HiResolve™ 8000

HiResolve™ SPRINT

USER GUIDE

Howtek

Part Number HTM092-03
Revision A

Declaration of Conformity

We,

Howtek, Inc.
21 Park Avenue
Hudson, NH 03051

declare under our sole responsibility that the product:

Model 55XX

(Where "X" is any alpha-numeric designate indicating SELV or cosmetic differences)

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

Product Safety: EN60950
Amendment 1 & 2: 1992
Amendment 3: 1995

EMC: EN55022: 1994/A1: 1995, 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: W. Scott Parr

Title: President and CEO

Date: **July 31, 1998**

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.

The information in this book is furnished for informational purposes only, is subject to change without notice, and should not be construed as a commitment by Howtek, Inc. Howtek, Inc. assumes no liability for any errors or inaccuracies that may appear in this book.

User Guide for the HiResolve 8000 & HiResolve Sprint
Howtek part number: HTM092-03
Produced in the United States of America

Howtek Inc.
21 Park Ave.
Hudson, NH 03051

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Preface

Congratulations on the purchase of your new HiResolve scanner. Designed with the Howtek commitment to help you start scanning as quickly as possible, this document provides site requirements and system information. It contains descriptions and procedures for:

- Installing, configuring, and setting up your HiResolve scanner.
- Using the HiResolve control panel.
- Mounting originals on the scanner drum.
- Maintaining your scanner.
- Troubleshooting in the event of a problem.

Please read the installation instructions carefully. Proper installation and configuration will ensure safe and efficient operation of your HiResolve 8000. If you have any questions, please contact your local dealer.

Guide Conventions

The following typographical conventions are used throughout this guide:

- Control panel messages and buttons are indicated in all capital letters: OFFLINE, ENTER, etc.

Note: Provides useful information about the current topic.

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

WARNING! Provides information to pr e-vent injury to the scanner operator .

Related Documentation

This guide provides details on using the HiResolve 8000. However, you may need additional information contained in other documents. Your computer's installation guide provides detailed instructions for installing the interface card in the computer and cabling the scanner. 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

Installation Requirements

Before installing your Howtek HiResolve 8000, make sure the following installation requirements are met.

Physical Requirements

A rigid and sturdy table must be installed in the scanner room (it must be able to support at least 135 lbs (61 kg) and be free of vibrations). Allow for sufficient clearance (at least 1.5 feet [45 cm]) around the scanner and its furniture for cables, ventilation, and access by operating personnel. See Figure 1–1.

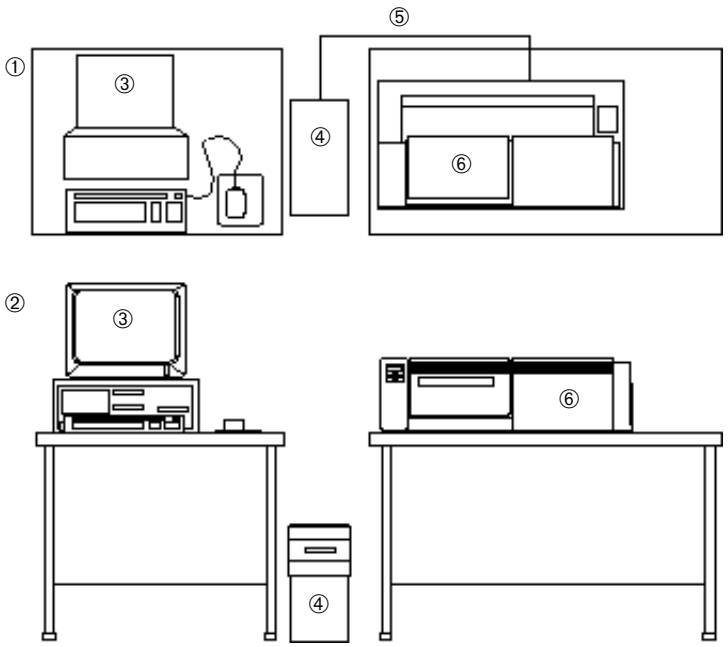


Figure 1–1 Recommended System Layout

①–Overhead View
②–Front View
③–Monitor
④–CPU
⑤–SCSI Cable (2 m)
⑥–HiResolve scanner

If you purchased the optional Drum Mounting Station, you will need a separate table large enough to accommodate it. The dimensions of the Drum Mounting Station are:
15" W x 16" L x 6" H (38 cm x 41 cm x 15 cm).

Electrical Specifications

The specified operating range for the HiResolve is as follows:

110 Volt Systems (North America)

- Low operating range: 90–132 VAC (47–63 Hz).
- At a minimum, use a 10 amp circuit (the scanner draws up to 6 amps peak).

220 Volt Systems

- High operating range: 180–264 VAC (47–63 Hz).
- At a minimum, use a 5 amp circuit (the scanner draws up to 3 amps peak).

The HiResolve 8000 & Sprint scanners are equipped with an auto-ranging power supply and requires a 3-prong grounded receptacle and common ground potential.

> Note: It is recommended that your entire system be connected to an Uninterruptible Power Supply (UPS) or, at a minimum, plugged directly into surge-protected power strips.

Host System Configuration

The host computer system must meet the following minimum requirements:

Macintosh

- Quadra series with Floating Point Coprocessor installed (Power Macintosh™ recommended).
- 64 MB of RAM.
- 24-bit color display adapter.
- 17" or larger high-resolution monitor (1024 x 768 dpi).
- 1 GB hard drive.
- System 7.5 or higher.
- SCSI cable: 25-pin to 50-pin Apple system cable. (Refer to the definition on page 1-14.)

PC/Windows

- Pentium PC 166 Mhz with 1 available EISA or VESA local bus slot for one of the SCSI boards listed below.
- 64 MB of RAM.
- 24-bit color display adapter. (Refer to Howtek Document HTB111 Revision C.)
- 17" or larger high-resolution monitor (1024 x 768 dpi).
- 1 GB hard drive.
- Adaptec SCSI board: AHA–1742, AHA–2740/42, or AHA–2842. (Refer to Howtek Document HTB109.)
- SCSI cable.

Installing the HiResolve 8000

Follow the procedures below to unpack and install your HiResolve 8000.

Receiving the HiResolve 8000

Your facility must have a suitable location for receiving and unpacking the HiResolve 8000 (e.g. a loading dock). For the physical specifications and weights of the pallet and the scanner, see Chapter 7.

Make sure there is free access to the scanner's proposed location. A forklift or pallet jack is helpful, but not required, to off-load the palletized scanner from the truck and move it to its location. If the HiResolve scanner is to be installed on an upper floor, an elevator large enough to hold the scanner and pallet should be used, if available.

> Note: The scanner itself weighs 135 lbs (61 kg). If necessary, it can be carried by 2-to-4 people, although this is not recommended.

Moving the HiResolve to the Scanner Location

Move the HiResolve strapped to the pallet to the scanner location before unpacking. Avoid jarring or bumping the scanner while transporting it.

Unpacking and Setup

> WARNING! Follow the instructions below carefully to unpack your scanner. Failur e to do so could result in damage to the scanner or personal injur y.

Carefully unpack each carton. Report any damage to your dealer immediately.

The HiResolve 8000, Drum and Accessories Kit, and optional Drum Mounting Station are shipped in readily-identifiable cartons.

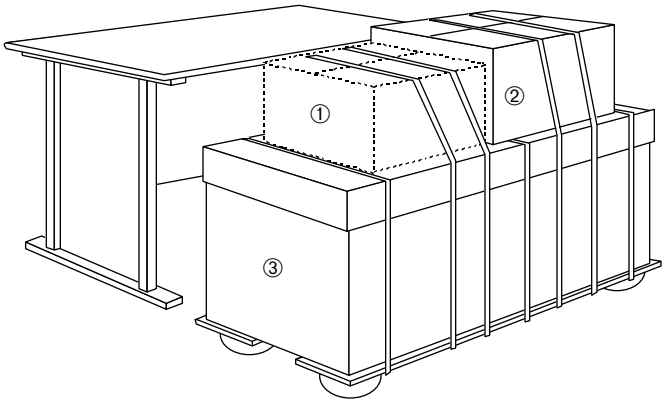


Figure 1–2
Shipping Cartons

①–Drum Mounting Station (optional)
②–Drum and Accessories Kit
③–HiResolve scanner

Unpacking the Drum and Accessories Kit (Small Carton)

Cut the bands securing the boxes to the pallet. Unpack the carton labeled “Drum and Accessories Kit” first.

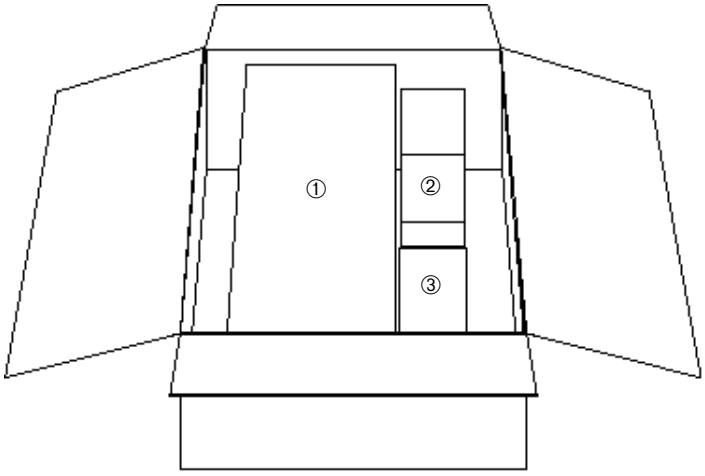


Figure 1–3 Drum and Accessories Kit

①–Drum
②–Software Kit
③–Scanner Kit

Take a minute to verify the contents of the Drum and Accessories Kit:

- Mounting kit (cleaning and image mounting materials).
- Spare drive belt.
- Power cord(s).
- Imaging drum.
- Leadscrew lubricant (3 grams).
- Software kit (3.5" diskettes).

Report any missing items to your Howtek dealer immediately.

To unpack the scanner (large carton), follow these steps:

1. Cut the two packing straps and lift the cardboard cover and box off the pallet. Remove the foam supports and poly bag from the scanner.

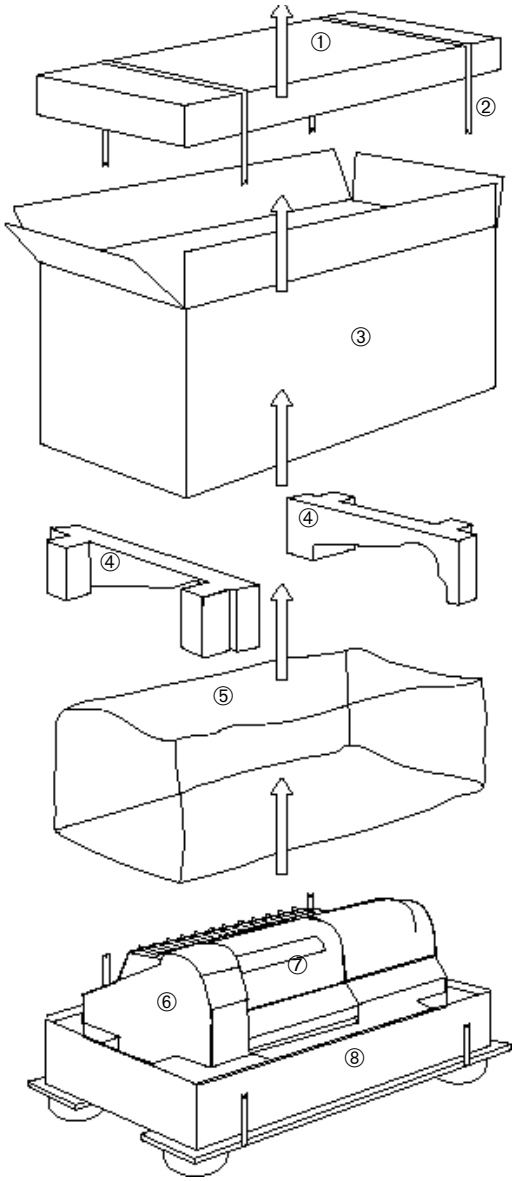


Figure 1–4
Unpacking
the HiResolve

①–Cardboard Cover
②–Packing Straps
③–Cardboard Box
④–Foam Supports
⑤–Poly Bag
⑥–HiResolve scanner
⑦–Drum Access Door
⑧–Pallet

2. Stand facing your helper with the scanner between you. Bend your knees, keeping your back straight. Slide your hands into the hand holds at the end of the scanner, lift with your legs to protect your back, and carefully place the scanner on a stable surface.

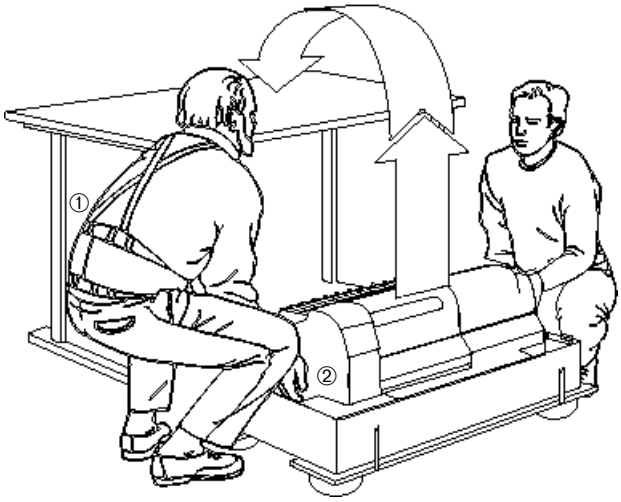


Figure 1–5 Lifting the HiResolve

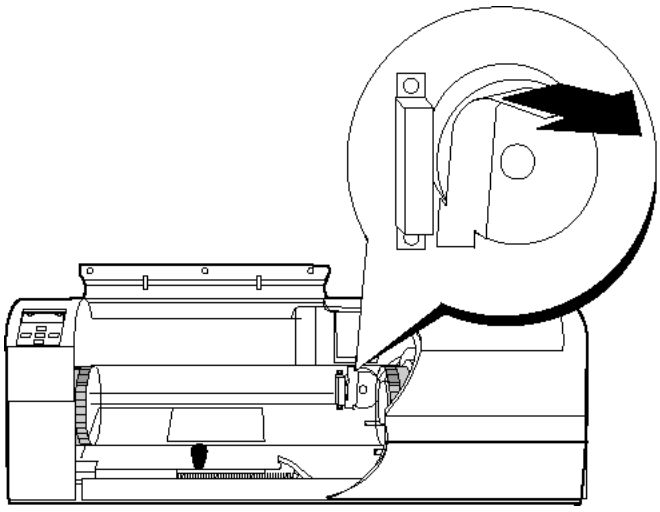
①–Back Brace (highly recommended)
②–Hand Holds

WARNING! When moving the HiResolve 8000, always lift it, do not slide it.

3. Remove the white tape securing the drum access door and stick the tape to the inside of the resealable bag that contains the power cord (for safekeeping).

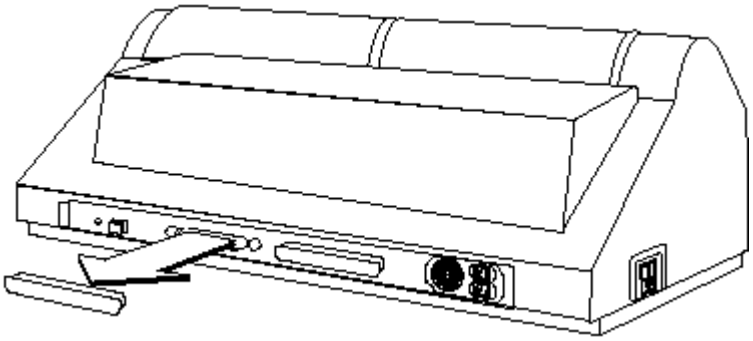
4. Remove the white tape from both the Fiber Optic Reflective Illuminator (FORI) and the flip mirror and stick the tape to the inside of the large resealable bag containing the power cord.

Figure 1–6
Removing the Tape



5. Remove the white plastic cover on one of the two SCSI ports, located on the right rear of the scanner. Place the cover in the large resealable bag containing the power cord.

Figure 1–7
Removing the SCSI Cover



6. Close the drum access door by lifting the door slightly and pulling the support lever at the lower left side of the door toward you, then lower the door.
7. Store all packing materials, including the pallet, in a secure, dry area for later use in transporting the scanner, should it become necessary. Place the following items in the large resealable bag that contained the power cord:
   - ♦ Tape from the drum access door and the FORI.
   - ♦ One white plastic cover from the SCSI port.

Connecting the HiResolve 8000

This section outlines steps to connect the power and interface cables to the scanner.

Connecting Power

1. The power switch is located on the left rear of the scanner. Make sure the power switch is in the OFF position (press the **O** side of the switch).
2. Plug one end of the power cord into the power cord receptacle located below the power switch.
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 cor rectly grounded. Protect against power line surges by using a surge suppressor .

Connecting the SCSI Cable

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

> Note: If the HiResolve scanner is *not* the only device on the SCSI bus, scanner throughput may be degraded due to other activity on the SCSI bus. This is particularly true with a SCSI hard drive for which it is recommended that the hard drive is installed on a separate SCSI card.

> Note: For proper operation, your scanner's SCSI interface should only be driven with the recommended SCSI controller and terminator. Refer to the guidelines on page 1-14 for a list of recommended SCSI adapters.

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 may not exceed 19 feet (5.8 m). The SCSI devices' priority in communicating with the computer is determined not by their arrangement in the chain, but by their SCSI ID numbers.

> **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, the end of the SCSI chain must be terminated. The HiResolve is internally terminated and does not require any type of external active SCSI terminator.

Macintosh SCSI Connections

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

1. Turn off power to the computer and to all attached devices. The computer and all devices should remain plugged into grounded outlets.
2. Make sure you have the proper SCSI cables for your needs:

   SCSI system cable: Use this cable if the HiResolve is the only SCSI device connected to your Macintosh. Refer to Figure 1–8.

   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 1–8.

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

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

3. Connect the SCSI cables as outlined below, depending on your configuration.

   If the HiResolve is the only SCSI device attached to the SCSI port of your Macintosh:

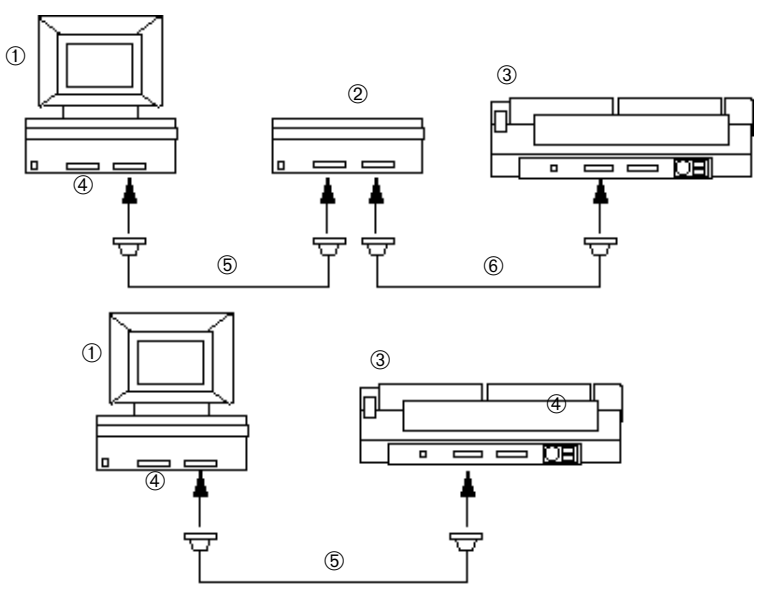
   - Connect one end of the SCSI system cable to your Macintosh and the other end to the scanner.

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 one of the SCSI ports on the HiResolve.

Figure 1–8
Macintosh SCSI Connections

①–Macintosh
②–SCSI Device
③–HiResolve scanner
④–Internal Terminator
⑤–SCSI System Cable
⑥–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. Refer to the guidelines below for a list of recommended SCSI adapters.

Note: If the HiResolve is *not* the only device on the SCSI bus, scanner throughput may be degraded due to other activity on the SCSI bus. This is particularly true with a SCSI hard drive for which it is recommended that the hard drive is installed on a separate SCSI card.

Adaptec SCSI boards:

AHA–1740/42AT*
AHA–2740/42AT Kit**
AHA–2842VL
AHA-2940
AHA-2940 Ultra

** 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 drive (Channel A) connected to it.*

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

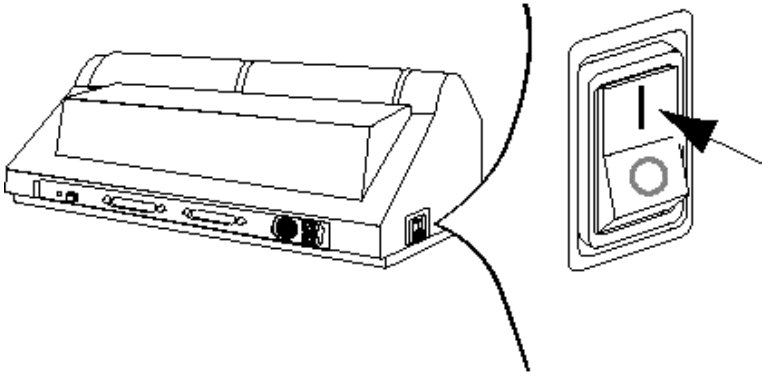
1. Turn off power to the computer and to all attached devices. The computer and all devices should remain plugged into grounded outlets.
2. Verify the card configuration against the documentation in the SCSI interface adapter kit. Install the SCSI interface card in your PC following the instructions 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 either SCSI port at the rear of the HiResolve.

Powering Up

Like all SCSI devices, the Howtek HiResolve must be powered up before the host system. Turn the scanner on by pressing the **I** side of the power switch. The power switch is located on the right side when facing the rear of the scanner (see Figure 1–9). While the scanner is powered up, the display window on the control panel is illuminated.

Figure 1–9
Power Switch



During power-up the HiResolve performs extensive internal diagnostics prior to going on-line. Once the scanner reaches on-line status the control panel displays the message READY TO SCAN). It takes approximately five minutes for the scanner to warm up and stabilize, but the scanner can be used as soon as the message ON LINE appears on the control panel.

> Note: The accuracy of color scans may be compromised if the scanner is used before the recommended five-minute warm-up/diagnostic period.

Selecting the SCSI ID

The SCSI ID function allows you to set the SCSI identification number of the HiResolve. The factory default setting is 4. If this value conflicts with another SCSI device, the scanner's ID number must be changed.

> **CAUTION: If two or more SCSI devices are set to the same address, your computer may act erratically and your equipment may become damaged. Make sure the scanner's SCSI address is unique.**

To change the scanner's SCSI ID number:

1. Place the scanner off line by pressing the ENTER (■) button on the control panel until OFF LINE is indicated.

   > Note: Control panel functions are described in the next chapter.

2 Press ◄ or ► until the display window reads SCSI ID.

3. Press ENTER (■). The window displays: ENTER NEW NUMBER.

4. The current SCSI ID number appears in the lower left corner. To change the value, use the arrow buttons.

5. Press ENTER (■) to confirm the new ID number and return to the previous menu level.

6. Press ▲ once to return to the ON LINE (ready to scan) state.

Once you have installed the scanner and selected the SCSI ID, power up all remaining SCSI devices and boot your computer.

2

Operating the HiResolve

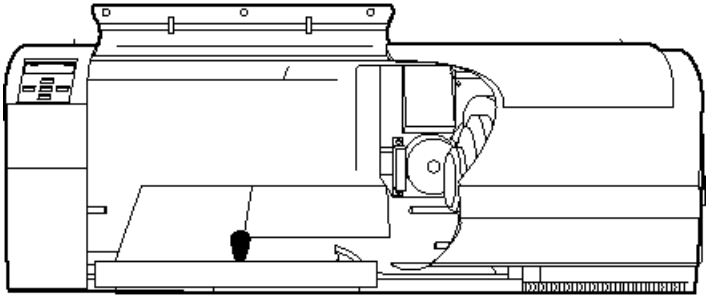
Most of the HiResolve scanner functions are controlled through the software on your computer. This chapter outlines the basic operations that are performed on the HiResolve control panel.

Installing the Drum

It is recommended that you mount your original on the drum before installing the drum into the scanner. For instructions on mounting originals, refer to Chapter 3. To install the drum, follow these steps:

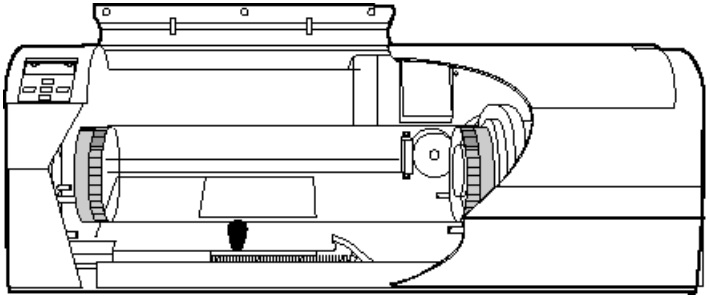
1. Lift the drum access door at the front of the scanner.
2. Move the drum mounting lever to the open position:

Figure 2–1
Moving the Lever for Drum Insertion



3. Set the drum into the scanner cavity.
4. Rotate either the spindle or the drum to align the white index mark on the spindle and the left endcap on the drum:

Figure 2–2
Index Marks

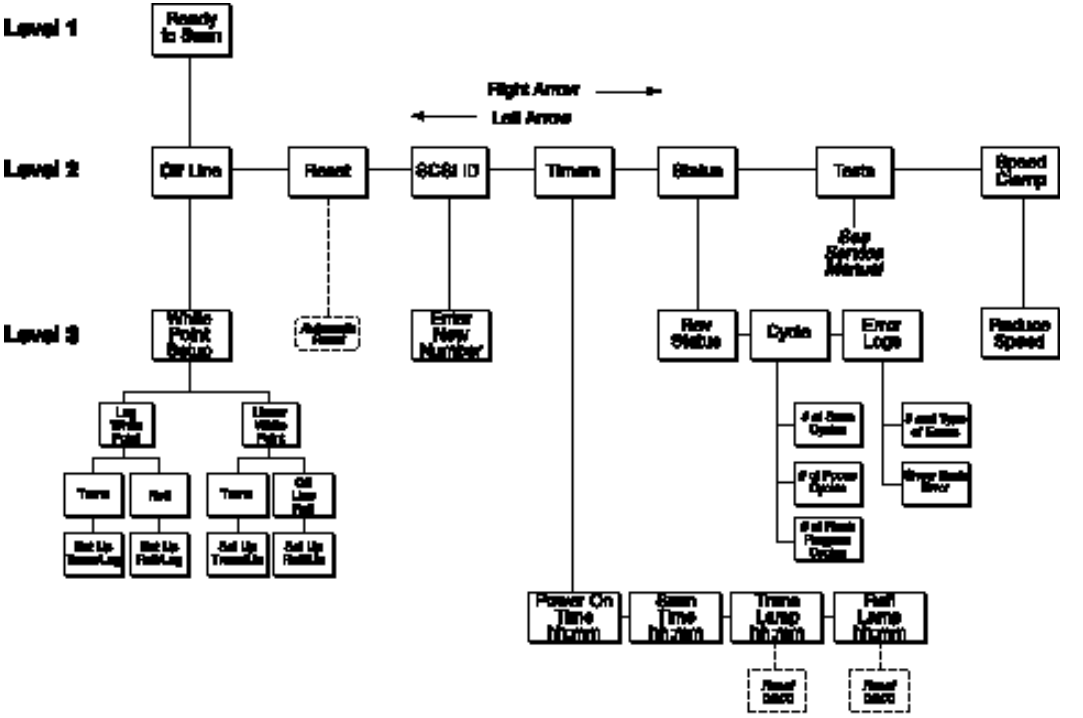


5. Move the drum mounting lever to the closed position and make sure the alignment pin has engaged the drum endcap.
6. Close the drum access door.

Using the Control Panel Functions

This section describes the various menu functions on the HiResolve control panel. The LCD display window indicates the currently selected menu option and also shows error/status messages that provide information or recommend corrective action.

Below is a flow chart outlining the menu structure of the control panel:



READY TO SCAN

After the scanner is turned on and has finished its internal diagnostics, READY TO SCAN appears on the top line of the display window. The bottom line indicates the SCSI ID number and the current FLASH software revision.

OFF LINE

When READY TO SCAN is displayed, press ENTER (■) to take the scanner OFF LINE. (The ENTER (■) button toggles the scanner between the ON LINE state (ready to scan) and OFF LINE state.)

The off-line state allows you to control the scanner manually from the control panel. Press the left (◀) and right (▶) arrow keys to step through the various menu functions.

To return the HiResolve to the on-line state when you are ready to scan, press ENTER (■). Placing the scanner on-line will also allow you to perform many scanner functions from the host software.

CAUTION: If you press the ENTER (■) button while a scan is in progress, scanning will stop and the host software may lock up or generate an error message.

WHITE POINT SETUP

The WHITE POINT SETUP function enables you to change the reference white point in order to lighten or darken the entire image. This will cause all subsequent scans to be lighter or darker until the scanner undergoes a reset or a power cycle. This might be useful, for example, on reflective copy that has a silver or gold element. This element may cause the entire image to be lighter than expected. In this case, you might use the WHITE POINT SETUP option to darken the image.

1. From the OFF LINE state, press press ▼ to display the WHITE POINT SETUP function.
2. Press ◄ or ► to toggle to either the LOG WHITE POINT or LINEAR WHITE POINT option. Then, press ENTER (■).
3. Press ◄ or ► to toggle to either the TRANS (transmissive) or REFL (reflective) option. Then, press ENTER (■) to enter the SET UP mode.
4. Press ▲ or ▼ to change the white point value.

   If no change is desired, use ◄ or ► to select the YES/NO option and ▲ or ▼ to toggle between YES and NO.
5. Press ENTER (■) to accept the new conditions and return to the WHITE POINT SETUP.
6. Press ▲ to return to READY TO SCAN.

RESET

The RESET function enables you to reset the scanner automatically.

1. From the OFF LINE state, press ◄ or ► until the RESET function is displayed.
2. Press ENTER (■) to initiate the automatic reset feature. You will return to the previous menu level.

SCSI ID

The SCSI ID function enables you to set the SCSI identification number for the SCSI device.

1. From the OFF LINE state, press ◄ or ► until the SCSI ID function is displayed.
2. Press ENTER (■). The window displays: ENTER NEW NUMBER.
3. The current SCSI ID number appears in the lower left corner. To change the value, press ◄ or ►.

4. Press ENTER (■) to confirm the new ID number. You will return to the previous menu level.

Once you have selected the SCSI ID, power up all SCSI devices and reboot your computer.

TIMERS

The TIMERS function enables you to check and reset timers. Each option shows total time, as described below.

1. From the OFF LINE state, press ◄ or ► until the TIMERS function is displayed.
2. Press ENTER (■). The window displays the total amount of time (hours and minutes) that the scanner has been powered on:

   POWER ON TIME hh:mm
3. Press ► to display the total scan time:

   SCAN TIME hh:mm
4. Press ► to display the total amount of time that the transmissive lamp has been used:

   TRANS LAMP hh:mm

   You have an option to reset this timer. To do so, press ENTER (■). Normally, you would do so after changing the transmissive lamp.
5. Press ► to display the total amount of time that the reflective lamp has been used:

   REFL LAMP hh:mm

   You have an option to reset this timer. To do so, press ENTER (■). Normally, you would do so after changing the reflective lamp.
6. Press ENTER (■) after checking and/or resetting timers. You will return to the previous menu level.

STATUS

The STATUS function enables you to check the scanner status.

1. From the OFF LINE state, press ◄ or ► until the STATUS function is displayed.
2. Press ENTER (■). The window displays the REV STATUS.
3. Press ► to display CYCLE. Press ENTER (■) if you want to review cycle information. Several options then are available. Press ◄ or ► to toggle between options at the next level:

   # OF SCAN CYCLES
   # OF FOCUS CYCLES
   # OF FLASH PROGRAM CYCLES

   Press ENTER (■) after you have reviewed all cycle information. You will return to the previous level.
4. Press ► to display ERROR LOGS. Press ENTER (■) if you want to review the error logs. Press ◄ or ► to toggle between options at the next level:

   # AND TYPE OF ERRORS
   SHOW EACH ERROR

   Press ENTER (■) after you have reviewed all error log information. You will return to the previous level.
5. Press ENTER (■) after checking the scanner status. You will return to the previous menu level.

TESTS

The TESTS function is used to initiate various tests of the scanner components including cables, carriage, control panel, lamps, focus, field stops, and drum. These tests should be performed by a service technician only and are described in the *HiResolve 8000 & HiResolve Sprint Service Manual.*

SPEED CLAMP

The SPEED CLAMP function is used to control the drum speed. For example, if the artwork to be scanned is a valuable original, you might want to clamp the speed at percentages of the normal drum speed (as indicated on the control panel window). Lower drum speeds result in less lifting force on the original and reduce the likelihood of it loosening from the drum.

1. From the OFF LINE state, press ◄ or ► until the SPEED CLAMP function is displayed.
2. Press ENTER (■). The window displays REDUCE SPEED.
3. Press ◄ or ► until you reach the desired percentage.
4. Press ENTER (■) after setting the speed. You will return to the previous menu level.

The clamp is activated until the next time the machine is rebooted. All speeds are reduced to the indicated percentage.

Soft Restart

To perform a “soft” restart of the scanner and return all settings to their default values, simultaneously press these three buttons on the control panel:

◀ and ▼ and ▶

3

Using the Dr um

This chapter outlines the procedures for dry and oil mounting originals onto the drum using the optional Drum Mounting Station.

One 4" (100 mm) drum is included with your scanner. The drum permits scanning originals up to 11.0" x 11.8" (279 x 300 mm) with a maximum resolution of 4000 dpi.

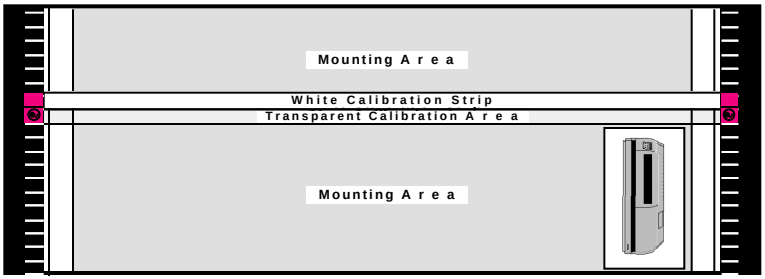
Dry Mounting Reflective Media

> Note: All images to be scanned and all mounting materials (tape, mylar, etc.) must be located within the striped regions illustrated in Figure 3–1. Do not cover the white calibration strip or the adjacent transparent calibration area. Anything in this region will interfere with the calibration and affect the quality of the scanned image.

The portion of the image to be scanned must be located between the two circumferential scribe lines. However, mounting materials may extend the full length of the drum, from one index ruler to the other.

Originals can be positioned in any orientation within the mounting area. For the final scanned image to appear perfectly upright, align the top edge of the original image with the right side of the drum (as installed), parallel to the circumferential scribe lines:

Figure 3–1
Drum Surface



The Howtek HiResolve is designed to maximize the speed of the scan, based on size, position on the drum, and selected magnification of the mounted original. Typically, best performance is achieved when the image is located nearest the upper right-hand side of the drum (as installed) with the long edge of the original parallel to the circumferential scribe lines.

Transparencies may either be mounted dry or oiled, but reflective originals should be dry mounted only. Transparencies and reflective originals may be dry mounted on the drum at the same time. However, do not mix oil mounted transparencies with reflective artwork.

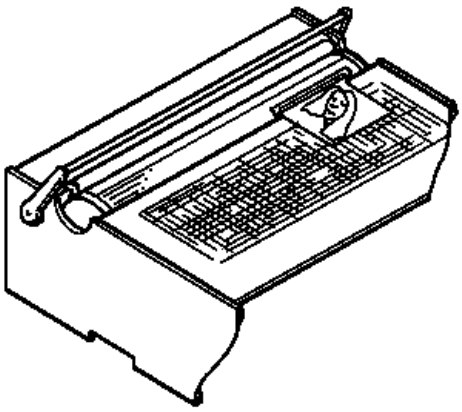
Make sure the drum and originals are clean and free of dust, oil, and debris before mounting. Clean the drum frequently with drum cleaner. Use only drum cleaner of the type provided in the Drum and Accessories Kit.

CAUTION: Do not use film cleaner on the drum.

To dry mount reflective media, follow this procedure:

1. Install the drum in the Drum Mounting Station.
2. Position the original on the mounting table with the top of the original to the right side (open end) of the drum:

Figure 3–2
Placing Artwork on the Drum

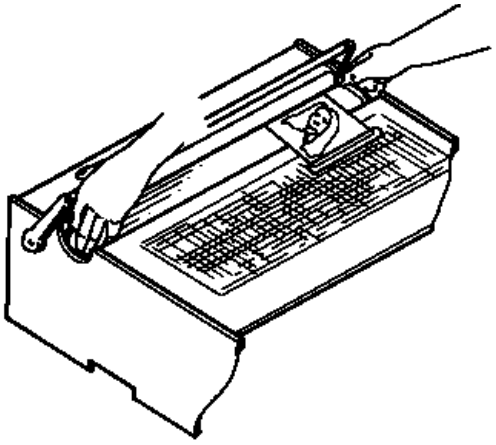


3. Place tape along the edge of the original that is in contact with the drum.

Note: Using any tape other than the type supplied may leave a residue on the drum.

4. Rotate the drum away from you until the original is fully over the drum:

Figure 3–3
Rotating the Drum



5. With slight pressure applied to the handle, tape the lower edge of the original to the drum.
6. Rotate the drum away from you until the padded roller fully presses the original against the drum.
7. Tape the circumferential edges of the original.
8. Remove the drum with the mounted original from the Drum Mounting Station.

Dry Mounting Transparent Media

Transparencies can be mounted directly on the drum. Make sure they are clean and always mounted with the emulsion side down against the surface of the drum. Secure them with clear cellophane tape. Sample tape is included in the scanner mounting kit.

A common problem when scanning transparencies are Newton's Rings, irregular shaped patterns (rainbows) which appear in the separations. Newton's Rings are caused by the prismatic action of two surfaces coming into contact with each other.

Newton's Rings can appear when the drum and a transparency are pressed together. The anti-Newton's Ring spray provided with the HiResolve consists of a very fine powder that clings to the transparency, slightly separating it from the drum. Anti-Newton's Ring spray should not be used on images that are to be enlarged more than 300% since the granules of powder from the spray may be visible in the final separations. For enlargements of more than 300% oil mounting is recommended.

Follow the directions for mounting reflective media. Before a transparent original is taped to the drum, *anti-Newton's Ring spray* may be applied to the original by spraying a short burst of powder into the air and waving the transparency back and forth through the airborne powder.

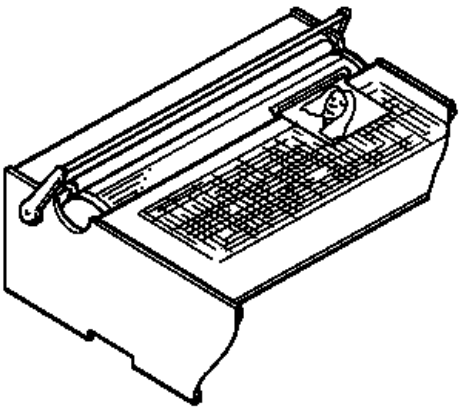
CAUTION: Spraying the powder directly onto the transparency at a close distance will leave a residue on the transparency. Never spray anti-Newton's Ring spray directly onto the drum, as this may cause the drum to become fogged.

Oil or Gel Mounting Transparent Media

When scanning transparencies at a high resolution or enlarging a scanned image, optimal results can be achieved by mounting the transparencies with oil. Follow this procedure:

1. Place the drum into the Drum Mounting Station.
2. Tape the top edge of the transparency to the drum as shown below. Be sure to leave room on all sides of the film for the mylar sheet overlay that will cover it:

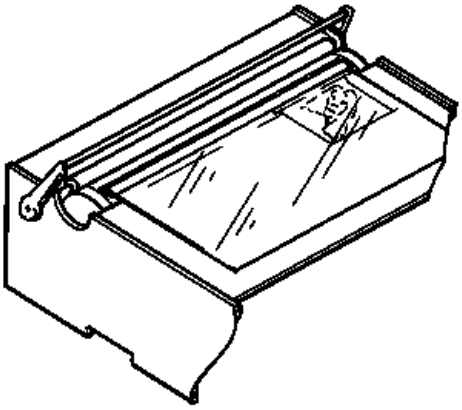
Figure 3–4 Positioning Transparent Art



3. Place a sheet of mylar over the image. Use a piece of mylar that extends at least 1/2" (12 mm) past the transparency on all sides.

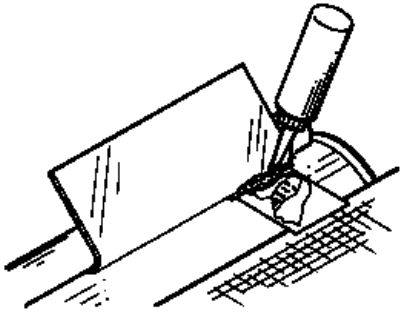
4. Tape the top edge of the mylar sheet to the drum 1/2" to 3/4" (15-20 mm) above the transparency:

Figure 3–5
Taping Top of Mylar



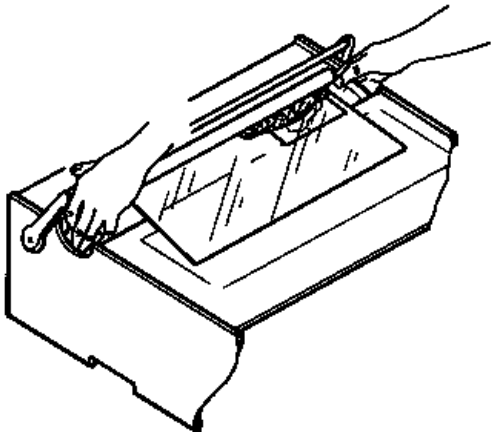
5. Move the padded roller forward to contact the drum.
6. Rotate the drum away from you until the mylar sheet makes contact with the padded roller. Apply a bead of oil or gel along the taped edge of the transparency to the emulsion (drum) and non-emulsion (mylar) sides of the transparency:

Figure 3–6
Applying Oil or Gel



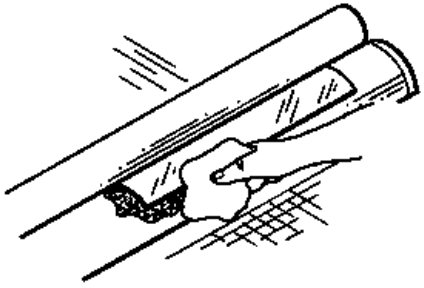
7. Grasp the ends of the drum and turn to the edge of the transparency to press out all the air and any excess oil:

Figure 3–7
Spreading Oil or Gel



8. Wipe away any excess oil, using a soft cloth and drum cleaner. This will ensure that the tape sticks to the drum:

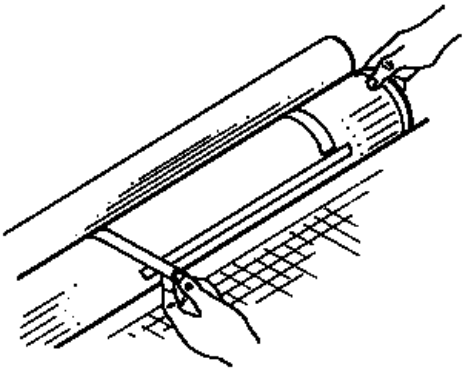
Figure 3–8
Wiping Away Excess Oil or Gel



9. Tape the bottom of the mylar sheet to the drum.
10. Move the padded roller back.

11. Tape the sides of the mylar, overlapping the top and bottom tape with the tape on the sides of the image:

Figure 3–9
Taping All Sides of Mylar



CAUTION: The mylar must be completely taped down. Otherwise, the centrifugal forces of scanning may cause the mylar to detach or oil to leak out of the sides and spray into the scanner cavity.

12. Remove the drum with the mounted original from the Drum Mounting Station.
13. Hold the drum up to a light and look through the film to check for air bubbles. If you see any, rub a soft cloth firmly over the mylar to squeeze them out.
14. Make sure the tape is securely holding the mylar and that the mylar is holding the transparency flat against the drum.
15. Install the drum in the scanner.

When you are finished scanning, remove all mounting materials from the drum and remove the oil from the drum with the cleaning solution included with your scanner. This should be done even if you are going to scan additional transparencies with oil. Be sure to clean the transparency itself with film cleaner.

CAUTION: Do NOT clean the drum with the film cleaner. To avoid damage to the transparency, never leave it mounted in oil for more than a few hours.

4

Maintaining the HiResolve

Regular maintenance of your Howtek HiResolve consists of periodic cleaning, replacement of the lamps, drum drive belt, and drum calibration strip when necessary, and lubrication of the leadscrew. How often the scanner requires cleaning depends on how much scanning you do, how frequently you mount transparencies with oil, how much excess oil remains on the drum, and the cleanliness of the room in general.

> WARNING! To prevent personal injur y, always turn the power switch off and unplug the power cord from the outlet before cleaning or performing any mainte - nance on the scanner .

Cleaning

> **CAUTION: Do not use ammonia-based cleaning products on the scanner. Do not disassemble the scanner or lubricate any parts other than those specifically indicated in this chapter.**

Cleaning the Scanner Cabinet Exterior

1. Turn the power switch off.
2. Unplug the power cord from the outlet.
3. Clean the exterior of the scanner with a soft, lint-free damp cloth and wipe dry.

> **CAUTION: Do not use paper materials such as facial tissue or paper towels. You may use a mild cleaning solution if the cabinet has become so soiled that a damp cloth does not remove the stain. If you have questions about a particular cleaning solution, contact your dealer.**

Cleaning the Scanner Cavity

For optimum performance, the scanning cavity must be kept free of dust and oil. Follow this procedure:

1. Turn the power switch off.
2. Unplug the power cord from the outlet.
3. Clean the cavity with a soft, lint-free cloth moistened with a non-volatile degreasing solution. You may use the recommended drum cleaner included in the Drum and Accessories Kit that comes with the scanner. You may also use an aerosol can of compressed air to remove dust.

CAUTION: Do not spray cleaning solution directly onto surfaces inside the scanner. Use only a lightly moistened cloth. Do not use paper materials such as facial tissue or paper towels. If you have questions about a particular cleaning solution, contact your dealer.

Cleaning the Analyzer Lens

If you frequently scan oil mounted transparencies, the analyzer lens may become contaminated with oil. Oil or foreign matter on the lens may cause distortions in your scans.

To clean the analyzer lens follow this procedure:

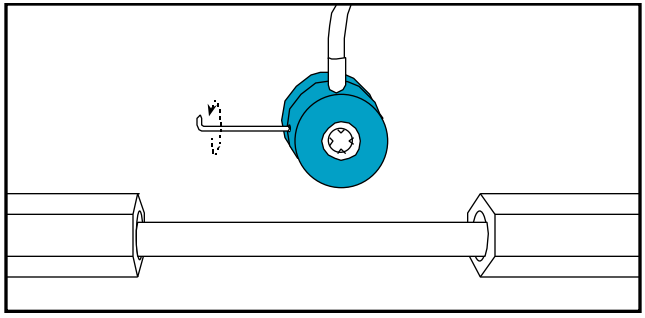
1. Remove the drum from the scanner.
2. In the OFF LINE state, press ▶ on the control panel until the TESTS function is displayed.
3. Press ENTER (■).
4. Press ▶ until the CARRIAGE option is displayed.
5. Press ▼ until the CARRIAGE STEP option is displayed.

6. Press ► to move the carriage far enough to the right to freely access the Fiber Optic Reflectance Illuminator (FORI). The FORI is attached to the analyzer lens.

7. Remove the FORI:

   - Insert the long end of the Allen wrench (located in the front of this user guide) into the small hole on the left side of the FORI and turn counterclockwise one revolution:

Figure 4–1
Loosening the FORI Allen Screw



   - Gently pull the FORI assembly off and place it into the scanner cavity.

8. Using only lens tissue and lens cleaner, wipe the surface of the lens. Use a can of clean compressed air to blow any remaining particles off the lens.

9. Reinstall the FORI:

   - Place the FORI over the lens with the attached cable slightly to the left of top center.

   - Tighten the Allen screw by turning it clockwise one revolution. Do not over-tighten.

10. Return the scanner to the READY TO SCAN state.

Replacing the Lamps

The scanner includes two identical tungsten halogen reflector lamps, one lamp for the reflective mode and one for the transparency mode. Each lamp is mounted in a mechanical assembly that ensures proper alignment when installed:

> WARNING! The lamps are hot during scanning. Wait at least five minutes after the lamps have been turned off before replacing them.

To replace a lamp assembly, follow these steps:

1. Turn the power switch off.
2. Unplug the power cord from the outlet.
3. Open the lamp access door on the top of the scanner.
4. Locate the desired lamp assembly, as shown in Figure 4-2.
5. Gently unplug the lamp connector from behind the bulb, as shown in Figure 4-3.

> Note: The reflective and transparency lamp assemblies are interchangeable; the connectors, however, are not.

Figure 4–2
Lamp Compartment

①–*Reflective Lamp*
②–*Transparency Lamp*

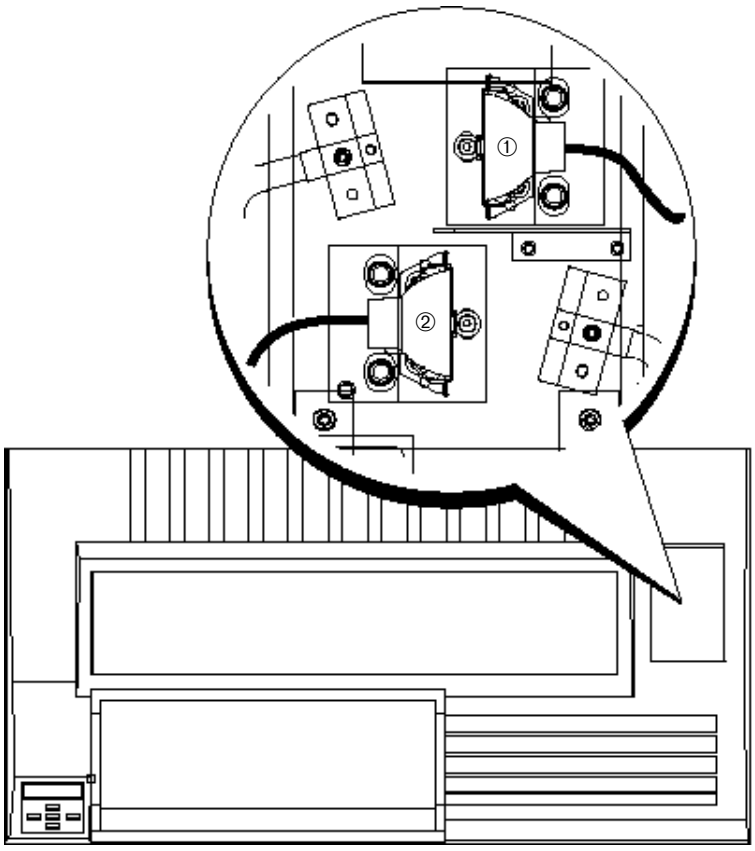
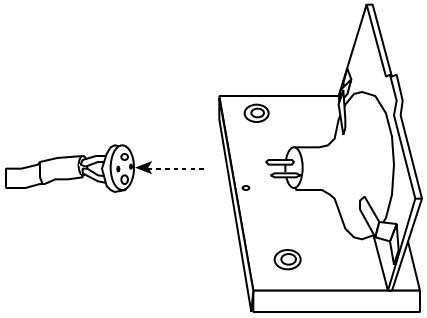
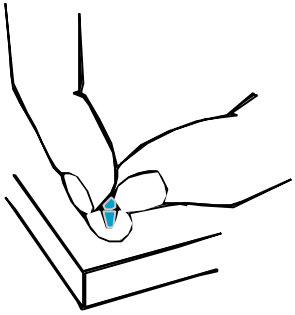


Figure 4–3
Unplugging a Lamp



6. Pull up on the two locking pins that hold the lamp assembly in place:

Figure 4–4
Lamp Locking Pin



7. Lift the lamp mount with bulb up and out of the scanner cavity.
8. Grasp the new lamp assembly by the base plate (DO NOT TOUCH THE LAMP WITH YOUR FINGERS) and place into position. When the assembly is in position, the alignment pins on the bottom of the base plate will click into place.
9. Press down on the two locking pins. Make sure the lamp assembly is securely in place.
10. Connect the lamp assembly to the proper electrical connector and close the drum access door.

Replacing the Drum Drive Belt

The drum drive belt connects the motor with the head-stock spindle. The belt should be replaced if it appears chipped or cracked or if you find pieces of rubber on the bottom of the scanner cavity.

To replace a belt, follow this procedure:

1. Remove the drum from the scanner.
2. Locate the drive belt on the left side of the carriage, attached to the head stock.
3. Pull the old belt off with your fingers.
4. Put the new belt on. No tools or tension adjustments are required.

Replacing the Drum Calibration Strip

The calibration strip should be replaced if it becomes scratched or visibly damaged. A damaged calibration strip can result in horizontal light or dark streaks across the scanned image. If the strip becomes dirty, it can be cleaned with drum cleaner.

CAUTION: The drum surface is fragile; be careful not to scratch it. Do not use hard instruments to remove the calibration strip or adhesive. Do not use any unauthorized cleaning materials.

To replace the calibration strip, follow this procedure:

1. Remove the drum from the scanner.
2. Peel off the old strip.
3. Remove any adhesive residue with drum cleaner.
4. Clean the entire area where the new strip will be mounted. Let the drum dry thoroughly. Make sure your hands are clean and dry before proceeding.
5. Mount the drum into the scanner.
6. Peel the adhesive backing off the new strip.
7. Roughly align the strip between the two red areas.
8. Place the strip on the drum such that the edge of the strip is against the axial scribe line.
9. Roll the strip onto the drum. Smooth out the strip with your fingers, making sure to remove any bubbles or wrinkles.

Lubricating the Leadscrew

The leadscrew drives the drum carriage and is located beneath it. Normal use of the scanner (approximately 30 scans per day) should not require additional leadscrew lubrication. However, differences in environmental conditions may require cleaning of the scanner, including the leadscrew. This requires re-application of lubricant. The recommended lubricant is Kluber Isoflex Topaz NCA-52.

To lubricate the leadscrew, follow these steps:

1. Power on the scanner.
2. Open the drum access door and remove the drum.
3. In the OFF LINE state, press ▶ on the control panel until the TESTS function is displayed.
4. Press ENTER (■).
5. Press ▶ until the CARRIAGE option is displayed.
6. Press ▼ until the CARRIAGE STEP option is displayed.
7. Press ▶ to move the carriage completely to the right until it stops.
8. Using a syringe, apply a small amount of lubricant to several sections of the screw.
9. Operate the scanner in the normal manner and the lubricant will be distributed evenly.
10. Clean excess lubricant from e screw.

5

Troubleshooting

The Howtek HiResolve 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 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.
- If you require further assistance after contacting your local dealer or sales representative, review the FAQs (Frequently Asked Questions) at the Howtek Web site:

  http://www.Howtek.com/Service_Graphic.html
- If you require further assistance, you may contact Howtek at:

  (603) 882-5200
  Monday through Friday, 8 a.m. to 5 p.m. EST

  You can expect a response with 2 hours.

Problem	Cause	Solution
The control panel display 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 on/off switch is in the ON position (the **I** is pushed in).*
	The AC power outlet is not "live".	*Verify proper operation of the outlet by plugging in a desk lamp.*
The control panel display is lit, but the scanning application cannot locate the scanner.	The scanner is OFFLINE.	*Return the scanner to the on-line (ready to scan) state. See Chapter 2 for more information.*
	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 are set to the same SCSI address.	*Check the device addresses in the chain for duplicate ID numbers. (Refer to Chapter 1 for more information.)*
	The SCSI devices have not been powered on in the correct sequence.	*Make sure the devices in the SCSI chain are turned on before or at the same time as the host computer.*
	Defective SCSI cable.	*Replace the cable.*

Problem	Cause	Solution
The scanned image is marred by specks or horizontal lines.	The original to be scanned is dirty.	*Clean the original.*
	There is tape or media in the calibration areas of the drum.	*Remove any tape or media that is obscuring the calibration areas on the drum; clean the areas if they are dirty.*
	The white calibration strip is damaged.	*Replace the calibration strip. Refer to Chapter 4.*
The scanned image is marred by vertical bands.	The drum is dirty.	*Clean the drum with drum cleaner.*
	The drum is not mounted securely.	*Reinstall the drum, making sure that the pulley and drum are aligned with the index marks. (Refer to page 2-1 for further information.)*
	The scanner table is vibrating.	*Secure the table or move the scanner to a stable surface.*
	Hardware failure	*Contact your dealer for assistance.*
The scanned image is too light (overexposed).	There is tape in the calibration areas of drum.	*Remove tape and clean drum surface.*
	The media is too thick.	*Replace with thinner original.*
	The drum is damaged.	*Replace drum.*

Problem	Cause	Solution
The scanned image is too dark.	The wrong lamp is selected.	*Make sure the reflective lamp has been selected if you are scanning a print or line art.* *Make sure the transmissive lamp has been selected if you are scanning a transparency.*
The scanned image is out of focus.	The scanner is not in the autofocus mode.	*Make sure autofocus has been selected, or refocus interactively (using Aurora software).*
	The analyzer lens is dirty.	*Clean the lens with rubbing alcohol and lens tissue (see Chapter 4).*
The scanned image is marred by Newton's Rings.	There are bands of interference caused by thin layer of air between the drum and the mounted transparency.	*Oil mount the transparency or apply anti-Newton's Ring spray.*

6

Transporting the HiResolve

Your HiResolve scanner may be shipped safely by following the simple preparations and procedures indicated 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 HiResolve

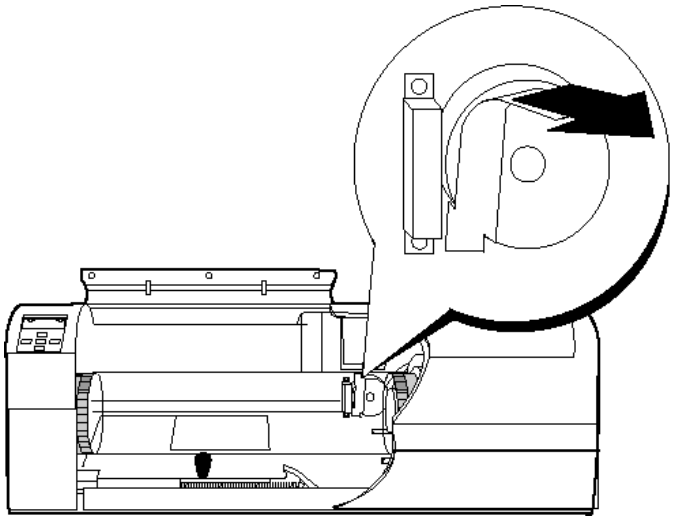
To pack up your scanner use the original shipping cartons, pallet, Allen wrench, shipping bolts, and packing materials.
If you no longer have the original cartons, replacements can be ordered from Howtek.

To pack up the HiResolve for shipping, follow these steps:

1. Remove the drum from the scanner.
2. Turn the scanner off by pressing the **O** side of the on/off switch.
3. Unplug the power cord from the AC outlet and disconnect it from the scanner.

4. Open the drum access door. Tape down the analyzer lens and the view port lever:

Figure 6–1
Tape Locations

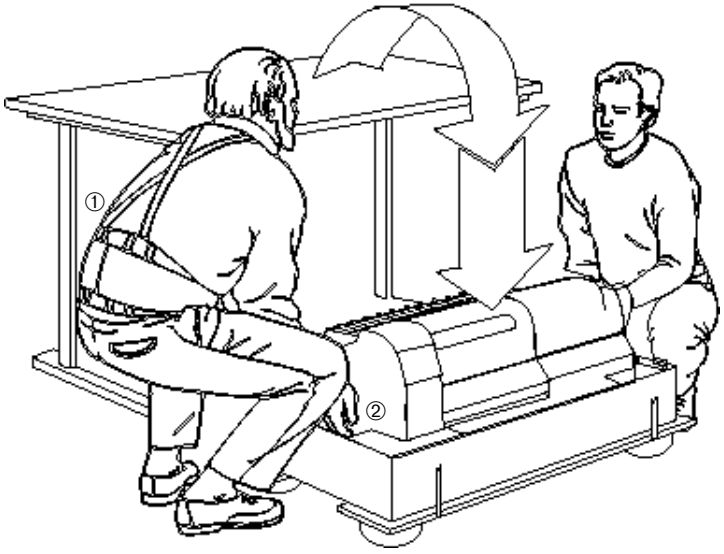


5. Close the drum access door and tape it closed.

6. Stand facing your helper with the scanner between you. Bending your knees to protect your back, carefully lift the scanner and place it in the pallet.

Figure 6–2
Placing the Scanner into the Pallet

①–Back Brace (highly recommended)
②–Hand Holds

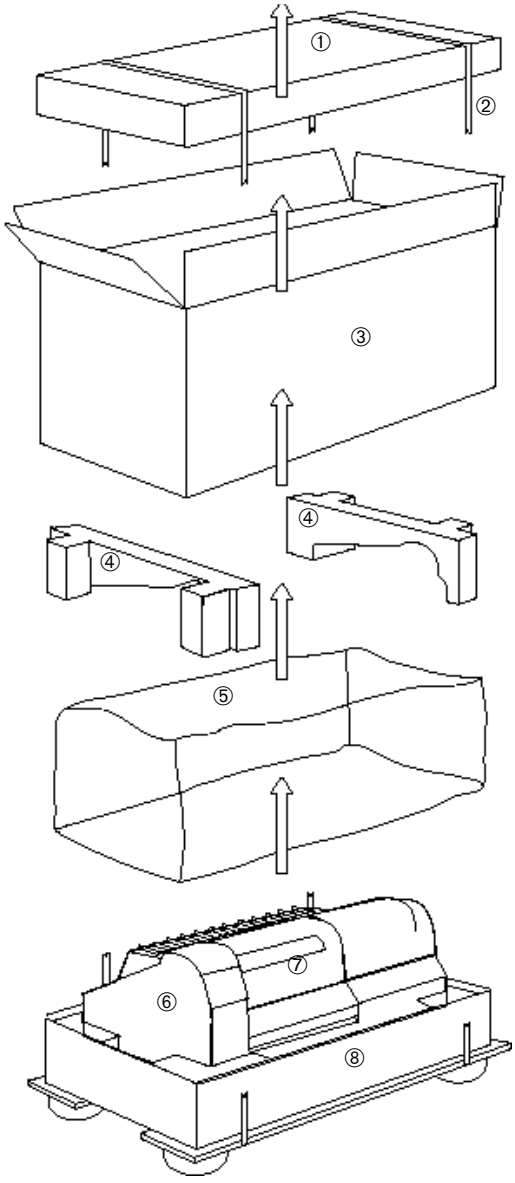


7. Cover the scanner with the poly bag and foam supports.

8. Place the cardboard box and cover over the scanner and strap the carton securely to the pallet:

Figure 6–3
Packing
the HiResolve

①–Cardboard Cover
②–Packing Straps
③–Cardboard Box
④–Foam Supports
⑤–Poly Bag
⑥–HiResolve scanner
⑦–Drum Access Door
⑧–Pallet



7

Technical Information

Physical Characteristics

Dimensions and Weight

	Scanner (without pallet)	Scanner (with pallet)
Width:	38.0" (95 cm)	46.0" (116.8 cm)
Height:	13.5" (25.8 cm)	24.0" (60.9 cm)
Depth:	20.3" (50.75 cm)	28.0" (71.1 cm)
Weight (max.):	103 lbs (46.7 kg)	160 lbs (86.4 kg)

Scanner Type

Interchangeable drum, photomultiplier tubes (PMT): RGB, grayscale, and black and white scanning system

Light Source

Two tungsten halogen reflector lamps

Color Separation

Three PMT sensors (red, green, blue) with dichroic beam splitters and interference filters

Focus Control

Automatic and manual controls

Interface

SCSI-2

Electrical Characteristics

Power Supply

90–132 VAC (47–63 Hz)
180–264 VAC (47–63 Hz)

Power Consumption

Maximum: 230 W (2 A)
Standby: 50 W

Environmental Requirements

Temperature

Operation: 60 to 90°F (15.5 to 32°C)
Shipping or storage: –30 to 160°F (–34 to 71°C)

Relative Humidity

Operation: 35–85%
Shipping or Storage: 10–95%

Scanning Characteristics

Spatial Resolution

User selectable from 200 to 8000 dpi

A/D Conversion

12 bits per color; 4096 levels of gray

Data Conversion

Linear and logarithmic

Drum Speed

460 to 1600 rpm

Effective Scanning Area

11.5" x 12" (292.1 x 304.8 mm)

Image Types

Reflective and transparent copy (positive and negative)

Scanning Modes

Color or grayscale (8 or 12 valid bits per pixel, giving 256 or 4096 colors or levels of gray) and binary (for line art or halftones)

Field Stops (Aperture)

17

Approvals

Safety

UL: 1950
cUL: C22.2 No. 950
UL: EN609050

Emissions

FCC part 15 Class A
CISPR 22 (EN55022) Class A

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