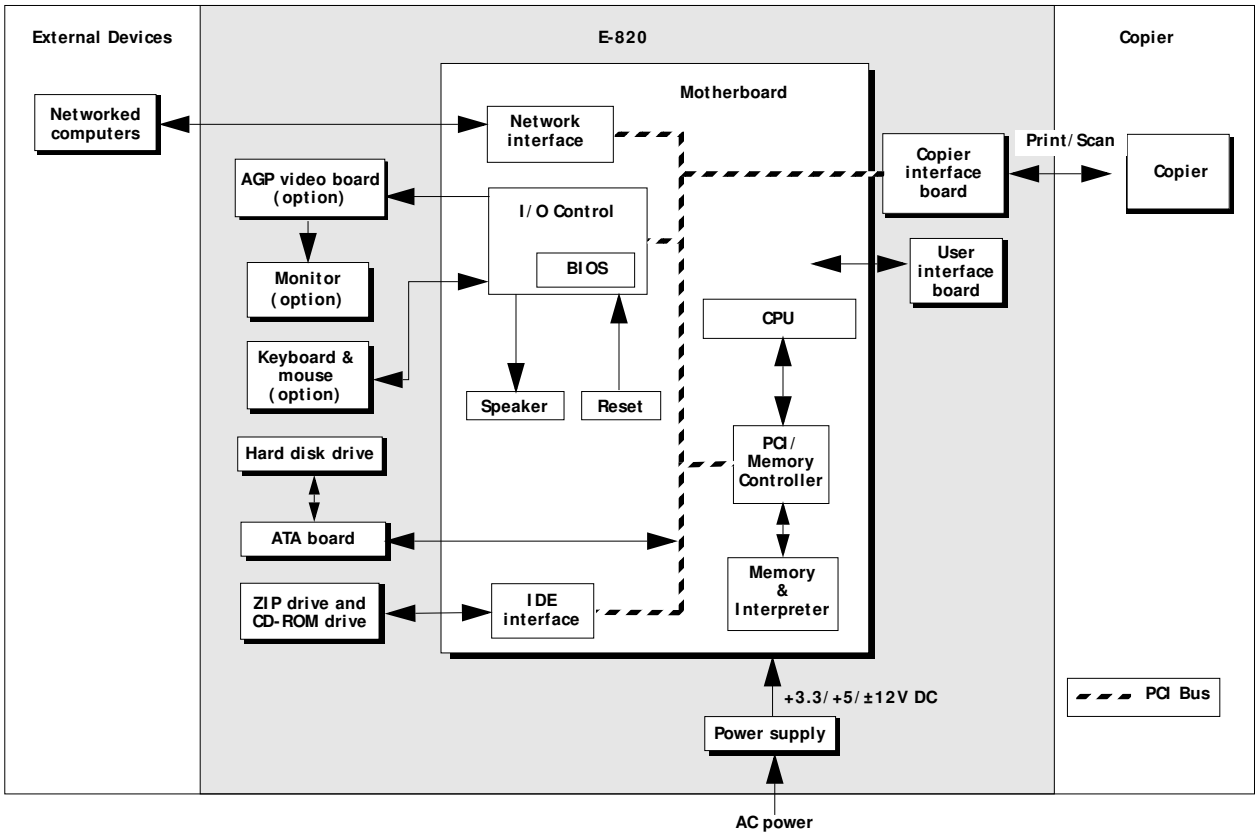


FIGURE 1-2 E-820 functional diagram

Print options

The E-820's efficient capabilities allow users to use a variety of applications to create and print pages of text and/or images. The E-820 operates over a network.

Printing over a network allows users to print documents directly from applications in which they were created. In addition, the E-820 offers an efficient way to print files that have been saved in PostScript, EPS (Encapsulated PostScript), or PDF (Portable Document Format). These files can be downloaded directly to the E-820 using Fiery Downloader, one of the remote utilities for use with the E-820.

User software

The following user software is provided on the User Software CD.

Adobe PS Printer Driver	Enables users to print to the E-820 from Windows 9x/Me, Windows NT 4.0, and Mac OS computers; also supports special E-820 and PostScript 3 features. Windows 2000/XP users should use the Microsoft PostScript Printer Driver provided with that operating system.
PostScript Printer Description files (PPDs)	Files for use with the PostScript printer driver that allow the E-820 to appear in popular applications' Print and Page Setup dialog boxes. The PPD provides information about the E-820 and the particular copier model to the application and printer driver.
PostScript Screen Fonts (for Mac OS only)	PostScript screen fonts for the 136 PostScript printer fonts installed on the E-820 (126 Adobe Type 1 and 10 TrueType).
Fiery Downloader	Enables the user to print PostScript, EPS, and PDF files directly to the E-820 without opening the application in which they were created. Fiery Downloader also enables the user to manage the printer fonts installed on the E-820.
Fiery Spooler™ (Mac OS only)	Enables the user to view the order and priority of print jobs, customize printer settings for jobs, delete jobs, move jobs between queues, and view job accounting information.
Fiery Scan	Plug-in modules for Photoshop that enable the user to scan images from the copier directly into the application.
Command WorkStation software	Enables the operator to control the E-820 functions from Windows 9x/Me/2000/XP and Windows NT 4.0 workstations. Command WorkStation supports dongle-protected DocBuilder Pro™ (available as an option; requires Adobe Acrobat 4.05, provided on a separate CD). For more information on Command WorkStation, see the *Job Management Guide*.
Color management files	ColorSync and ICM color management files that enable the user to maintain consistent color from original artwork to the colors displayed on the monitor to the printed output.

Color reference files	Reference pages that users can print to view the range of colors available on your E-820. For the most predictable color results, refer to these pages when defining colors in applications.
ColorWise Pro Tools™	Enables the customer to use calibration and color management tools. It also enables the user to edit and download ICC profiles.
Graphic Arts Package	Optional software for calibrating print devices, proofing print jobs, automating workflow, and achieving accurate color print quality. For more information, see the *Color Guide* and the *Printing Guide*.
Fiery Link™	Enables the customer to monitor the status of connected E-820 servers.
Calibration files	Includes measurement files and targets you can use with ColorWise Pro Tools.

Fiery WebTools

The E-820 can support Internet or intranet access with Fiery WebTools™ , which include Status, WebSpooler, WebDownloader, Installer, WebScan, WebLink, and WebSetup. For more information on Fiery WebTools, see the user documentation.

NOTE: Fiery WebSetup is supported on Windows computers only.

Chapter 2: Preparing for Installation

This chapter includes the following information:

- Summary of the installation sequence
- Checking the customer site
- Unpacking the E-820
- E-820 front and back overview

Installation sequence

Familiarize yourself with this chapter and Chapter 3 of this guide before you attempt an installation. The installation sequence described in this chapter is designed to make your job as easy as possible. Installation problems are easier to avoid and diagnose if you proceed from the component to the system level and verify functionality at each stage. Figure 2-1 on page 2-2 outlines the recommended installation procedure for connecting the E-820 to the copier.

Because the E-820 is a node on the customer's computer network, make sure you coordinate your scheduled installation with the network administrator at the customer site. Refer the network administrator to the *Configuration Guide* for network setup information.

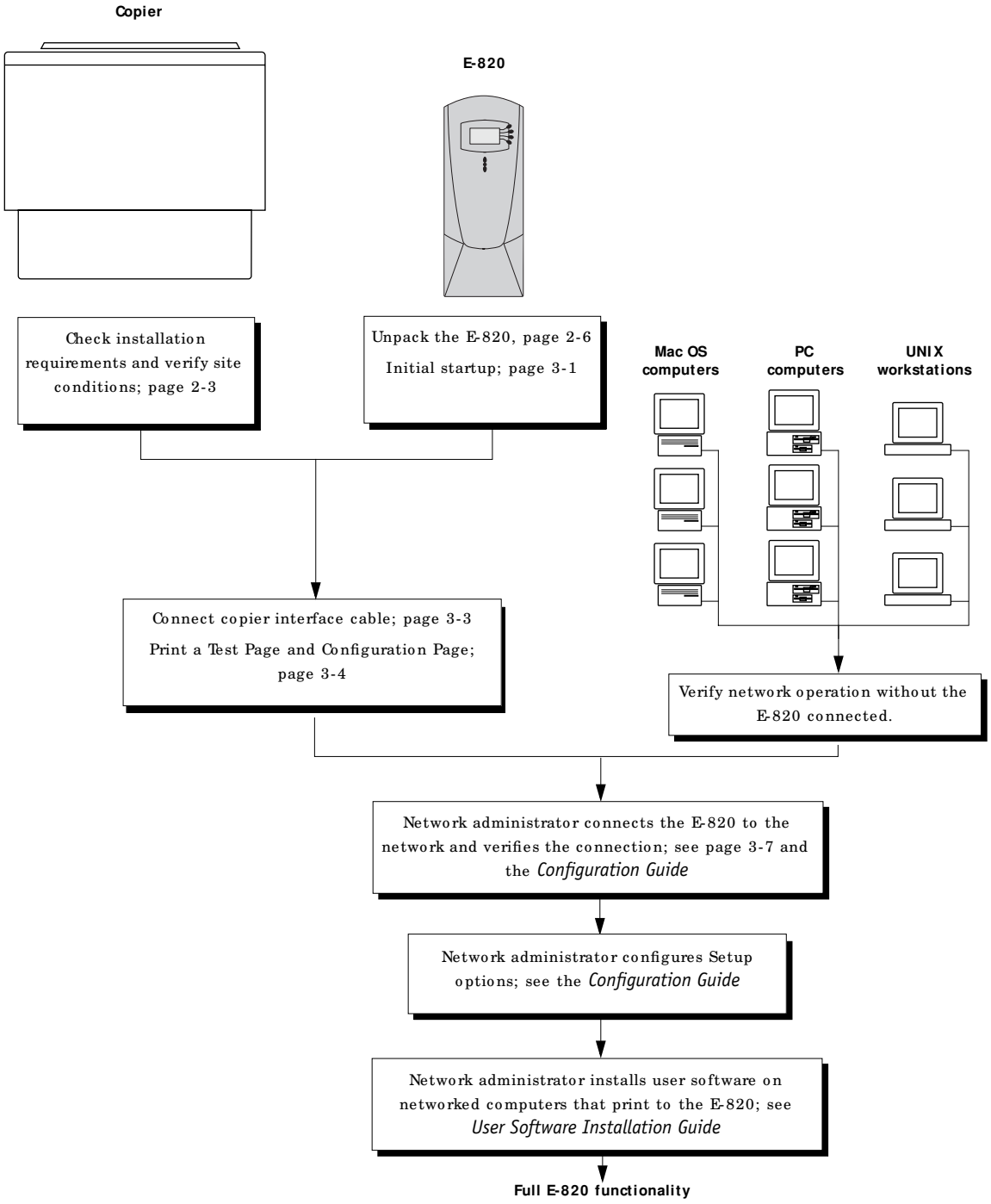


FIGURE 2-1 Recommended installation steps and references

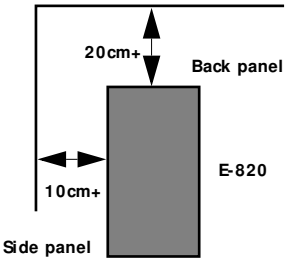
Checking the customer site

Before you install the E-820, check site conditions and inform the customer of any installation requirements.

Copier model

- ❑ **What copier model is installed?**
- ❑ **Is there space near the copier for the E-820?**

  Make sure that there is space for the E-820. Allow 20cm of space at the back panel and 10cm of space at the side panel (see the following illustration). You may need to move the copier out from the wall so that its interface connectors are accessible.



- ❑ **Does the copier require service or adjustments?**

  Copy the copier color test page before you install the E-820.

  If the copied image indicates that the copier needs adjustment, inform the customer. After getting approval, complete the copier service needed.

Power

- ❑ **Is there a dedicated, grounded electrical outlet near the copier for the E-820?**

  Locate the grounded electrical outlet that will supply power to the E-820. You should not run the E-820 and the copier on the same circuit. Make sure to use a surge suppressor for the E-820 if the customer has provided one.

  - *Do not* use a 3-prong adapter in a 2-hole ungrounded outlet.
  - *Do not* use an extension cord.
  - *Do not* plug the E-820 into a circuit with heating or refrigeration equipment (including water coolers).
  - *Do not* plug the E-820 into a switchable wall outlet. This can result in the E-820 being turned off accidentally.

Network

- ❑ **What is the network cable and connection type?**
  - Unshielded twisted pair (100BaseT)
  - Optional Token Ring (shielded twisted pair or unshielded twisted pair, depending on the requirements of the network)
- ❑ **Is the network connection ready and tested for E-820 installation?**

  To verify that the network is functioning before you attach the E-820:
  - Ask the network administrator to print a document on a shared printer over the network.
  - Ask the network administrator to verify the computer and network requirements as specified in the *Quick Start Guide*.

System contact person

- ❑ **Will the person responsible for the computers and the network be available at the time set for installation? Get a name as a contact.**

Setting customer expectations

If the site is ready, installation takes about one hour. The customer should be informed of the following:

- Some nodes on the network may be unavailable for up to one hour.
- The copier may be unavailable for up to one hour.
- The network administrator needs to be available during the installation for network connectivity.

  Equipment downtime and impact on the network can be minimized if the network administrator installs a network connector for the E-820 and confirms network functionality with the connector in place before the date scheduled for the E-820 installation.
- The network administrator should have a networked computer available during the installation. The appropriate software should already be installed. Documentation for the networked computer and the network operating software should be available.
- The network administrator should install the user software shipped with the E-820 (user documentation is also included) onto networked PC and Mac OS computers that will print to the E-820.

NOTE: This guide covers hardware installation and service. It provides general information on connecting the E-820 to the customer's network. Network setup and configuration information goes beyond the scope of this guide. For network setup and configuration information, refer the network administrator to the *Configuration Guide*.

Unpacking the E-820

The E-820 is assembled and shipped from the factory in a box that includes all necessary cables and documentation, as shown in Figure 2-2 on page 2-7.

TO UNPACK THE E-820

1. **Open the box and remove the packing material.**

   You may want to save the original boxes and packing materials if you need to transport the E-820 at a later date.

2. **Remove the contents from the top container. Inspect the contents for visible damage. The top container should include the following items:**

   - Bags containing one copier interface cable and three AC power cables (U.S., U.K., and E.U.).
   - Media package (includes system software, user software, and user documentation)
   - Label

3. **Give the media package to the customer or the network administrator.**

   Let the customer or network administrator know that in order to take full advantage of the E-820, the user software must be installed on computers that will print to the E-820.

4. **Set aside the remaining components from the top container.**

5. **Remove the top container and any packing materials.**

   Set aside the packing material and note the orientation of the E-820 inside the shipping container, in case you need to repack it later.

6. **Carefully lift the E-820 out of the box.**

   If you notice shipping damage to any component, be sure to save the shipping container in case the carrier needs to see it. Call the carrier immediately to report the damage and file a claim, then call your authorized service/support center. Be ready to furnish the serial number printed on the back of the E-820.

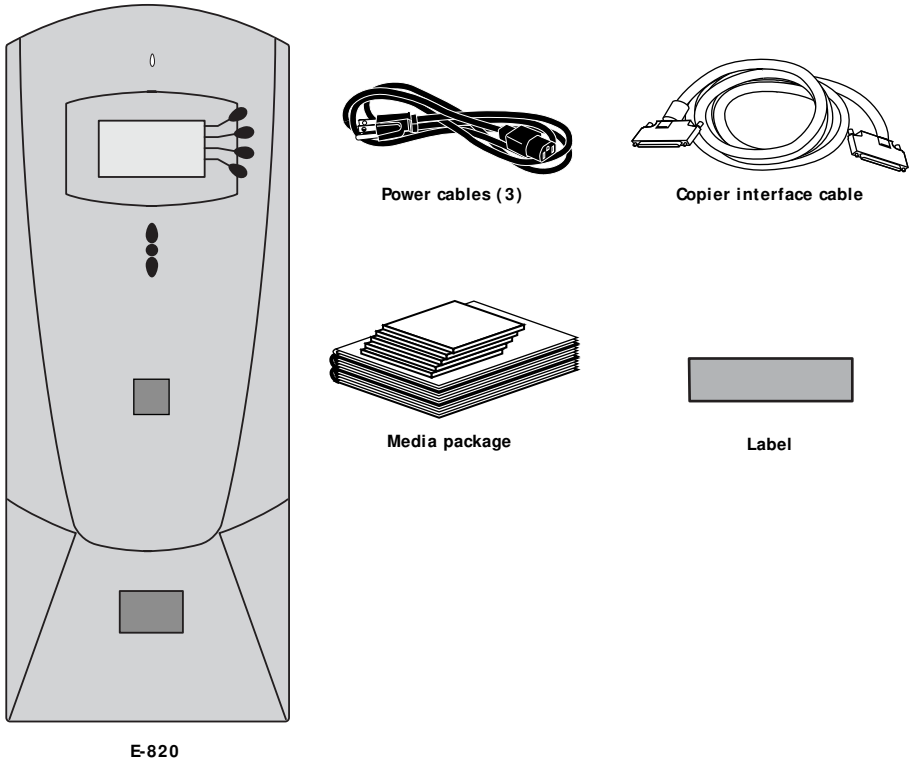


FIGURE 2-2 Contents of E-820 shipping box

Front and back panels

After unpacking the E-820, familiarize yourself with the front and back panels before you connect it to the copier.

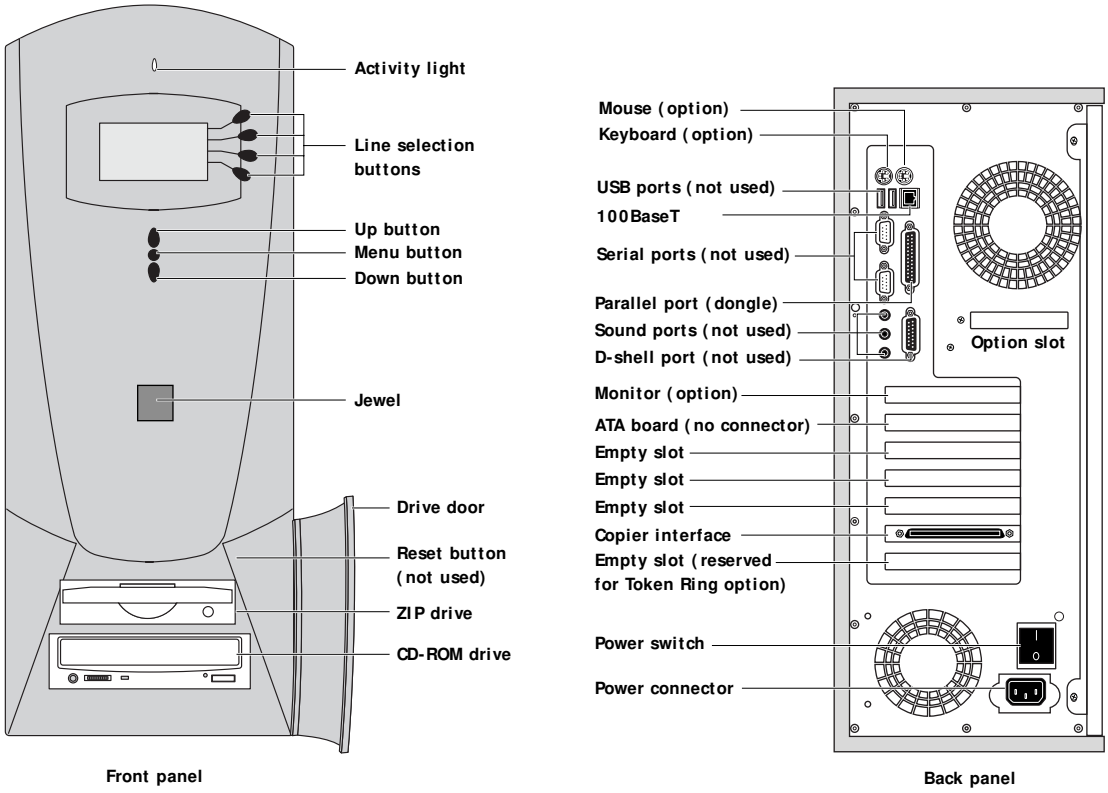


FIGURE 2-3 Front and back panels

Chapter 3: Connecting the E-820

After you unpack or service the E-820, power on the system and allow diagnostics to run before you connect the E-820 to the copier and the network. Diagnostics run automatically during startup to check the E-820 for internal problems.

NOTE: The Controller Interface needs to be installed in the copier before you can connect the E-820 to the copier. See Appendix B for details on how to install the Controller Interface.

Preliminary checkout

The following procedure describes how to connect power and start the E-820.

TO CONNECT POWER AND START THE E-820

1. **Connect the appropriate power cable (U.S., U.K., or European) to the power connector at the back of the E-820 (see Figure 3-1 below).**
2. **Make sure the power switch is in the off position (press 0), and then connect the other end of the power cable to a wall outlet.**

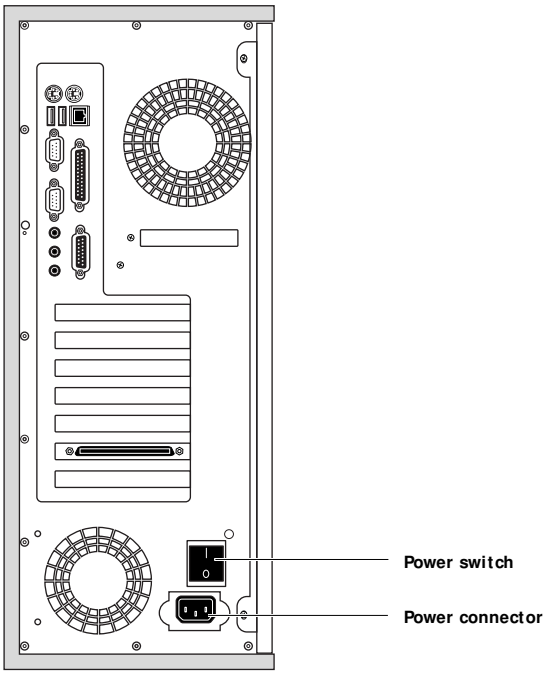


FIGURE 3-1 E-820 power

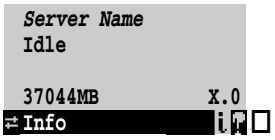
3. **Power on the E-820 using the power switch on the back panel. The power supply automatically senses the correct voltage.**

4. **Allow startup to proceed without interruption while you watch the Control Panel. Do not press any buttons on the Control Panel.**

   Before the system reaches the Idle screen, it creates a backup of the initial system software configuration. To restore the system software to the initial configuration, see "Restoring backup system software" on page 4-68.

5. **Wait for the system to reach the Idle screen to confirm that the E-820 is operating properly.**

   When the E-820 reaches the Idle screen, you are ready to connect it to the copier and the network. Setup options should be configured after making these connections. The network administrator is responsible for configuring Setup according to the network and user environment. Refer the network administrator to the *Configuration Guide* for Setup information.



   NOTE: The message Check power and cable may appear on the Control Panel during the startup process. After the E-820 is connected to the copier, the message should no longer appear.

6. **Following a successful startup, shut down the E-820 (see page 3-16).**

Connecting to the copier

After completing the preliminary checkout, connect the Controller Interface in the copier as described in Appendix B. After the Controller Interface is installed, connect the E-820 to the copier. The E-820 communicates with the copier through a cable from the copier interface board to the interface port on the copier.

NOTE: The Controller Interface needs to be installed in the copier before you can connect the E-820 to the copier.

TO CONNECT TO THE COPIER

1. **Power off the copier.**

   Check with the network administrator or supervisor before powering off the copier.

2. **Connect one end of the copier interface cable to the interface connector on the copier and the other end of the cable to the E-820 copier interface connector (see Figure 3-2 below).**

   Tighten the screws completely on both ends of the cable.

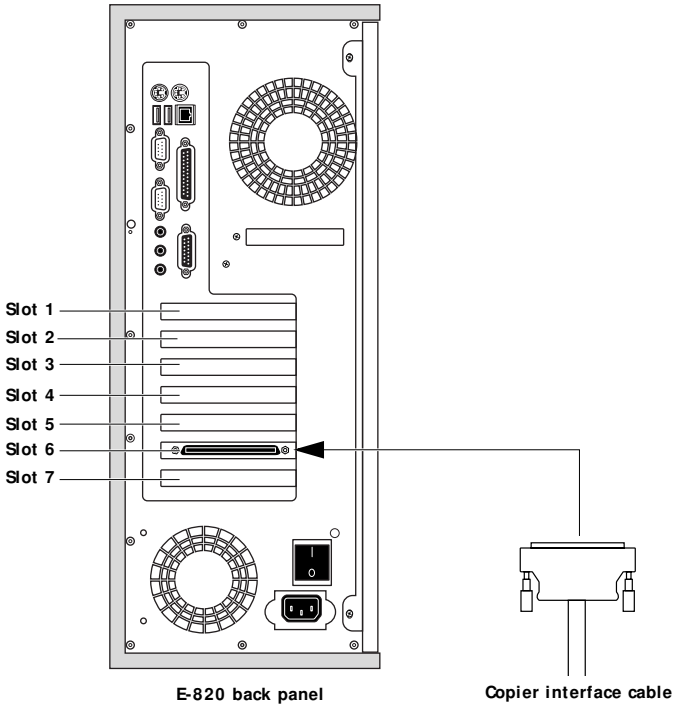


FIGURE 3-2 Copier interface connection

Verifying the connection

After you connect the E-820 to the copier, print the Test Page and the Configuration Page to verify that the connection between the E-820 and the copier is good.

Printing the Test Page and Configuration page

Before connecting the E-820 to the network, print the Test Page and the Configuration page.

- Test Page—printing the Test Page verifies that all the components of the E-820-to-copier interface are working. The Test Page is a color file that resides on the HDD (hard disk drive).
- Configuration page—printing the Configuration page can be helpful during installation, setup, and service. After you install the E-820 and before any default settings are changed, you can obtain a record of the defaults by printing the Configuration page.

  After you make the physical connection to the network, the network administrator can customize Setup options according to the network and user environment. Using the Configuration page as a guide can help speed up this process. For more information, see the *Configuration Guide.*

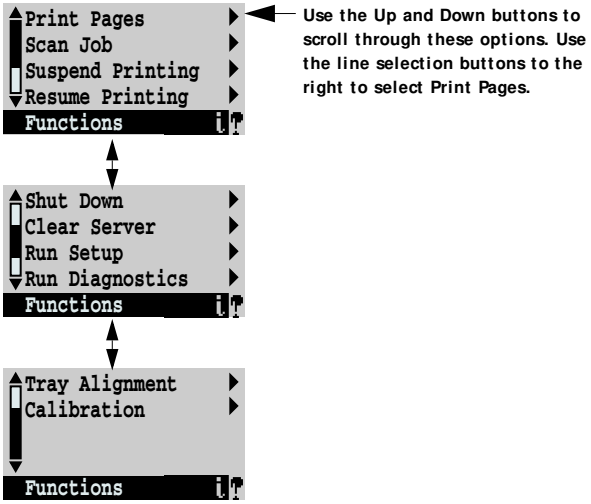
  Before you perform any service procedure, you should print the Configuration page, if possible, so that you can return the settings to their former configuration, if necessary.

TO PRINT THE TEST PAGE

1. **Power on the copier and allow it to warm up.**
2. **Power on the E-820 using the power switch on the back panel.**

   Messages appear on the Control Panel as the E-820 runs through its startup diagnostics.
3. **Make sure that the copier is not in use and that the Info screen on the E-820 Control Panel reads Idle.**

4. **At the Idle screen, press the Menu button once (see "Using the Control Panel" on page 3-9). The Functions menu appears.**



5. **Press the line selection button to the right of Print Pages, and then select Test Page.**

   The E-820 sends the Test Page to the copier and displays the RIP and Print status screens so you can monitor the job.

6. **Examine the quality of the Test Page from the copier.**

   If the Test Page prints, you know that the E-820 is functional and that the connection between the E-820 and the copier is good. When you examine the Test Page, keep in mind that:

   - All color patches should be visible, even though they may be very faint in the 5% and 2% range.
   - Each color's patch set should show uniform gradation from patch to patch as the color lightens from 100% to 0%.

   Poor image quality may indicate a need to calibrate the system or service the copier. Information on the Test Page includes the date and time of the last calibration. Keep the Test Page for future reference. For more information, see the *Color Guide*.

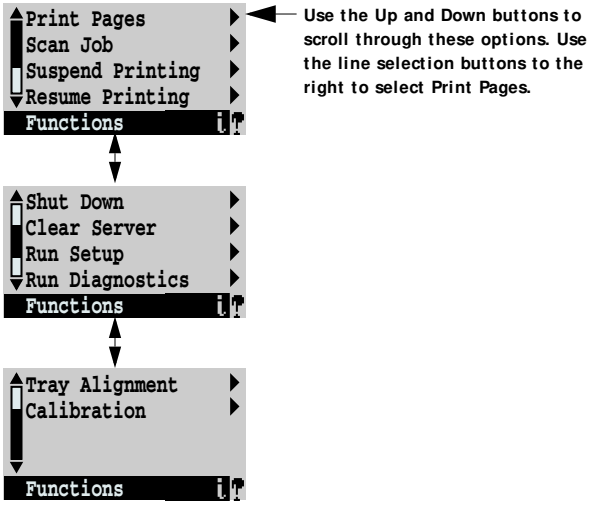
TO PRINT A CONFIGURATION PAGE

1. **If you have not done so already, power on the copier and allow it to warm up. Power on the E-820 using the power switch on the back panel.**

   Messages appear on the Control Panel as the E-820 runs through its startup diagnostics.

2. **Make sure that the copier is not in use and that the Info screen on the E-820 Control Panel reads Idle.**

3. **At the Idle screen, press the Menu button once (see "Using the Control Panel" on page 3-9). The Functions menu appears.**



4. **Press the line selection button to the right of Print Pages, and then select Configuration page.**

   The E-820 sends the Configuration page to the copier and displays the RIP and Print status screens so you can monitor the job.

Installing additional options

If the customer has purchased additional options, install those before connecting the E-820 to the network. For installation instructions, see the documentation included in each option kit.

After installing options, print the Test Page to verify that the system is operating properly. Checking the installation at each stage makes it easier to pinpoint the cause of problems should they occur.

Connecting to the network

The E-820 has an external 100BaseT Ethernet network connector for a twisted pair cable (see Figure 3-3). For additional network information, see the *Configuration Guide*.

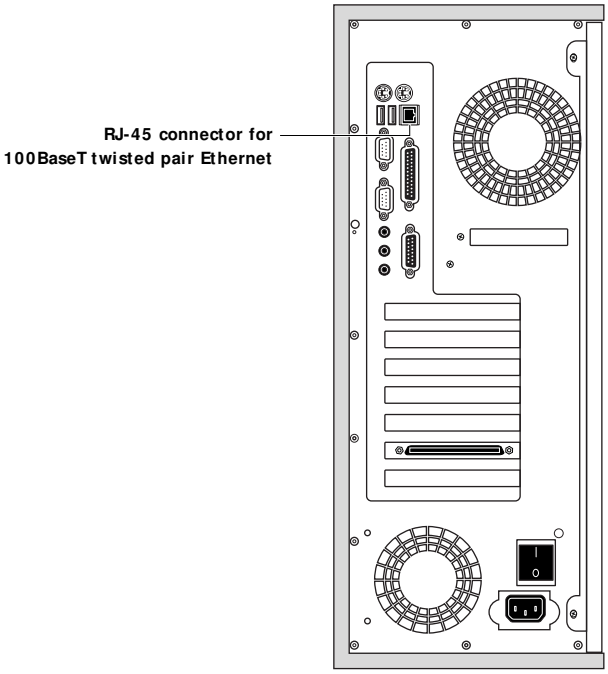


FIGURE 3-3 E-820 network connector

Token Ring compatibility is available with the optional Token Ring kit (see the documentation included with that kit for more information).

TO CONNECT A TWISTED PAIR CABLE

Twisted pair (unshielded twisted pair cable for 100BaseT) uses an RJ-45 connector that connects to the back of the E-820 (see Figure 3-3 on page 3-7).

1. **Shut down and power off the E-820 before connecting it to any network device (see page 3-16).**

2. **Connect the network cable to the RJ-45 connector on the back of the E-820.**

   A Category 5 unshielded twisted pair (UTP) network cable must be used for 100BaseT.

3. **Configure Setup options.**

   It is the network administrator's responsibility to configure Setup according to the network and user environment. Refer the network administrator to the *Configuration Guide* for Setup information.

4. **After configuring Setup options, verify the network connection.**

   Once the network connection has been made and the E-820 has the correct Setup configuration, the E-820 should be available on the network.

   The network administrator should perform any additional network setup, verify the network connection, verify that the E-820 appears in the list of printers, and print a few test documents from a networked computer that will use the E-820. (For more information, see the *Configuration Guide*.)

Using the Control Panel

This section describes the Control Panel on the front. Once you install the E-820 and verify that it powers up correctly, you can use the Control Panel to access and monitor different functions.

The current status of the E-820 and Setup information are displayed in the E-820 display window. Activity can be monitored in the display window, and functions of the E-820 (such as printing a Test Page and installing or updating system software) can be controlled using the buttons on the Control Panel.

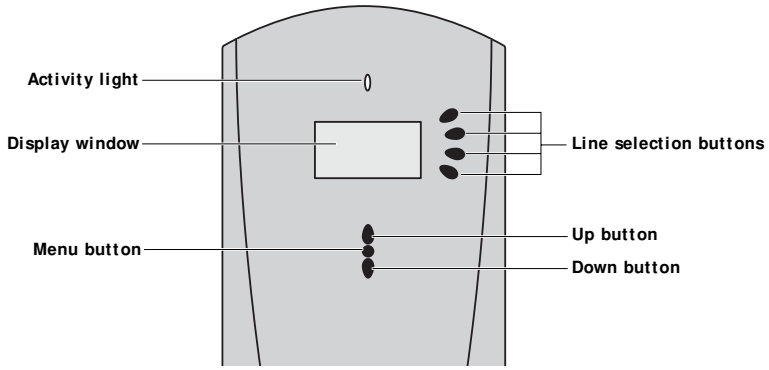


FIGURE 3-4 The E-820 Control Panel

Activity light

The activity light indicates current activity. If the light is:

Flashing or solid red	An error has caused printing to be disabled. The activity light also flashes red briefly during startup.
Solid green	The E-820 is idle or starting up.
Flashing green	The E-820 is processing or printing a job.
No light	The E-820 is powered off.

Buttons

Line selection buttons	Use the four line selection buttons on the right side of the Control Panel to select the command displayed on the corresponding line of the display window. A special character (▶) appears in the display window next to a button when it is available.
Up and Down buttons	Use these buttons to scroll to different screens in multi-screen lists, to select Setup options from a list, and to select alphanumeric characters.
Menu button	Press this button to view other display screens. Several different display screens, show different types of information about the E-820.

Control Panel screens and icons

When the E-820 is in Print mode, pressing the Menu button cycles through four screens: three status screens (Info, RIP, and Print) and the Functions menu. When the E-820 is idle, pressing the Menu button cycles between the Info screen and the Functions menu.

The bottom line of the screen displays the name of the current screen with the icon for that screen highlighted. Icons for other active screens are also displayed but are not highlighted.

The screens display the following information:

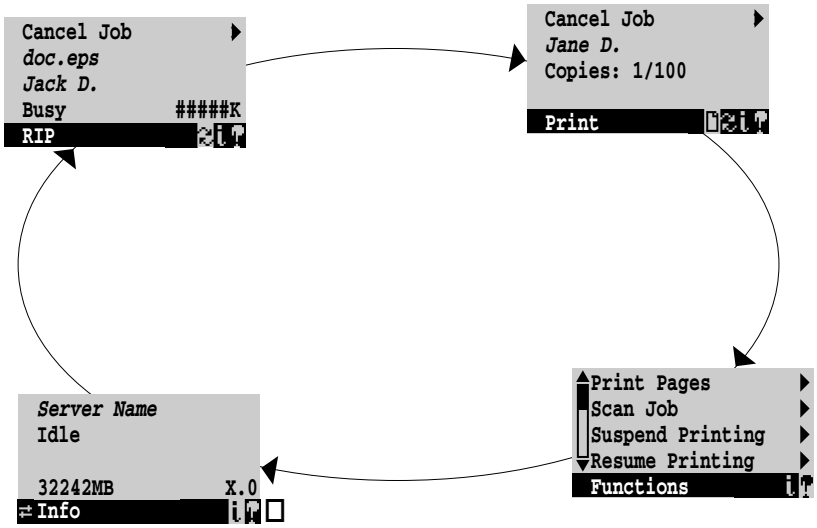
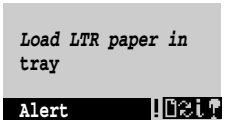


FIGURE 3-5 Control Panel screens during printing

If an error occurs, the Alert screen is displayed with a message describing the error.



The display window screens and icons are:

Alert Status — If there is a problem during printing or processing, the Alert Status screen is activated, displaying an error message. For information on user error messages, see the *Printing Guide*.

Print Status — When the E-820 is printing, the Print Status screen is activated. This screen displays the following:

Cancel Job—Press the top line selection button to cancel the job currently printing.

User name—The name of the user who sent the job currently processing.

Pages/Total—The number of copies of the current page printed and the total number of copies of the job requested.

RIP Status — When the E-820 is processing a job, the RIP Status screen is activated. This screen displays the following:

Cancel Job—Press the top line selection button to cancel the job currently processing. The E-820 cancels the job before printing begins.

Document name—The name of the document currently processing.

User name—The name of the user who sent the job currently processing.

Kilobytes—The size (in kilobytes) of the job processed so far.

NOTE: This number is always displayed in kilobytes; for example, 10MB is displayed as 10000KB.

Info Status

The Info Status screen displays information about the server's current activity and software version. This screen is always active and it appears in the display window when no other screen is selected. It displays the following information:

Server Name—The E-820 name as it is configured in Setup.

Status—The current status of the E-820. Status messages include: Idle, Initializing, Busy, Processing, or Printing.

Megabytes—The space (in megabytes) available on the HDD (for example, 32242MB).

NOTE: This number is always displayed in megabytes; for example, 32GB is displayed as 32000MB.

Version—The system software version running on the E-820.

Functions

The Functions screen is also always active, but it appears in the display window only when the user has pressed the Menu button to select it. Use the Up and Down buttons to scroll through the list of menu command options. Press the line selection button to the right of a command to select it.

Network

The Network icon appears in the lower left corner of the display window when the E-820 is communicating over the network. The Network icon can appear while any screen is displayed.

Functions menu

The Functions menu allows you to perform a variety of administrative functions that do not affect print jobs of other users. Use the Up and Down buttons to scroll through the list of functions. Press the line selection button next to the function you want to select.

The following functions are available from the Functions menu:

Print Pages— Enables you to print special pages from the E-820. You can print the following pages from the submenu that appears:

- Test Page— Enables you to confirm that the E-820-to-copier interface is functioning properly. The Test Page provides sample images that can be used to troubleshoot the E-820. The following information is also listed: Server name, printer model, output profile, calibration information, RGB source, rendering style, date and time printed, CMYK simulation, simulation method, and compression information.
- Configuration— Prints the current server and device configuration. This includes information about all current Setup settings, simulation profile, and the Ethernet address of the E-820. The Configuration page also provides version information for the BIOS chip and information on any options installed in the E-820.
- Job Log— Prints the log of the last 55 jobs by default. For more information about the job log, see the *Printing Guide*.
- Control Panel Map— Prints the Setup screen help pages. These pages are useful when navigating through the different Setup screens.
- Color Charts— Prints the color reference charts. These pages include swatches of the RGB, CMY, and PANTONE colors available from the E-820.
- Font List— Prints a list of all fonts resident on the HDD.

Scan Job— Allows users to initiate a scan job from the Control Panel. See the *Printing Guide* for more information.

Suspend Printing— Disconnects the E-820 from the copier. This option interrupts the current print job so you can use the copier to make copies; after you make the copies you can select Resume Printing to have the copier continue processing and printing jobs.

Resume Printing— Connects the copier to the E-820 so you can resume printing after interrupting the print job to make copies (used with Suspend Printing).

Shut Down— Provides three ways to shut down the E-820:

- Restart Server (soft reset)— Resets the server software but does not reboot the entire system. Network access to the E-820 is temporarily interrupted and all currently processing jobs are aborted and might be lost.
- Shut Down System— Shuts down all E-820 activity properly so that you can power off the system using the power switch on the back panel. You should always select this option before powering off the system or using the reset button (see the procedure "To shut down the E-820" on page 3-16).
- Reboot System (hard reset)— Shuts down and then reboots the E-820.

NOTE: The Reset button on the front panel (shown in Figure 2-3 on page 2-8) should not be used to reboot the system. To reboot the system, follow the procedure for Reboot System on page 3-17.

Clear Server—Clears all jobs from the server queues. It also clears the Job Log, all jobs saved on the server hard disk drive, and the index of all archived jobs.

Run Setup—Allows you to access the Setup options in order to configure the network and printing environment. Typically it is the network administrator's responsibility to configure Setup according to the network and user environment. Setup is required the first time the E-820 is powered on and after system software is installed. For a list of options and detailed descriptions of each Setup option, see the *Configuration Guide*.

Tray Alignment—Allows the customer to adjust the position of text and images on the page. See the *Job Management Guide* for more information.

Calibration—Allows the customer to calibrate the E-820 using AutoCal. This function is available when the E-820 is connected to a copier, but unavailable when connected to a printer. For more information, see the *Color Guide*.

Shutting down and restarting

The E-820 will probably be left on all the time at the customer site. Remember that when the E-820 is powered off, network access to the copier is interrupted.

You should shut down the E-820 when you need to service it or the copier, and before you remove or attach any cables to the E-820. Shut down the E-820 before changing the copier's toner cartridge in order to prevent the fan from drawing toner into the E-820.

TO SHUT DOWN THE E-820

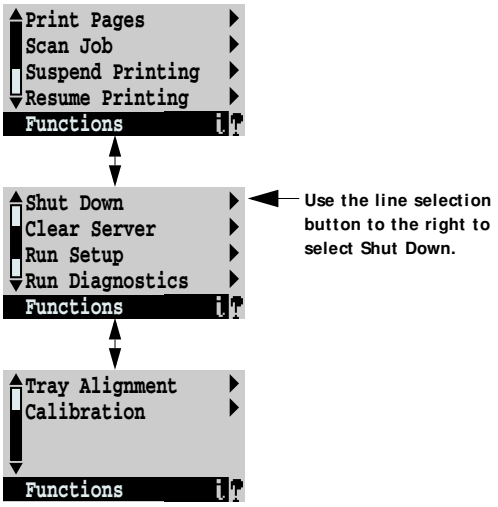
Always verify that the E-820 is not being used before you begin the following procedure to power off the E-820.

1. **Make sure that the E-820 Info screen reads Idle.**

   When Printing or Ripping appears on the Control Panel, the E-820 is currently processing a job. Idle appears in the Info screen when the E-820 is finished processing the job.

2. **At the Idle screen, press the Menu button once to display the Functions menu.**

3. **Scroll to select Shut Down from the Functions menu.**



4. **At the next screen, select Shut Down System.**

   The message It is now safe to power off the system.... is displayed.

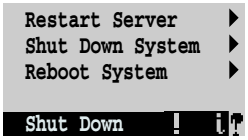
5. **Power off the E-820 using the power switch on the back panel (press 0).**

TO RESTART THE E-820

1. **If the E-820 is already on, make sure it is not receiving, processing, or printing a document.**

   When Printing or Ripping appears on the E-820 Control Panel, the E-820 is currently processing a print job. Wait until the job is complete and Idle appears in the Info screen.

2. **Press the Menu button once, select Shut Down from the Functions menu, and then select Restart Server.**



Use the line selection button to the right to select Restart Server.

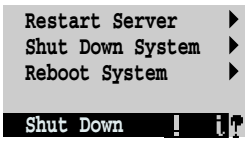
TO REBOOT THE E-820

1. **If the E-820 is already on, make sure it is not receiving, processing, or printing a document.**

   When Printing or Ripping appears on the E-820 Control Panel, the E-820 is currently processing a print job. Wait until the job is complete and Idle appears in the Info screen.

2. **Press the Menu button once, select Shut Down from the Functions menu, and then select Reboot System.**

   Allow the system to shut down and reboot. Do not push any buttons during this time and ignore the message It is now safe to power off the system.... that appears on the Control Panel while the system reboots.



Use the line selection button to the right to select Reboot System.

Chapter 4: Service Procedures

Generally, the E-820 requires no regular service or maintenance. Use the procedures in this chapter to inspect, remove, reseat, and replace major hardware components, as well as to install system software.

Overview

This chapter includes information on servicing the following components:

- Boards and Cables
- Motherboard components (DIMMs, CPU(s), battery)
- Fans (front and back panel)
- Power supply
- HDD (hard disk drive)
- CD-ROM drive and ZIP drive
- Front panel components

See Figure 4-1 on page 4-2 for an overview of components. Replacement parts are available from your authorized service representative. The terms "replace" and "replacing" are typically used throughout this chapter to mean reinstallation of existing components. Install new components only when necessary. If you determine that a component you have removed is not faulty, make sure to reinstall it back in the system.

When performing the service procedures described in this chapter, follow the precautions listed in "Precautions" on page xiii.

The tools required to service the system are listed in "Tools you will need" on page xv. For details about how to install the Controller Interface, see Appendix B.

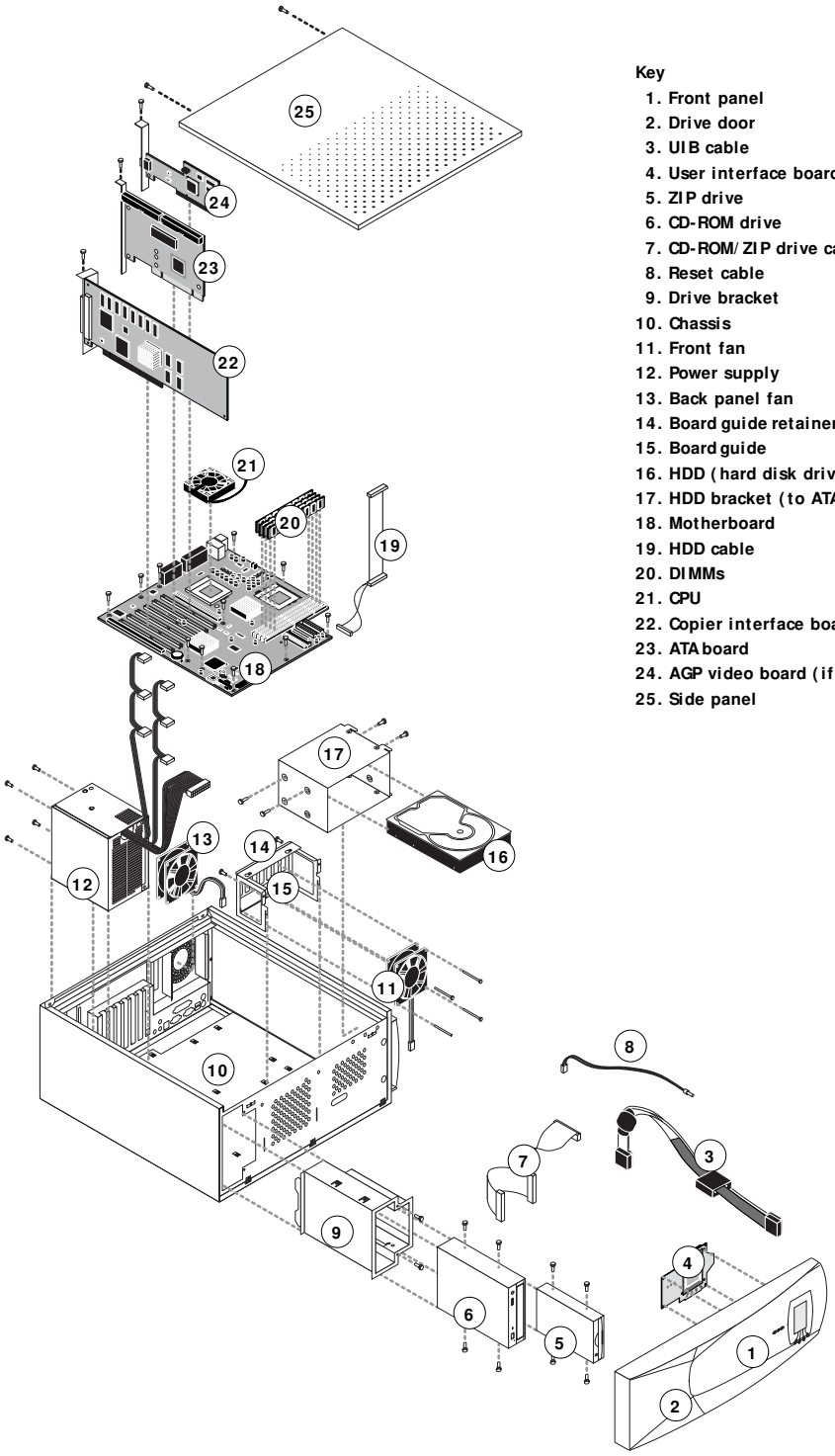
System software

System software (English) is installed on the HDD at the factory. A backup of the system software resides on a separate partition on the HDD. You can retrieve the backup using the Restore/Update Server Software CD. System software is also provided on a set of two CDs which contain system software and fonts. Use the System Software CDs when:

- You upgrade to a more recent version of the system software
- Restore Backup fails
- You change languages
- You replace the HDD

NOTE: System software installation takes approximately 30 minutes.

For information on how to install system software, see "System software service" on page 4-67.



Key

1. Front panel
2. Drive door
3. UIB cable
4. User interface board
5. ZIP drive
6. CD-ROM drive
7. CD-ROM/ZIP drive cable
8. Reset cable
9. Drive bracket
10. Chassis
11. Front fan
12. Power supply
13. Back panel fan
14. Board guide retainer
15. Board guide
16. HDD (hard disk drive)
17. HDD bracket (to ATA board)
18. Motherboard
19. HDD cable
20. DIMMs
21. CPU
22. Copier interface board
23. ATA board
24. AGP video board (if this option is present)
25. Side panel

FIGURE 4-1 Exploded view of E-820 components

Accessing internal components

If the E-820 is powered on, make sure to shut down the system before you access the internal components. Always use the following procedures when opening the E-820 for inspection or service.

NOTE: Remember that when the E-820 is powered off, network access to the copier is interrupted. Always get permission from the network administrator before you take the E-820 off the network.

TO SHUT DOWN THE E-820

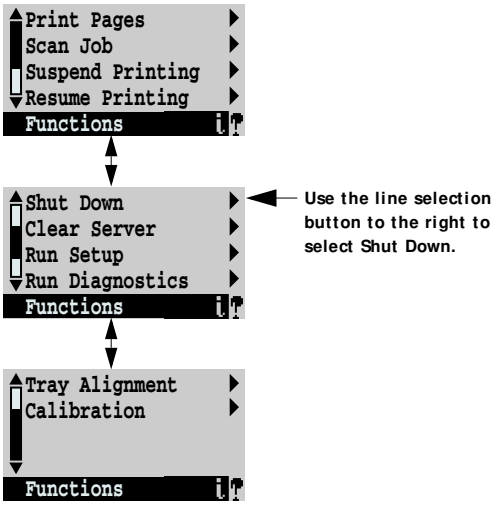
Always verify that the E-820 is not being used before you shut it down.

1. **Make sure that the Info screen reads Idle.**

   When Printing or Ripping appears on the Control Panel, the E-820 is currently processing a job. Idle appears in the Info screen when the E-820 is finished processing the job.

2. **At the Idle screen, press the Menu button once to display the Functions menu.**

3. **Scroll to select Shut Down from the Functions menu.**



4. **At the next screen, select Shut Down System.**

   The message It is now safe to power off the system.... appears.

5. **Power off the E-820 using the power switch on the back panel (press 0).**

6. **Disconnect all cables from the back panel.**

TO OPEN THE E-820

1. **Make sure you have powered off the E-820 (see page 4-3) and removed all the cables from the back panel.**
2. **Place the E-820 on a flat, anti-static surface. Attach an ESD wrist strap before handling internal parts (see "Precautions" on page xiii).**
3. **Remove the two screws that secure the side panel to the chassis.**
4. **Lift off the side panel (see Figure 4-2).**

   Press on the front edge of the side panel as you slide the panel off the chassis.

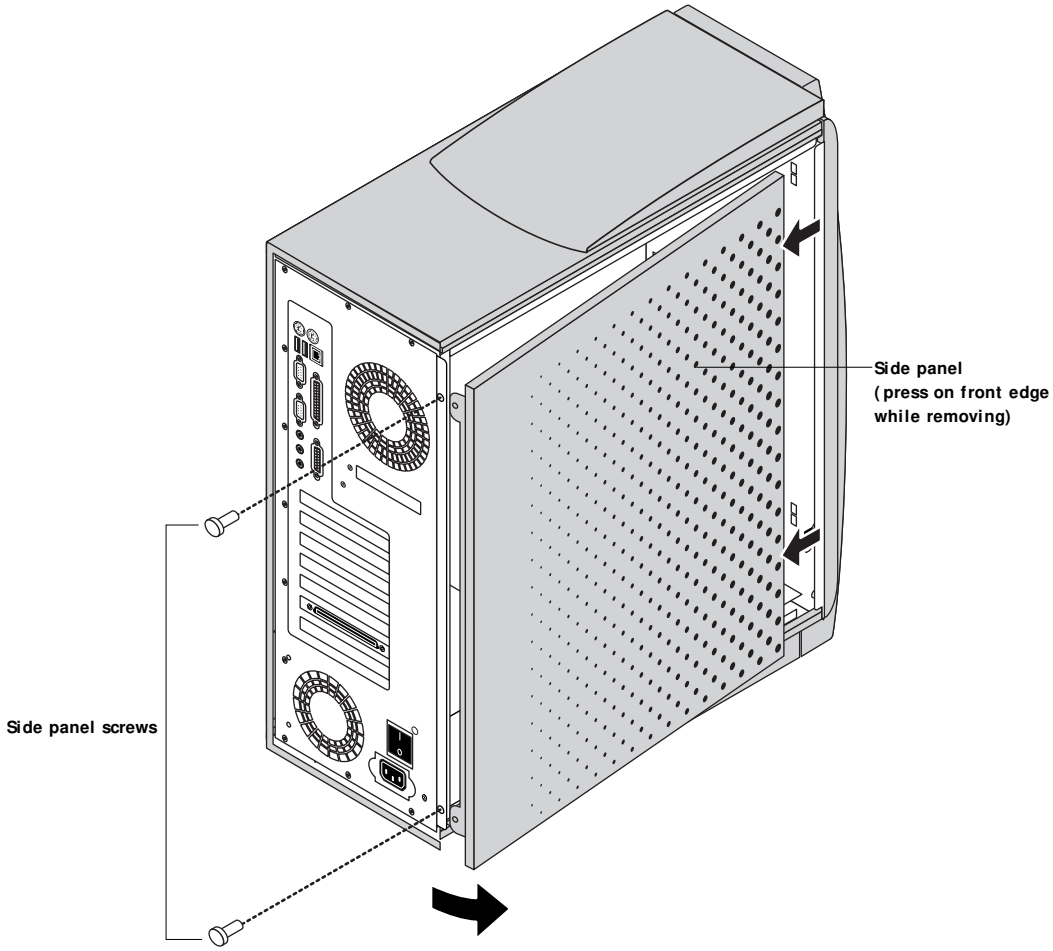
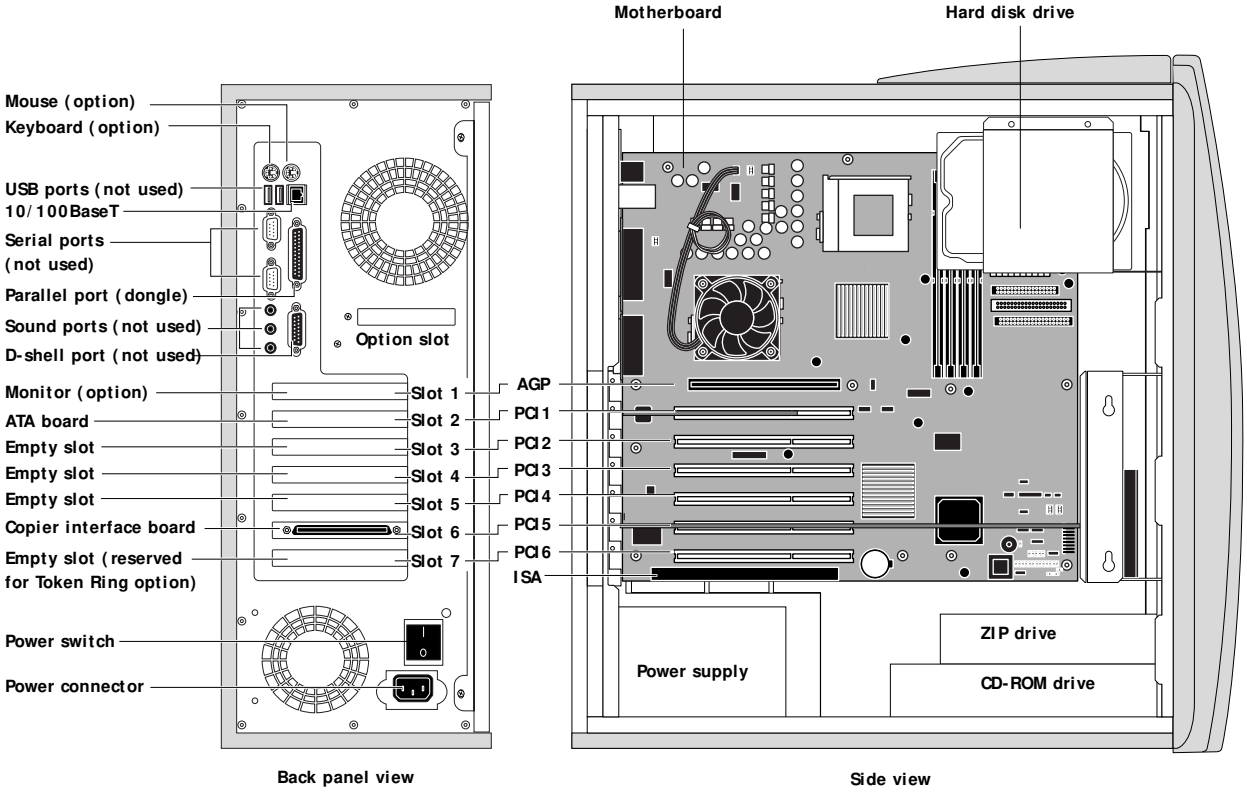


FIGURE 4-2 Removing the side panel

The internal components are now accessible.

The E-820 is shipped from the factory with a standard board configuration, as shown in Figure 4-3. If optional components have been installed, see the documentation that came with the specific option kit.

NOTE: To service components inside the chassis, position the E-820 so that it is resting on its side and the components inside the chassis are facing up.



Motherboard connectors:

AGP—AGP video board (if this option is present)

PCI 1—ATA board

PCI 2—Empty

PCI 3—Empty

PCI 4—Empty

PCI 5—Copier interface board

PCI 6—Empty (reserved for Token Ring option)

ISA connector—Empty

FIGURE 4-3 E-820 side view and back panel view

Accessing front panel components

The following procedure describes how to remove the front panel in order to access the user interface board, the Control Panel buttons, the CD-ROM/ZIP drive assembly, and the top front panel jewel. You do not need to remove the front panel in order to access other components inside the chassis.

TO REMOVE THE FRONT PANEL

1. **Shut down the E-820 (see page 4-3).**
2. **Open the E-820 (see page 4-4).**
3. **Release the tabs that secure the front panel to the chassis by gently pressing them inward and pulling the front panel away from the chassis (see Figure 4-4 on page 4-7).**
4. **Release the hooks that secure the front panel to the chassis by gently rotating the front panel away from the chassis.**

   Take care when pulling the front panel away from the chassis, as the UIB cable is still connected to the front panel.
5. **Disconnect the UIB cable from connector J3 on the user interface board, then place the front panel on a clean, padded surface.**

   The front panel components are now accessible.

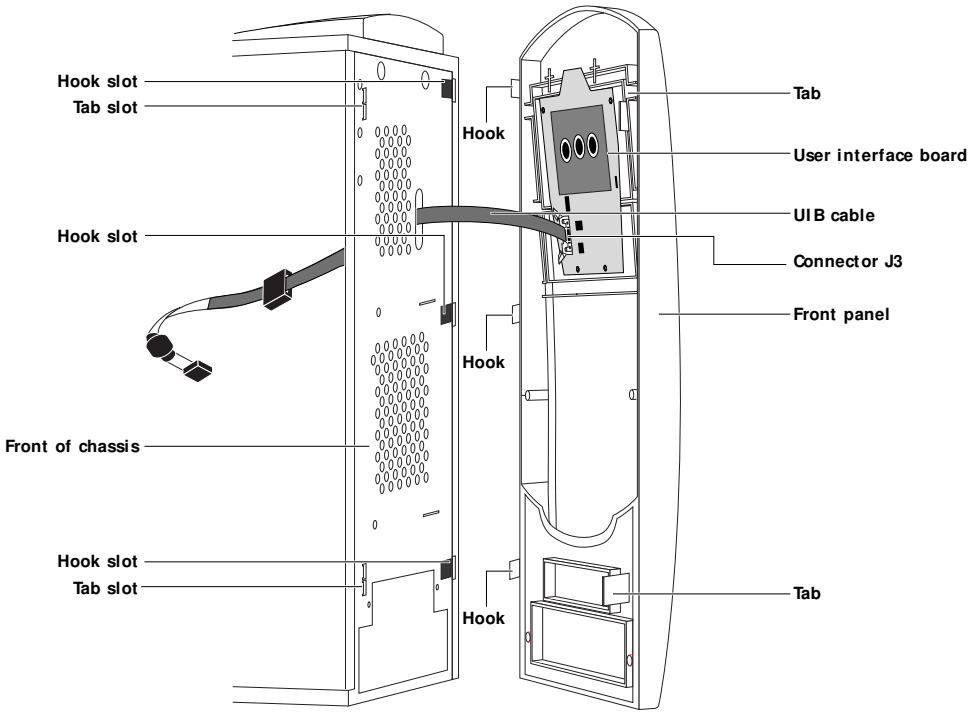


FIGURE 4-4 Removing the front panel

TO REPLACE THE FRONT PANEL

1. **Make sure all front panel components are installed correctly.**
2. **Connect the UIB cable to connector J3 on the user interface board.**

   When you connect the cable, make sure to snap the levers together to ensure that the connector is securely fastened.
3. **Angle the front panel so that the three hooks line up with the three hook slots (see Figure 4-4).**
4. **Rotate and then press the front panel against the chassis until it snaps into place.**

   NOTE: If you replaced the front panel, make sure you transfer the jewels from the original front panel onto the new one.

Checking internal connections

The most common causes of hardware problems are faulty and loose connections. Before you conclude that any board or component has failed, remove, inspect, and reseat all appropriate connections, and then verify that the problem still occurs.

TO CHECK BOARD AND CABLE CONNECTIONS

NOTE: Follow standard ESD precautions while working on internal components.

1. **Make sure you have powered off the E-820 (see page 4-3), removed all the cables from the back panel, and removed the side panel (see page 4-4).**

2. **Position the E-820 so it is resting on its side and the internal components are facing up.**

3. **Inspect the boards to make sure they are firmly seated in their motherboard connectors. Press down firmly on the boards to make sure each one is securely installed.**

   The standard board configuration includes the following (from top to bottom):

   Connector AGP—AGP video board (if this option is present)

   Connector PCI1—ATA board

   Connector PCI2—Empty

   Connector PCI3—Empty

   Connector PCI4—Empty

   Connector PCI5—Copier interface board

   Connector PCI6—Empty (reserved for Token Ring option)

   ISA connector—Empty

4. **Inspect ribbon cables to see if they are intact.**

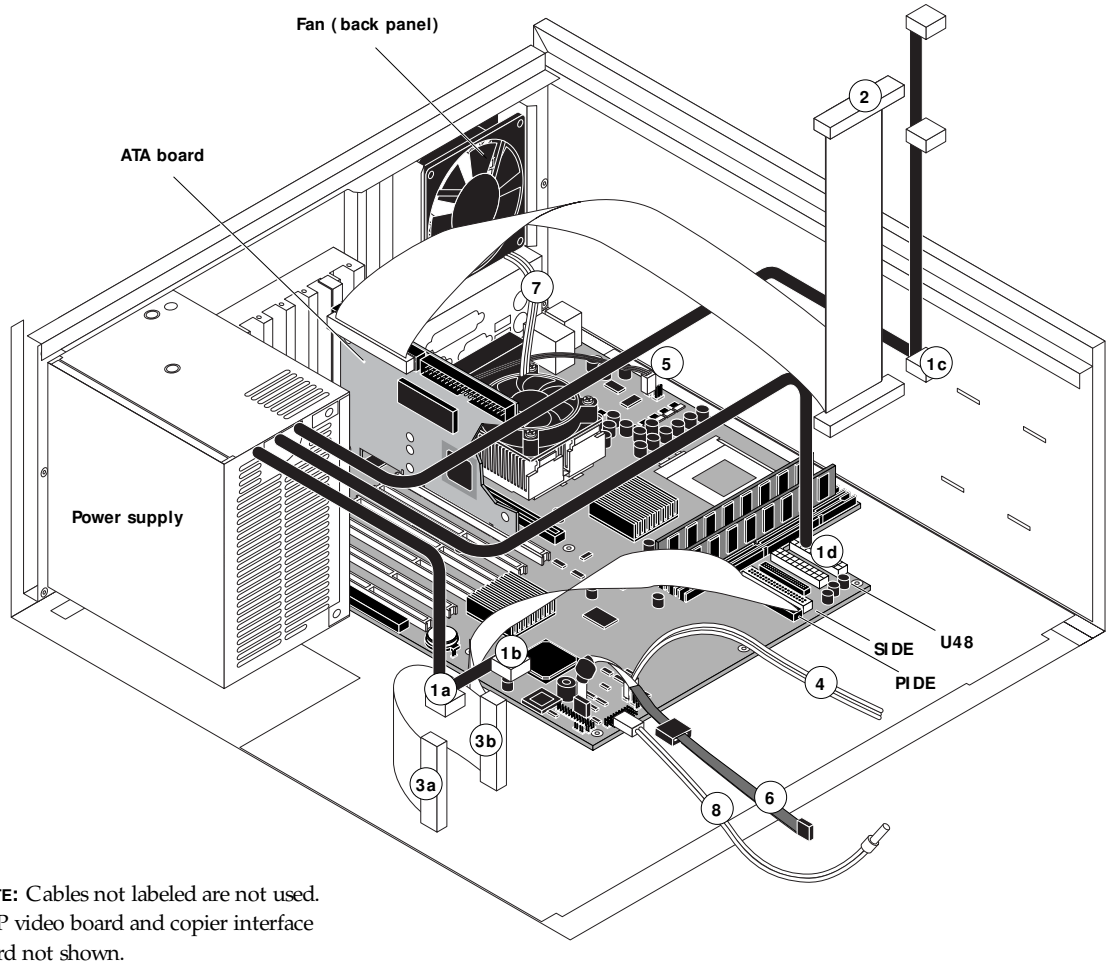
   Faulty ribbon cables are easily overlooked. Check the contact point between the cable and the connector to ensure that they have not separated. If a ribbon cable is suspect, substitute it with a tested cable.

5. **Make sure that all ribbon cables and power cables are seated properly on connectors. See Figure 4-5 on page 4-9.**

   Cable connectors are keyed to fit only when properly oriented.

6. **Check the front and back panel fan cables, CPU fan cables, and reset cable connections to the motherboard.**

   Gently straighten any bent pins with a pair of needlenose pliers. If, after tightening the connections, you are still experiencing problems, it may be that one or more components are still not getting power. If this is the case, see "Checking voltages" on page 4-51.



NOTE: Cables not labeled are not used. AGP video board and copier interface board not shown.

Cable key	From	To
1. Power supply cable	Power supply	a. 4-pin connector—CD-ROM drive b. 4-pin connector—ZIP drive c. 4-pin connector—HDD (hard disk drive) d. 20-pin connector—Motherboard (U48)
2. HDD cable	ATA board (Primary IDE connector)	HDD IDE connector
3. CD-ROM/ZIP drive cable	Motherboard PIDE (Primary IDE connector)	a. CD-ROM drive b. ZIP drive
4. Front fan cable	Front fan	Fan connector on motherboard (FAN1)
5. CPU fan cable	CPU fan	Fan connector on the motherboard(FAN3)
6. UIB cable	UIB connector on the motherboard (JP20)	User interface board in front panel (J3)
7. Back panel fan cable	Fan (back panel)	Fan connector on the motherboard (FAN4)
8. Reset cable	Motherboard (J24, pins 5 and 7on edge of board)	Switch on front of chassis (Do not use)

FIGURE 4-5 Cable connections

TO CHECK MOTHERBOARD DIMM CONNECTIONS

1. **Check that all DIMMs are locked. If any DIMMs have come loose, release and reseat them.**

   The DIMMs (dual in-line memory modules) on the motherboard are held in place by levers at each end. Sockets 1-4 on the motherboard hold the DIMMs.

2. **To release a DIMM, push outward on the levers on each side of the DIMM.**

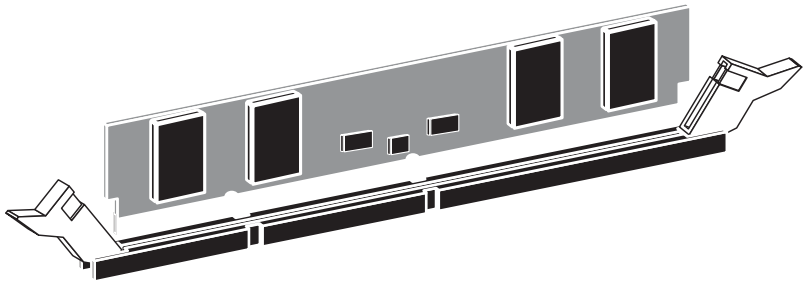


FIGURE 4-6 Releasing the DIMM levers

3. **Slide the DIMM straight out of the socket.**

4. **To replace a DIMM, gently slide the DIMM straight into the socket and close the levers at each side to lock it into place.**

   Make sure that the levers close securely around the ends of the DIMM and that each DIMM is fully seated in its socket.

   If you removed the DIMMs completely, note that DIMMs fit the socket only one way. The notches on the bottom of the DIMM should line up with the notches in the socket.

   NOTE: Take care when installing DIMMS. The design of the E-820 requires DIMM sockets 1-4 to be populated in specific configurations in order for the system to operate correctly (see page 4-37 for details).

Restoring and verifying functionality after service

Conclude your inspection and service by reassembling and verifying the E-820.

Reassembling the system

Use the following procedure to reassemble the E-820 after inspection or service.

TO REASSEMBLE THE E-820

1. **Reseat all boards, cables, connectors, and other parts loosened or removed during inspection or service.**
2. **Place the E-820 in its standard operating position.**
3. **If you removed the front panel, replace it (see page 4-7).**
4. **Slide the side panel into the grooves along the edges of the chassis (see Figure 4-7 on page 4-12).**

   Be careful not to damage any ribbon cables; fold the ribbon cables inside the chassis before replacing the side panel. Press on the front edge of the side panel during installation in order to compress the EMI gaskets around the edges of the chassis.
5. **Replace the two screws that secure the side panel to the chassis.**

   NOTE: Do not leave the side panel off after servicing. An airflow channel is created by the side panel and the fans. Leaving the E-820 open could reduce the operational life expectancy of internal components.
6. **Connect any cables removed during service to the back of the E-820.**
7. **If you replaced the motherboard with a new motherboard, make sure that the new motherboard solves the problem you are troubleshooting and then update the system (see page 4-32).**

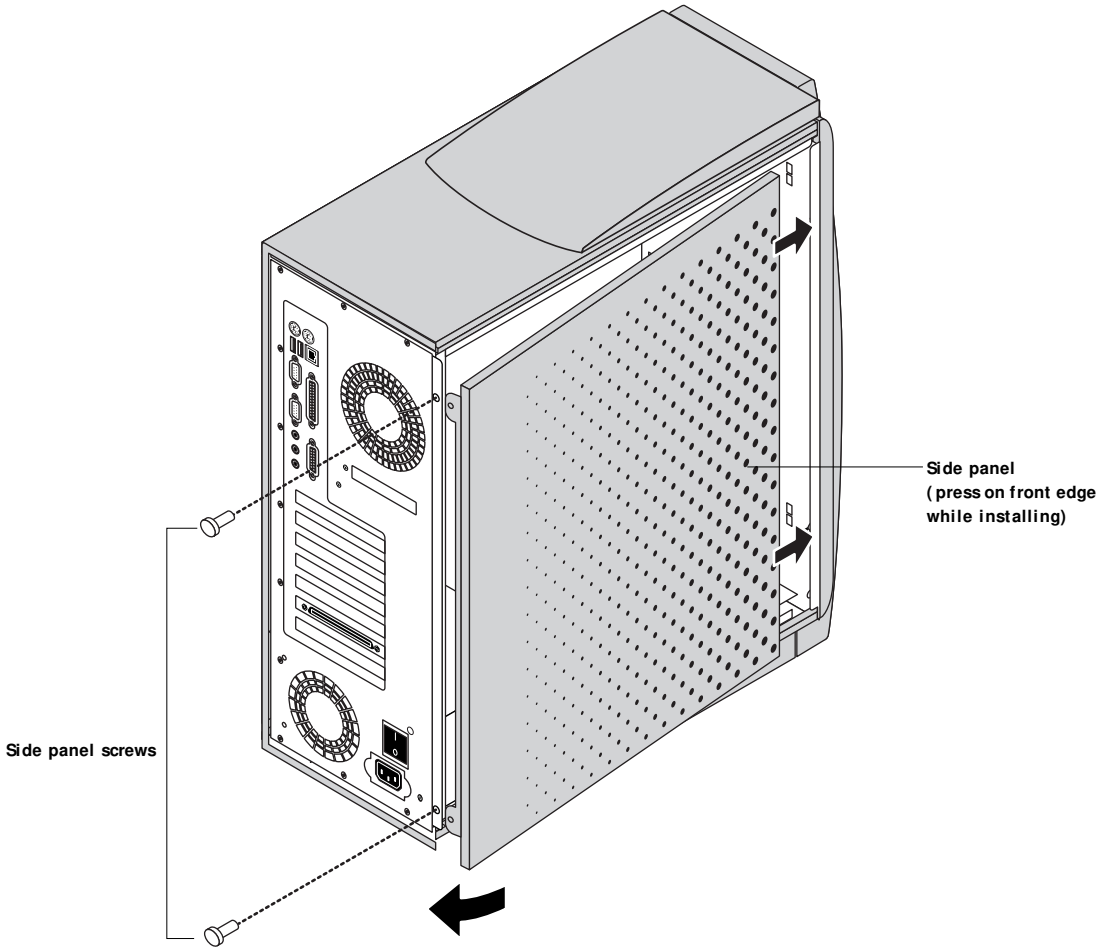


FIGURE 4-7 Replacing the side panel

Verifying functionality

Before you leave the customer site, make sure you have completed the steps outlined in Figure 4-8. If you are unable to complete a step, determine the reason and rectify the problem before continuing. See Chapter 5 "Troubleshooting." for more information.

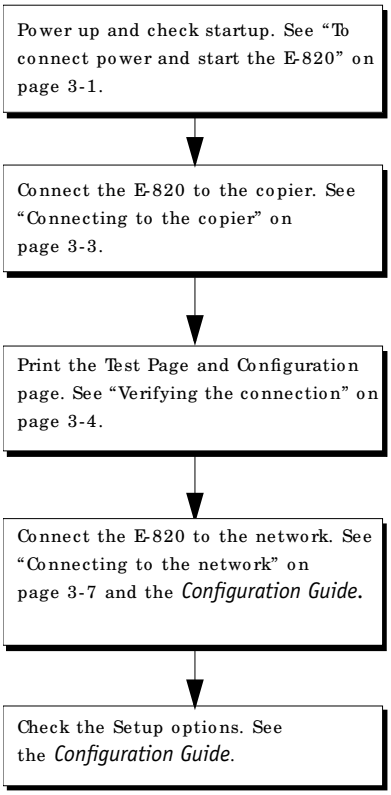


FIGURE 4-8 E-820 connection verification steps

Removing and replacing boards

This section includes procedures for removing and replacing the following boards:

- AGP video board (if this option is present)
- ATA board
- Copier interface board
- User interface board
- Motherboard

For information on installing option boards, see the separate installation instructions provided with those boards.

AGP video board

An optional AGP (Accelerated Graphics Port) video board provides connectivity to a video monitor via a 15-pin D connector at slot 1 on the back panel of the E-820. The AGP video board connects to the AGP connector on the motherboard.

A Fiery Advanced Controller Interface kit, which includes an AGP video board, monitor, keyboard, and mouse, is available as an optional kit.

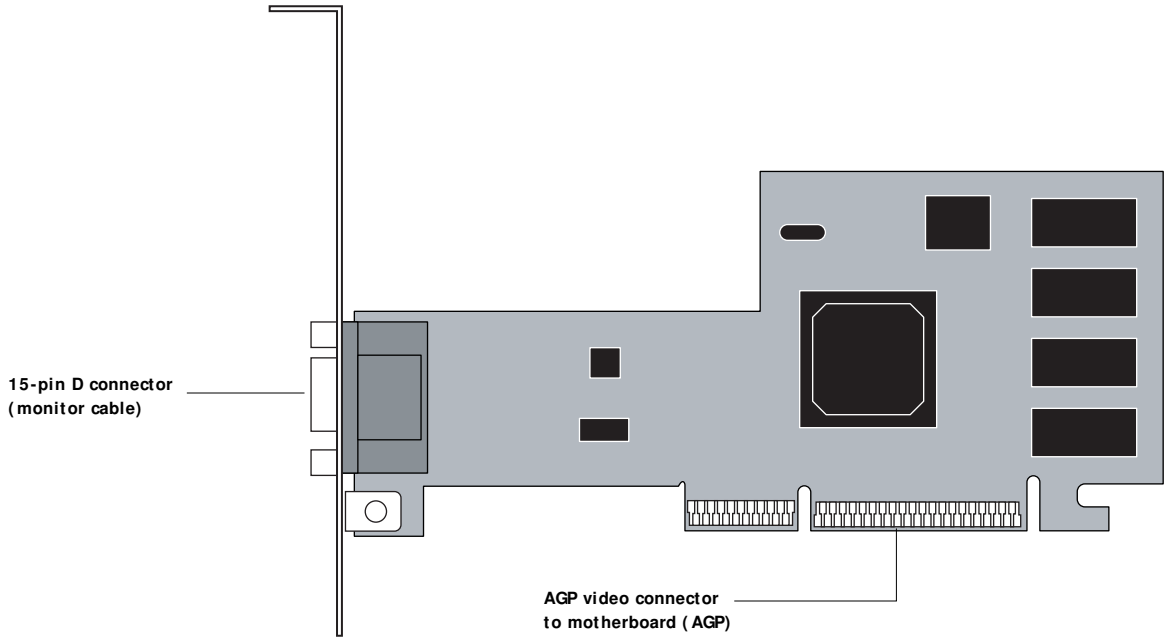


FIGURE 4-9 AGP video board

TO REMOVE THE AGP VIDEO BOARD

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Remove the board mounting bracket screw from back panel slot 1.**
3. **Remove the AGP video board from the motherboard.**

   Grasp the board at the front and back edge and gently pull the board straight out of its motherboard connector.
4. **Place the board in an antistatic bag.**

TO REPLACE THE AGP VIDEO BOARD

1. **Reseat the AGP video board in the AGP connector on the motherboard (slot 1). The component side of the board should be facing down toward the power supply.**

   The board's edge connector is keyed to fit only one way when properly oriented.
2. **Attach the board mounting bracket screw to the bracket in back panel slot 1.**
3. **Reassemble the E-820 and verify its functionality (see page 4-11).**

ATA board

The ATA board is a high-speed IDE controller that provides the interface between the HDD (hard disk drive) and the motherboard. It is installed in motherboard connector PCI1 and has no back panel connector. A ribbon cable from the HDD connects to the Primary IDE connector on the ATA board.

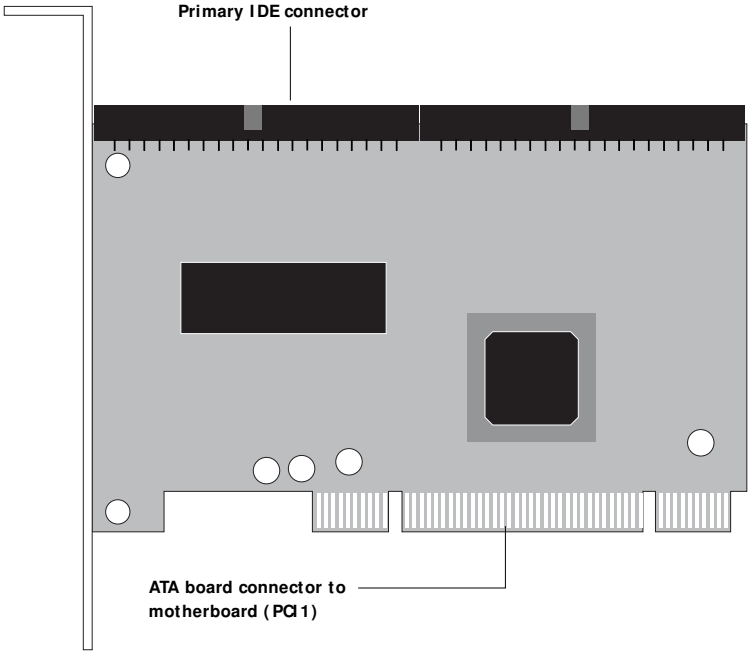


FIGURE 4-10 ATA board

TO REMOVE THE ATA BOARD

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Remove the board mounting bracket screw from back panel slot 2.**
3. **Remove the ATA board from the motherboard connector PCI1.**
4. **Remove the HDD cable from the Primary IDE connector on the ATA board.**

   Grasp the board at the front and back edge and gently pull the board straight out of its motherboard connector.
5. **Place the board in an antistatic bag.**

TO REPLACE THE ATA BOARD

1. **Connect the HDD cable to the Primary IDE connector on the ATA board.**
2. **Reseat the ATA board in connector PCI1 on the motherboard. The component side of the board should be facing down in the direction of the power supply.**

   The edge connector on the ATA board is keyed to fit the PCI connector only one way.
3. **Attach the board mounting bracket screw to the ATA board bracket in back panel slot 2.**
4. **Reassemble the E-820 and verify its functionality (see page 4-11).**

Copier interface board

The copier interface board (see Figure 4-11) provides the print interface between the E-820 and the copier.

The copier interface board is installed in connector PCI5 on the motherboard and occupies one back panel slot. The board's interface connector at slot 6 on the back panel connects to a cable that attaches to the copier.

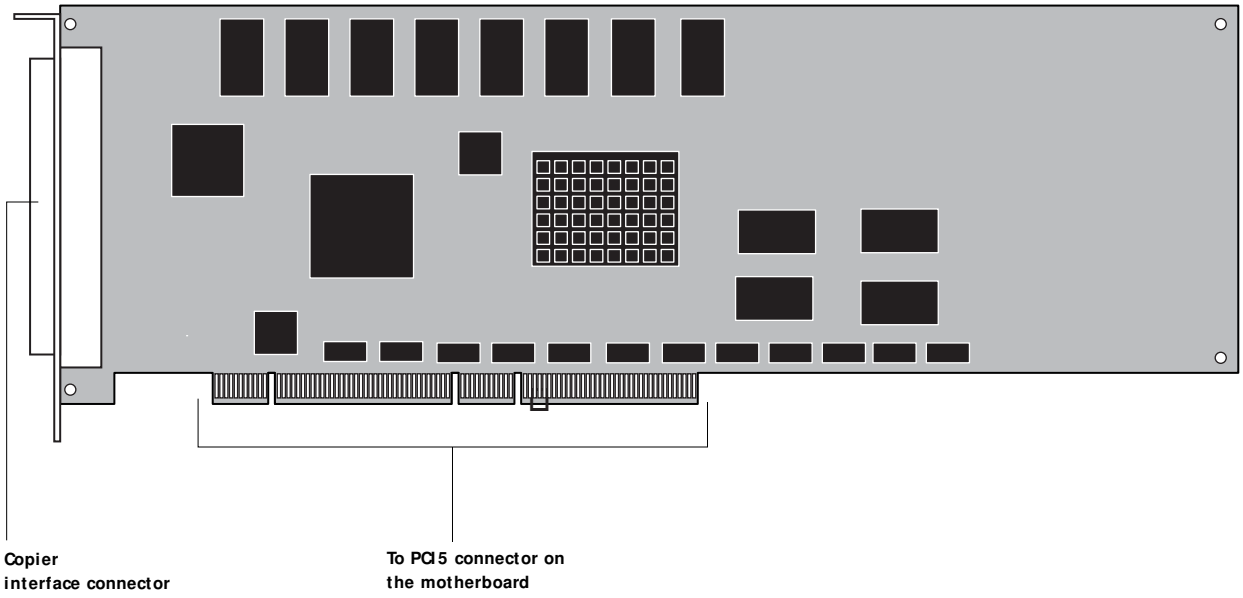


FIGURE 4-11 Copier interface board

TO REMOVE THE COPIER INTERFACE BOARD

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Make sure the copier interface cable connected to the back of the E-820 is removed.**
3. **Loosen the two screws that secure the board guide retainer (see Figure 4-1 on page 4-2) and remove the board guide retainer.**
4. **Remove the board mounting bracket screw from back panel slot 6.**
5. **Remove the copier interface board from motherboard connector PCI5.**

   Grasp the board at the front and back edge and gently pull the board straight out of its motherboard connector.
6. **Place the board in an antistatic bag.**

TO REPLACE THE COPIER INTERFACE BOARD

1. **Reseat the copier interface board in connector PCI5 on the motherboard. The component side of the board should be facing down toward the power supply.**

   The copier interface board connector is keyed to fit only one way when properly oriented.
2. **Attach the board mounting bracket screw to the bracket in back panel slot 6.**
3. **Replace the board guide retainer and secure it with two screws (see Figure 4-1 on page 4-2).**
4. **Reassemble the E-820 and verify its functionality (see page 4-11).**

User interface board

The user interface board installed in the front panel (see Figure 4-12) provides the interface between the E-820 and the user. The front of the user interface board contains circuitry for the following:

- Activity lights (1 green and 1 red LED)
- Display window (LCD)
- Four line selection buttons
- Up and Down buttons
- Menu button

The UIB cable routes from a connector on the back of the user interface board to a connector on the motherboard.

NOTE: Spare user interface boards are shipped as part of the complete front panel assembly and are not spared separately. The following procedures are provided as reference only. See page 4-6 for how to replace the complete front panel assembly.

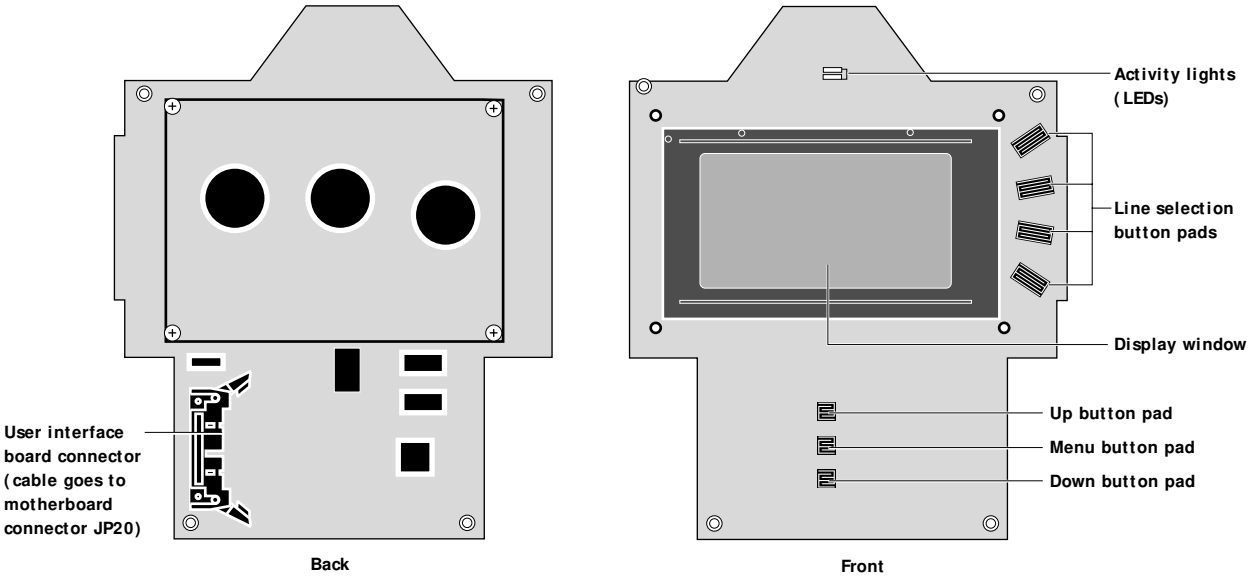


FIGURE 4-12 Diagram of the user interface board (back and front)

TO REMOVE THE USER INTERFACE BOARD FROM THE FRONT PANEL

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Remove the front panel from the chassis (see page 4-6).**
3. **Disconnect the UIB cable from connector J3 on the user interface board.**

   Press outward on the connector levers on each side of the connector (see Figure 4-13), and then pull the connector free. Avoid pulling on the cable itself.

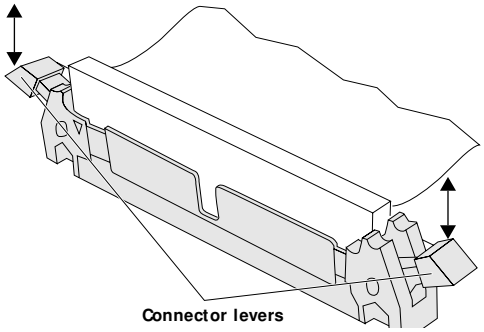


FIGURE 4-13 Detail of ribbon cable connector

4. **Push gently outward on the snap tabs that secure the user interface board to the inside of the front panel until the edges of the board are released from the tabs.**
5. **Lift up slightly on the bottom edge of the board and slide the board out from under the top tabs on the front panel (see Figure 4-14).**

   Be careful not to damage the top tabs when lifting up on the user interface board.

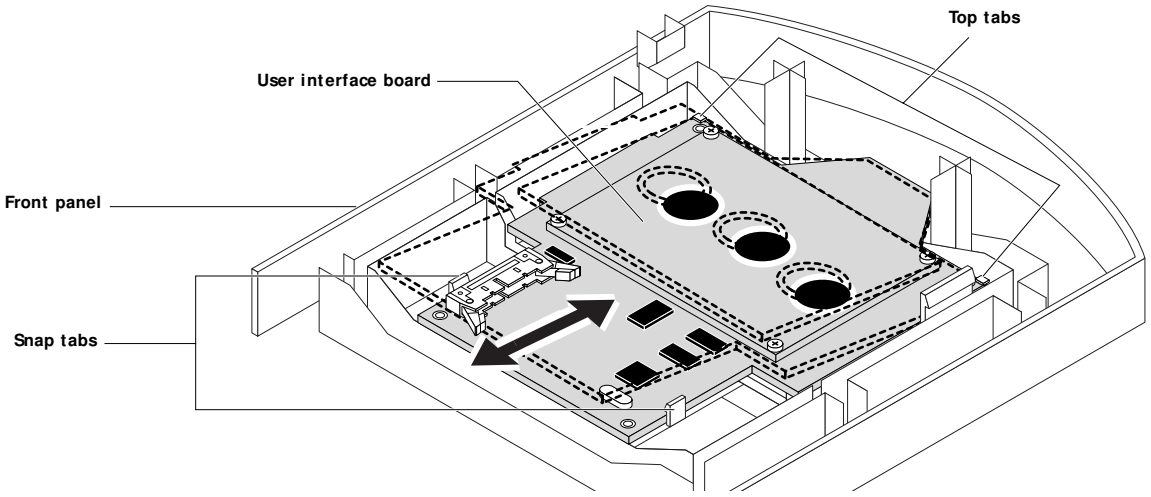


FIGURE 4-14 Removing the user interface board

6. **Place the board in an antistatic bag.**

TO REPLACE THE USER INTERFACE BOARD IN THE FRONT PANEL

1. **Place the user interface board in the front panel at an angle so that the top edge of the board fits under the top tabs (see Figure 4-14).**

   The board should be positioned so that the button pads on the front of the board line up with the buttons installed in the front panel.

2. **Gently push the board down into the front panel until the snap tabs hook over the edges of the board.**

3. **Attach the UIB cable to connector J3 on the user interface board.**

   Make sure the connector levers close securely around the cable connector.

4. **Replace the front panel (see Figure 4-4 on page 4-7).**

5. **Reassemble the E-820 (see page 4-11) and verify its functionality (see the connection verification steps described in Figure 4-8 on page 4-13).**

Motherboard

The motherboard has one Intel Pentium III 866MHz CPU that controls the image data transferred to and from the copier interface board. The motherboard also controls the communication between the E-820 and external devices. The motherboard has 4 DIMM sockets that hold four 128MB DIMMs (see Figure 4-18 on page 4-37). The motherboard also includes:

- Six 64-bit PCI (Peripheral Component Interconnect) connectors
- AGP (Accelerated Graphics Port) video connector
- ISA (Industry Standard Architecture) connector — not used

Removing the motherboard

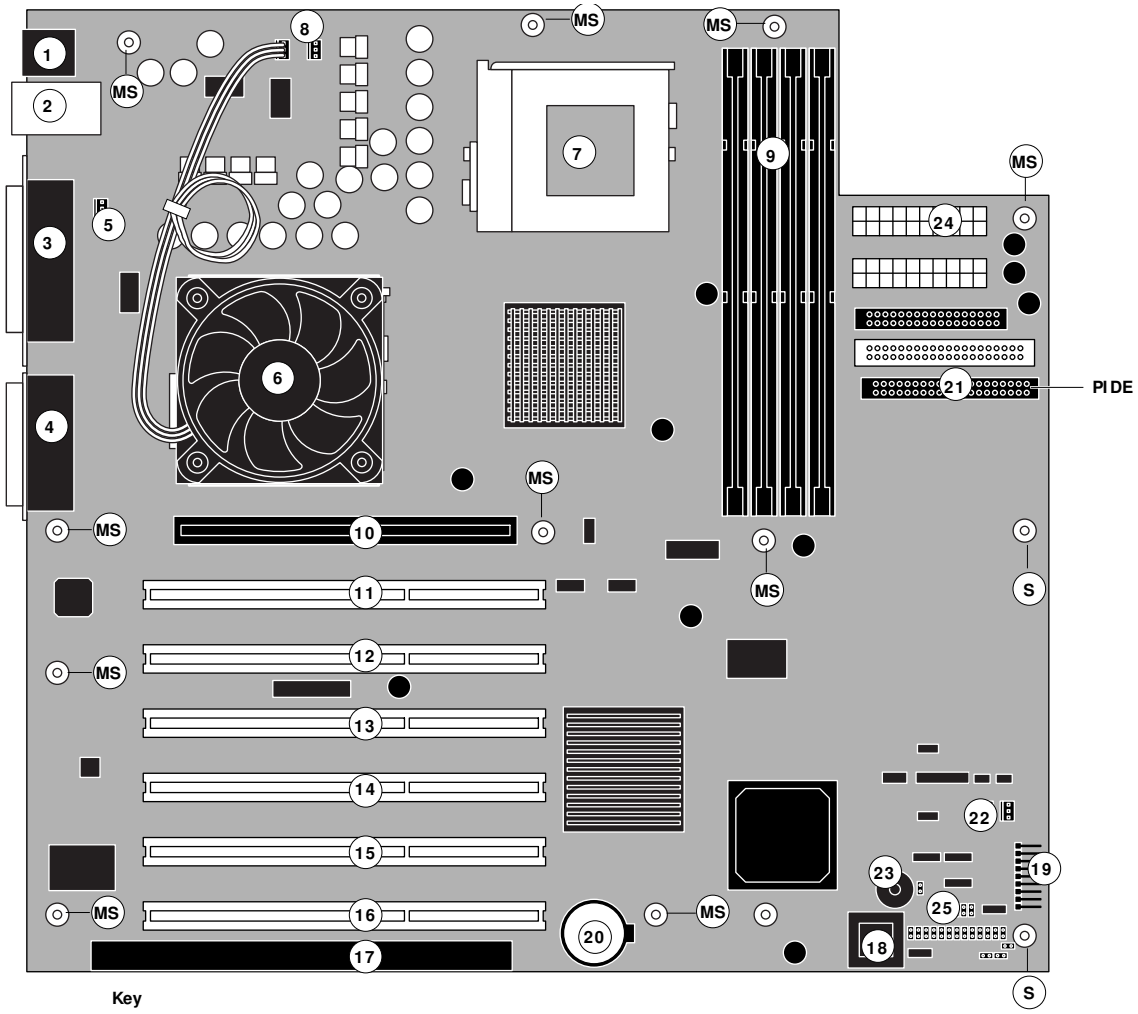
The motherboard attaches to the side of the chassis above the power supply. Before you remove the motherboard, you must remove:

- Board guide retainer
- All boards installed on the motherboard
- All cables connected to the motherboard
  (these include the power cable, front fan cable, back panel fan cable, CD-ROM/ZIP cable, reset cable, and UIB cable)
- HDD bracket (with HDD installed)
- Board guide (with front fan)

This section also includes information on the following:

- Replacing or upgrading DIMMs
- Replacing a CPU
- Replacing the battery
- Configuring jumpers

Follow precautions when handling components (see page xiii).



Key

1. Keyboard and mouse connectors
2. USB (not used) and 10/100BaseT ports
3. COM ports (not used); parallel port
4. Serial port and sound ports (not used)
5. Back panel fan connector (FAN4)
6. CPU and fan (J50)
7. Empty CPU socket (J51)
8. CPU fan connectors (FAN3 and FAN5)
9. DIMMs (DIMM1-4)
10. AGP video board connector (AGP)
11. ATA board connector (PCI1)
12. Empty 64-bit PCI connector (PCI2)
13. Empty 64-bit PCI connector (PCI3)
14. Empty 64-bit PCI connector (PCI4)
15. Copier interface board connector (PCI5)
16. Empty 64-bit PCI connector (PCI6)
17. Empty ISA connector (not used)
18. BIOS chip (U57)
19. Reset pins (J24, pins 5 and 7)
20. Battery (BT1)
21. CD-ROM/ZIP connector (PIDE)
22. Front fan connector (FAN1)
23. Beeper
24. 20-pin power connector (U48)
25. UIB cable connector (JP20)

S—Standoffs (2 standoffs)

MS—Mounting screws (10 screws)

Note: Connectors not listed above are not used. The CPU fan may differ from what is shown.

FIGURE 4-15 Diagram of the E-820 motherboard

TO REMOVE BOARDS AND CABLES FROM THE MOTHERBOARD

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**

2. **Remove the following boards from the motherboard:**

   To remove a board, remove its mounting bracket screw, grasp the board at the front and back edge and gently pull it straight out of its connector on the motherboard. Place each board on an antistatic surface

   - Optional AGP video board in the AGP connector (if this option is present; see page 4-16)
   - ATA board in the PCI1 connector (see page 4-18)

     Remove the HDD cable attached to the Primary IDE connector on the ATA board before removing the board.
   - Copier interface board in connector PCI5 (see page 4-20)

     Remove the board guide retainer before removing the copier interface board.
   - Optional Token Ring board in connector PCI6 (if this option is present)

3. **Remove any other option boards that may be installed in remaining connectors on the motherboard.**

   Grasp the boards at their front and back edges and gently pull the boards straight out of their connectors on the motherboard. Place the boards on an antistatic surface.

4. **Remove the HDD and bracket (see page 4-56).**

   Keep the HDD cable attached to the HDD.

5. **Remove the motherboard cables as described below:**

   - Remove the reset cable from motherboard connector J24 (pins 5 and 7).
   - Remove the front fan cable from the motherboard connector FAN1.
   - Remove the UIB cable from motherboard connector JP20.
   - Remove the back panel fan cable from the motherboard connector FAN4.
   - Remove the CD-ROM/ZIP cable from the PIDE (Primary IDE) connector on the motherboard.
   - Remove the HDD cable from the Primary IDE connector on the ATA board (see Figure 4-5 on page 4-9 for the location of the connector).
   - Remove the power cable attached to the 20-pin connector at U48 on the motherboard.

TO REMOVE THE MOTHERBOARD

1. **If you are replacing the motherboard with a new motherboard, remove the following from the motherboard:**
   - DIMMs (page 4-38)
   - CPU(s) (page 4-39)
2. **Remove the board guide with mounted front fan. Keep the fan attached to the board guide.**

   Remove the two screws that secure the board guide (see Figure 4-1 on page 4-2) and lift the board guide with mounted front fan out of the slots on the inside front of the chassis.
3. **Remove the 10 mounting screws on the motherboard (see Figure 4-15 on page 4-25 for screw locations).**
4. **Lift the edge of the motherboard opposite the back panel connectors to remove the motherboard from the chassis (see Figure 4-16 on page 4-28).**

   Two standoffs on the base of the chassis also help to hold the motherboard in place. Gently pull up on the motherboard to release it from the standoffs. (Pinch the locks on any locking standoffs to release the board.)

5. **Gently slide the motherboard out of the chassis.**

   Make sure the back panel connectors on the motherboard clear the chassis as you remove the board. Avoid handling contacts and using excessive force.

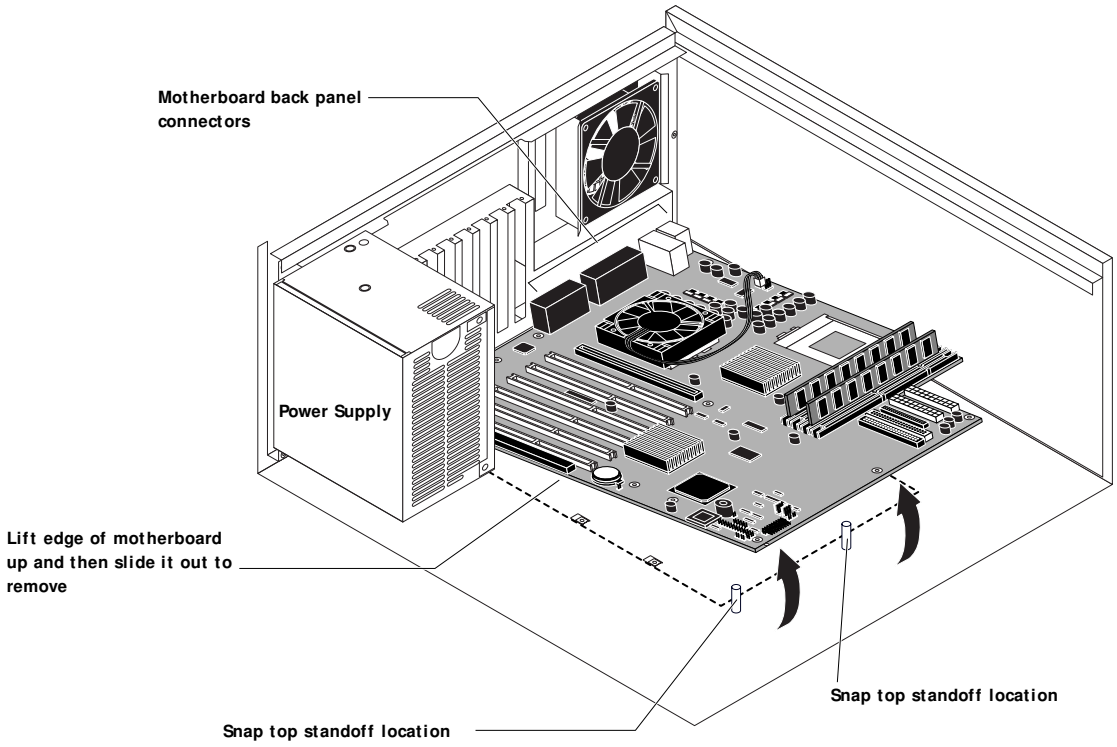


FIGURE 4-16 Removing the motherboard

Replacing the motherboard

Follow the procedures in this section to replace the motherboard. Failure to follow the instructions in this section may corrupt the system (not easily repaired in the field).

If you are installing a new motherboard:

- Transfer the DIMMS and CPU(s) from the old motherboard onto the new motherboard.
- Be aware that BIOS chips are not interchangeable. Do not transfer the BIOS chip from the old motherboard onto the new motherboard. Doing so can damage the E-820.
- Enter Service Mode and make sure the new motherboard solves the problem you are troubleshooting before you update the system. (See page 4-32 for details on Service Mode and updating the system.) Updating the system permanently customizes the new motherboard. Once customized, the motherboard cannot be returned to inventory or installed in another E-820. If the new motherboard does not solve the problem, do not update the system. Return the new motherboard and unused dongle to inventory.
- Do not reinstall system software before updating the system. Doing so can result in a permanent "Invalid License" error.
- Do not replace the HDD and the motherboard at the same time. Doing so in the wrong order and without updating the system will cause the system to not function.

  It is unlikely that both the HDD and the motherboard are defective; therefore, avoid replacing both to solve one problem. If troubleshooting strategies (checking cables and connections, etc.) do not solve the problem and you suspect either the HDD or the motherboard are at fault, use the following order to troubleshoot: replace the HDD, install system software, and then check if the problem still exists. If so, perform other procedures, such as replacing the motherboard.
- Update the system using the dongle and the Restore/Update Server Software CD. (See page 4-32 for details on updating the system.)

TO REPLACE THE MOTHERBOARD

1. **Angle the motherboard so the back panel connectors on the motherboard fit into the cutouts in the back of the chassis (see Figure 4-16 on page 4-28).**
2. **Align the mounting holes on the edge of the motherboard (opposite the back panel connectors) with the standoffs located in the base of the chassis (see Figure 4-16 on page 4-28).**
3. **Once the mounting holes in the motherboard are aligned over the standoffs, gently push the motherboard down to secure it to the chassis.**
4. **Insert the 10 motherboard mounting screws that attach the motherboard to the chassis.**

   Partially tighten each screw before completing tightening any one screw. Do not overtighten the screws; doing so could damage traces on the motherboard.
5. **Replace the front fan and board guide (see page 4-49.)**
6. **If you are installing a new motherboard, install the DIMMS and CPU from the old motherboard. For DIMMS, see page 4-37; for the CPU, see page 4-39.**

Do not transfer the BIOS chip from the old motherboard onto the new motherboard. Doing so can damage the E-820.

NOTE: In a dual-CPU system, if the upper-right CPU blocks a mounting screw on the motherboard, install the CPU after you replace the motherboard.

Now you are ready to replace the boards, cables, and the HDD and complete motherboard installation.

TO REPLACE BOARDS AND CABLES

1. **Replace the following cables as described:**

   - Connect the power cable to the 20-pin power connector U48 on the motherboard.
   - Connect the HDD cable from the HDD to the Primary IDE connector on the ATA board (see Figure 4-5 on page 4-9 for the connector location).
   - Connect the CD-ROM/ZIP drive cable from the CD-ROM drive to the PIDE (Primary IDE) connector on the motherboard.
   - Connect the back panel fan cable to motherboard connector FAN4.
   - Connect the front fan cable to the motherboard connector FAN1.
   - Insert the reset cable connector onto pins 5 and 7 of connector J24 on the edge of the motherboard (see Figure 4-5 on page 4-9 for the connector location).
   - Connect the UIB cable to motherboard connector JP20.

2. **Replace the HDD and bracket (page 4-57).**

   Keep the HDD cable attached to the HDD; you will connect the HDD cable to the ATA board later.

3. **Replace the following boards in their motherboard connectors:**

   - AGP video board in AGP connector (if this option is present; see page 4-16)
   - ATA board in PCI1 connector (see page 4-18)

     Connect the HDD cable to the ATA board Primary IDE connector (see Figure 4-10 on page 4-17 for the connector location).
   - Copier interface board in PCI5 connector (see page 4-20)
   - Optional Token Ring board in PCI6 connector (if this option is present)

   When installing boards, make sure that the board connectors are properly aligned with their connectors on the motherboard.

4. **Install the board mounting bracket screws for boards occupying back panel slots. Press down firmly on the top of the board as you insert each screw.**

   NOTE: Make sure unused slots have slot covers installed. Uncovered slots reduce the air flow and could cause the E-820 to overheat.

5. **Reassemble the E-820 (see page 4-11).**

6. **If you reinstalled the old motherboard, verify functionality (see page 4-13).**

7. **If you replaced the motherboard with a new motherboard, proceed to "Verifying new motherboard installation and updating the system" on page 4-32.**

Verifying new motherboard installation and updating the system

After you install a new motherboard and reassemble the system, you need to:

- Verify the new motherboard installation in Service Mode (requires the dongle shipped with the new motherboard).

  Service Mode is a temporary state that allows you, before updating the system, to verify that installing a new motherboard solves a problem with the E-820 (see Chapter 5, "Troubleshooting." for reasons to install a new motherboard). Service Mode ends automatically when you update the system (described below).

  If you determine while in Service Mode that the problem you are troubleshooting is not solved by installing a new motherboard, do not update the system. Reinstall the old motherboard and return the new motherboard and dongle to inventory.

For detailed instructions, see "Entering Service Mode" on page 4-33.

- Update the system (requires the dongle and the Restore/Update Server Software CD shipped with the new motherboard).

  Update the system after verifying it in Service Mode. The E-820 will not function permanently until you update the system.

  The update process uses the Restore/Update Server Software CD along with the dongle to transfer required settings from the old motherboard onto the new motherboard via the HDD.

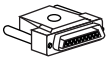
NOTE: *Do not* update the system prematurely. Update the system only after verifying it in Service Mode. When you want to enter Service Mode, make sure the Restore/Update Server Software CD is *not* installed in the CD-ROM drive. If you boot the E-820 with the Restore/Update Server Software CD in the CD-ROM drive and the dongle attached to the parallel port, the system will be updated automatically and the dongle will be expended. Service Mode is unavailable once the dongle is expended. Remember that once the system is updated, the motherboard cannot be used in another system.

For detailed instructions, see "To update the system" on page 4-35.

Entering Service Mode

Use the following procedure after installing a new motherboard to verify that the system functions properly.

TO ENTER SERVICE MODE AND VERIFY THE SYSTEM



1. **Unpack the dongle shipped with the new motherboard and connect it to the parallel port on the back panel (see Figure 4-17).**

   Remove any other dongle that may be connected to the parallel port and set it aside. Tighten the two screws on the dongle to secure it to the parallel port.

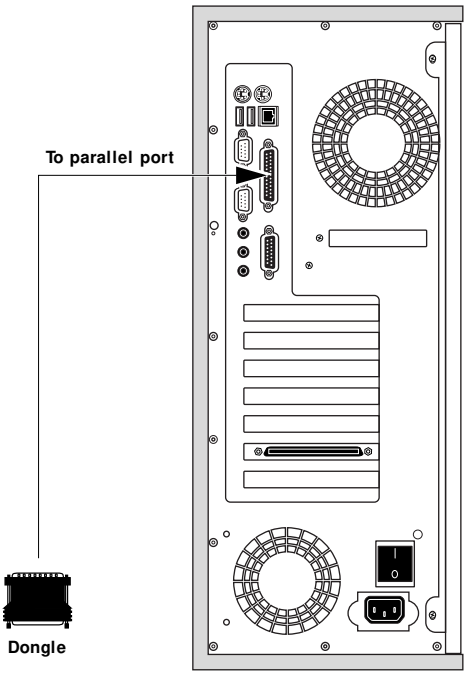
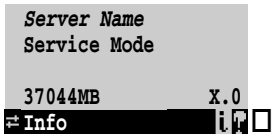


FIGURE 4-17 Connecting the dongle

2. **Power on the E-820 using the power switch on the back panel. When the following screen displays, the E-820 is in Service Mode.**



3. **Connect the E-820 to the copier and print the Test Page (see page 3-4).**

4. **Have the network administrator connect the E-820 to the network and download a print job over the network (see the *Configuration Guide*).**

If the problem you are troubleshooting persists, or if you are unable to perform steps 3 and 4 above while in Service Mode, you may conclude that the old motherboard was not the source of the problem, and therefore does not need to be replaced. If so, reinstall the old motherboard and return the new motherboard and dongle to inventory. For more details on solving system problems, see Chapter 5, "Troubleshooting."

If installing a new motherboard solved the problem you are troubleshooting and you are able to print a Test Page and send a print job over the network, you are ready to update the system. Service Mode ends automatically when you update the system (see page 4-35).

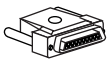
Updating the system

After you have verified that the system functions properly with the new motherboard, you must update the system by performing the following procedure.

NOTE: The procedure below assumes that the E-820 is fully assembled, powered on, verified (see page 4-32), and requires an update.

TO UPDATE THE SYSTEM

1. **Insert the Restore/Update Server Software CD in the CD-ROM drive.**
2. **Shut down the E-820 (see page 4-3).**



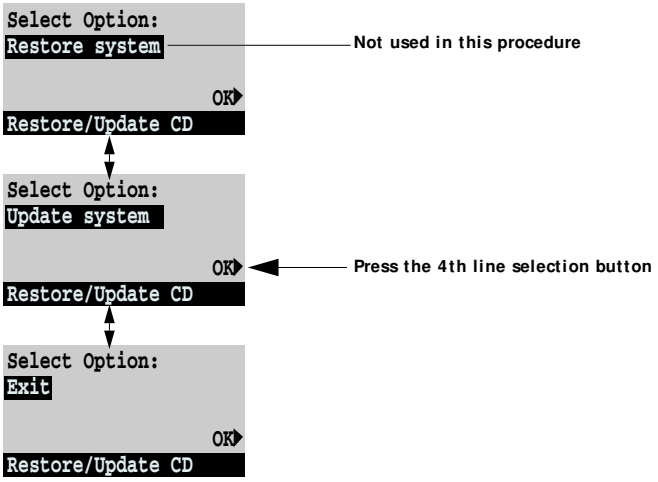
3. **If you have not done so already, connect the dongle to the parallel port on the back of the E-820 (see Figure 4-17 on page 4-33).**

   Remove any other dongle that may be connected to the parallel port and set it aside.

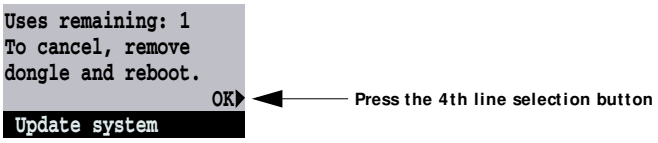
4. **Power on the E-820 using the power switch on the back panel.**

   The Restore/Update menu appears.

5. **Scroll to "Update system", and then select OK.**



The Update system screen appears



6. **Select OK.**

   The update takes approximately 30 seconds while the message "Do NOT power off!" displays on the Control Panel. Do not power off during the update. Doing so may damage the E-820.

7. **At the message "Update Complete!" select OK.**

8. **Scroll to Exit and select OK.**

9. **At the message "Remove CD and recycle power," remove the CD and shut down the E-820 (see page 4-3).**

10. **Remove the dongle and mark it "used" by peeling off the circle on the label. Reinstall any dongle previously removed.**

    The new motherboard is now updated and cannot be used in another system.

11. **Power on the E-820 using the power switch on the back panel and allow the system to reach Idle.**

    See the next section if an error message is displayed.

Error messages

The following error messages may appear on the Control Panel LCD if a required system update is not done.

Wrong/Missing. . . dongle— The system was not updated. Install the correct dongle and repeat the system update procedure.

Used Dongle— The single-use dongle has already been used to update a system and cannot be used again. Obtain an unused dongle and repeat the system update procedure.

Invalid license— This message appears if the motherboard in the system is new and has not been updated. It appears for about 15 seconds before you see the message "It is now safe to power off the system."

Reinstalling system software before performing the system update procedure on a system with a new motherboard will result in a permanent "Invalid License" error.

(Unrelated to the system update procedure, this message also appears anytime you attempt to install the wrong system software, i.e., software designed for another product.)

Hardware mismatch. Shutdown in progress— This message appears if the system has not been updated and the dongle is not attached to the parallel port.

No Service Dongle— This message appears for about 15 seconds before you see the message "It is now safe to power off the system." This message appears if you remove the dongle while the E-820 is in Service Mode.

If an error condition cannot be corrected, restore the previous configuration, if possible, and contact your authorized service support center.

Replacing parts on the motherboard

This section describes how to remove and replace DIMMs, CPUs, and the battery on the motherboard. Before performing any of these procedures, shut down and open the E-820 (see page 4-3 and page 4-4).

DIMMs

The motherboard has four DIMM sockets (DIMM1-4) organized as two banks: Bank 0 and Bank 1. Bank 0 consists of sockets DIMM1 and DIMM3; Bank 1 consists of sockets DIMM2 and DIMM4.

The E-820 standard configuration includes a 128MB DIMM in each of the four sockets for a total of 512MB of memory.

NOTE: When installing DIMMs, note the following:

- Different capacity DIMMs look alike. Make sure you know the capacity of each DIMM before you install it in a socket.
- DIMMs must be installed in pairs, and DIMMs within a bank must be the same capacity.
- In a two-DIMM configuration, use Bank 0.
- In a four-DIMM configuration where the DIMM pairs are different capacities, the higher-capacity DIMMs must be installed in Bank 0.

Approved DIMMs are available from your service representative.

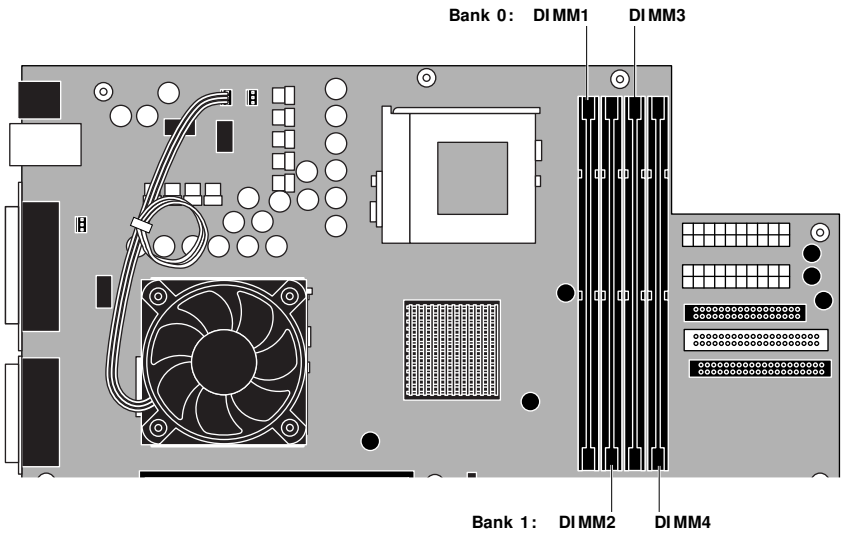


FIGURE 4-18 Motherboard DIMM sockets

TO REPLACE A DIMM

NOTE: If necessary, remove the HDD and the HDD bracket to remove inaccessible DIMMs (see page 4-56).

1. **To release a DIMM, push outward on the levers on each side of the DIMM. (See Figure 4-19.)**

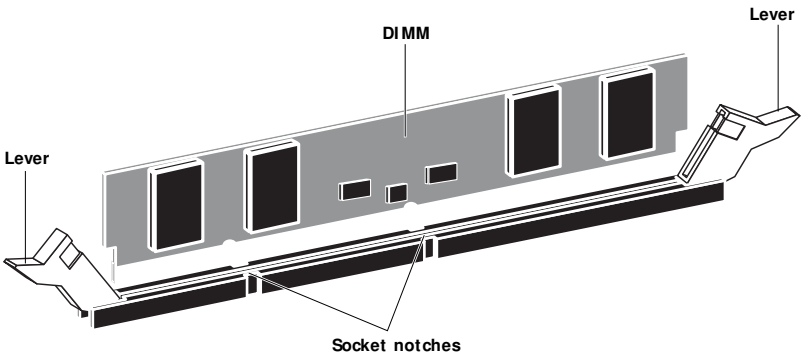


FIGURE 4-19 Releasing a DIMM

2. **Slide the DIMM straight out of the socket.**

3. **To replace a DIMM, position the DIMM in the socket and press the DIMM straight down into the socket so that the levers lock the DIMM into place.**

   NOTE: DIMMs fit in the socket only one way. The two notches on the bottom of each DIMM should line up with the notches in the socket.

   Make sure that the levers close securely around the ends of the DIMM and that each DIMM is fully seated in its socket.

4. **Reassemble the E-820 (see page 4-11) and verify its functionality (see the connection verification steps described in Figure 4-8 on page 4-13).**

Motherboard CPU

The motherboard includes sockets for two CPUs. The Pentium III CPUs can be installed in sockets J50 and J51. In a single-CPU system, the CPU is installed in socket J50. Before removing a CPU from its socket, disconnect the CPU fan cable from the motherboard and detach the CPU cooling assembly from the CPU socket. The CPU cooling assembly consists of a fan, a heatsink, and a heatsink clip.

NOTE: The CPU cooling assemblies installed on the CPU may differ. To identify the CPU cooling assembly installed on the motherboard you are servicing, see the following figure.

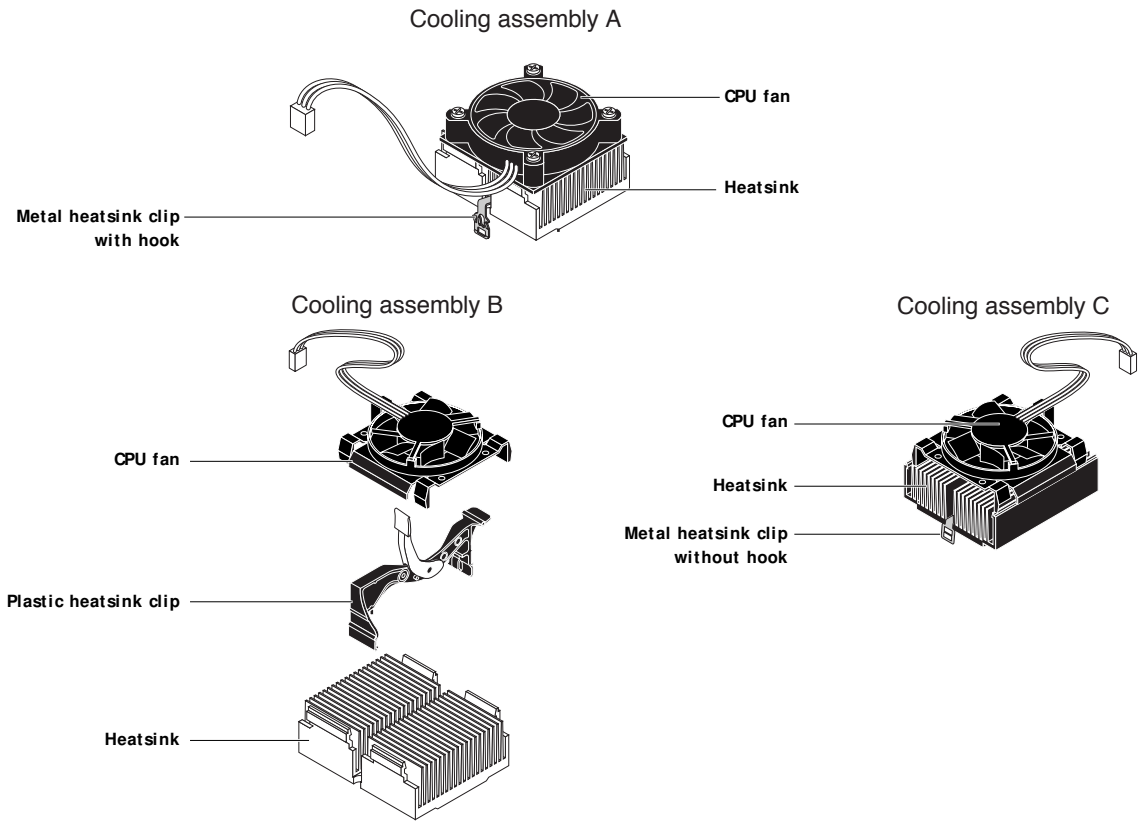


FIGURE 4-20 CPU cooling assemblies

Follow standard ESD precautions while handling the motherboard and all components.

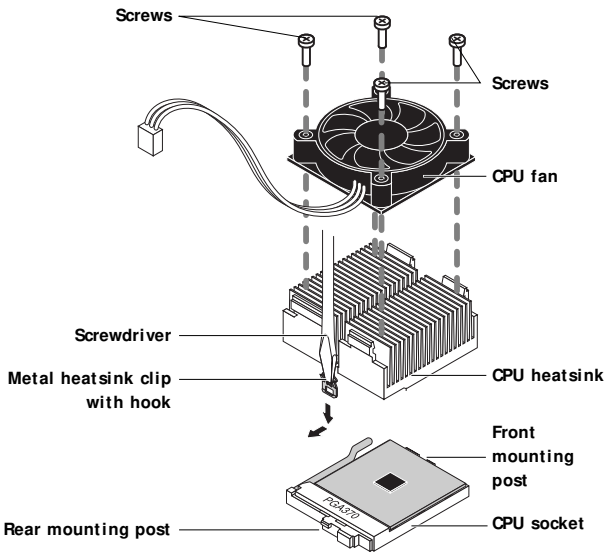
TO REMOVE A CPU

1. **Position the E-820 so that it is laying on its side and the components inside the chassis are facing up.**
2. **Remove the AGP board, if this option is present (see page 4-16).**
3. **Remove the CPU fan cable from motherboard connector FAN3 (CPU in socket J50) or FAN5 (CPU in socket in J51).**
4. **Remove the CPU cooling assembly (see Table 4-1).**

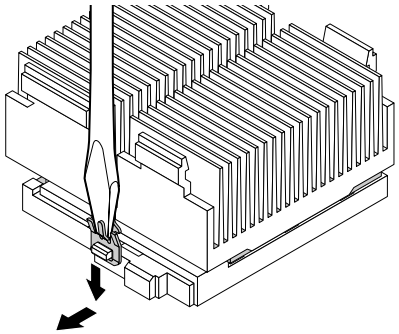
Be aware that both the cooling assembly and the CPU may be very hot. Also, use caution when lifting the cooling assembly off the CPU, as the thermal compound applied to the bottom of the heatsink may damage the CPU if the heatsink is removed too forcefully.

TABLE 4-1 Removing CPU assemblies

Cooling assembly A



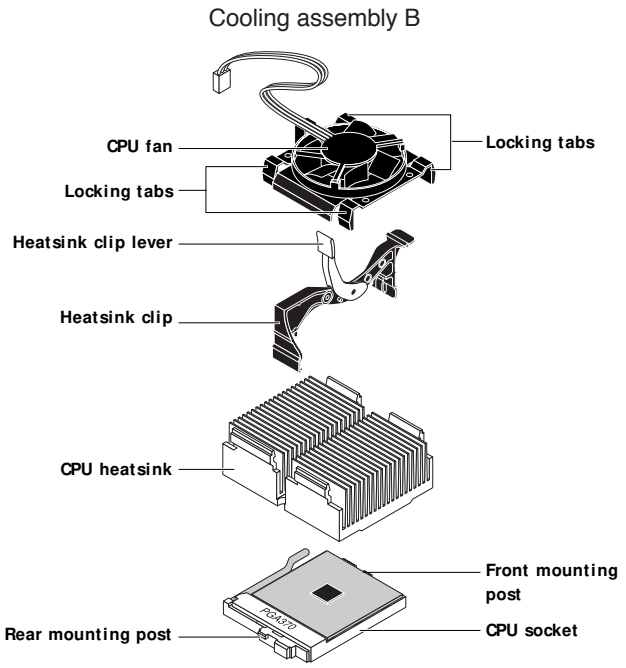
- Remove the CPU fan from the heatsink by removing the screws that secure the fan to the heatsink and then lifting the fan off of the heatsink. Set the screws aside for later use.
- Insert a flathead screwdriver into the hook on the end of the clip and slowly press down on the clip to relieve the clip's tension. Use the screwdriver to gently bend the clip off of the rear mounting post on the CPU socket.



Be careful not to damage the motherboard, the CPU, or the CPU socket when unhooking the heatsink clip.

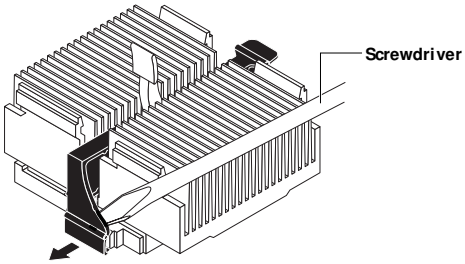
- Detach the other end of the clip from the front mounting post on the CPU socket.
- Remove the CPU cooling assembly from the CPU socket.

TABLE 4-1 Removing CPU assemblies



- Remove the CPU fan from the heatsink by pressing in on the locking tabs and lifting up on the fan.
- Lift the lever on the heatsink clip to relieve tension on the clip.
- Remove the clip from the rear mounting post on the CPU socket, and then remove the clip from the front mounting post.

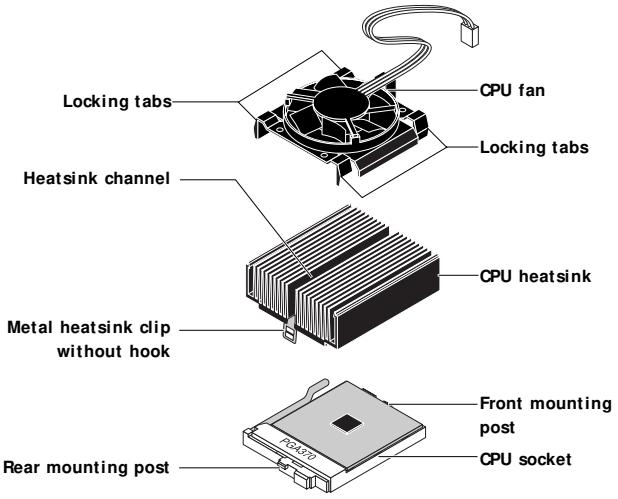
  You may need to use a flathead screwdriver to carefully bend the clip until it is free from the rear mounting post. Be careful not to damage the clip, the motherboard, the CPU, or the CPU socket when removing the heatsink clip.



- Remove the CPU cooling assembly from the CPU socket.

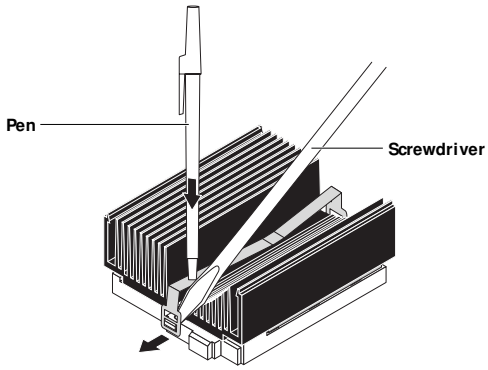
TABLE 4-1 Removing CPU assemblies

Cooling assembly C



- Remove the CPU fan from the heatsink by pressing in on the locking tabs and lifting up on the fan.
- Insert the flat end of a plastic pen or other non-slippery tool into the heatsink channel and press down on the clip to relieve the clip's tension.

  NOTE: To best relieve tension on the clip, press down on the clip toward the end nearest the rear mounting post.
- While continuing to relieve tension on the clip, use a flathead screwdriver to unhook the heatsink clip from the rear mounting post on the CPU socket.



  Be careful not to damage the motherboard, the CPU, or the CPU socket when removing the heatsink clip.
- Detach the other end of the clip from the front mounting post on the CPU socket.
- Remove the CPU cooling assembly from the CPU socket.

5. **Lift the CPU socket lever to release the CPU from the socket (see Figure 4-21 on page 4-43).**
6. **Grasp the CPU by its edges and gently lift it from the socket.**

TO REPLACE A CPU

1. **Wipe the contact surface of the CPU with a clean, lint-free cloth to assure good contact with the new heatsink.**

   If you removed the CPU from the motherboard in order to install it on a new motherboard, make sure you completely remove any thermal compound residue on the surface of the CPU and at the base of the heatsink.

2. **Insert the CPU into the socket. Make sure you align the arrow indicating pin 1 on the CPU with pin 1 in the CPU socket (see Figure 4-21).**

   For a single-CPU configuration, the CPU should be installed in socket J50 on the motherboard.

3. **Lower the socket lever to secure the CPU.**

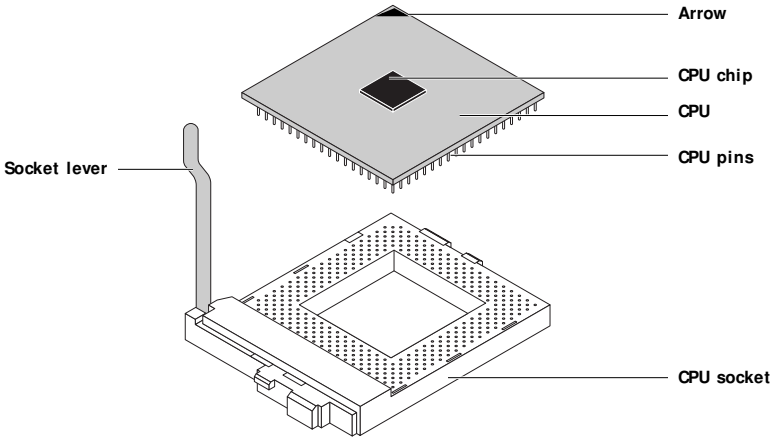


FIGURE 4-21 Replacing a CPU

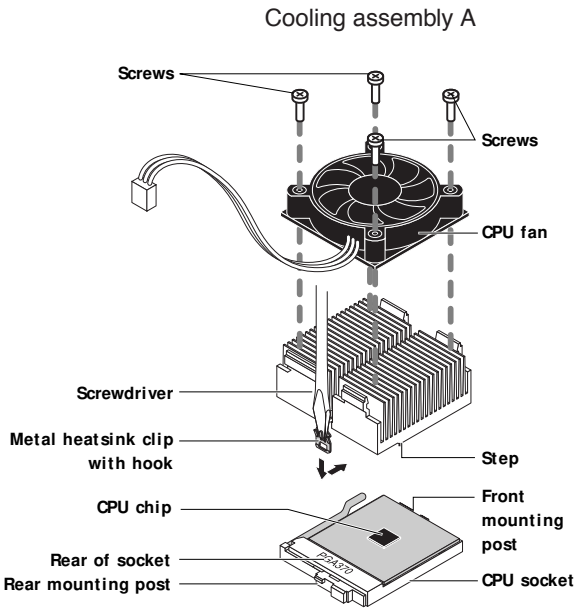
4. **At the base of the heatsink, remove the protective covering over the thermal compound.**

NOTE: If you are moving the original CPU and heatsink to a new motherboard, first completely remove any thermal compound residue on the surface of the CPU and at the base of the heatsink, and then apply a fresh thermal compound square to the base of the heatsink.When installing the thermal compound, make sure you squeeze out any air bubbles or wrinkles. Bubbles and wrinkles reduce the heat-transfer efficiency of the cooling assembly.

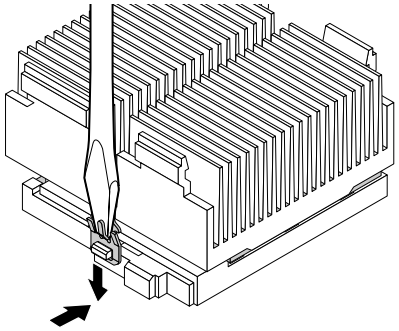
5. **Replace the CPU cooling assembly (see Table 4-2).**

   Make sure the thermal compound on the base of the heatsink completely covers the CPU chip. Incorrect installation could cause the CPU to overheat.

TABLE 4-2 Replacing CPU cooling assemblies



- Align the step on the bottom of the heatsink with the rear of the CPU socket.
- Place the heatsink on the CPU so that the thermal compound on the heatsink step completely covers the CPU chip.
- Secure the non-hook end of the heatsink clip over the front mounting post on the CPU socket.
- Insert a flathead screwdriver into the hook on the heatsink clip and carefully press down to secure the clip over the rear mounting post on the CPU socket.

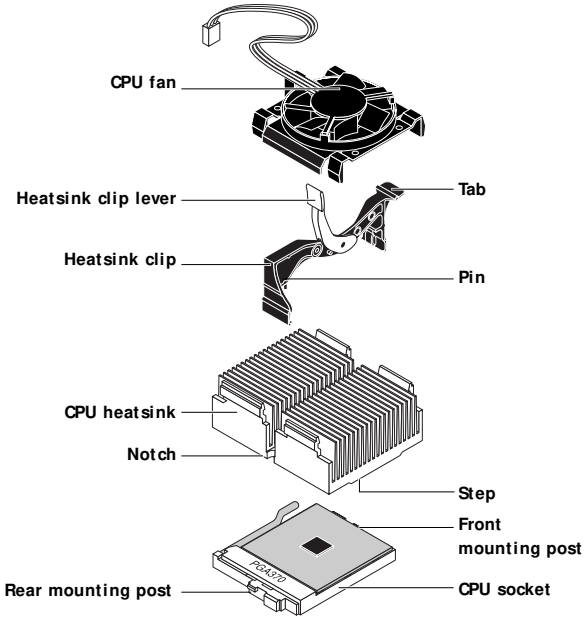


Be careful not to damage the motherboard, the CPU, or the CPU socket when using a screwdriver to service the E-820.

- Place the CPU fan on top of the heatsink and secure it with screws, as shown.

TABLE 4-2 Replacing CPU cooling assemblies

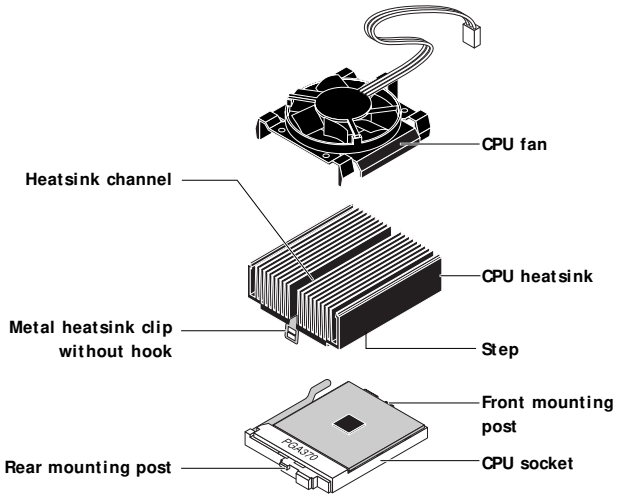
Cooling assembly B



- Align the notch on the bottom of the heatsink so that it is directly over the rear mounting post on the CPU socket.
- Place the heatsink on the CPU so that the thermal compound on the heatsink step completely covers the CPU chip.
- Align the pin on the plastic heatsink clip with the notch on the bottom of the heatsink.
- First secure the clip over the rear mounting post on the CPU socket, then secure the clip over the front mounting post by pressing down on the tab until the clip snaps into place.
- Lower the heatsink clip lever.
- Place the CPU fan on top of the heatsink and snap it into place.

TABLE 4-2 Replacing CPU cooling assemblies

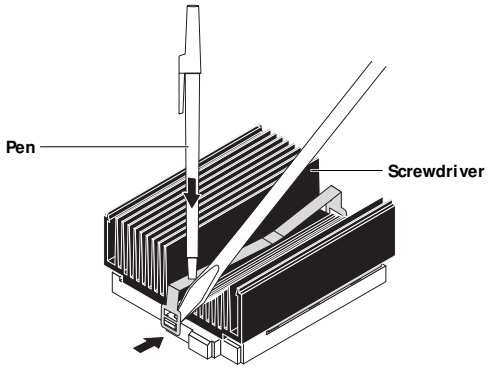
Cooling assembly C



- Align the step on the bottom of the heatsink with the rear of the CPU socket.
- Place the heatsink on the CPU so that the thermal compound on the heatsink step completely covers the CPU chip.
- Secure the heatsink clip to the front mounting post on the CPU socket.

  NOTE: One end of the clip has a single slot and the other end has two slots. The single slot end goes over the front mounting post.
- Insert the flat end of a plastic pen or other non-slippery tool into the heatsink channel and press down on the clip to relieve the clip's tension.

  NOTE: To best relieve tension on the clip, press down on the clip toward the end nearest the rear mounting post.



- While continuing to relieve tension on the clip, use a flathead screwdriver to hook the heatsink clip over the rear mounting post on the CPU socket.

  Be careful not to damage the motherboard, the CPU, or the CPU socket when installing the heatsink clip.
- Place the CPU fan on top of the heatsink and snap it into place.

6. **Connect the CPU fan cable to the motherboard connector FAN3 (CPU in J50) and/or FAN5 (CPU in J51).**

   If you are installing a new CPU, secure the fan cable using a tie-wrap. The tie-wrap will prevent the fan cable from interfering with the CPU fan. Also, make sure the connector on the cable is securely connected to the motherboard.

7. **Reassemble the E-820 (see page 4-11) and verify its functionality (see the connection verification steps described in Figure 4-8 on page 4-13).**

Motherboard battery

The battery on the motherboard is located at BT1. To replace it, use a 3V manganese dioxide lithium coin cell battery (Panasonic CR2032 or equivalent).

CAUTION: There is danger of explosion if the battery is replaced with the incorrect type. Replace only with the same type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

ACHTUNG: Es besteht Explosionsgefahr, wenn die Batterie durch eine Batterie falschen Typs ersetzt wird. Als Ersatz dürfen nur vom Hersteller empfohlene Batterien gleichen oder ähnlichen Typs verwendet werden. Verbrauchte Batterien müssen entsprechend den Anweisungen des Herstellers entsorgt werden.

ATTENTION: Il y a risque d'explosion si la pile est remplacée par un modèle qui ne convient pas. Remplacez-la uniquement par le modèle recommandé par le constructeur. Débarrassez-vous des piles usées conformément aux instructions du constructeur.

ADVARSEL!: Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering Udskiftning må kun ske med bat-teri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

VAROITUS: Paristo voi räjähtää, los se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden mukaisesti.

ADVARSEL: Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

VARNING: Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparat-tillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

TO REPLACE THE MOTHERBOARD BATTERY

1. **Locate the battery on the motherboard (see Figure 4-15 on page 4-25.)**
2. **Carefully push the clip away from the battery until the socket ejects the battery.**

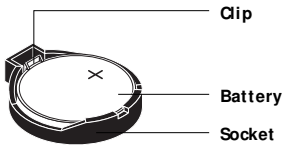


FIGURE 4-22 Motherboard battery

3. **Slide the battery out of its socket.**
4. **To insert a new battery, slide it into the socket so that the positive (+) side of the battery faces up.**
5. **Press the battery down into the socket until it snaps into place.**

   Make sure the battery is securely installed in the socket.
6. **Reassemble the E-820 and verify its functionality (see page 4-11).**
7. **Configure the time and date in Setup.**

Motherboard jumpers

The motherboard is shipped with no jumpers installed. A jumper is parked on JP1 and on JP13 but no pins are connected. The jumper configuration should not be changed.

Fans

Inside the E-820, a front fan and back panel fan run continuously when the system is running. You should hear the fans start as soon as you power on the E-820. If you do not hear the fans, the most likely problem is a faulty power connection (see "To check board and cable connections" on page 4-8).

The following procedures describe how to remove and replace the front fan and back panel fan.

Front fan

The front fan circulates air inside the E-820 in order to cool integrated circuits within the system.

TO REMOVE THE FRONT FAN

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Unplug the 3-pin fan connector from motherboard connector FAN1.**
3. **Remove and set aside the two screws that attach the board guide to the chassis (see Figure 4-1 on page 4-2 for location of the board guide).**
4. **Unhook and remove the board guide (with front fan attached) from the chassis (see Figure 4-23 on page 4-49).**
5. **Remove and set aside the four screws (and washers, if present) that attach the front fan to the board guide.**

TO REPLACE THE FRONT FAN

1. **Position the fan on the board guide.**

   An arrow on the side of the fan indicates the airflow direction. Make sure the fan is positioned so that the arrow points inside the E-820 and the fan cable can reach motherboard connector FAN1.

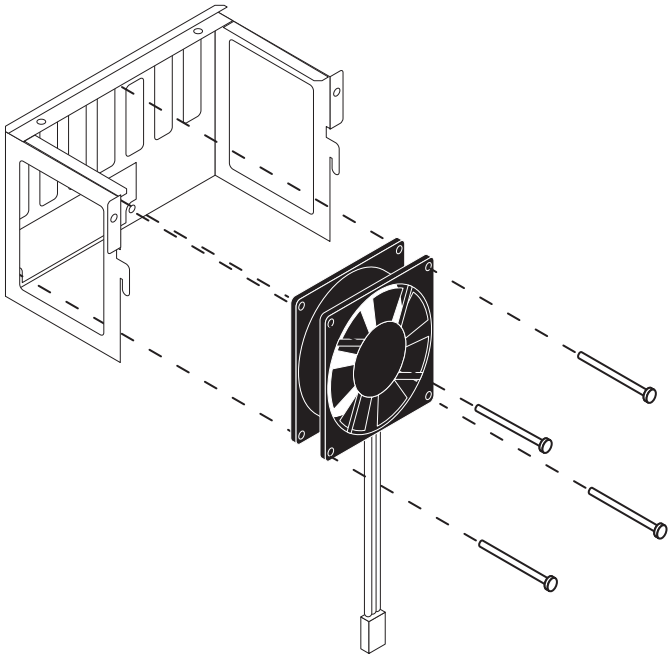


FIGURE 4-23 Removing the front fan

2. **Install the fan on the board guide using the four screws (and washers, if present) you removed earlier.**

3. **Hook the board guide (with front fan attached) into the chassis.**

4. **Attach the board guide to the chassis using the two screws you removed earlier.**

5. **Plug the 3-pin fan connector into the motherboard connector FAN1.**

6. **Reassemble the E-820 (see page 4-11) and verify its functionality (see the connection verification steps described in Figure 4-8 on page 4-13).**

Back panel fan

The back panel fan cools the system by blowing air from inside the system out of the back of the E-820.

TO REMOVE THE BACK PANEL FAN

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Unplug the 3-pin fan connector from motherboard connector FAN4.**
3. **Pull on one edge of the fan to release it from the mounting bracket.**

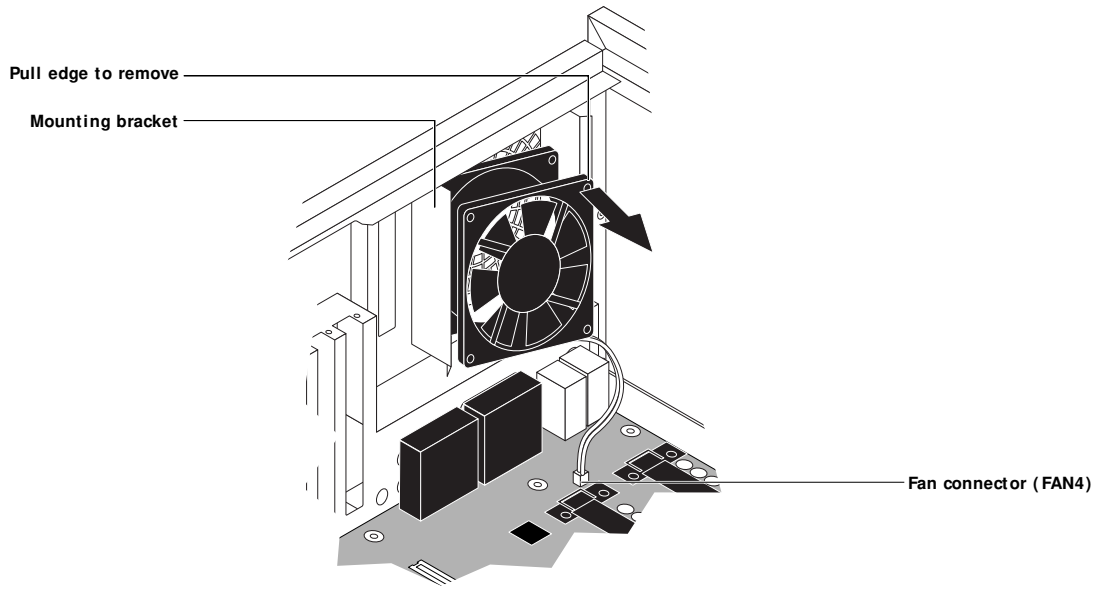


FIGURE 4-24 Removing the fan

4. **Remove the fan from the chassis.**

TO REPLACE THE BACK PANEL FAN

1. **Angle one edge of the fan into the mounting bracket on the back panel and snap the fan into the clips on the bracket (see Figure 4-24 on page 4-50).**

   An arrow on the side of the fan indicates the airflow direction. Make sure the fan is positioned so that the arrow is at the bottom of the chassis and points toward the back panel.

2. **Plug the 3-pin fan connector into the motherboard connector labeled FAN4 (see Figure 4-24 on page 4-50).**

3. **Reassemble the E-820 and verify functionality (see page 4-11).**

4. **Make sure the fan vent on the back panel is emitting air. If the fan vent is not emitting air, the fan is oriented incorrectly.**

Power supply

The fan-cooled 275-watt power supply has an automatic input voltage selection circuit. The input voltages are 90-137VAC and 180-265VAC.

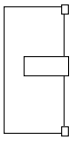
Checking voltages

You can check power supply functionality using a multimeter at the following locations on the power supply:

- Connector that supplies power to the motherboard
- Connector that supplies power to the HDD
- Connector that supplies power to the CD-ROM drive
- Connector that supplies power to the ZIP drive

Test voltages on the connectors of the power supply cables, not on the board or component connectors. The following table describes the power connectors.

TABLE 4-3 E-820 power connectors

Connector	Pins	Color	Voltage
 20-pin Motherboard	1, 2, 11	Green	3.3V
	3, 5, 7, 13, 15, 16, 17	Black	GND
	18	White	-5V
	4, 6, 19, 20	Red	+5V
	10	Yellow	+12V
	12	Blue	-12V
	14	--	not connected
	8	--	Supply Power ok (Input pin; no voltage to check)
	9	Red	+5VSB
 4-pin HDD	1	Yellow	+12V
	2	Black	common
	3	Black	common
	4	Red	+5V
 4-pin CD-ROM drive	1	Yellow	+12V
	2	Black	common
	3	Black	common
	4	Red	+5V
 4-pin ZIP drive	1	Yellow	+12V
	2	Black	common
	3	Black	common
	4	Red	+5V

Removing and replacing the power supply

This section describes how to remove and replace the power supply.

TO REMOVE THE POWER SUPPLY

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Remove the 20-pin power cable from motherboard connector U48.**
3. **Remove the 4-pin power cable from the power connector on the HDD.**
4. **Remove the 4-pin power cable from the power connector on the ZIP drive.**
5. **Remove the 4-pin power cable from the power connector on the CD-ROM drive.**
6. **Remove the four screws on the back panel that attach the power supply to the chassis.**

   Set the screws aside so you can replace them later.
7. **Gently lift the power supply out of the chassis.**

TO REPLACE THE POWER SUPPLY

1. **Place the power supply inside the lower-left corner of the chassis.**
2. **While supporting the power supply, align the mounting holes with the holes on the back of the chassis. Secure the power supply from the outside with four screws.**

   If you are installing a new power supply, make sure to use the screws that came with the new one to secure the power supply to the chassis.
3. **Connect the 20-pin power cable to motherboard connector (U48).**
4. **Connect the 4-pin power cable to the power connector on the HDD.**
5. **Connect the 4-pin power cable to the power connector on the ZIP drive.**
6. **Connect the 4-pin power cable to the power connector on the CD-ROM drive.**
7. **Make sure all power connectors are properly aligned.**
8. **Reassemble the E-820 and verify its functionality (see page 4-11).**

   If you cut any tie wraps, make sure you replace them.

Hard disk drive

The factory-installed HDD (hard disk drive) is formatted and loaded with system software, network drivers, and printer fonts. The HDD is also used to store spooled print jobs. Available space on the HDD is displayed on the Control Panel.

If you replace the HDD with a new one, you will need to install system software on the new HDD. (Spare drives are shipped without system software installed.)

Do not replace the HDD and the motherboard at the same time. Doing so in the wrong order and without updating the system (see page 4-29) will cause the system to not function.

It is unlikely that both the HDD and the motherboard are defective; therefore, avoid replacing both to solve one problem. If troubleshooting strategies (checking cables and connections, etc., see page 4-8) do not solve the problem and you suspect either the HDD or the motherboard are at fault, use the following order to troubleshoot: replace the HDD, install system software, and then check if the problem persists. If so, perform other procedures, such as replacing the motherboard (see page 4-29).

Proper handling

Improper handling can damage the HDD. Handle the HDD with extreme care:

- Use proper ESD practices when grounding yourself and the E-820.
- Keep magnets and magnetic-sensitive objects away from the HDD.
- Do not remove the screws on top of the HDD. Loosening these screws voids the warranty.
- Never drop, jar, bump, or put pressure on the HDD.
- Handle the HDD by its sides and avoid touching the printed circuit board.
- Allow the HDD to reach room temperature before installation.

HDD problems may be a result of the following:

- Loose or faulty connection
- Faulty hard disk drive

Make sure you attach an ESD grounding wrist strap and follow standard ESD (electrostatic discharge) precautions before handling E-820 components.

In order to remove the HDD, you first need to remove the HDD bracket.

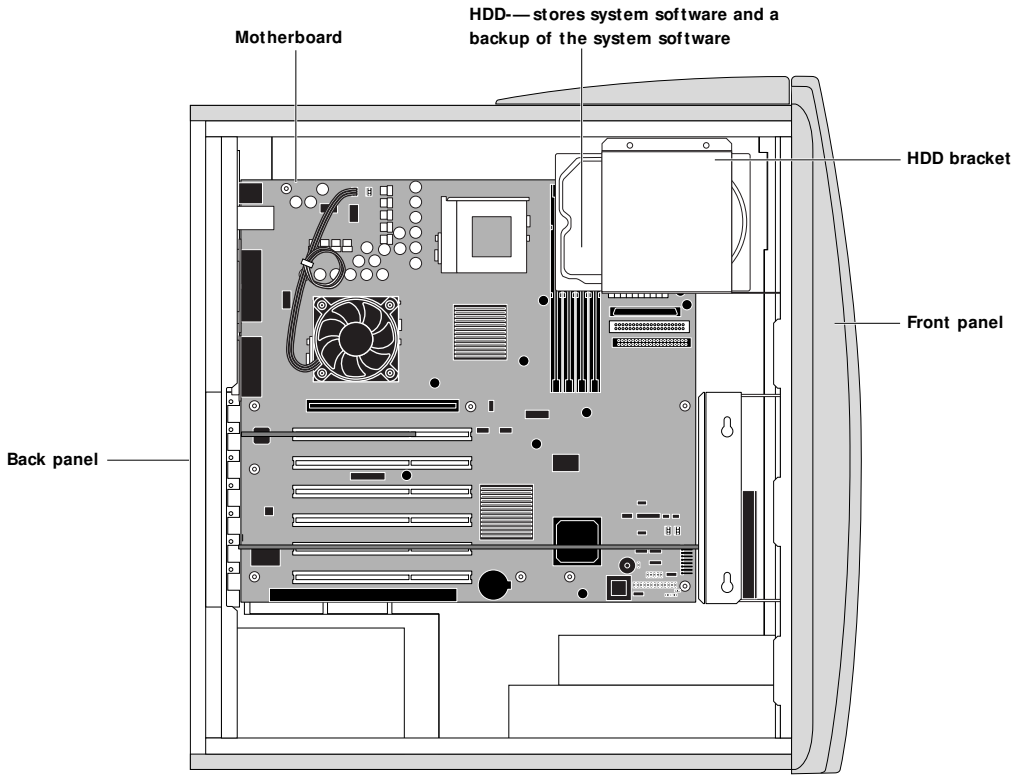


FIGURE 4-25 E-820 HDD (hard disk drive)

If you are replacing the HDD with a new one, you will need:

- The appropriate system software and documentation for the E-820 you are servicing.
- A compatible version of the user software for the networked computers that will be printing to the E-820.

TO REMOVE THE HDD

1. **If you are removing the HDD in order to install a new drive, first give the network administrator the opportunity to print the Job Log and to save any custom simulations. Also, print the following from the Functions menu (if possible):**
   - Configuration page (see page 4-70 for a detailed description)
   - Font List (see page 4-70 for a detailed description)
2. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
3. **Remove the HDD cable from the HDD by pulling the connector (not the cable) straight out from the HDD.**
4. **Remove the 4-pin power connector from the HDD.**
5. **While supporting the HDD bracket, remove the screw that secures the bracket to the chassis.**

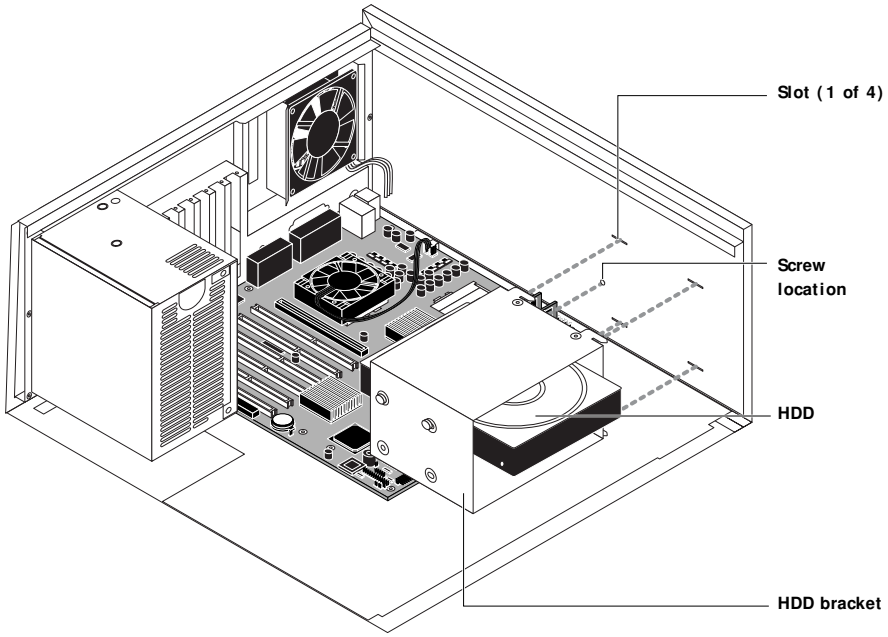


FIGURE 4-26 Removing the HDD and bracket

6. **Gently slide the HDD bracket toward the back panel to unhook it from the chassis.**

   If you are removing the HDD bracket in order to remove the motherboard, you do not need to remove the HDD from the bracket.

Be careful not to damage the DIMMs located below the HDD when removing the HDD bracket.

7. **While supporting the HDD, remove the four screws that secure the HDD to the bracket.**

Do not unscrew the six screws on the HDD cover. Loosening these HDD screws will break the seal and void the HDD warranty.

Do not touch the drive with magnetic objects (such as magnetic screwdrivers), and avoid placing items such as credit cards and employee ID cards that are sensitive to magnets near the HDD.

8. **Remove the HDD from the HDD bracket and place the drive in an antistatic bag.**

Replacement HDDs are not shipped with any software pre-installed. After installing the drive, you need to install the appropriate system software.

TO REPLACE THE HDD

NOTE: Do not install a new HDD and a new motherboard at the same time. If you suspect that the E-820 needs a new HDD and a new motherboard, first install the new HDD and install system software. Then install a new motherboard and perform the system update procedure (see page 4-29 and page 4-32).

1. **If you are installing a new HDD, unpack the drive.**

Do not drop, jar, or bump the HDD. Do not touch the HDD with magnetic objects or place objects sensitive to magnets near the HDD.

2. **Slide the drive into the HDD bracket so that the HDD screw holes are properly aligned with the holes in the bracket.**

The HDD should be positioned as shown in Figure 4-27.

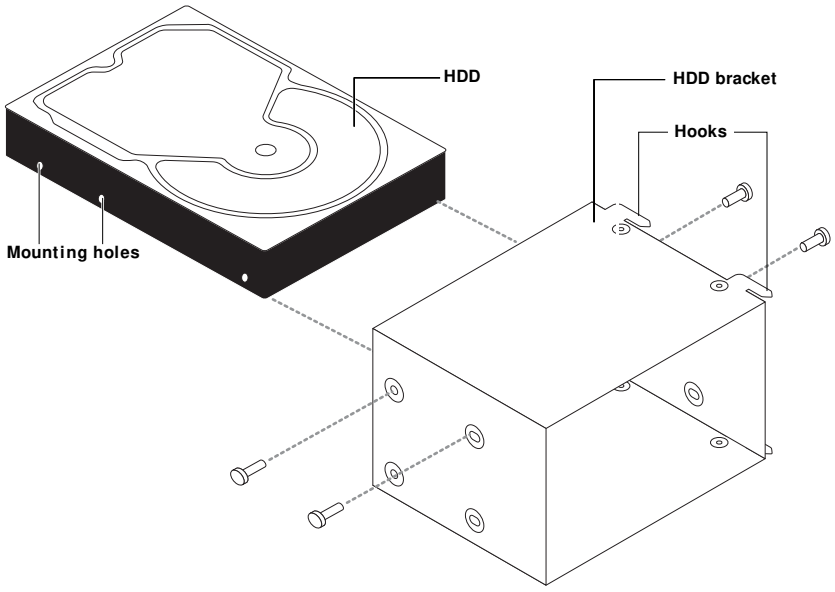


FIGURE 4-27 Replacing the HDD

3. **Once the HDD is properly aligned in the bracket, replace the screws on each side of the HDD and tighten them. (Make sure you use the same screws you removed earlier.)**

   If some screws do not thread properly, loosen other screws so that the holes may be aligned more easily.

4. **Insert the hooks of the HDD bracket into the slots on the top of the chassis and slide the bracket toward the front panel to secure it. (See Figure 4-26 on page 4-56.)**

5. **Secure the HDD bracket to the chassis using the screw you removed earlier.**

6. **Attach the 4-pin power supply cable connector to the HDD.**

7. **Connect the HDD cable from the ATA board Primary IDE connector to the HDD (see page 4-17 for connector location).**

   The connector is keyed to fit only one way.

8. **Reassemble the E-820 (see page 4-11).**

9. **Connect the cables you removed from the back panel.**

10. **If you replaced the HDD with a new HDD, install system software (see page 4-67).**

    If a startup error appears on the Control Panel when you power on the E-820, check the connections. If a startup error still appears, call your authorized service/support center.

11. **Verify E-820 functionality (see the connection verification steps described in Figure 4-8 on page 4-13).**

ZIP drive

The ZIP drive is installed in the chassis above the CD-ROM drive and can be used to archive print jobs onto a ZIP disk, as described in the *Job Management Guide*.

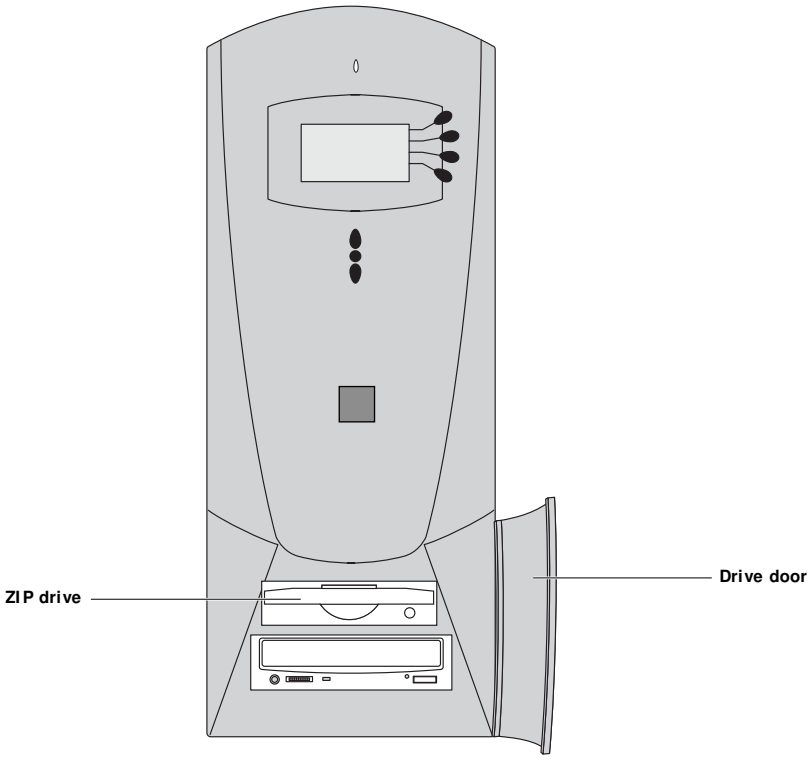


FIGURE 4-28 ZIP drive

NOTE: Jumper pins on the CD-ROM and ZIP drives are used to set the mode (master or slave) for the device on the IDE channel. A label located on the device provides configuration information for setting the mode. The CD-ROM drive is configured as the master and the ZIP drive is configured as the slave. Both drives are configured correctly at the factory and should not be changed.

TO REMOVE THE ZIP DRIVE

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Remove the front panel (see page 4-6).**
3. **Remove any cables connected to the backs of the ZIP and the CD-ROM drives.**

   In order to remove the ZIP drive, you need to remove the bracket that encloses both the ZIP and the CD-ROM drives.

4. **Remove the two screws on the front of the chassis. These screws secure the bracket to the chassis.**

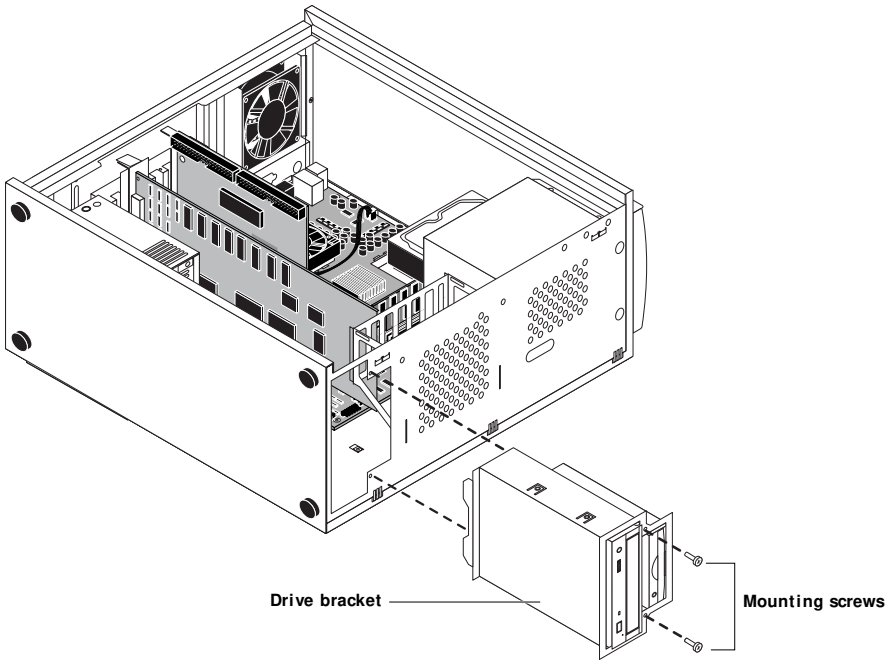


FIGURE 4-29 Removing/replacing the drive bracket

5. **Push the drive bracket from inside the chassis out through its slot in the front of the chassis. Be careful not to damage any components when removing the bracket.**

6. **Remove the four screws that secure the ZIP drive to the bracket and slide the drive out of the bracket.**

   Be careful not to damage the EMI gasketing around the edge of the bracket.

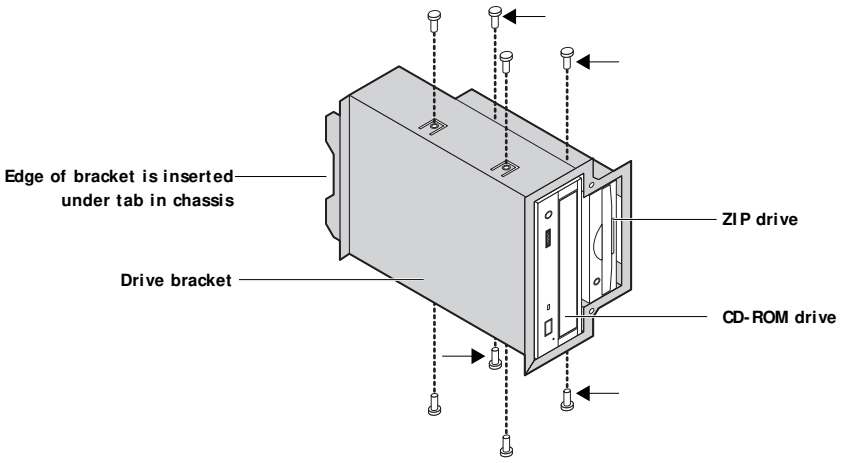


FIGURE 4-30 Replacing the ZIP drive

TO REPLACE THE ZIP DRIVE

1. **With the drive bracket removed, slide the replacement ZIP drive into the bracket on top of the CD-ROM drive.**

   Be careful not to damage the EMI gasketing around the edge of the bracket.

   Make sure the IDE setting for the ZIP drive is set to slave.

2. **Attach the four screws that secure the ZIP drive to the bracket (see Figure 4-30).**

3. **Slide the bracket with the drives installed into the drive slot in the front of the chassis. The back edge of the drive bracket should fit underneath the tab in the base of the chassis.**

4. **Replace the two screws on the front of the chassis that secure the drive bracket to the chassis (see Figure 4-29 on page 4-60).**

5. **Connect the cables you removed from the back of the ZIP and CD-ROM drives and reassemble the E-820 (see page 4-11).**

6. **Verify E-820 functionality (see the connection verification steps described in Figure 4-8 on page 4-13).**

CD-ROM drive

The CD-ROM drive is installed in the chassis below the ZIP drive and is used to install system software.

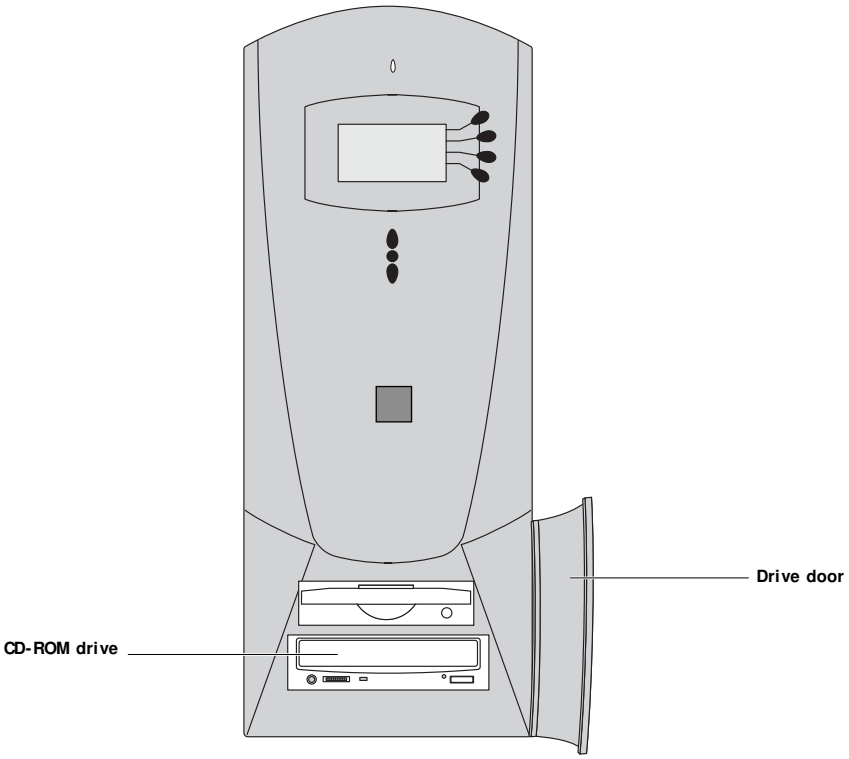


FIGURE 4-31 E-820 CD-ROM drive

NOTE: Jumper pins on the CD-ROM and ZIP drives are used to set the mode (master or slave) for the device on the IDE channel. A label located on the device provides configuration information for setting the mode. The CD-ROM drive is configured as the master and the ZIP drive is configured as the slave. Both drives are configured correctly at the factory and should not be changed.

TO REMOVE THE CD-ROM DRIVE

1. **Shut down and open the E-820 (see page 4-3 and page 4-4).**
2. **Remove the front panel (see page 4-6).**
3. **Remove cables connected to the back of the ZIP and CD-ROM drives.**

   In order to remove the CD-ROM drive, you need to remove the bracket that encloses both the ZIP and the CD-ROM drives.

4. **Remove the two screws on the front of the chassis (see Figure 4-32). These screws secure the bracket to the chassis.**

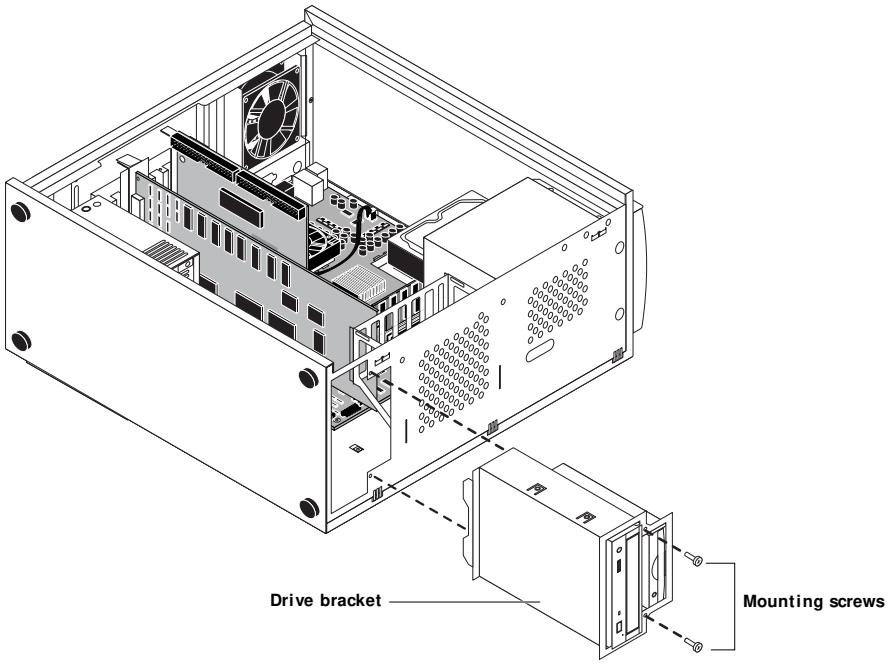


FIGURE 4-32 Removing/replacing the drive bracket

5. **Push the drive bracket from inside the chassis out through its slot in the front of the chassis. Be careful not to damage any components when removing the bracket.**

6. **Remove the four screws that secure the CD-ROM drive to the bracket and slide the drive out of the bracket.**

7. **Be careful not to damage the EMI gasketing around the edge of the bracket.**

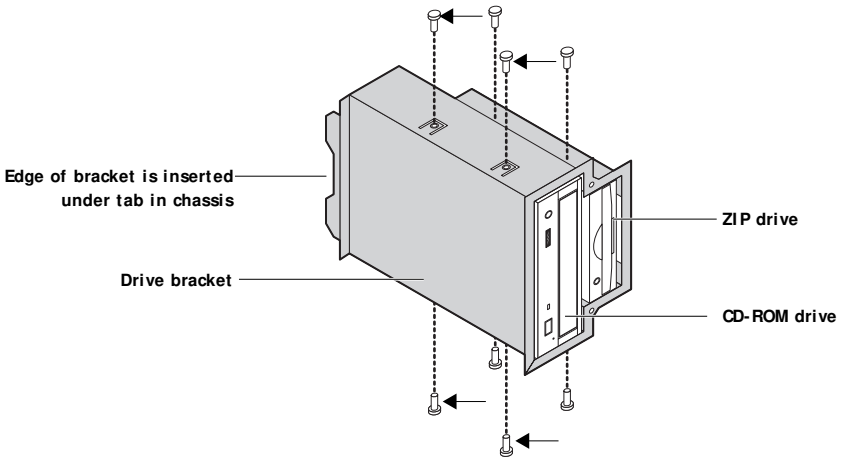


FIGURE 4-33 Removing the CD-ROM drive

TO REPLACE THE CD-ROM DRIVE

1. **With the drive bracket removed, slide the replacement CD-ROM drive into the bracket.**

   Be careful not to damage the EMI gasketing around the edge of the bracket.

   Make sure the IDE setting for the CD-ROM drive is set to master.

2. **Attach the four screws that secure the CD-ROM drive to the bracket (see Figure 4-33).**

3. **Slide the bracket into the drive slot in the front of the chassis. The back edge of the drive bracket should fit underneath the tab in the base of the chassis.**

4. **Replace the two screws on the front of the chassis that secure the drive bracket to the chassis (see Figure 4-32 on page 4-63).**

5. **Re-connect the cables you removed from the back of the ZIP and CD-ROM drives and reassemble the E-820 (see page 4-11).**

6. **Verify E-820 functionality (see the connection verification steps described in Figure 4-8 on page 4-13).**

Front panel components

The front panel holds jewels, the user interface board, and buttons. This section describes replacing jewels and buttons on the front panel. For information on replacing the user interface board, see page 4-21.

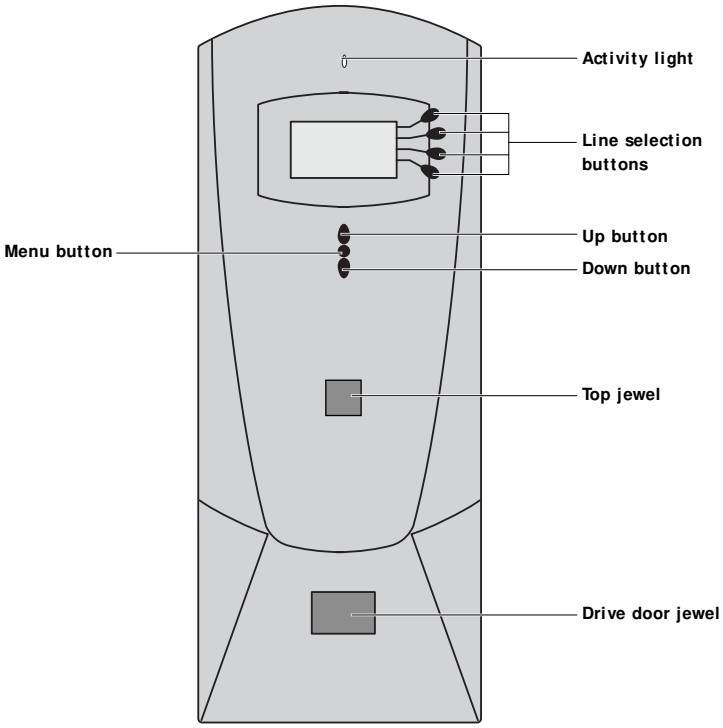


FIGURE 4-34 Front panel jewels and buttons

Jewels

Some upgrades or product modifications may require you to replace a jewel on the front panel. The following procedure describes how to replace a jewel.

TO REPLACE FRONT PANEL JEWELS

1. **If you are replacing the top jewel, remove the front panel (see page 4-6). To replace the jewel on the drive door, open the drive door.**

   Now you have access to the tabs on the back side of the jewel.

2. **Remove the jewel from the front panel.**

   Squeeze the tabs on the back side of the jewel while pushing it out of its slot.

3. **Insert the new jewel into the empty slot.**

   Push the jewel into the slot from the front until it snaps into place.

4. **If necessary, reassemble the E-820 (see page 4-11).**

Buttons

The Control Panel buttons are located in cutouts in the front panel and are designed to fit only one way. In position, the buttons make contact with the button pads on the front of the user interface board and provide users with manual status/control capability from the Control Panel.

TO REPLACE FRONT PANEL BUTTONS

1. **Remove the front panel (see page 4-6).**

2. **Remove the user interface board (see page 4-22).**

3. **Place the front panel buttons in the appropriate cutouts.**

   Notice that the buttons fit only one way in the cutouts.

4. **Reassemble the E-820 and verify its functionality (see page 4-11).**

System software service

System software resides on the HDD and is backed up the first time you power on the E-820 from the factory. If necessary, you can restore the backup using the Restore system option on the Restore/Update Server Software CD. This option allows you to restore system software to the default configuration.

System software is also provided on two CDs that can be used to update the system software to a newer version or to reinstall the current version of the system software.

This section describes how to restore a backup of the system software using the Restore/Update Server Software CD (see page 4-68) and how to install system software from the system software CDs (see page 4-70). An additional CD is provided for installing user documentation during system software installation.

Keep in mind the following when installing system software from CDs or when restoring the backup system software:

- **Job Log**—The list of jobs in the Job Log and any jobs in the queues are deleted. The network administrator can use Fiery Spooler to save a current list of jobs (not the actual jobs) from the Job Log.
- **Fonts**—All fonts on the HDD are deleted when you install or restore system software. Resident fonts are reinstalled when you reinstall or restore system software. Any customer-supplied fonts will need to be reinstalled by the network administrator using Fiery Downloader.

  To determine which additional fonts were downloaded to the E-820, print the Font List before you install or restore the system software and again after you complete the system software installation. Any fonts *not listed* after installation will need to be reinstalled. For more information, see the *Job Management Guide*.
- **Configuration**—When upgrading the system software, make sure to print a Configuration page before installing any software (see page 3-6 for instructions). The Setup configuration will be lost when you install or restore system software.
- **Acrobat and Command WorkStation**––If Acrobat and Command WorkStation software are installed on the E-820, they will be deleted when you install or restore system software. After installing or restoring system software, you must reinstall the Acrobat and Command WorkStation software. For enabling the DocBuilder Pro features of Command WorkStation and for more information, see the *User Software Installation Guide*.
- **Custom simulations**––Custom simulations and custom outputs saved on the HDD are deleted when you install or restore system software. Save a copy of any custom simulations before installing software so they can be restored later. For more information, see the *Color Guide*.

- **Compatibility**—When upgrading the system software, make sure the latest user software is installed onto all computers that print to the E-820. Using incompatible versions of the system and user software may result in system problems.

Restoring backup system software

When you restore system software, the E-820 configuration is returned to its default settings. You can restore system software to troubleshoot system problems. Whenever possible, restore rather than reinstall system software, except in certain cases described in "Installing system software" on page 4-70.

NOTE: Do not interrupt the system while the Restore function is in progress. If you do, you may have to reinstall system software from the CDs.

TO RESTORE BACKUP SYSTEM SOFTWARE

1. **If you have not done so already, first give the network administrator the opportunity to print the Job Log and to save any custom simulations. Also, print the following from the Functions menu (if possible):**

   - Configuration page—lists any installed options and records the customer's current Setup configuration. The Setup configuration is reset to the default configuration when you restore the backup system software.
   - Font List— lists the fonts currently on the HDD. These include the original fonts that came installed on the E-820 plus any additional fonts that the customer may have installed. All fonts are deleted when you restore or install system software. The network administrator can use Fiery Downloader to reinstall customer-supplied fonts after system software reinstalls the original fonts. To determine which customer-supplied fonts need to be reinstalled, print the Font List before you restore or install system software and again after you restore or install system software. Any fonts *not listed* after restoration or installation need to be reinstalled.

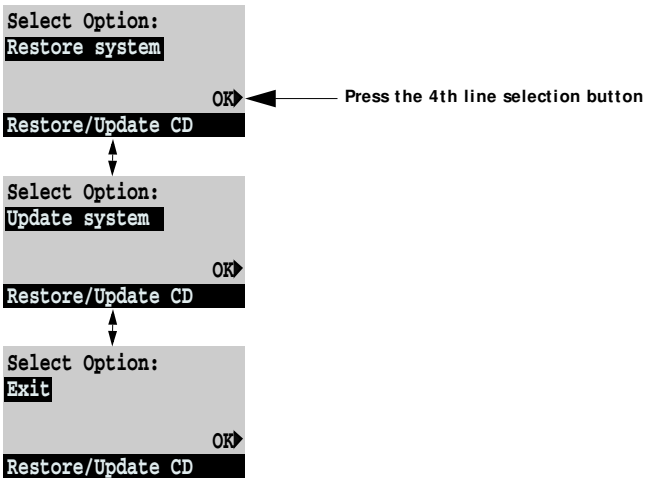
2. **Insert the Restore/Update Server Software CD into the CD-ROM drive.**

3. **Select Shut Down from the Functions menu (page 4-3).**

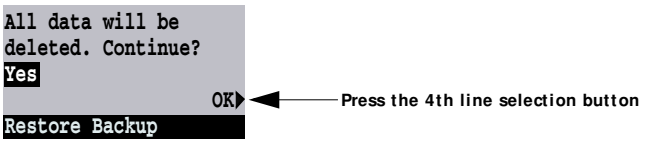
4. **At the next screen, select Reboot System.**

   Allow the system to shut down and reboot. Do not push any buttons during this time and ignore the message `It is now safe to power off the system....` that appears on the Control Panel while the system reboots.

5. **Select Restore system from the following menu.**



6. **When the following screen appears, make sure "Yes" is displayed, and then select OK. The restore backup process begins immediately.**



Wait while the Control Panel displays screens indicating that the software is being restored. When restoration is finished, the E-820 runs diagnostics.

7. **At the message "Restore complete!" select OK.**

8. **Scroll to Exit and select OK.**

9. **At the message "Remove CD and recycle power," remove the Restore/Update Server Software CD from the CD-ROM drive, and then power off and on the system using the power switch on the back panel.**

10. **Configure Setup using the Configuration page you printed earlier.**

    At the `Idle` screen, press the Menu button once to access the Functions menu. Scroll down and then select `Run Setup`. Bypass any settings that are not included on the Configuration page if it is more appropriate for the network administrator to set them. The system reboots after you exit Setup. For more information, see the *Configuration Guide*.

11. **Reinstall fonts, user software, or custom simulations that may have been deleted when you restored system software.**

Installing system software

The System Software CDs include the system software and fonts. Use the System Software CDs when:

- You replace the HDD
- You update to a more recent version of the system software
- Restore Backup fails
- You change languages

NOTE: System software installation takes approximately 30 minutes.

TO INSTALL SYSTEM SOFTWARE

NOTE: If a monitor is connected to the E-820 while you are installing system software, ignore the blue-screen warnings about possible drive corruption that appear on the monitor. These warning screens are a standard part of the operating system and appear as the system verifies that all files have been properly installed.

1. **If you have not done so already, first give the network administrator the opportunity to print the Job Log and to save any custom simulations. Also, print the following from the Functions menu (if possible):**

   - Configuration page—records the customer's current Setup configuration. The Setup configuration will be reset to the default configuration when system software is installed.
   - Font List—lists the fonts currently on the HDD. These include the original fonts that came installed on the E-820 plus any additional fonts that the customer may have installed. All fonts are deleted when you restore or install system software. The network administrator can use Fiery Downloader to reinstall customer-supplied fonts after system software reinstalls the original fonts. To determine which customer-supplied fonts need to be reinstalled, print the Font List before you restore or install system software and again after you restore or install system software. Any fonts *not listed* after restoration or installation need to be reinstalled.

2. **Insert the appropriate language CD 1 in the CD-ROM drive.**

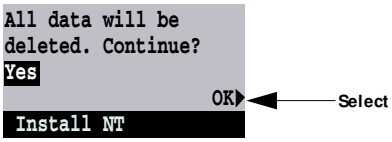
   NOTE: If you installed a new HDD, you need to power on the system using the power switch on the back panel, insert CD 1, and allow the system to boot from the CD, and then proceed to step 5 on page 4-71.

3. **Select Shut Down from the Functions menu (see page 4-3).**

4. **At the next screen, select Reboot System.**

   Allow the system to shut down and reboot. Do not push any buttons during this time and ignore the message `It is now safe to power off the system....` that appears on the Control Panel while the system reboots.

5. **When the following screen appears, make sure "Yes" is displayed and then select OK. The installation process begins immediately.**



   Wait while the Control Panel displays screens indicating that the software is being installed.

6. **At the message "To complete installation, insert CD 2 and recycle power," remove CD 1 and insert CD 2. Then, using the power switch on the back panel, power off the system, wait 10 seconds, then power the system back on.**

   After you power the system back on, allow the E-820 to proceed without interruption. Do not press any buttons on the Control Panel.

7. **At the message "Remove CD and recycle power," remove CD 2. Then, using the power switch on the back panel, power off the system, wait 10 seconds, then power the system back on.**

   After power on, the E-820 reboots three times to complete the system software installation process. The system also creates a backup of the system software. If you need to restore the default configuration in the future, see "Restoring backup system software" on page 4-68.

   While the system is initializing, do not press any buttons on the Control Panel. Wait for the system to boot completely and the Idle screen to appear on the Control Panel. (This will take approximately 20 minutes.)

8. **Configure Setup using the Configuration page you printed earlier.**

   At the `Idle` screen, press the Menu button once to access the Functions menu. Scroll down and then select `Run Setup`. Bypass any settings that are not included on the Configuration page if it is more appropriate for the network administrator to set them. For more information, see the *Configuration Guide*.

9. **Reinstall fonts, user software, or custom simulations that may have been deleted when you installed system software.**

Chapter 5: Troubleshooting

This chapter identifies the source of common problems that may occur with the E-820 and suggests ways of correcting them.

The Troubleshooting process

The E-820 is a server for copiers, and is generally part of a configuration like the one shown below. Problems may occur in one of three areas:

- Inside the E-820
- In the interface between the E-820 and the copier
- In the interface between the E-820 and the workstations or computers to which it is connected

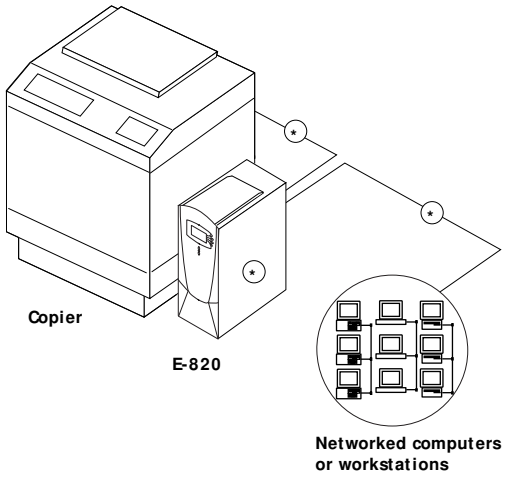


FIGURE 5-1 Troubleshooting the system

This chapter does not attempt to provide troubleshooting information for attached computers such as PCs or Mac OS computers, for color copiers, or for extensive networks. You should refer problems in these areas to the appropriate service departments and network administrators.

When performing the service procedures described in this chapter, follow the precautions listed in “Precautions” on page xiii.

The terms “replace” and “replacing” are typically used throughout this manual to mean reinstallation of existing components. Install new components only when necessary. If you determine that a component you have removed is not faulty, make sure to reinstall it back in the system.

Preliminary on-site checkout

Most problems with the E-820 are caused by loose board or cable connections; therefore, this section describes the quick checks you can do to locate and fix obvious problems. This section first describes how to eliminate any problems with external connections to the back of the E-820, and then addresses checking internal board and cable connections. It is a good idea to check external and internal connections before replacing any components.

NOTE: Your should first verify that the network is functioning, no unauthorized software or hardware is installed on the E-820, and there are no problems with a particular print job or application. The on-site administrator can help you verify these issues.

For problems that persist after you have done the quick checks of the external and internal connections, this section goes on to provide a comprehensive list of internal and external checks that may help you fix the problem.

This section includes the following:

- "Checking external connections" on page 5-3

  This section describes the quick checks you can do to make sure the problem is not caused by a loose connection at the back of the E-820.

- "Checking internal components" on page 5-4

  This section describes the quick checks you can do to make sure the problem is not caused by a loose board or cable connection inside the E-820.

- "Inspecting the system" on page 5-5

  This section provides a more comprehensive checklist for checking the E-820 internally and externally. If your initial checks fail, you may want to go through this checklist before concluding that you need to replace a cable or component.

To troubleshoot problems according to specific symptoms, refer to Table 5 -2 on page 5-14. Locate symptoms listed in the table to help you determine possible causes and steps to remedy them.

Checking external connections

Before removing the side and front panel of the E-820 to check internal components, first eliminate the most obvious sources of problems. Make sure that:

- All interface cables to the system are plugged into the proper connectors on the back panel of the E-820 (see Figure 5-2).
- The power cable is plugged into the wall supply.
- The power switch on the back panel of the E-820 is in the on position.
- The LED on the network connector is blinking to indicate network activity.

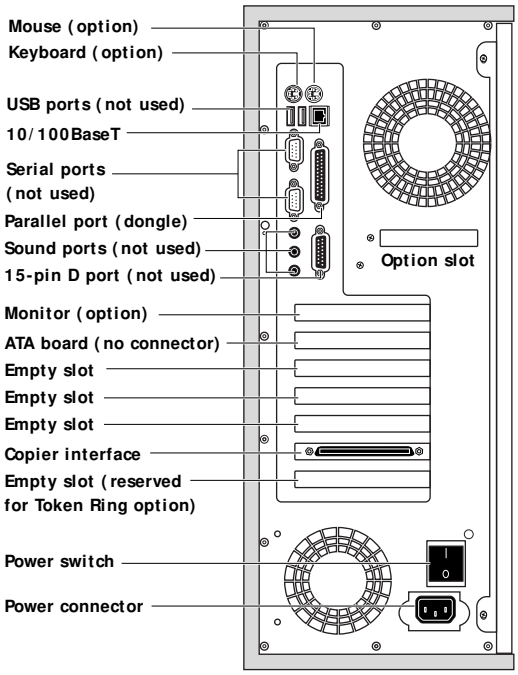


FIGURE 5-2 Back panel of the E-820

If all the connectors are properly in place and the power is on, proceed to the next stage of troubleshooting.

Checking internal components

To check the internal components you must remove the side and front panel of the E-820.

Before you remove the E-820's panels, be aware of the safety precautions you should take when handling the E-820. Use ESD precautions when handling printed circuit boards and electronic components. To review the safety precautions, see "Precautions" on page xiii.

Use the guidelines in Chapter 4, "Service Procedures" when disassembling, checking, and reassembling the E-820.

TO CHECK INTERNAL COMPONENTS

1. **Shut down and open the E-820 (page 4-3 and page 4-4).**
2. **Remove the front panels (see page 4-6).**

3. **Before you touch any components inside the E-820, attach a grounding strap to your wrist and discharge any static electricity on your body by touching a metal part of the E-820.**
4. **Inspect the inside of the E-820 (see page 4-8).**

   Make sure no foreign materials have been dropped into the chassis.

   - Look for obviously loose boards and reseat each board securely in its connector on the motherboard.
   - Look for cables that are obviously loose. Reseat each connector firmly.
   - Make sure each connector is properly aligned with its mating connector. If the pins are offset from each other, the board affected will not function properly.

5. **Reassemble the E-820 and verify functionality (see page 4-11).**

Inspecting the system

If your initial checks of the cable and board connections do not fix the problem, it may be necessary to inspect the system on a component-by-component basis, as described in Table 5-1. A comprehensive inspection allows you to verify that each hardware component is properly installed and configured, and helps you avoid replacing expensive components unnecessarily.

If the system you are servicing does not meet a condition listed in Table 5-1 below and it is not obvious what action(s) you should take to fix the problem (for example, if the system hangs before reaching Idle), locate the behavior in Table 5 -2 on page 5-14 and perform the suggested action(s) given for the condition.

TABLE 5-1 Verifying the system

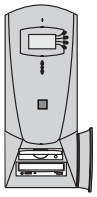
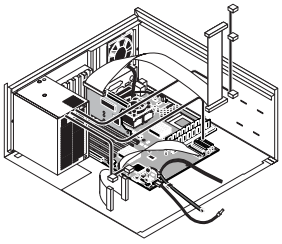
Conditions to verify	Part and additional page references
When problem occurs, verify that: • Power switch is on • Power cable is connected properly into the power outlet • Chassis fans are operating • Network link activity LED on RJ-45 connector is blinking • All external cables required are present, in correct connectors, well-seated • Cables, cable connectors, and mating connectors appear undamaged	Back panel external connectors, chassis fans, and power switch, page 5-3 
If problem occurs at power up or reboot, verify that: • System LED on the Control Panel lights • Display window lights up and boot up messages display • No error messages or system hangs occur before reaching Idle • ZIP drive is present and no disk is in the drive • CD-ROM drive is present and no disk is in the drive • CD-ROM LED blinks briefly • CD-ROM tray can be opened and closed • After the system reaches Idle, the Control Panel buttons work	Front panel, page 4-6; CD-ROM/ZIP drives, page 4-59 through page 4-62 

TABLE 5-1 Verifying the system

Conditions to verify	Part and additional page references

• All replaceable parts are:
  • Present
  • Properly aligned
  • Installed securely
  • Installed on the appropriate site
  • The correct part for the system
  • Properly configured, if configurable (such as HDD jumper)
  • Appear undamaged
• Chassis and contents have not been tampered with (no unauthorized additions or changes have been made)
• Chassis does not contain any foreign objects
	Chassis
	 

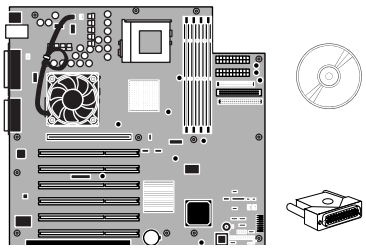
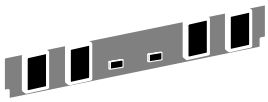
• Motherboard, including components and traces, appears undamaged and no foreign objects are evident • Each CPU required is present, installed in the correct connector, well-seated, and appears undamaged • Each CPU cooling unit is well-aligned and firmly attached • Each fan required (including fan cable) is well-positioned (not upside down), installed in the correct connector, and appears undamaged • Boards required on the motherboard are present, well-seated, and in the correct slots • Each pair of DIMMs is well-seated, installed in alternate slots, and have matching part numbers • Battery is installed	Motherboard (with Restore/Update CD and single-use dongle), page 4-24 
• Each pair of DIMMs is well-seated, installed in alternate slots, and have matching part numbers • DIMM connectors are not oxidized	DIMM for E-820, page 4-37 

TABLE 5-1 Verifying the system

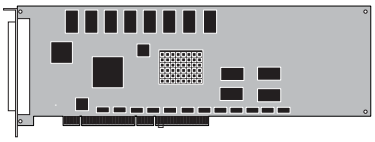
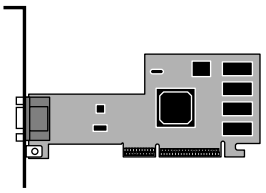
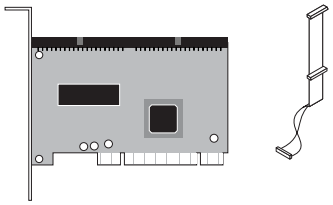
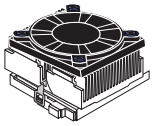
Conditions to verify	Part and additional page references
Each board required is: • Present • Installed in the correct slot • Well-seated • Appears undamaged Required cables (if applicable) are: • Present • Firmly connected in the correct connectors • Appear undamaged	Copier interface board, page 4-19  AGP board, page 4-15  ATA board (with HDD cable), page 4-17 
Each CPU required is: • Present • Installed in the correct slot • Well-seated • Appears undamaged The CPU cooling unit is: • Well-aligned • Firmly attached	CPU with cooling assembly, page 4-39 

TABLE 5-1 Verifying the system

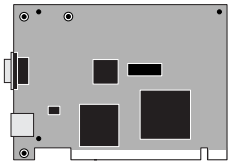
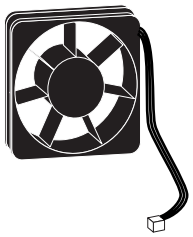
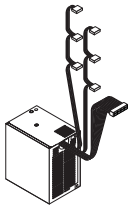
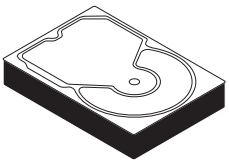
Conditions to verify	Part and additional page references
If included in the system, the required board is: • Present • Installed in the correct slot • Well-seated • Appears undamaged The network administrator can verify that the system is: • Installed on a working network • Configured appropriately in Network Setup	Token Ring; see document included with optional kit 
Each fan is: • Properly positioned (not backwards) • Installed in the correct connector • Fan, fan cable, cable connector, and mating connector appear undamaged	Front fan, page 4-48; Back panel fan, page 4-50 
The power supply required is: • Present • Correctly installed • Appears undamaged Cable connectors are: • Firmly connected • Appear undamaged • Installed in the correct devices	Power supply, page 4-51 
The HDD required is: • Present • Correctly installed • Appears undamaged • Jumpered as the primary master according to label HDD cable is: • Present • Firmly connected in the ATA board's Primary IDE connector • Appears undamaged	Hard disk drive (HDD), page 4-54 

TABLE 5-1 Verifying the system

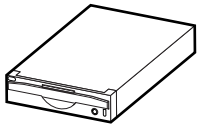
Conditions to verify	Part and additional page references
The CD-ROM drive required is: • Present • Correctly installed • Appears undamaged • Jumpered as a secondary master according to label • CD-ROM/ZIP drive cable is connected to motherboard Secondary IDE connector • Activity LED lights on power up	CD-ROM drive, page 4-62 
The ZIP drive required is: • Present • Correctly installed • Appears undamaged • CD-ROM/ZIP drive cable is connected properly	ZIP drive, page 4-59 

TABLE 5-1 Verifying the system

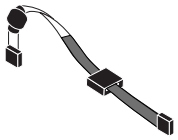
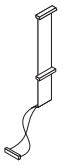
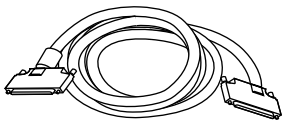
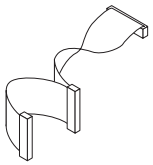
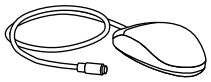
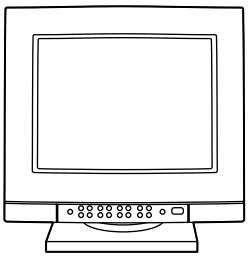
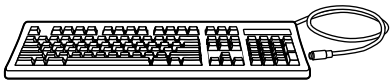
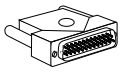
Conditions to verify	Part and additional page references
Each cable required: • Is present • Is installed in the correct connector • Is well-seated • Appears undamaged (including connectors)	UIB cable, page 4-9  HDD cable (to ATA board), page 4-9  Copier interface cable, page 3-3  Cable (to ZIP and CD-ROM drives), page 4-9  Power cable(s), page 2-7 

TABLE 5-1 Verifying the system

Conditions to verify	Part and additional page references
If included in the system, the required mouse, monitor, and keyboard are present and appear undamaged. The cables required: • Are present • Are installed in the correct connector • Are well-seated • Appear undamaged (including connectors)	For items below, see the document included with the FACI kit, if applicable. • Mouse (if applicable)  • Flat Panel Monitor (if applicable)  • Keyboard (if applicable)  • Flat Panel Monitor power cord (not pictured) • Flat Panel Monitor power cord adapter (not pictured)
Dongle is present when using DocBuilder Pro on the print server equipped with a mouse, monitor, keyboard, and associated software.	Dongle for DocBuilder Pro; see the document included with the optional kit. 

Normal startup sequence

When you power on or reboot the E-820, the system runs the following startup routine on the Control Panel. The routine takes approximately 2-5 minutes to reach the Idle screen. If the system hangs or data is missing during the startup sequence, note the screen displayed and then check Figure 5-3 on page 5-12 for the possible problems and suggested actions.

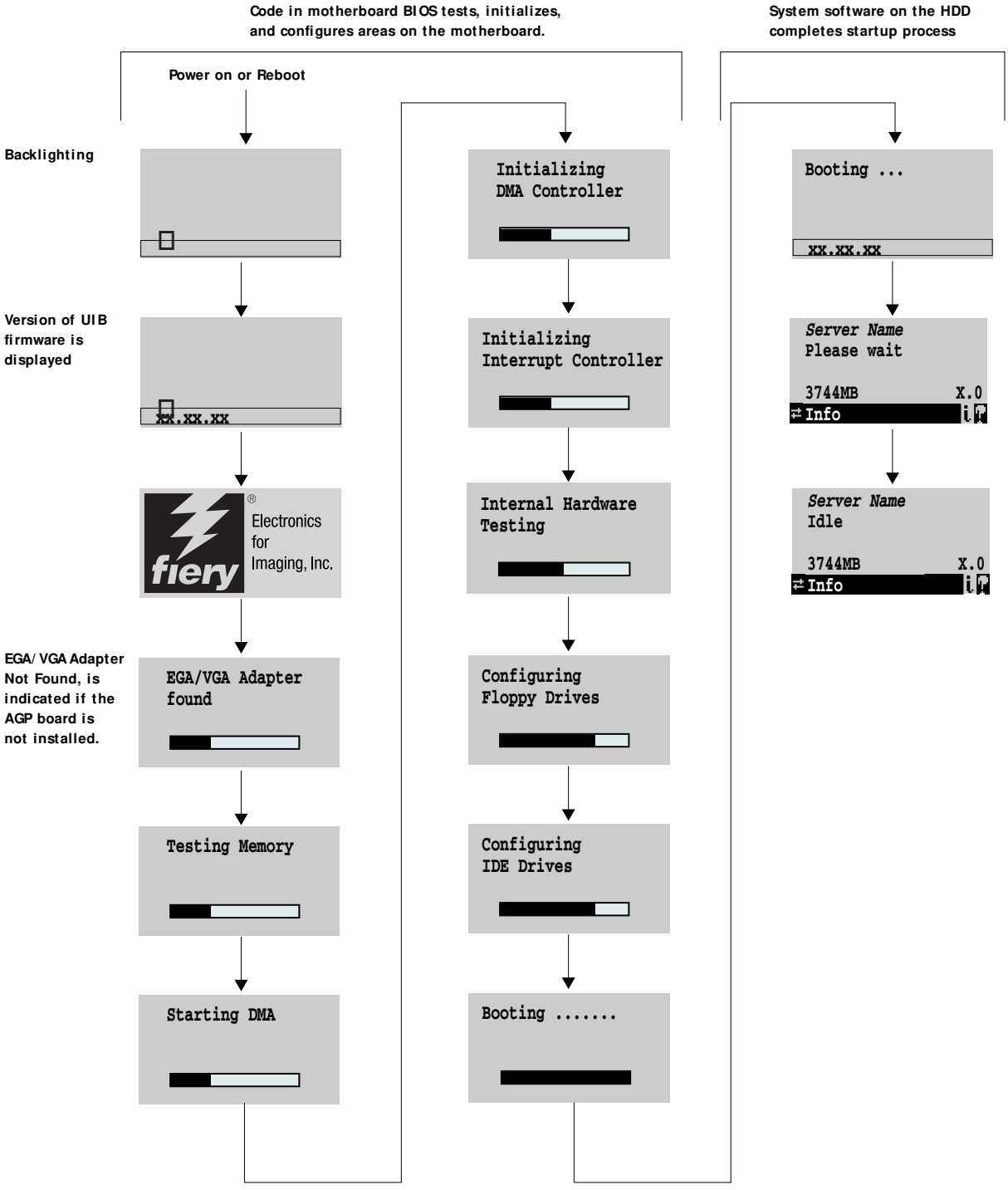


FIGURE 5-3 Normal startup sequence

Error messages and conditions

To address specific error messages or conditions, refer to Table 5 -2 on page 5-14. Use the table to locate the problem or symptom you want to fix, read about the possible causes, and then perform the suggested actions to solve the problem.

NOTE: Do not replace the HDD and the motherboard at the same time. Doing so in the wrong order and without updating the system will cause the system to not function.

It is unlikely that both the HDD and the motherboard are defective; therefore, avoid replacing both to solve one problem. If troubleshooting strategies (checking cables and connections, etc.) do not solve the problem and you suspect either the HDD or the motherboard are at fault, use the following order to troubleshoot: replace the HDD, install system software, and then check if the problem still exists. If so, perform other procedures, such as replacing the motherboard.

If replacing a component does not correct the problem, make sure you install the old component back in the E-820.

TABLE 5-2 E-820 error messages and conditions

Symptom	Possible cause	Suggested action
Beep codes		
2 beeps	CMOS settings were lost due to a dead battery. Two short beeps indicate that the system has restored the settings during startup.	**You may have to replace the motherboard battery.**
NOTE: Any other multi-beep pattern may indicate a hardware failure on the motherboard. Before replacing any components, first check the items in Table 5-1, "Verifying the system," on page 5-5.		
Startup		
E-820 does not start up, or the Control Panel is not backlit.	The E-820 is powered off.	**Make sure the power switch on the back of the E-820 is in the on position.**
	Possibly one of the following: • Faulty power supply (power supply may not be supplying power to the motherboard) • Faulty motherboard (motherboard power plane may not be supplying power to components) • Faulty user interface board	**1. Check again all cables and connections.** **2. Check power to the CD-ROM and ZIP drive.** If the LEDs are lit during startup and you are able to eject the CD-ROM drive tray, then the drives are receiving power from the power supply. **3. Listen for the power supply fan and feel for air at the back of the unit where the power supply is located.** If you do not feel air from the power supply fan and the drives are not receiving power, you may have a faulty power supply which you will need to replace (see page 4-53). **4. Check the fan vent on the back panel to make sure air is coming out the back of the system.** If the air is not coming out the back and the drives are not receiving power, the motherboard is faulty and the motherboard will need to be replaced (see page 4-24). **5. If you have verified that the power supply and the motherboard are functioning properly, you may need to replace the front panel containing the user interface board (see page 4-6).**

TABLE 5-2 E-820 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Startup (con't)		
Control Panel is lit but discolored.	Possibly one of the following: • User interface board cable or connections are faulty • User interface board is faulty • CPU connection(s) is loose • CPU(s) is faulty • Motherboard is faulty	**1. Check again the user interface board cable and connections. If the cable and connections are good and the problem persists, replace the front panel assembly containing the user interface board (see page 4-6).** **2. If the problem persists, verify CPU and CPU fan connection(s).** In a two-CPU system, if the problem persists, test each CPU by rebooting with only one CPU installed. Then test the installed CPU in the other socket. If the problem still persists, replace the CPU (see page 4-39). **3. If the problem persists, you may need to replace the motherboard (see page 4-24).**
Control Panel is lit but no text appears.	User interface board is faulty.	**Replace the front panel assembly containing the user interface board (see page 4-6).**
 System hangs at screen (the version string at the base of the screen is not displayed).	If the system hangs with the version string not displayed, the code resident on the user interface board has most likely been corrupted.	**Replace the front panel assembly containing the user interface board (see page 4-6).**
 System hangs at screen, and/or the system beeps multiple times (more than two short beeps).	Possibly one of the following: • Keyboard and mouse connections (if present) are not installed properly • Missing, unmatched, or faulty DIMMs • Faulty CPU • Faulty motherboard	**1. Check again all cables and connections.** **2. Make sure the keyboard and mouse (if present) are installed in the proper connectors. Reboot the system and verify if the problem still exists.** **3. If the problem persists, check for missing or faulty DIMMs and reseat the DIMMs to remove any oxidation on the connectors (see page 4-37).** **4. If the problem persists, verify CPU and CPU fan connection(s).** In a two-CPU system, if the problem persists, test each CPU by rebooting with only one CPU installed. Then test the installed CPU in the other socket. If the problem still persists, replace the CPU. **5. If the problem persists, you may need to replace the motherboard (see page 4-24).**

TABLE 5-2 E-820 error messages and conditions (Continued)

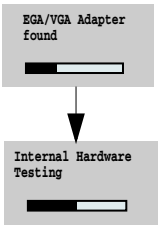
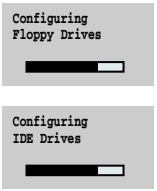
Symptom	Possible cause	Suggested action
Startup (con't)		
 System hangs at screen	Possibly one of the following: • Missing, incorrect, or faulty DIMMs • Faulty CPU • Faulty motherboard	**1. Check again all cables and connections.** **2. Check for missing or faulty DIMMs and reseat the DIMMs to remove any oxidation on the connectors (see page 4-37).** **3. If the problem persists, verify CPU and CPU fan connection(s).** In a two-CPU system, if the problem persists, test each CPU by rebooting with only one CPU installed. Then test the installed CPU in the other socket. If the problem still persists, replace the CPU (see page 4-39). **4. If the problem persists, you may need to replace the motherboard (see page 4-24).**
 System hangs at screen. Includes the following screens: • Testing Memory • Starting DMA • Initializing DMA Controller • Initializing Interrupt Controller	Master/slave mode setting conflict	**1. Check the mode setting (master or slave) jumper configuration for each IDE device. The devices should have the following configuration:** • HDD (ATA board primary channel)—master. Make sure the HDD cable is connected to the primary IDE connector on the ATA board (see page 4-17) • CD-ROM drive (Motherboard secondary channel)—master • ZIP drive (Motherboard secondary channel)—slave A label located on the device provides configuration information for setting the mode. If the device does not have a label you may need to contact your service support center for more information. Each device is configured correctly at the factory and should not be changed. **2. If the problem persists, replace the motherboard (see page 4-24).**
 System hangs at screen	Possibly one of the following: • Faulty CD-ROM drive • Faulty ATA board	**1. Check again all cables and connections.** **2. Check for a faulty CD-ROM drive. If the drive is faulty, replace it (see page 4-63).** If the LED is lit during startup and you are able to eject the CD-ROM drive tray, then the drive is functioning. **3. If the problem persists, replace the ATA board (see page 4-18).**

TABLE 5-2 E-820 error messages and conditions (Continued)

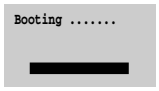
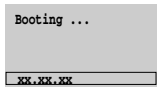
Symptom	Possible cause	Suggested action
Startup (con't)		
 System hangs at screen	Possibly one of the following: • Corrupt system software • Faulty ATA board • Faulty HDD	**1. Check again all cables and connections.** **2. If the problem persists, restore backup system software (see page 4-68).** Corrupt system software may cause the system to hang at this screen. **3. If the problem persists, replace the ATA board (see page 4-18).** If replacing the ATA board does not correct the problem, make sure you install the old board back in the E-820. **4. If the problem still persists, replace the HDD (see page 4-56).** If replacing the HDD does not correct the problem, make sure you install the old HDD back in the E-820.
 System hangs at screen	Possibly one of the following: • Media in ZIP or CD-ROM drive during startup • Corrupt system software • Missing or faulty DIMMs • Faulty ATA board • Faulty HDD • Faulty CPU(s) • Faulty motherboard	**1. Make sure that there is no media in the ZIP or the CD-ROM drive during startup and then reboot the system.** **2. Check again all cables and connections.** **3. If the problem persists, restore backup system software (see page 4-68).** Corrupt system software may cause the system to hang at this screen. **4. If the problem persists, check for missing or faulty DIMMs and reseat the DIMMs to remove any oxidation on the connectors (see page 4-37).** **5. If the problem persists, replace the ATA board (see page 4-18).** If replacing the ATA board does not correct the problem, install the old board back in the system. **6. If the problem still persists, replace the HDD (see page 4-56).** If replacing the HDD does not correct the problem, install the old HDD back in the system. **7. If the problem persists, verify CPU and CPU fan connection(s).** In a two-CPU system, if the problem persists, test each CPU by rebooting with only one CPU installed. Then test the installed CPU in the other socket. If the problem still persists, replace the CPU. **8. If the problem still persists, you may need to replace the motherboard (see page 4-24).** If replacing the motherboard does not correct the problem, make sure you install the old board back in the E-820.

TABLE 5-2 E-820 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Control Panel Messages		
Check power & cable appears on the Control Panel	Possibly one of the following: • The copier is not ready to print. • Problem with the connection between the E-820 and the copier.	**1. Make sure the copier is powered on and ready to print.** **2. Verify that the SP mode is set to "0" (see step 20 in Appendix B, "Controller Interface.")** **3. Check again that the copier interface cable is present and properly connected to the E-820 and the copier (see page 3-3).** **4. If the problem persists, power off/on the copier and the E-820, waiting 1 minute after the E-820 reaches** Idle **before you power on the copier.** **5. If the problem persists, replace the copier interface cable (see page 3-3).** **6. If the problem persists, replace the copier interface board (see page 4-19).** **7. If the problem persists, you may need to service the copier.**
Invalid license appears on the Control Panel briefly during startup, then a message displays that it is safe to shut down the system.	• Wrong system software was installed (i.e., system software designed for another product). • A new motherboard was installed but the system has not been updated or is not in Service Mode.	**System software: obtain and install correct system software (see page 4-70).** **Motherboard: enter Service Mode (see page 4-33) or update the system (see page 4-35).** **NOTE:** After installing a new motherboard, do not install system software before verifying and updating the system.
System hangs with Creating backup on the Control Panel.	Possibly one of the following: • Lost communication with HDD during startup after installing system software and selecting language. This could be caused by: –Faulty HDD cable –Faulty ATA board –Faulty HDD • AGP board (if this option is present) is not seated properly in its motherboard connector.	**1. Wait several more minutes to make sure the system is really hanging.** **2. If the problem persists, power the system off and then on again.** **3. If the problem persists, reinstall system software (see page 4-70).** **4. For systems with a monitor, if the monitor is black, reseat the AGP board and replace if necessary (see page 4-16).** **5. If the problem persists, replace the HDD cable (see page 4-9).** **6. If the problem persists, replace the ATA board (see page 4-18).** **7. If the problem persists, replace the HDD (see page 4-56).**
Wrong/Missing. . . dongle appears on the Control Panel	Possibly one of the following: • Either the wrong dongle or no dongle at all is installed on the E-820 parallel port during system update. • Motherboard parallel port is faulty.	**1. Install the correct dongle on the E-820 parallel port and repeat the system update procedure (see page 4-35).** **2. If the problem persists and you are sure you have the proper dongle, you may need to replace the motherboard (see page 4-24).**

TABLE 5-2 E-820 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Control Panel Messages (con't)		
Hardware mismatch. Shutdown in progress appears on the Control Panel	System has not been updated following new motherboard installation and the dongle is not connected to the parallel port.	1. To enter Service Mode before updating the system, allow the system to shutdown, connect the dongle to the parallel port, and reboot (see page 4-32). 2. Update the system after verifying functionality (see page 4-35).
Used Dongle appears on the Control Panel.	The dongle has already been used to update a system and cannot be reused.	Obtain an unused dongle and try again.
CD-ROM/ZIP drive		
CD-ROM or ZIP drive is not responding, cannot be located, or the busy LED on the drive remains lit.	Possibly one of the following: • A CD is stuck in the CD-ROM drive • Cable connections to the CD-ROM or ZIP drive are loose or cable is faulty • CD-ROM or ZIP drive is faulty • Motherboard is faulty	1. Insert a paper clip into the mechanical pin hole on the CD-ROM drive to force the drive tray to open. 2. If the problem persists, check the cable connections to the CD-ROM/ZIP drive (see page 4-9). 3. Check CD-ROM/ZIP cable connections to the motherboard. 4. Make sure the CD-ROM drive is jumpered to be a master; see the label on the CD-ROM drive for jumpering information. 5. Make sure the ZIP drive is jumpered to be a slave; see the label on the ZIP drive for jumpering information. 6. If the problem persists, you may need to replace the CD-ROM or ZIP drive (see page 4-60 through page 4-64). 7. If the problem persists, you may need to replace the motherboard (see page 4-24).
System performance		
System performs slowly and hangs periodically.	Possibly one of the following: • DIMMS are missing or faulty, or DIMM connections are faulty • AGP board (if this option is present) is not seated properly in its motherboard connector, or AGP board is faulty • System software is corrupted • CPU(s) is overheated or faulty • Motherboard is faulty	1. Reseat the AGP board (see page 4-16). 2. If the problem persists, you may need to replace the AGP board (see page 4-16). 3. Check for missing DIMMs and reseat the DIMMs to remove any oxidation on the connectors (see page 4-37). 4. Make sure CPU(s) is present and firmly seated in the motherboard and that the fan cable(s) is connected to the motherboard. In a two-CPU system, if the problem persists, test each CPU by rebooting with only one CPU installed. Then test the installed CPU in the other socket. If the problem persists, replace the CPU. 5. If the problem persists, restore backup system software (see page 4-68). 6. If the problem persists, you may need to replace the motherboard (see page 4-24).

TABLE 5-2 E-820 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Network		
Keep in mind the following if you suspect a network problem: • If the E-820 does not appear in the list of printers on the network, there may be another device on the network with the same Ethernet hardware address. • There may be conflicting network settings in Setup and on the customer's workstation • Printing problems may be caused by inappropriate Setup options • Application-specific printing errors may be caused by missing or incorrectly placed printer description files • System software may be corrupted Also see the *Configuration Guide* for additional information.		
Unable to connect to the network, or the green LED on the 10/100BaseT connector is not lit.	Possibly one of the following: • Network cable or connection is faulty • Network is faulty • System software is corrupted • Ethernet interface on the E-820 motherboard is faulty	**1. If the green LED on the 10/100BaseT connector is not lit on the E-820 back panel, check the cable connection to the back panel and the network. Make sure the cable is the correct type.** **2. If the network cable is the correct type and is properly connected to the back of the E-820, connect a new network cable to the back of the E-820.** **3. If the problem persists, have the network administrator check Network Setup.** **4. If the problem persists, make sure that the network administrator has checked other devices on the network.** If other devices are not functioning, there could be a problem with the network. **5. If the problem persists, restore backup system software (see page 4-68).** **6. If the rest of the network is functioning properly and the problem persists, replace the motherboard (see page 4-24).**

TABLE 5-2 E-820 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Network (con't)		
System starts up slowly then displays one or more DHCP error messages on the monitor.	Possibly one of the following: • Network cable or connection is faulty • Network is faulty • System searches for a nonexistent DHCP server because DHCP is enabled by default on the E-820, but the customer's network is not using DHCP. • Ethernet interface on the E-820 motherboard is faulty • System software is corrupted	**1. If the green LED on the 10/100BaseT connector is not lit on the E-820 back panel, check the cable connection to the back panel and the network. Make sure the cable is the correct type.** **2. If the network cable is the correct type and is properly connected to the back of the E-820, connect a new network cable to the back of the E-820.** **3. If the problem persists, have the network administrator change the default in E-820 Network Setup.** **4. If the problem persists, make sure that the network administrator has checked other devices on the network.** If other devices are not functioning, it could be a problem with the network. **5. If the problem persists, restore backup system software (see page 4-68).** **6. If the rest of the network is functioning properly and the problem persists, replace the motherboard (see page 4-24).**

TABLE 5-2 E-820 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Printing		
NOTE: Intermittent print quality and color quality problems are difficult to trace. Before you try to troubleshoot print quality problems, print a color test page to make sure that the copier itself does not need servicing or adjusting.		
Test Page fails to print.	The copier is not ready to print.	**Make sure the copier is powered on and ready to print.**
	There is a problem with the connection between the E-820 and the copier.	**1. Check again that the copier interface cable is present and properly connected to the E-820 and the copier (see page 3-3).** **2. If the problem persists, power off/on the copier and the E-820, waiting 1 minute after the E-820 reaches** Idle **before you power on the copier.** **3. If the problem persists, replace the copier interface cable (see page 3-3).** **4. If the problem persists, replace the copier interface board (see page 4-19).** **5. If the problem persists, you may need to service the copier.**
E-820 appears on the list of printers on the customer's workstation, but certain jobs do not print.	A PostScript error.	**Make sure** Print to PostScript Error **in Setup is set to** Yes**. Check for error messages on the E-820 output.**
	An application problem.	**1. Try printing a job from a different application to determine if the problem is associated with a particular application.** **2. Make sure the connection between the E-820 and the workstation is working by downloading a test page from the workstation, or by printing a simple file such as a text file.** **3. Resend the problem file.**
A print job stalls or stops after one or a few pages.	• A PostScript or application error • System software is corrupted	**1. Cancel the E-820 print job.** **2. If this fails to clear the problem, reboot the E-820.** **3. If the problem persists, select Clear Server from the Functions menu on the Control Panel.** **4. Set** Print Cover Page **to** Yes **and re-send the problem job; The Cover Page will indicate** PS Error. You can also double click the problem job in the Command WorkStation window to get more information on the postscript error. **5. If the problem persists, restore backup system software (see page 4-68).**
	Missing, incorrect, or faulty DIMMs or faulty DIMM connections.	**1. Power off the E-820; check for missing DIMMs and reseat the DIMMs to remove any oxidation on the connectors (see page 4-37).** **2. Verify memory amount on the Configuration Page.** **3. If the problem persists after replacing the DIMMs, you may need to replace the motherboard (see page 4-24).**

TABLE 5-2 E-820 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Printing (con't)		
Color quality is inconsistent.	A copier problem.	**Test the copier and service if necessary (see copier service documentation).**
	A file or application problem.	**1. Print a E-820 Test Page (see page 5-24).** **2. If the quality of the E-820 Test Page is good, the error condition may be caused by a file or an application problem.**
Print quality is poor.	A missing or outdated printer description file.	**1. Make sure the appropriate printer description file is installed. See the *Printing Guide* for a list of printer files.** **2. Calibrate the system.**
	The application cannot find the appropriate printer description file.	
	Out of calibration.	
Pages come out blank, or tinted with green or some other color.	A loose cable connection between the E-820 and the copier.	**1. Check again the copier interface cable and connection at the back of E-820 and the copier (see page 3-3).** **2. Reboot the E-820.** **3. If the problem persists, replace the copier interface board (see page 4-19).**

If the user can print the E-820 Test Page but cannot print a job from a computer on the network, make sure the network administrator has:

- Checked all components of the network, including cables, connectors, terminators, network adapter boards, and network drivers
- Activated the network and used it to communicate with other printers
- Checked the corrective actions listed in the *Printing Guide*
- Confirm that the applicable network settings in Setup (such as AppleTalk zone, IP address, Subnet mask, and Gateway address) match the settings used in the network

NOTE: EPS file generation is not completely standardized among applications. Some users may encounter problems while printing certain EPS files.

Printing the Test Page

Once you have connected the E-820 to the copier, you should print the Test Page to verify that the interface between the copier and the E-820 is working properly. The Test Page is a color file that resides on the HDD and is printed to the copier using the settings configured in Setup.

TO PRINT THE TEST PAGE

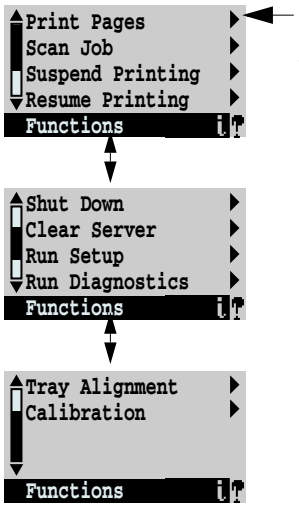
1. **Power on the copier and allow it to warm up.**

2. **Power on the E-820 from the power switch on the back panel.**

   Messages appear on the Control Panel as the E-820 runs through its startup diagnostics.

3. **Before proceeding, make sure that the copier is not in use. The Info screen should read Idle.**

4. **At the Idle screen, press the Menu button once. The Functions menu is shown below:**



5. **Press the line selection button to the right of Print Pages, and then select Test Page.**

   The E-820 sends the Test Page to the copier and displays the RIP and Print status screens so you can monitor the job.

6. **Examine the quality of the Test Pages from the copier.**

   If the Test Page prints, you know that the E-820 print engine is functional and that the connection between the E-820 and the copier is good. If the Test Page does not print, refer to the suggested actions for this problem in Table 5 -2 on page 5-14.

   When you examine the Test Page, keep in mind that:

- All color patches should be visible, even though they may be very faint in the 5% and 2% range.
- Each color's patch set should show uniform gradation from patch to patch as the color lightens from 100% to 0%.

Poor image quality may indicate a need to calibrate the system or service the copier. Information on the Test Page includes the date and time of the last calibration. Keep the Test Page for future reference. For more information, see the *Color Guide*.

Appendix A: Specifications

This appendix provides an overview of E-820 features.

Hardware features

- Single Pentium III CPU—866GHz
- Memory—512MB (4 x 128MB)
- An RJ-45 connector for 100Mbps connectivity over twisted pair cable
- Optional AGP video board connectivity
- Optional PCI Token Ring board connectivity
- 40GB hard disk drive standard
- Built-in ZIP drive and CD-ROM drive

Networking and connectivity

- Supports AppleTalk, TCP/IP, and IPX protocols simultaneously
- Supports EtherTalk Phase 2
- RJ-45 connector that supports 10/100BaseT twisted pair network connectivity
- Supports Token Ring

User software

A complete description of user software is provided in *User Software Installation Guide*. For optimal performance, current versions of the user software should be maintained on every network computer that might print to the E-820.

Safety and emissions compliance

The E-820 has been certified to meet or surpass the following government standards:

Safety approvals:

- UL 1950
- CSA 22.2 #950
- EN 60950 (TUV/GS mark)
- CB scheme IEC 950

EMI approvals:

-
- FCC Class B
- VCCI Class B
- EN55022 Class B
- AS/NZS 3548 Class B
- CNS 13438 Class B

Output voltage

The following illustration provides the output voltages for all the interface connectors on the back panel of the E-820.

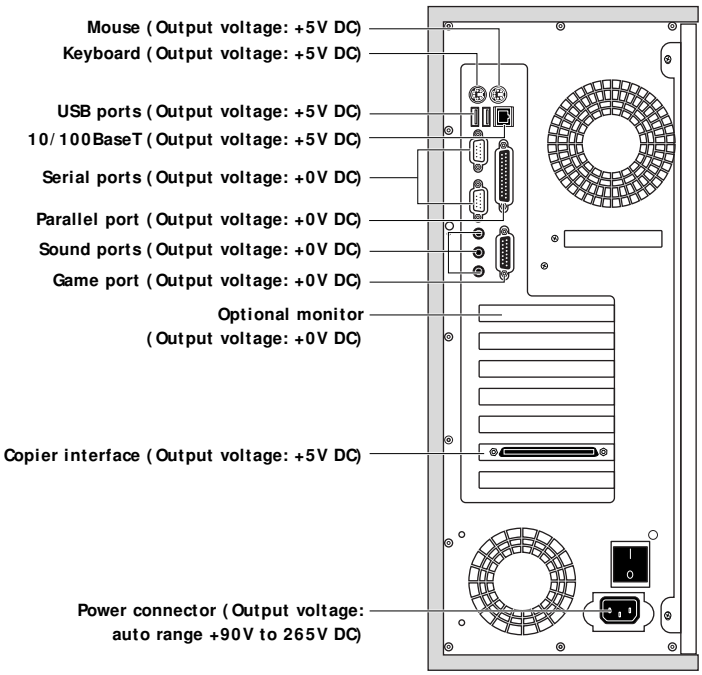


FIGURE A-1 E-820 back panel output voltage

Appendix B: Controller Interface

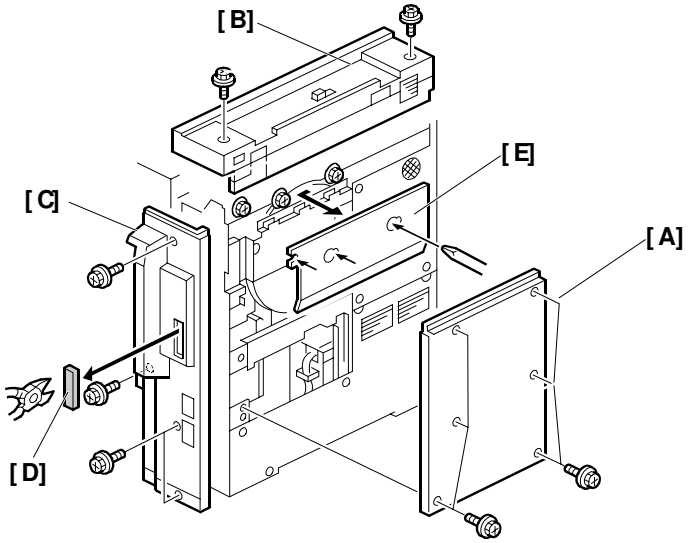
This appendix provides the *Controller Interface Installation Procedure*. The Controller Interface must be installed in the copier before you can connect the E-820 to the copier.

Controller Interface Installation Procedure

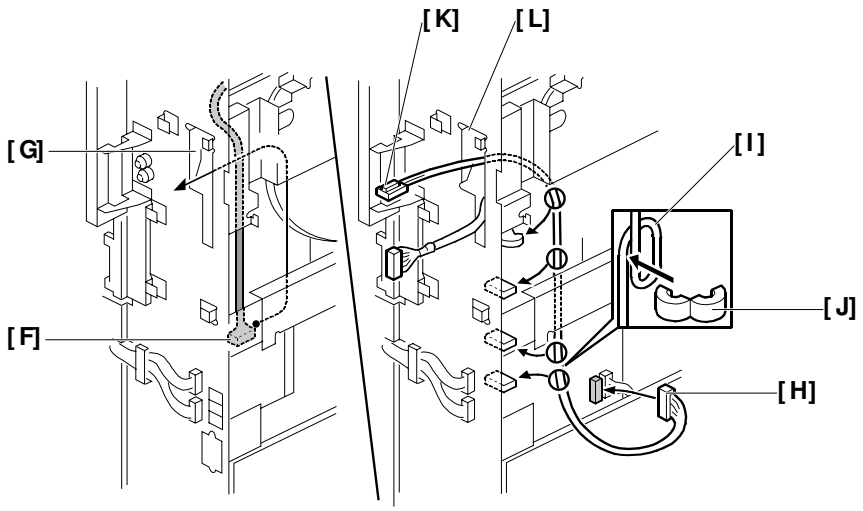
The Controller Interface provides the electrical interface between the copier and the E-820. Use the following procedures to prepare the copier for the Controller Interface, and then install the Controller Interface.

TO INSTALL THE CONTROLLER INTERFACE

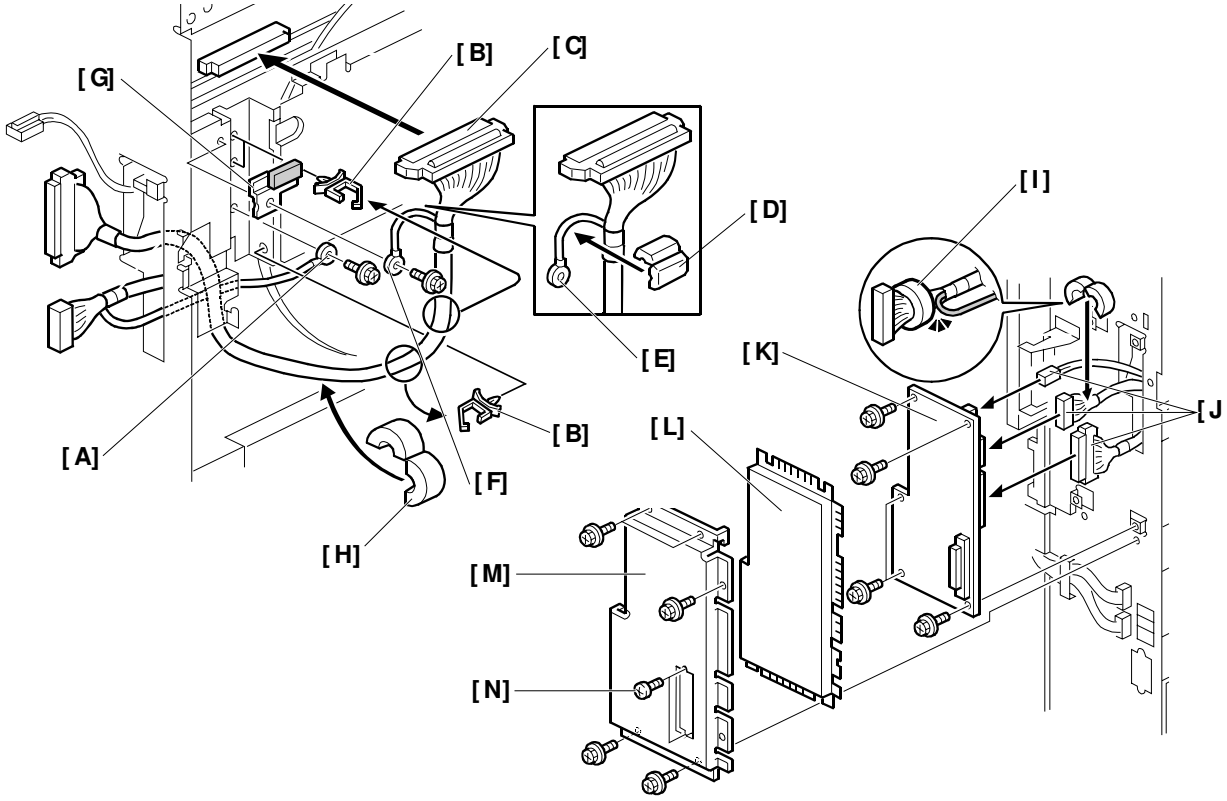
Unplug the copier power cord before starting the following procedure.



1. **Shut down the copier.**
2. **Remove the four covers:**
   - Rear right cover [A] (6 screws)
   - Rear upper cover [B] (2 screws)
   - Rear left cover [C] (4 screws)
   - LD control board cover plate [E] (3 screws)
3. **Remove the cut-out cover [D] from the rear left cover using pliers.**



4. Remove the harness [F] from the harness clamp and route the harness through the cutout [G] as shown.
5. Connect the I/O interface harness [H] to the I/O control board.
6. Loop the I/O interface harness [I] and clamp it with a ferrite core [J].
7. Route the I/O interface harness [K] through the cutout [L] (4 clamps) as shown.



8. Attach the ground wire [A] with 1 ground screw
9. Attach 3 clamps [B] as shown.
10. Connect the interface harness [C] to the video control board and route the harness as shown (3 clamps).
11. Attach the ferrite core [D] to the grounding wire [E].
12. Attach the grounding wire [F] together with the upper grounding bracket [G] (1 screw).
13. Attach the ferrite core [H] to the interface harness.
14. Attach the ferrite core [I] to the harness as shown.
15. Connect the three harnesses [J] to the interface board [K].
16. Attach the interface board [K] (5 M3x6 screws).

17. Put the shield plate [L] back on the interface bracket [M].
18. Secure the printer controller connector with two small screws [N] (M2.6x6 screws), and then secure the interface board bracket [M] (5 screws, M3x6).
19. Attach the covers removed in step 2 above.
20. Power on the copier, access the SP mode 6-910-000 ("Printer/Scanner key setting"), and make sure the setting is "0." If the setting is "1", change it to "0."

Appendix C

USING THE E-810 TO E-820 UPGRADE KIT

Part number: 45029081

Introduction

This document describes how to upgrade the Print Server from a Color Controller E-810 to a Color Controller E-820. The process requires you to upgrade the Print Server BIOS using the Fiery BIOS Upgrade CD and install new system software on the Print Server HDD.

NOTE: Any options that may have been installed on the Print Server will remain installed after performing the upgrade.

Along with this document, this kit includes:

- BIOS Upgrade CD
- Media Pack:
  - Includes system software for installation on the Print Server after running the BIOS Upgrade CD.
  - Includes user software and user documentation for client workstations. After you upgrade the Print Server, the network administrator should install the user software onto networked PC and Mac OS computers that will print to the Print Server.
- Jewel
- Upgrade label

In order to use this kit, you need to:

- Upgrade the BIOS using the BIOS Upgrade CD
- Install new system software
- Replace the front panel jewel with the new jewel
- Place the upgrade label on the Print Server back panel

Procedures

TO UPGRADE THE BIOS

NOTE: Any options that may have been installed on the Print Server will remain installed after performing this upgrade.

1. **Insert the BIOS Upgrade CD into the CD-ROM drive.**

   To access the CD-ROM drive, make sure the Print Server is powered on.

   If the Print Server is powered off, power on the Print Server using the power switch on the back panel. Within 10 seconds, insert the CD into the CD-ROM drive, and then skip to step 4.

2. **Make sure the Print Server Info screen reads Idle.**

   When Printing or Ripping appears on the Control Panel, the Print Server is currently processing a job. Idle appears in the Info screen when the Print Server is finished processing the job.

3. **Shut down the Print Server, wait 10 seconds, and then power on.**

   To shut down, press the Menu button once (the middle button between the up and down buttons) to access the Functions menu. Select Shut Down, and then select Shut Down System. At the message "It is now safe to power off the system," power off using the power switch on the back panel.

4. **Allow the Print Server to boot up and display the BIOS Upgrade CD screen.**

   At the message "Upgrade Bios to version 2.44?" make sure YES is highlighted, and then select OK using the fourth line selection button on the Control Panel.

5. **Allow approximately 30 seconds for the upgrade to complete.**

   The message "Updating Bios...! Do NOT power off!" appears.

   WARNING! Do not power off the Print Server during this time. Doing so can permanently damage the Print Server.

6. **At the message "Remove CD and recycle power," remove the CD, power off the Print Server, wait 10 seconds, and then power on.**

   You are now ready to install new system software.

TO INSTALL SYSTEM SOFTWARE

NOTE: If a monitor is connected to the Print Server while you are installing system software, ignore the blue-screen warnings about possible drive corruption that appear on the monitor. These warning screens are a standard part of the operating system and appear as the system verifies that all files have been properly installed.

1. **If you have not done so already, first give the network administrator the opportunity to print the Job Log and to save any custom simulations. Also, print the following from the Functions menu (if possible):**

   - Configuration page—records the customer's current Setup configuration. The Setup configuration will be reset to the default configuration when system software is installed.
   - Font List—lists the fonts currently on the HDD. These include the original fonts that came installed on the Print Server plus any additional fonts that the customer may have installed. All fonts are deleted when you install system software. The network administrator can use Fiery Downloader to reinstall customer-supplied fonts after system software reinstalls the original fonts. To determine which customer-supplied fonts need to be reinstalled, print the Font List before you install system software and again after you install system software. Any fonts *not listed* after installation need to be reinstalled.

2. **Insert the appropriate language CD 1 in the CD-ROM drive.**

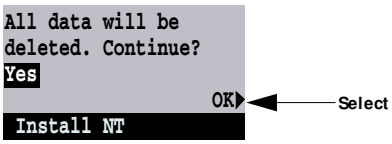
   NOTE: If you installed a new HDD, you need to power on the system using the power switch on the back panel, insert CD 1, and allow the system to boot from the CD, and then proceed to step 5 on page 3.

3. **Select Shut Down from the Functions menu (see page 3).**

4. **At the next screen, select Reboot System.**

   Allow the system to shut down and reboot. Do not push any buttons during this time and ignore the message `It is now safe to power off the system....` that appears on the Control Panel while the system reboots.

5. **When the following screen appears, make sure "Yes" is displayed and then select OK. The installation process begins immediately.**



   Wait while the Control Panel displays screens indicating that the software is being installed.

6. **At the message "To complete installation, insert CD 2 and recycle power," remove CD 1 and insert CD 2. Then, using the power switch on the back panel, power off the system, wait 10 seconds, then power the system back on.**

   After you power the system back on, allow the Print Server to proceed without interruption. Do not press any buttons on the Control Panel.

7. **At the message "Remove CD and recycle power," remove CD 2. Then, using the power switch on the back panel, power off the system, wait 10 seconds, then power the system back on.**

8. **Configure Setup using the Configuration page you printed earlier.**

   At the `Idle` screen, press the Menu button once to access the Functions menu. Scroll down and then select `Run Setup`. Bypass any settings that are not included on the Configuration page if it is more appropriate for the network administrator to set them. For more information, see the *Configuration Guide*.

9. **Reinstall fonts, user software, or custom simulations that may have been deleted when you installed system software.**

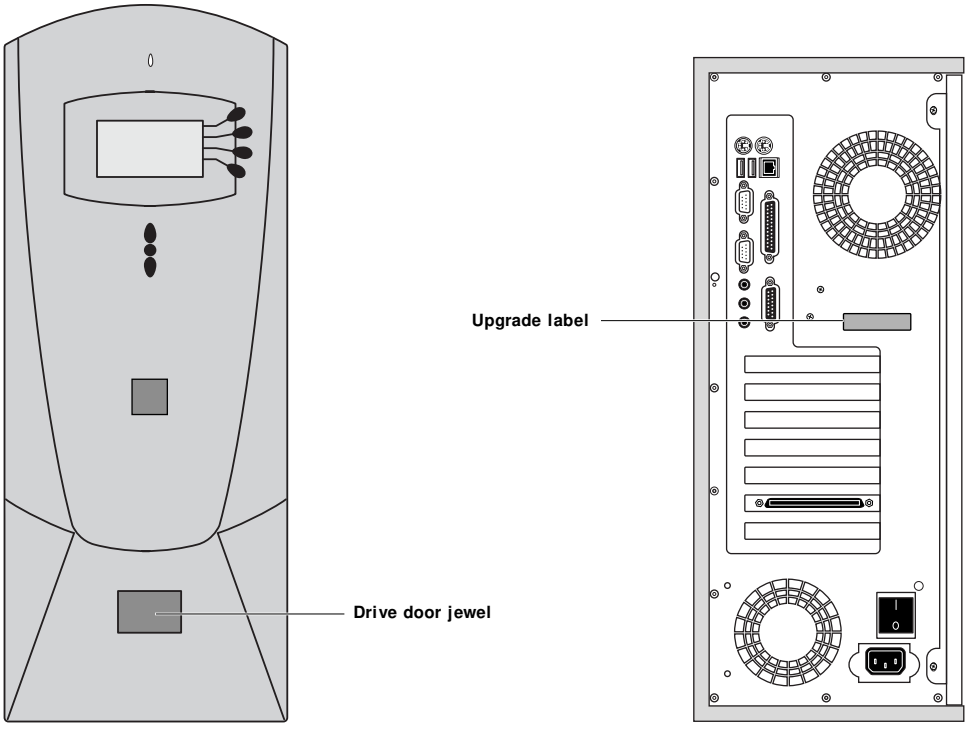
10. **Remind the network administrator to install the user software shipped with this kit (user documentation is also included) onto networked PC and Mac OS computers that will print to the upgraded Print Server.**

You are now ready to replace the jewel and place the label on the back panel.

TO REPLACE THE JEWEL AND PLACE THE UPGRADE LABEL

1. **Open the drive door.**
2. **Squeeze the tabs on the back side of the jewel while pushing it out of its slot.**
3. **Insert the new jewel into the empty slot.**

   Push the jewel into the slot from the front until it snaps into place.
4. **Place the upgrade label on the back panel below the top fan vent.**



Appendix D

USING THE FIERY DIAGNOSTIC SOFTWARE TOOL

A guide for certified service technicians

Part Number: 45026458

Introduction

This document describes how to use the Fiery Software Diagnostic Tool CD provided in this kit to identify potential problems with the Print Server.

The diagnostic CD allows you to test the Print Server motherboard, memory, CPUs, AGP board, network connection, and the HDD. You can select a full set of tests (Full), which takes approximately 24 hours, or a quick set of tests (Quick) that takes approximately 3 minutes. In addition, you can select groups of tests (System, Video, Misc, and various HDD tests). Note that the Quick Test is a subset of the Full Test. The set of tests for each of the diagnostic options is described in Table A on page 6.

The CD runs from the Print Server CD-ROM drive. You use the Print Server Control Panel to run tests and check status. For information on the Control Panel and how to use the line selection buttons, refer to the *Installation and Service Guide*. If the Print Server is unable to access the diagnostic CD, refer to the Troubleshooting chapter in the *Installation and Service Guide*.

NOTE: The DIMMs in motherboard bank 0 must function properly in order for the diagnostic CD to run.

To identify a problem using the diagnostic CD, it is best to run the Quick Test first. If all tests pass, refer to the Troubleshooting chapter of the *Installation and Service Guide* to help you narrow down a particular area of the Print Server to troubleshoot. You can then run the appropriate set of diagnostics from the diagnostic CD. If the problem persists, run the Full Test.

TO RUN THE DIAGNOSTIC CD

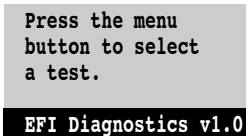
1. **If the Print Server is already on, ensure that it is not receiving, processing, or printing a document. If the Print Server is not on, power it on using the power switch at the back.**

   When Printing or Ripping appears on the Print Server Control Panel, the Print Server is currently processing a print job. Wait until the job is complete and Idle appears in the Info screen.

2. **Insert the diagnostic CD into the CD-ROM drive.**

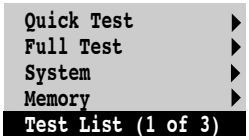
3. **Press the menu button once, select Shut Down from the Functions menu, and then select Reboot System.**

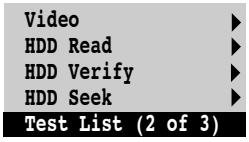
   Once the system reboots, the following screen is displayed:



4. **Press the menu button on the Control Panel to view the test list.**

   The following screens are displayed:





NOTE: See Table A on page 6 for more details on each test.

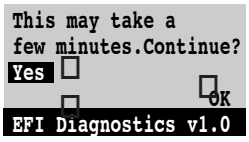
5. **Press the line selection button next to the test you would like to run. If you decide you do not want to run any tests, select Exit to leave the test screen.**

   The following table lists each of the test groups and how long it takes to run the test(s).

   NOTE: Different system configurations (for example, systems with dual CPUs or higher memory capacities) may cause the tests to take longer to run. Ranges are indicated in the table below to accommodate those instances.

Test Group	Length of Test (approximately)
Quick Test	2.5 minutes
Full Test	18.5–31 hours
System	1–32 minutes
Memory	1.5–3.5 hours
Video	2 minutes
HDD Read*	11–15.5 hours
HDD Verify*	4.5–5.5 hours
HDD Seek*	2–3.5 hours
Misc	2.5 minutes
* The HDD Read and HDD Verify tests perform sequential and random read operations on part of the HDD. The HDD Seek test determines the head movement ability of the HDD over the cylinder and head range.	

6. **At the following screen, highlight Yes and then press the line selection button next to OK.**



   After selecting Yes, the message "Do Not power off! This may take a few minutes/hours to test" is displayed on the screen.

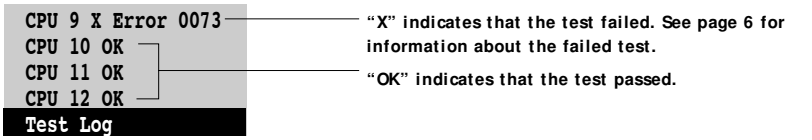
   NOTE: Powering off the system before the tests are complete may cause unpredictable results.

   Depending on what tests you selected, it could be a few minutes or many hours before the tests are done.

7. **At the screen, "Tests Completed. Press menu to continue," press the menu button on the Control Panel.**

   The test results are displayed in the following screens.

8. **Press the up/down buttons on the Control Panel to scroll through the Test Log.**

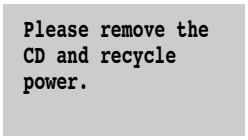


   For all the tests that pass, OK is indicated next to the test. Press the menu button to exit the Test Log screen and return to the Test List. You can select additional tests or select Exit to leave the Test List screen.

   For any of the tests that fail, an X is indicated next to the test with an error code. See the table on page 6 for more information.

9. **At the Test List menu, select Exit.**

   The following screen is displayed.



10. **Remove the CD from the CD-ROM drive and power off the Print Server using the power switch at the back panel.**

    The test results are saved to a log file that resides on the HDD once you power off the Print Server. It can be printed from the Command WorkStation. For information on how to print the test log file, see page 11.

Diagnostic tests and error codes

Table A on page 6 lists all the tests available from the diagnostic CD, the name of the test as it is displayed on the Control Panel LCD, a short description of the test, and the suggested corrective action for each error code. Selecting Full will run all the tests in Table A on page 6. Selecting Quick will run only those tests marked with an asterisk (*). The following diagnostic sets can be run separately: System, Memory, IDE, Video, and Misc.

Error codes are displayed in hexadecimal. The table below provides the conversion from decimal to hexadecimal (0–15) to help you locate the error code range displayed on the Control Panel. For example, if 00D0 is displayed, see the range 00C3–00DF in Table A, since D0 is more than C3 and less than DF.

Hexadecimal	Decimal
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10
B	11
C	12
D	13
E	14
F	15

TABLE A Diagnostic tests

Diagnostic Set	LCD Test Name	Description	Associated error code range (in hexadecimal) and suggested actions
System	CPU1	Basic functionality*	**0001-001E** • Make sure the CPU(s) is installed properly. • Run the System diagnostics again. • If the error persists, replace the CPU(s). **0030-0040** • Run the System diagnostics again. • If the error persists, it could be a problem with the motherboard BIOS. Replace the motherboard. **0041** • Refer to the Troubleshooting chapter of the *Installation and Service Guide*. Make sure all boards are in the proper slots and are seated properly in their connectors. **0050-0063** • Run the System diagnostics again. • If the error persists, it could be a problem with the motherboard BIOS. Replace the motherboard. **0070-0076** • Replace the motherboard battery. • Run the System diagnostics again. • If the error persists, replace the motherboard. **0077** • Run the System diagnostics again. • If the error persists, replace the motherboard. **0078-0079** • Replace the motherboard battery. • Run the System diagnostics again. • If the error persists, replace the motherboard. **0081-0088, 0094, and 009D** • Run the System diagnostics again. • If the error persists, replace the motherboard.
	CPU2	Processor Speed*	
	CPU3	CPU Protected Mode*	
	CPU4	Coprocessor*	
	CPU5	DMA Controller*	
	CPU6	Interrupt Controller*	
	CPU7	Timer*	
	CPU8	Real time Clock*	
	CPU9	CMOS Validity *	
	CPU10	PCI System*	
	CPU11	Plug-n-Play*	
	CPU12	MP CPU	
	CPU13	MMX*	
	CPU14	Streaming SIMD*	
	CPU15	DMI*	

* Indicates the tests run when Quick Test is selected from the Test List menu.

TABLE A Diagnostic tests (Continued)

Diagnostic Set	LCD Test Name	Description	Associated error code range (in hexadecimal) and suggested actions
System (continued)	(See page 6 for LCD test names and descriptions.)		**00A1-00A4 and 00A7, 00B1, and 00B2** • Run the System diagnostics again. • If the error persists, replace the motherboard. **00C3-00DF** • Make sure the CPU(s) is installed properly. • Run the System diagnostics again. • If the error persists, replace the CPU(s). **0E00-0E20** • Run the System diagnostics again. • If the error persists, replace the motherboard. **1001-100C, 1010-1017, and 1030-1031** • Make sure the CPU(s) is installed properly. • Run the System diagnostics again. • If the error persists, replace the CPU(s). **1100-1110 and 1301-1316** • Run the System diagnostics again. • If the error persists, replace the motherboard. **1701-1705** • Run the System diagnostics again. • If the error persists, replace the motherboard. **20F0-20F4** • Run the System diagnostics again. • If the error persists, replace the motherboard. **8000** • Contact your authorized service/support center.

* Indicates the tests run when Quick Test is selected from the Test List menu.

TABLE A Diagnostic tests (Continued)

Diagnostic Set	LCD Test Name	Description	Associated error code range (in hexadecimal) and suggested actions
Memory	MEM1	BIOS ROM*	**009F and 00FF** • Power on the system using the power switch on the back panel. • Run the Memory Diagnostics again. • If the error persists, replace the DIMMs on the motherboard. **0120-0182, 0190, and 01A0** • Replace the DIMMs on the motherboard. **0184** • Run the Memory diagnostics again. • If the error persists, replace the motherboard. **01A1-01A4** • Make sure the CPU(s) is installed properly. • Run the Memory diagnostics again. • If the error persists, replace the CPU(s). **01B0-01B2 and 01B4-01C0** • Replace the DIMMs on the motherboard. **01B3** • Run the Memory diagnostics again. • If the error persists, replace the motherboard. **1081-1083** • Power on the system using the power switch on the back panel. • Run the Memory Diagnostics again. • If the error persists, replace the DIMMs on the motherboard.
	MEM2	Parity	
	MEM3	Pattern	
	MEM4	Extended Pattern	
	MEM5	Walking 1's	
	MEM6	Walking 0's	
	MEM7	Random Memory*	
	MEM8	Address*	
	MEM9	Refresh*	
	MEM10	Data Bus*	
	MEM11	Cache Memory	
	MEM12	Quick Memory*	
	MEM13	L2 Cache	

* Indicates the tests run when Quick Test is selected from the Test List menu.

TABLE A Diagnostic tests (Continued)

Diagnostic Set	LCD Test Name	Description	Associated error code range (in hexadecimal) and suggested actions
IDE	IDE1	IDE HDD Read	**0201-0204** • Replace the HDD. **O205** • Replace the ATA board. **0207-0211** • Replace the HDD. **0220 and 0240** • Replace the ATA board. **O250** • Refer to the Troubleshooting chapter of the *Installation and Service Guide*. • If the error persists, contact your authorized service/ support center. **0254-02EE** • Replace the HDD. **02F1-02F5** • Reinstall system software. • Run the IDE diagnostics again. • If the error persists, replace the HDD. **02FF** • Replace the HDD.
	IDE2	IDE HDD Verify	
	IDE3	IDE HDD Seek	
	IDE4	IDE HDD Quick*	
	IDE5	IDE HDD Performance*	
	IDE6	IDE HDD Boot Sector*	
Video	VIDEO1	VGA Controller*	**0900-0920** • Reseat the AGP board. • Run the Video diagnostics again. • If the error persists, replace the AGP board. **NOTE:** If the system does not include an AGP board, an error may be reported to the Control Panel. **2100-2130** • Run the Video diagnostics again. • If the error persists, replace the AGP board. **2150 and 2151** • The monitor is not connected to the Print Server. • If a monitor is required, try replacing the monitor.
	VIDEO2	Video Memory*	
	VIDEO3	VESA Video Memory*	
	VIDEO4	Attribute	
	VIDEO5	Page Selection	
	VIDEO6	Color	
	VIDEO7	Text Mode	
	VIDEO8	Graphics Mode	
	VIDEO9	VESA Video Modes	
	VIDEO10	VESA Monitor	
	VIDEO11	LCD Panel	

* Indicates the tests run when Quick Test is selected from the Test List menu.

TABLE A Diagnostic tests (Continued)

Diagnostic Set	LCD Test Name	Description	Associated error code range (in hexadecimal) and suggested actions
Misc	MISC1	Serial Hardware*	**0400** • The keyboard is not connected to the Print Server. **0401** • If the FACI option is present, check keyboard connections to the back of the Print Server. • Run the Misc diagnostics again. • If the error persists, replace the motherboard. **0601-0612 and 0701-0709** • Run the Misc diagnostics again. • If the error persists, replace the motherboard. **1400-1404 and 1600-1651** • Check that the network link activity LED on the RJ-45 connector at the back of the Print Server is blinking. If it is not blinking, refer to the Troubleshooting chapter of the *Installation and Service Guide*. • Make sure the network cable is properly connected to the Print Server and to the hub. • Run the Misc diagnostics again. • If the error persists, replace the motherboard. **1B01** • The mouse is not connected to the Print Server. • If a mouse is required, try replacing the mouse. **1B02** • If the FACI option is present, check the mouse connection to the back of the Print Server. • Run the Misc diagnostics again. • If the error persists, replace the motherboard.
	MISC2	Internal Loopback*	
	MISC3	Parallel Hardware	
	MISC4	Printer	
	MISC5	PS/2 Mouse	
	MISC6	APM Functionality	
	MISC7	Device APM	
	MISC8	i8255x CSR Access	
	MISC9	i8255x Walking Bits	
	MISC10	i8255x Self*	
	MISC11	i8255x IRQ*	
	MISC12	i8255x MAC Address*	

* Indicates the tests run when Quick Test is selected from the Test List menu.

Printing the test log

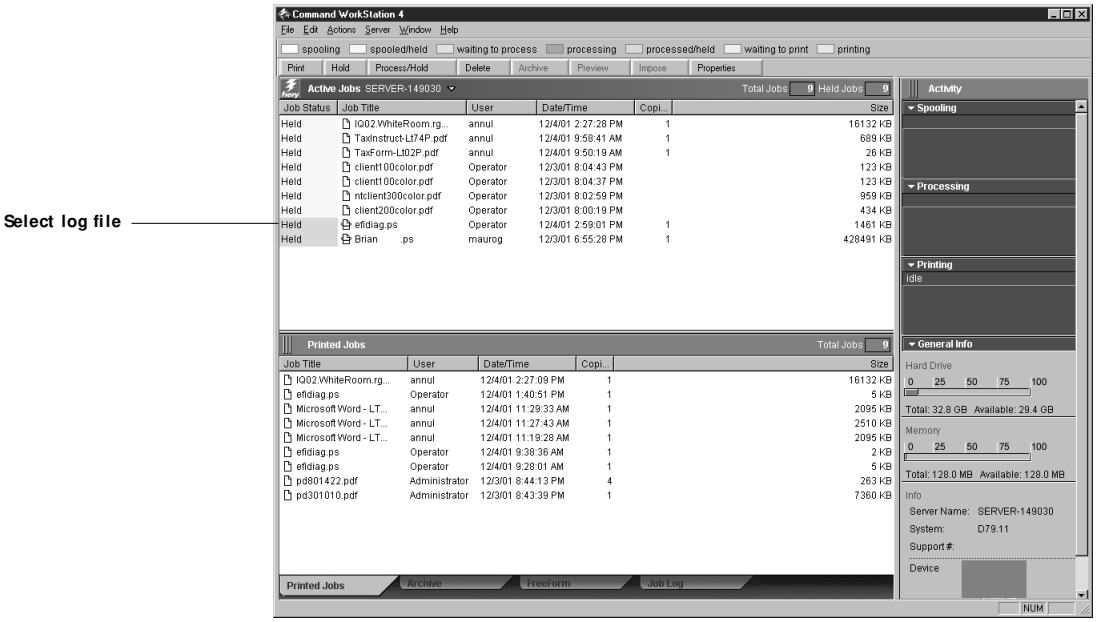
The test results are saved to a test log file (efidiag.ps) on the Print Server HDD. It can be printed from the Command WorkStation Active Jobs window (Spool area for earlier versions of Command WorkStation). Once you run any of the diagnostics tests again, the log will be deleted and replaced with the most recent diagnostic results. See the procedure below for how to print the test log.

TO PRINT THE TEST LOG

1. **On a system running Command WorkStation (at the server or over the network), log in to the server as an Operator or Administrator.**

   You must be logged in as an Operator or Administrator (not User) in order to print the log file (see the *Job Management Guide* for more information).

2. **In the Active Jobs window, select efidiag.ps.**



NOTE: If you are using an earlier version of Command WorkStation, the test log is located in the Spool area.

3. **Select Print from the Actions menu to print the test log to the connected print device.**

NOTE: For earlier versions of Command WorkStation, select Print from the Job menu.

Index

D

E

F

H

I

J

L

M

N

O

P

R

S