Network Multi-PDL Printer Unit-M3/imagePASS-M3 Installation and Service Guide

for Canon black and white copiers

A guide for service technicians

Part Number: 45045368

Patents

This product may be covered by one or more of the following U.S. Patents:

4,716,978, 4,828,056, 4,917,488, 4,941,038, 5,109,241, 5,170,182, 5,212,546, 5,260,878, 5,276,490, 5,278,599, 5,335,040, 5,343,311, 5,398,107, 5,424,754, 5,442,429, 5,459,560, 5,467,446, 5,506,946, 5,517,334, 5,537,516, 5,543,940, 5,553,200, 5,563,689, 5,565,960, 5,583,623, 5,596,416, 5,615,314, 5,619,624, 5,625,712, 5,640,228, 5,666,436, 5,745,657, 5,760,913, 5,799,232, 5,818,645, 5,835,788, 5,859,711, 5,867,179, 5,940,186, 5,959,867, 5,970,174, 5,982,937, 5,995,724, 6,002,795, 6,025,922, 6,035,103, 6,041,200, 6,065,041, 6,112,665, 6,116,707, 6,122,407, 6,134,018, 6,141,120, 6,166,821, 6,173,286, 6,185,335, 6,201,614, 6,215,562, 6,219,155, 6,219,659, 6,222,641, 6,224,048, 6,225,974, 6,226,419, 6,238,105, 6,239,895, 6,256,108, 6,269,190, 6,271,937, 6,278,901, 6,279,009, 6,289,122, 6,292,270, 6,299,063, 6,310,697, 6,321,133, 6,327,047, 6,327,050, 6,327,052, 6,330,071, 6,330,363, 6,331,899, 6,340,975, 6,341,017, 6,341,018, 6,341,307, 6,347,256, 6,348,978, 6,356,359, 6,366,918, 6,369,895, 6,381,036, 6,400,443, 6,429,949, 6,449,393, 6,476,927, 6,490,696, 6,501,565, 6,519,053, 6,539,323, 6,543,871, 6,546,364, 6,549,294, 6,549,300, 6,550,991, 6,552,815, 6,559,958, 6,572,293, 6,590,676, 6,606,165, 6,633,396, 6,636,326, 6,643,317, 6,647,149, 6,657,741, 6,662,199, 6,678,068, 6,707,563, 6,741,262, 6,748,471, 6,753,845, 6,757,436, 6,757,440, RE33,973, RE36,947, D341,131, D406,117, D416,550, D417,864, D419,185, D426,206, D439,851, D444,793.

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Refer to the Class Compliance sticker affixed to the back of your Fiery (or, in the case of embedded systems, to the sticker affixed to the print engine) to identify the appropriate classification (A or B, below) for this product.

Class A Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

Industry Canada Class A Notice

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

Avis de Conformation Classe A de l'Industrie Canada

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

Class B Declaration of Conformity

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

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

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

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

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

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

Industry Canada Class B Notice

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

Avis de Conformation Classe B de l'Industrie Canada

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

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

Die Einhaltung zutreffender Bestimmungen hängt davon ab, dass geschirmte Ausführungen benützt werden. Für die Beschaffung richtiger Ausführungen ist der Betreiber verantwortlich.

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Contents

Chapter 4: Service Procedures

Chapter 5: Troubleshooting

Appendix A: Specifications

Index

Preface

The *Installation and Service Guide* is intended for certified Network Multi-PDL Printer Unit-M3 or imagePASS-M3 service technicians installing or servicing a Network Multi-PDL Printer Unit-M3 or imagePASS-M3. If you have not received installation and service certification, you should not attempt to install or service a Network Multi-PDL Printer Unit-M3 or imagePASS-M3. Electronics for Imaging does not warrant the performance of a Network Multi-PDL Printer Unit-M3 or imagePASS-M3 if installed or serviced by non-certified personnel.

NOTE: The term "iR-M3" is used in this manual to refer to the Network Multi-PDL Printer Unit-M3 and imagePASS-M3.

About this guide

This guide is divided into the following topics:

- "Preface"

  General information about this guide and about installing the iR-M3.

- Chapter 1, "Introduction"

  General information about the iR-M3.

- Chapter 2, "Preparing for Installation"

  Unpacking and the steps you must take before installing the unit.

- Chapter 3, "Connecting the iR-M3"

  Connecting the iR-M3 to the copier and the network and verifying that the system is working correctly; overview of the Control Panel; shutting down and restarting the iR-M3.

- Chapter 4, "Service Procedures"

  Removing and replacing procedures for iR-M3 components; installing system software.

- Chapter 5, "Troubleshooting"

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

- Appendix A, "Specifications"

  Hardware and network specifications; safety and emission compliance information.

NOTE: iR-M3 customers should not use the technical service documentation. Do not leave your copy of the *Installation and Service Guide* at the customer site after you make a service call.

About the illustrations in this guide

The illustrations in this guide reflect the current shipping version of the iR-M3 at the time of publication. Components shown in these illustrations are subject to change. To receive information about any iR-M3 components that do not match the illustrations in this guide, contact your authorized service/support center.

Terminology and conventions

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

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

The term “Control Panel” refers to the area on the front of the iR-M3, including the green 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 iR-M3 hard disk.

The term “10/100/1000BaseTX” used throughout this manual refers to 10/100/1000 megabits per/second (Mbps) baseband data transmission over twisted-pair wire.

References to other iR-M3 manuals, such as *Configuration and Setup,* 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 iR-M3:

- **Report any shipping damage.**

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

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

  The iR-M3 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.

- **Never assign an IP address in iR-M3 Network Setup.**

  Only the network administrator should assign an IP address to a network device. Assigning the iR-M3 an incorrect IP address may cause unpredictable errors on any or all devices connected to the network.

- **Always disconnect power before opening the iR-M3.**

- **Use care when handling parts of the iR-M3, as some edges on the unit may be sharp. For example, be careful when:**

  - Accessing the DVD (Digital Versatile Disk) 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

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

  Static is always a concern when servicing electronic devices. It is highly unlikely that the area around the copier and the iR-M3 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 iR-M3 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 access panel and handle internal components, touch a metal part of the iR-M3.
  - 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.

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

- **Never set any liquid on or near the iR-M3 or the copier.**

Tools you will need

To install or service the iR-M3, bring the following tools and parts to the customer site:

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

  Also bring this guide, documentation for any optional service kits you may be installing, and any technical notes for the iR-M3.

Chapter 1: Introduction

The iR-M3 adds computer connectivity and highly efficient Adobe PostScript 3 and PCL printing capability to copiers. It is optimized for high-speed network communications, processing, rasterization, and printing.

Features

The iR-M3, 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 iR-M3-supported devices.
- Spool print jobs and select a printing priority for each job. Users can control spooled print jobs sent to the iR-M3 with remote user software running on networked PC and Mac OS computers.
- Print files in gray-scale and black and white.
- 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. Downloader™ or any third-party LaserWriter downloader, such as the Adobe Font Downloader, can be used to download additional fonts.

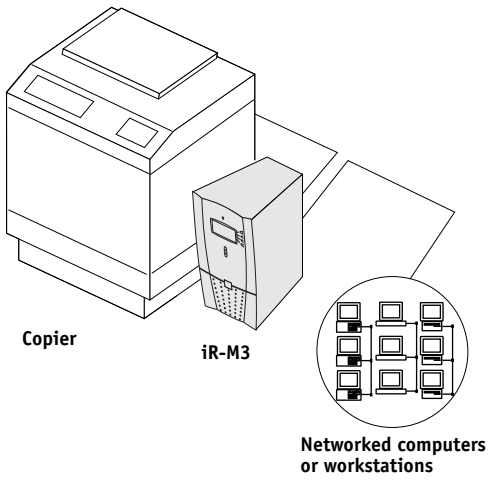


FIGURE 1-1 iR-M3 printing system

The iR-M3 is one of several imaging products engineered and manufactured by Electronics For Imaging.

How the iR-M3 operates

The iR-M3 enables users to send jobs to the copier from networked PCs running Microsoft Windows, from networked Mac OS computers, and from networked UNIX workstations running TCP/IP.

The iR-M3 custom-designed boards and system software provide for efficient image processing and printing controls. The main functions of components and software are described in this section.

The iR-M3 uses specialized circuit boards, the motherboard, and the copier interface board to process image data for printing and scanning images.

The iR-M3 motherboard processes image data for printing images. The motherboard includes a 2.5GHz CPU that controls the image data transfer to and from the motherboard 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 image processing board. The image processing board decompresses the image data which is then sent 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.

One high-speed 256MB dual in-line memory module (DIMM) on the motherboard holds the image data during printing.

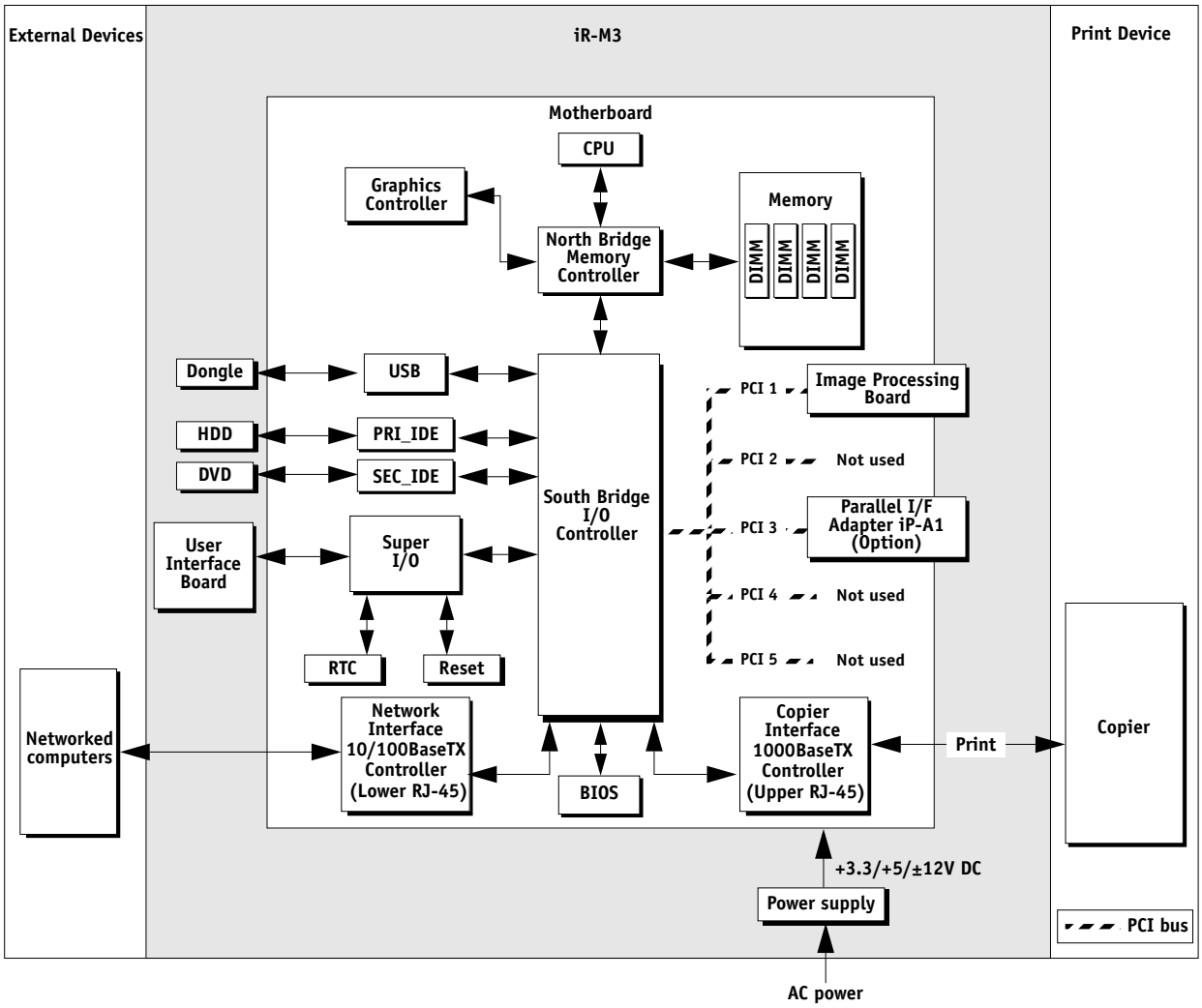


FIGURE 1-2 iR-M3 functional diagram

Print options

The iR-M3's efficient capabilities allow users to use a variety of applications to create and print pages of text and/or images. The iR-M3 operates over a network.

Printing over a network allows users to print documents directly from applications in which they were created. In addition, the iR-M3 offers an efficient way to print files that have been saved as PostScript, Encapsulated PostScript (EPS), Portable Document Format (PDF), or Tagged Image File Format (TIFF). These files can be downloaded directly to the iR-M3 using Downloader, one of the remote utilities for use with the iR-M3.

User software

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

Adobe PS Printer Driver	Enables users to print to the iR-M3 from Windows 98/Me/NT/2000/XP and Mac OS computers; also supports special iR-M3 and PostScript 3 features.
PostScript Printer Description files (PPDs)	Files for use with the PostScript printer driver that allow the iR-M3 to appear in popular applications' Print and Page Setup dialog boxes. The PPDs provide information about the iR-M3 and the particular copier model to the application and printer driver.
PostScript Screen Fonts (for Mac OS only)	PostScript screen and printer fonts that correspond to the PostScript printer fonts installed on the iR-M3.
Downloader	Enables the user to print PostScript, EPS, PDF, and TIFF files directly to the iR-M3 without opening the application in which they were created. Downloader also enables the user to manage the printer fonts installed on the iR-M3.
Remote Scan	Plug-in modules for Adobe Photoshop (version 6.0 or later) that enable the user to initiate and retrieve scan images from a mailbox.
Command WorkStation (Windows only)	Enables the operator to control the iR-M3 functions from Windows 98/Me/NT/2000/XP workstations. For more information, see *Utilities* on the User Documentation CD.
Command WorkStation LE (Mac OS X only)	Enables the operator to control the iR-M3 functions from Mac OS X computers. For more information, see *Utilities* on the User Documentation CD.

WebTools

The iR-M3 can support Internet or intranet access with WebTools™, which include:

- WebLink
- WebSetup
- WebScan
- WebSpooler

NOTE: 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 iR-M3
- iR-M3 front and back overview

Installation sequence

Before you attempt an installation, familiarize yourself with this chapter and Chapter 3 of this guide. 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 iR-M3 to the copier.

Because the iR-M3 is a node on the customer's computer network, make sure you coordinate your scheduled installation with the network administrator at the customer site. For network setup information, refer the network administrator to *Configuration and Setup* on the User Documentation CD.

2 Preparing for Installation

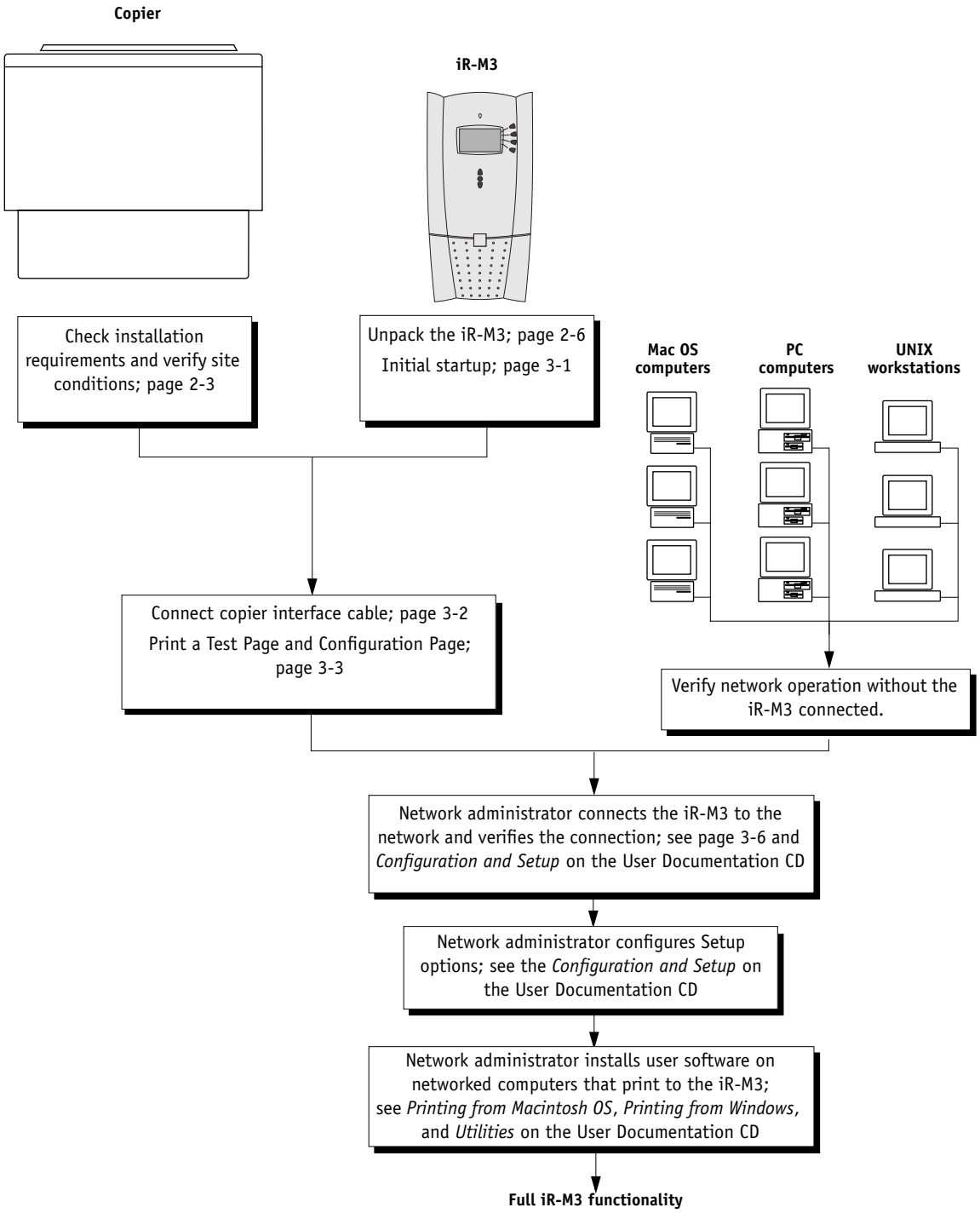


FIGURE 2-1 Recommended installation steps and references

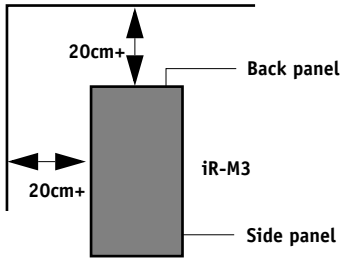
Checking the customer site

Before you install the iR-M3, check site conditions and inform the customer of any installation requirements.

Copier model

- ❑ **Is the service mode COPIER>OPTION>INT-FACE>IMG–CONT set to 4?**
- ❑ **Has the Network Interface Adapter been installed on the copier?**
- ❑ **Is there space near the copier for the iR-M3?**

  Make sure that there is space for the iR-M3. Allow enough space at the back panel for the cables to route easily and at the side panel so that the iR-M3 does not interfere with use of or service to the copier (such as clearing a paper jam). You may need to move the copier out from the wall so that its interface connectors are accessible.



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

  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 iR-M3?**

  Locate the grounded electrical outlet that will supply power to the iR-M3. You should not run the iR-M3 and the copier on the same circuit. Make sure to use a surge suppressor for the iR-M3 if the customer has provided one.

  - *Do not* use a 3-prong adapter in a 2-hole ungrounded outlet.
  - *Do not* use an extension cord.
  - *Do not* plug the iR-M3 into a circuit with heating or refrigeration equipment (including water coolers).
  - *Do not* plug the iR-M3 into a switchable wall outlet. This can result in the iR-M3 being turned off accidentally.

Network

❑ **What is the network cable and connection type?**

- Unshielded twisted pair (10/100/1000BaseTX)

❑ **Is the network connection ready and tested for iR-M3 installation?**

To verify that the network is functioning before you attach the iR-M3:

- 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 *Congfiguration and Setup* on the User Documentation CD.

Parallel port (option)

❑ **Is there space for both the iR-M3 and the PC or laptop that may be connected to the iR-M3 (through the optional Parallel Interface Adapter iP-A1)?**

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. Inform the customer 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 must be available during the installation to coordinate network connectivity.

  Equipment downtime and impact on the network can be minimized if the network administrator installs a network connector for the iR-M3 and confirms network functionality with the connector in place before the date scheduled for the iR-M3 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 iR-M3 (user documentation is also included) onto networked PC and Mac OS computers that will print to the iR-M3.

NOTE: This guide covers initial connections, hardware installation, service, and troubleshooting. It provides general information on connecting the iR-M3 to the customer's network. Network setup and configuration information goes beyond the scope of this guide. For network setup and configuration information, refer the network administrator to the *Congfiguration and Setup* on the User Documentation CD.

Unpacking the iR-M3

The iR-M3 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 iR-M3

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

   Save the original boxes and packing materials in case you need to transport the iR-M3 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 one or more AC power cables (depending on the market region)
   - Media package (includes CDs for system software, user software, and user documentation)

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

   Inform the customer or network administrator that in order to take full advantage of the iR-M3, the user software must be installed on computers that will print to the iR-M3.

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 iR-M3 inside the shipping container, in case you need to repack it later.

6. **Carefully lift the iR-M3 out of the box.**

   If you notice shipping damage to any component, 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 iR-M3.

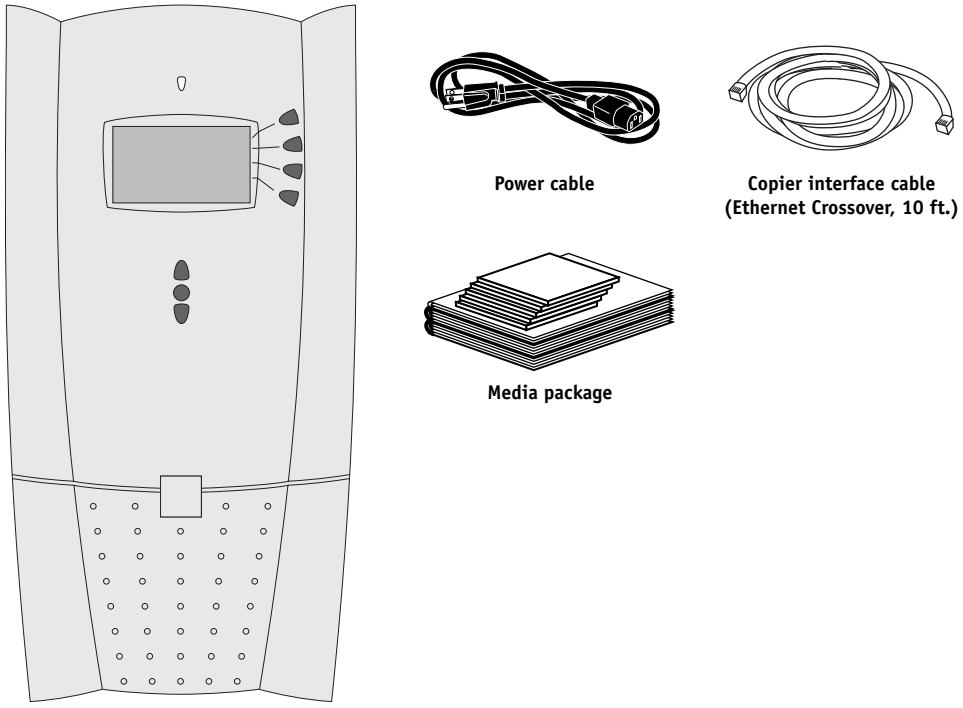


FIGURE 2-2 Contents of iR-M3 shipping box

Front and back panels

After unpacking the iR-M3, familiarize yourself with the front and back panels before connecting it to the copier.

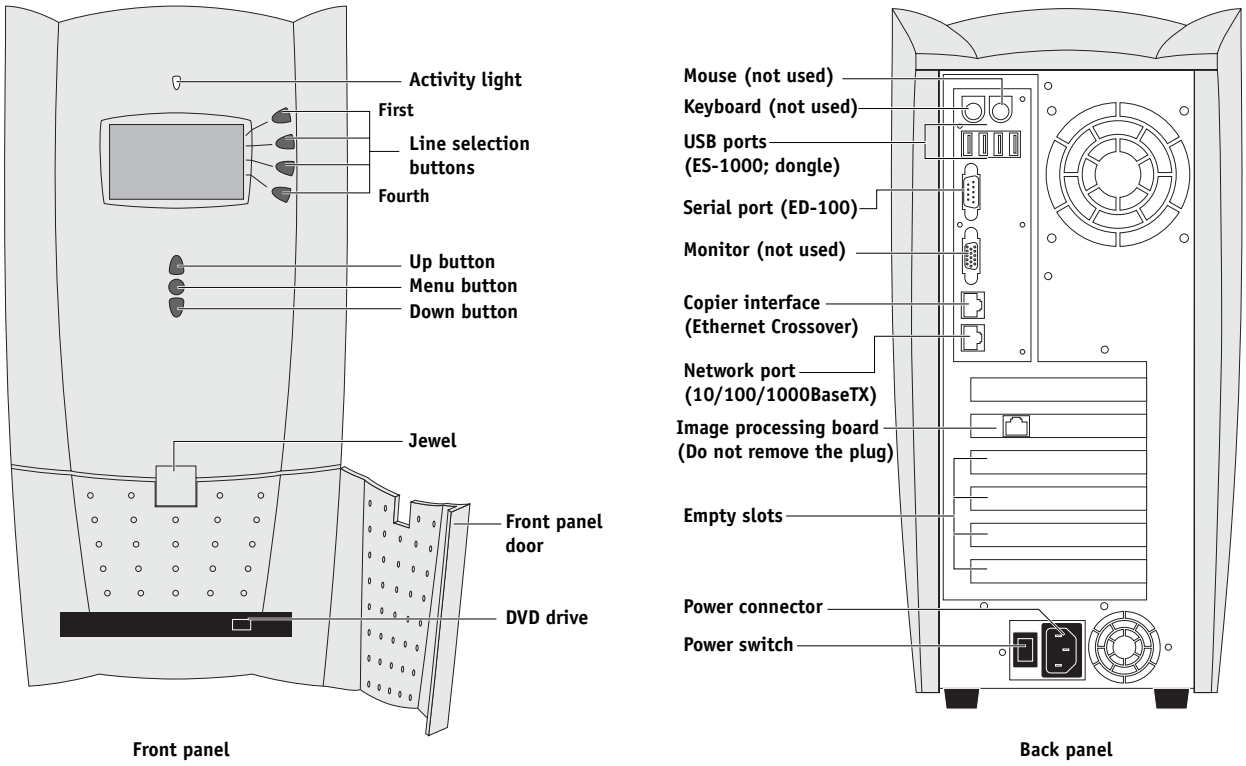


FIGURE 2-3 Front and back panels

Chapter 3: Connecting the iR-M3

After you unpack or service the iR-M3, connect the power cable and turn on the system to verify that it starts properly before you connect the iR-M3 to the copier and the network.

Preliminary checkout

The following procedure describes how to connect power and start the iR-M3.

TO CONNECT POWER AND START THE IR-M3

1. **Make sure the power switch is in the off position (press 0), and then connect the female end of the power cable to the power connector on the iR-M3 back panel. Connect the male end to an electrical outlet.**

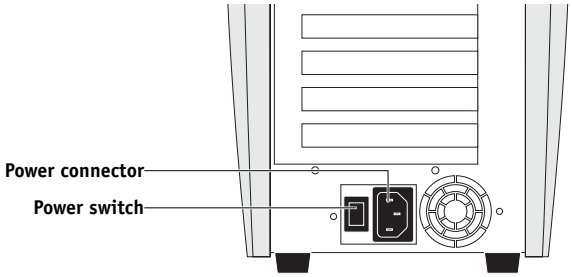


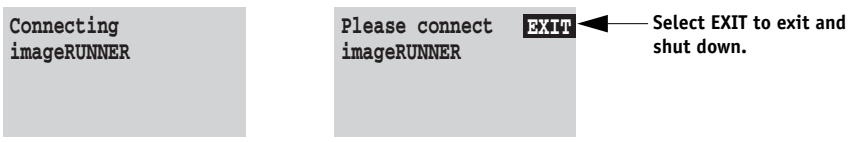
FIGURE 3-1 Connecting the iR-M3 power cable

2. **Power on the iR-M3 using the power switch on the back panel. The power supply automatically senses the correct voltage.**

3. **Allow startup to proceed without interruption. Do not press any buttons on the Control Panel during startup.**

4. **Wait for the messages "Connecting imageRUNNER" and "Please connect imageRUNNER" to display on the Control Panel to confirm that system is operating properly.**

   It is normal for these message to display at this stage. The message Connecting imageRUNNER always displays during startup to indicate that the iR-M3 is trying to establish communication with the copier. The message Please connect imageRUNNER displays when the Ethernet Crossover interface cable is not connected between the iR-M3 and the copier, or when the copier is powered off. This message will not display after you connect the Ethernet Crossover interface cable as described in "Connecting to the copier" on page 3-2.



5. **Select EXIT to shut down the iR-M3.**

Connecting to the copier

After completing the preliminary checkout, connect the iR-M3 to the copier. The iR-M3 and copier communicate through an Ethernet Crossover interface cable connecting the iR-M3's upper RJ-45 port to the Ethernet port on the copier.

TO CONNECT TO THE COPIER

1. **Power off the copier and the iR-M3.**
2. **Connect one end of the Ethernet Crossover cable to the upper RJ-45 port on the iR-M3 back panel and the other end to the Ethernet port on the copier.**

NOTE: The Ethernet network cable at the customer site and the Ethernet Crossover cable included with the iR-M3 (for connecting the iR-M3 to the copier) are not interchangeable. Make sure you attach the correct cable to the appropriate RJ-45 port on the iR-M3 back panel (see below).

NOTE: The RJ-45 connector in back panel slot 2 is not supported. This connector is plugged to prevent inadvertent use. Do not remove the plug.

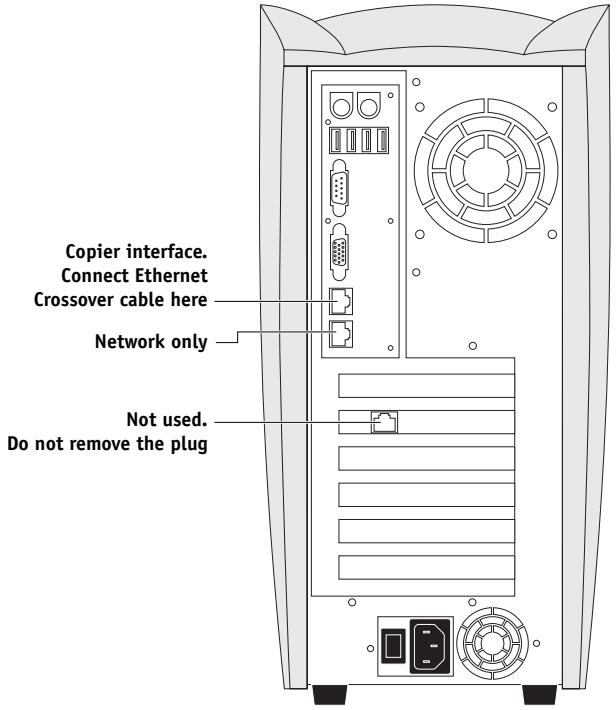


FIGURE 3-2 Copier interface connection

Verifying the connection

After you connect the iR-M3 to the copier, print the PS and PCL Test Pages and the Configuration page to verify that the connection between the iR-M3 and the copier is working properly.

Printing a Test Page and Configuration page

Before connecting the iR-M3 to the network, print a Test Page and the Configuration page.

- Test Pages—printing a Test Page verifies that all the components of the iR-M3-to-copier interface are working. The Test Page is a file that resides on the HDD (hard disk drive).
- Configuration page—printing the Configuration page is helpful during installation, setup, and service. After you install the iR-M3 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 *Congfiguration and Setup* on the User Documentation CD.

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

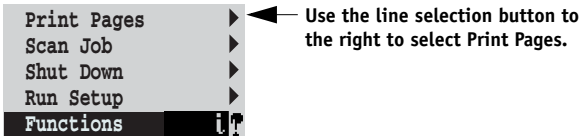
To print a Test Page

1. **If you have not done so already, power on the copier and allow it to warm up. Power on the iR-M3 using the power switch on the back panel.**

   Messages display on the Control Panel as the iR-M3 runs through its startup diagnostics.

2. **At the Idle screen, press the Menu button once (see "Using the Control Panel" on page 3-8).**

   The Functions menu displays.



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

   The iR-M3 sends the PS Test Page to the copier.

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

   The iR-M3 sends the PCL Test Page to the copier.

5. **Examine the quality of the Test Pages.**

   The Test Pages confirm that the iR-M3 is functional and that the connection between the iR-M3 and the copier is working properly. When you examine the Test Pages, keep in mind the following:

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

   Poor image quality may indicate a need to service the copier. For more information, see the documentation provided with the copier.

TO PRINT A CONFIGURATION PAGE

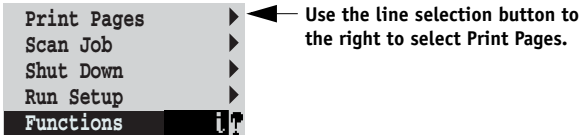
1. **If you have not done so already, power on the copier and allow it to warm up. Power on the iR-M3 using the power switch on the back panel.**

   Messages display on the Control Panel as the iR-M3 runs through its startup diagnostics.

2. **Make sure that the copier is not in use and that the Info screen on the iR-M3 Control Panel reads Idle.**

3. **At the Idle screen, press the Menu button once (see "Using the Control Panel" on page 3-8).**

   The Functions menu displays.



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

   The iR-M3 sends the Configuration page to the copier and displays the RIP and Print status screens so you can monitor the job.

Installing additional options

If the customer has purchased additional options (such as the Parallel Interface Adapter iP-A1), install those before connecting the iR-M3 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 lower RJ-45 port on the iR-M3 back panel is a 10/100/1000BaseTX Ethernet network connector for a Category 5 unshielded twisted pair (UTP) network cable. When the network cable is connected (see Figure 3-3), the Ethernet interface automatically detects the speed of the network environment. Network speed is indicated by two LEDs on the Ethernet network connector. For additional network information, see *Congfiguration and Setup* on the User Documentation CD.

NOTE: The Ethernet network cable at the customer site and the Ethernet Crossover cable included with the iR-M3 (for connecting the iR-M3 to the copier) are not interchangeable. Make sure you attach the correct cable to the appropriate RJ-45 port on the iR-M3 back panel (see below).

NOTE: The RJ-45 connector in back panel Slot 2 is not supported. This connector is plugged to prevent inadvertent use. Do not remove the plug.

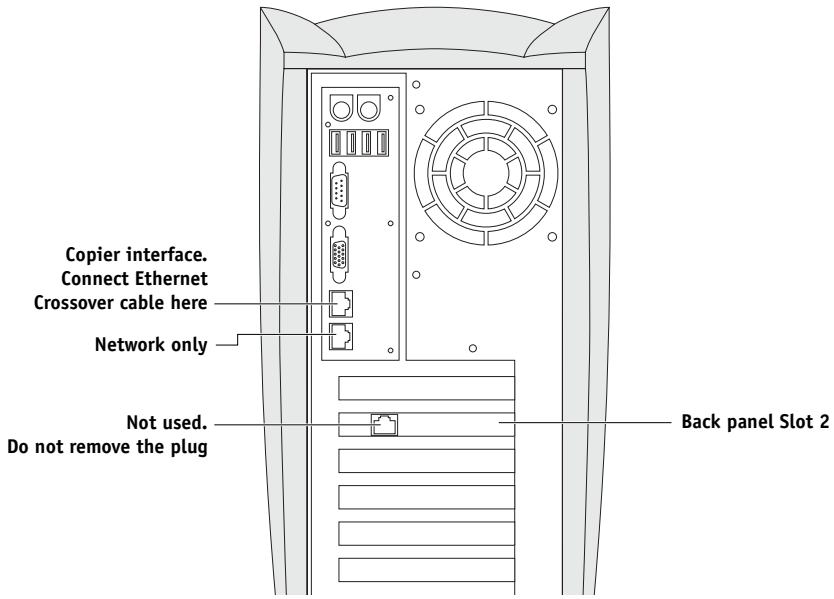


FIGURE 3-3 iR-M3 network connector

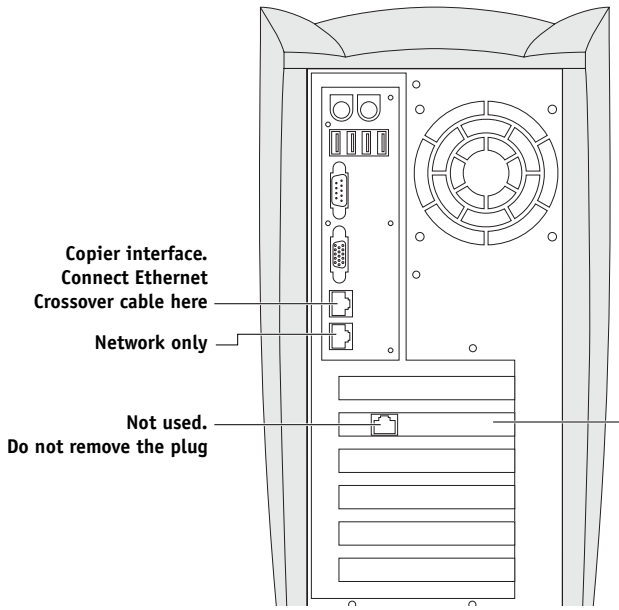
TO CONNECT A TWISTED PAIR CABLE

At minimum, use a Category 5 unshielded twisted pair (UTP) network cable to connect to the network port on the back of the iR-M3 (see Figure 3-3 on page 3-6).

1. **Shut down and turn off the iR-M3 before connecting it to any network device (see page 3-15).**

   If the system has just finished processing, wait 10 seconds after the system reaches the idle state before using the power switch to power off the unit.

2. **Connect the network cable to the network port on the back of the iR-M3 (lower RJ-45).**



NOTE: The Ethernet network cable at the customer site and the Ethernet Crossover cable included with the iR-M3 (for connecting the iR-M3 to the copier) are not interchangeable. Make sure you attach the correct cable to the appropriate RJ-45 port on the iR-M3 back panel.

NOTE: The RJ-45 connector in back panel slot 2 is not supported. This connector is plugged to prevent inadvertent use. Do not remove the plug.

3. **Power on the iR-M3 (see page 3-1).**

4. **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 *Congfiguration and Setup* on the User Documentation CD.

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

   Once the network connection has been made and the iR-M3 has the correct Setup configuration, the iR-M3 should be available on the network.

   The network administrator should perform any additional network setup, verify the network connection, verify that the iR-M3 appears in the list of printers, and print a few test documents from a networked computer that will use the iR-M3. (For more information, see *Congfiguration and Setup* on the User Documentation CD.)

Using the Control Panel

This section describes the Control Panel. Once you install the iR-M3 and verify that it powers up correctly, you can use the Control Panel to access and monitor different functions.

The current status of the iR-M3 and Setup information are displayed in the iR-M3 display window. Activity can be monitored in the display window, and functions of the iR-M3 (such as printing a Test Page and installing or updating system software) can be controlled using the buttons on the Control Panel.

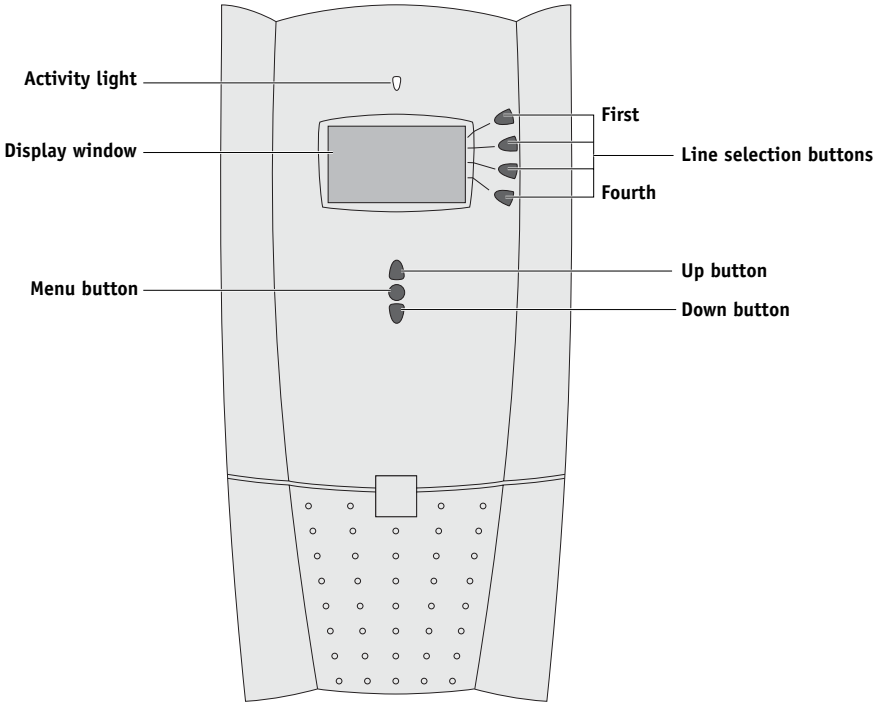


FIGURE 3-4 The iR-M3 Control Panel

Activity light

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

Flashing or solid red	An error has caused printing to be disabled. The activity light also flashes red briefly during startup.
Solid green	The iR-M3 is idle or starting up.
Flashing green	The iR-M3 is processing or printing a job.
No light	The iR-M3 is powered off.

Buttons

Line selection buttons	Use the four line selection buttons on the right side of the Control Panel to select the command displayed on the corresponding line of the display window. A special character (▶) appears in the display window next to a button when it is available.
Up and Down buttons	Use these buttons to scroll to different screens in multi-screen lists, to select Setup options from a list, and to select alphanumeric characters.
Menu button	Press this button to view other display screens. Several different display screens show different types of information about the iR-M3.

Control Panel screens and icons

When the iR-M3 is in Print mode, pressing the Menu button cycles through four screens: three status screens (Info, RIP, and Print) and the Functions menu. When the iR-M3 is idle, pressing the Menu button cycles between the Info screen and the Functions menu.

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

The screens display the following information:

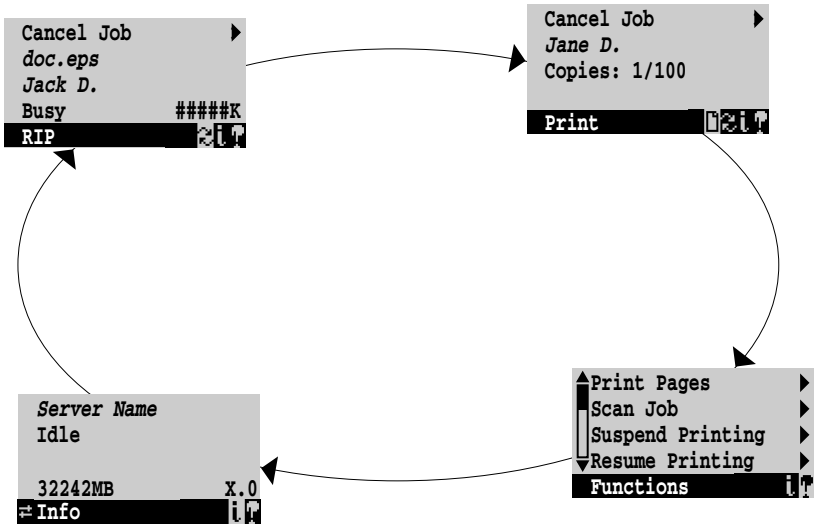
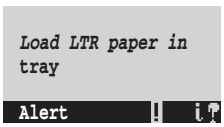


FIGURE 3-5 Control Panel screens during printing

If an error occurs, the Alert screen displays 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 user documentation provided on the User Documentation CD.
	Print Status	When the iR-M3 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 processing. 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 iR-M3 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 iR-M3 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 processing. 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 iR-M3 name as it is configured in Setup.

Status—The current status of the iR-M3. Status messages include: Idle, Initializing, Busy, Processing, or Printing.

Number of MB—The space in megabytes available on the HDD.

Version—The system software version running on the iR-M3.

Functions

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

Network

The Network icon appears in the lower-left corner of the display window when the iR-M3 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 the print jobs of other users. Use the Up and Down buttons to scroll through the list of functions. Press the line selection button next to the function you want to select.

The following functions are available from the Functions menu:

Print Pages—Enables you to print special pages from the iR-M3. You can print the following pages from the submenu that displays:

- PS Test Page—Enables you to confirm that the iR-M3-to-copier interface is working properly. The Test Page provides black and white and grayscale samples to use when troubleshooting problems with the copier or the iR-M3. The following information is also listed: server name (defined in Setup), date and time printed, and compression information.
- PCL Test Page—Enables you to confirm that the iR-M3-to-copier PCL interface is working properly. The PCL Test Page provides black and white and grayscale samples to use when troubleshooting problems with the copier or the iR-M3. The following information is also listed: server name, date and time printed, and compression information.
- Configuration—Prints the current server and device configuration. This includes information about all current Setup settings, and the Ethernet address of the iR-M3. The Configuration page also provides version information for the BIOS chip and information on any options installed in the iR-M3.
- Job Log—Prints the log of the last 55 jobs by default. For more information about the Job Log, see *Congfiguration and Setup* on the User Documentation CD.
- PS Font List—A list of all PostScript fonts resident on the HDD.
- PCL Font List—A list of all PCL fonts resident on the HDD.
- E-mail Log—A log of jobs scanned on the copier and e-mailed over the network.
- FTP Log—A log of jobs sent to the FTP site designated in the setup options (see *Congfiguration and Setup* on the User Documentation CD).

Scan Job—Allows users to initiate a scan job from the Control Panel. For more information, see *Utilities* on the User Documentation CD.

Shut Down—Provides three ways to shut down the iR-M3:

- Restart Server (soft reset)—Resets the server software but does not reboot the entire system. Network access to the iR-M3 is temporarily interrupted and all currently processing jobs are aborted and might be lost.
- Shut Down System—Shuts down all iR-M3 activity properly so that you can turn off the system using the power switch on the back panel. Always select this option before turning off the system (see the procedure "To shut down the iR-M3" on page 3-15).
- Reboot System (hard reset)—Allows you to shut down and then reboot the iR-M3 entirely through the Control Panel without having to turn off the system from the power switch on the back panel.

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 iR-M3 is turned on and after system software is installed. For a list and descriptions of options and detailed descriptions of each Setup option, see *Congfiguration and Setup* on the User Documentation CD.

Shutting down and restarting

The iR-M3 will probably be left on all the time at the customer site. Remember that when the iR-M3 is turned off, network access to the copier is interrupted.

Shut down the iR-M3 when you need to service it or the copier, and before you remove or attach any cables to the iR-M3. Shut down the iR-M3 before changing the copier's toner cartridge in order to prevent the fan from drawing toner into the iR-M3.

TO SHUT DOWN THE iR-M3

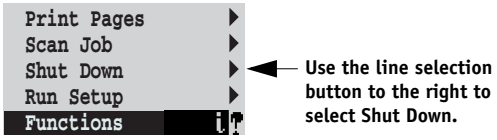
Always verify that the iR-M3 is not being used before you begin the following procedure to power off the iR-M3.

1. **Make sure that the iR-M3 Info screen reads Idle.**

   Printing or Ripping displays on the Control Panel when the iR-M3 is currently processing a job. Idle displays when the iR-M3 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.**



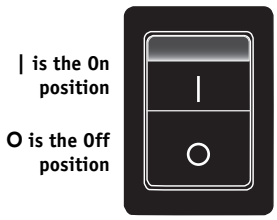
4. **At the next screen, select Shut Down System.**

   The following messages display briefly, and then the iR-M3 shuts down automatically.

5. **After the system has shutdown, press the power switch on the back panel (press the O symbol on the switch) to reset it.**

   Pressing the O symbol on the power switch after the iR-M3 shuts down places the switch in the proper "off" position so that the iR-M3 can be started easily later.

   NOTE: If you are going to power the system back on, wait at least 10 seconds after shutting down before doing so.



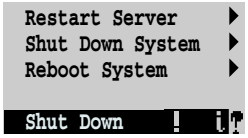
Power switch

TO RESTART THE IR-M3

1. **If the iR-M3 is already on, make sure it is not receiving, processing, or printing a document.**

   When Printing or Ripping displays on the iR-M3 Control Panel, the iR-M3 is currently processing a print job. Wait until the job is complete and Idle displays in the Info screen.

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



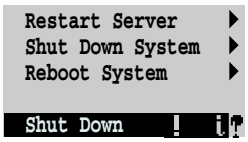
TO REBOOT THE IR-M3

1. **If the iR-M3 is already on, make sure it is not receiving, processing, or printing a document.**

   When Printing or Ripping displays on the iR-M3 Control Panel, the iR-M3 is currently processing a print job. Wait until the job is complete and Idle displays in the Info screen.

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

   The message Rebooting system displays on the Control Panel. Allow the system to shut down and reboot. Do not push any buttons during this time, and ignore the message Press any key to enter config mode that displays on the Control Panel.



Chapter 4: Service Procedures

Generally, the iR-M3 requires no regular service or maintenance. Use the procedures in this chapter to inspect, remove, reseat, and replace major hardware components, as well as to install system software.

Overview

This chapter includes information on servicing the following components:

- Boards and cables
- Motherboard components (DIMM, CPU, battery)
- Fans (front and back panel)
- Power supply
- HDD (hard disk drive)
- DVD drive
- Front panel components

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

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

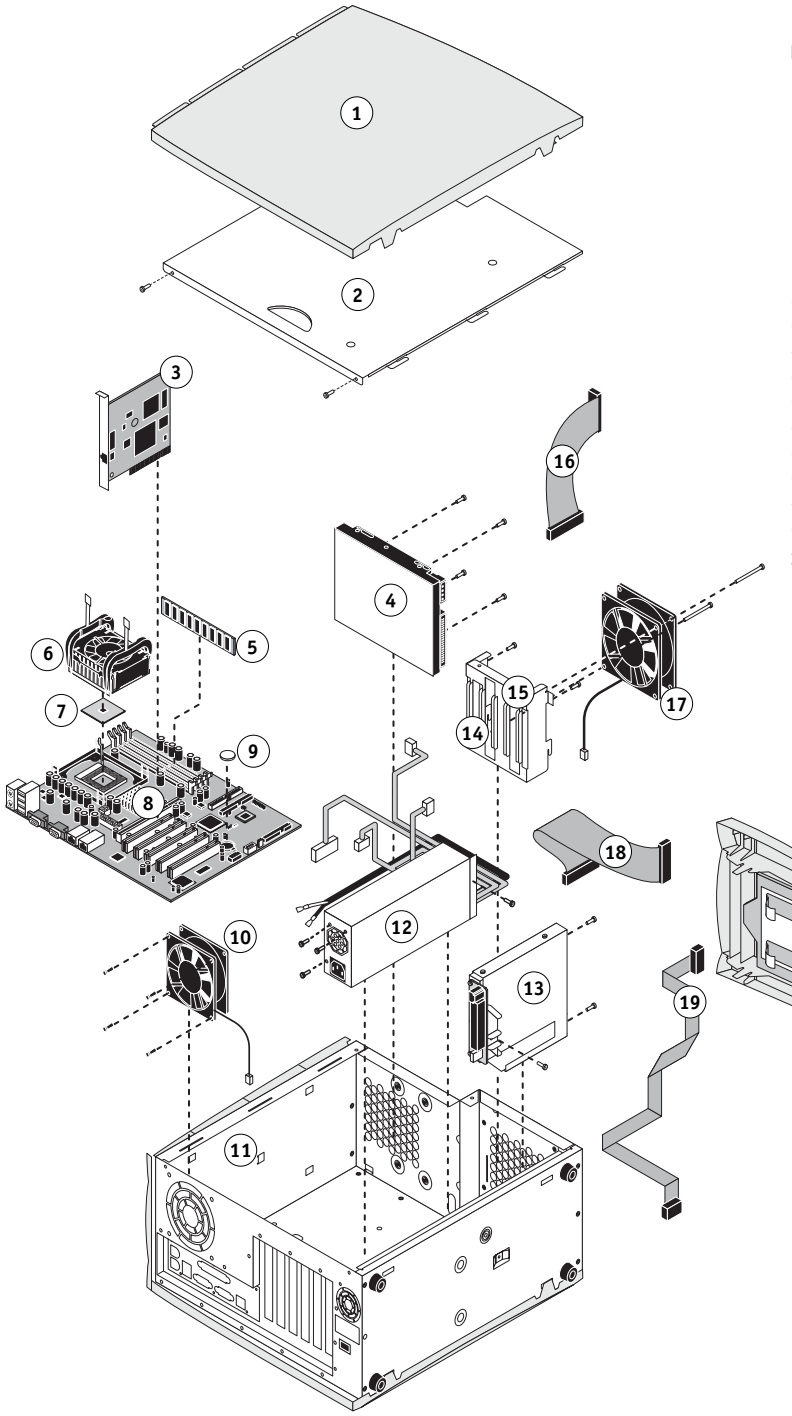
The tools required to service the system are listed in “Tools you will need” on page xiv.

System software

System software is installed on the HDD at the factory. System software is also provided on a CD containing system software and fonts. Use the System Software CD when:

- You upgrade to a newer version of the system software
- You replace the HDD
- You change languages

NOTE: System software installation takes approximately 20 minutes (not including the time required to configure Setup).



Key
1. Side panel
2. Access panel
3. Image processing board
4. HDD (hard disk drive)
5. DIMM
6. CPU cooling assembly
7. CPU
8. Motherboard
9. Battery
10. Back panel fan
11. Chassis
12. Power supply
13. DVD drive in bracket
14. Board guide
15. Board guide retainer
16. HDD ribbon cable (80 wires)
17. Front fan
18. DVD drive ribbon cable
19. UIB cable
20. Front panel (includes UIB)

FIGURE 4-1 Exploded view of iR-M3 components

Accessing internal components

If the iR-M3 is turned on, shut down the system before you access the internal components. Always use the following procedures when opening the iR-M3 for inspection or service.

NOTE: Remember that when the iR-M3 is turned off, network access to the copier is interrupted. Before you take the iR-M3 off the network, get permission from the network administrator.

TO SHUT DOWN THE iR-M3 PRIOR TO SERVICE

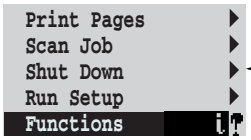
Always verify that the iR-M3 is not being used before you shut it down.

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

   When Printing or Ripping displays on the Control Panel, the iR-M3 is processing a job. Idle displays in the Info screen when the iR-M3 is finished processing the job.

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

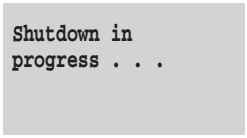
3. **Select Shut Down from the Functions menu.**

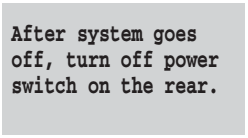


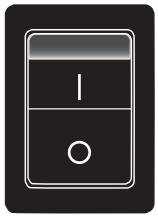
Use the line selection button to the right to select Shut Down.

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

   The following messages display briefly, and then the iR-M3 shuts down automatically.







| is the On position

O is the Off position

Power switch

5. **After the system has shutdown, press the power switch on the back panel (press the O symbol on the switch) to reset it.**

   Pressing the O symbol on the power switch after the iR-M3 shuts down places the switch in the proper "off" position so that the iR-M3 can be started easily later.

   NOTE: If you are going to power the system back on, wait at least 10 seconds after shutting down before doing so.

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

TO OPEN THE IR-M3

1. **If you have not done so already, power off the iR-M3 (see page 4-3) and remove all the cables from the back panel.**
2. **Position the iR-M3 so that it is resting on its side on a flat, anti-static surface (see Figure 4-2).**
3. **Remove the side panel.**

   Bend the tabs out from the slots on the bottom of the chassis to release the side panel from the chassis. Lift up the bottom edge of the side panel and slide it away from the chassis

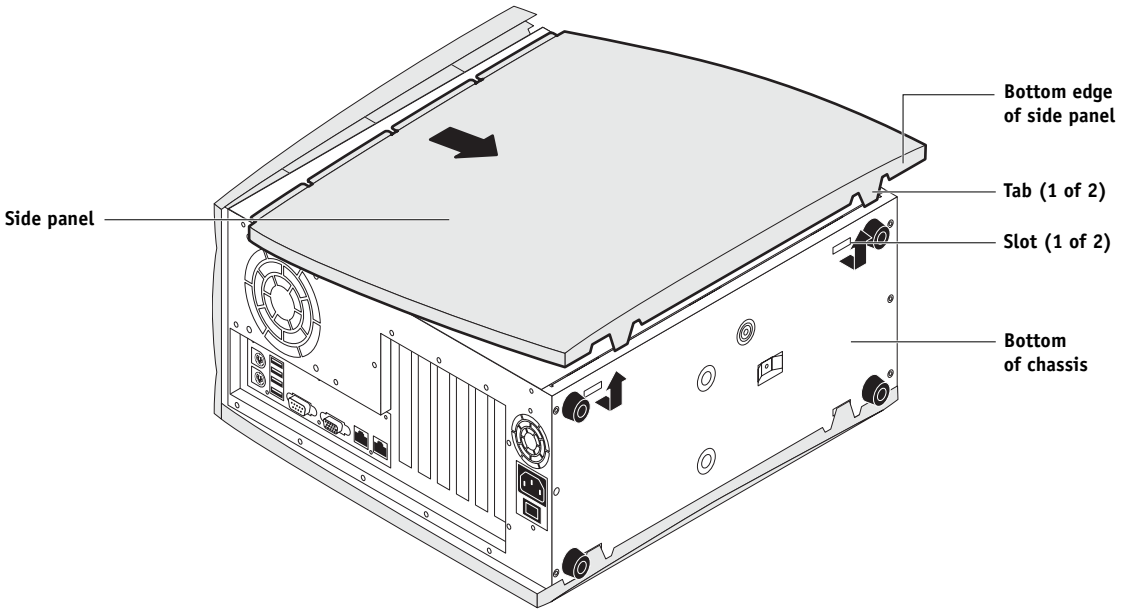


FIGURE 4-2 Removing the side panel

4. **Remove the four screws that secure the access panel to the chassis.**

5. **Remove the access panel.**

   To disengage the hooks from the chassis, slide the access panel toward the back panel. (It may help to press down on the front edge of the access panel as you slide it). Lift the access panel off of the chassis and set it aside.

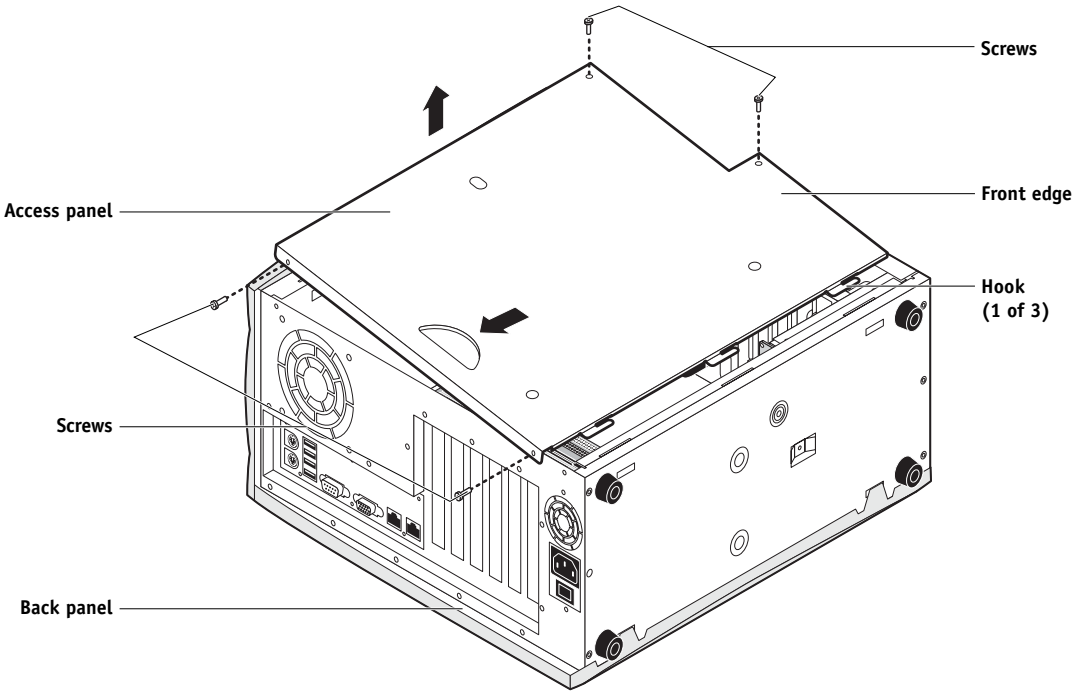


FIGURE 4-3 Removing the access panel

The internal components are now accessible.

The iR-M3 is shipped from the factory with a standard board configuration, as shown in Figure 4-4. 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 iR-M3 so that it is resting on its side and the components inside the chassis are facing up.

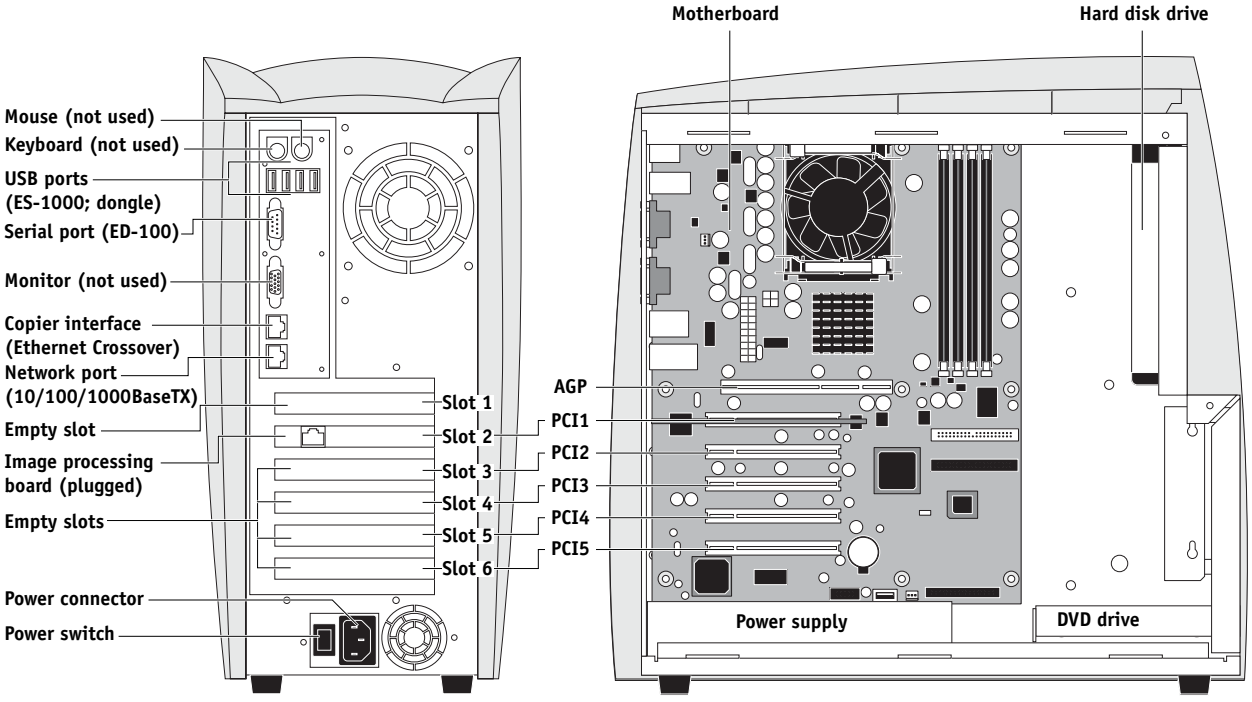


FIGURE 4-4 iR-M3 side view and back panel view

Removing the front panel

This section describes how to remove the front panel. You need to remove the front panel in order to access the following:

- User interface board (see page 4-18)
- UIB cable (see page 4-10)
- Control Panel buttons (see page 4-58)
- HDD (see page 4-49)
- DVD drive (see page 4-53)
- Front fan (see page 4-41)
- Jewel (see page 4-58)

You do not need to remove the front panel to access other components inside the chassis.

TO REMOVE THE FRONT PANEL

1. **Shut down the iR-M3 (see page 4-3).**
2. **Open the iR-M3 (see page 4-4).**
3. **Stand the iR-M3 in its normal operating position.**
4. **Inside the chassis, bend the top tabs inward to release them from the chassis.**
5. **Inside the chassis, bend the bottom tabs outward to release them from the chassis.**
6. **Rotate the front panel away from the chassis.**

   Take care when rotating the front panel away from the chassis because the UIB cable is still connected to the user interface board on the front panel and the mount on the front of the chassis.
7. **Disconnect the UIB cable from the connector on the user interface board, and then place the front panel on a clean, padded surface.**

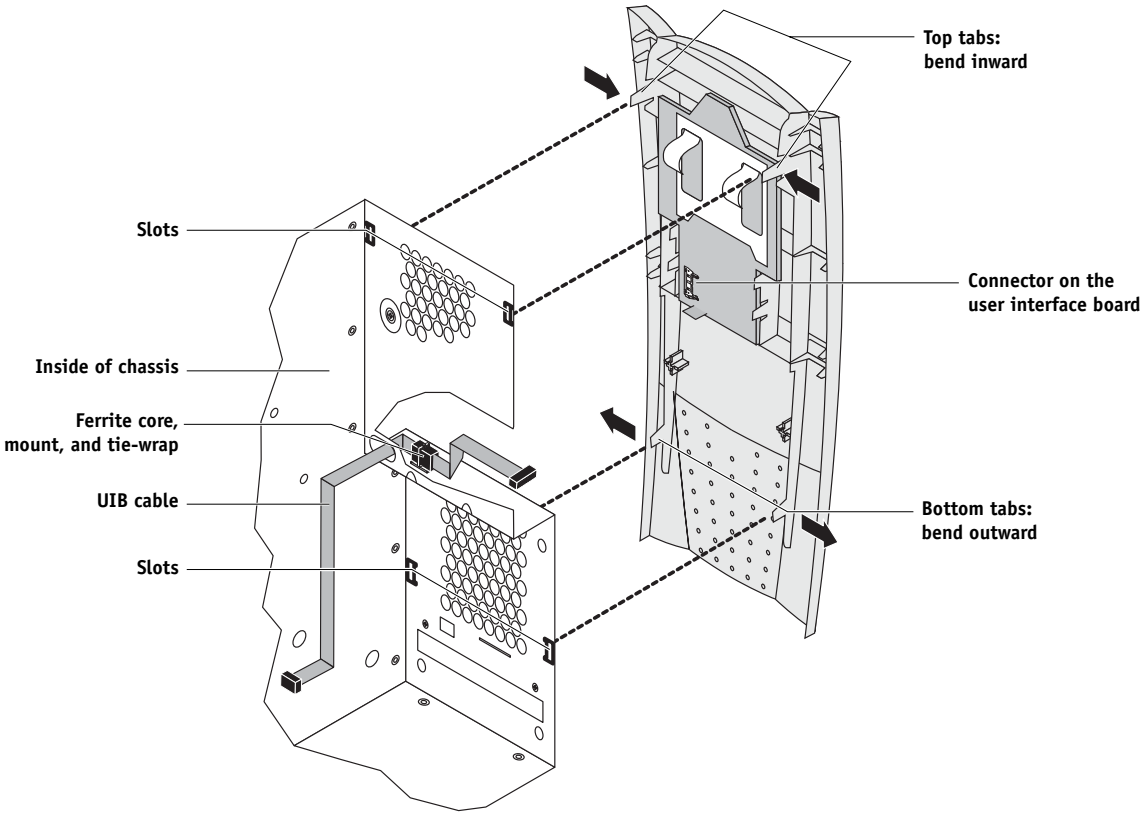


FIGURE 4-5 Removing the front panel

TO REPLACE THE FRONT PANEL

1. **Make sure all front panel components are installed correctly.**

   If you are replacing the front panel with a new one, transfer the jewel from the old front panel to the new one (see page 4-58).

2. **Connect the UIB cable to the connector on the user interface board.**

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

   NOTE: If you removed the UIB cable from its mount on the front of the chassis to replace it with a new one, secure the new cable to the chassis by tie-wrapping the ferrite core on the cable to the mount on the chassis (see Figure 4-5).

3. **Position the front panel so that the tabs enter the slots in the front of the chassis, and then press the front panel against the chassis until it snaps into place.**

Checking internal connections

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

TO CHECK BOARD AND CABLE CONNECTIONS

NOTE: Follow standard ESD precautions while servicing internal components.

1. **Power off the iR-M3 (see page 4-3), remove all the cables from the back panel, and remove the side panel and access panels (see page 4-4).**

2. **Position the iR-M3 so it is resting on its side and the internal components are facing up.**

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

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

   Connector PCI1—Image processing board

   Connector PCI2—Empty

   Connector PCI3—Empty

   Connector PCI4—Empty

   Connector PCI5— Empty

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

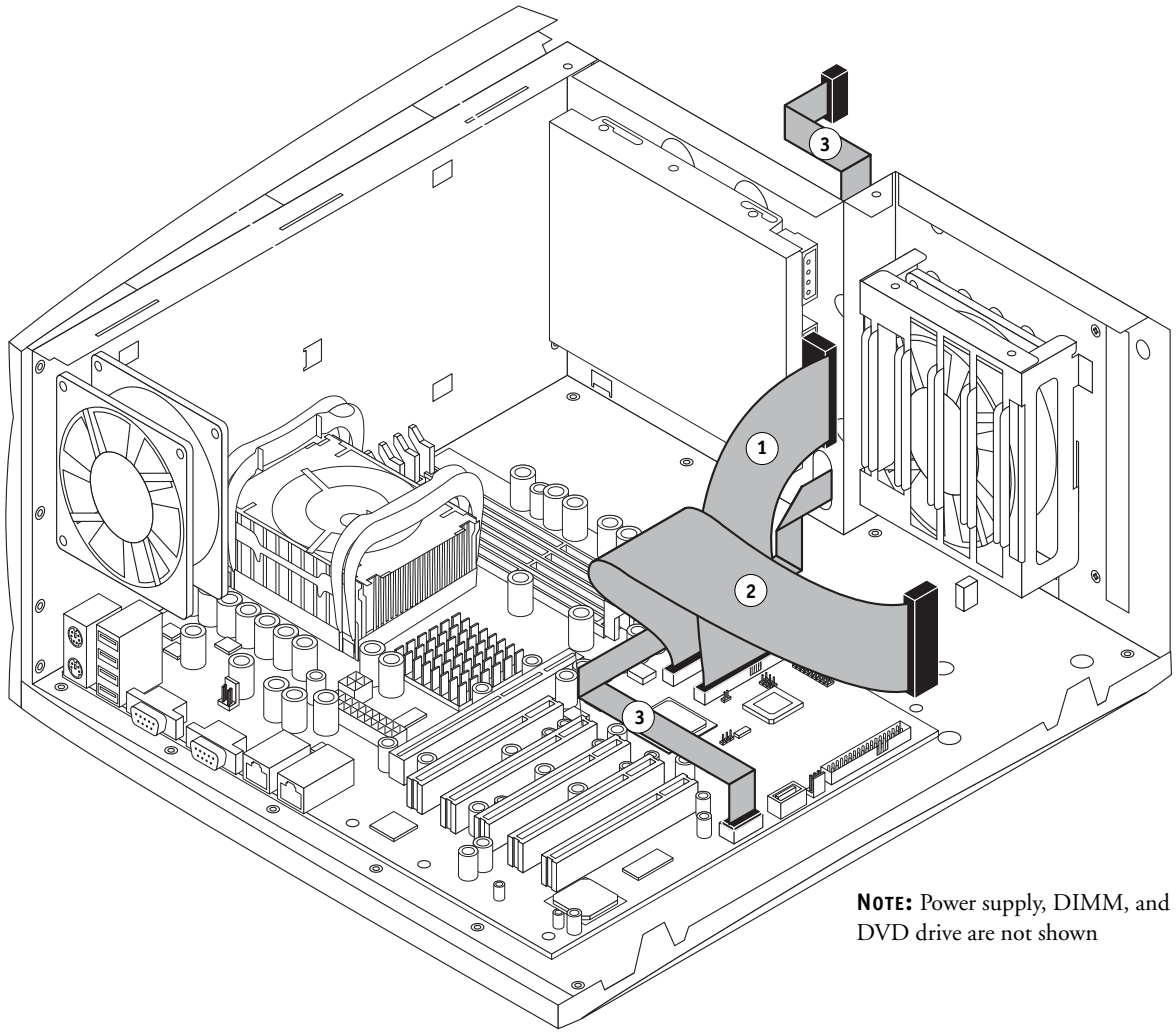
   Faulty ribbon cables are easily overlooked. Check the contact point between the cable and the connector to ensure that they have not separated. If a ribbon cable is suspect, substitute it with a tested cable.

5. **Make sure that all ribbon cables and power cables are seated properly on connectors (see Figure 4-6 on page 4-10 and Figure 4-7 on page 4-11).**

   Cable connectors are keyed to fit only when properly oriented.

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

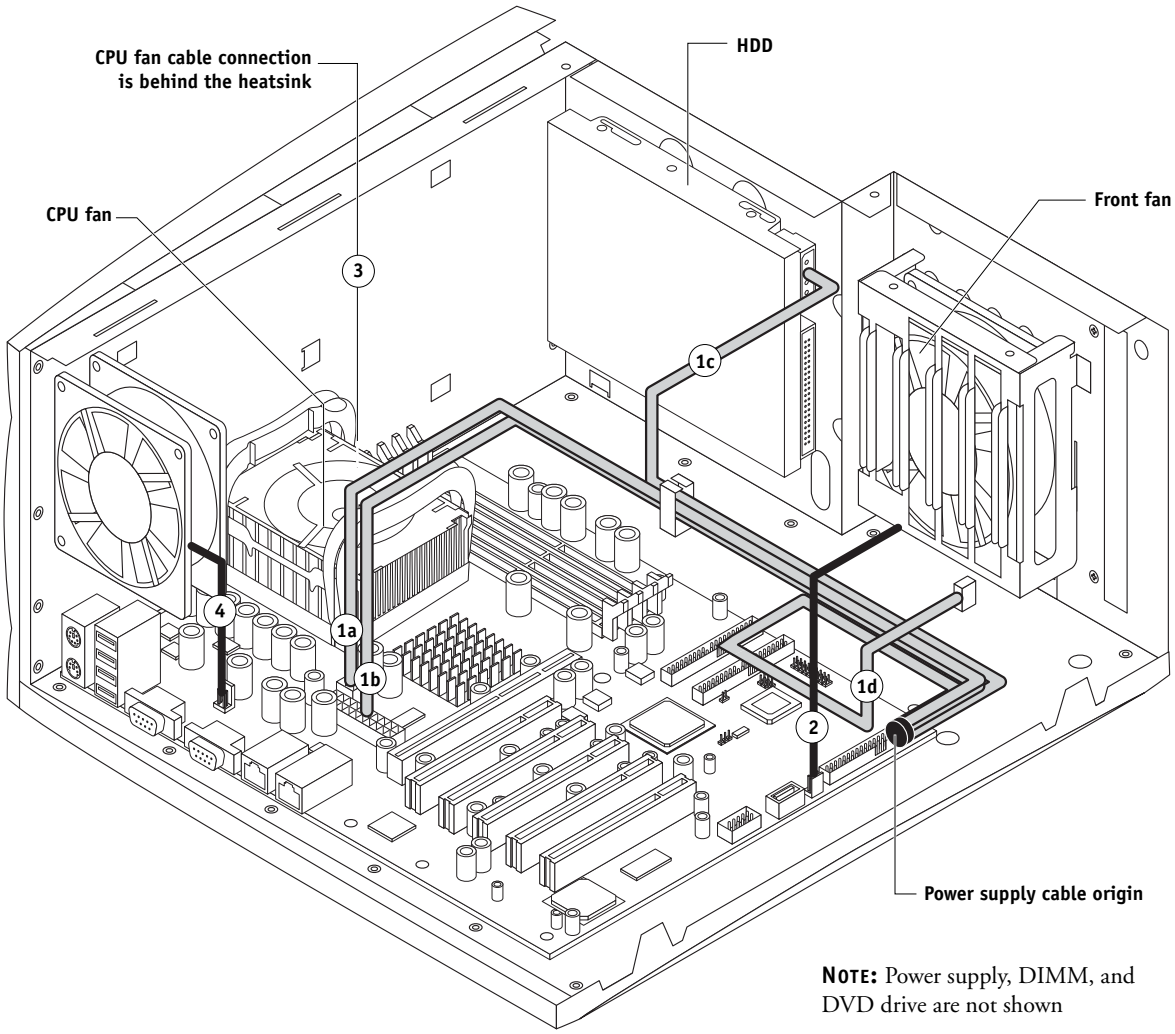
   Gently straighten any bent pins with a pair of needlenose pliers. If, after tightening the connections, you are still experiencing problems, it may be that one or more components is still not getting power. If this is the case, see "Checking voltages" on page 4-45.



NOTE: Power supply, DIMM, and DVD drive are not shown

Cable key	From	To
1. HDD ribbon cable	Motherboard PIDE (Primary IDE connector)	HDD
2. DVD drive ribbon cable	Motherboard SIDE (Secondary IDE connector)	DVD drive
3. UIB ribbon cable	UIB connector on the motherboard (JP20)	User interface board in front panel

FIGURE 4-6 Ribbon cable connections



NOTE: Power supply, DIMM, and DVD drive are not shown

Cable key	From	To
1. Power supply cable	Power supply	a. 4-pin connector— CPU power b. 20-pin connector—Motherboard c. 4-pin connector—HDD (hard disk drive) d. 4-pin connector—DVD drive
2. Front fan cable	Front fan	Fan connector on motherboard (FAN3)
3. CPU fan cable	CPU fan	Fan connector on the motherboard (P1 FAN1)
4. Back panel fan cable	Fan (back panel)	Fan connector on the motherboard (FAN2)

FIGURE 4-7 Power cable connections

To check motherboard DIMM connections

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

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

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

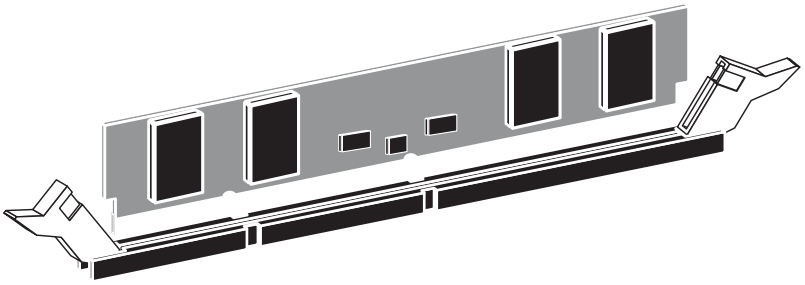


Figure 4-8 Releasing the DIMM levers

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.

   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.

Restoring and verifying functionality after service

Conclude your inspection and service by reassembling and verifying the iR-M3.

Reassembling the system

Use the following procedure to reassemble the iR-M3 after inspection or service.

TO REASSEMBLE THE IR-M3

1. **If you removed the front panel, replace it (see page 4-8).**
2. **Position the iR-M3 so that it is resting on its side on a flat, anti-static surface.**
3. **Reseat all boards, cables, connectors, and other components loosened or removed earlier.**
4. **Replace the access panel (see Figure 4-9).**

   Insert the hooks on the bottom edge of the access panel into the slots in the chassis, and then lower the access panel onto the chassis. Press on the back edge of the access panel and slide it until the mounting holes are aligned with the holes on the chassis.

   NOTE: Be careful not to damage any ribbon cables while replacing the access panel.
5. **Replace the four screws that attach the access panel to the chassis.**

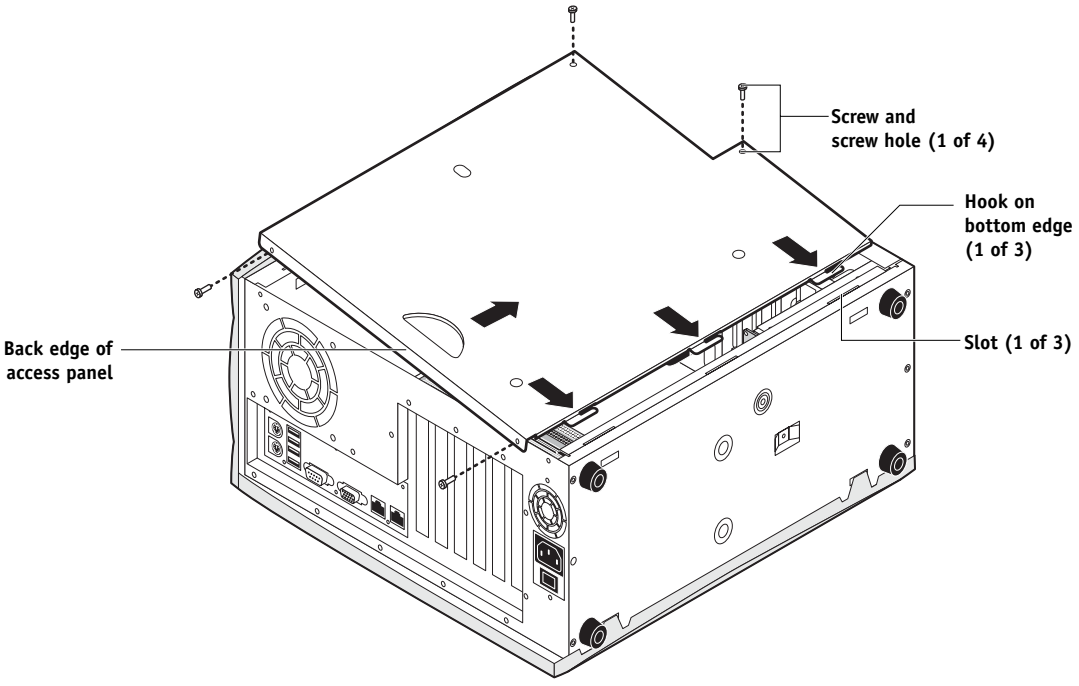


FIGURE 4-9 Replacing the access panel

6. **Replace the side panel.**

   Match the grooves on the top edge of the side panel with the top of the iR-M3 and then lower the side panel onto the chassis. Press down on the bottom edge of the side panel until the tabs click into the slots on the bottom of the chassis.

   NOTE: Do not leave the side and access panels off after servicing. An airflow channel is created by the panels and the fans. Leaving the iR-M3 open could reduce the operational life expectancy of internal components.

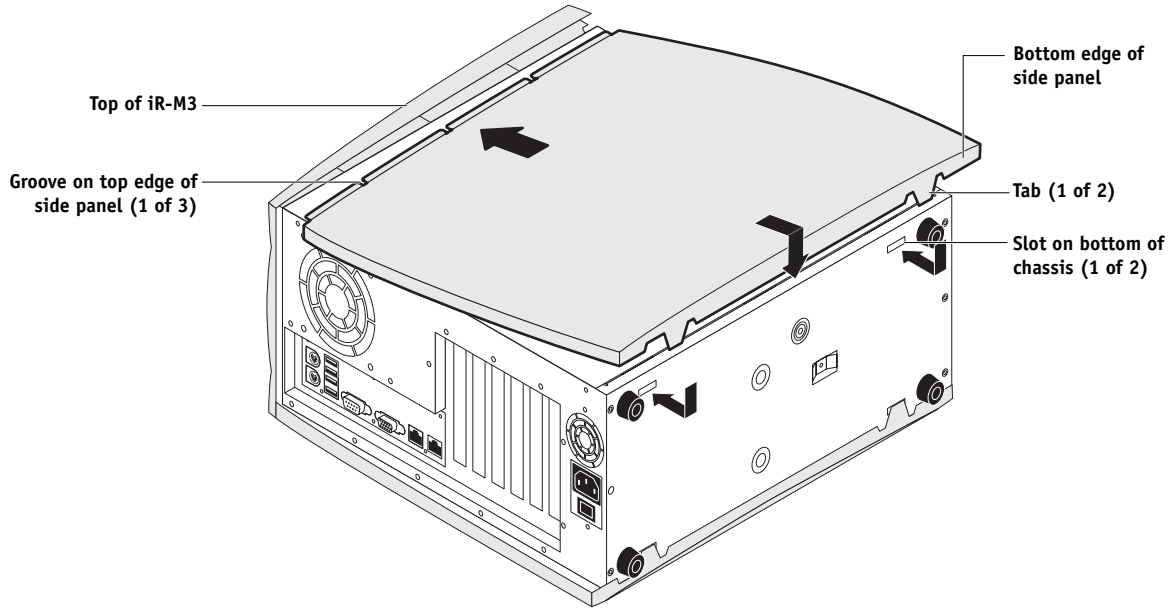


FIGURE 4-10 Replacing the side panel

7. **Connect any cables removed during service to the back of the iR-M3.**

8. **If the customer had an external storage device (such as a Zip drive) connected to the USB port on the back of the iR-M3, reconnect it to the USB port.**

   External storage devices require a ferrite core to be attached to both their power and data cables to prevent electromagnetic interference.

Verifying functionality

Before you leave the customer site, make sure you have completed the steps outlined in Figure 4-11. If you are unable to complete a step, determine the reason and rectify the problem before continuing. For more information, see Chapter 5.

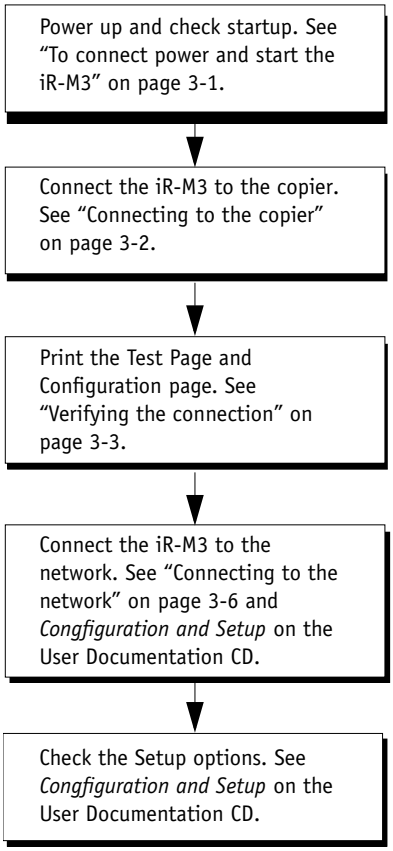


FIGURE 4-11 iR-M3 connection verification steps

Removing and replacing boards

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

- Image processing board
- User interface board
- Motherboard

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

Image processing board

The image processing board (see Figure 4-12 below) decompresses image data before it is sent to the copier.

The image processing board is installed in connector PCI1 on the motherboard and occupies slot 2 on the back panel. The board's external RJ-45 connector is not supported and is plugged to prevent inadvertent use. Do not remove the plug.

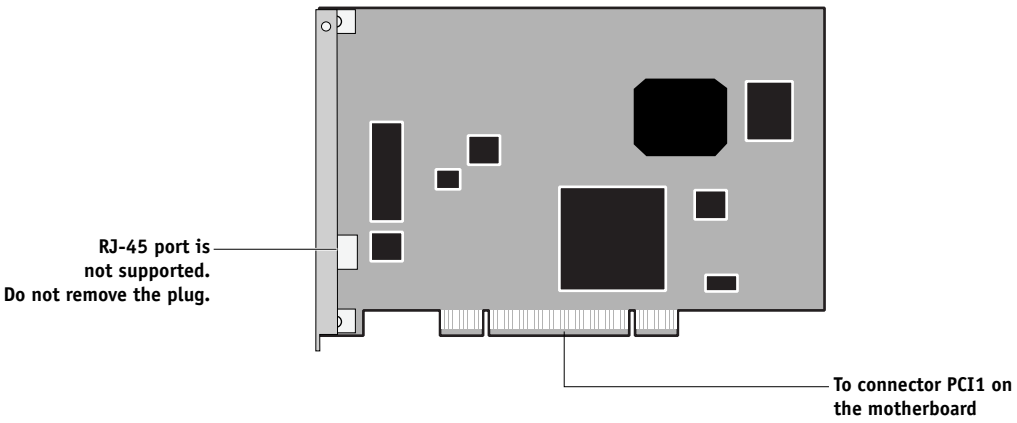


FIGURE 4-12 Copier interface board

TO REMOVE THE IMAGE PROCESSING BOARD

1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**
2. **Remove the board mounting bracket screw from back panel slot 2.**
3. **Remove the copier interface board from motherboard connector PCI1.**

   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 IMAGE PROCESSING BOARD

1. **Reseat the copier interface board in connector PCI1 on the motherboard. The component side of the board should be facing down toward the power supply.**

   The copier interface board 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 2.**
3. **Reassemble the iR-M3 and verify its functionality (see page 4-13).**

User interface board

The user interface board installed in the front panel (see Figure 4-13) provides the interface between the iR-M3 and the user. The front of the user interface board contains circuitry for the following:

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

The UIB cable connects the user interface board to the motherboard. The UIB cable includes a ferrite core which is secured with a tie-wrap to a mount on the outside of the chassis. Do not remove the UIB cable from the mount unless you are replacing the UIB cable with a new one (see Figure 4-5 on page 4-8).

NOTE: Spare user interface boards are shipped as part of the complete front panel assembly and are not spared separately. The following procedures are provided as reference only. See page 4-7 for how to replace the complete front panel assembly.

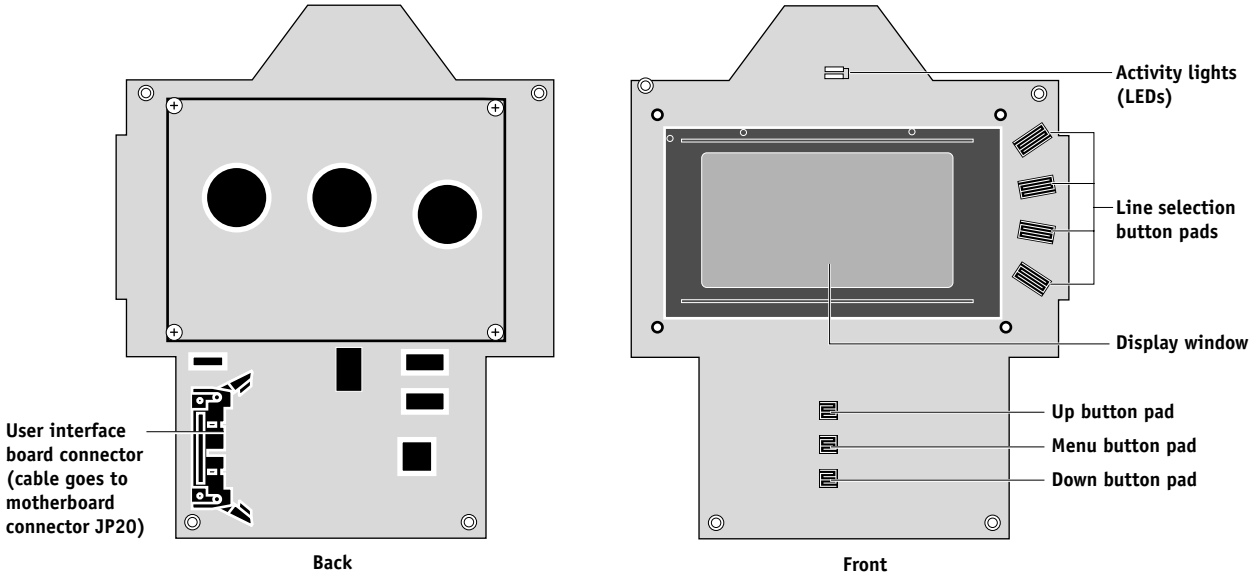
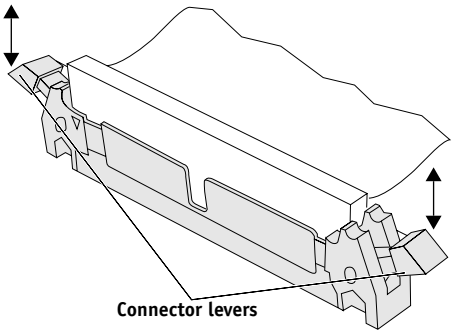


FIGURE 4-13 Diagram of the user interface board (back and front)

TO REMOVE THE USER INTERFACE BOARD FROM THE FRONT PANEL

1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**
2. **Remove the front panel from the chassis (see page 4-7).**

   Take care when removing the front panel because the UIB cable is still connected to the user interface board and a mount on the front of the chassis. Do not remove the UIB cable from its mount on the chassis unless you are replacing the UIB cable with a new one.
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, and then pull the connector free. Avoid pulling on the cable itself.

FIGURE 4-14 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 guides on the front panel (see Figure 4-15).**

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

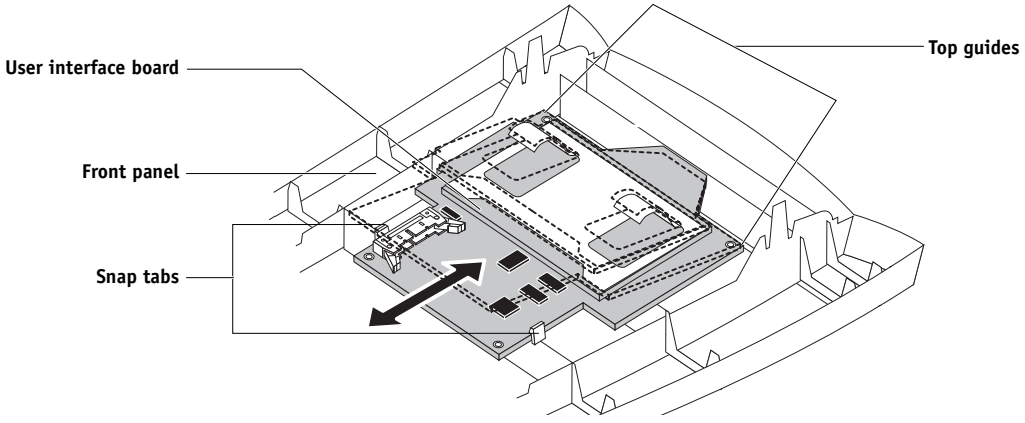


FIGURE 4-15 Removing/replacing the user interface board

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

TO REPLACE THE USER INTERFACE BOARD IN THE FRONT PANEL

1. **Position the user interface board in the front panel at an angle so that the top edge of the board fits under the top guides (see Figure 4-15).**

   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. **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.**

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

   NOTE: If you removed the UIB cable from its mount on the front of the chassis to replace it with a new one, secure the new cable to the chassis by tie-wrapping the ferrite core on the cable to the mount on the chassis (see Figure 4-5 on page 4-8).

4. **Replace the front panel (see Figure 4-5 on page 4-8).**

5. **Reassemble the iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described in Figure 4-11 on page 4-15).**

Motherboard

The motherboard has one Intel Celeron 2.5GHz CPU that controls the image data transferred to and from the copier interface board. The motherboard also controls HDD functions and the communication between the iR-M3 and external devices. One of the motherboard's 4 DIMM sockets contains a 256MB DIMM (see Figure 4-19 on page 4-34). The motherboard also includes 5 32-bit PCI (Peripheral Component Interconnect) connectors.

Removing the motherboard

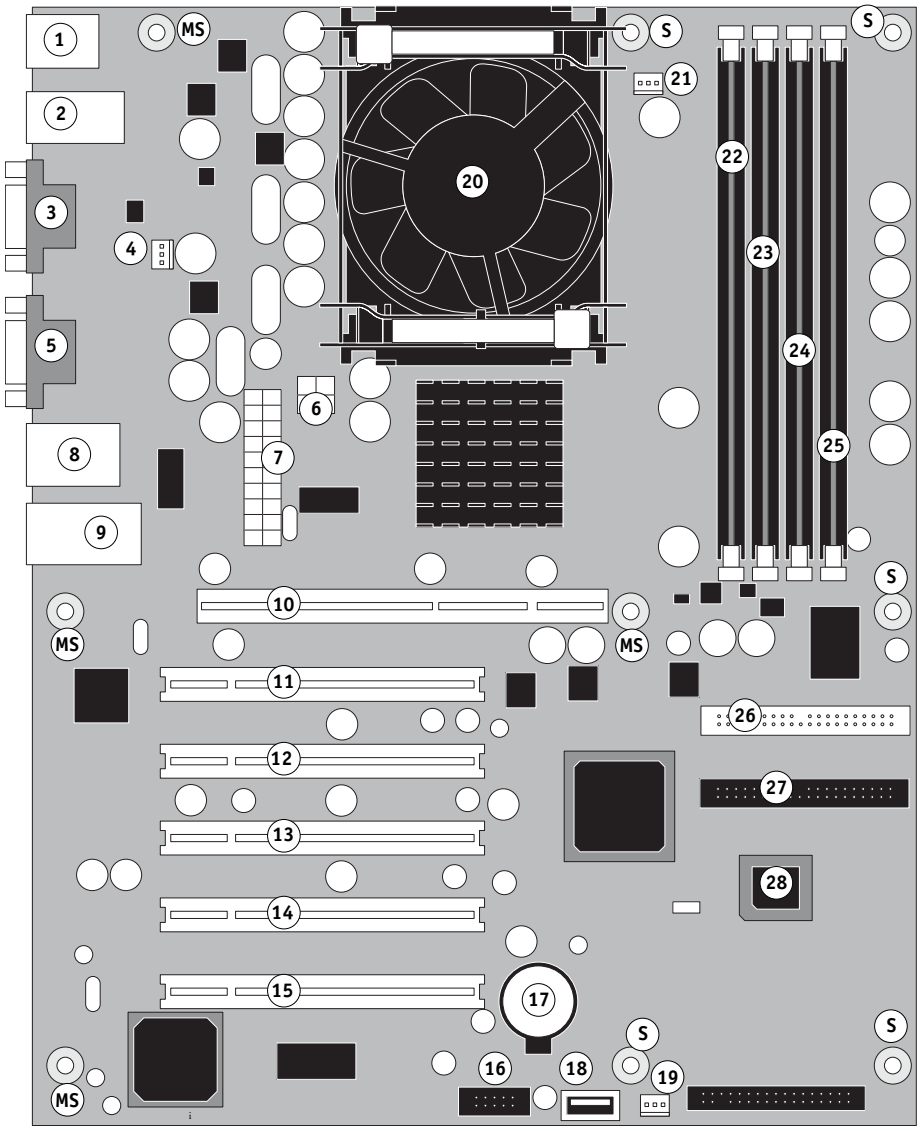
The motherboard attaches to the side of the chassis above the power supply. Before you remove the motherboard, you must remove the following:

- All boards installed on the motherboard
- Power supply
- All cables connected to the motherboard
  (these include the power cable, front fan cable, back panel fan cable, HDD ribbon cable, DVD drive ribbon cable, and UIB cable)

This section also includes information on the following:

- Replacing or adding a DIMM
- Replacing the CPU
- Replacing the battery
- Jumper configuration

Follow precautions when handling components (see page xiii).



Key

1. Mouse and keyboard connectors (option)
2. USB connectors: dongle; ES-1000
3. COM port, male: not used
4. Back panel fan cable connector (FAN1)
5. COM port, female: monitor (option)
6. CPU power, 4-pin connector (J10)
7. Motherboard power, 20-pin connector (J10)
8. Copier interface (Upper Ethernet port)
9. Network interface (Lower Ethernet port)
10. Not used
11. Image processing board (PCI1)
12. Empty (PCI2)
13. Empty (PCI3)
14. Empty (PCI4)
15. Empty (PCI4)
16. UIB cable connector (JP20)
17. Battery (BT1)
18. USB, internal (J20, not used)
19. Front fan cable connector (FAN2)
20. CPU, heatsink, and CPU fan
21. CPU fan cable connector (P1 FAN1)
22. DIMM 1 socket (J21)
23. DIMM 2 socket (J23)
24. DIMM 3 socket (J24)
25. DIMM 4 socket (J25)
26. SEC- IDE cable connector (DVD drive)
27. PRI-IDE cable connector (for HDD)
28. BIOS chip (U35)

NOTE: Any connectors not listed above are not used.

MS—Mounting screws; S—Stand-offs

FIGURE 4-16 Diagram of the iR-M3 motherboard

TO REMOVE BOARDS AND CABLES FROM THE MOTHERBOARD

1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**

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

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

   - Image processing board in motherboard connector PCI1 (see page 4-16)
   - Optional Parallel Interface Adapter in motherboard connector PCI3 (if this option is present)

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

3. **Remove the following cables as described below:**

   - Front fan cable from motherboard connector FAN2
   - Back panel fan cable from motherboard connector FAN1
   - Motherboard power cable from the 20-pin motherboard connector J10
   - CPU power cable from the 4-pin motherboard connector (located next to the 20-pin motherboard connector J10).
   - HDD ribbon cable from motherboard connector PRI-IDE (Primary IDE)
   - DVD drive ribbon cable from the DVD drive

     Leave the DVD drive ribbon cable attached to the SEC-IDE (Secondary IDE) connector on the motherboard, unless you are installing a new motherboard.

   - 4-pin power cable from the DVD drive
   - USB cable from motherboard connector J20 (if present)
   - UIB cable

     Do not remove the UIB cable from its mount on the front of the chassis unless you are replacing it with a new one (see Figure 4-5 on page 4-8).

TO REMOVE THE MOTHERBOARD

1. **If you are replacing the motherboard with a new motherboard, remove and set aside the following:**
   - DIMM (page 4-35)
   - CPU (page 4-36)
   - DVD drive ribbon cable (see Figure 4-6 on page 4-10)
2. **Remove the mounting screws on the motherboard (see Figure 4-16 on page 4-22).**

   Two metal and three plastic 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.
3. **Lift the edge of the motherboard opposite the back panel connectors to remove the motherboard from the chassis (see Figure 4-17 on page 4-24).**

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

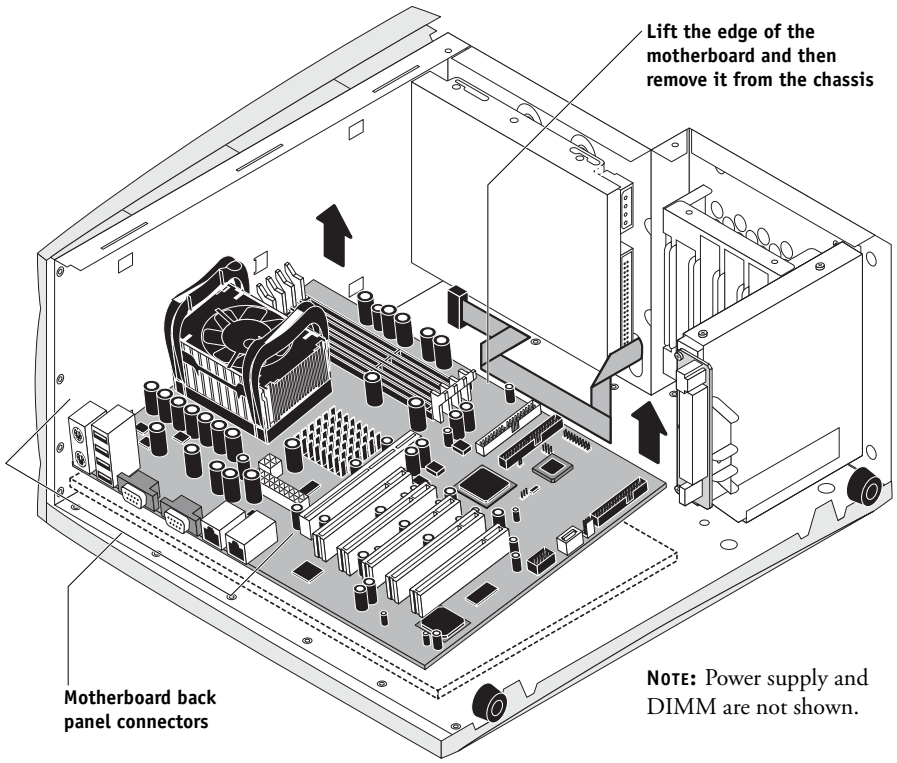


FIGURE 4-17 Removing the motherboard

Replacing the motherboard

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

If you are installing a new motherboard:

- Transfer the DIMM and CPU from the old motherboard to the new motherboard.
- BIOS chips are not interchangeable. Do not transfer the BIOS chip from the old motherboard onto the new motherboard. Doing so can damage the iR-M3.
- Enter Service Mode and make sure the new motherboard solves the problem you are troubleshooting before you update the system. (See page 4-28 for details on Service Mode and updating the system.) Updating the system permanently customizes the new motherboard. Once customized, the motherboard cannot be returned to inventory or installed in another iR-M3. If the new motherboard does not solve the problem, do not update the system. Return the new motherboard and unused dongle to inventory.
- Do not reinstall system software before updating the system. Doing so can result in a permanent “Invalid License” error.
- Do not replace the HDD and the motherboard at the same time. Doing so in the wrong order and without updating the system will cause the system to not function.

  It is unlikely that both the HDD and the motherboard are defective; therefore, avoid replacing both to solve one problem. If troubleshooting strategies (checking cables and connections, etc.) do not solve the problem and you suspect either the HDD or the motherboard are at fault, use the following order to troubleshoot: replace the HDD, install system software, and then check if the problem still exists. If so, perform other procedures, such as replacing the motherboard.
- Update the system using the dongle and the Restore/Update Server Software CD. (See page 4-28 for details on updating the system.)

TO REPLACE THE MOTHERBOARD

1. **Angle the motherboard so the back panel connectors on the motherboard fit into the cutouts in the back of the chassis (see Figure 4-17 on page 4-24).**

2. **Align the mounting holes on the motherboard with the standoffs located in the base of the chassis (see Figure 4-17 on page 4-24) and then gently push the motherboard down to secure it to the chassis.**

3. **Insert the four 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.

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

   Do not transfer the BIOS chip from the old motherboard onto the new motherboard. Doing so can damage the iR-M3.

   Now you are ready to complete motherboard installation.

TO REPLACE BOARDS AND CABLES

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

   - Connect the UIB cable to motherboard connector JP20.

     If you removed the UIB cable from its mount on the front of the chassis to replace it with a new one, secure the new cable to the chassis by tie-wrapping the ferrite core on the cable to the mount on the chassis (see Figure 4-5 on page 4-8).

   - Connect the USB cable (if present) to motherboard connector J20
   - Connect the 4-pin power cable to the DVD drive
   - Connect the DVD drive ribbon cable from the DVD drive to the SEC-IDE (Secondary IDE) connector on the motherboard.
   - Connect the HDD ribbon cable from the HDD to motherboard connector PRI-IDE (Primary IDE).

NOTE: Make sure to connect the longer section of the HDD ribbon cable to the motherboard. Also, make sure *not* to switch the DVD drive and HDD ribbon cables. The DVD drive ribbon cable has 40 wires; the HDD ribbon cable has 80 wires.

   - Connect the 4-pin CPU power cable to the 4-pin connector on the motherboard (located next to the 20-pin power connector J10 on the motherboard).
   - Connect the 20-pin power cable to motherboard connector J10
   - Connect the back panel fan cable to motherboard connector FAN1
   - Connect the front fan cable to motherboard connector FAN2

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

   - Image processing board in motherboard connector PCI1 (see page 4-16).
   - Optional Parallel Interface Adapter in motherboard connector PCI3 (if this option is present)

3. **Make sure all board mounting bracket screws for boards occupying back panel slots are secured. Press down firmly on the top of the board as you insert each screw.**

   NOTE: Make sure unused slots have slot covers installed. Uncovered slots reduce the air flow and could cause the iR-M3 to overheat.

4. **Reassemble the iR-M3 (see page 4-13).**
5. **If you reinstalled the old motherboard, verify functionality (see page 4-15).**
6. **If you replaced the motherboard with a new motherboard, proceed to "Verifying new motherboard installation and updating the system" on page 4-28.**

Verifying new motherboard installation and updating the system

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

- Verify the new motherboard installation in Service Mode (requires the Restore/Update Server Software CD and the dongle shipped with the new motherboard).

  Service Mode is a temporary state that allows you, before updating the system, to verify that installing a new motherboard solves a problem with the iR-M3 (see Chapter 5, "Troubleshooting." for reasons to install a new motherboard). Service Mode ends automatically when you update the system (described below).

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

For detailed instructions, see "Entering Service Mode" on page 4-29.

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

  Update the system after verifying it in Service Mode. The iR-M3 will not function permanently until you update the system.

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

NOTE: *Do not* update the system prematurely. Update the system only after verifying it in Service Mode. Remember that once the system is updated, the motherboard cannot be used in another system.

For detailed instructions, see "To update the system" on page 4-31.

Entering Service Mode

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

TO ENTER SERVICE MODE AND VERIFY THE SYSTEM

1. **Unpack the dongle shipped with the new motherboard and connect it to an available USB port on the back panel (see Figure 4-18).**

   Do not remove any other dongle that may be connected to a USB port.

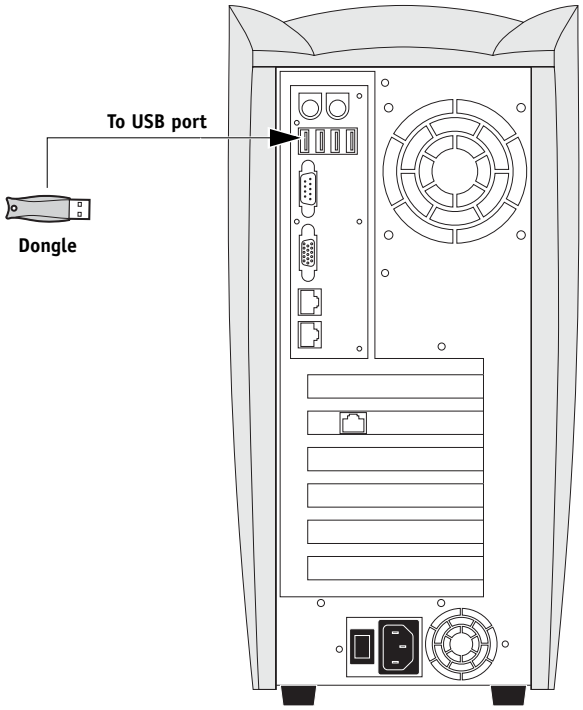


FIGURE 4-18 Connecting the dongle

2. **Power on the iR-M3 using the power switch on the back panel. When the following screen displays, the iR-M3 is in Service Mode.**

3. **Connect the iR-M3 to the copier and print the Test Page (see page 3-3).**

4. **Have the network administrator connect the iR-M3 to the network and download a print job over the network (see the *Configuration Guide*).**

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

If installing a new motherboard solved the problem you are troubleshooting and you are able to print a Test Page and send a print job over the network, you are ready to update the system. Service Mode ends automatically when you update the system (see page 4-31).

Updating the system

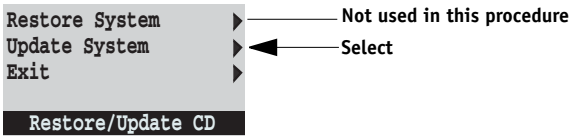
After you have verified that the system functions properly with the new motherboard, you must update the system by performing the following procedure.

NOTE: The procedure below assumes that the iR-M3 is fully assembled, powered on, verified (see page 4-28), and requires an update.

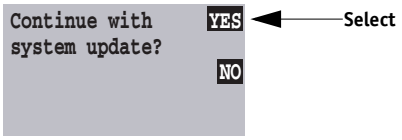
TO UPDATE THE SYSTEM

1. **Insert the Restore/Update Server Software CD in the DVD drive.**
2. **Shut down the iR-M3 (see page 4-3).**
3. **If you have not done so already, connect the dongle to an available USB port on the back of the iR-M3 (see Figure 4-18 on page 4-29).**

   Do not remove any other dongle that may be connected to a USB port.
4. **Power on the iR-M3 using the power switch on the back panel.**
5. **Select "Update System" from the following screen.**

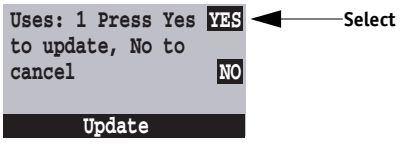


6. **Select "Yes" from the following screen.**



The Control Panel displays the message System update in progress... for approximately 10 seconds.

7. **Select "Yes" from the following screen.**

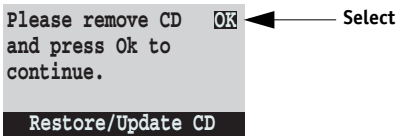


The update takes approximately 20 seconds while the message Updating system...DO NOT power off! displays on the Control Panel. Do not power off during the update. Doing so may damage the iR-M3.

8. **At the message "Update successful. Press OK to continue." select OK.**

9. **When you are returned to the following screen, select "Exit."**

10. **When the following screen displays, remove the Restore/Update Server Software CD and then select OK.**



The Control Panel displays the message System rebooting. Allow the system to reboot without interruption.

11. **Remove the dongle from the USB port.**

12. **Shut down the iR-M3 (see page 3-15).**

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

See "Error messages" on page 4-33 if an error message displays during the update.

Error messages

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

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

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

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

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

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

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

No Service Dongle. Shutdown in progress —This message appears for approximately 15 seconds before you see the message "It is now safe to power off the system." This message appears if you remove the dongle while the iR-M3 is in Service Mode.

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

Replacing parts on the motherboard

This section describes how to remove and replace the DIMM, CPU, and battery on the motherboard. Before performing any of these procedures, shut down, unplug, and open the iR-M3 (see page 4-3 and page 4-4).

DIMM

The motherboard has four DIMM sockets. The iR-M3 standard configuration includes a single 256MB DIMM installed as shown in Figure 4-19.

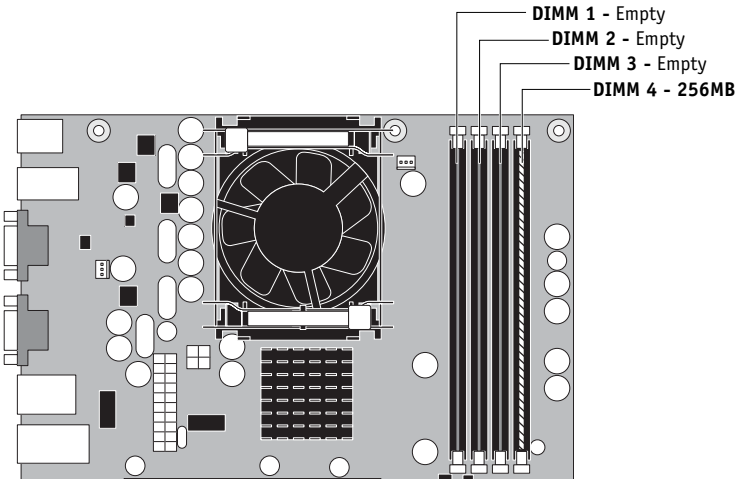


FIGURE 4-19 Standard DIMM configuration

TO REPLACE A DIMM

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

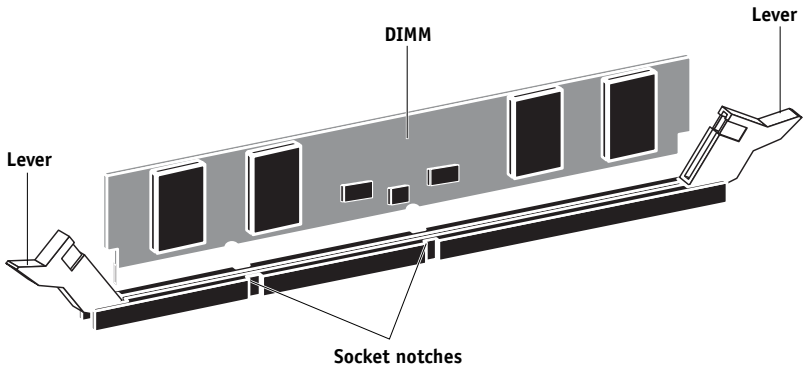


FIGURE 4-20 Releasing a DIMM

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

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

   NOTE: The DIMM fits in the socket only one way. The two notches on the bottom of the 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 iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described on page 4-15).**

Motherboard CPU

The CPU is installed in a Zero Insertion Force (ZIF) socket on the motherboard. Before removing the CPU from its socket, disconnect the CPU fan cable from the motherboard and remove the cooling assembly from the CPU socket (see page 4-37). The CPU cooling assembly consists of a fan, a clamp, a heatsink, and a bracket.

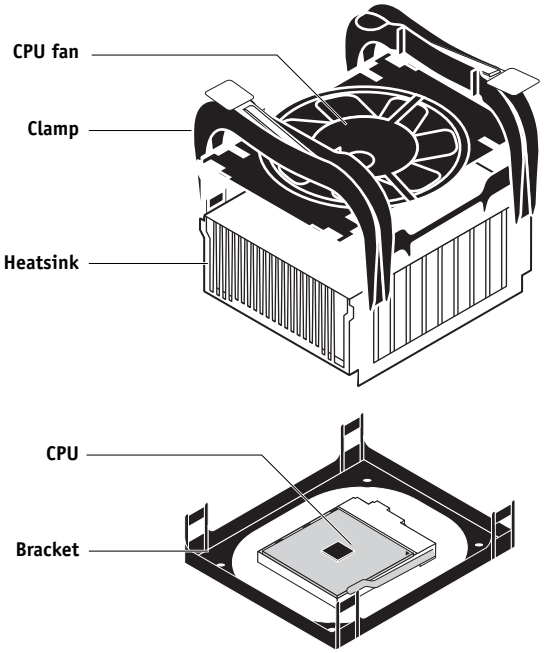


FIGURE 4-21 CPU cooling assembly

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

TO REMOVE A CPU

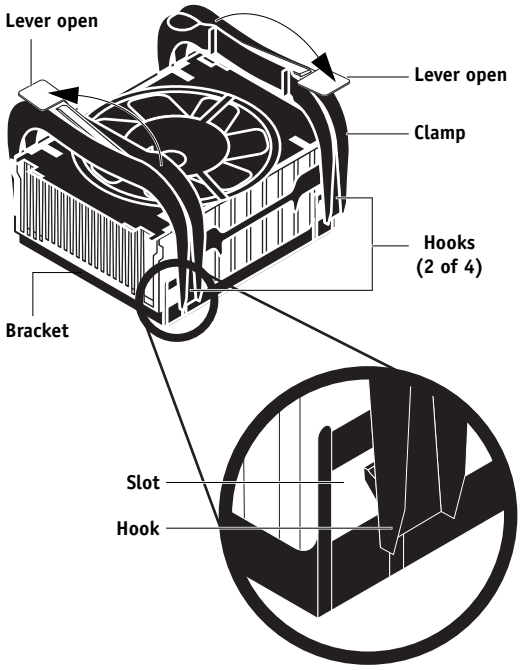
1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**
2. **Position the iR-M3 so that it is laying on its side and the components inside the chassis are facing up.**
3. **Remove the CPU fan cable from motherboard connector P1 FAN1.**
4. **Remove the CPU cooling assembly:**

Be aware that both the cooling assembly and the CPU may be very hot. You may have to let the components cool before attempting to remove them.

Several motherboard components are very close to the cooling assembly. Make sure not to damage these components when removing or replacing the cooling assembly.

- Move the levers on the clamp to the open position (spine up).
- Use a small flathead screwdriver to bend the four hooks out of the slots in the bracket one at a time. Make sure not to damage the motherboard as you bend the hooks out of the bracket.
- Lift the cooling assembly off the CPU socket and set it aside.

Use caution when lifting the cooling assembly out of the bracket, as the thermal compound applied to the bottom of the heatsink may damage the CPU if the heatsink is removed too forcefully.



5. **Lift the CPU socket lever to release the CPU from the socket.**

   To release the CPU you need to first flex the lever away from the retention post on the socket, and then lift the lever all the way up.

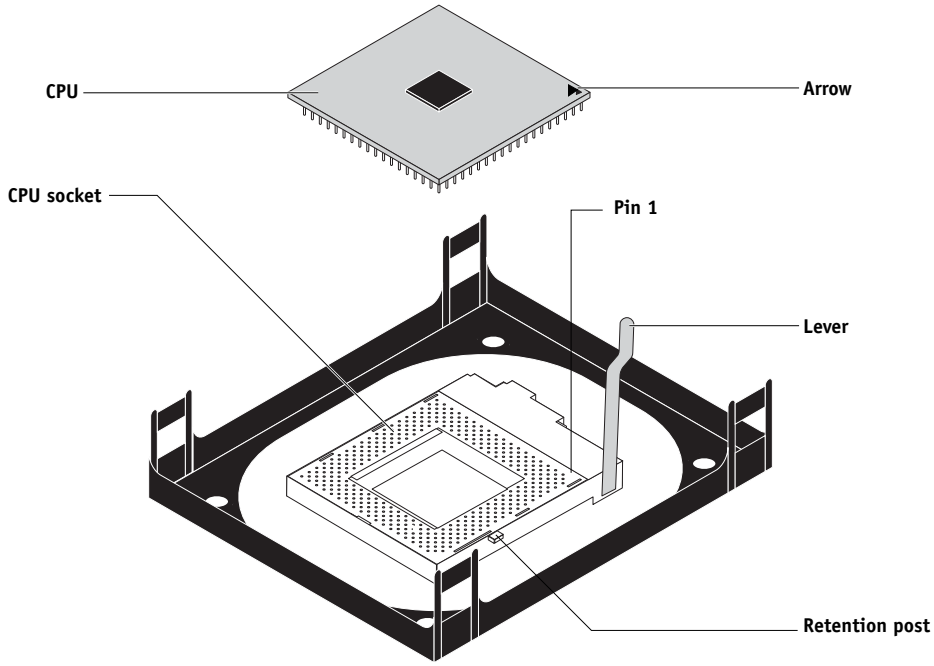


FIGURE 4-22 Removing/replacing a CPU

6. **Grasp the CPU by its edges and carefully lift it from the socket.**

TO REPLACE A CPU

1. **Raise the socket lever.**

   You need to first flex the lever away from the retention post on the socket, and then lift the lever all the way up to release the CPU.

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 4-22).

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

   Make sure to lock the lever in place beneath the retention post.

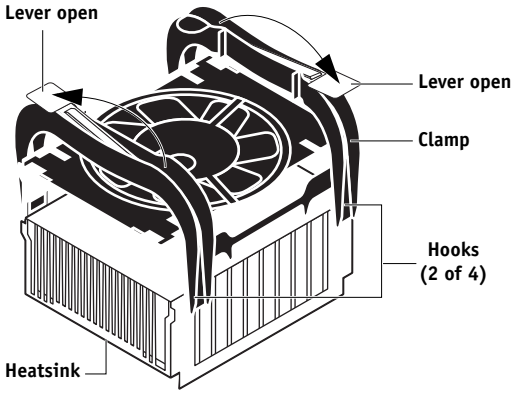
4. **Replace the CPU cooling assembly:**

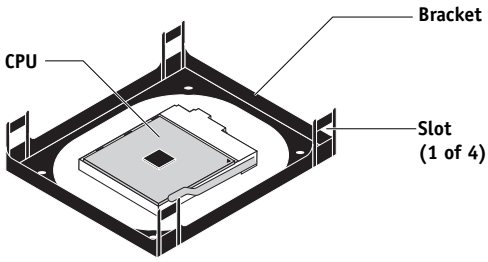
   - Make sure the levers on the clamp are in the open position (spine up).
   - Align the heatsink so that the fan cable is near the CPU fan connector on the motherboard P1 FAN1.
   - Place the heatsink on the CPU and inside the bracket.

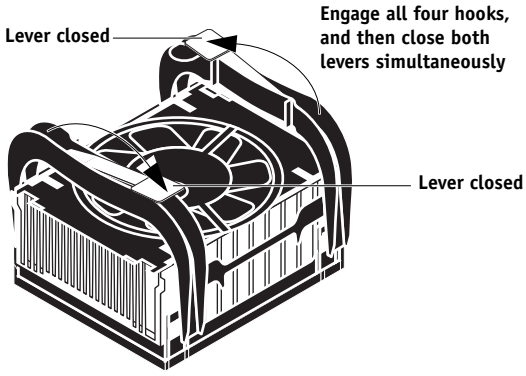
     Make sure the heatsink is fully seated in the bracket on all sides.
   - Press down on the clamp until all four hooks engage the slots in the bracket.

     Avoid using excessive force when pressing down on the clamp.
   - Close the levers simultaneously.

     Closing the levers simultaneously applies clamping force equally over the CPU and bracket.







5. **Connect the CPU fan cable to the motherboard connector P1 FAN1.**

   If you are installing a new CPU, secure the slack in the fan cable using a tie-wrap (if necessary). The tie-wrap prevents the fan cable from interfering with the CPU fan. Also, make sure the connector on the cable is securely connected to connector P1 FAN1 on the motherboard.

6. **Reassemble the iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described on page 4-15).**

Motherboard battery

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

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

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 jeweiligen gesetzlichen Bestimmungen 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 réglementations locales en vigueur.

ADVARSEL!: Litiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Batteriet må kun udskiftes med et andet batteri af samme fabrikat og type. Brugte batterier skal bortskaffes i henhold til gældende regler.

VAROITUS: Paristo voi räjähtää, jos se on vaihdetaan väärän tyyppiseen paristoon. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo paikallisten määräysten mukaisesti.

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

VARNING: Risk för explosion om batteriet byts ut mot en felaktig batterityp! Byt bara ut batteriet mot en batterityp som har godkänts av tillverkaren. Hantera använda batterier enligt lokal miljölagstiftning.

CUIDADO: Existe peligro de explosión si la batería se sustituye por una batería del tipo incorrecto. Sustituya la batería sólo por una batería del mismo tipo que recomienda el fabricante. Deseche las baterías usadas respetando la normativa local.

ATTENZIONE: Esiste pericolo di esplosione se la batteria viene sostituita con una di tipo non corretto. Sostituirla solamente con un tipo raccomandato dal produttore. Lo smaltimento delle batterie usate deve essere eseguito secondo le normative locali.

AVISO: Existe o perigo de explosão se a bateria for substituída por uma do tipo incorreto. Substitua somente por uma do tipo recomendado pelo fabricante. Descarte as baterias conforme as normas locais.

GEVAAR: Er bestaat ontploffingsgevaar indien de batterij door een verkeerd type wordt vervangen. Vervang de batterij uitsluitend door hetzelfde door de fabrikant aanbevolen type. Ruim gebruikte batterijen op volgens de plaatselijke voorschriften.

TO REPLACE THE MOTHERBOARD BATTERY

1. **Locate the battery on the motherboard (see Figure 4-16 on page 4-22.)**
2. **Carefully push the clip away from the battery until the socket ejects the battery.**

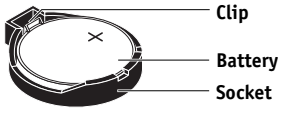


FIGURE 4-23 Motherboard battery

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 iR-M3 (see page 4-13) and verify its functionality (see page 4-15).**
7. **Configure the time and date in Setup.**

Motherboard jumpers

The following table describes the factory default jumper configuration. The jumper configuration should not be changed.

Jumper	Jumper area (shipping configuration)	Description
JP3		• Clear CMOS and password. Jumper is installed on pins 1 and 2 during normal operation.
JP6		• LAN Enable/Disable. Jumper is installed on pins 1 and 2. This setting should not be changed.

Fans

Inside the iR-M3, 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 iR-M3. If you do not hear the fans, the most likely reason is a faulty power connection (see "To check board and cable connections" on page 4-9).

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 iR-M3 in order to cool integrated circuits within the system.

TO REMOVE THE FRONT FAN

1. **Shut down the iR-M3 (see page 4-3).**
2. **Remove the front panel (see page 4-7).**
3. **Open the iR-M3 (see page 4-4).**
4. **Remove the fan cable from motherboard connector FAN2.**
5. **Remove and set aside the two screws that attach the board guide to the chassis (see Figure 4-1 on page 4-2 for the location of the board guide).**
6. **Unhook and remove the board guide (with front fan attached) from the chassis (see Figure 4-24 on page 4-42).**
7. **Remove and set aside the two 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 iR-M3 and the fan cable can reach motherboard connector FAN2.

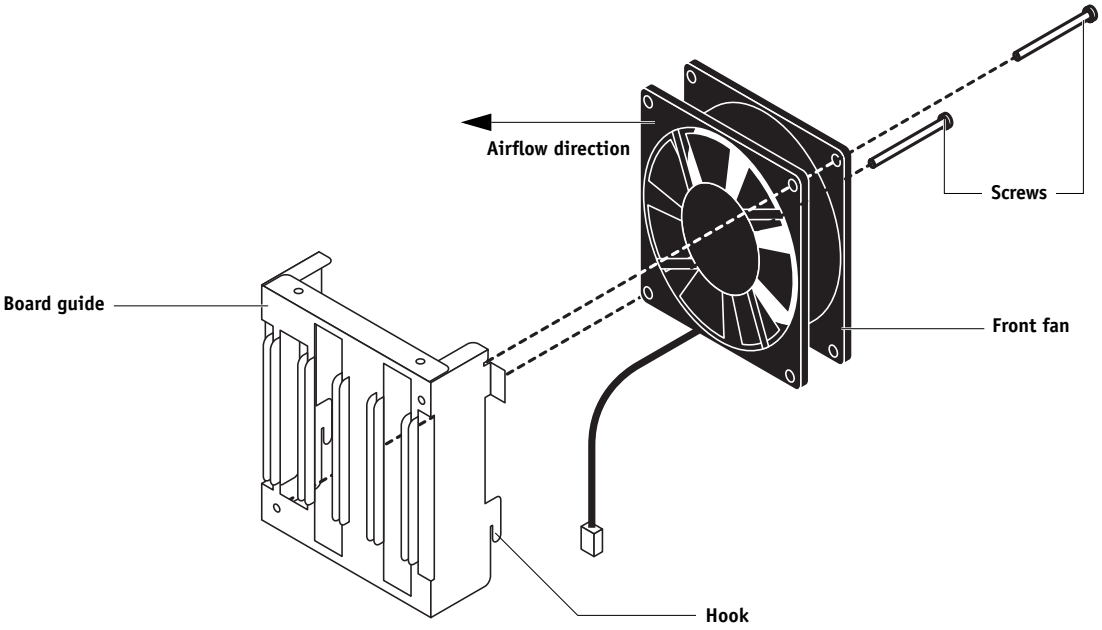


FIGURE 4-24 Replacing the front fan

2. **Install the fan on the board guide using the two screws (and washers, if present) you removed earlier.**
3. **Hook the board guide (with front fan attached) into the chassis.**
4. **Attach the board guide to the chassis using the two screws you removed earlier.**
5. **Connect the fan cable to motherboard connector FAN2.**
6. **Replace the front panel (see page 4-8).**
7. **Reassemble the iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described on page 4-15).**

Back panel fan

The back panel fan cools the system by blowing air from inside the system out of the back of the iR-M3.

TO REMOVE THE BACK PANEL FAN

1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**
2. **Remove the fan cable from motherboard connector FAN1.**
3. **Remove and set aside the four snap rivets that attach the fan to the chassis.**

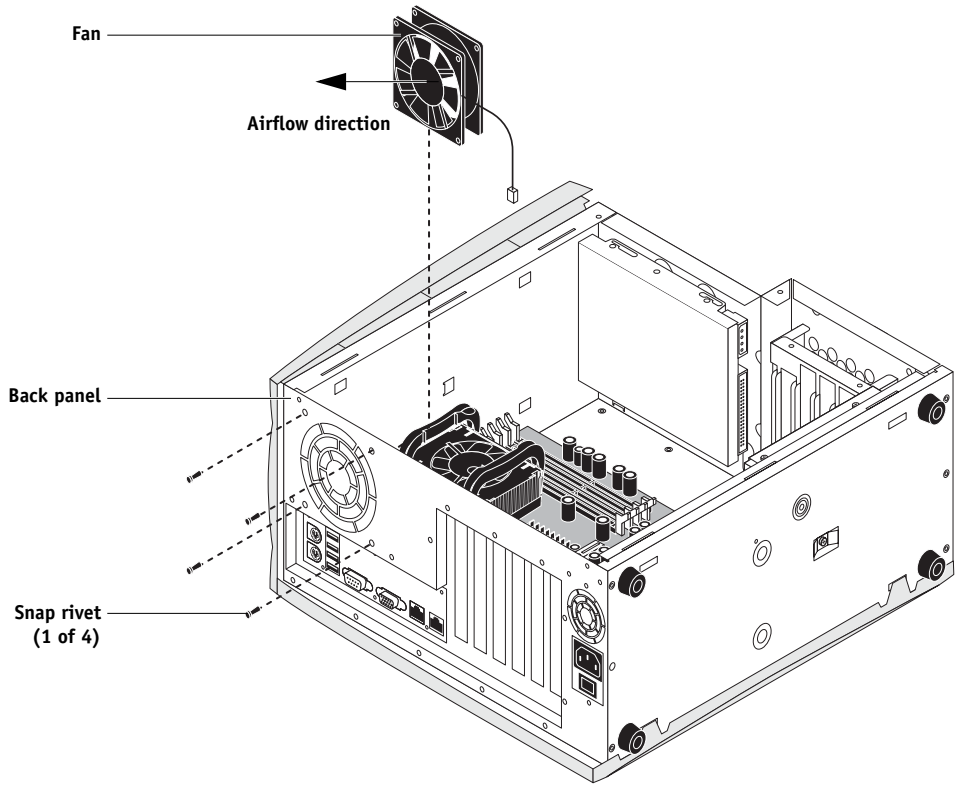


FIGURE 4-25 Removing the back panel fan

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

TO REPLACE THE BACK PANEL FAN

1. **Position the fan on the inside of the back panel so that the mounting holes line up with the four holes on the chassis (see Figure 4-25 on page 4-43).**

   An arrow on the side of the fan indicates the airflow direction. Make sure the fan is positioned so that the arrow faces the bottom of the chassis and points toward the back panel. The fan should blow air out of the back of the chassis when the system is reassembled and powered on.

2. **Attach the fan to the chassis using the snap rivets you removed earlier.**

3. **Connect the fan cable to the motherboard connector FAN1 (see Figure 4-25 on page 4-43).**

4. **Reassemble the iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described on page 4-15).**

5. **Make sure the fan vent on the back panel is emitting air. If the fan vent is not emitting air, the fan is oriented incorrectly, unplugged, or faulty (see Figure 4-25 on page 4-43).**

Power supply

The fan-cooled 180-watt power supply has an automatic input voltage selection circuit. The input voltage is 90~265VAC.

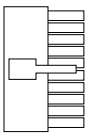
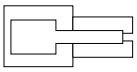
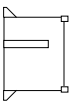
Checking voltages

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 CPU
- Connector that supplies power to the HDD
- Connector that supplies power to the DVD drive

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

TABLE 4-1 iR-M3 power connectors

Connector	Pins	Color	Voltage
 20-pin Motherboard power	1, 2, 11	Orange	3.3V
	3, 5, 7, 13, 15, 16, 17	Black	GND
	18	--	NC
	4, 6, 19, 20	Red	+5V
	10	Yellow	+12V
	12	Blue	-12V
	14	Green	PS-ON
	8	Gray	PW-OK
	9	Purple	+5VSB
 4-pin CPU power	1	Black	common
	2	Black	common
	3	Yellow	+12V
	4	Yellow	+12V
 4-pin HDD power	1	Yellow	+12V
	2	Black	common
	3	Black	common
	4	Red	+5V
 4-pin DVD drive	1	Yellow	+12V
	2	Black	common
	3	Black	common
	4	Red	+5V

Removing and replacing the power supply

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

TO REMOVE THE POWER SUPPLY

1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**
2. **Remove the power cable from the 20-pin motherboard connector J10 (see Figure 4-7 on page 4-11).**
3. **Remove the power cable from the 4-pin connector next to connector J10.**
4. **Remove the power cable from the HDD.**
5. **Remove the ribbon and power cables from the DVD drive (see Figure 4-6 on page 4-10).**
6. **Remove the USB cable from motherboard connector J20 (if present).**
7. **Remove the screws that secure the power supply to the chassis (see Figure 4-26 on page 4-47).**

   Support the power supply while you remove the screws. Set the screws aside so you can replace them later.
8. **Remove the black and white power switch leads from the power switch (see Figure 4-27 on page 4-48 for detail of the power switch).**

   Move the power supply as necessary to access the power switch leads. Carefully remove the leads from the prongs on the power switch.

   NOTE: Do not remove the power switch itself; it is designed to remain mounted in the chassis.
9. **Lift the power supply out of the chassis and set it aside.**

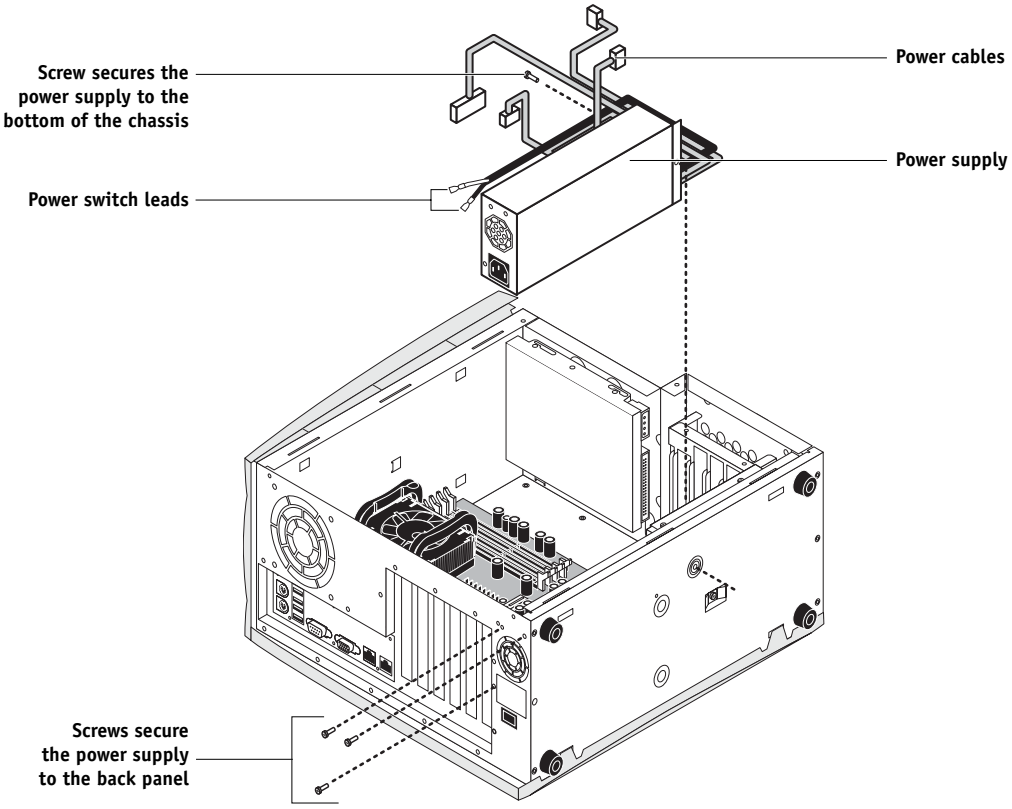


FIGURE 4-26 Removing/replacing the power supply

TO REPLACE THE POWER SUPPLY

1. **Attach the black and white power switch leads to the correct prongs on the power switch.**

   NOTE: If you are replacing the power supply with a new one, do not try to replace the power switch itself. The original switch is designed to remain mounted to the chassis.

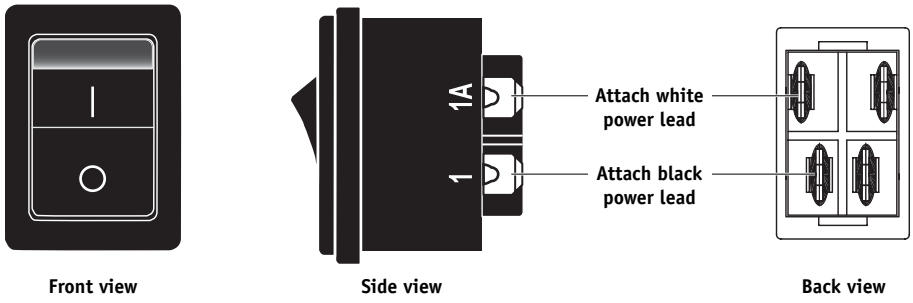


   FIGURE 4-27 Attaching power switch leads to the power switch

2. **Place the power supply in the chassis.**

   Align the mounting holes with the three holes on the back of the chassis and the single hole on the bottom of the chassis.

3. **While supporting the power supply, attach it from the outside with three screws (larger) on the back panel and one screw (smaller) on the bottom of the chassis.**

   If you are installing a new power supply, make sure to use the screws that came with the new one to attach the power supply to the chassis.

4. **Place the power cables in the cable clamps that are attached to the inside of the chassis (see Figure 4-7 on page 4-11).**

   Route the power cables under the ribbon cables.

5. **Connect the USB cable (if present) to motherboard connector J20.**

6. **Connect the 4-pin power cable to the DVD drive.**

7. **Connect the ribbon cable to the DVD drive.**

8. **Connect the 4-pin power cable to the HDD.**

9. **Connect the 4-pin power cable to the motherboard connector next to the 20-pin connector J10.**

10. **Connect the 20-pin power cable to motherboard connector J10.**

11. **Reassemble the iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described on page 4-15).**

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

Hard disk drive

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

If you replace the HDD with a new one, you must install system software and any patches or updates on the new HDD. (Spare HDDs are shipped without system software installed.)

Do not replace the HDD and the motherboard at the same time. Doing so in the wrong order and without updating the system (see page 4-25) will cause the system to not function.

It is unlikely that both the HDD and the motherboard are defective; therefore, avoid replacing both to solve one problem. If troubleshooting strategies (checking cables and connections, etc., see page 4-9) do not solve the problem and you suspect either the HDD or the motherboard are at fault, use the following order to troubleshoot: replace the HDD, install system software, and then check if the problem persists. If so, perform other procedures, such as replacing the motherboard (see page 4-25).

Proper handling

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

- Use proper ESD practices when grounding yourself and the iR-M3.
- Keep magnets and magnetic-sensitive objects away from the HDD.
- Do not remove the screws on top of the HDD. Loosening these screws voids the warranty.
- Never drop, jar, bump, or put pressure on the HDD.
- Handle the HDD by its sides and avoid touching the printed circuit board.
- Allow the HDD to reach room temperature before installation.

HDD problems may be caused by the following:

- Loose or faulty connection
- Faulty ribbon cable
- Faulty hard disk drive

Make sure you attach an ESD grounding wrist strap and follow standard ESD (electrostatic discharge) precautions before handling iR-M3 components.

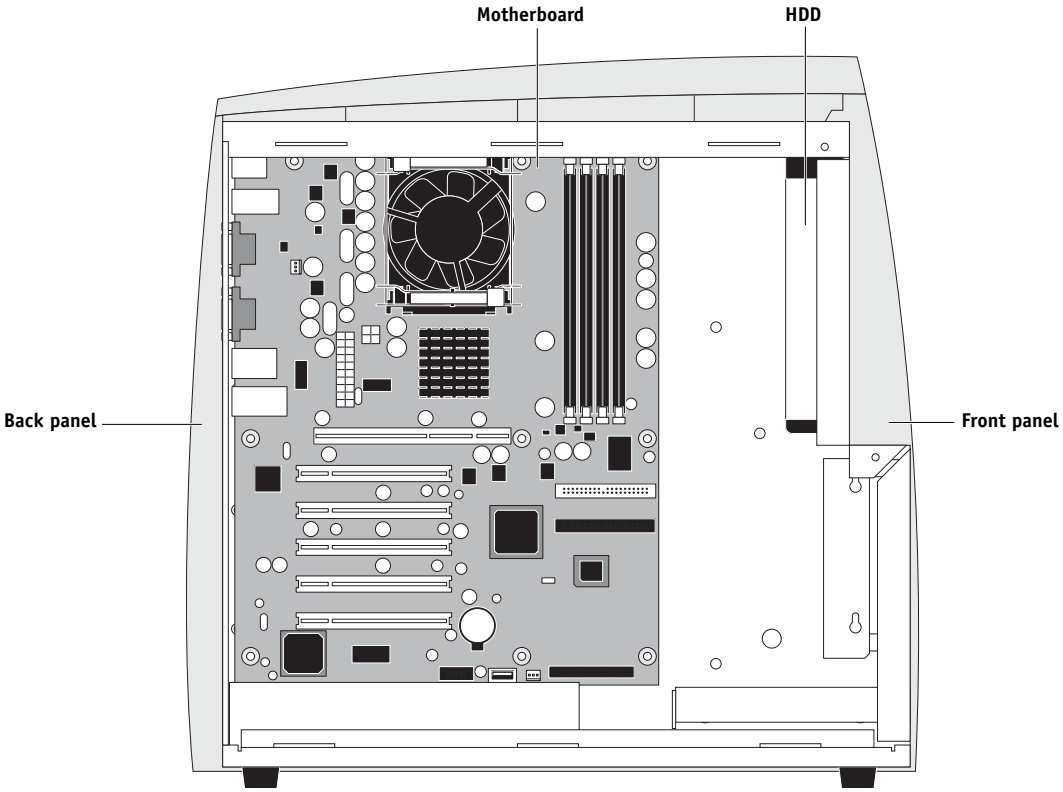


FIGURE 4-28 iR-M3 HDD (hard disk drive)

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

- The appropriate system software and documentation for the iR-M3 you are servicing.
- A compatible version of the user software for the networked computers that will be printing to the iR-M3.

TO REMOVE THE HDD

NOTE: If you are removing the HDD in order to install a new drive, first give the network administrator the opportunity to print the Job Log and to save any custom simulations. Also, print the Configuration Page and the Font List from the Functions menu, if possible. (For a detailed description, see page 4-59.)

1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**
2. **Remove the front panel (see page 4-7).**
3. **Remove the 4-pin power supply cable from the HDD.**
4. **Remove the HDD ribbon cable from the HDD by pulling the connector (not the cable) straight out from the HDD.**
5. **Remove three of the four screws that attach the HDD to the chassis (see Figure 4-29.)**
6. **While supporting the HDD, remove the fourth screw.**

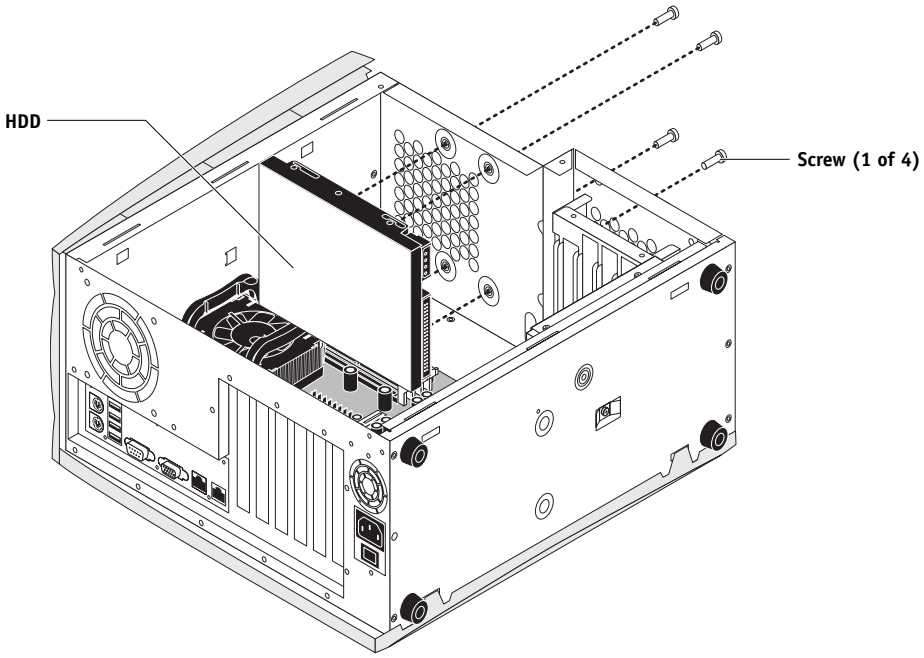


FIGURE 4-29 Removing the HDD

7. **Remove the HDD from the chassis and place it in an antistatic bag.**

Do not loosen the 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.

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

TO REPLACE THE HDD

NOTE: Do not install a new HDD and a new motherboard at the same time. If you suspect that the iR-M3 needs a new HDD and a new motherboard, first install the new HDD and install system software. Then install a new motherboard and perform the system update procedure (see page 4-25 and page 4-28).

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

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

2. **Position the HDD inside the chassis and align the mounting holes with the four holes in the chassis.**

   The HDD should be positioned as shown in Figure 4-29 on page 4-51.

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

4. **Connect the HDD ribbon cable to the HDD.**

   NOTE: Make sure to connect the longer segment of the HDD ribbon cable to the motherboard. Also, make sure *not* to switch the DVD drive and HDD ribbon cables. The DVD drive ribbon cable has 40 wires; the HDD ribbon cable has 80 wires.

5. **Connect the 4-pin power supply cable to the HDD.**

   The connectors are keyed to fit only one way.

6. **Replace the front panel (see page 4-8).**

7. **Reassemble the iR-M3 (see page 4-13).**

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

9. **If you replaced the HDD with a new HDD, install system software (see page 4-59).**

   If a startup error displays on the Control Panel when you turn on the iR-M3, check the connections.If a startup error still displays, call your authorized service/support center.

10. **Verify iR-M3 functionality (see the connection verification steps described on page 4-15).**

DVD drive

The DVD drive is mounted in a bracket that attaches to the inside of the chassis. The DVD drive is used to install system software onto the HDD.

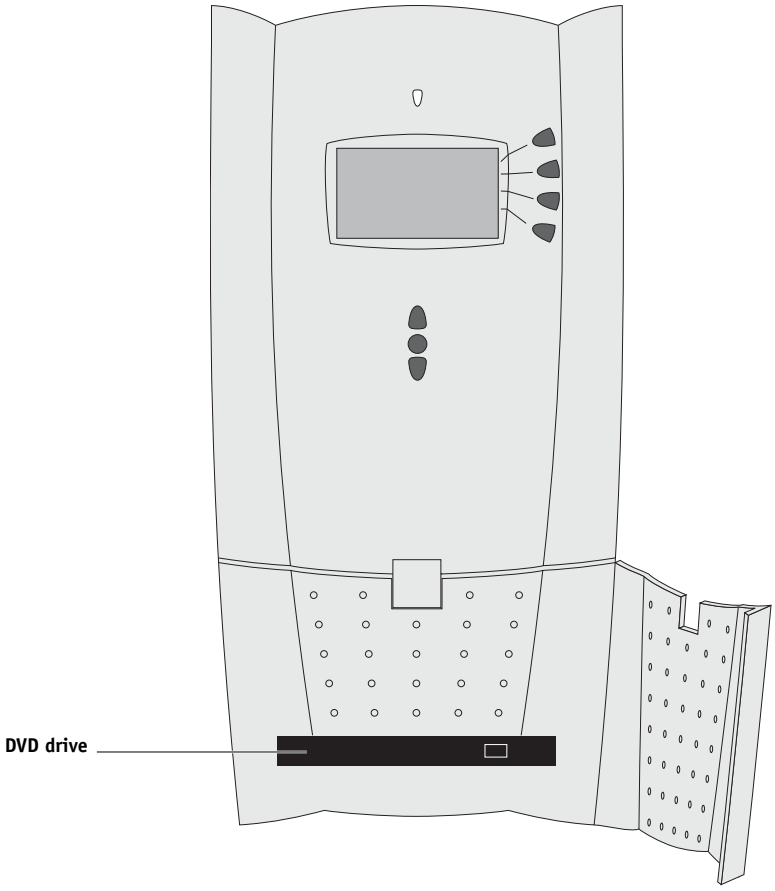


FIGURE 4-30 iR-M3 DVD drive

TO REMOVE THE DVD DRIVE

1. **Shut down and open the iR-M3 (see page 4-3 and page 4-4).**
2. **Remove the front panel (see page 4-7).**
3. **Remove the DVD drive ribbon cable from the DVD drive by pulling the connector (not the cable) straight out from the DVD drive.**
4. **Remove the 4-pin power supply cable from the DVD drive.**
5. **While supporting the DVD drive and bracket assembly, remove the screw on the bottom of the chassis and the two screws on the front of the chassis that attach the bracket to the chassis (see Figure 4-31).**

   Set the screws aside so you can replace them later.

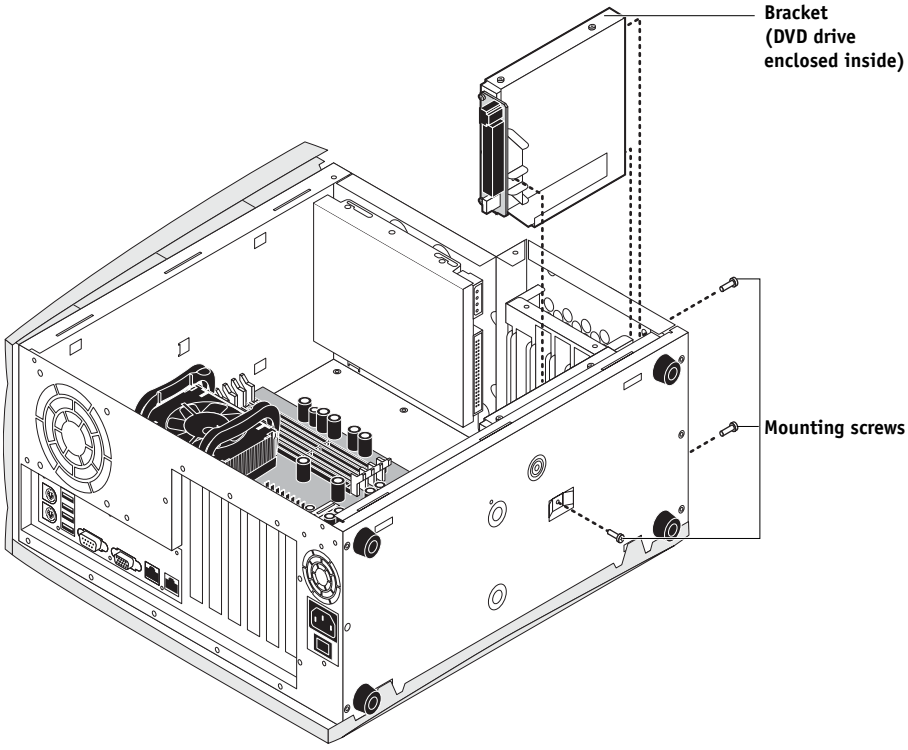


FIGURE 4-31 Removing/replacing the DVD drive and bracket

6. **Lift the bracket out of the chassis.**

   Make sure not to damage any components when you remove the bracket from the chassis.

To replace the DVD drive

1. **Position the bracket inside the chassis and align the mounting holes with the three holes in the chassis (two in front, one on the bottom; see Figure 4-31 on page 4-54).**
2. **Replace the three screws that attach the bracket to the chassis.**
3. **Connect the 4-pin power supply cable to the DVD drive.**
4. **Connect the DVD drive ribbon cable to the DVD drive.**

   The connectors are keyed to fit only one way.
5. **Replace the front panel (see page 4-8).**
6. **Reassemble the iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described on page 4-15).**

To remove the DVD drive from the bracket

Note: Spare DVD drives are shipped as a complete assembly that includes the DVD drive, bracket, and connector adapter and are not spared separately. The following procedures are provided as reference only.

1. **Remove the two screws that attach the connector adapter to the DVD drive, and then remove the connector adapter from the DVD drive (see Figure 4-32).**

   Pull the connector adapter straight out from the DVD drive. Do not twist the connector adapter while removing it.

2. **Remove the four screws that attach the DVD drive to the bracket and slide the drive out the front of the bracket.**

   Make sure not to damage the EMI gasketing around the edge of the bracket as you remove the drive.

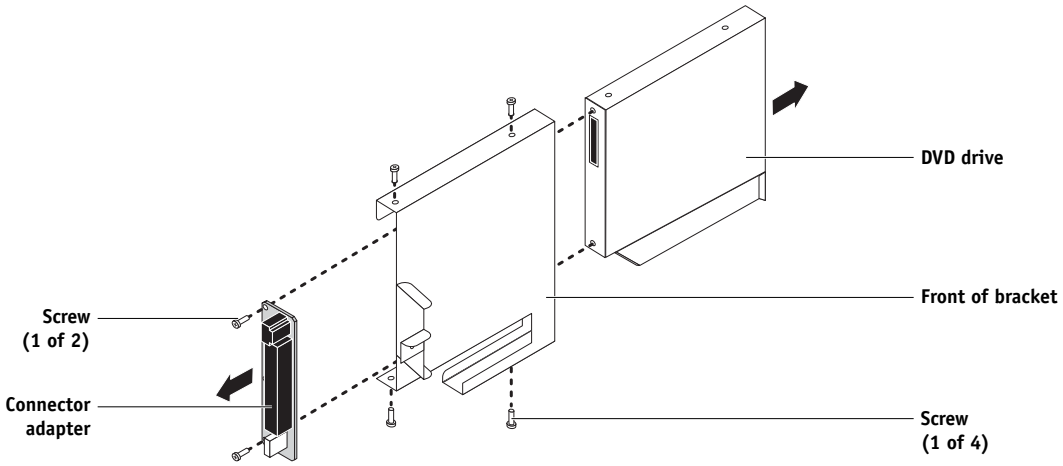


Figure 4-32 Removing the DVD drive from the bracket

To replace the DVD drive in the bracket

1. **With the bracket outside the chassis, slide the replacement DVD drive into the bracket.**

   Make sure not to damage the EMI gasketing around the edge of the bracket as you slide the DVD drive into place.

2. **Replace the four screws that attach the DVD drive to the bracket (see Figure 4-32).**

3. **Position the connector adapter over the back of the DVD drive and press it into place.**

   The connector on the adapter is keyed to fit on the DVD drive only one way.

4. **Replace the two screws that attach the connector adapter to the DVD drive.**

Front panel components

The front panel holds a jewel, the user interface board, and buttons. This section describes how to replace the jewel and buttons on the front panel. For information on replacing the user interface board, see page 4-18.

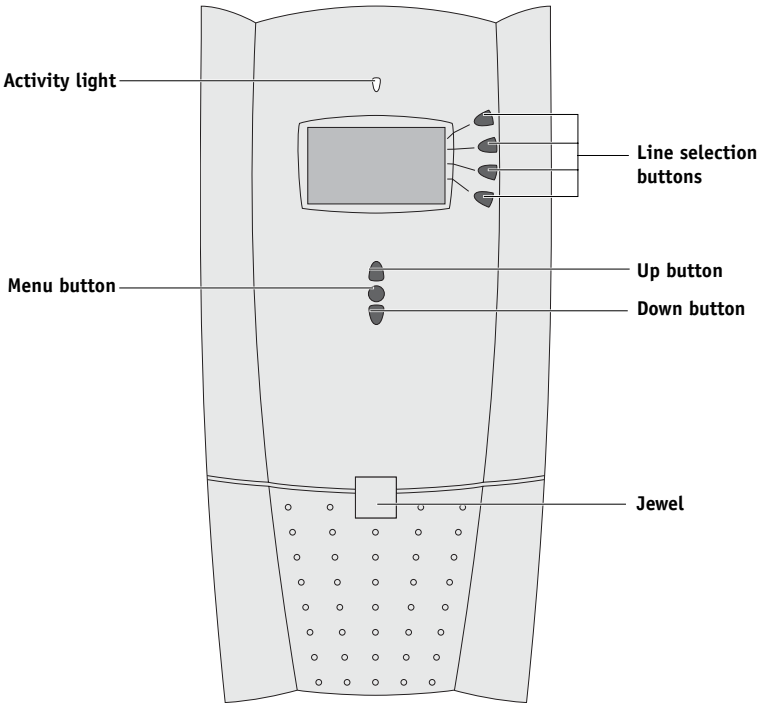


FIGURE 4-33 Front panel jewel and buttons

Jewel

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

TO REPLACE FRONT PANEL JEWEL

1. **Remove the front panel (see page 4-7).**

   Now you can access 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 tabs of the new jewel into the empty slots in the front panel and press down until it snaps into place.**

   The jewel's lower tabs are larger than the upper tabs. The lower tabs fit into the lower slots.

4. **Replace the front panel (see page 4-8).**

5. **Reassemble the iR-M3 (see page 4-13).**

Buttons

The Control Panel buttons are located in cutouts in the front panel and are designed to fit only one way. When correctly positioned, 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 4-7).**

2. **Remove the user interface board (see page 4-19).**

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

   The buttons fit only one way in the cutouts.

4. **Replace the front panel (see page 4-8).**

5. **Reassemble the iR-M3 (see page 4-13) and verify its functionality (see the connection verification steps described on page 4-15).**

System software service

The iR-M3 ships with system software installed on the HDD. System software is also provided on a CD that can be used to update the system software to a newer version or to reinstall the current version of the system software.

This section describes how to install system software from the system software CD (see page 4-60).

Keep in mind the following when installing system software:

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

  To determine which additional customer-supplied fonts may have been downloaded to the iR-M3, print the PS and PCL Font Lists before you install the system software and again after you complete the system software installation. Any fonts *not listed* after installation will need to be reinstalled. For more information, see the *Utilities* on the User Documentation CD.
- **Configuration**—Make sure to print a Configuration page before installing or restoring system software (see page 3-5 for instructions). The Setup configuration is lost when you install system software.
- **Other HDD content**—Custom simulations, custom outputs saved on the HDD, calibration data, FACI monitor profile, Fiery FreeForm™ masters, and cached PPML objects are deleted when you install system software. Print FreeForm masters and save a copy of any custom simulations before installing or restoring system software so that this content can be restored later. For more information, see *Color Printing*, *Fiery Color Reference*, and *Workflow Examples* on the User Documentation CD
- **Compatibility**—When upgrading the system software, make sure the latest user software is installed onto all computers that print to the iR-M3. Using incompatible versions of the system and user software may result in system problems.

Installing system software

The System Software CD includes the system software and fonts. Use the System Software CD when:

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

NOTE: System software installation takes approximately 20 minutes (not including the time required to configure Setup).

TO INSTALL SYSTEM SOFTWARE

1. **Make sure the Ethernet Crossover interface cable is connected to the iR-M3 and the copier and the copier is powered on.**

In order for system software installation to succeed, the iR-M3 needs to communicate with the copier at certain stages of the installation.

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

   - Configuration page—records the customer's current Setup configuration. The Setup configuration will be reset to the default configuration when system software is installed.
   - Font Lists—the PS and PCL Font lists detail the fonts currently installed on the HDD. These include the original fonts that came installed on the iR-M3 plus any additional fonts that the customer may have installed. All fonts are deleted when you install system software. The network administrator can use Fiery Downloader to reinstall customer-supplied fonts after system software reinstalls the original fonts. To determine which customer-supplied fonts need to be reinstalled, print the Font List before you install system software and again after you install system software. Any fonts *not listed* after installation need to be reinstalled.

3. **Insert the system software CD in the DVD drive.**

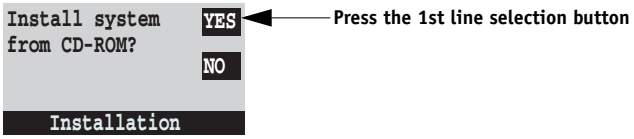
   NOTE: If you installed a new HDD, turn on the system using the power switch on the back panel, insert the system software CD in the DVD drive, allow the system to boot, and then proceed to step on page 4-61.

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. Routine startup diagnostics display on the Control Panel as the system reboots.

6. **When the following screen displays, select YES to install system software.**

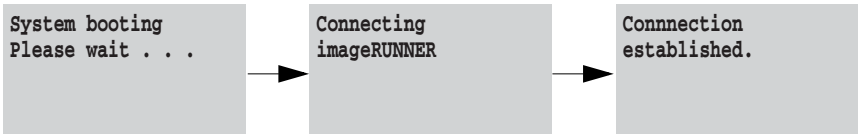


The installation process begins immediately. The following status messages display on the Control Panel:

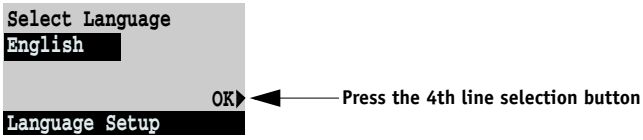
1. Disk Format
2. Base Install RO
3. Diablo Install
4. Kernel Install
5. Platform Install
6. Platform Option
7. LCD Install
8. Fiery Memory Option
9. Diags Install
10. Wipe 2.2.2
11. backup_bios.dpkg
12. System Install
13. Installation was successful

7. **At the message "Please remove CD," remove the system software CD, and then close the DVD drive drawer.**

The system shuts down and reboots automatically. Wait as the following messages display indicating that the system is rebooting. Do not push any buttons during this time.



8. **When the Select Language screen displays, scroll to the appropriate language, and then select OK.**



9. **When the Select Market Region screen displays, scroll to the appropriate region, and then select OK.**

   Wait as messages display indicating that the system is restarting and then reestablishing communication with the copier.

10. **When prompted to enter a password, enter Fiery.1 using the Up and Down buttons on the Control Panel (see "Using the Control Panel" on page 3-8 for button details).**

    NOTE: Enter Fiery.1 exactly. The password is case-sensitive; for example, fiery.1 will not work.

11. **When the Setup Menu displays, configure Setup using the Configuration page you printed earlier.**

    Bypass any settings that are not included on the Configuration page if it is more appropriate for the network administrator to set them. For more information, see *Congfiguration and Setup* on the User Documentation CD.

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

Chapter 5: Troubleshooting

This chapter identifies the source of common problems that may occur with the iR-M3 and suggests ways of correcting them.

The Troubleshooting process

The iR-M3 is a server for copiers, and is generally part of a configuration like the one shown below. Problems may occur in one of three areas:

- Inside the iR-M3
- In the interface between the iR-M3 and the copier
- In the interface between the iR-M3 and the workstations or computers to which it is connected

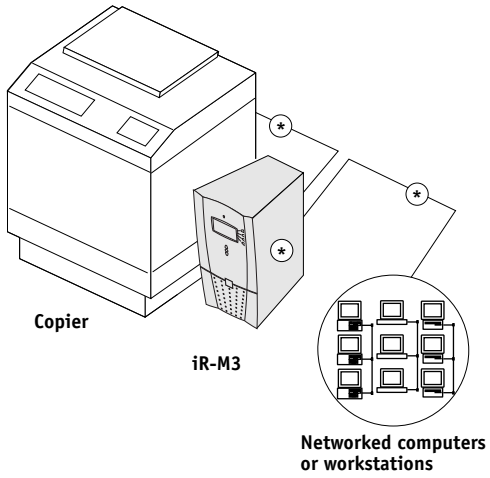


FIGURE 5-1 Troubleshooting the system

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

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

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

Preliminary on-site checkout

Most problems with the iR-M3 are caused by loose board or cable connections. This section describes the quick checks you can do to locate and fix obvious problems. It first describes how to eliminate any problems with external connections to the back of the iR-M3, and then addresses checking internal board and cable connections. Check external and internal connections before replacing any components.

NOTE: First, verify that the network is functioning, no unauthorized software or hardware is installed on the iR-M3, and there are no problems with a particular print job or application. The on-site administrator can help you verify these issues.

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

This section includes the following:

- "Checking external connections" on page 5-3

  This section describes the quick checks you can do to make sure the problem is not caused by a loose connection at the back of the iR-M3.

- "Checking internal components" on page 5-4

  This section describes the quick checks you can do to make sure the problem is not caused by a loose board or cable connection inside the iR-M3.

- "Inspecting the system" on page 5-5

  This section provides a more comprehensive checklist for checking the iR-M3 internally and externally. If your initial checks fail, go through this checklist before concluding that you need to replace a cable or component.

To troubleshoot problems according to specific symptoms, refer to Table 5-2 on page 5-12. Locate symptoms listed in the table to help you determine possible causes and the steps to remedy them.

Checking external connections

Before removing the side and front panel of the iR-M3 to check internal components, eliminate the most obvious sources of problems. Make sure that:

- All interface cables to the system are plugged into the proper connectors on the back panel of the iR-M3 (see Figure 5-2).
- The power cable is plugged into the wall power outlet.
- The power switch on the back panel of the iR-M3 is in the on position.
- The LED on the network connector is blinking to indicate network activity.

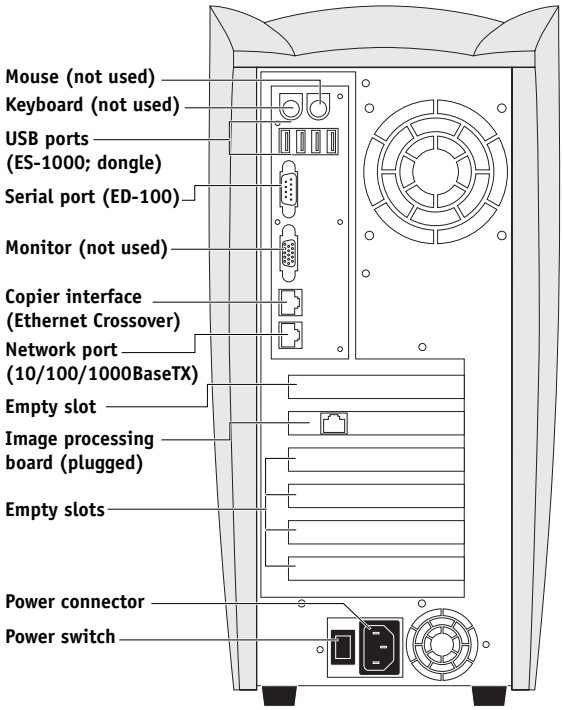


FIGURE 5-2 Back panel of the iR-M3

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

Checking internal components

To check the internal components you must remove the side and front panel of the iR-M3.

Before you remove the iR-M3's panels, be aware of the safety precautions you should take when handling the iR-M3. Use ESD precautions when handling printed circuit boards and electronic components. To review the safety precautions, see "Precautions" on page xiii.

When disassembling, checking, and reassembling the iR-M3, use the guidelines in Chapter 4.

TO CHECK INTERNAL COMPONENTS

1. **Shut down and open the iR-M3 (page 4-3 and page 4-4).**

2. **Before you touch any components inside the iR-M3, attach a grounding strap to your wrist and discharge any static electricity on your body by touching a metal part of the iR-M3.**

3. **Inspect the inside of the iR-M3 (see page 4-9).**

   Make sure no foreign materials have dropped into the chassis.

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

4. **Reassemble the iR-M3 and verify functionality (see page 4-13 and page 4-15).**

Inspecting the system

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

If the system you are servicing does not meet a condition listed in Table 5-1 and it is not obvious what action(s) you should take to fix the problem (for example, if the system hangs before reaching Idle), locate the behavior in Table 5-2 on page 5-12 and perform the suggested action(s) given for the condition.

TABLE 5-1 Verifying the system

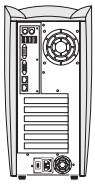
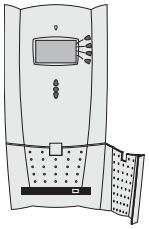
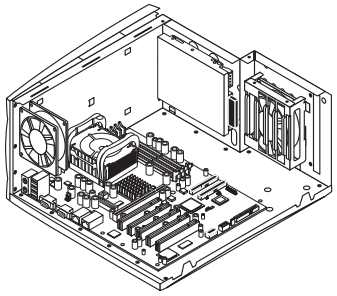
Conditions to verify	Part and additional page references
When problem occurs, verify that: • Power switch is on • Power cable is connected properly into the power outlet • Chassis fans are operating • Network link activity LED on RJ-45 connector is blinking • All external cables required are present, in correct connectors, well-seated • Cables, cable connectors, and mating connectors appear undamaged	Back panel external connectors, chassis fans, and power switch, page 5-3 
If problem occurs at power up or reboot, verify that: • Activity light on the Control Panel illuminates • Display window lights up and boot up messages display • No error messages or system hangs occur before reaching Idle • DVD drive is present and no disk is in the drive • DVD LED blinks briefly • DVD tray can be opened and closed • After the system reaches Idle, the Control Panel buttons work	Front panel, page 4-7; DVD drive, page 4-53 

TABLE 5-1 Verifying the system

Conditions to verify	Part and additional page references

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

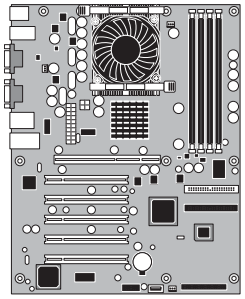
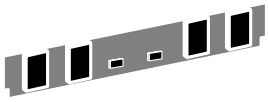
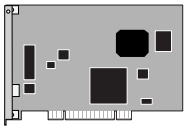
• Motherboard, including components and traces, appears undamaged and no foreign objects are evident • CPU is present, well-seated, and appears undamaged • BIOS chip is present • CPU cooling unit is well-aligned and firmly attached • Each fan required (including fan cable) is well-positioned (not upside down), installed in the correct connector, and appears undamaged • Boards required on the motherboard are present, well-seated, and in the correct slots • Each DIMM is well-seated and installed in the correct slot • Battery is installed	Motherboard(with Restore/Update CD and single-use dongle), page 4-21 
• DIMM(s) is well-seated • DIMM connectors are not oxidized	DIMM(s) for iR-M3, page 4-34 
Each board required is: • Present • Installed in the correct slot • Well-seated • Appears undamaged Required cables (if applicable) are: • Present • Firmly connected in the correct connectors • Appear undamaged	Image processing board, page 4-16 

TABLE 5-1 Verifying the system

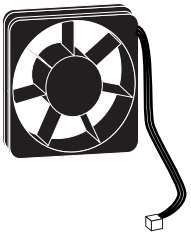
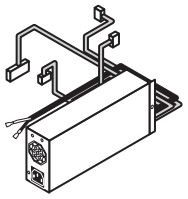
Conditions to verify	Part and additional page references
CPU is: • Present • Well-seated • Appears undamaged The CPU cooling unit is: • Well-aligned • Firmly attached	CPU with cooling assembly, page 4-36 
Each fan is: • Properly positioned (not backwards) • Installed in the correct connector • Fan, fan cable, cable connector, and mating connector appear undamaged	Front fan, page 4-41; Back panel fan, page 4-43 
The power supply required is: • Present • Correctly installed • Appears undamaged Cable connectors are: • Firmly connected • Appear undamaged • Installed in the correct devices	Power supply, page 4-45 

TABLE 5-1 Verifying the system

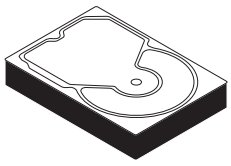
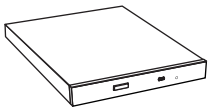
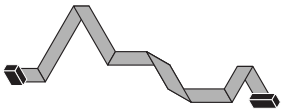
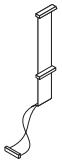
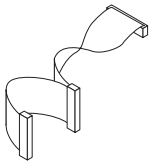
Conditions to verify	Part and additional page references
The HDD required is: • Present • Correctly installed • Appears undamaged • Jumpered as the primary master according to label HDD ribbon cable is: • Present • Firmly connected in the motherboard's PRI-IDE (Primary IDE) connector • Appears undamaged	Hard disk drive (HDD), page 4-49 
The DVD drive required is: • Present • Correctly installed • Appears undamaged • DVD drive ribbon cable is connected to motherboard SEC-IDE (Secondary IDE connector) • Activity LED illuminates on power up	DVD drive, page 4-53 

TABLE 5-1 Verifying the system

Conditions to verify	Part and additional page references
Each cable required: • Is present • Is installed in the correct connector • Is well-seated • Appears undamaged (including connectors)	UIB cable, page 4-10  HDD ribbon cable, page 4-10  Copier interface cable, page 3-2  DVD drive ribbon cable, page 4-10  Power cable(s), page 2-7 

Normal startup sequence

When you turn on or reboot the iR-M3, the system runs the following startup routine on the Control Pane. The routine takes approximately 2-5 minutes to reach the Idle screen. If the system hangs or data is missing during the startup sequence, note the screen displayed and then check Figure 5-3 on page 5-10 for the possible problems and suggested actions.

NOTE: The normal startup sequence assumes that the Ethernet Crossover interface cable is connected to the upper RJ-45 port on the iR-M3 back panel and to the copier's network port, and the copier is powered on.

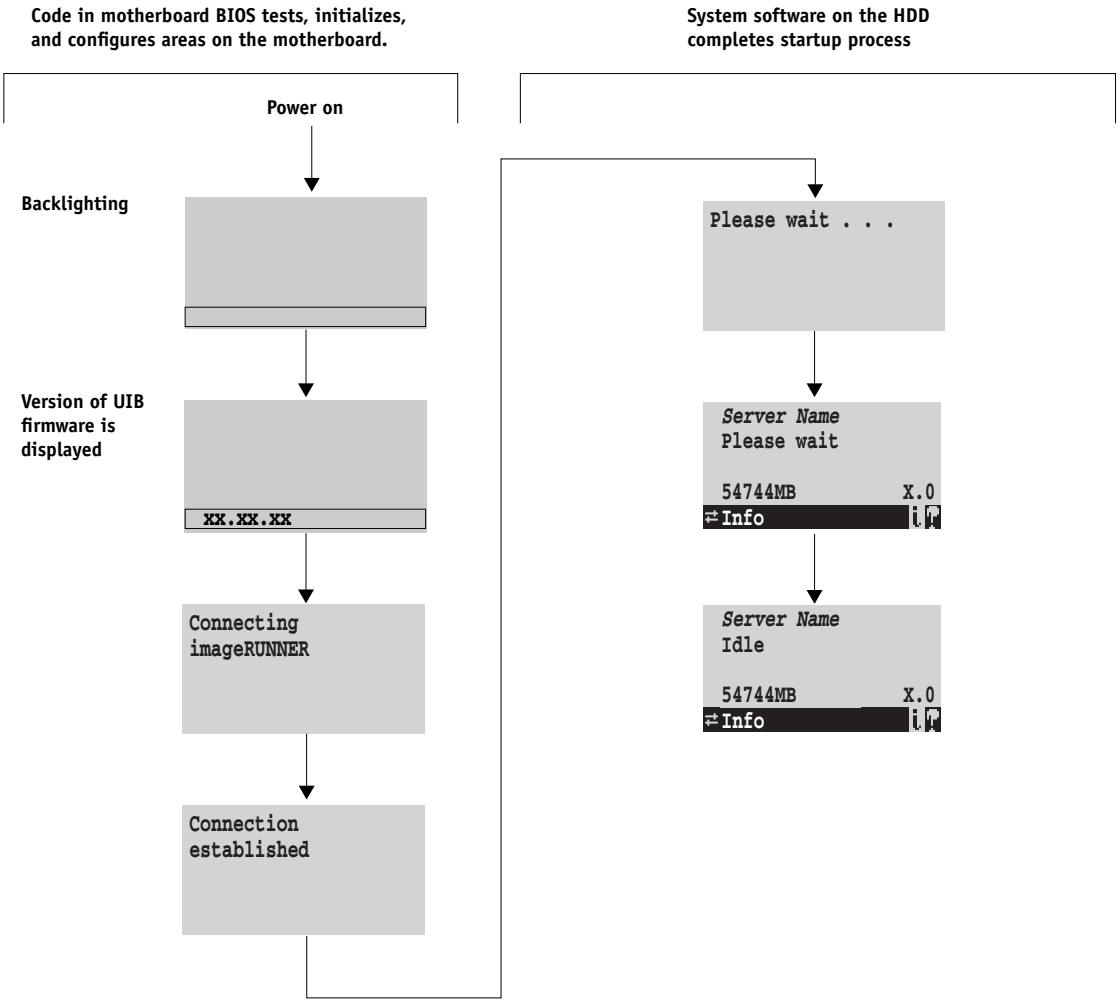


FIGURE 5-3 Normal startup sequence

Error messages and conditions

To address specific error messages or conditions, refer to Table 5-2 on page 5-12. Use the table to locate the problem or symptom you want to fix, read about the possible causes, and then perform the suggested actions to solve the problem.

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

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

If replacing a component does not correct the problem, make sure you install the old component back in the iR-M3.

TABLE 5-2 iR-M3 error messages and conditions

Symptom	Possible cause	Suggested action
Startup		
iR-M3 does not start up, or the Control Panel is not backlit.	The iR-M3 is powered off.	**Make sure the power switch on the back of the iR-M3 is in the on position.**
	Possibly one of the following: • Power cable is not plugged into the power connector on the iR-M3 back panel or to the wall power outlet. • Faulty UIB cable • Faulty user interface board • Faulty power supply (power supply may not be supplying power to the motherboard). • Faulty motherboard (motherboard power plane may not be supplying power to components).	**1. Recheck all cables and connections.** **2. Check power to the DVD drive.** If the LED on the drawer is lit during startup and you can eject the DVD drive tray, then the drive is receiving power from the power supply. **3. Listen for the power supply fan and feel for air at the back of the unit where the power supply is located.** If you do not feel air from the power supply fan and the drives are not receiving power, the power supply is faulty and you must replace it (see page 4-46). **4. Check the fan vent on the back panel to make sure air is coming out the back of the system.** If air is not coming out of the back and the drives are not receiving power, the motherboard is faulty and you must replace it (see page 4-21). **5. If you have verified that the power supply and the motherboard are functioning properly, replace the front panel containing the user interface board (see page 4-7).**
Control Panel is lit but discolored.	Possibly one of the following: • User interface board cable or connections are faulty. • User interface board is faulty. • CPU connection is loose. • CPU is faulty. • Motherboard is faulty.	**1. Recheck the user interface board cable and connections. If the cable and connections are good and the problem persists, replace the front panel assembly containing the user interface board (see page 4-7).** **2. If the problem persists, verify CPU and CPU fan connection. If the problem persists, replace the CPU (see page 4-36).** **3. If the problem persists, replace the motherboard (see page 4-21).**
Control Panel is lit but no text appears.	User interface board is faulty.	**Replace the front panel assembly containing the user interface board (see page 4-7).**
 System stops responding at this screen (the version string at the base of the screen is not displayed).	If the system stops responding with the version string not displayed, the code resident on the user interface board has most likely been corrupted.	**Replace the front panel assembly containing the user interface board (see page 4-7).**

TABLE 5-2 iR-M3 error messages and conditions (Continued)

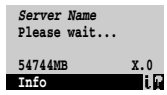
Symptom	Possible cause	Suggested action
Startup (con't)		
 System stops responding at this screen, and/or the system beeps multiple times (more than two short beeps).	Possibly one of the following: • Missing or faulty DIMM • Faulty BIOS	**1. Recheck all cables and connections.** **2. If the problem persists, check for missing or faulty DIMM and reseat the DIMM to remove any oxidation on the connector (see page 4-34).** **3. If the problem persists, replace the BIOS chip on the motherboard (see page 4-21).**
 System stops responding at one of these screens.	Possibly one of the following: • Corrupt system software • Faulty HDD • Faulty motherboard	**1. Recheck all cables and connections.** **2. If the problem persists, reinstall system software (see page 4-59).** Corrupt system software may cause the system to stop responding at this screen. **3. If the problem still persists, replace the HDD (see page 4-49).** If replacing the HDD does not correct the problem, reinstall the old HDD in the system. **4. If the problem persists, verify CPU and CPU fan connection. If the problem persists, you may need to replace the CPU (see page 4-36).** **5. If the problem persists, you may need to replace the motherboard (see page 4-21).** If replacing the motherboard does not correct the problem, make sure you reinstall the old motherboard in the iR-M3.

TABLE 5-2 iR-M3 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Control Panel Messages		
Check power & cable or Please connect imageRunner appears on the Control Panel.	Possibly one of the following: • Problem with the connection between the iR-M3 and the copier. • The copier is not powered on. • The copier is on but is not ready to print.	**1. Make sure the copier is powered on and ready to print.** **2. Make sure the copier interface cable is the correct type and is correctly connected to both the copier and the iR-M3.** **3. If the problem persists, replace the copier interface cable (see page 3-2).** **4. If the problem persists, you may need to service the copier.**
System hangs with Creating backup on the Control Panel.	Possibly one of the following: • Lost communication with HDD during startup after installing system software and selecting language. This could be caused by: –Faulty HDD ribbon cable –Faulty HDD	**1. Wait several more minutes to make sure the system is really hanging.** **2. If the problem persists, recycle power by shutting down the through the Functions menu, waiting 10 seconds, and then powering back on (see page 3-15).** **3. If the problem persists, reinstall system software (see page 4-60).** Corrupt system software may cause the system to hang at this screen. **4. If the problem persists, replace the HDD ribbon cable (see page 4-10).** **5. If the problem persists, replace the HDD (see page 4-51).**
Wrong/Missing. . . dongle appears on the Control Panel	Possibly one of the following: • Either the wrong dongle or no dongle at all is installed on the iR-M3 USB port during system update. • Faulty dongle • Motherboard USB port is faulty	**1. Install the correct dongle on the iR-M3 USB port and repeat the system update procedure (see page 4-31).** **2. If the problem persists and you are sure you have the correct dongle, you may need to replace the motherboard (see page 4-21).**
Hardware mismatch. Shutdown in progress appears on the Control Panel.	This message is displayed if the BIOS chip from the old motherboard was transferred to the new motherboard. BIOS chips are not interchangeable. Do not transfer BIOS chips.	**1. Remove the BIOS chip transferred from the old motherboard and reinstall the BIOS chip that came with the new motherboard.** **2. Update the system after verifying functionality in Service Mode (see page 4-31).**
Used Dongle appears on the Control Panel.	The dongle has already been used to update a system and cannot be reused.	**Obtain an unused dongle and try again.**
Unknown platform appears on the Control Panel.	An attempt is made to install system software after installing a new motherboard but before updating the system.	**Update the system using the one-time use dongle and the Restore/Update Server Software CD.**
No Service Dongle appears on the Control Panel.	Dongle is removed from the USB port while the system is in Service Mode.	**Connect the one-time use dongle to the USB port.**

TABLE 5-2 iR-M3 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
DVD drive		
DVD drive is not responding, cannot be located, or the busy LED on the drive remains lit.	Possibly one of the following: • A CD is stuck in the DVD drive. • Cable connections to the DVD drive are loose or ribbon cable is faulty. • DVD drive is faulty • Motherboard is faulty	**1. Insert a paper clip into the mechanical pin hole on the DVD drive to force the drive tray to open.** **2. If the problem persists, check the cable connections to the DVD drive (see page 4-10).** **3. Check DVD drive ribbon cable connections to the motherboard.** **4. If the problem persists, you may need to replace the DVD drive (see page 4-53)** **5. If the problem persists, you may need to replace the motherboard (see page 4-21).**
System performance		
System performs slowly and/or hangs periodically.	Possibly one of the following: • Board or cable connections are loose or faulty • System software is corrupted • Missing or faulty DIMM(s) • CPU is overheated or faulty • Motherboard is faulty	**1. Recheck all cables and connections.** **2. Make sure CPU is firmly seated in its socket and that the fan cable is connected to the motherboard.** **3. If the problem persists, reinstall system software (see page 4-59).** **4. Check for missing or faulty DIMM and reseat the DIMM to remove any oxidation on the connector (see page 4-35).** **5. If the problem persists, you may need to replace the motherboard (see page 4-21).**

TABLE 5-2 iR-M3 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Network		
If you suspect a network problem, keep in mind the following: • If the iR-M3 does not appear in the list of printers on the network, there may be another device on the network with the same Ethernet hardware address. • There may be conflicting network settings in Setup and on the customer's workstation. • Printing problems may be caused by inappropriate Setup options. • Application-specific printing errors may be caused by missing or incorrectly placed printer description files. • System software may be corrupted. For additional information, seesee *Congfiguration and Setup* on the User Documentation CD.		
Unable to connect to the network, or the green LED on the RJ-45 network port is not lit.	Possibly one of the following: • Wrong cable is connected to the network port. • Network cable or connection is faulty. • Network is faulty • System software is corrupted • Ethernet interface on the iR-M3 motherboard is faulty	**1. If the green LED on the RJ-45 network port is not lit on the iR-M3 back panel, check the cable connection to the back panel and the network. Make sure the cable is the correct type. Make sure not to use the Ethernet Crossover cable in place of the network cable. The two cables look alike but are not interchangeable.** **2. If the network cable is the correct type and is properly connected to the back of the iR-M3, connect a new network cable to the back of the iR-M3.** **3. If the problem persists, have the network administrator check Network Setup.** **4. If the problem persists, make sure that the network administrator has checked other devices on the network.** If other devices are not functioning, there could be a problem with the network. **5. If the problem persists, reinstall system software (see page 4-59).** Corrupt system software may cause the system to hang. **6. If the rest of the network is functioning properly and the problem persists, replace the motherboard (see page 4-21).**

TABLE 5-2 iR-M3 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Network (con't)		
System starts up slowly then displays one or more DHCP error messages on the Control Panel.	Possibly one of the following: • Wrong cable is connected to the network port. • Network cable or connection is faulty. • Network is faulty. • System searches for a nonexistent DHCP server because DHCP is enabled by default on the iR-M3, but the customer's network is not using DHCP. • Ethernet interface on the iR-M3 motherboard is faulty. • System software is corrupted.	**1. If the green LED on the RJ-45 network port is not lit on the iR-M3 back panel, check the cable connection to the back panel and the network. Make sure the cable is the correct type. Make sure not to use the Ethernet Crossover cable in place of the network cable. The two cables look alike but are not interchangeable.** **2. If the network cable is the correct type and is properly connected to the back of the iR-M3, connect a new network cable to the back of the iR-M3.** **3. If the problem persists, have the network administrator change the default in iR-M3 Network Setup.** **4. If the problem persists, have the network administrator check other devices on the network.** If other devices are not functioning, there could be a problem with the network. **5. If the problem persists, reinstall system software (see page 4-59).** Corrupt system software may cause the system to hang. **6. If the rest of the network is functioning properly and the problem persists, replace the motherboard (see page 4-21).**

TABLE 5-2 iR-M3 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Printing		
NOTE: Intermittent print quality problems are difficult to trace. Before you try to troubleshoot print quality problems, print a test page to make sure that the copier itself does not need servicing or adjusting.		
Test Page fails to print.	The copier is not ready to print.	**Make sure the copier is turned on and ready to print.**
	There is a problem with the connection between the iR-M3 and the copier.	**1. Recheck that the copier interface cable is present and properly connected to the iR-M3 and the copier (see page 3-2).** **2. If the problem persists:** **• Recycle power on the iR-M3 by shutting down through the Functions menu, waiting 10 seconds, and then turning back on (see page 3-15).** **• Turn off the copier, wait 1 minute after the iR-M3 reaches Idle, then turn the copier back on.** **3. If the problem persists, replace the copier interface cable (see page 3-2).** **4. If the problem persists, service the copier.**
iR-M3 appears on the list of printers on the customer's workstation, but certain jobs do not print.	A PostScript error	**Make sure "Print to PostScript Error" in Setup is set to 'Yes". Check for error messages on the iR-M3 output.**
	An application problem	**1. Try printing a job from a different application to determine if the problem is associated with a particular application.** **2. Make sure the connection between the iR-M3 and the workstation is working by downloading a test page from the workstation, or by printing a simple file such as a text file.** **3. Resend the problem file.**

TABLE 5-2 iR-M3 error messages and conditions (Continued)

Symptom	Possible cause	Suggested action
Printing (con't)		
A print job stalls or stops after one or a few pages.	Possibly one of the following: • A PostScript or application error. • System software is corrupted.	**1. Cancel the iR-M3 print job.** **2. If this fails to clear the problem, reboot the iR-M3 (see page 3-16).** **3. If the problem persists, select Clear Server from the Run Setup menu on the Control Panel.** **4. Set "Print Cover Page" to "Yes" and re-send the problem job; The Cover Page will indicate "PS Error".** You can also double click the problem job in the Command WorkStation window to get more information on the postscript error. **5. If the problem persists, reinstall system software (see page 4-60).** Corrupt system software may cause the system to hang at this screen.
	Incorrect or faulty DIMM or faulty DIMM connection.	**1. Reseat the DIMM to remove any oxidation on the connector (see page 4-34).** **2. Verify memory amount on the Configuration Page.** **3. If the problem persists after replacing the DIMM, replace the motherboard (see page 4-21).**
Print quality is poor.	Possibly one of the following: • A file or application problem. • A missing or outdated printer description file. • The application cannot find the appropriate printer description file.	**1. Print a iR-M3 Test Page (see page 5-20).** **2. If the quality of the iR-M3 Test Page is good, the error condition may be caused by a file or an application problem.** **3. Make sure the appropriate printer description file is installed. (For details, see *Printing from Windows* on the User Documentation CD.)**

If the user can print the iR-M3 Test Page but cannot print a job from a computer on the network, make sure the network administrator has:

- Checked all components of the network, including cables, connectors, terminators, network adapter boards, and network drivers.
- Activated the network and used it to communicate with other printers.
- Checked the corrective actions in the online help.
- 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.

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

Printing a Test Page

Once you have connected the iR-M3 to the copier, print a Test Pages to verify that the interface between the copier and the iR-M3 is working properly. The Test Pages is a file that resides on the HDD and is printed to the copier using the settings configured in Setup.

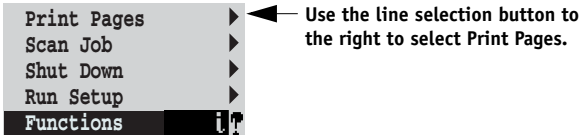
TO PRINT A TEST PAGE

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

   The iR-M3 starts automatically when you turn on the copier. Wait as the iR-M3 runs through its startup diagnostics.

2. **At the Idle screen, press the Menu button once (see "Using the Control Panel" on page 3-8).**

   The Functions menu appears.



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

   The iR-M3 sends the PCL Test Page to the copier.

4. **Examine the quality of the Test Pages.**

   The Test Pages confirm that the iR-M3 is functional and that the connection between the iR-M3 and the copier is working properly. When you examine the Test Pages, keep in mind:

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

   Poor image quality may indicate a need to service the copier. For more information, see the documentation provided with the copier.

Appendix A: Specifications

This appendix provides an overview of iR-M3 features.

Hardware features

- Single Celeron CPU—2.5GHz CPU
- Memory—256MB
- An RJ-45 connector for 10/100/1000BaseTX Mbps connectivity over twisted pair cable (lower connector)
- Optional Parallel Interface Adapter iP-A1
- 40GB hard disk drive standard
- Built-in DVD drive

Networking and connectivity

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

User software

A complete description of user software is provided in the *User Software Installation Guide*. For optimal performance, current versions of the user software should be maintained on every network computer that might print to the iR-M3.

Safety and emissions compliance

The iR-M3 has been certified to meet or surpass the following government standards:

Safety approvals:

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

EMI/EMC approvals:

- FCC Class B
- VCCI Class B
- EN55022 Class B
- EN55024 Class B
- AS/NZS 3548 Class B

Index

D

E

M

N

O

P

R

S

T

U

V