COLOR CONTROLLER E-810
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: 45023282

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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.

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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.

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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

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Compliance with applicable regulations depends on the use of shielded cables. It is the user who is responsible for procuring the appropriate cables.

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Electronics For Imaging
303 Velocity Way
Foster City, CA 94404

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Preface

The *Installation and Service Guide* is intended for certified Color Controller E-810 and copier service technicians installing or servicing the Color Controller E-810. If you have not received installation and service certification, you should not attempt to install or service the Color Controller E-810. Electronics For Imaging does not warrant the performance if installed or serviced by non-certified personnel.

NOTE: The term "E-810" is used in this manual to refer to the Color Controller E-810.

About this guide

This guide is divided into the following topics:

- "Preface"

  General information about this guide and about installing the E-810

- Chapter 1, "Introduction"

  General information about the E-810

- Chapter 2, "Preparing for Installation"

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

- Chapter 3, "Connecting the E-810"

  How to connect the E-810 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-810 components

- Chapter 5, "Troubleshooting"

  Common problems and ways of correcting them; startup error codes

NOTE: E-810 customers should not use the technical service documentation. Please 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-810 at the time of publication. Components shown in these illustrations are subject to change. To receive information about any E-810 components that do not match the illustrations in this guide, contact your authorized service/support center.

Terminology and conventions

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-810, 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-810 hard disk drive.

Client utilities can be installed onto the E-810 from the User Software CD if the Fiery Advanced Controller Interface option is installed. Do not install any other applications onto the E-810. 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-810 manuals, such as the *Configuration Guide,* are displayed in italics.

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-810:

1. **Report any shipping damage.**

   If there is any evidence of shipping or handling damage to the E-810 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-810 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-810 Network Setup.**

   Only the network administrator should assign an IP address to a network device. Assigning the E-810 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-810.**

5. **Handle the E-810 Control Panel display window with care.**

   The E-810 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 E-810 display window.**

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

8. **Use care when handling parts of the E-810 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 of the E-810.**

   Static is always a concern when servicing electronic devices. It is highly unlikely that the area around the copier and the E-810 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-810 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 E-810 side panel and before you handle internal components, touch a metal part of the E-810.
   - 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-810 or the copier.**

Tools you will need

To install or service the E-810, you should bring the following tools and parts:

- ESD wrist grounding strap and antistatic mat
- Wire cutters
- #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-810.

Chapter 1: Introduction

The E-810 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-810, 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-810-supported devices.
- Spool print jobs and select a printing priority for each job. Users can control spooled print jobs sent to the E-810 with remote user software running on networked PC and Mac OS computers.
- Print files in color and grayscale.
- 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.

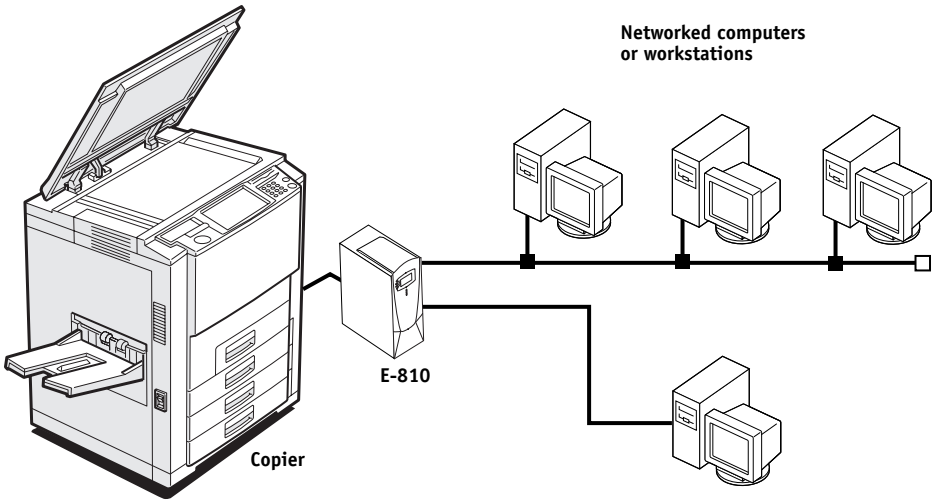


FIGURE 1-1 E-810 printing system

The E-810 is one of several imaging products engineered and manufactured by Electronics For Imaging.

How the E-810 operates

The E-810 enables the customer to use a copier as a printer and scanner. Users can print to the E-810 from networked PCs running Microsoft Windows, from networked Mac OS computers, and from networked UNIX workstations running TCP/IP.

The E-810 custom-designed boards and system software are responsible for efficient image processing and printing controls. The main functions of E-810 components and software are described below.

The E-810 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 E-810 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-810 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-810 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.

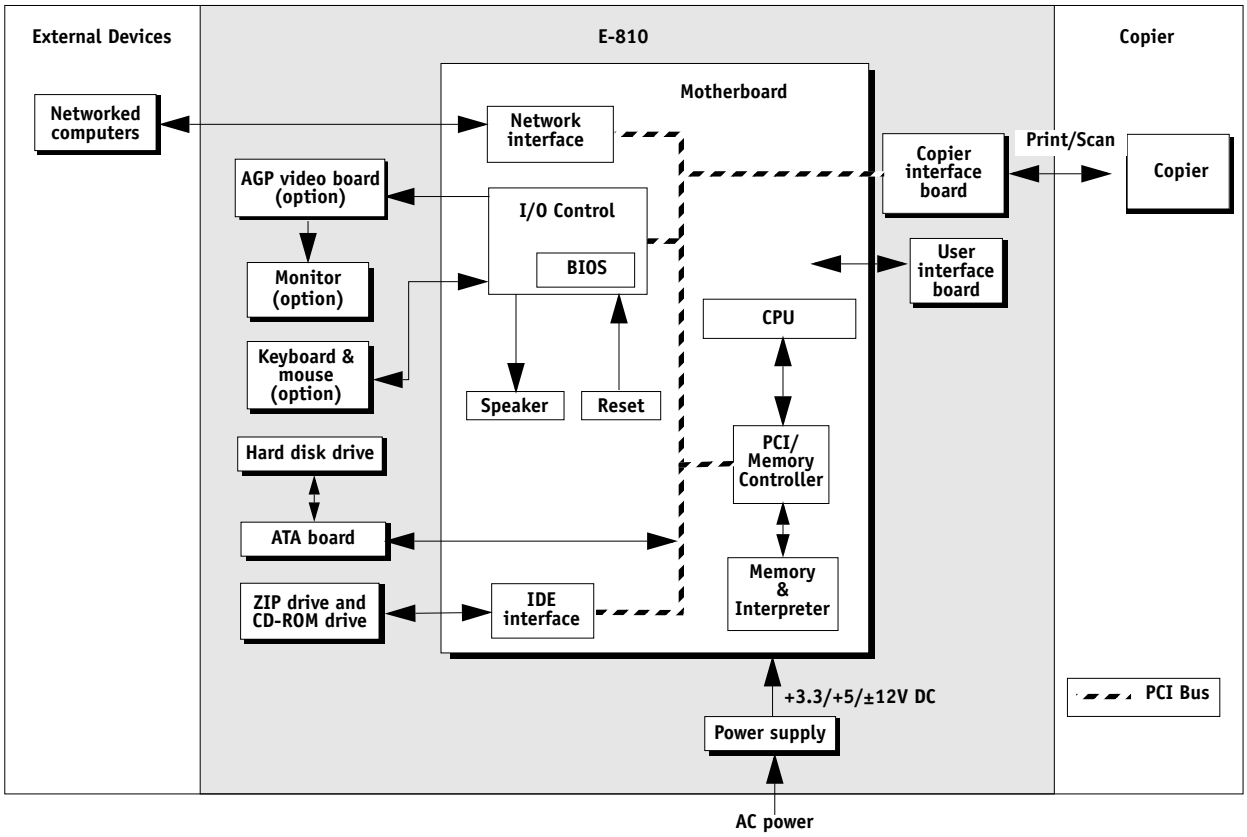


FIGURE 1-2 E-810 functional diagram

Print options

The E-810's efficient capabilities allow users to use a variety of applications to create and print pages of text and/or images.

Printing over a network allows E-810 users to print documents directly from applications in which they were created. In addition, the E-810 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-810 using Fiery Downloader™, one of the remote utilities for use with the E-810.

User software

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

Adobe PS Printer Driver	Enables users to print to the E-810 from Windows 95/98/Me, Windows NT 4.0, and Mac OS computers; also supports special E-810 and PostScript 3 features. Windows 2000 users should use the Microsoft PostScript Printer Driver provided with Windows 2000.
PostScript Printer Description files (PPDs)	Files for use with the PostScript printer driver that allow the E-810 to appear in popular applications' Print and Page Setup dialog boxes. The E-810 PPD provides information about the E-810 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-810 (126 Adobe Type 1 and 10 TrueType).
Fiery Downloader™	Enables the user to print PostScript, EPS, and PDF files directly to the E-810 without opening the application in which they were created. Fiery Downloader also enables the user to manage the printer fonts installed on the E-810.
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-810 functions from Windows 95/98/Me, Windows 2000, and Windows NT 4.0 workstations. Command WorkStation supports dongle-protected DocBuilder™ Pro (requires Adobe Acrobat 4.05, provided on a separate CD). For more information on the 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-810. 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.
Fiery Link™	Enables the customer to monitor the status of connected E-810 servers.
Calibration files	Includes measurement files and targets that you can use with ColorWise Pro Tools.

Fiery WebTools

The E-810 can support Internet or intranet access with Fiery WebTools™ , which include Status, WebSpooler™ , WebDownloader™ , Installer, WebScan, WebLink, and WebSetup. For more information on 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-810
- E-810 front and back overview

Installation sequence

Familiarize yourself with Chapters 2 and 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-810 to the copier.

Because the E-810 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.

2 Preparing for Installation

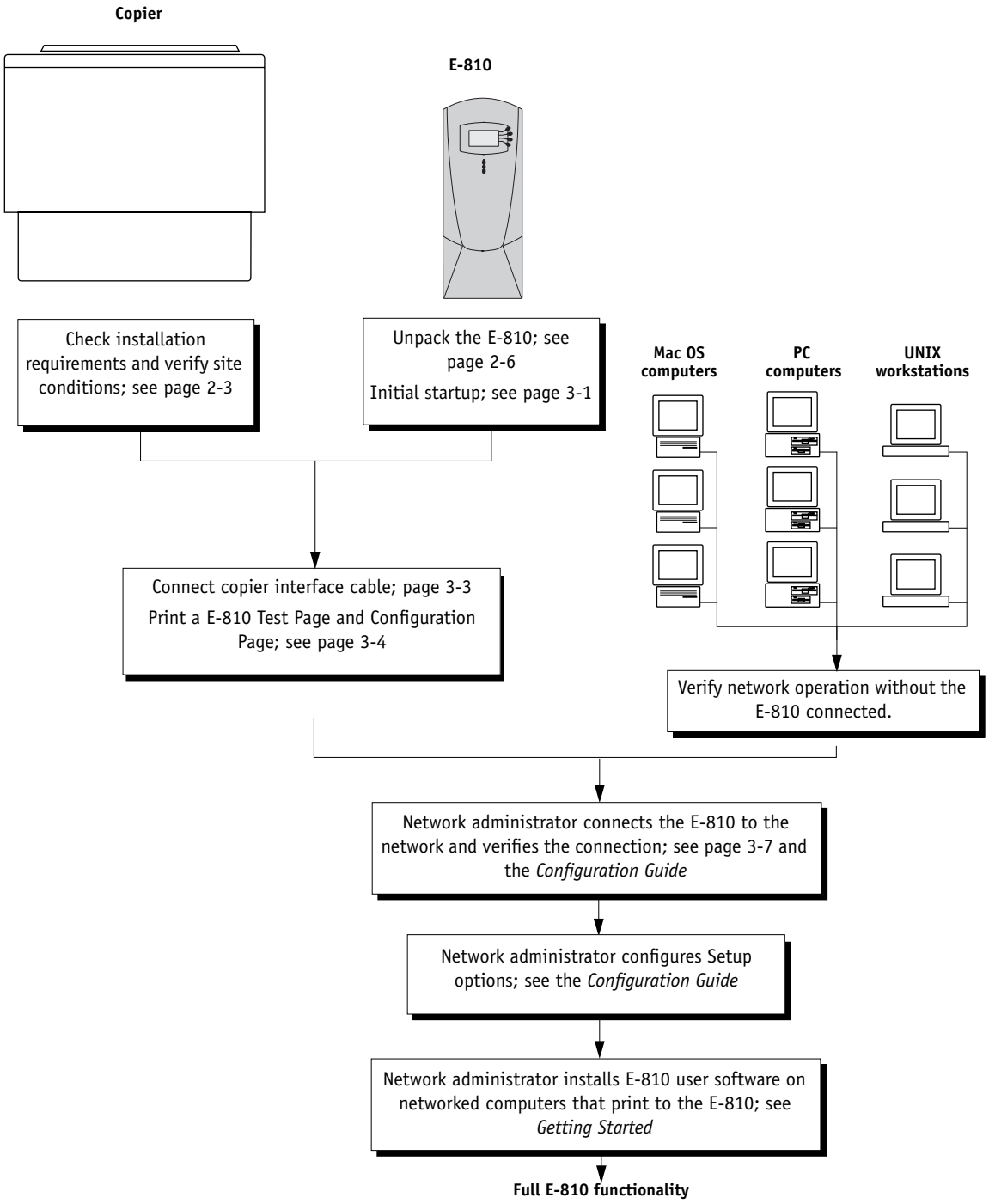


FIGURE 2-1 Recommended installation steps and references

Checking the customer site

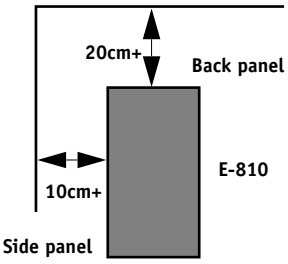
Before you install the E-810, check site conditions and inform the customer of any installation requirements.

Copier model

❑ **What copier model is installed?**

❑ **Is there space near the copier for the E-810?**

Make sure that there is space for the E-810. Allow at least 20cm of space at the back panel of the E-810 and at least 10cm of space at the side panel of the E-810 (see the following illustration). You may need to move the copier out from the wall so that the connectors are accessible.



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

Copy the copier color test page before you install the E-810.

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-810?**

Locate the grounded electrical outlet that will supply power to the E-810. You should not run the E-810 and the copier on the same circuit. Use a surge suppressor for the E-810.

- *Do not* use a 3-prong adapter in a 2-hole ungrounded outlet.
- *Do not* use an extension cord.
- *Do not* plug the E-810 into a circuit with heating or refrigeration equipment (including water coolers).
- *Do not* plug the E-810 into a switchable wall outlet. This can result in the E-810 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?)

❑ **Is the network connection ready and tested for E-810 installation?**

To verify that the network is functioning before you attach the E-810:

- 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 *Getting Started*.

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-810 and confirms network functionality with the connector in place before the date scheduled for the E-810 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-810 (user documentation is also included) onto networked PC and Mac OS computers that will print to the E-810.

NOTE: This guide covers E-810 hardware installation and service. It provides general information on connecting the E-810 to the customer's network. Network setup and configuration information goes beyond the scope of this guide. For network setup and configuration information, the network administrator should use the *Configuration Guide*.

Unpacking the E-810

The E-810 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-810

1. **Open the E-810 box and remove the packing material.**

   You may wish to save the original boxes and packing materials if you need to transport the E-810 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 an AC power cable.
   - Media package (includes system and 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-810, the user software must be installed on computers that will print to the E-810.

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-810 inside the shipping container in case you need to repack it later.

6. **Carefully lift the E-810 out of the box.**

   If you notice shipping damage to any E-810 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-810.

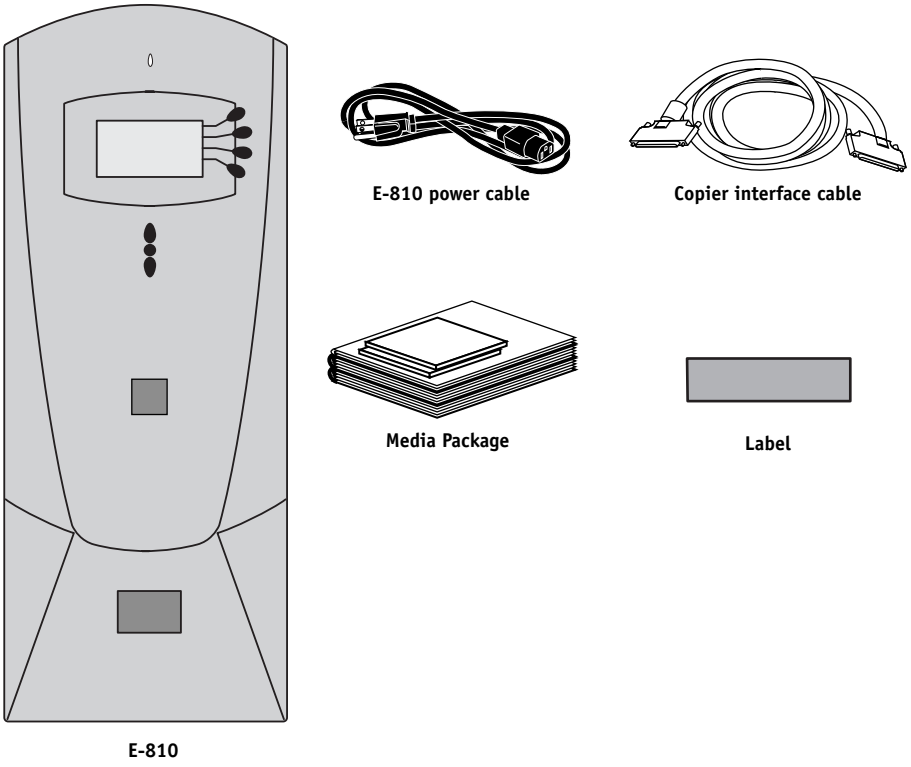


FIGURE 2-2 Contents of E-810 shipping box

E-810 panels

After unpacking the E-810, familiarize yourself with the front and back of the E-810 before you connect it to the copier.

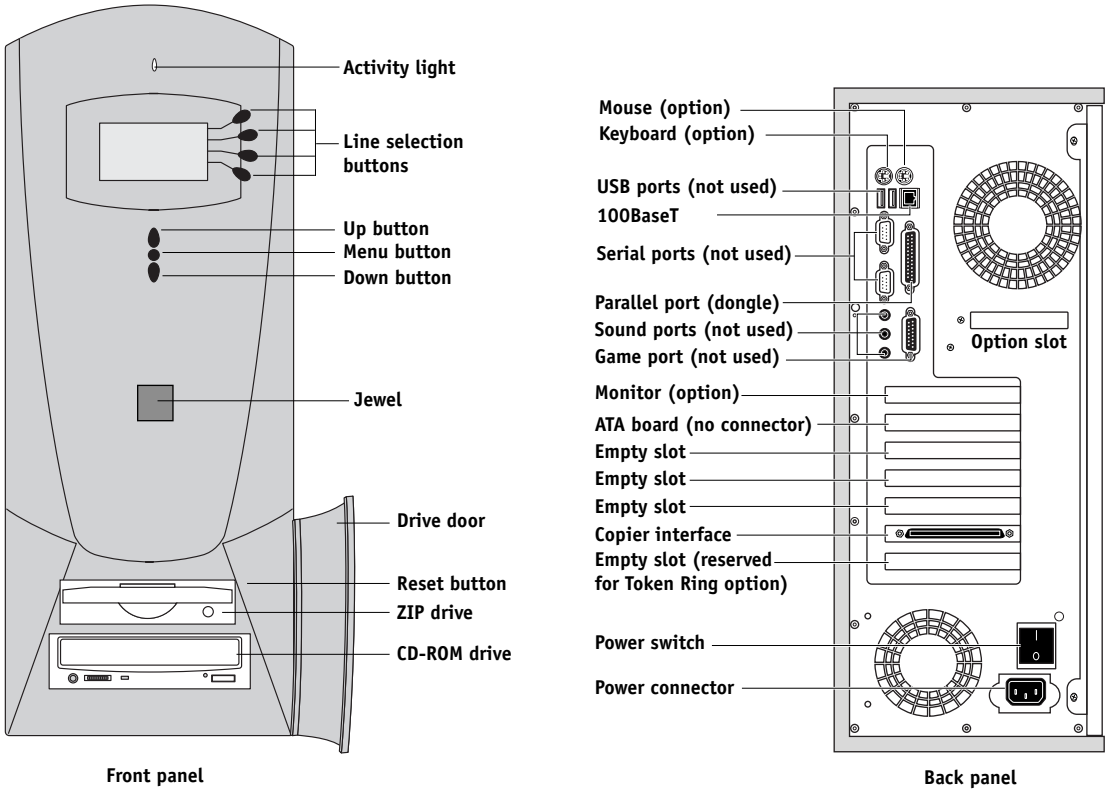


FIGURE 2-3 Front and back panels

Chapter 3: Connecting the E-810

After you unpack or service the E-810, power on the system and allow diagnostics to run before you connect the E-810 to the copier and the network. Diagnostics run automatically during startup to check the E-810 for internal problems.

NOTE: The Controller Interface must be installed in the copier before you can connect the E-810 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 to the E-810.

TO CONNECT POWER AND START THE E-810

1. **Connect the E-810 power cable to the power connector at the back of the E-810 (see Figure 3-1 below).**
2. **Make sure the E-810 power switch is in the off position (press 0), and then connect the other end of the E-810 power cable to a wall outlet.**

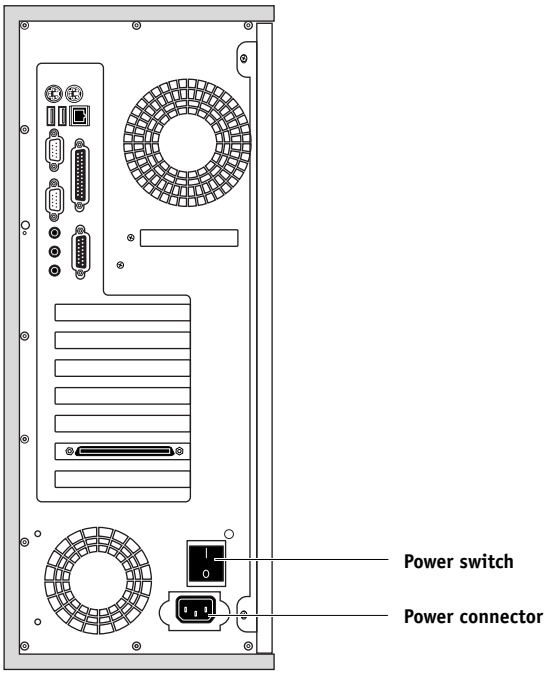


FIGURE 3-1 E-810 power

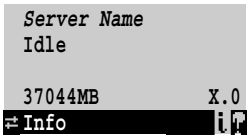
3. **Power on the E-810 using the power switch on the back panel. The power supply automatically senses the correct voltage.**

4. **Allow the E-810 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 4-64.

5. **Wait for the system to reach the Idle screen to confirm that the E-810 is operating properly.**

   When the E-810 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-810 is connected to the copier, the message should no longer appear.

6. **Following a successful startup, shut down the E-810 as described on 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-810 to the copier. The E-810 communicates with the copier through a cable from the E-810's copier interface board to the interface port on the copier.

NOTE: The Controller Interface must be installed in the copier before you can connect the E-810 to the copier.

TO CONNECT THE E-810 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-810's copier interface connector (see Figure 3-2 below).**

   Tighten the screws completely on both ends of the cable.

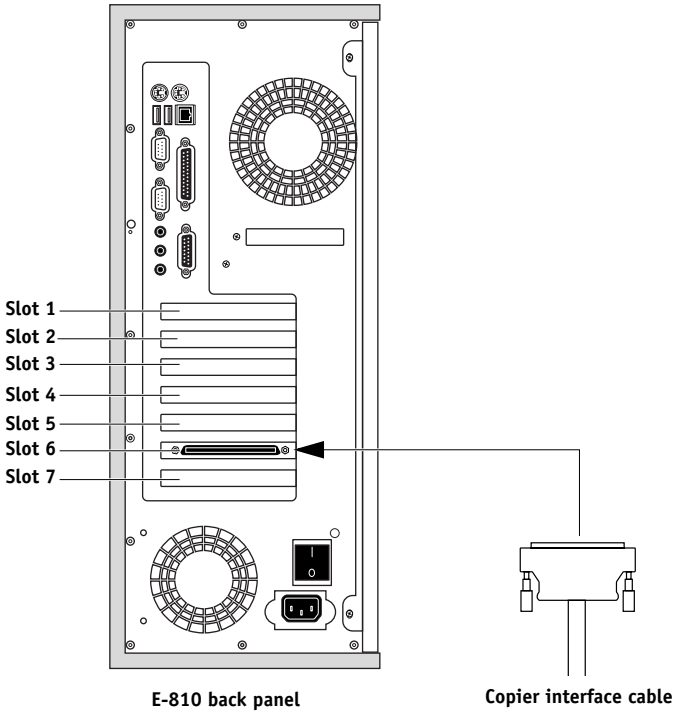


FIGURE 3-2 Copier interface connection

Verifying the connection

After you connect the E-810 to the copier, print the Test Page and the Configuration Page to verify that the connection between the E-810 and the copier is good.

Printing the E-810 Test Page and Configuration page

Before connecting the E-810 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-810-to-copier interface are working. The Test Page is a color file that resides on the E-810 hard disk drive.
- Configuration page—printing the Configuration page can be helpful during installation, setup, and service. After you install the E-810 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.*

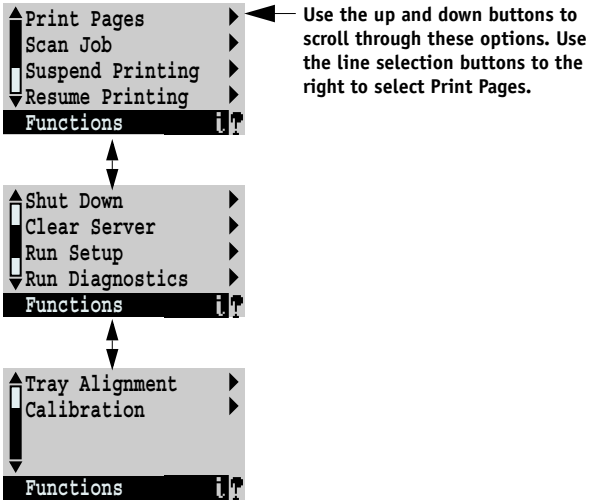
  Before you perform any service procedure, you should print the E-810 Configuration page, if possible, so that you can return the settings to their former configuration, if necessary.

TO PRINT THE TEST PAGE

1. **Power on the copier and allow it to warm up.**
2. **Power on the E-810 using the power switch on the back panel.**

   Messages appear on the Control Panel as the E-810 runs through its startup diagnostics.
3. **Before proceeding, make sure that the copier is not in use. The E-810 Info screen should read 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-810 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-810 print engine is functional and that the connection between the E-810 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*.

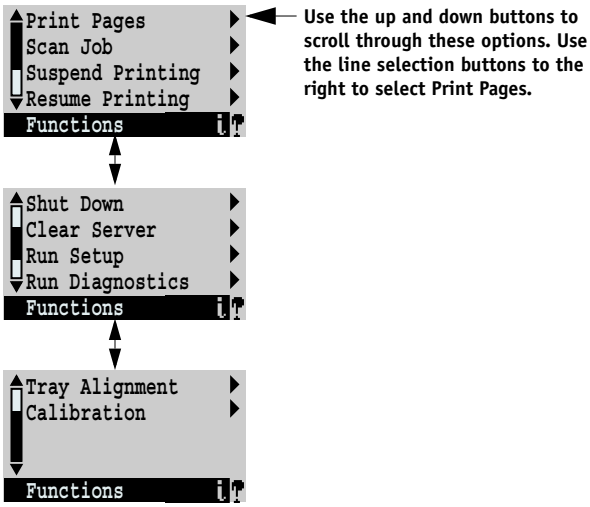
TO PRINT A CONFIGURATION PAGE

1. **If you have not done so already, power on the copier and allow it to warm up. Power on the E-810 using the power switch on the back panel.**

   Messages appear on the Control Panel as the E-810 runs through its startup diagnostics.

2. **Before proceeding, make sure that the copier is not in use. The E-810 Info screen should read 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-810 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 E-810 options, install those before connecting the E-810 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-810 has an external 100BaseT Ethernet network connector for a twisted pair cable (see Figure 3-3). For additional network information, see the *Configuration Guide*.

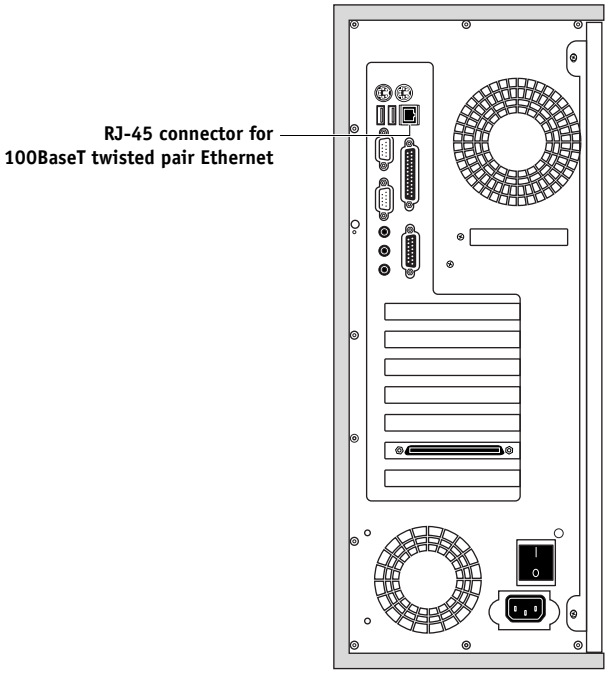


FIGURE 3-3 E-810 network connector

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 to the E-810

Twisted pair (unshielded twisted pair cable for 100BaseT) uses an RJ-45 connector that connects to the back of the E-810 (see Figure 3-3 on page 3-7).

1. **Shut down and power off the E-810 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-810.**

   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-810 has the correct Setup configuration, the E-810 should be available on the network.

   The network administrator should perform any additional network setup, verify the network connection, verify that the E-810 appears in the list of printers, and print a few test documents from a networked computer that will use the E-810. (See the *Configuration Guide* for more information.)

Using the Control Panel

This section describes the Control Panel on the front of the E-810. Once you install the E-810 and verify that it powers up correctly, you can use the Control Panel to access and monitor different functions of the E-810.

The current status of the E-810 and Setup information are displayed in the E-810 display window. E-810 activity can be monitored in the display window, and functions of the E-810 (such as printing a Test Page and installing or updating system software) can be controlled using the buttons on the Control Panel.

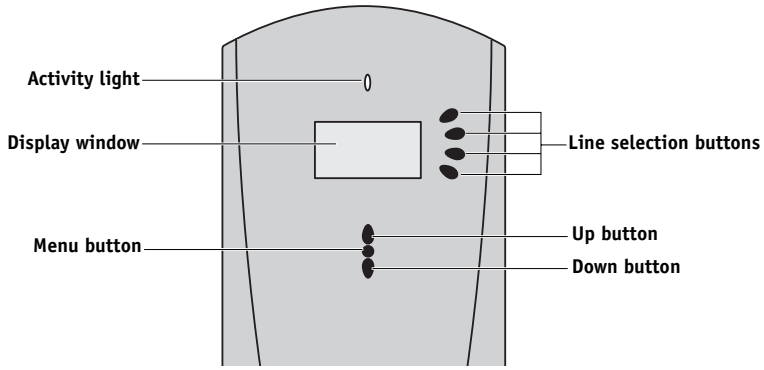


FIGURE 3-4 The E-810 Control Panel

Activity light

The activity light indicates current E-810 activity. If the light is:

Flashing or solid red	There is an error causing printing to be disabled. The activity light also flashes red briefly during startup.
Solid green	The E-810 is idle or starting up.
Flashing green	The E-810 is processing or printing a job.
No light	The E-810 is powered off.

Buttons

Line selection buttons	There are four line selection buttons on the right side of the Control Panel. Use these buttons 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. There are several different display screens, showing different types of information about the E-810.

Control Panel screens and icons

When the E-810 is in Print mode, pressing the menu button cycles among four screens: three status screens (Info, RIP, and Print) and the Functions menu. When the E-810 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 E-810 screens display the following information:

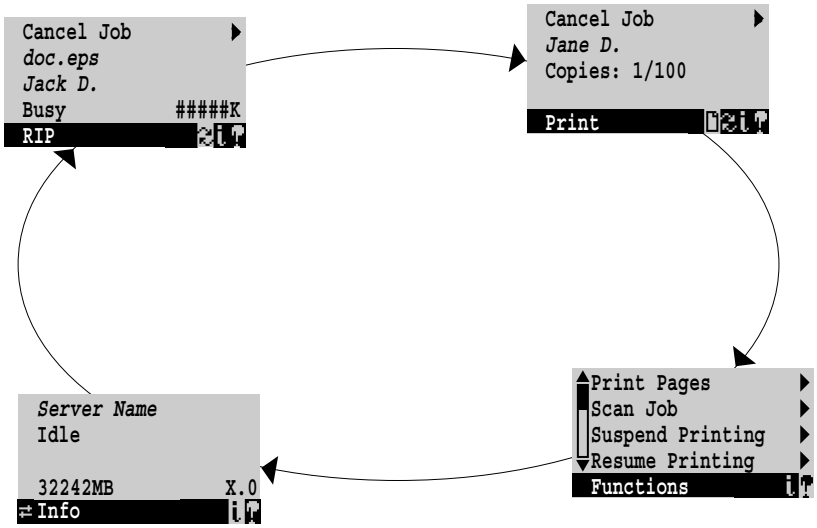
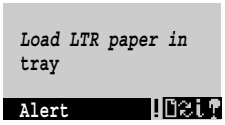


FIGURE 3-5 Control Panel screens during printing

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-810 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 that is currently being processed. Pages/Total—The number of copies of the current page that have been printed so far, and the total number of copies of this page that were requested.
	RIP Status	When the E-810 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-810 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 that is currently being processed. Kilobytes—The amount in kilobytes of the job that has been processed so far.

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-810 name as it is configured in Setup.

Status—The current status of the E-810. The E-810 status messages include: Idle, Initializing, Busy, Processing, or Printing.

Number of MB—The space in megabytes available on the E-810 hard disk.

Version—The system software version running on the E-810.

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 bottom left corner of the display window when the E-810 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 options. Press the line selection button next to the option you want to select.

The following options are available from the Functions menu:

Print Pages—Enables you to print special pages from the E-810. You can print the following pages from the submenu that appears:

- Test Page—Enables you to confirm that the E-810-to-copier interface is functioning properly. The Test Page provides sample images that can be used to troubleshoot the E-810. 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-810. The Configuration page also provides version information for the BIOS chip and information on any options installed in the E-810.
- 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-810.
- Font List—Prints a list of all fonts resident on the E-810 hard disk.

Scan Job—Allows users to initiate a scan job from the E-810 Control Panel. See the *Printing Guide* for more information.

Suspend Printing—Disconnects the E-810 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-810 so you can resume printing after interrupting the print job to make copies (used with Suspend Printing).

Shut Down—When you select this option, you can choose from the following:

- Restart Server—Resets the E-810 server software but does not reboot the entire system. Network access to the E-810 is temporarily interrupted and all currently processing jobs are aborted and might be lost.
- Shut Down System—Shuts down all E-810 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-810" on page 3-16).
- Reboot System—Shuts down all E-810 activity properly and then restarts.

NOTE: A reset button on the front panel is also available and should only be used after first selecting Shut Down System.

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-810 is powered on and after E-810 system software is installed. See the *Configuration Guide* for a list of options and detailed descriptions of each Setup option.

Run Diagnostics—When you select this option, you can choose from the following:

- Test I/F board—Runs diagnostics on the E-810 copier interface board.

  To select an option, press the line selection button next to the option.

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-810 using AutoCal™. See the *Color Guide* for more information.

Shutting down and restarting the E-810

The E-810 will probably be left on all the time at the customer site. Remember that when the E-810 is powered off, network access to the copier is interrupted.

You should shut down the E-810 when you need to service it or the copier, and before you remove or attach any cables to the E-810. Shut down the E-810 when changing the copier's toner cartridge in order to prevent the fan from drawing toner into the E-810 (see "To shut down the E-810" on page 3-16).

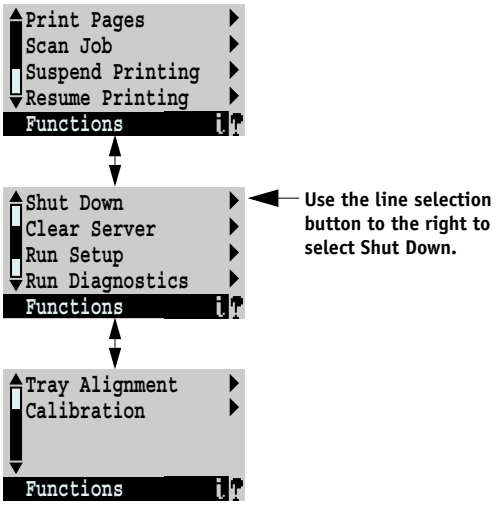
TO SHUT DOWN THE E-810

Always verify that the E-810 is not being used before you begin the following procedure and power off the E-810.

1. **Make sure that the E-810 Info screen reads Idle.**

   When Printing or Ripping appears on the Control Panel, the E-810 is currently processing a job. Idle appears in the Info screen when the E-810 is finished processing the job.

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



3. **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-810 using the power switch on the back panel (press 0).**

TO RESTART THE E-810

1. **If the E-810 is already on, ensure that it is not receiving, processing, or printing a document.**

   When Printing or Ripping appears on the E-810 Control Panel, the E-810 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.**

Chapter 4: Service Procedures

Generally, the E-810 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
- Cables
- Motherboard components (DIMMs, CPU(s), battery)
- Fans (front and back panel)
- Power supply
- HDD (hard disk drive)
- ZIP drive
- CD-ROM 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.

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

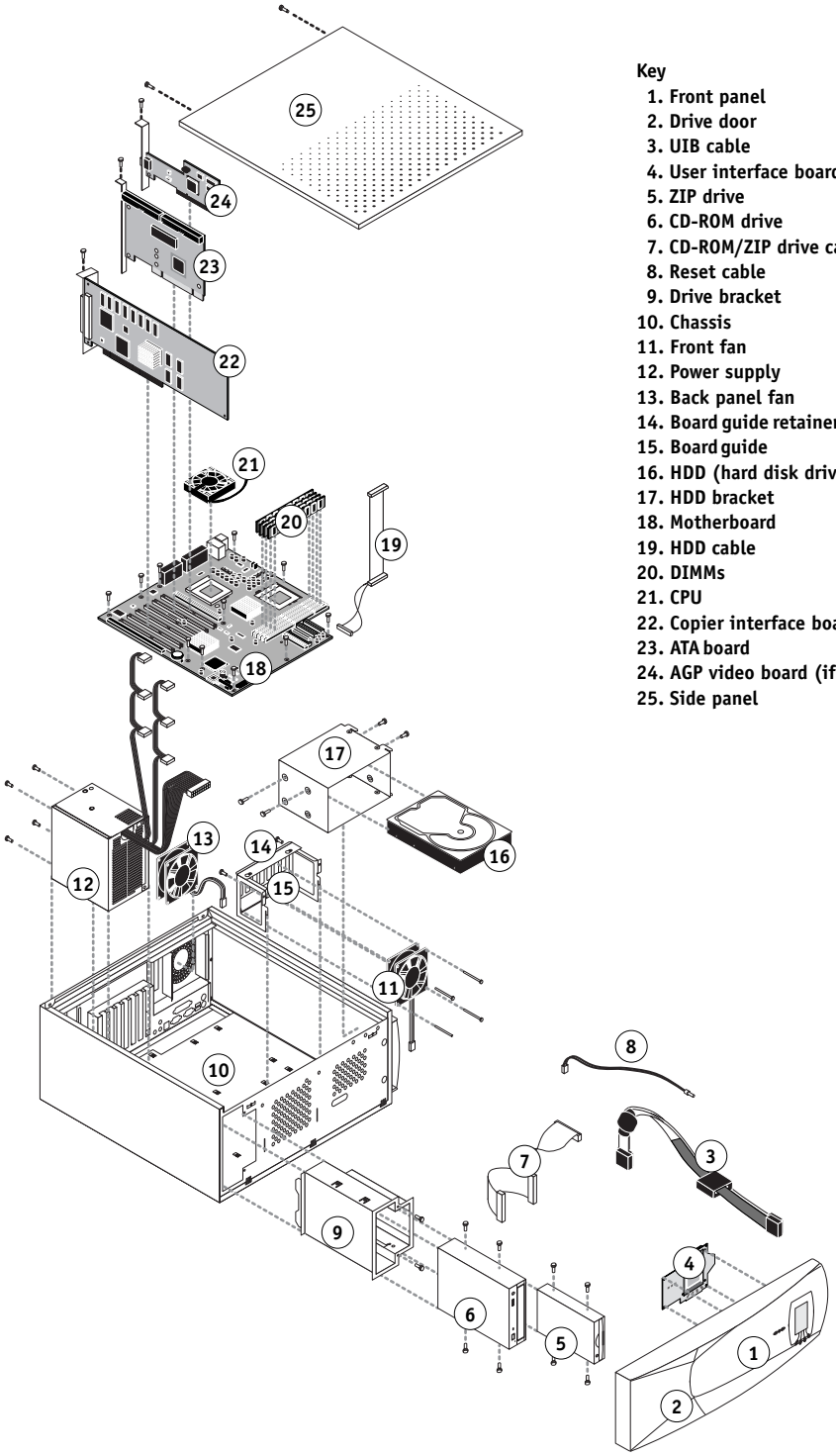
The tools required to service the system are listed in “Tools you will need” on page xv. For details about how to install the Controller Interface, see Appendix B.

System software service

E-810 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. Use the System Software CDs when:

- You replace the E-810 HDD
- You upgrade to a more recent version of the system software
- Restore Backup fails
- You change languages

For information on how to install system software, see “E-810 system software service” on page 4-63.



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
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-810 components

Accessing E-810 internal components

If the E-810 is powered on, make sure to shut down the system before you access the E-810's internal components. Always use the following procedures when opening the E-810 for inspection or service. Remember that when the E-810 is powered off, network access to the copier is interrupted.

NOTE: Always get permission from the network administrator before you take the E-810 off the network.

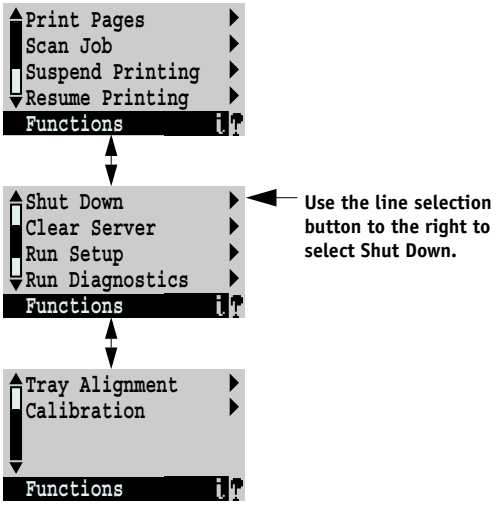
TO SHUT DOWN THE E-810

Always verify that the E-810 is not being used before you begin the following procedure and power off the E-810.

1. **Make sure that the E-810 Info screen reads Idle.**

   When Printing or Ripping appears on the Control Panel, the E-810 is currently processing a job. Idle appears in the Info screen when the E-810 is finished processing the job.

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



3. **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-810 using the power switch on the back panel (press 0).**

6. **Disconnect all cables from the back panel of the E-810.**

TO OPEN THE E-810

1. **Make sure you have powered off the E-810 and removed all the cables from the back panel.**
2. **Remove the two screws that secure the side panel to the chassis.**
3. **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.

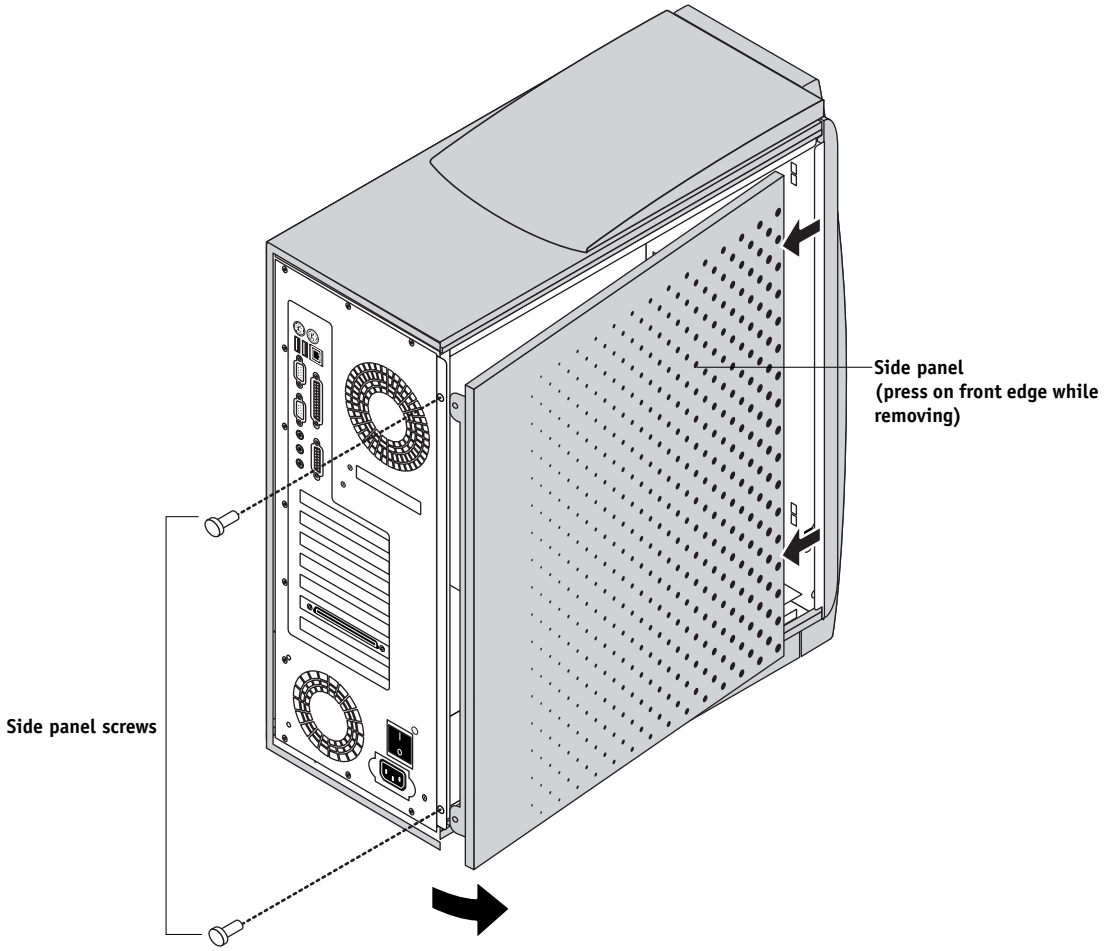
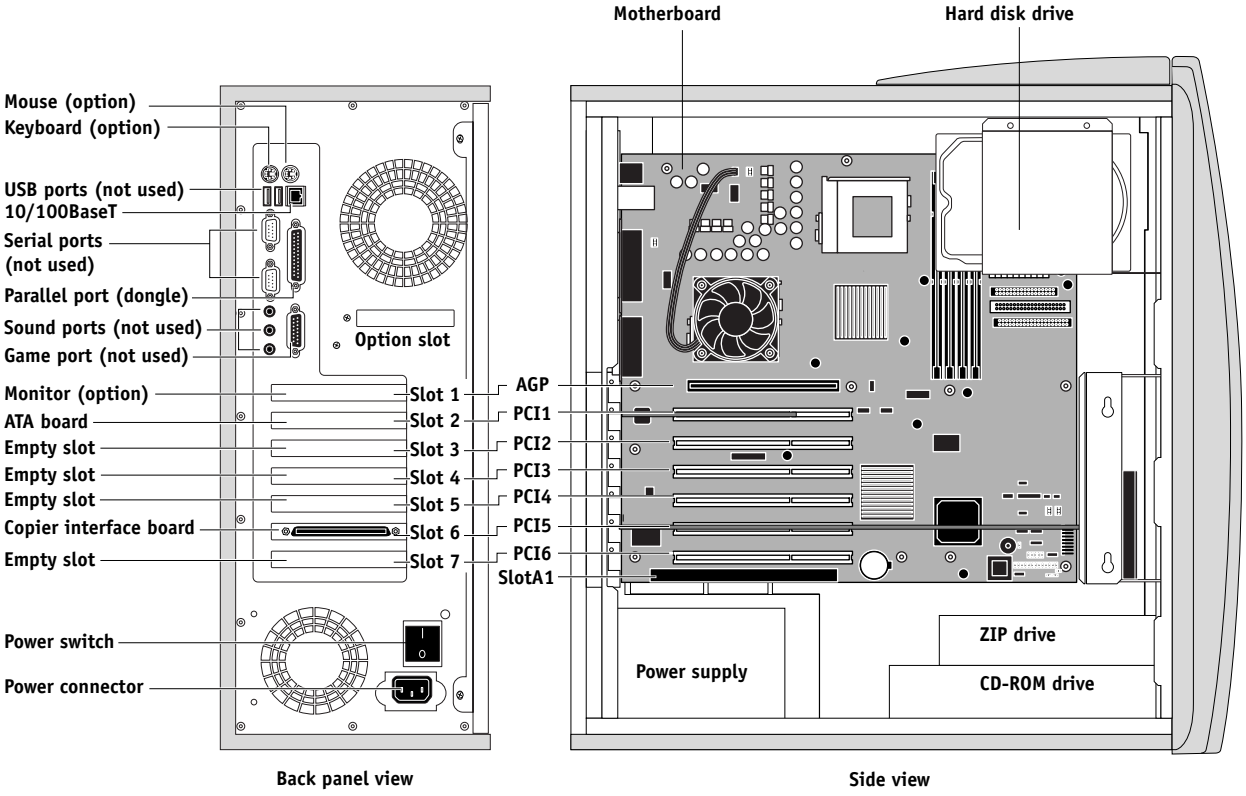


FIGURE 4-2 Removing the E-810 side panel

The E-810 internal components are now accessible. Attach an ESD wrist strap before handling internal parts.

The E-810 is shipped from the factory with a standard board configuration, as shown in Figure 4-3 on page 4-5. 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-810 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)

PCI1—ATA board

PCI2—Empty

PCI3—Empty

PCI4—Empty

PCI5—Copier interface board

PCI6—Empty (reserved for Token Ring option)

SlotA1—Empty

FIGURE 4-3 E-810 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, 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. **Remove the E-810 side panel as described on page 4-4.**
2. **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).**
3. **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.
4. **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.

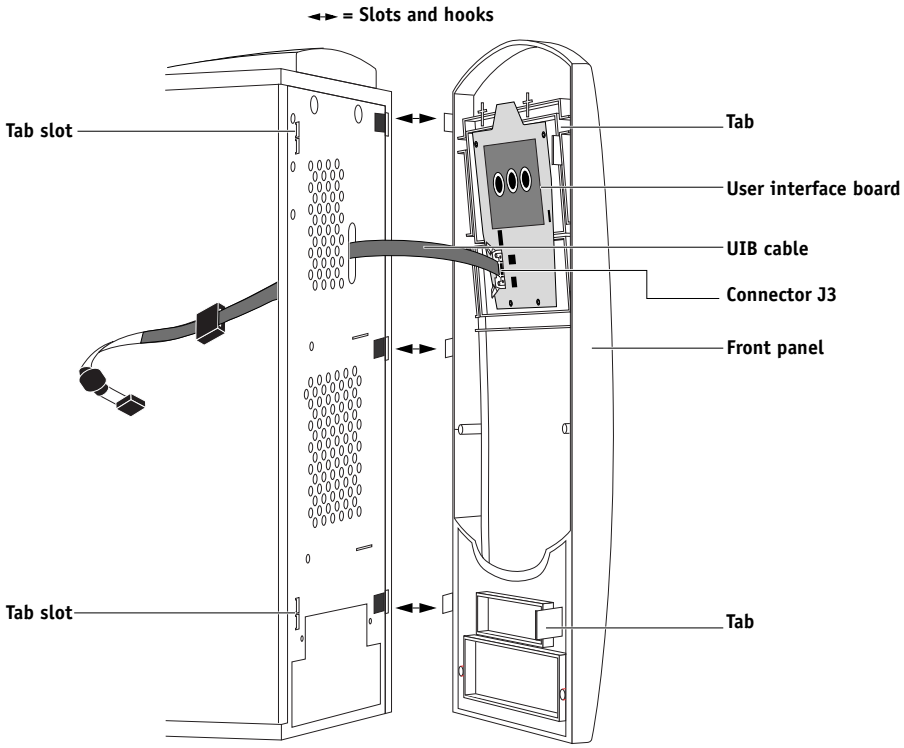


FIGURE 4-4 Removing the front panel

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 front panel.**

   When you connect the cable, be 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 slots in the front of the chassis (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 install the jewels from the original front panel.

Checking E-810 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 the internal components of the E-810.

1. **Position the E-810 so it is resting on its side and the internal components of the E-810 are facing up.**

2. **Inspect the E-810 boards to make sure they are firmly seated into their motherboard connectors. Press down firmly on the boards to make sure each one is securely installed.**

   From a top view of the chassis, 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—(reserved for Token Ring option)

   Connector SlotA1—Empty

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

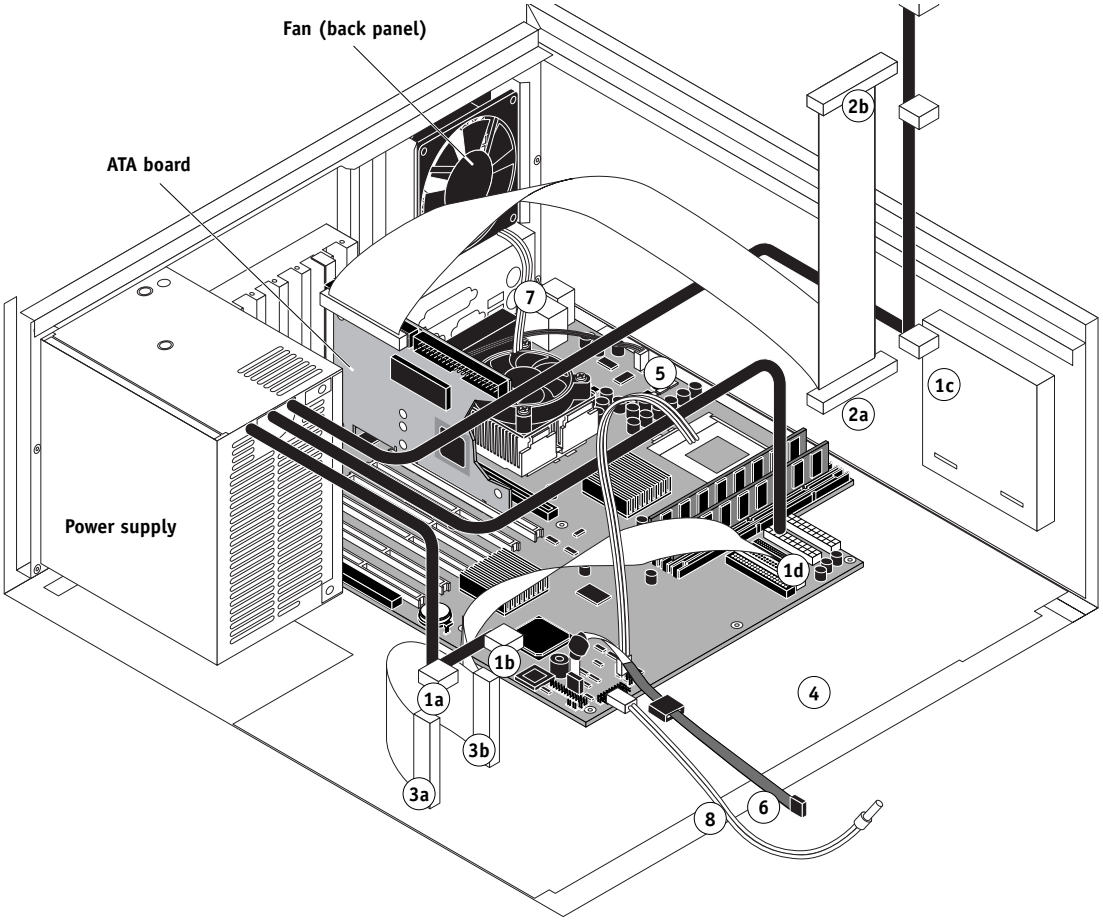
   Faulty ribbon cables are easily overlooked. Check the contact point between the cable and the connector to ensure that they have not separated. If a ribbon cable is suspect, substitute it with a tested cable.

4. **Make sure that all E-810 ribbon cables and power cables are seated on connectors. See Figure 4-5 on page 4-9.**

   Cable connectors are keyed to fit only when properly oriented.

5. **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. After tightening connections, if you are still experiencing problems it could mean that one or more E-810 components are still not getting power. If this is the case, see "Checking voltages" on page 4-48.



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 (U46)
2. HDD cable	ATA board (Primary IDE connector)	a. Not used b. HDD IDE connector
3. CD-ROM/ZIP drive cable	Motherboard (Secondary 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 connectors on the motherboard (FAN3 and FAN5)
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)

NOTE: Cables not labeled are not used.

FIGURE 4-5 Cable connections in the E-810

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 E-810 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.**

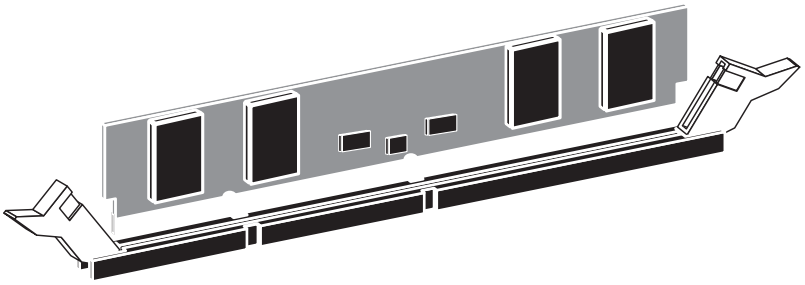


Figure 4-6 Releasing the DIMM levers

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: Do not move a DIMM to a different socket. The dual-channel memory design of the E-810 requires DIMM sockets 1-4 to be populated in specific configurations to operate correctly (see page 4-34 for details).

Restoring E-810 functionality after service

TO REASSEMBLE THE E-810

1. **Reseat all boards, cables, connectors, and other parts loosened or removed during inspection or service.**
2. **Place the E-810 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).**

   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.

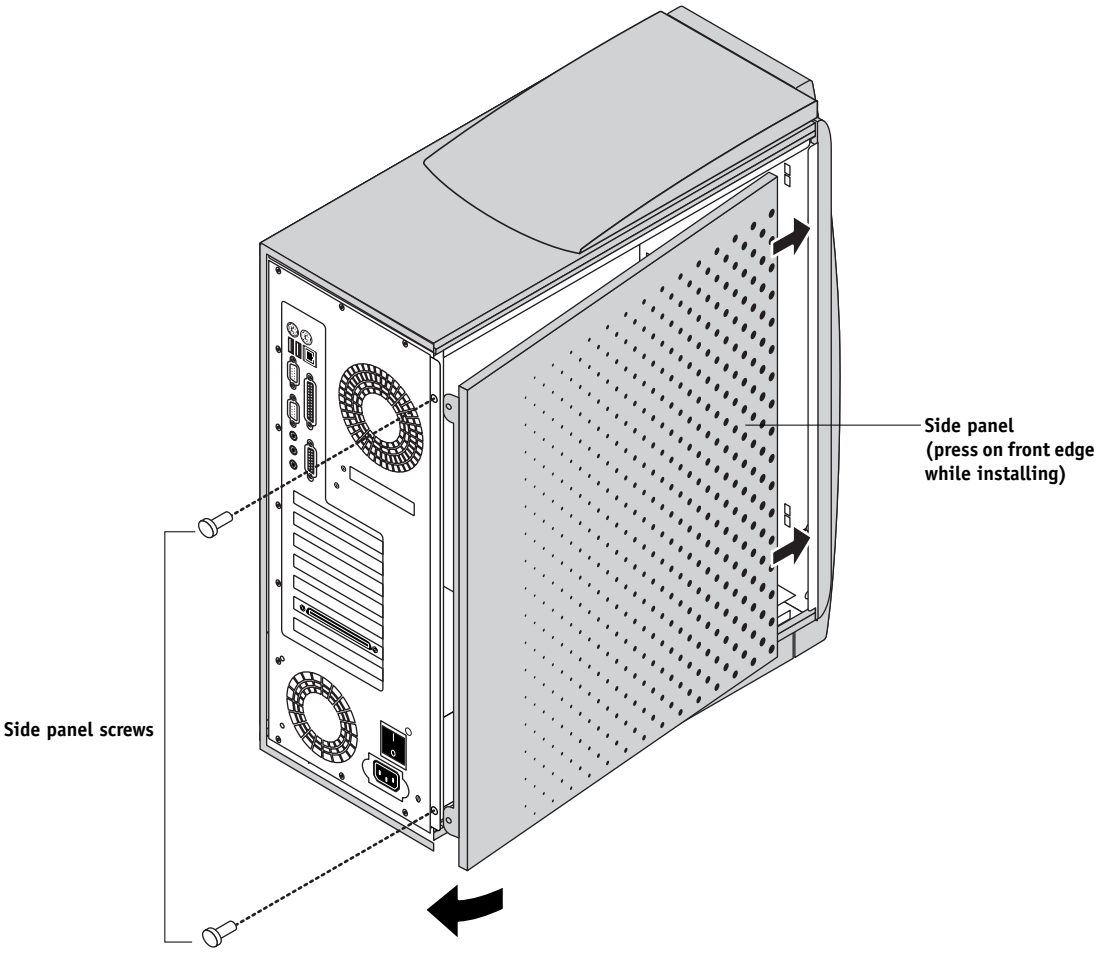


FIGURE 4-7 Replacing the side panel

5. **Replace the two screws that secure the side panel to the chassis.**

   NOTE: Do not leave the E-810 side panel off after servicing. An airflow channel is created by the side panel and the fans. Leaving the E-810 open could reduce the operational life expectancy of internal E-810 components.

6. **Connect any cables removed during service to the back of the E-810.**

7. **Before you leave the customer site, verify E-810 operation as outlined in Figure 4-8.**

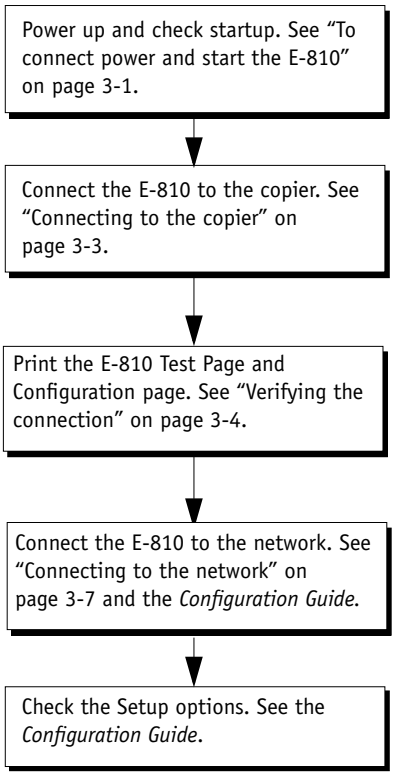


FIGURE 4-8 E-810 connection verification steps

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 of the E-810. 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.

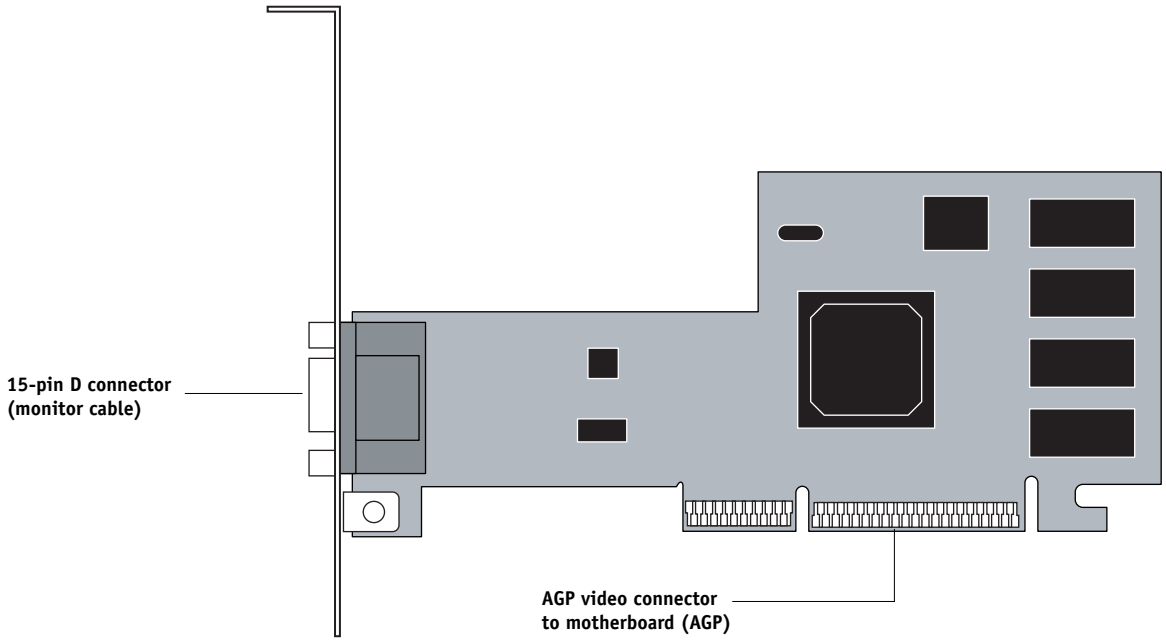


FIGURE 4-9 AGP video board

To remove the AGP video board

1. **Power off and open the E-810 (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-810 (see page 4-11) and verify its functionality. (See the connection verification steps described in Figure 4-8 on page 4-12.)**

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. A ribbon cable from the HDD connects to the Primary IDE connector on the ATA board.

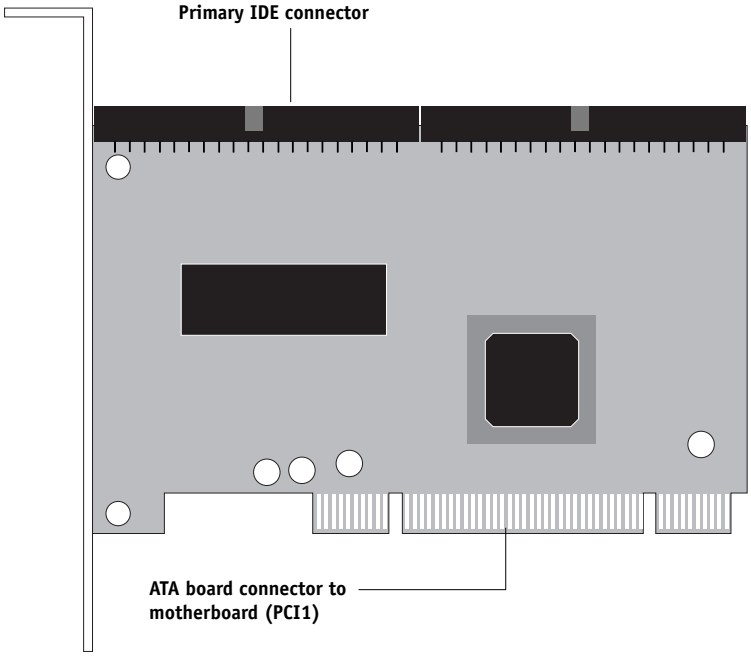


FIGURE 4-10 ATA board

To remove the ATA board

1. **Power off and open the E-810 (see page 4-3 and page 4-4).**
2. **Remove the board mounting bracket screw from back panel slot 2.**
3. **Remove the HDD cable from the Primary IDE connector on the ATA board.**
4. **Remove the ATA board from the motherboard connector PCI1.**

   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 slot 2.**
4. **Reassemble the E-810 (see page 4-11) and verify its functionality. (See the connection verification steps described in Figure 4-8 on page 4-12.)**

Copier interface board

The copier interface board in the E-810 (see Figure 4-11) provides the print interface between the E-810 and the copier.

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

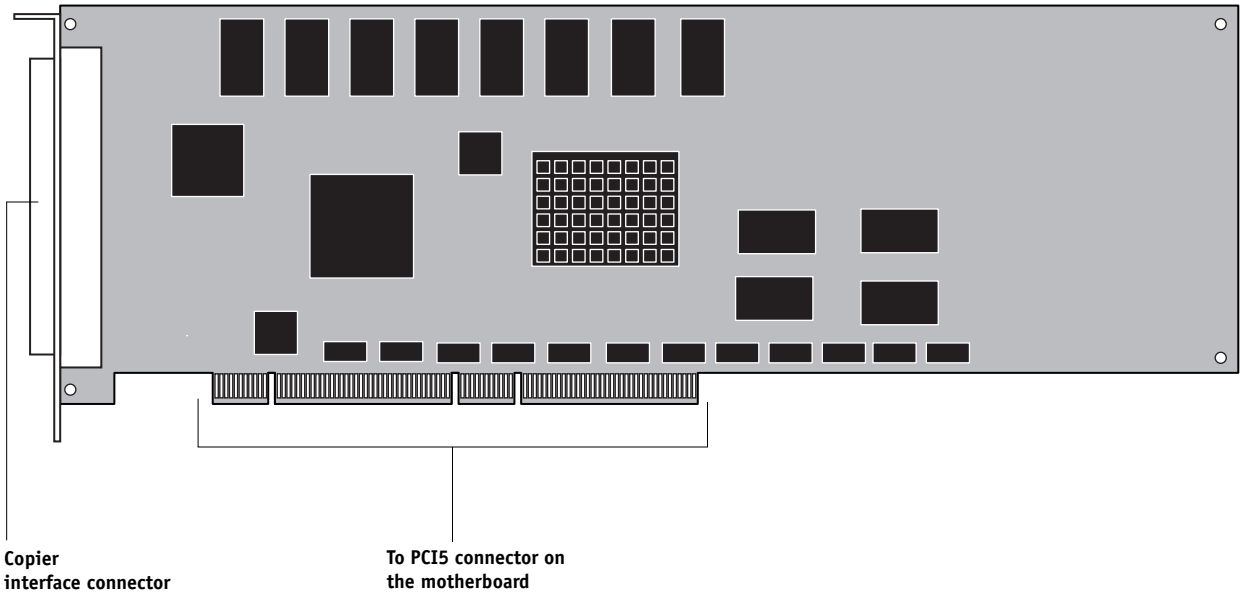


FIGURE 4-11 Copier interface board

TO REMOVE THE COPIER INTERFACE BOARD

1. **Power off and open the E-810 as described on page 4-3 and page 4-4.**
2. **Make sure the copier interface cable connected to the back of the E-810 is removed.**
3. **Remove 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-810 (see page 4-11) and verify its functionality. (See the connection verification steps described in Figure 4-8 on page 4-12.)**

User interface board

The user interface board installed in the front panel of the E-810 (see Figure 4-12) provides the interface between the E-810 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 between the up and down buttons

A cable connector on the back of the user interface board connects the user interface board to the motherboard.

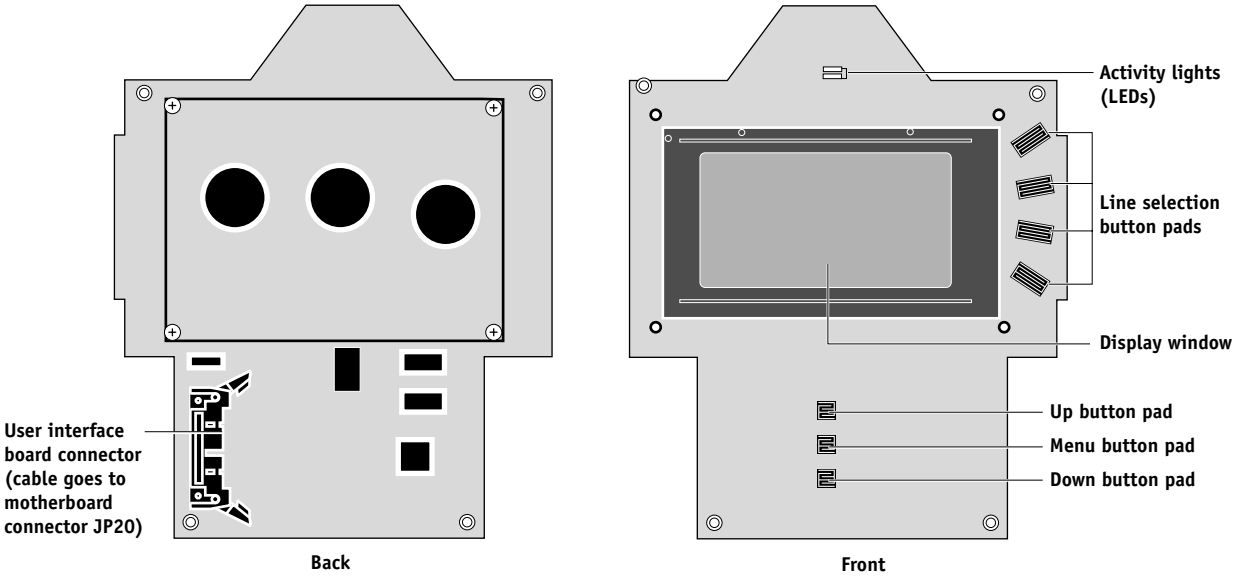


FIGURE 4-12 Diagram of the user interface board (back and front)

TO REMOVE THE USER INTERFACE BOARD

1. **Power off the E-810 (see page 4-3).**
2. **Remove the front panel from the E-810 chassis (see page 4-6).**
3. **Disconnect the UIB cable from the connector 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.

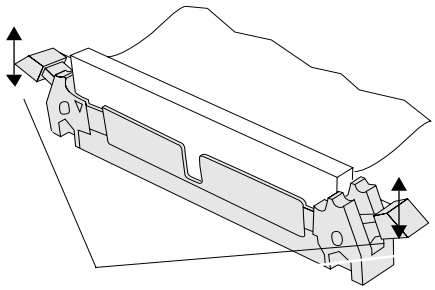


FIGURE 4-13 Detail of ribbon cable connector

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.

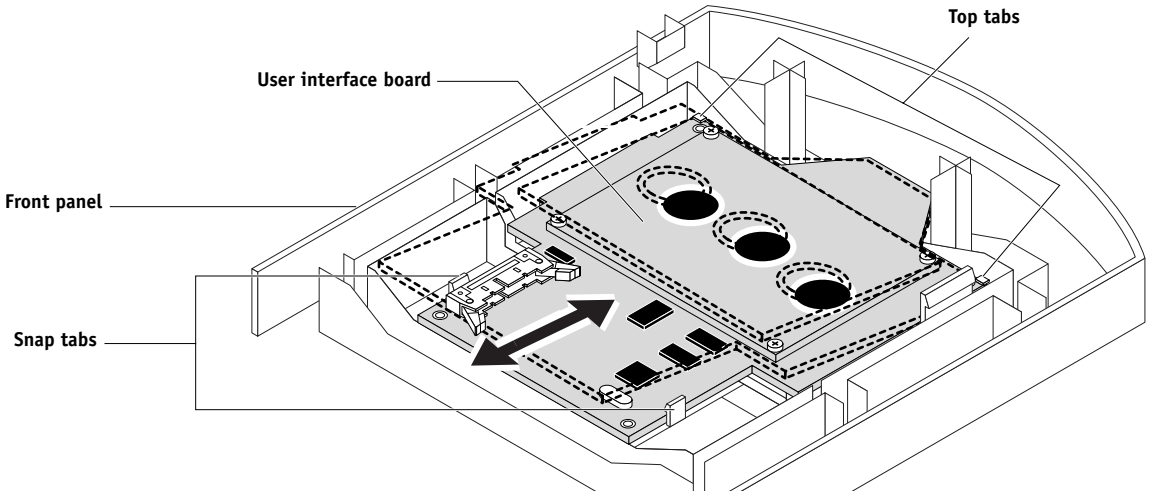


FIGURE 4-14 Removing the user interface board

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

TO REPLACE THE USER INTERFACE BOARD

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 the connector on the user interface board.**

   When you connect the cable, be sure to snap the levers together to ensure that the connector is securely fastened.

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

5. **Reassemble the E-810 (see page 4-11) and verify its functionality. (See the connection verification steps described in Figure 4-8 on page 4-12.)**

Motherboard

The E-810 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-810 and external devices. The motherboard has 4 DIMM sockets that hold four 128MB DIMMs (see Figure 4-18 on page 4-34). The motherboard also includes:

- 6 64-bit PCI (Peripheral Component Interconnect) connectors
- AGP (Accelerated Graphics Port) video connector
- ISA (Industry Standard Architecture) connector

Removing the motherboard

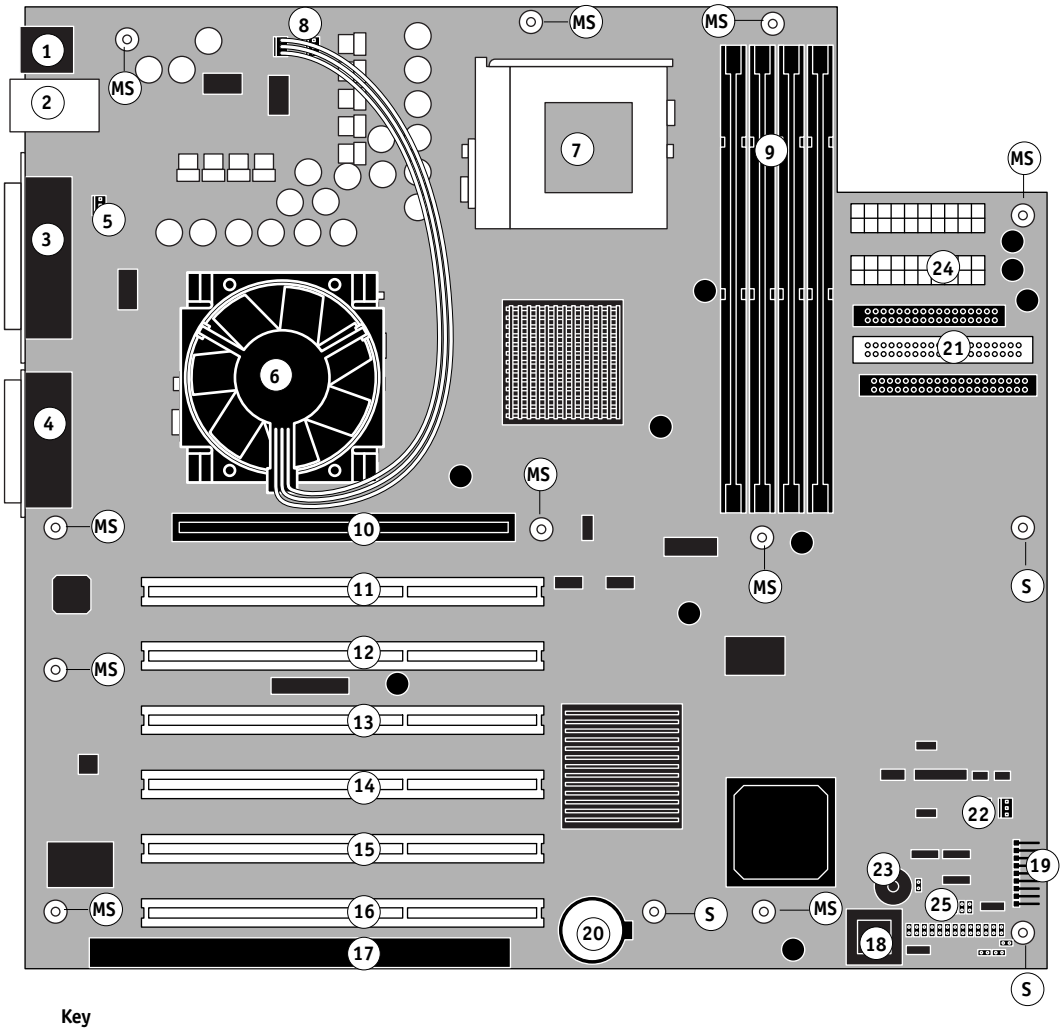
The motherboard attaches to the side of the E-810 chassis above the power supply. Before you remove the motherboard, you must remove:

- 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)
- The HDD bracket (with HDD installed)
- Board guide (with front fan)

Procedures are included in this section for each of the requirements listed above. This section also includes motherboard information on the following:

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

Take ESD precautions when handling the E-810 boards.



Key

1. Keyboard and mouse connectors
2. USB (not used) and 10/100BaseT ports
3. Parallel port and serial ports (not used)
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
12. Empty 64-bit PCI connector
13. Empty 64-bit PCI connector
14. Empty 64-bit PCI connector
15. Copier interface board connector
16. Empty 64-bit PCI connector
17. Empty ISA connector (SlotA1)
18. BIOS chip (U57)
19. Reset pins (J24, pins 5 and 7)
20. Battery (BT1)
21. CD-ROM/ZIP connector (Secondary)
22. Front fan connector (FAN1)
23. Beeper
24. 20-pin power connector (U46)
25. UIB cable connector (JP20)

S—Standoffs (3 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-810 motherboard

To remove boards from the Motherboard

1. **Power off the E-810 (see page 4-3) and remove the side panel (see page 4-4).**
2. **Remove the board mounting bracket screws for boards occupying back panel slots 1, 2, and 6.**
3. **Remove the following boards from the motherboard:**
   - AGP video board in the AGP connector (if this option is present)
   - ATA board in the PCI1 connector

     Remove the HDD cable attached to the Primary IDE connector on the ATA board before removing the board.
   - Copier interface board in connector PCI5

   Note: Remove the board guide retainer before removing the copier interface board (see "To remove the copier interface board" on page 4-19).

   Place each board on an antistatic surface.
4. **Remove the mounting bracket screws and any option boards 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.

To remove motherboard cables

1. **Remove the power cable attached to the 20-pin connector at U46 on the motherboard.**
2. **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).**
3. **Remove the ZIP/CD-ROM cable from the SIDE (secondary IDE) connector on the motherboard.**
4. **Remove the back panel fan cable from the motherboard fan connector (FAN4).**
5. **Remove the UIB cable from motherboard connector JP20.**
6. **Remove the front fan cable from the motherboard fan connector (FAN1).**
7. **Remove the reset cable from motherboard connector J24 (pins 5 and 7) on the edge of the motherboard.**

TO REMOVE THE MOTHERBOARD

1. **If you are replacing the motherboard with a new motherboard, remove the following from the motherboard:**
   - Memory (page 4-35)
   - CPU(s) (page 4-36)
2. **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 HDD and bracket (see page 4-52).**
4. **Remove the 10 mounting screws on the motherboard (see Figure 4-16 on page 4-27).**
5. **Lift the edge of the motherboard opposite the back panel connectors to remove the motherboard from the chassis.**

   Three 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.)

6. **Gently slide the motherboard out of the E-810 chassis (see Figure 4-16).**

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

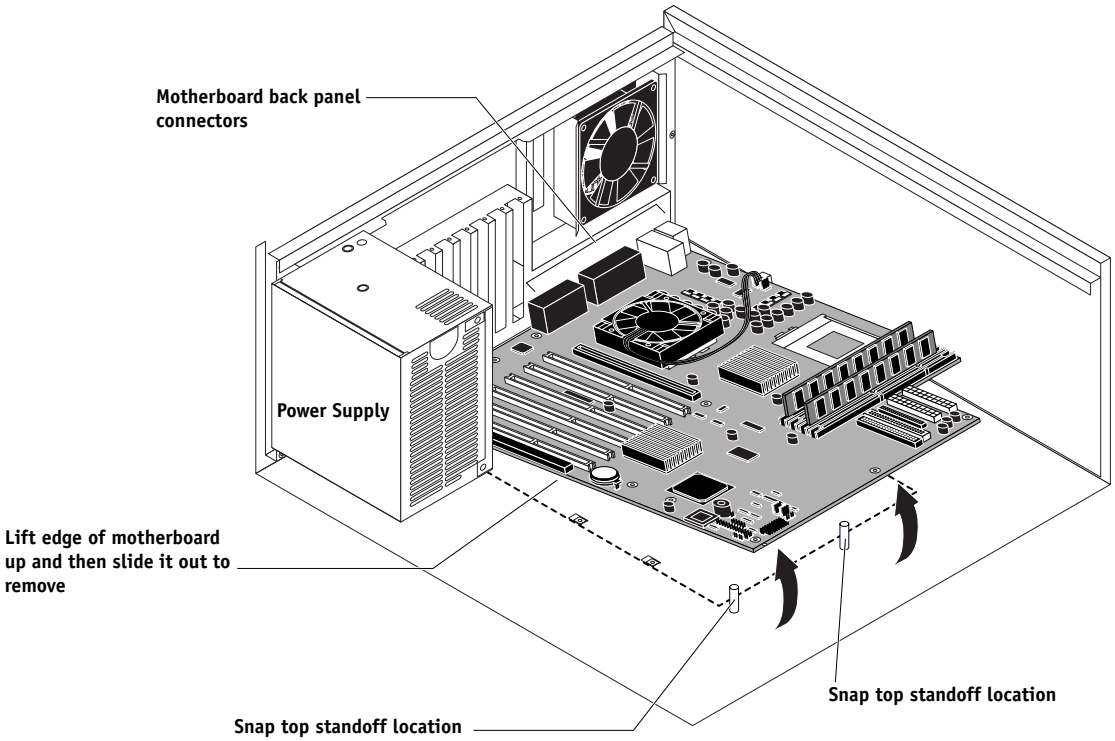
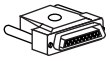


FIGURE 4-16 Removing the motherboard

Replacing the motherboard

Follow the procedures in this section to replace the E-810 motherboard. Spare motherboards ship with a BIOS chip installed. You will need to transfer the memory and CPU(s) from the old motherboard onto the replacement motherboard.

NOTE: Do not install a new motherboard and a new HDD at the same time. If you suspect that the E-810 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.



Spare motherboards ship with a one-use-only service dongle and a Restore/Update Server Software CD that allow you to test and then update the system after the new motherboard is installed. Updating the system allows you to retain certain settings from the old motherboard. After you install the motherboard and reassemble the E-810, test the system by installing the service dongle and entering Service Mode to verify that the system works with the new motherboard. After verifying that the motherboard functions, update the system using the service dongle along with the Restore/Update Server Software CD. The one-use-only service dongle is not expended until you update the system with the Restore/Update Server Software CD.

TO REPLACE THE MOTHERBOARD

1. **If you are installing a new motherboard, install the memory and CPU from the old motherboard. For memory, see page 4-34; for the CPU, see page 4-36.**

   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.

2. **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 4-27.**

3. **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 4-27).**

4. **Once the mounting holes in the motherboard are aligned over the standoffs, gently push the motherboard down to secure it to the chassis.**

5. **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.

6. **Replace the front fan and board guide (see page 4-46.)**

TO REPLACE BOARDS

1. **Replace the following boards in the appropriate motherboard connectors:**
   - AGP video board (if this option is present) in AGP connector
   - ATA board in PCI1 connector
   - Copier interface board in PCI5 connector

   When installing boards, make sure that the board connectors are properly aligned with their connectors on the motherboard.
2. **Replace any option boards installed in remaining connectors on the motherboard.**

TO REPLACE THE MOTHERBOARD CABLES

1. **Connect the power cable to the 20-pin power connector U46 on the motherboard.**
2. **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).**
3. **Connect the ZIP/CD-ROM cable from the CD-ROM drive to the SIDE (Secondary IDE) connector on the motherboard.**
4. **Connect the back panel fan cable to the motherboard fan connector labeled FAN4.**
5. **Connect the front fan cable to the motherboard fan connector labeled FAN1.**
6. **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).**
7. **Connect the UIB cable to motherboard connector JP20.**

TO COMPLETE AND VERIFY MOTHERBOARD INSTALLATION

1. **Replace the HDD and bracket (see page 4-53).**
2. **Attach the board mounting bracket screws for boards occupying slots 1, 2, and 6. 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 air flow and could cause the E-810 to overheat.
3. **Press down on each cable connector and verify that all cables are attached properly.**
4. **Reassemble the E-810 (see page 4-11).**
5. **Unpack the one-use-only service dongle included with the new motherboard and connect it to the parallel port on the back of the E-810 (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 service dongle to secure it to the E-810.

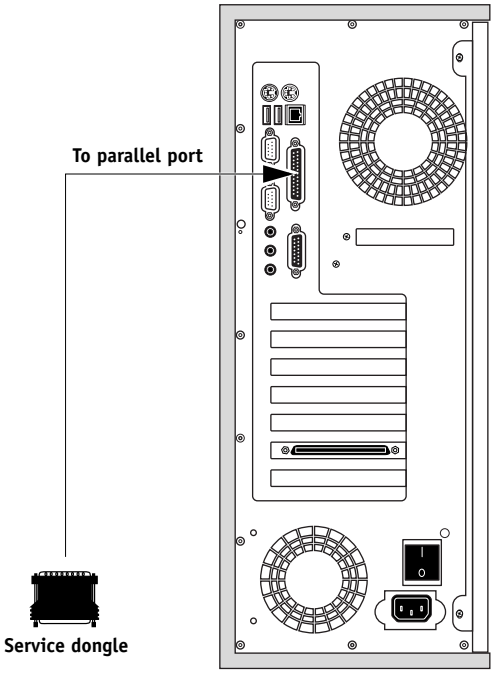
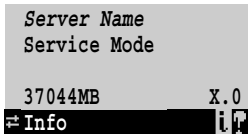


FIGURE 4-17 Connecting the service dongle

6. **Power on the E-810 using the power switch on the back panel and allow the system to boot to Service Mode.**

   Service Mode allows you to verify that the system functions properly with the new motherboard before you update the system using the Restore/Update Server Software CD. While in Service Mode, verify that the system functions by performing steps 7 and 8 below. Performing these steps should only take a few minutes, but you can stay in Service Mode for up to 1 hour before it times-out.

   Do not insert the Restore/Update Server Software CD into the E-810's CD-ROM drive at this time. The dongle is expended when you update the system using the Restore/Update Server Software CD. Once the system is updated and the dongle is expended, Service Mode is unavailable.



   Service Mode screen

7. **Connect the E-810 to the copier and print the E-810 Test Page (see page 3-4)**

8. **Have the network administrator connect the E-810 to the network and download a print job over the network (refer to the *Configuration Guide*).**

   If these operations are not successful, you may conclude that the motherboard does not need to be replaced. If so, reinstall the old motherboard and return the new motherboard to inventory. Refer to Chapter 5, "Troubleshooting."

   If these operations are successful, the motherboard is functional and you are ready to update the system. Service Mode ends automatically when you update the system (see "To perform a system update" on page 4-32).

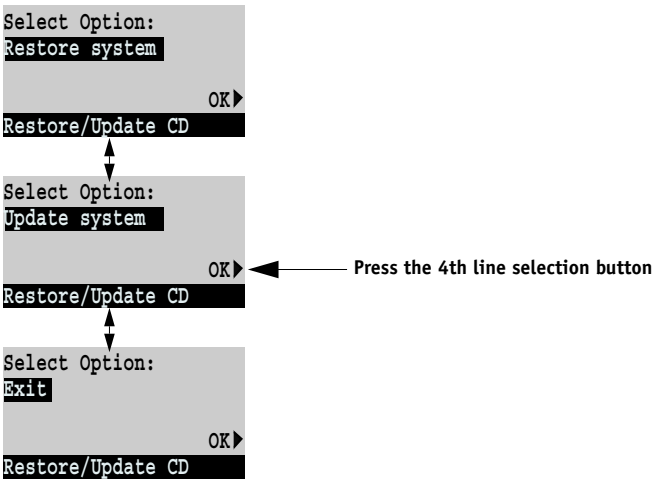
TO PERFORM A SYSTEM UPDATE

NOTE: This procedure assumes that the E-810 is fully assembled, powered on, and functional.

1. **Insert the Restore/Update Server Software CD in the CD-ROM drive.**
2. **Shut down the E-810 (see page 4-3).**
3. **If you have not done so already, connect the one-use-only service dongle to the parallel port on the back of the E-810 (see Figure 4-17 on page 4-30).**

   Remove any other dongle that may be connected to the parallel port and set it aside.
4. **Power on the E-810 using the power switch on the back panel.**
5. **When the following menu appears, scroll to Update system, select OK, and then wait.**

   The update should take less than 30 seconds.



6. **At the message "Update complete," select OK.**
7. **Scroll to Exit and select OK.**
8. **At the message "Remove CD and recycle power," remove the CD and shut down the E-810 (see page 4-3).**
9. **Remove the service dongle and mark it used by peeling off the circle on the label. Reinstall any dongle previously removed.**

   The new motherboard is now customized for your system and cannot be used in another system.
10. **Power on the E-810 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 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 for about 15 seconds before you see the message: It is now safe to power off the system. This message appears if the system update procedure is required but has not been performed.

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 the service dongle is removed while the E-810 is powered on.

Service Mode Timeout—After running for 1 hour in service mode, the system shuts itself down with this message. If that happens, you can power off and on to continue testing if desired.

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, first power off the E-810 as described on page 4-3, and remove the side panel as described on page 4-4.

DIMMs

The E-810 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-810 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 the appropriate 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.

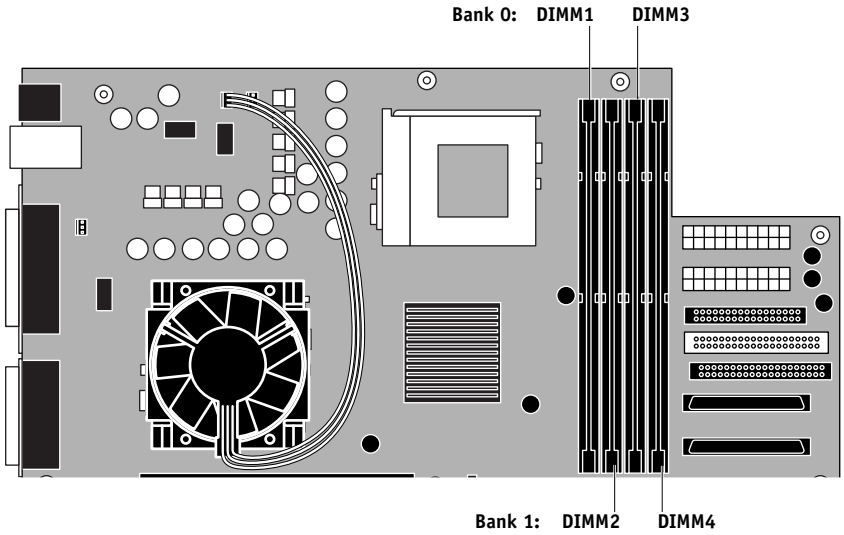


FIGURE 4-18 Motherboard DIMM sockets

To replace a DIMM

Note: If necessary, remove the HDD and the HDD bracket to remove inaccessible DIMMs (see "To remove the HDD" on page 4-52).

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

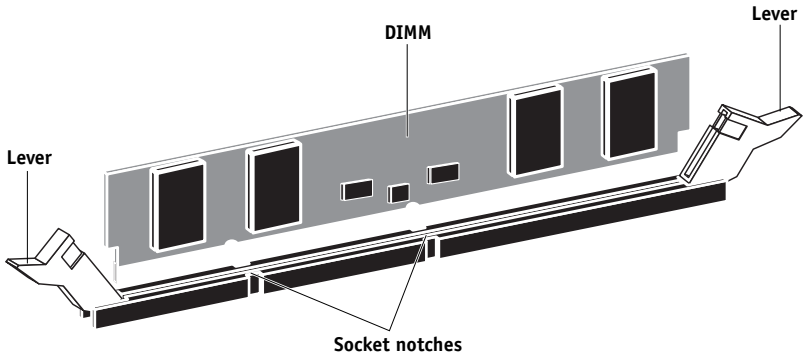


Figure 4-19 Releasing a DIMM

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

3. **To replace a DIMM, position the DIMM in the socket as it was keyed to fit 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-810 (see page 4-11) and verify its functionality. (See the connection verification steps described in Figure 4-8 on page 4-12.)**

Motherboard CPU

The motherboard in the E-810 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.

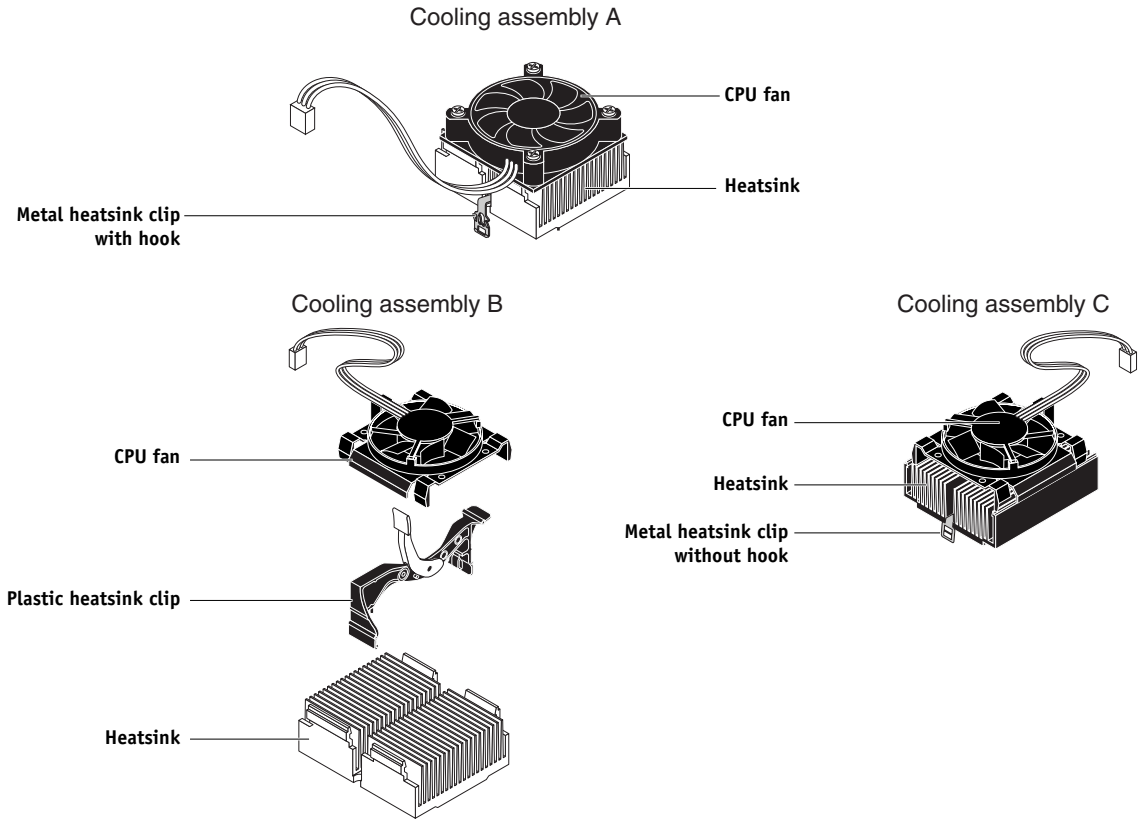


FIGURE 4-20 CPU cooling assemblies

Follow standard ESD precautions while handling the motherboard and all E-810 components.

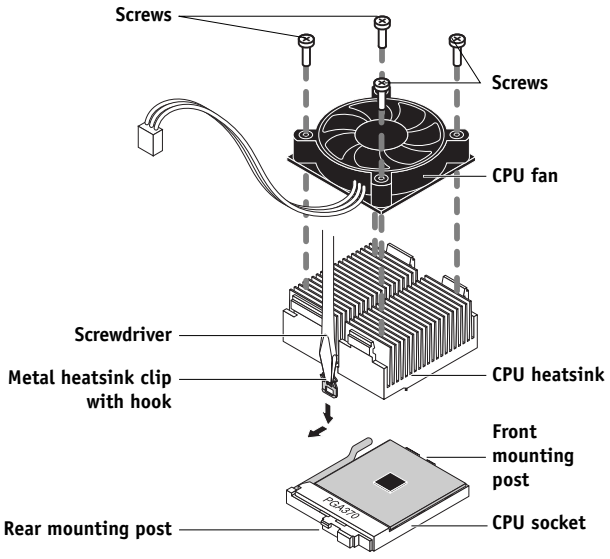
TO REMOVE A CPU

1. **Position the E-810 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 4-15).**
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).**

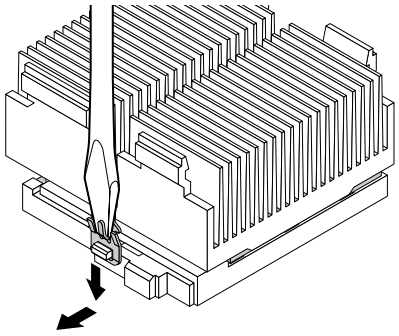
Be aware that both the cooling assembly and the CPU may be very hot. Also, use caution when lifting the cooling assembly off the CPU, as the thermal compound applied to the bottom of the heatsink may damage the CPU if the heatsink is removed too forcefully.

TABLE 4-1 Removing CPU assemblies

Cooling assembly A



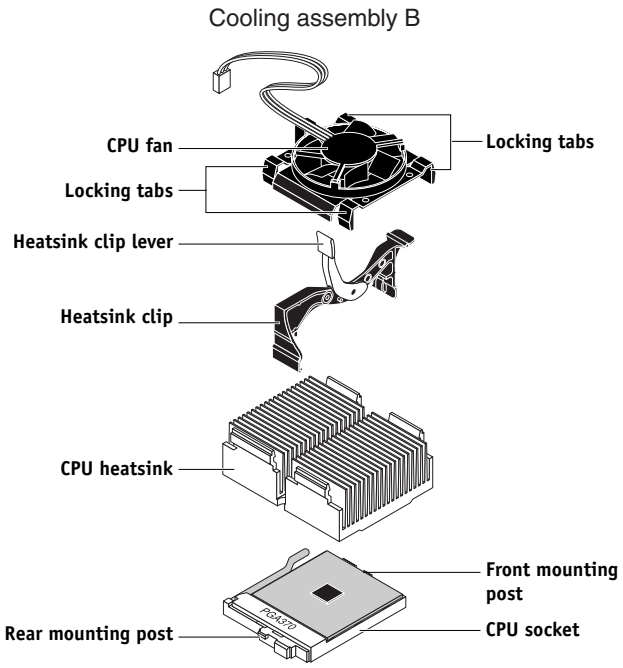
- Remove the CPU fan from the heatsink by removing the screws that secure the fan to the heatsink and then lifting the fan off of the heatsink. Set the screws aside for use later.
- Insert a flathead screwdriver into the hook on the end of the clip and slowly press down on the clip to relieve the clip's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

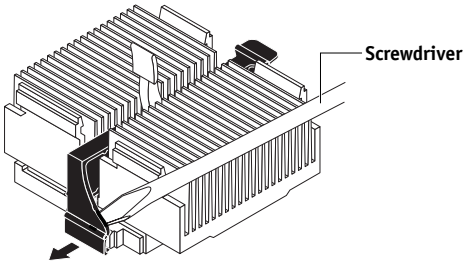
- Detach the other end of the clip from the front mounting post on the CPU socket.
- Remove the CPU cooling assembly from the CPU socket.

TABLE 4-1 Removing CPU assemblies (Continued)



- 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.

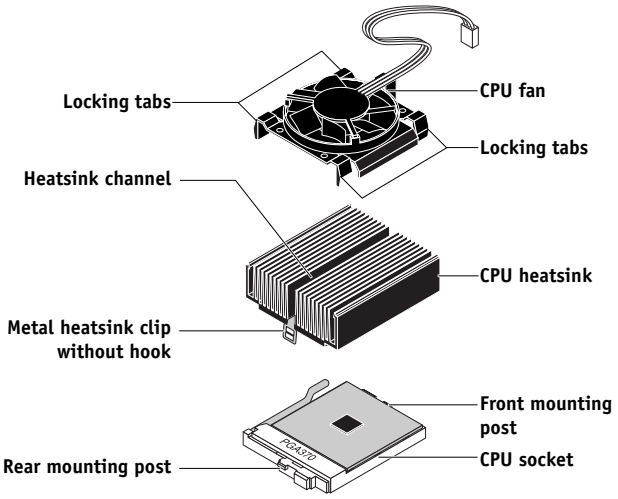
  You may need to use a flathead screwdriver to carefully bend the clip until it is free from the rear mounting post. Be careful not to damage the clip, the motherboard, the CPU, or the CPU socket when removing the heatsink clip.



- Remove the CPU cooling assembly from the CPU socket.

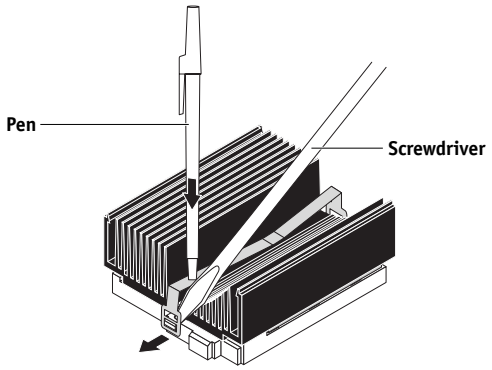
TABLE 4-1 Removing CPU assemblies (Continued)

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.

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.**

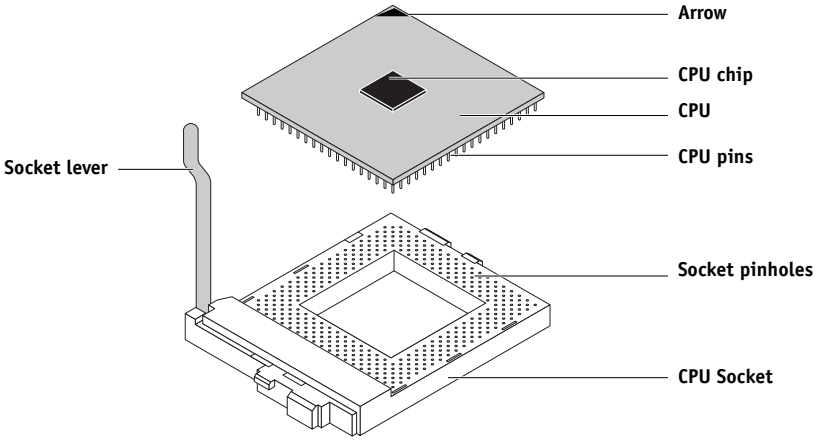


FIGURE 4-21 Replacing a CPU

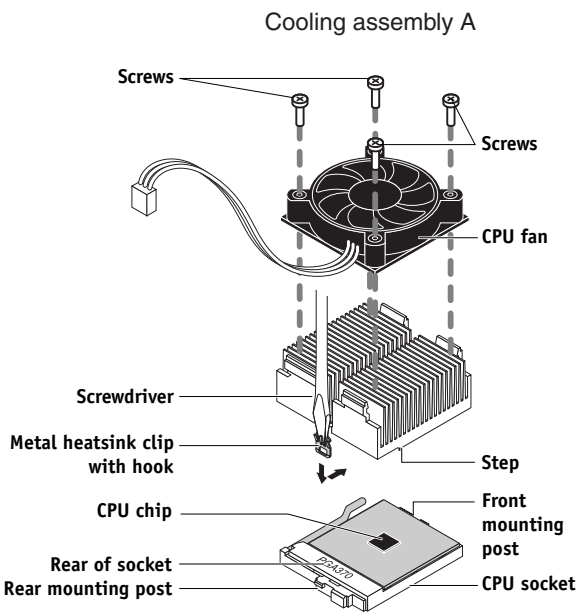
4. **At the base of the heatsink, remove the protective covering over the thermal compound.**

   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.

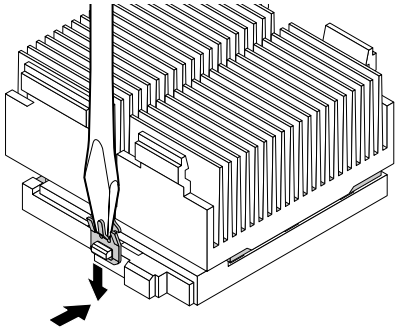
5. **Replace the CPU cooling assembly (see Table 4-2).**

   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.

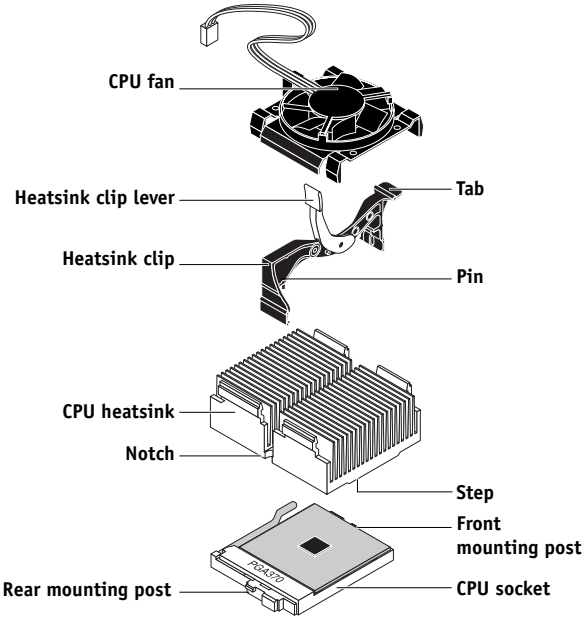


Be careful not to damage the motherboard, the CPU, or the CPU socket when using a screwdriver on the E-810.

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

TABLE 4-2 Replacing CPU Cooling Assemblies (Continued)

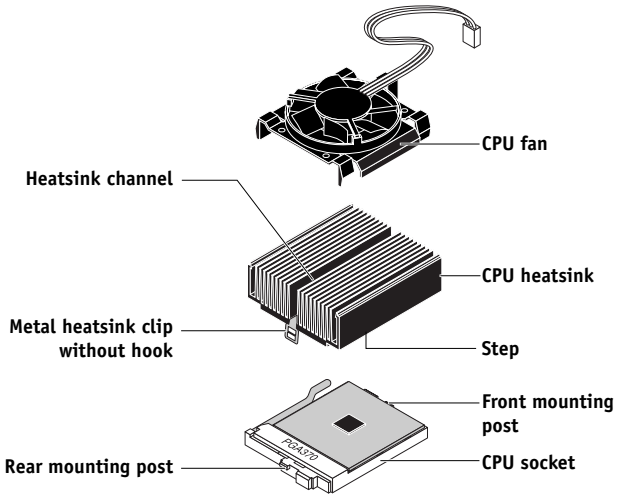
Cooling assembly B



- 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 (Continued)

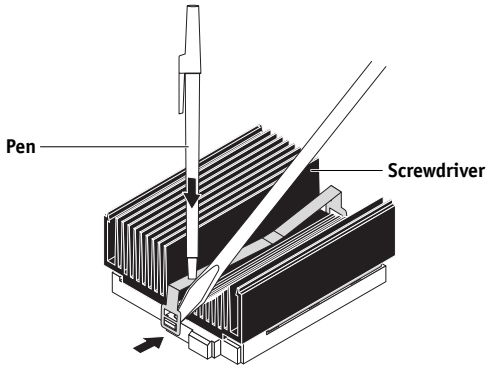
Cooling assembly C



- 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-810 (see page 4-11) and verify its functionality. (See the connection verification steps described in Figure 4-8 on page 4-12.)**

Motherboard battery

The battery on the motherboard is located at BT1.

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 4-24.)**
2. **Carefully push the clip away from the battery until the socket ejects the battery.**

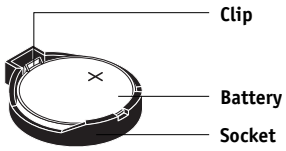


FIGURE 4-22 Motherboard battery

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-810 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 E-810 jumper configuration should not be changed.

Fans

Inside the E-810, 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-810. 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-810 in order to cool highly integrated circuits within the system.

TO REMOVE THE FRONT FAN

1. **Power off and open the E-810 as described on 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 4-46).**
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-810 and so that the fan cable can reach motherboard connector FAN1.

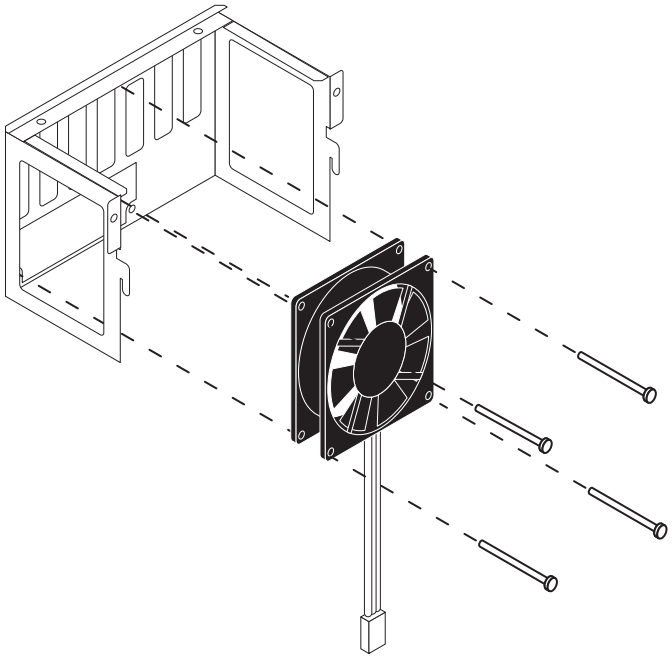


FIGURE 4-23 Removing the front fan

2. **Install the fan on the board guide using the four screws (and washers, if present) that 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-810 (see page 4-11) and verify its functionality. (See the connection verification steps described in Figure 4-8 on page 4-12.)**

Back panel fan

The back panel fan cools the system by blowing air from inside the system out of the back of the E-810.

TO REMOVE THE BACK PANEL FAN

1. **Power off and open the E-810 (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.**

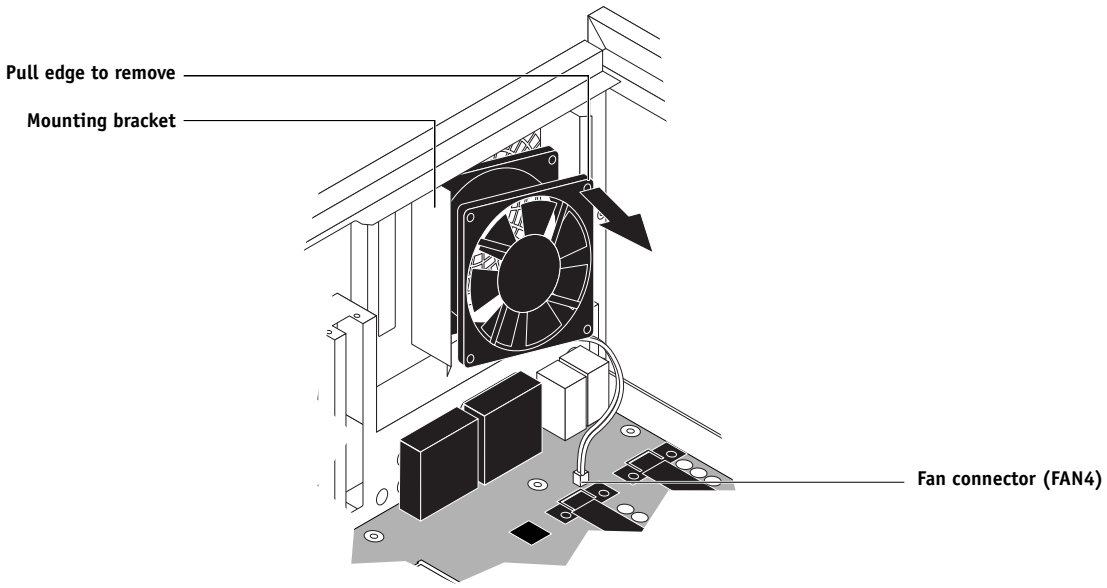


FIGURE 4-24 Removing the fan

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 of the E-810 and snap the fan into the clips on the bracket (see Figure 4-24 on page 4-47).**

   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 4-47).**

3. **Reassemble the E-810 and verify functionality (see page 4-11).**

4. **Make sure the fan vent on the E-810 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 used in the E-810 has an automatic input voltage selection circuit. The input voltages are 90-137VAC and 180-265VAC.

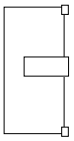
Checking voltages

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 E-810 power connectors.

TABLE 4-3 E-810 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
	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. **Power off and open the E-810 (see page 4-3 and page 4-4).**
2. **Disconnect the 20-pin power cable at connector U46 on the motherboard.**
3. **Disconnect the 4-pin power cable to the HDD.**
4. **Disconnect the 4-pin power cable connected to the ZIP drive.**
5. **Disconnect the 4-pin power cable connected to the CD-ROM drive.**
6. **Remove the four screws on the back panel of the E-810 that attach the power supply to the chassis.**

   Set the screws aside so they can be replaced later.
7. **Gently lift the power supply out of the chassis.**

TO REPLACE THE POWER SUPPLY

1. **Place the power supply inside the bottom 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 the replacement power supply is shipped with screws, make sure to use those screws to secure the power supply to the chassis.
3. **Connect the 20-pin power cable to the motherboard power connector (U46).**
4. **Connect the 4-pin power cable to 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-810 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) in the E-810 is formatted and loaded with E-810 system software, including the network drivers and E-810 printer fonts. The HDD is also used to store spooled print jobs. Available space on the HDD is displayed on the Control Panel. In order to remove the HDD, you first need to remove the HDD bracket that holds the HDD.

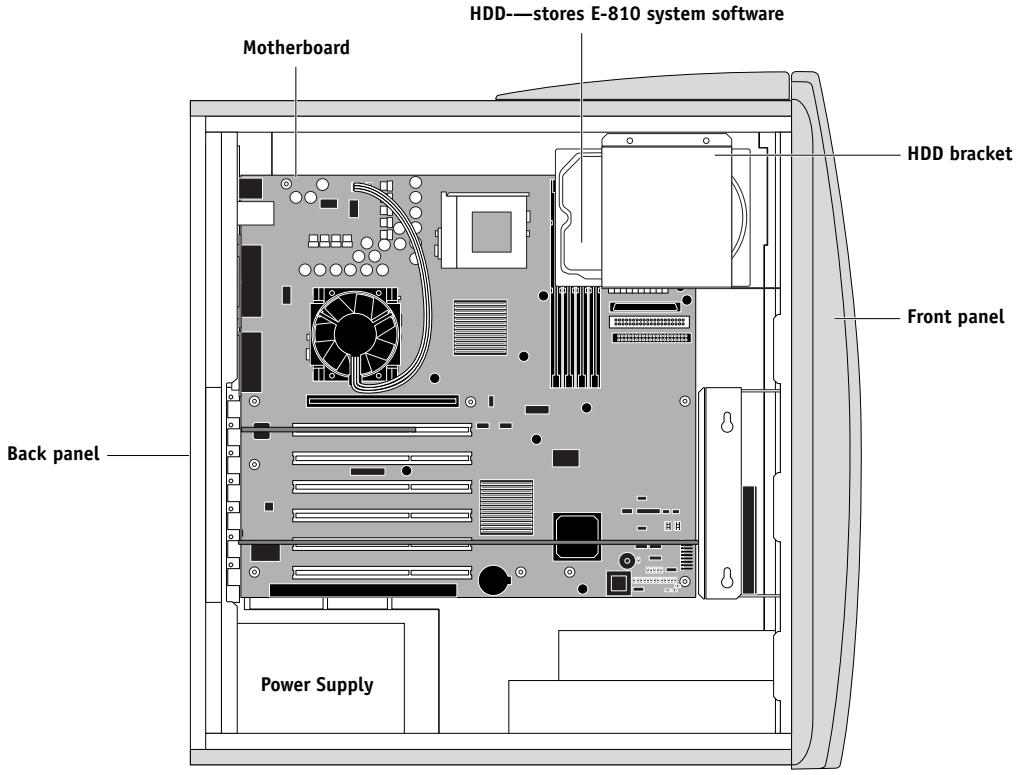


FIGURE 4-25 E-810 HDD (hard disk drive)

E-810 system software and installation instructions are made available to service technicians for field replacement.

If you are replacing the HDD, you will need:

- The appropriate E-810 system software, including documentation for the E-810 you are servicing (see page 4-66 for more information).
- A compatible version of the user software for networked computers that will be printing to the E-810.

TO REMOVE THE HDD

1. **If you are replacing the HDD with a new drive, if possible, print the following from the Functions menu before removing the HDD:**
   - Configuration page (see page 4-66 for a detailed description)
   - Font List (see page 4-66 for a detailed description)
2. **Power off and open the E-810 (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.**

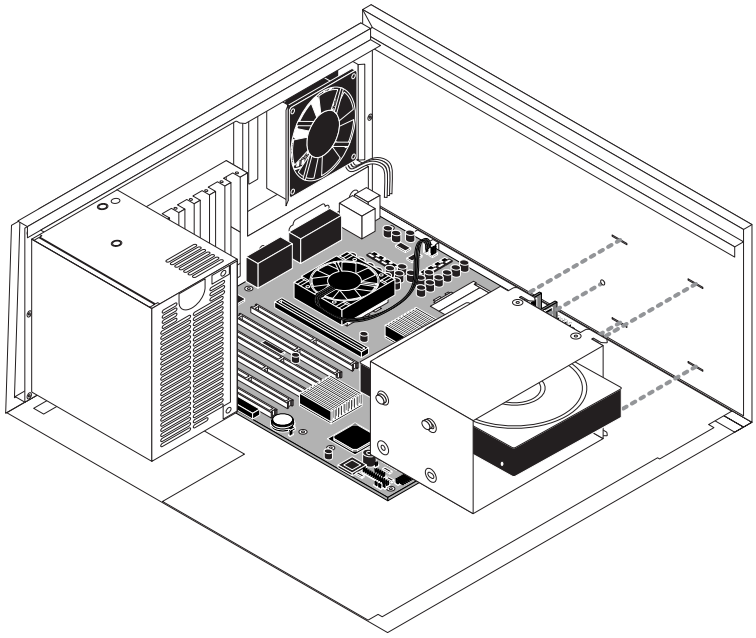


FIGURE 4-26 Removing the HDD and bracket

5. **While supporting the HDD bracket, remove the screw that secures the bracket to the chassis.**

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 hard disk drives are not shipped with any E-810 software pre-installed. After installing the drive, you need to install the appropriate E-810 system software.

TO REPLACE THE HDD

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

   Do not touch the HDD with magnetic objects or place objects sensitive to magnets near the drive.

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 on page 4-54.

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 on 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 4-52).**

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.**

   The connector is keyed to fit only one way.

8. **Reassemble the E-810 (see page 4-11).**

9. **Re-connect the cables you removed from the back panel of the E-810.**

10. **If you replaced the HDD with a new HDD, install E-810 system software (see page 4-63).**

    If a startup error appears on the Control Panel when you power on the E-810, check the E-810 connections. If a startup error still appears, call your authorized service/support center.

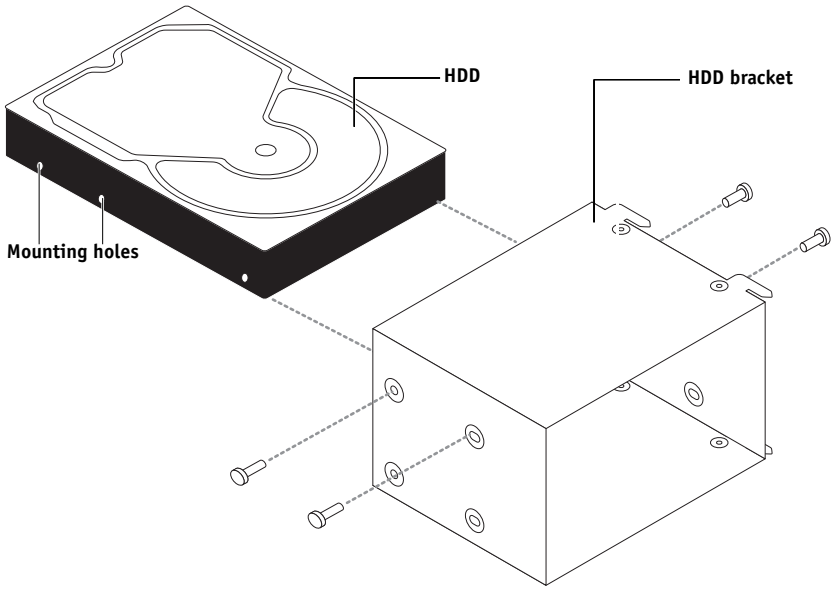


FIGURE 4-27 Replacing the HDD

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*.

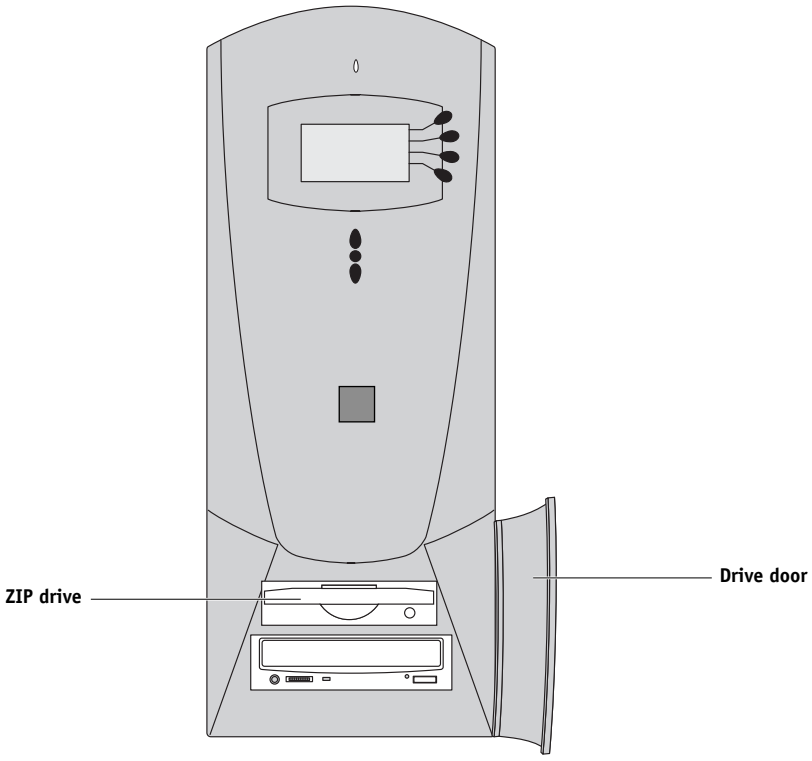


FIGURE 4-28 ZIP drive

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. **Power off and open the E-810 (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.**

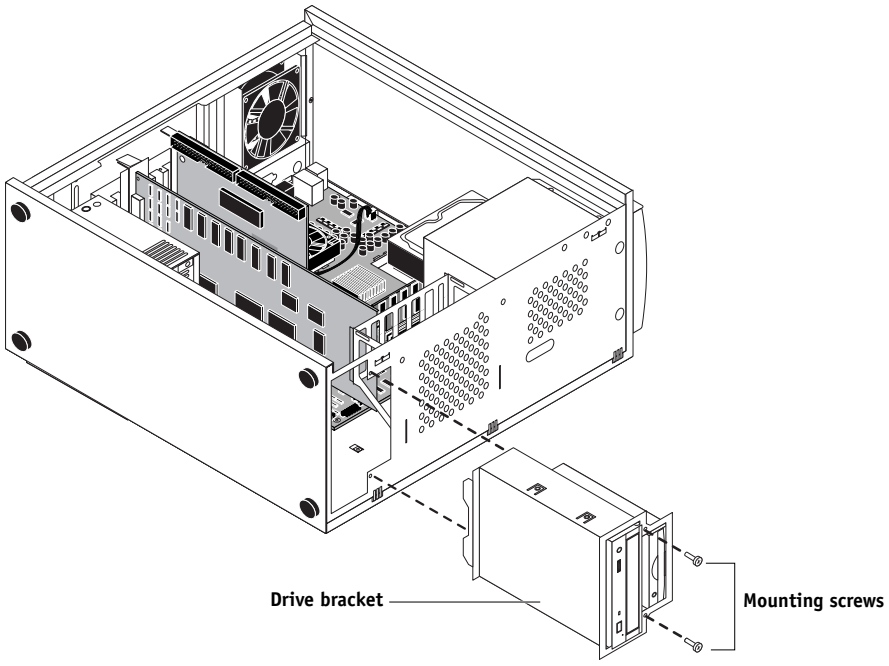


FIGURE 4-29 Removing/replacing the drive bracket

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.

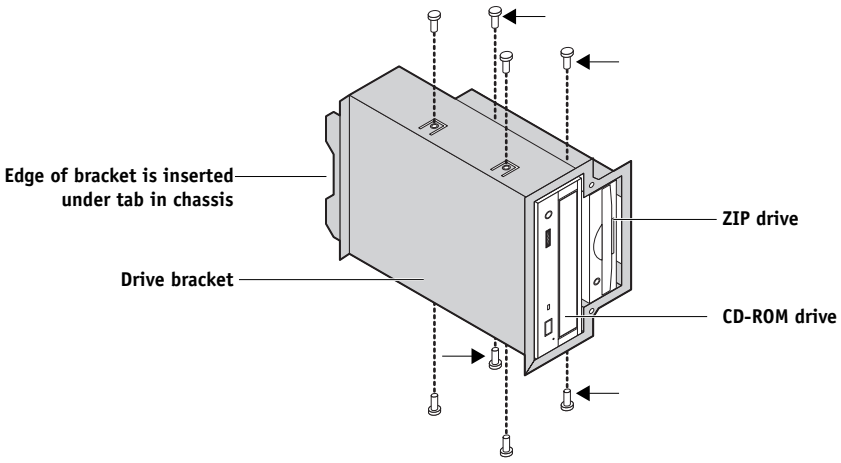


FIGURE 4-30 Replacing the ZIP drive

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 4-56).**

5. **Re-connect the cables you removed from the back of the ZIP and CD-ROM drives and reassemble the E-810 (see page 4-11).**

CD-ROM drive

The CD-ROM drive is installed in the chassis below the ZIP drive and is used to install E-810 system software.

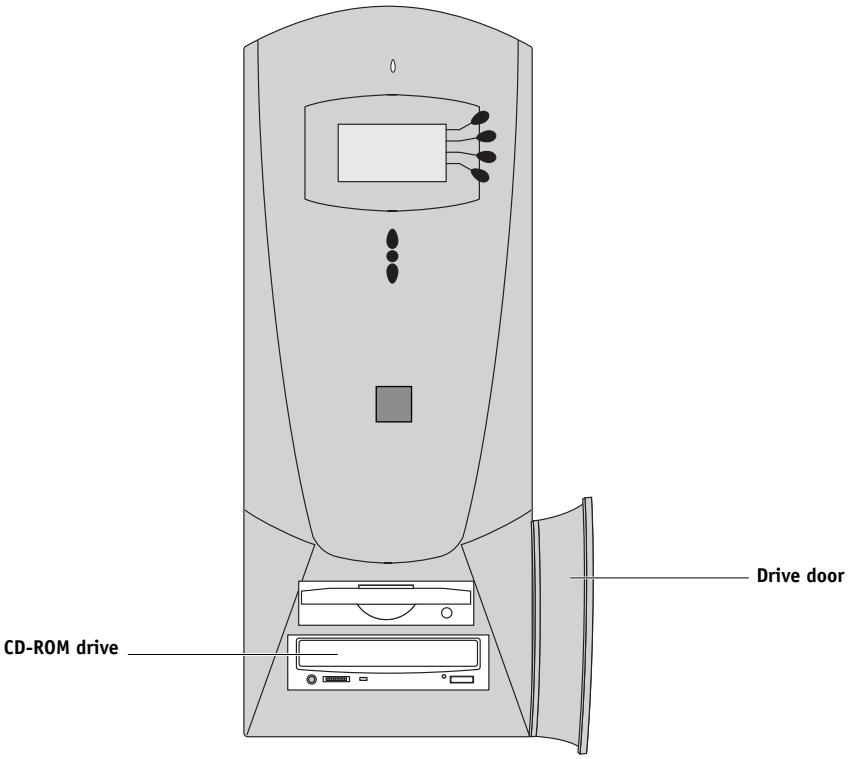


FIGURE 4-31 E-810 CD-ROM drive

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. **Power off and open the E-810 (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 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.**

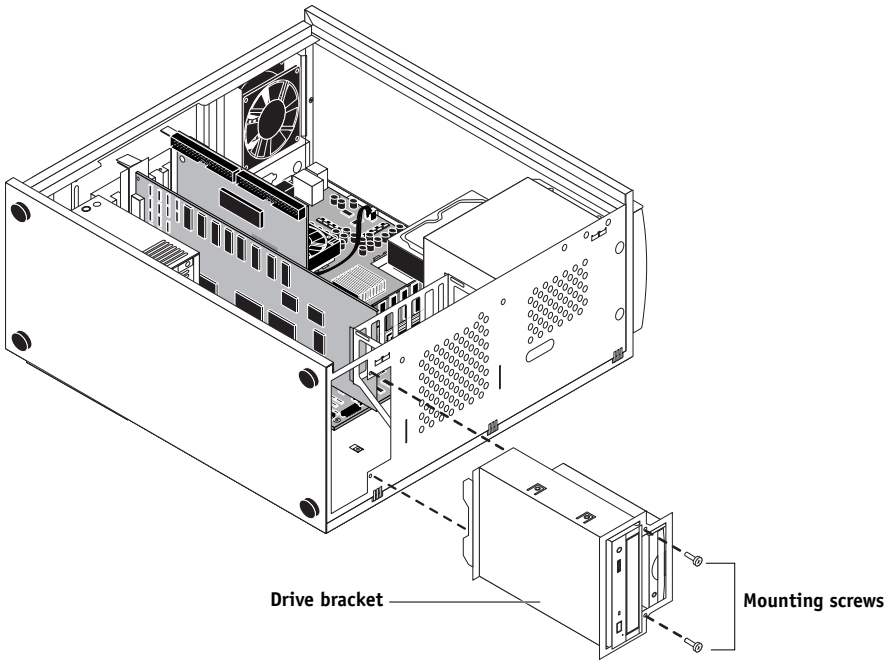


FIGURE 4-32 Removing/replacing the drive bracket

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.**

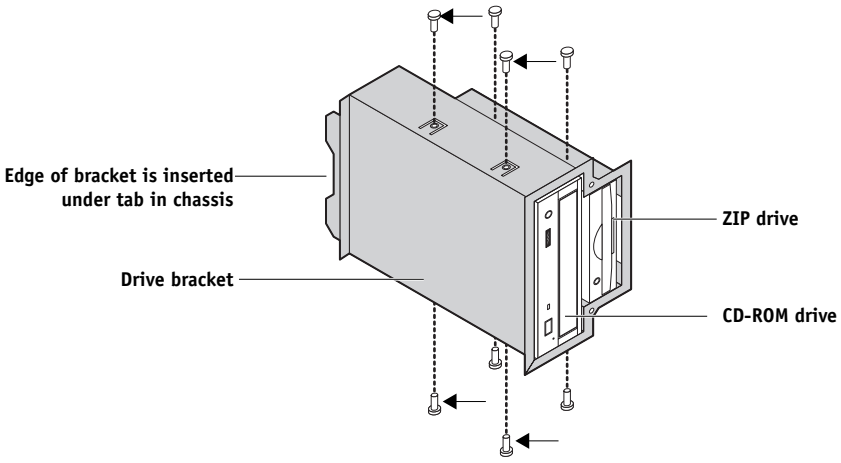


FIGURE 4-33 Removing the CD-ROM drive

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 4-59).**

5. **Re-connect the cables you removed from the back of the ZIP and CD-ROM drives and reassemble the E-810 (see page 4-11).**

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 4-20.

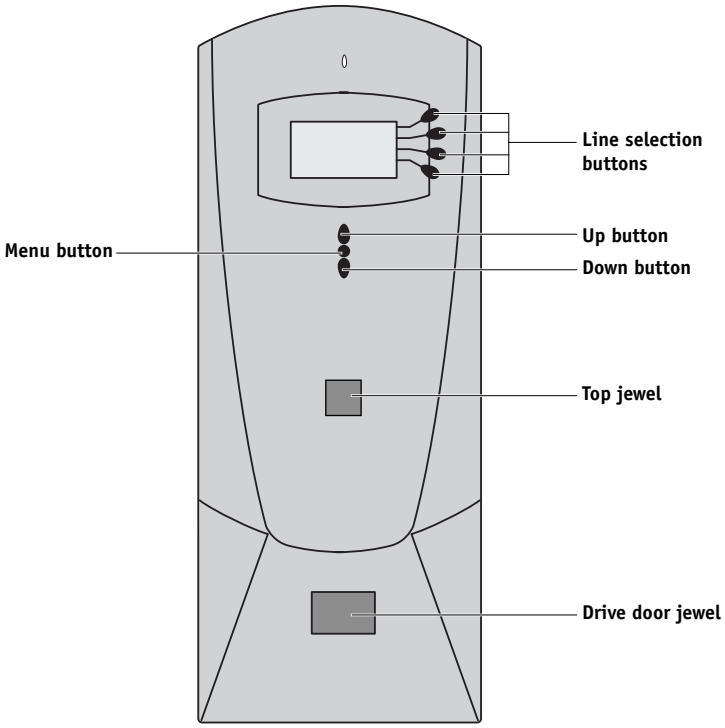


FIGURE 4-34 Front panel jewels and buttons

Jewels

Some upgrades or product modifications may require you to replace a jewel on the front panel of the E-810. 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-810 (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 4-21).**

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-810 and verify its functionality (see page 4-11).**

E-810 system software service

E-810 system software resides on the HDD and is backed up the first time you power on the E-810 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 on the E-810 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 4-64) and how to install system software from the system software CDs (see page 4-66).

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 E-810 HDD are deleted when system software is installed. Resident fonts are restored during system software installation. The network administrator can reinstall any customer-supplied fonts using Fiery Downloader.

  To determine which additional fonts were downloaded to the E-810, 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. See the *Job Management Guide* for more information.
- **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 of the E-810 will be lost during installation of system software.
- **Command WorkStation**—If Command WorkStation software is installed on the E-810, it will be deleted. After installing or restoring system software, you must reinstall the Command WorkStation. See *Getting Started* for more information.
- **Custom simulations**—Custom simulations and custom outputs saved on the E-810 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. See the *Color Guide* for more information.
- **Compatibility**—When upgrading the system software, make sure the latest user software is installed onto all computers that print to the E-810. Using incompatible versions of the system and user software may result in system problems.

Restoring backup system software

The Restore/Update Server Software CD can be used for troubleshooting system problems. When you restore system software, the E-810 configuration is returned to its default settings. Whenever possible, restore rather than reinstall system software, except in certain cases described in "Installing system software" on page 4-66.

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, 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 backup system software is restored.
   - Font List— lists the fonts that are resident on the E-810 HDD. In addition to the fonts originally provided, the customer may have installed additional fonts that will be deleted when you install system software. The network administrator can use Fiery Downloader to reinstall these customer-supplied fonts after system software is installed. 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. **Check to make sure that there is no disk in the ZIP drive.**

   The restore process will not succeed if there is a disk in the ZIP drive.

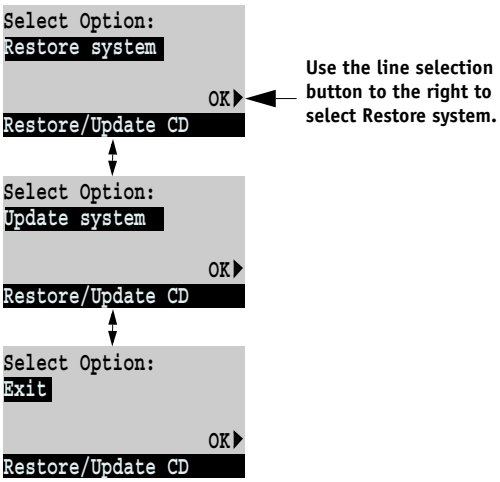
3. **Insert the Restore/Update Server Software CD in the CD-ROM drive.**

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

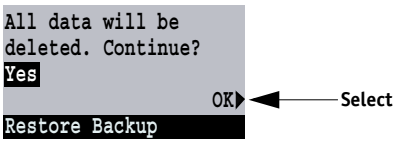
5. **At the next screen, select Reboot System.**

   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.

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



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



   Wait while the E-810 Control Panel displays screens indicating that the software is being restored. After the system software is restored, the E-810 runs diagnostics.

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

9. **Scroll to the Exit menu and select OK.**

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

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

    Bypass settings not included on the Configuration page if it is more appropriate for the network administrator to set them. See the *Configuration Guide* for more information.

12. **Reinstall fonts, Command WorkStation software, or custom simulations that may have been deleted due to system software restoration.**

Installing system software

The E-810 System Software CDs include the system software and fonts. Use the System Software CDs when:

- You replace the E-810 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.

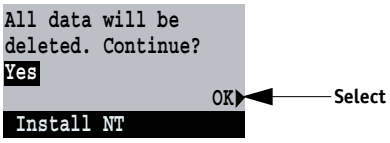
TO INSTALL E-810 SYSTEM SOFTWARE

1. **If you have not done so already, 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 that are resident on the E-810 HDD. In addition to the fonts originally provided, the customer may have installed additional fonts that will be deleted when you install system software. The network administrator can use Fiery Downloader to reinstall these customer-supplied fonts after system software is installed. 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. **Check to make sure that there is no disk in the ZIP drive.**

   System Software will not install if there is a disk in the ZIP drive during the installation.
3. **Insert CD 1 in the CD-ROM drive.**
4. **Select Shut Down from the Functions menu (see page 4-3).**
5. **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.

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



   Wait while the E-810 Control Panel displays screens indicating that the software is being installed.

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

   After you power the system back on, allow the E-810 to proceed without interruption while you watch the Control Panel. Do not press any buttons on the Control Panel.

8. **At the message "Remove CD and recycle power," remove CD 2, and then power off and on the system using the power switch on the back panel.**

   After power on, the E-810 reboots three times to continue the system software installation. 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 4-64.

   While the system is initializing, ignore messages that appear on the Control Panel and 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.)

   NOTE: If a monitor is connected to the E-810 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.

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

   Bypass settings not included on the Configuration page if it is more appropriate for the network administrator to set them. See the *Configuration Guide* for more information.

10. **Reinstall fonts, Command WorkStation 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-810 and suggests ways of correcting them.

The troubleshooting process

The troubleshooting process is designed to eliminate the most obvious causes of failure before progressing to more complex solutions. “Where problems occur” on page 5-2 gives an overview of the E-810 system and indicates areas most likely to require troubleshooting.

- Problems with initial installation

  If the E-810 fails to complete its initial startup and reach the `Idle` (ready to print) screen, the most likely cause is a loose cable or board connection. See “Accessing E-810 internal components” on page 4-3 for instructions on opening the E-810, and “Checking E-810 internal connections” on page 4-8 for descriptions of E-810 parts and connections.

  If a loose part or cable is not the cause of the problem, see “Checking the E-810 as a stand-alone unit” on page 5-8, and “Checking the entire E-810 system” on page 5-17.

- Try a phone check before you go to the customer site

  “Before you go to the customer site” on page 5-3 suggests areas you should check out before making a call to the customer site. With a phone call you can find out if the problem is a simple operating failure or a failure caused by a network or configuration change. You can ask the customer to check for loose cables on the back of the E-810 and loose connections at a power strip or outlet.

- Check for obvious causes of problems

  “Preliminary on-site checkout” on page 5-5 takes you through the initial checkout when you arrive at the customer site. You should check the E-810 internally and externally for the most common problems such as loose cables, connectors, and boards.

- Check the E-810 as a stand-alone unit

  “Checking the E-810 as a stand-alone unit” on page 5-8 describes the checks you should perform on the E-810 if the initial checks fail to identify the cause of a problem. With the E-810 disconnected from the copier and the network, test the E-810 as a stand-alone unit.

  This section describes possible startup errors and explains how to run and interpret E-810 startup diagnostics.

- Check the entire E-810 system

  "Checking the copier interface" on page 5-17 explains how to print the Test Page from the E-810. "Checking network connections" on page 5-18 includes guidelines for checking the network connections between the E-810 and the computers or workstations, and also provides information on printing problems.

Where problems occur

The E-810 is a server for copiers, and it is generally part of a configuration like the one shown below. Problems may occur in one of three areas:

- Inside the E-810
- In the interface between the E-810 and the copier
- In the interface between the E-810 and the workstations or computers to which it is connected

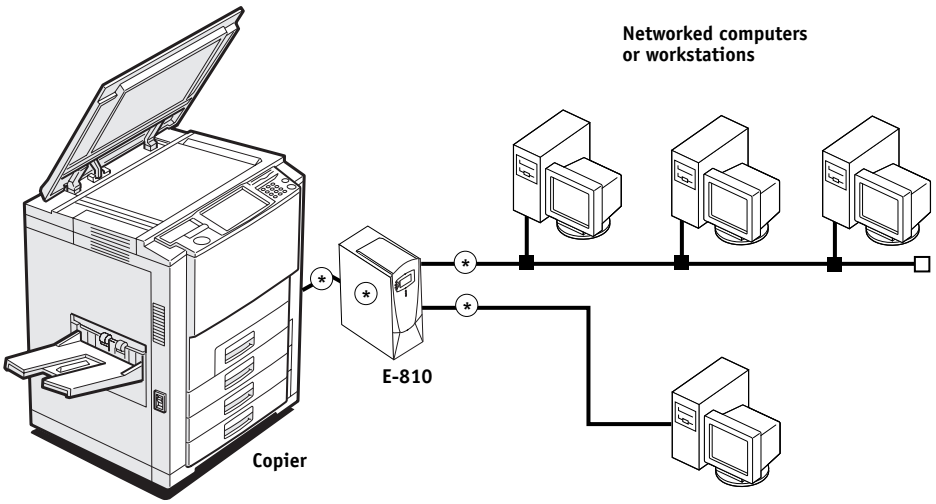


FIGURE 5-1 Troubleshooting the system

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.

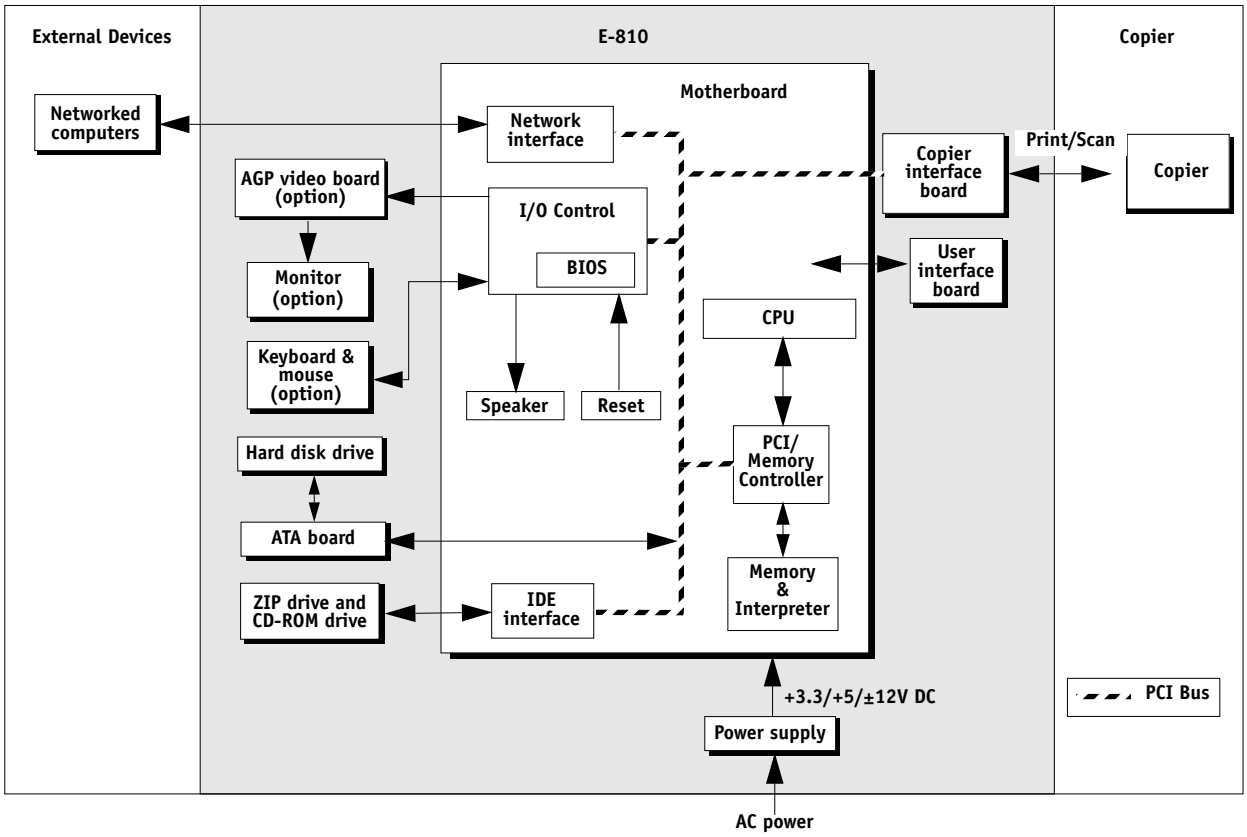


FIGURE 5-2 Functional diagram of a typical configuration

Before you go to the customer site

Before you make a service call to a customer site, talk to the customer on the phone and check out the following items:

1. **Does the copier work when it is not connected to the E-810?**

   If the copier works but the user cannot print the E-810 Test Page, have the customer check the Control Panel on the E-810 for an error message, as well as the copier interface cable connections between the E-810 and the copier.

2. **Is the failure caused by a simple operating problem?**

   - Is there a printing problem?
     - Does the E-810 Test Page fail to print?
     - Does the E-810 fail to respond to a print command?
     - Does printing seem to take a long time?

- Is print quality poor?
- Does the E-810 fail to appear in the list of printers?

- Has the customer noted any error messages on the E-810 or the copier screen?

If the answer to any of these questions is yes, refer the customer to a list of E-810 error messages in the *Printing Guide.* If the customer has followed the corrective actions in the *Printing Guide* and still fails to solve the problem, be prepared to make a service call. Keep a log of the failures and messages the customer has observed.

3. **Has the customer made any network changes?**

   If so, request that the customer's network administrator verify the E-810 network requirements. See "Checking network connections" on page 5-18.

4. **Has the customer added or removed any equipment that might impact the operation of the E-810?**

   If so, obtain a list of the modifications. This should direct you toward possible problem areas. For example, if the HDD has been replaced, system software may need to be re-installed.

5. **Is the user having printing problems with a particular image file?**

   If there are problems with files from particular applications, the user may be more successful using different print settings. The *Color Guide* provides print settings for some popular applications.

If your preliminary phone call fails to clear up the problem, proceed to the second phase, the preliminary on-site checkout.

Preliminary on-site checkout

Your goal in the preliminary on-site checkout is to eliminate obvious problems such as loose or missing cables and connectors, or loosely seated printed circuit boards.

Checking interface cables

Before you remove the side and front panel of the E-810 to check internal components, make sure that:

- All interface cables to the system are plugged into the proper connectors on the back panel of the E-810 (see Figure 5-3).
- The power cable is plugged into the wall supply.
- The power switch on the back panel of the E-810 is in the on position.

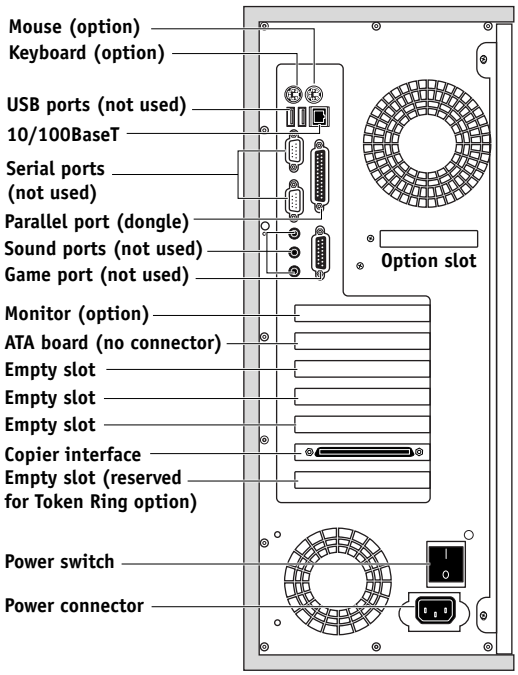


FIGURE 5-3 Back panel of E-810

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 panels of the E-810.

Before you remove the side and front panels of the E-810, be aware of the safety precautions you should take when handling the E-810, and use ESD precautions when handling printed circuit boards and electronic components. To review the safety precautions, see "Precautions" on page -xiii.

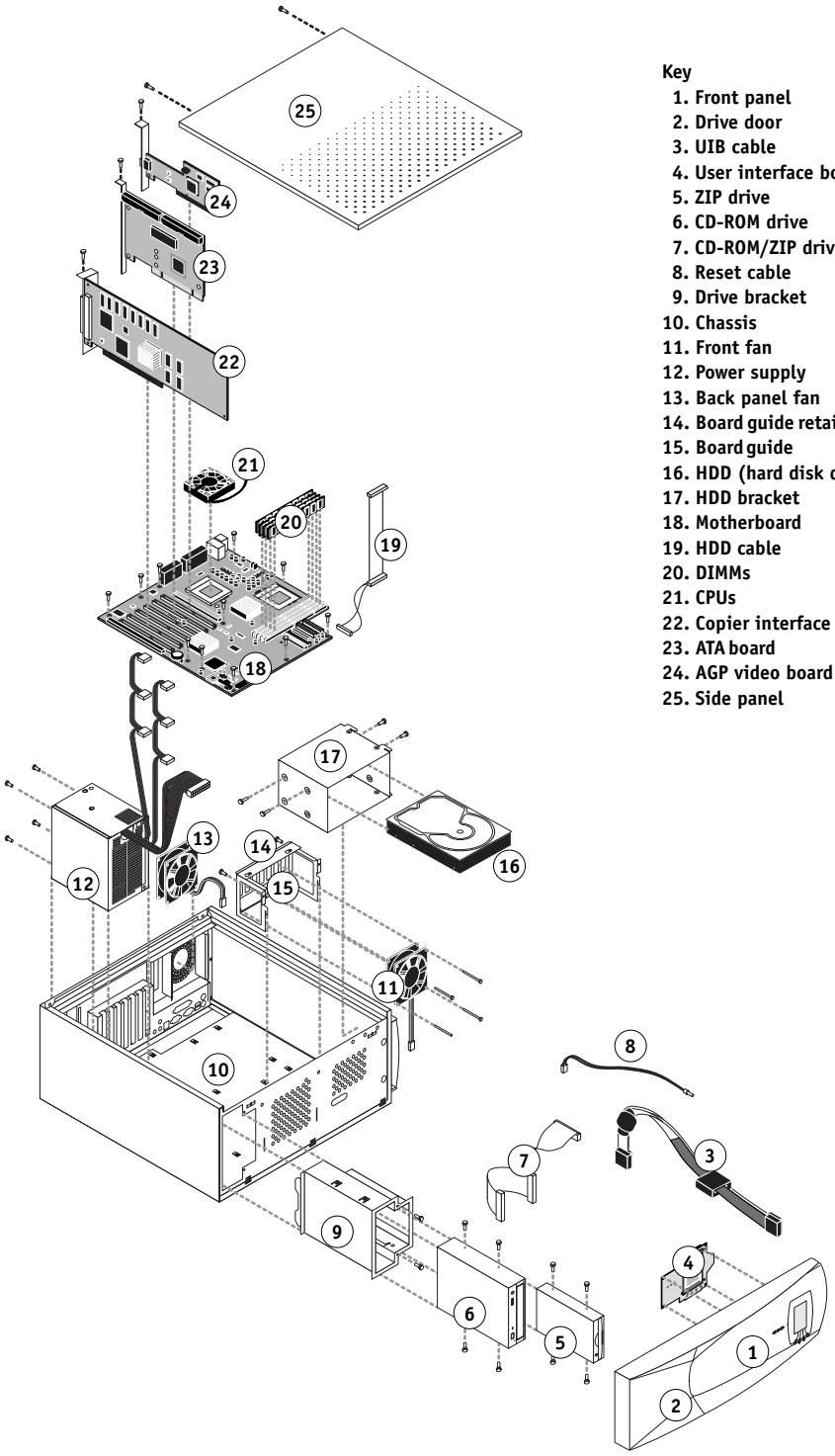
Use the guidelines in Chapter 4 when disassembling, checking, and reassembling the E-810.

TO CHECK INTERNAL COMPONENTS

1. **Shut down the E-810 (see page 4-3).**
2. **Remove the side panel and the front panel (see page 4-4 and page 4-6).**
3. **Before you touch any components inside the E-810, attach a grounding strap to your wrist and discharge any static electricity on your body by touching the metal cover of the E-810.**
4. **Inspect the inside of the E-810 (for details, see page 4-8).**

   Make sure no foreign materials have been dropped into the chassis. Figure 5-4 on page 5-7 shows an exploded view of the system components.

   - 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-810 and verify functionality (see page 4-11).**



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
18. Motherboard
19. HDD cable
20. DIMMs
21. CPUs
22. Copier interface board
23. ATA board
24. AGP video board (if this option is present)
25. Side panel

FIGURE 5-4 Exploded view of E-810 components

Checking the E-810 as a stand-alone unit

To test the E-810 as a stand-alone unit:

- Disconnect the E-810 from the copier and from the network
- Check for possible startup problems
- Check Setup (see the *Configuration Guide* for details)

TO ISOLATE THE E-810

1. **Isolate the E-810 from the copier and from the network by disconnecting the following cables from their connectors on the back panel of the E-810:**
   - Network cable
   - Copier interface cable
2. **Make sure the power cable to the E-810 is still in place.**
3. **Power on the E-810 and allow the startup diagnostics to run.**

Beep codes during startup

When you turn on the E-810 or reboot, the system performs diagnostic tests that check the motherboard. While the diagnostic tests are running, the name of each test is displayed on the Control Panel and the activity light is solid green. If a non-fatal error occurs during the startup diagnostics, the red activity light on the E-810 Control Panel blinks and the Control Panel LED displays the error message.

NOTE: When you power on or reboot, the activity light is solid red until the EFI logo appears.

When you encounter any of these conditions, check components as suggested in the following tables. If the problem persists, power off the E-810 and inspect the inside of the chassis for an obviously loose part or cable. For all service, see "Accessing E-810 internal components" on page 4-3. When you are finished, see "Restoring E-810 functionality after service" on page 4-11.

Table 5-1 lists the possible beep codes and how to correct the error. The other tables list the possible error messages that may be reported to the Control Panel or the monitor and the suggested corrective action.

One long beep followed by two short beeps indicates a video problem (for those systems that include a monitor). All other beep sequences indicate memory problems.

NOTE: Some beep codes continue to loop until the E-810 is powered off and the error is corrected. If beep codes are reporting fatal errors, the system will not boot up.

TABLE 5-1 E-810 beep codes

Beep code	Area reporting the error	Suggested action
1 beep	No error–Boot up proceeding normally	• None
2 beeps	Possible error–Boot up proceeding	• Observe the boot up process. Other error conditions and status messages that appear later may provide more information about the error.
Multiple beeps	Possibly fatal error	• Power off the E-810; check for missing DIMMs and reseat the DIMMs to remove any oxidation on the connectors. • If that does not correct the error, shut down and power off the E-810. Unplug the power cable and remove the battery. This clears the settings in the CMOS chip so that it can be fully reprogrammed during startup. Reinstall or replace the battery and power on the E-810. **NOTE:** Make sure the 3-pin jumper area labeled JP13 (located near the battery) has not been changed from its shipping configuration (jumper present but not connecting pins 1 and 2). The system can behave unpredictably if JP13 is changed. • Check again the power cable connection to the motherboard. If the power cable is damaged, replace the power supply. • If the problem persists, you may need to replace the motherboard.
1 long beep followed by 2 short beeps	Video (monitor) interface	• If the E-810 you are servicing includes a monitor and the monitor is good but not working, you may need to replace the AGP board or the motherboard. Try installing a new AGP board before installing a new motherboard. Check the monitor on a Windows computer to verify that it works.

General E-810 system error conditions

When you startup the E-810 or when you install system software, you may encounter error conditions that are not reported during the startup diagnostics. The following table lists some of these error conditions and suggests corrective action.

TABLE 5-2 General E-810 system error conditions

Symptom	Probable cause	Suggested action
No fan sound and E-810 does not start up.	The E-810 is powered off.	• Power on the E-810 using the power switch on the back. • Check again the power connection to the motherboard. • If the problem persists, replace the power supply. • If the problem still persists, you may have to replace the motherboard. **NOTE:** CPU(s) is not required for the fans to work.
	Power supply cable connector to the motherboard is faulty or disconnected.	
	Power supply has failed.	
	Power connector on motherboard is faulty.	
Check power & cable appears on the Control Panel.	The copier is not ready to print.	• Make sure the copier is powered on and ready to print. • Check again that the copier interface cable is present and properly connected to the E-810 and the copier. • Run diagnostics on the copier interface board and do what is suggested if an error is reported (see "Copier interface board diagnostics" on page 5-16). • If the problem persists, power off/on the copier and the E-810, waiting one minute after the E-810 reaches Idle before you power on the copier. • If the problem persists, replace the copier interface cable. • If the problem persists, you may need to service the copier.
	Problem with the connection between the E-810 and the copier.	
Creating backup hangs on the Control Panel.	Lost communication with HDD during startup after installing system software and selecting language.	• Wait several more minutes to make sure the system is really hanging. • If the problem persists, power off/on the E-810. • If the problem persists, reinstall system software. • For systems with a monitor, if monitor is black, reseat the AGP board and replace if necessary. • If the problem persists, check the HDD cable and replace if necessary. • If the problem persists, you may need to replace the HDD and/or ATA board.
	AGP board (if this option is present) is not seated properly in its motherboard connector.	

TABLE 5-2 General E-810 system error conditions (Continued)

Symptom	Probable cause	Suggested action
Invalid license appears on the Control Panel briefly during startup, then displays a message that it is safe to shut down the system.	Wrong system software was installed.	• Reinstall system software.
Control Panel problems at power on, such as: Buttons do not work Control Panel is not lit. Control Panel is lit but discolored.	User interface board or connections may be faulty.	• Check again the cable and cable connection to the user interface board. • If the problem persists, replace the front panel assembly containing the user interface board.
	Power cable or power supply is faulty.	• Check again the power supply connections. • If the problem persists, replace the power supply.
	CPU connection is loose, or CPU is faulty.	• 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. If the system fails to reach Idle, test the installed CPU in the other socket. If the system fails again to reach Idle, replace the CPU; if the system reaches Idle, you may have to replace the motherboard.
	CMOS settings in the CMOS chip have been corrupted, or the BIOS chip is faulty.	• Power off the E-810. Unplug the E-810 and remove the battery in order to clear the CMOS chip so that it can be fully reprogrammed during startup. Reinstall or replace the battery and power on the E-810 (see note below). • Recheck the power cable connection to the motherboard. If the power cable is damaged, replace the power supply. • If the problem still persists, you may need to replace the motherboard. **NOTE:** After removing or replacing the battery, if the E-810 does not reach Idle on the Control Panel when you power on the system, you may need to restore system software using the Restore/Update Server Software CD (see page 4-64), or, if necessary, reinstall system software (see page 4-66).
System starts up slowly then displays one or more DHCP error messages on the monitor.	System searches 3 minutes for a nonexistent DHCP server because DHCP is enabled by default on the E-810 but the customer's network is not using DHCP.	• Make arrangements with the network administrator to change the default in E-810 Network Setup.

TABLE 5-2 General E-810 system error conditions (Continued)

Symptom	Probable cause	Suggested action
Booting..... hangs on the Control Panel.	System software is corrupted	• Reinstall system software from the CDs.
	System configuration is faulty.	• Check again the cables and cable connections to the back of the E-810. • If equipped, reboot and press the TAB key on the keyboard to view status messages on the monitor.
	The battery was just removed or replaced while the power cable was disconnected from the E-810 or the wall outlet.	• Restore system software using the Restore/Update Server Software CD (see page 4-64), or, if necessary, reinstall system software (see page 4-66).
	Cable connections to the HDD and/or ATA board are loose or faulty, HDD is corrupted, or ATA board is faulty.	• Check again the HDD cable and cable connections. Replace the HDD cable if necessary. • If the problem persists, you may need to replace the HDD and/or ATA board, especially if this error occurred during the second attempt to reinstall system software after the first attempt was aborted.
Configuring Hardware hangs on the Control Panel.	CD-ROM power cable is loose, or the CD-ROM drive is faulty.	• Check again the power cable connections between the motherboard and the CD-ROM drive. If the power cable is damaged, you may have to replace the power supply. • If the problem persists, you may need to replace the CD-ROM drive.
	Loose or bad HDD cable, or the HDD is faulty.	• Check again the cable connections to the HDD and ATA board and replace the HDD cable if necessary. • If the problem persists, you may need to replace the HDD and/or ATA board. • If the problem still persists, you may have to replace the motherboard.
	CMOS settings in the CMOS chip have been corrupted, or the BIOS chip is faulty.	• Power off/on the E-810. Unplug the E-810 and remove the battery in order to clear the CMOS chip so that it can be fully reprogrammed during startup. Reinstall or replace the battery and power on the E-810 (see note below). **NOTE:** After removing or replacing the battery, if the E-810 hangs at Booting... and does not reach Idle on the Control Panel when you power on the system, you may need to restore system software using the Restore/Update Server Software CD (see page 4-64), or, if necessary, reinstall system software (see page 4-66).

TABLE 5-2 General E-810 system error conditions (Continued)

Symptom	Probable cause	Suggested action
CD-ROM or ZIP drive is not responding, cannot be located, or the busy LED remains lit.	Cable connections to the CD-ROM or ZIP drive are loose or faulty, or the CD-ROM or ZIP drive is faulty.	• Check the power and CD-ROM/ZIP cable connections to the ZIP drive. • Check CD-ROM/ZIP cable connection to the motherboard. • Make sure the CD-ROM drive is jumpered to be a master: see the label on the CD-ROM drive for jumpering information. • Make sure the ZIP drive is jumpered to be a slave: see the label on the ZIP drive for jumpering information. • If the problem persists, you may need to replace the CD-ROM or ZIP drive. • If replacing the CD-ROM or ZIP drive does not correct the problem, try replacing the motherboard.
System performs slowly and hangs periodically.	CPU(s) is overheated or is faulty.	To determine if the problem is hardware-related: • 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. If the system fails to reach `Idle`, test the installed CPU in the other socket. If the system fails again to reach `Idle`, replace the CPU; if the system reaches `Idle`, you may have to replace the motherboard.
	DIMMS are missing or faulty, or DIMM connections are faulty	• Power off the E-810; check for missing DIMMs and reseat the DIMMs to remove any oxidation on the connectors. • If the problem persists after replacing the DIMMs, you may need to replace the motherboard.
	Faulty AGP board (if this option is present), or connection to the motherboard may be causing long CPU interruptions.	• Reseat the AGP board. • If the problem persists, you may have to replace the AGP board. • If the problem persists, you may have to replace the motherboard.
`Wrong/Missing. . . dongle` appears on the Control Panel.	Either the wrong dongle or no dongle at all is installed on the E-810 parallel port.	• Install the correct dongle on the E-810 parallel port and repeat the system update procedure (see page 4-32).

TABLE 5-2 General E-810 system error conditions (Continued)

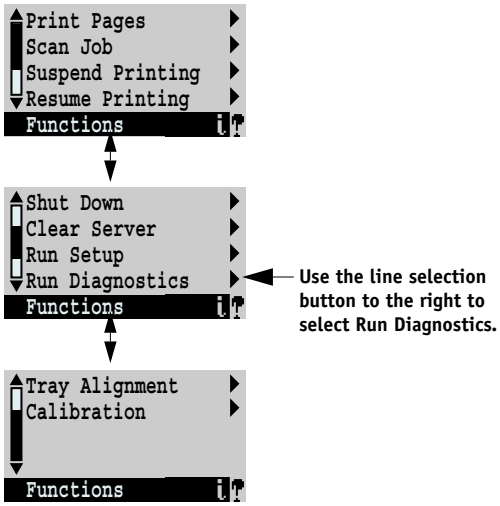
Symptom	Probable cause	Suggested action
Used Dongle appears on the Control Panel.	The dongle has already been used to update a system and cannot be used again.	• Obtain an unused dongle.
Test Page fails to print.	The copier is not ready to print.	• Make sure the copier is powered on and ready to print. • Check again that the copier interface cable is present and properly connected to the E-810 and the copier. • Run diagnostics on the copier interface board and do what is suggested if an error is reported (see "Copier interface board diagnostics" on page 5-16). • If the problem persists, power off/on the copier and the E-810, waiting one minute after the E-810 reaches Idle before you power on the copier. • If the problem persists, replace the copier interface cable. • If the problem persists, you may need to service the copier.
	There is a problem with the connection between the E-810 and the copier.	
Unable to connect to the network, or the green LED on the 10/100BaseT connector is not lit.	Ethernet interface on the E-810 motherboard is faulty, or the network is faulty.	• If the green LED on the 10/100BaseT connector is not lit on the E-810 back panel, check the cable connection to the back panel and the network. • If the network cable is properly connected to the back of the E-810, connect a different network cable to the back of the E-810. • Have the network administrator check Network Setup. • Restore system software using the Restore/Update Server Software CD (see page 4-64), or, if necessary, reinstall system software (see page 4-66). Make arrangements with the network administrator to change the default in E-810 Network Setup. • 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.) • If the rest of the network is functioning properly, replace the motherboard.

Copier interface board diagnostics

If you suspect there might be a problem with the copier interface board (for example, the print quality of output is poor), you can run the Test I/F board diagnostics to make sure the copier interface board is installed properly.

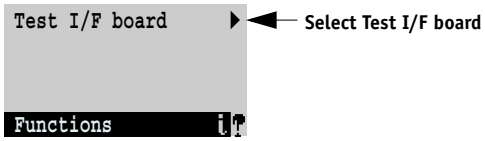
TO RUN COPIER INTERFACE BOARD DIAGNOSTICS

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



2. **Select Run Diagnostics from the Functions menu.**

3. **At the Diagnostics screen, select Test I/F board.**



4. **If the screen displays the message "diags failed," then:**

   - Power off the E-810 and open the system.
   - Reseat the copier interface board.
   - Power on the E-810 and run the test again. If the test still fails, you may need to replace the copier interface board.

5. **Once the Control Panel indicates that the diagnostics passed, press the line selection button next to OK to return to the Functions menu.**

Checking the entire E-810 system

This phase of troubleshooting deals with problems with the entire system. These procedures should be run after verifying that the E-810 functions properly as a stand-alone unit.

Checking the copier interface

After the E-810 starts up successfully as a stand-alone unit, power off the E-810 and connect the copier interface cable (see page 3-3). Make sure the E-810 is working properly with the copier before you connect it to the network.

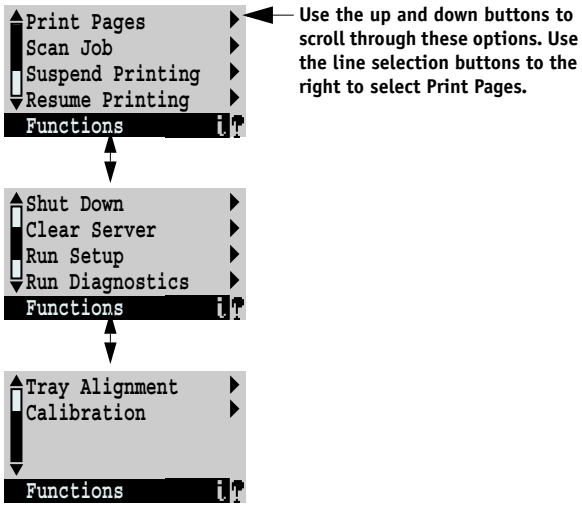
Printing the E-810 Test Page

Once you have connected the E-810 to the copier, you should print the Test Page to verify that the interface between the copier and the E-810 is working properly. The Test Page is a color file that resides on the E-810 HDD. The Test Page 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-810 from the power switch on the back panel.**

   Messages appear on the Control Panel as the E-810 runs through its startup diagnostics.
3. **Before proceeding, make sure that the copier is not in use. The E-810 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-810 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-810 print engine is functional and that the connection between the E-810 and the copier is good. If the Test Page does not print, refer to the suggested actions given for this problem in Table 5-2 on page 5-11.

   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*.

Checking network connections

After the E-810 is connected to networked computers, printing problems may arise if the network hardware or software is not set up properly or does not match network settings on the E-810. Problems may also arise when printing from a specific application or printing a particular file.

Most of these problems show up as printing problems, and do not necessarily indicate a E-810 malfunction. The customer's network administrator can eliminate many printing problems without requiring you to make a service call. The network administrator deals with network connection problems that result in the E-810 not appearing in the printer list on the customer's workstation. If the E-810 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.

Other issues the network administrator handles:

- Conflicting network settings in Setup and on the customer's workstation
- Printing problems caused by inappropriate Setup options
- Application-specific printing errors caused by missing or incorrectly placed printer description files

Printing to the E-810

If the user can print the E-810 Test Page, but cannot print a job from a computer on the network, you may have to make a service call. However, first 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*
- Confirmed 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

When you make a service call, check the back panel of the E-810 to make sure that the appropriate network connections are in place. Check that the LED on the network connector is blinking to indicate network activity.

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.

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

Appendix A: Specifications

This chapter provides an overview of E-810 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

User software

A complete description of E-810 user software is provided in *Getting Started*. For optimal E-810 performance, current versions of the user software should be maintained on every network computer that might print to the E-810.

Safety and emissions compliance

The E-810 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-810.

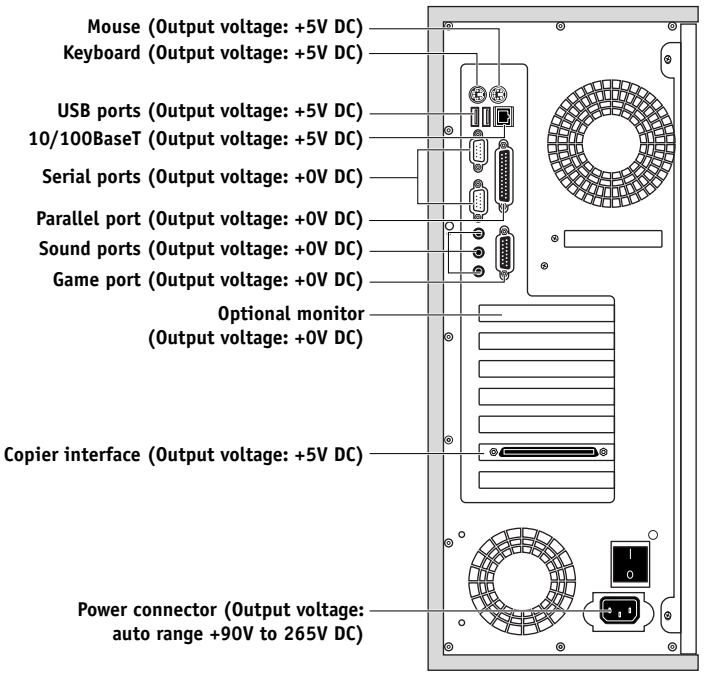


FIGURE A-1 E-810 back panel output voltage

Appendix B: Controller Interface

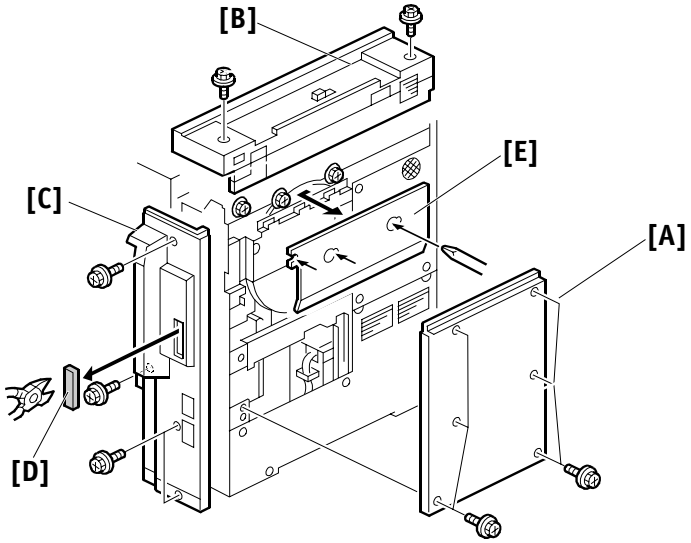
This appendix provides the *Controller Interface Installation Procedure*. The Controller Interface must be installed in the copier before you can connect the E-810 to the copier.

Controller Interface Installation Procedure

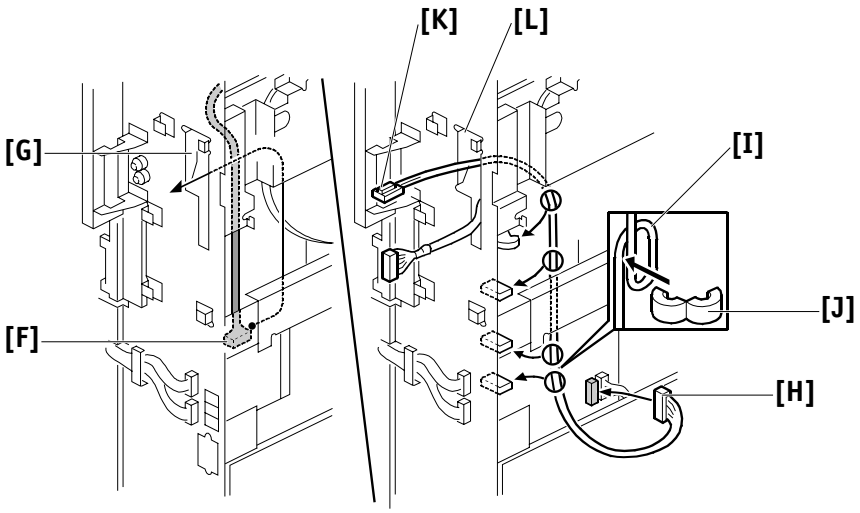
The Controller Interface provides the electrical interface between the copier and the E-810. Use the following procedures to prepare the copier for the Controller Interface, and then install the Controller Interface.

To install the Controller Interface

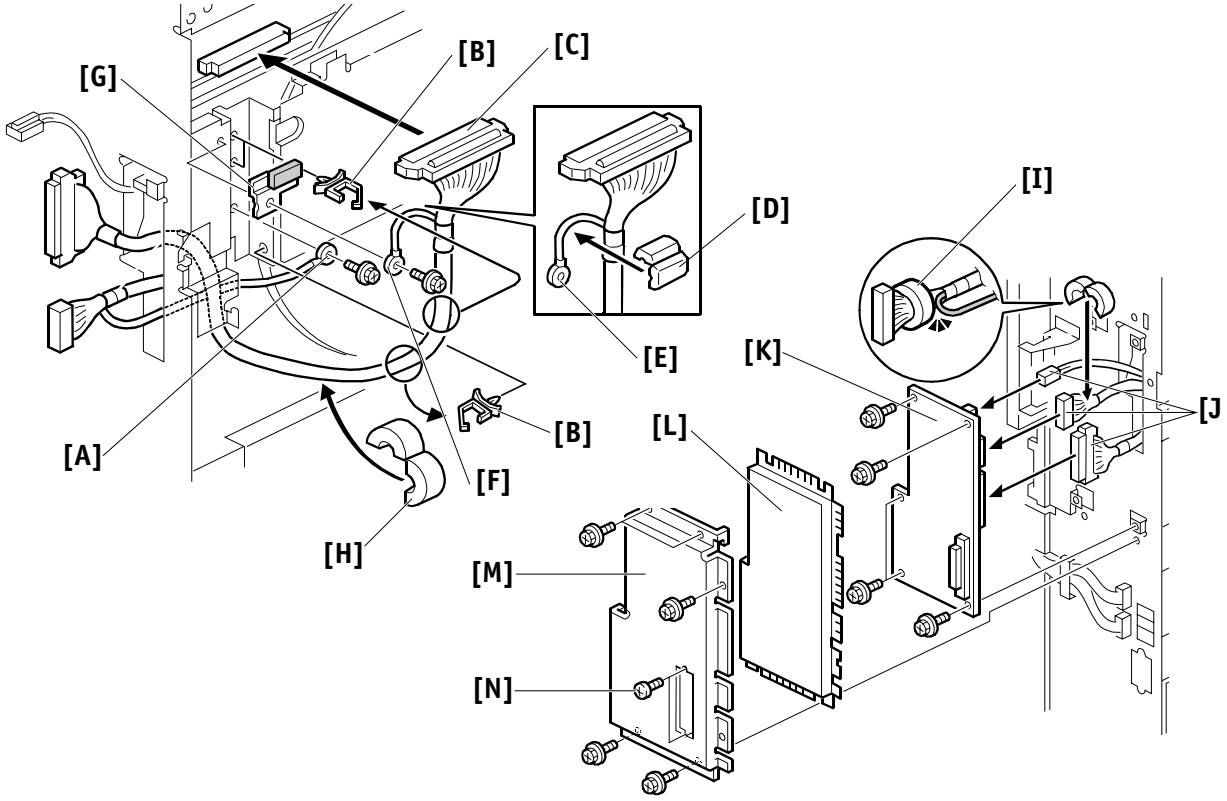
Unplug the copier power cord before starting the following procedure.



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.”

Index

D

E

F

H

I

J

L

M

N