scanmaster 2500

User Guide

Part Number HTM101
Revision C

Howtek

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Declaration of Conformity

We,

Howtek, Inc.
21 Park Avenue
Hudson, NH 03051

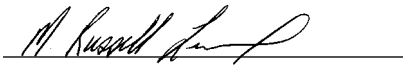
declare under our sole responsibility that the product:

DX Scanners
including Scanmaster 2500

to which this declaration relates, is in conformity with the following standards or other normative documents:

Product Safety:	EN60950
	EN61010
EMC:	EN55011, Class A
	EN55022, Class A
	EN50082-1: 1992

Following the provisions of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

Signature: 

Name: M. Russell Leonard

Title: Chief Operating Officer

Date: January 9, 1996

Place: Hudson, New Hampshire (USA)

NOTE: 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 harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION: Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communication.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicte par le Ministère des Communications du Canada.

Scanmaster 2500 User Guide
Howtek part number: HTM101
Produced in the United States of America.

Howtek Inc.
21 Park Ave.
Hudson, NH 03051

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Preface

Thank you for purchasing a Howtek Scanmaster 2500. This guide will assist you in learning all the functions of your scanner, from installation through operation. Please read each section carefully.

Introduction

The Scanmaster 2500 is a high-resolution flatbed scanner which incorporates the latest advancements in high-definition CCD technology. The 12-bit color resolving power of the Scanmaster 2500 delivers precise detail and uncompromising quality in digitally reproducing reflective and transparent media, from photographic prints to transparencies.

The Scanmaster 2500 can accomodate originals up to 15" x 18" (381 x 457 mm) in size with a maximum scanning area of 13" x 18" (330 x 457 mm).

System Requirements

The Scanmaster 2500 supports the following platforms:

- Macintosh System 7.1 or higher.
- PCs and compatibles.

The Scanmaster 2500 communicates via a SCSI-2 interface (SCSI = Small Computer System Interface). In order to communicate correctly, the host computer must have a SCSI-2 board installed. An active SCSI terminator is required in the configuration to ensure that all devices on the SCSI bus operate properly.

Site Requirements

The Scanmaster 2500 should be located close to the host computer since the scanner's user interface runs on the host. Please note the following requirements when installing the scanner:

- Allow at least 6" (15 cm) of space on all sides of the Scanmaster 2500 for air to circulate.
- Do not place the Scanmaster 2500 on or near a source of heat.
- Route the power cord so that it does not become a tripping hazard.
- Do not place objects on the scanner.
- To guarantee optimum image quality, place the Scanmaster 2500 on a solid, flat, and level surface.
- Be careful not to place the Scanmaster 2500 in locations where objects may fall or be dropped on it.

Typographical Conventions

The following typographical conventions are used throughout this guide:

Note: Provides information about the current topic.

CAUTION: Provides information for the prevention of damage to the hardware.

WARNING: Provides information to prevent injury to the scanner operator.

Related Documentation

This guide provides details on using the Scanmaster 2500. The user guide for your software application contains instructions for controlling the scanner from the computer and processing the resulting images.

1

Installation and Setup

Unpacking the Scanmaster 2500

Before installing your scanner, make sure your Scanmaster 2500 package is complete. Your package should contain the following:

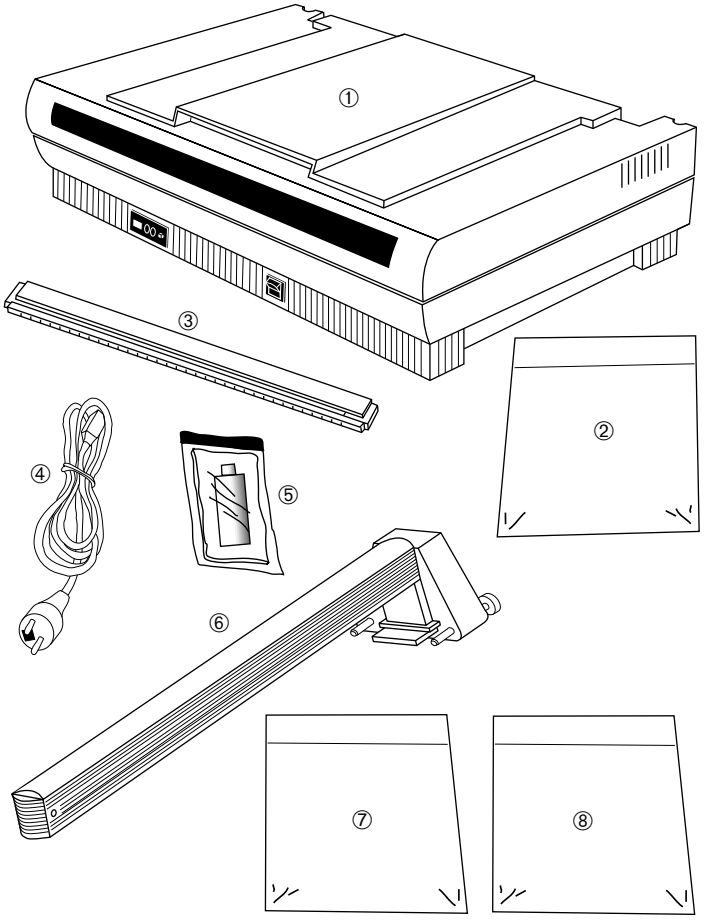

Figure 1–1
Scanmaster 2500 package contents.
①–Scanmaster 2500.
②–Scanning software.
③–Calibration strip.
④–Power cord.
⑤–Cleaning kit.
⑥–Transparency arm (optional).
⑦–Transparency mounting kit (optional).
⑧–Reflective mounting plates (optional).

Call your dealer and report any missing item(s) from the shipping package immediately.

Removing the Locking Clip

Before powering up your Scanmaster 2500, you must remove the locking clip from the camera assembly. Unscrew the clip at the rear of the scanner using a screwdriver and put it away for safekeeping. Whenever the scanner is transported, the locking clip must be installed (see Chapter 6 for instructions).

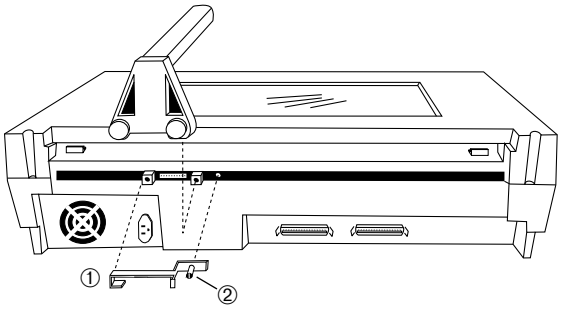

Figure 1–2 Removing the locking clip. ①–Locking clip. ②–Screw.

CAUTION: If you do not remove the locking clip before powering up the scanner, severe damage may result.

Installing the Calibration Strip

The calibration strip is used to calibrate your Scanmaster 2500. Before using the scanner, install the strip on the right side of the platen glass with the black and white side face-down and the ruler edge toward the glass.

Connecting Power

To connect the power cable to your Scanmaster 2500, follow these steps:

1. Switch off the scanner by pressing the O side of the power switch. The power switch is located to the right on the front of the scanner:

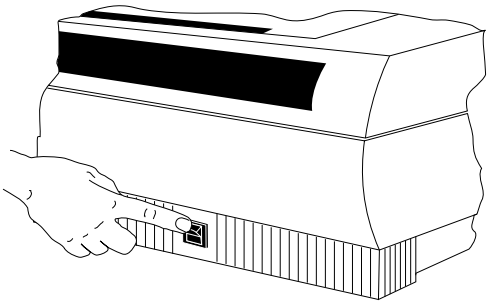

Figure 1–3
Power switch
(Front view)

2. Plug one end of the power cord into the power cord receptacle located on the rear right side of the scanner next to the cooling fan.
3. Plug the other end of the power cord into a grounded AC outlet.

WARNING: Always plug the scanner into a grounded AC outlet. Have an electrician verify that your outlets are correctly grounded. Protect against power line surges by using a surge suppressor.

Connecting the SCSI Cable

The Scanmaster 2500 uses the Small Computer System Interface (SCSI-2). The SCSI port permits high-speed communication between the scanner and the computer. Up to seven SCSI devices (such as hard disks, scanners, tape backup drives, CD-ROM drives, and printers) may be attached to your computer at the same time.

Only one SCSI device is cabled directly to the computer. The other SCSI devices are cabled to each other to form a so-called "daisy chain." The combined length of cables in the daisy chain must not exceed 19 feet (5.8 meters). The SCSI devices' priority in communicating with the computer is determined not by their arrangement in the chain, but by their ID number.

> CAUTION: Each SCSI device must have a unique SCSI ID number. Failure to follow this precaution could result in damage to your equipment.

To ensure accurate transmission of data between the computer and the SCSI devices connected to it, a special connector called an active SCSI terminator must be placed at each end of the SCSI chain. Some computers and some devices have an internal terminator. The Scanmaster 2500 is not internally terminated; however, it is shipped with an external active terminator already attached to one of the SCSI ports at the rear of the unit.

Macintosh

To connect your scanner to a Macintosh computer using the SCSI port, follow these steps:

1. Turn off power to the computer and all attached devices. The computer and all devices should remain plugged into grounded outlets.

2. Make sure you have the proper SCSI cables:

   SCSI system cable: Use this cable if the Scanmaster 2500 is the only SCSI device connected to your Macintosh. Refer to Figure 1–4.

   SCSI peripheral interface cable: Connect this cable to the last device in the SCSI chain if more than one SCSI device is connected to your Macintosh. Refer to Figure 1–4.

   Cables from the following two manufacturers have been tested by Howtek and found to function properly:

   - SCSI system cable 1.64 feet (0.5 m), Apple P / N M0206
   - SCSI peripheral cable 3.28 feet (1 m), Apple P / N M0207
   - SCSI extender cable 3.28 feet (1 m), Apple P / N M0208
   - SCSI peripheral cable 6.56 feet (2 m), Belden P / N 49801

3. Connect the SCSI cables as outlined below, depending on your configuration. See Figure 1–4.

   If the Scanmaster 2500 is the only SCSI device attached to the SCSI port of your Macintosh: Connect one end of the SCSI system cable to your Macintosh and the other end to the open SCSI port on your scanner (an active terminator is already installed on one of the ports).

   If there is more than one SCSI device attached to your Macintosh:

   - Locate the last device in the chain and disconnect its terminator (if present).
   - Connect one end of the SCSI peripheral interface cable to the open port on the last SCSI device and the other end to the open port on the Scanmaster 2500.

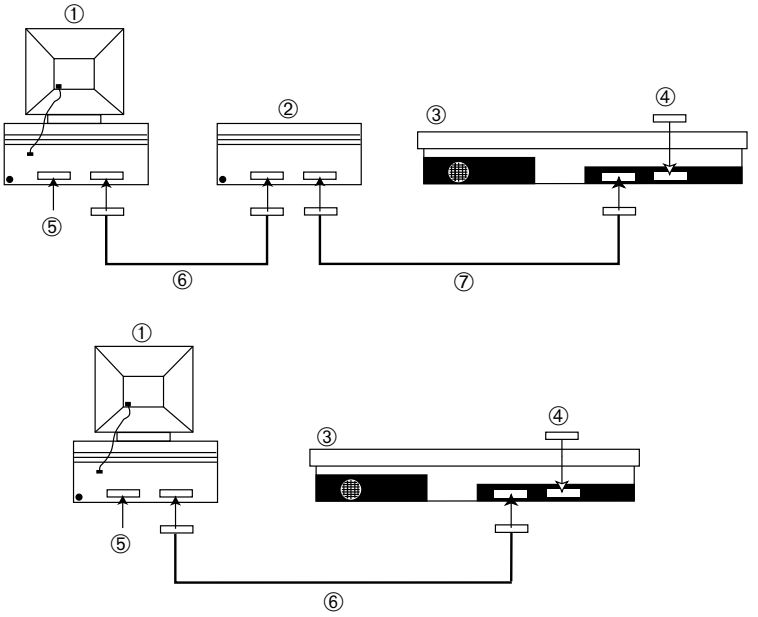

Figure 1–4
Macintosh SCSI connections.
①–Macintosh.
②–SCSI device.
③–Scanmaster 2500.
④–Active SCSI terminator.
⑤–Internal termination.
⑥–SCSI system cable.
⑦–SCSI peripheral interface cable.

PCs and Compatibles

> Note: For proper operation, your scanner's SCSI interface should only be driven with the recommended SCSI controller and terminator. Howtek can guarantee correct operation only if the Scanmaster 2500 is the only device on the SCSI bus. Refer to the guidelines below for a list of recommended SCSI adapters.

Adaptec SCSI boards:

EISA Bus AHA–1740 / 42AT*
EISA Bus AHA–2740 / 42AT Kit**
VESA Bus AHA–2842VL

* *The AHA–1740/42AT board has 2 connections but it has only 1 SCSI bus.*

** *The AHA–2740/42AT board has 2 true SCSI buses on it, Channel A and B. This board can have both a Howtek scanner (Channel B) and the main system hard disk (Channel A) connected to it.*

To connect your scanner to a PC or compatible computer using the SCSI port:

1. Turn off power to the computer and to all attached devices. The computer and all devices should remain plugged into grounded outlets.
2. Verify the card configuration against the documentation in the SCSI interface adapter kit. Install the SCSI interface card in your PC following the instructions in the SCSI interface kit and in your computer's documentation.
3. Connect one end of the SCSI cable to the SCSI interface card and the other end to the open SCSI port at the rear of the Scanmaster 2500 (an active terminator is already installed on one of the ports).

Selecting the SCSI ID

The SCSI ID number represents the address assigned to your scanner in the SCSI chain. The Scanmaster 2500's address is factory set at 5. If this value has already been assigned to another SCSI device, the scanner's ID number must be changed.

> Note: Do not use SCSI address 7, which is reserved for the Scanmaster 2500's maintenance mode.

To change the Scanmaster 2500's SCSI ID, follow this procedure:

1. Turn the scanner's power switch off.
2. Locate the SCSI address wheel on the rear connector panel:

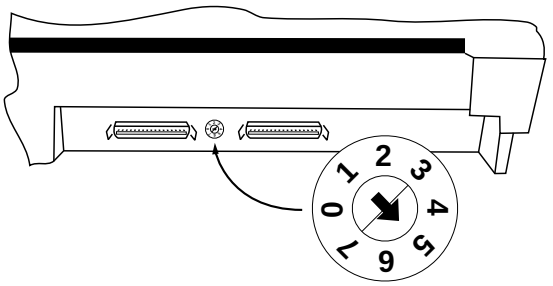

Figure 1–5
SCSI address wheel

3. Select any available address between 2 and 6 (0 is generally reserved for your computer's internal hard disk).

2

Components of the Scanmaster 2500

This chapter provides an overview of the operational components of the Scanmaster 2500. It also explains the start-up procedure. For information on how to perform transparent and reflective scans, see Chapter 3.

Platen Glass

The platen glass measures 15" x 19" (381 x 483 mm) and is located on top of the Scanmaster 2500. It is used to hold originals in place during scanning. The glass should be cleaned regularly and kept free of dust and scratches.

The main areas of the Scanmaster 2500 platen glass are illustrated below:

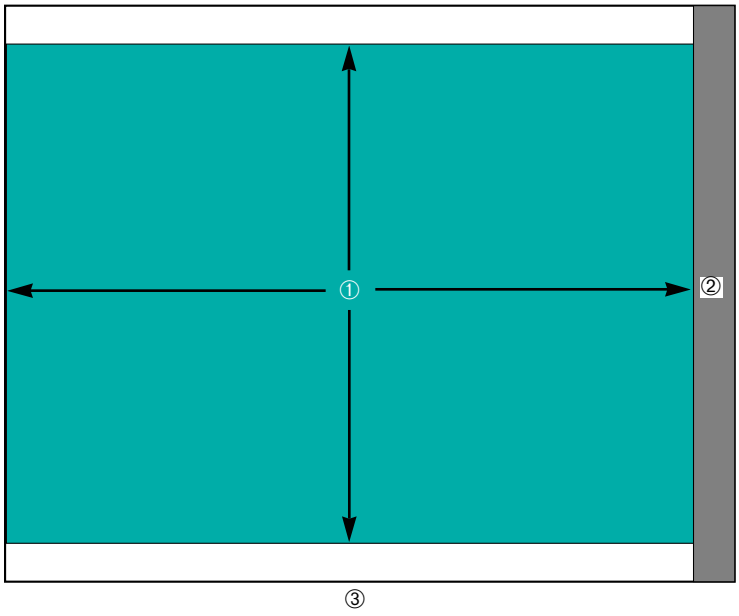

Figure 2–1
Platen glass.
①–Scanning area: 13" x 18" (330 x 457 mm).
②–Calibration area.
③–Front of scanner.

Calibration Strip

The calibration strip is located on the right side of the platen glass and is used to calibrate individually the black and white levels of each of the pixels in the high-definition CCD. Make sure the calibration strip is installed correctly: all the way against the right side of the platen cover opening with the black and white side down and ruler edge toward the platen glass.

> Note: If the calibration strip is installed incorrectly, your Scanmaster 2500 will not calibrate properly.

Registration Edge

The ruled edge of the calibration strip, located on the right-hand side of the platen glass, is called the registration edge. Along with two side decals attached to the platen glass, this edge defines the maximum scanning area. Originals should be placed face-down on the platen glass against the registration edge. Since the scanner is center registered, center your originals against the right side of the platen glass.

Lamps

The Scanmaster 2500 uses two fluorescent-type lamps. One is located in the reflective lamp assembly (used for scanning reflective originals) and the other in the optional transparency arm (for transparencies).

Optional Mounting Accessories

Transparency Arm

The optional transparency arm provides the light source for scanning transparencies. The arm plugs into the rear of the camera assembly and has a small wheel along the front edge of the scanner to move the arm along the surface as the scan is performed.

Off-line Reflective Mounting Plates

These plates — white on one side and black on the other — are used to mount several reflective originals on the platen at the same time. The two plates provided are sized to cover the entire platen.

Off-line Transparency Mounting Kit

A transparency kit is helpful when scanning film that is difficult to keep flat on the platen. The kit consists of three glass holders and 20 black cutouts of varying sizes.

Document Cover (Optional with Transparency Bundle)

The document cover is used when scanning thin reflective originals. It holds reflectives firmly against the platen and provides a white background. If a two-sided document is being scanned, the white foam pad under the document cover prevents the image on the reverse side of the original from bleeding through.

Status Panel

The status panel is located at the bottom edge of the front side of the Scanmaster 2500:

The panel consists of a two-digit LED display, which shows the current status of the Scanmaster 2500, an LED used to indicate internal diagnostics, a power LED, and a RESET button.

Table 2–1 on the following page describes the functions displayed on the status panel.

Code	Function
88	During power-up, the display shows a series of numbers identifying the currently active self-test.
ER	Indicates an operational error and alternates with a two-digit error code. In the event of an error of this type, reset the scanner by pressing the RESET button. If the error persists, contact your Howtek dealer.
FE	Indicates a fatal error and alternates with a two-digit error code. A fatal error is normally caused by a fault in the scanner's hardware. Reset the Scanmaster 2500 by pressing the RESET button. If the error persists, contact your Howtek dealer.
LP	Lamp warm-up. This message is displayed immediately before calibration until the selected lamp reaches operating temperature and stabilizes. A lamp warm-up only occurs when the lamp mode is changed, the Scanmaster 2500 has been turned off and on again, or the lamp has automatically cycled off after eight hours of inactivity.
C1-C9	This message appears whenever the Scanmaster 2500 is performing an internal calibration. The numbers 1–9 represent individual calibration sequences. The scanner automatically calibrates before the first scan after booting up, or whenever the lamp mode is changed or the lamp has automatically cycled off after eight hours of inactivity.
--	Shows the "ready" state. The display shows a circulating light pattern, indicating that the scanner is functioning properly and is ready for use. If the pattern freezes or disappears for an unusually long period, the Scanmaster 2500 is "locked up". Power the scanner off and back on.
00-99	Indicates the percentage of scanning completed. After successfully completing a scan, the display returns to the ready state.

Table 2–1
Status panel codes

The following table describes the meaning of the yellow and green LEDs on the Scanmaster 2500 status panel:

Table 2–2
Status panel LEDs

State	Yellow LED	Green LED
Off	OFF	OFF
On – idle	OFF	ON
Diagnostics active	BLINKING	ON
Error	ON	ON
Busy	OFF	BLINKING

RESET Button

The RESET button has several functions:

- **At power-up:**

  If the RESET button is held in while the scanner is powering up, the Scanmaster 2500 will enter an extended diagnostics sequence following the normal power-up diagnostics. This sequence may take two to three minutes to complete.

  You can abort the extended diagnostic tests by pressing the RESET button again. The scanner will then complete its initialization and come on-line.

  During the extended diagnostics sequence, a sequential test number is displayed on the STATUS display. If an error is detected, testing is halted and the error code and test number are displayed. To bypass the failed test and continue with the next test, press the RESET button once.

- **During power-up diagnostics:**

  Power-up diagnostics incrementally test various scanner components. Prior to each test, the STATUS display is updated with a test code. In the event of a failure, testing is halted and the test and error codes displayed. To bypass the failed test and continue with the next test, press the RESET button once.

  Power-up diagnostics may be bypassed at any time during incremental testing by pressing the RESET button.

- **While the scanner is on-line:**

  If the RESET button is pressed while the scanner is on-line and scanning is in progress, the scan is interrupted and an error returned to the host software allowing it to respond to the interruption. The scanner's microprocessor, however, is NOT reset and the SCSI interface remains available to the host.

  If the RESET button is pressed while the scanner is on-line without any scanning in progress, the scanner is internally reinitialized, returning it to its default on-line state.

3

Using the Scanmaster 2500

The Howtek Scanmaster 2500 can scan both reflective originals (line art, photos, etc.) and transparencies (using the optional Transparency Arm).

Turning on the Scanmaster 2500

Turn on the scanner by pressing the I side of the power switch. The power switch is located on the front of the scanner.

At start-up the Scanmaster 2500 enters into a series of diagnostics, both normal and extended (if enabled). Once diagnostics are complete, the scanner's STATUS display shows a circulating light pattern.

Scanning Reflective Originals

Reflective originals can be mounted on the platen using the optional reflective mounting plates or the document cover.

Using the Reflective Mounting Plates (Optional)

If you purchased the Scanmaster 2500 with the transparency arm attached, you can mount reflective originals using one of the mounting plates supplied with your scanner.

> Note: It is not necessary to remove the transparency lamp to scan reflectives. The reflective lamp will be selected when you select the reflective scanning mode from your application.

To mount reflective originals using a reflective mounting plate, follow this procedure:

1. Determine which side of the plate to use:
   - For most applications, use the black side as a background for your original.
   - If your original is on thin stock that allows light to pass through, use the white side as the background. If you use the black, the light from the Scanmaster 2500 will pass through the paper and absorb into the black, giving your scan a grayish tone.

   Note: For originals on watermarked paper, use the black side of the mounting plate. Otherwise, light may be reflected by the watermarks and produce unwanted results in your scan.

2. Tape the original to the mounting plate:

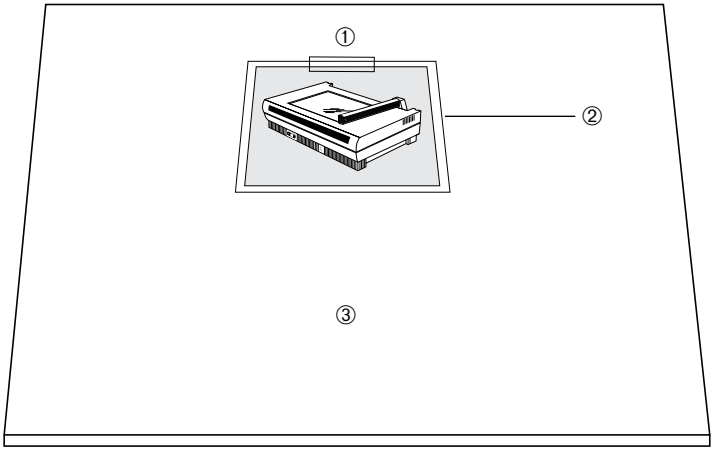

Figure 3–1
Mounting a reflective using a mounting plate.
①–Tape.
②–Reflective.
③–Mounting plate.

3. Place the mounting plate face-down on the platen glass and center the top edge against the calibration strip:

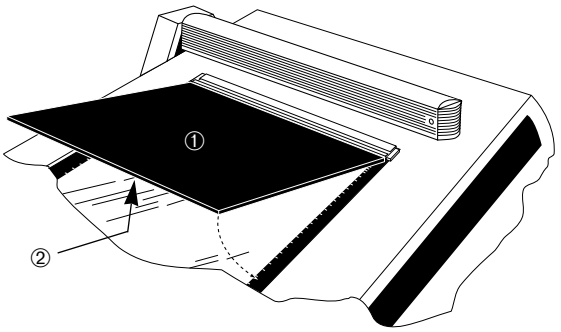

Figure 3–2
Placing the mounting plate on the scanner.
①–Mounting plate.
②–Original.

Using the Document Cover

If you purchased the Scanmaster 2500 with a document cover, place originals face-down on the platen glass and close the cover. The right side of the platen is the top of your scan. Place your originals as illustrated below:

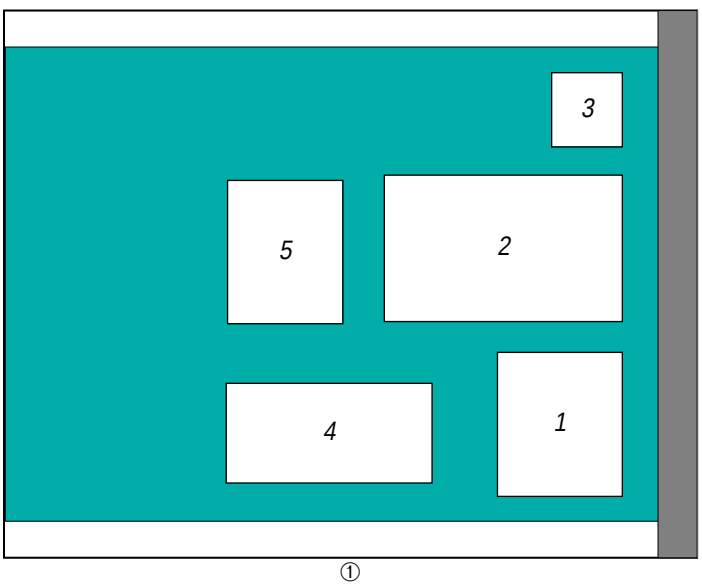

Figure 3–3
Mounting reflectives using the document cover.
①–Front of scanner.

Scanning Transparencies (Optional)

Installing the Transparency Arm

The transparency arm is used to scan transparent originals. If the transparency arm is already installed on your Scanmaster 2500, you may skip this section.

To install the transparency arm, proceed as follows:

1. Turn off your computer and then the scanner and all other SCSI devices on the SCSI chain.
2. Remove the document cover by pressing the left side of the cover bracket inward and lifting the cover up:

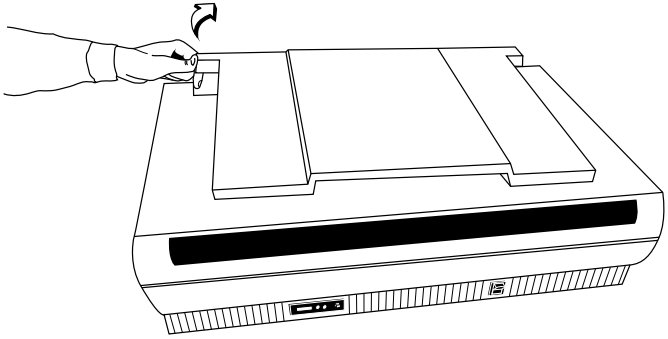

Figure 3–4 Removing the document cover

3. Install the transparency arm by positioning the unit as illustrated below:

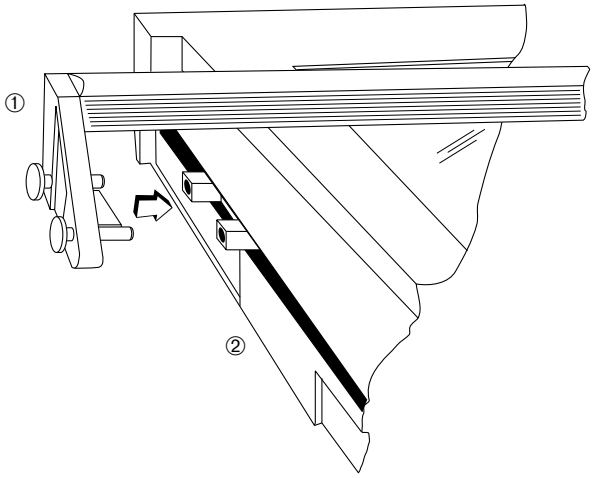

Figure 3–5
Installing the transparency arm.
①–Transparency arm.
②–Rear of Scanmaster 2500.

4. Insert the bracket on the arm into the two slots on the scanner. Alternately tighten the two thumbscrews, while maintaining pressure on the transparency arm, until the arm is secure. Make sure the bracket is seated firmly and square with the slots.

5. Turn on all devices in the following order: scanner, other SCSI devices, host computer.

Mounting Transparencies

Transparencies can be mounted three ways using the transparency arm:

- Mounting film directly on the glass.
- Mounting film on an overlay.
- Mounting film on a hold-down plate.

These methods are explained in detail in this section.

Mounting Film Directly on the Glass

Film can be mounted most easily by placing it directly on the glass. Follow this procedure:

1. Place film emulsion side up on the platen.
2. Center the top of the original against the right side of the platen. Place artwork in the sequence illustrated in Figure 3–3.

Mounting Film on an Overlay

When the image to be scanned extends to the edge of the film, use an overlay to mask out stray light that could affect the quality of your scan. Your Scanmaster 2500 comes with overlays for different sizes of transparencies. Each overlay also fits into one of three hold-down plates.

To mount film on an overlay, follow this procedure:

1. Select an overlay that matches the size of your film as closely as possible.

   The overlay acts as a frame around your film. Choose one that allows as much of the image to appear through the cutout as possible.

2. Tape the film to the overlay:

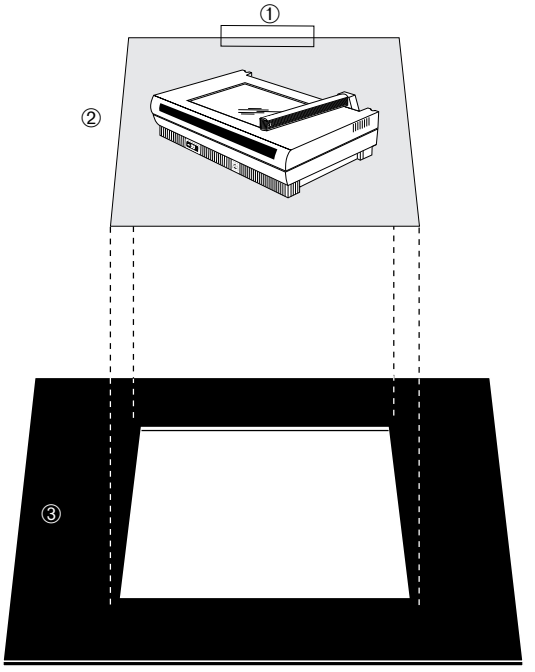

Figure 3–6
Mounting film on an overlay.
①–Tape.
②–Film (emulsion side up).
③–Overlay.

3. Place the overlay face-down on the glass.

Mounting Film on a Hold-down Plate

Taping the film to a glass hold-down plate and then placing the hold-down on the platen glass provides optimum results on smaller sized films that require maximum accuracy.

To mount film on a hold-down plate, follow this procedure:

1. Select an overlay that matches the size of your film as closely as possible.

   The overlay acts as a frame around your film. Choose one that allows as much of the image to appear through the cutout as possible.

2. Select a suitably sized glass hold-down plate.
3. Tape the film to the bottom side of the hold-down glass:

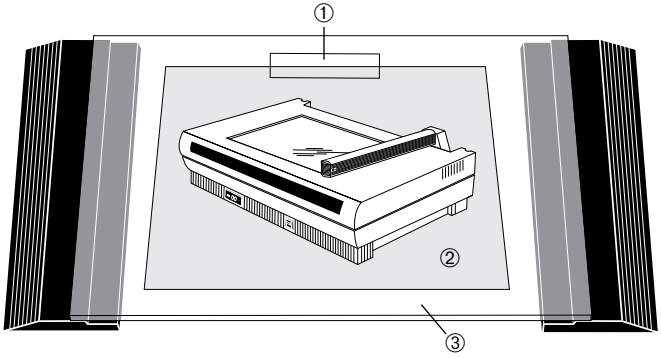

Figure 3–7
Taping the film to the hold-down glass.
①–Tape.
②–Film.
③–Hold-down glass.

4. Slide the overlay into the hold-down:

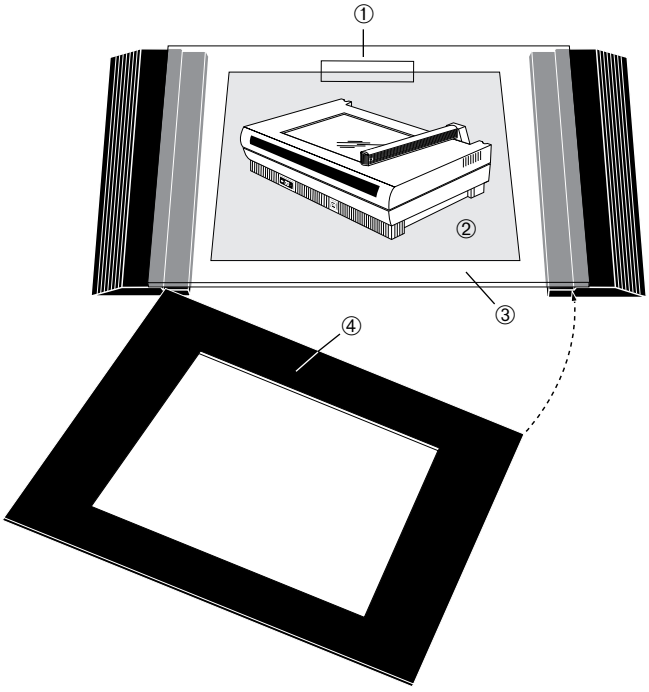

Figure 3–8
Sliding the overlay into the hold-down.
①–Tape.
②–Film.
③–Hold-down glass.
④–Overlay.

5. Make sure your image is visible through the opening in the overlay:

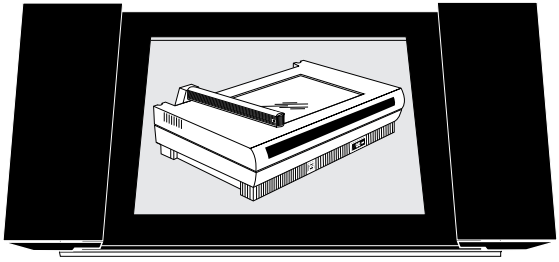

Figure 3–9
Film mounted in an overlay

6. Place the hold-down plate face-down on the glass.

   The top edge of the hold-down should rest firmly against the calibration strip.

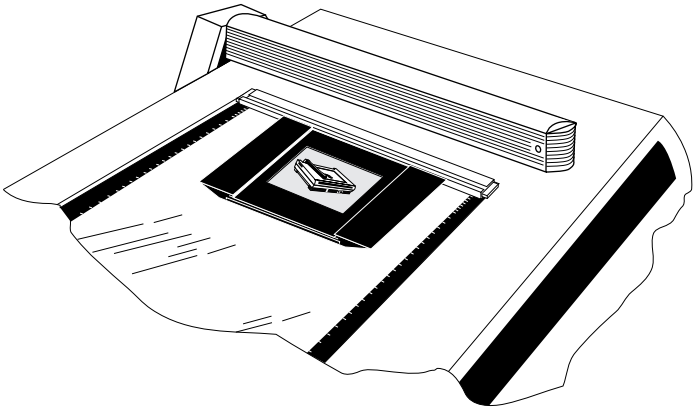

Figure 3–10
Placing a hold-down against the calibration strip

4

Maintaining the Scanmaster 2500

Your Howtek Scanmaster 2500 requires periodic cleaning to maintain optimum performance. The platen glass is sealed to prevent liquids from getting inside the scanner.

> CAUTION: Do not use ammonia-based cleaning products to clean the Scanmaster 2500. Do not disassemble the scanner or lubricate any parts.

Cleaning the Platen Glass

Outside

To clean the outer side of the platen glass, follow these steps:

1. Spray the glass with a commercially available non-streaking glass cleaner. For best results use the included lens solution specifically formulated for anti-reflective coated glass.)
2. Dry the glass with a clean, lint-free paper towel or newspaper if using commercial glass cleaner. Use the included cloth only with the provided lens solution.
3. Use the same cloth to remove any dust from the glass.

Inside

To clean the inside of the platen glass, follow these steps:

1. Remove the transparency arm, if installed (if you are using the document cover, leave it in place):
   - At the rear of the scanner unscrew the two large captive thumbscrews that attach the transparency arm to the camera assembly. As you unscrew the thumbscrews, pull the arm gently away from the scanner, maintaining a gap between the two slots on the scanner and the transparency arm bracket.

     CAUTION: Do not turn the thumbscrews without at the same time pulling the transparency arm away from the scanner. Otherwise, the thumbscrews may break and severly damage your scanner.

   - Lift the front end of the transparency arm slightly. While applying even pressure, pull the arm away from the camera assembly.
2. Remove the calibration strip from the platen glass by grasping the strip, depressing the spring-loaded end cap and lifting gently.
3. Remove the housing cover at the rear of the scanner:
   - Loosen the two screws that secure the cover to the base.
   - Lift and slide the cover forward approximately 1 / 2" (1–2 cm) to release its tabs from the base.
   - Lift the cover straight up and place it safely aside.

4. Grasp the glass at the front and rear metal edges and lift it straight up and away from the unit.
5. Clean both sides of the glass with a non-ammonia based cleaner and a lint-free cloth.
6. Place the glass gently back into position. Make sure the registration edge is oriented so that the numbers increase from right to left (with the number 1 closest to the right side of the scanner).
7. Slide the cover back onto the base. Make sure the tabs are properly aligned.
8. Replace the two screws at the rear of the base that hold the housing cover in place.
9. Replace the calibration strip on the platen glass by depressing the spring-loaded end cap until it clicks into place. Orient the calibration strip with the black and white side face-down and the ruler edge toward the platen glass.
10. Reinstall the transparency arm (if purchased) and tighten the two captive thumbscrews at the rear of the scanner to reattach the arm to the camera assembly.

Cleaning the Calibration Strip

To clean the calibration strip, proceed as follows:

1. Remove the calibration strip from the platen by grasping the strip, depressing the spring-loaded end cap and lifting gently.
2. Make sure the platen glass is clean, particularly the area under the calibration strip.
3. Use the cloth provided with your Scanmaster 2500 to remove any dust from the calibration strip.

   CAUTION: Do not spray liquids directly onto the calibration strip.

4. Replace the strip on the platen glass by depressing the spring-loaded end cap until it clicks into place. Orient the calibration strip with the black and white side face-down and the ruler edge toward the platen glass.

Replacing the Calibration Tape

The black and white reflective calibration tape on the calibration strip can be replaced if it becomes damaged. Damaged tape can cause calibration problems with your scanner and may result in vertical bands in your scans. For assistance in determining whether your calibration strip needs to be replaced, contact your Howtek dealer.

Replacing the Lamps

The lamps may be replaced on site by trained service personnel. However, your Howtek dealer can assist you with replacement lamps and training instructions.

Cleaning the Housing

> CAUTION: The side vents on the housing provide air flow to the unit. Unplug your Scanmaster 2500 before cleaning the housing to prevent cleaning fluids from penetrating into the scanner's mechanism and causing damage.

Clean the exterior of the Scanmaster 2500 with a slightly damp cloth.

5

Troubleshooting

Your Howtek Scanmaster 2500 is designed to be highly reliable. However, problems may occasionally arise during operation. This chapter describes some of the most common problems and the recommended corrective actions.

Technical Support

If you are unable to correct a problem using the information provided on the following pages, contact your local Howtek dealer or sales representative. Make sure you have the following available:

- Your scanner's serial number (located on the scanner's rear panel).
- The FLASH revision number (indicated on the control panel).
- The type of computer system you are using, including amount of RAM, operating system version, and revision level of your scanner software.
- A telephone located near the scanner.

Problem	Cause	Solution
The status panel does not light up.	The scanner is not plugged in.	*Make sure the power cord is securely plugged into both the scanner and the AC power outlet.*
	The scanner is not turned on.	*Make sure the power switch is on ON position (the I side is pushed in).*
	The AC power outlet is not "live."	*Verify proper operation of the outlet by plugging in a desk lamp.*
The scanner is not communicating with the host computer.	The SCSI cable is loose or not connected.	*Make sure all the SCSI connections in the chain are secure.*
	The SCSI chain is not properly terminated.	*Refer to Chapter 1.*
	Two or more devices have been assigned the same SCSI address.	*Check the device addresses on the interface chain; each address must be unique. Refer to Chapter 1 for more information.*
	The SCSI devices have not been powered on in the correct sequence.	*Make sure that the devices in the interface chain are turned on before or at the same time as the host computer.*
	Defective SCSI cable.	*Replace cable.*

Problem	Cause	Solution
The scanned image has vertical bands.	There is dust or debris on the calibration strip.	*Clean the strip with a dry, lint-free cloth.*
	There is dust or debris on the platen.	*Clean the platen with the enclosed cloth, especially the glass under the calibration strip.*
	The scanner is out of calibration.	*Turn calibration on from the host software.*
ER 80 is blinking on the status panel.	The calibration strip could not be accurately scanned.	*Make sure the calibration strip is flat on the platen. Make sure the strip is oriented in the right direction (the ruler should face the glass).*
	Dirty calibration strip.	*Clean the strip with a dry, lint-free cloth. Make sure the glass under the calibration strip is clean.*
	Dirty platen glass.	*Clean both sides of the glass as outlined in Chapter 4.*
	Dirty transparency arm diffuser.	*Gently clean the diffuser with a dry, lint-free cloth.*

Problem	Cause	Solution
ER 81 is blinking on the status panel during scanning.	Insufficient disk space on your hard disk.	*Exit the scanning application and free up more disk space. The application indicates the amount of disk space required by your final scan.*
	SCSI communications interrupted.	*Make sure that no other SCSI devices share the same SCSI ID, that your SCSI chain is properly terminated and that your SCSI cables are securely connected.*
Your Scanmaster 2500 makes a stuttering sound when scanning (continually stopping and starting).	There is not enough contiguous free memory to hold the scanned image on your host computer's hard disk.	*The scanner slows down as the host computer requires more time to allocate disk space. Before scanning, free up enough contiguous disk space to store your scanned image.*

6

Transporting the Scanmaster 2500

Your Scanmaster 2500 may be shipped safely by following the simple preparations and procedures outlined in this chapter.

> CAUTION: Use care when repacking your equipment. Your scanner is a delicate instrument. If it is dropped or otherwise jarred, it can be severely damaged.

Packing the Scanmaster 2500

To pack up your scanner, use the original shipping carton and packing materials. If you no longer have the original cartons, you may order replacements from Howtek.

> Note: Before packing the scanner, make sure the scanner's internal camera unit is in its home position by cycling the power off and on again.

To pack up the Scanmaster 2500, proceed as follows:

1. Turn the scanner off by pressing the O side of the power switch on the front panel.
2. Unplug the power cord from the AC outlet and from the scanner.

3. Secure the transparency arm, if installed (see Figure 6–1):

   - Remove the transparency arm.
   - Attach the locking clip to the frame over the camera assembly using a screwdriver.

   CAUTION: Failure to attach the locking clip properly can cause damage to the scanner during shipping.

   - Reconnect the transparency arm:

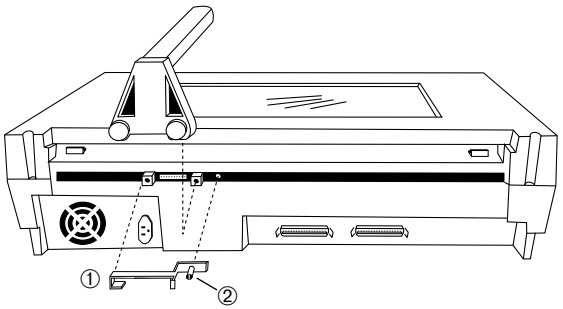

Figure 6–1 Securing the transparency arm. ①–Locking clip. ②–Screw.

4. Cover the Scanmaster 2500 and transparency arm with the poly bag.

5. Place the foam supports on the sides of the scanner and place the scanner front edge down in the cardboard bottom of the shipping box. Place any accessories to be included in the bottom of the container on the side opposite the platen glass. Cover the scanner with the top half of the shipping container:

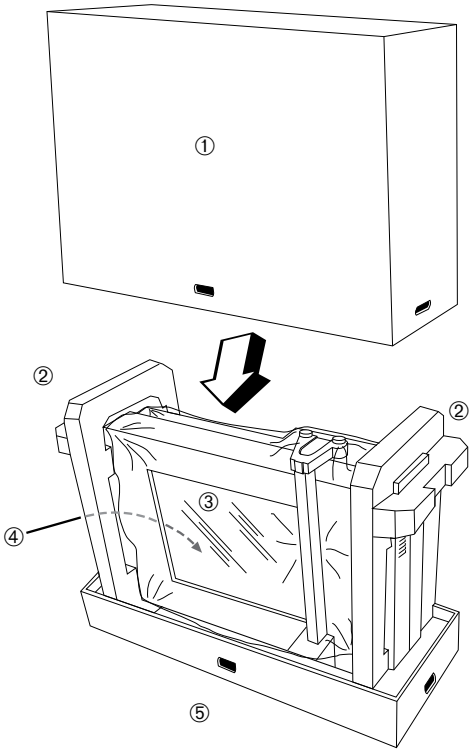

Figure 6–2
Covering the scanner with the shipping container.
①–Cardboard cover.
②–Foam supports.
③–Poly bag.
④–Accessories.
⑤–Carboard bottom.

6. Attach the four plastic locking clips to the bottom of the container. Make sure the clips are securely locked in place by pressing them firmly:

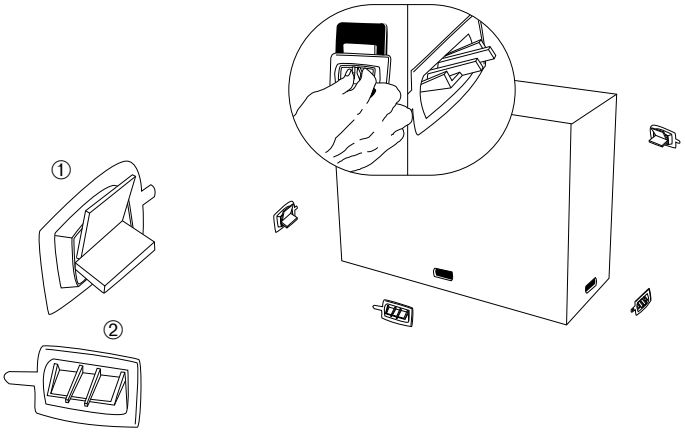

Figure 6–3
Attaching the plastic locking clips.
①–Rear.
②–Front.

7

Technical Information

Physical Characteristics

Dimensions and Weight

Width:	35" (889 mm).
Height:	11" (279 mm).
Depth:	24.5" (622 mm).
Weight:	85 lbs (38.5 kg).

Scanner Type

Tri-linear CCD, color and grayscale scanning system.

Light Source

Fluorescent lamp.

Image Types

Reflective and transparent.

Electrical Characteristics

Power Supply

100–240 VAC, 1.5 Amp, 50–60 Hz.

Power Consumption

Maximum: 300 W.
Standby: 200 W.

Environmental Requirements

Temperature Range

Operation: 60 to 80 °F (16 to 27 °C).
Shipping or storage: 0 to 149 °F (–18 to 65 °C).

Relative Humidity

Operation: 20 to 70%, non-condensing.

Vibration/Acceleration

3 G max (in shipping).

Altitude

Operation: 0 to 8,000 feet (0 to 2,440 m).

Scanning Characteristics

Native Resolution

600 x 1200 dpi.

Output Format

8 bits (256 levels / channel) or 12 bits (4,096 levels / channel).

RGB color, single channel color (RGB) for monochrome, or 1 bit per pixel for line art.

Effective Scanning Area

Max.: 13" x 18" (330 x 457 mm).

Scan Line Capture Rate

15 ms / scan line for all three channels (RGB).

Density Range

0.01–3.4 optical density (transparency mode).

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