The HFA II-i is designed to meet the demands of your busy schedule, and because it plays an important part of patient care, you will want to keep it in top working condition.

This section focuses on the proper care of your instrument.
Care and Cleaning

General Use Principles

- The HFA II-i is designed for continuous operation. However, it should be turned off when not used for an extended period of time and covered with the dust cover.
- Avoid turning the instrument on and off repeatedly during the day to preserve the life of the bowl lamps.
- The HFA II-i should be used in a cool, dry and dust-free setting.
- Do NOT connect or disconnect cables while power is on.
- Do NOT place any container holding liquid near the instrument.
- Do NOT place objects on top of the instrument.
- Carl Zeiss Meditec recommends routine yearly service and maintenance on the HFA II-i by a qualified Carl Zeiss Meditec Field Service Engineer.

Cleaning the HFA II-i

Your HFA II-i should be kept clean and maintained for proper operation. Use the methods and cleaners in Table 15.1 below to clean the indicated surfaces. Clean as often as is necessary.

Table 15.1 How to Clean the HFA II-i

<table>
<thead>
<tr>
<th>Surface</th>
<th>Cleaner</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior Panels</td>
<td>Mild detergent or appliance cleaner or glass cleaner containing no ammonia.</td>
<td>Dampen a soft cloth with cleaner and gently wipe the surfaces. Never spray the cleaner directly on the exterior surfaces.</td>
</tr>
<tr>
<td>Bowl</td>
<td>Dust cloth</td>
<td>Remove accumulated dust from the bowl periodically. Wipe the bowl gently with a clean, dry, soft cotton cloth. Use downward strokes that move the dust toward the front edge of the bottom of the bowl, where there is a small opening around the base of the lens holder.</td>
</tr>
<tr>
<td></td>
<td>Distilled water</td>
<td>If dusting the bowl is inadequate, slightly moisten the cloth with distilled water. Whether using a dry or a dampened cloth, always avoid excessive rubbing in one area, as this can create shiny spots or wear through the specially painted surface of the bowl.</td>
</tr>
<tr>
<td></td>
<td>70% Isopropyl alcohol in H₂O (Rubbing alcohol)</td>
<td>For small spots on the bowl surface caused by sneezing or coughing during a test, slightly dampen a cotton-tipped applicator with isopropyl alcohol and gently remove the spot. It is best to wet the spot with the tip of the dampened swab first and let it soak briefly. Then, use the swab very gently to remove the deposit.</td>
</tr>
<tr>
<td>Touch Screen</td>
<td>Mild glass cleaner containing no ammonia.</td>
<td>Turn OFF the HFA before cleaning the touch screen. Wipe gently with a moistened cloth. Do not spray cleaner directly on the touch screen.</td>
</tr>
</tbody>
</table>
Care and Cleaning

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<td>Forehead &amp; Chin Rests</td>
<td>Mild detergent, alcohol wipes</td>
<td>After each patient, wipe gently using a dampened soft cloth.</td>
</tr>
<tr>
<td>Patient Response Button</td>
<td>Mild detergent, alcohol wipes</td>
<td>After each patient, wipe gently using a dampened soft cloth.</td>
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Note: Always be cautious to avoid scratching, discoloring, or staining the bowl surface. Prior to cleaning the bowl surface, remove all jewelry as it can permanently scratch or damage the painted surface. Be especially careful of long fingernails and fingernail polish contacting the bowl surface, as these can mark or damage the painted surface permanently.

Note: During any bowl cleaning process, be cautious to avoid getting either the distilled water or isopropyl alcohol cleaning liquid inside of the fixation target openings or on mirrored surfaces.

**Air Intake Filter**

To ensure proper cooling of the instrument, the air filter must be cleaned or replaced every three months (Part Number 2660100029381).

1. Locate the air filter cover underneath the overhang on the back of the instrument. Press firmly with your finger or thumb on the middle of the top surface of the cover, and push down and pull out to unlatch it. Tilt the air filter cover open on its hinges and remove the air filter from its two locating pins.

2. Clean or replace the air filter. For cleaning, you should shake the air filter a few times and flick it with a fingertip to dislodge trapped dust. *The filter may be rinsed with water, but make sure the filter is completely dry before Step 3.* If you wish to replace the air filter, call the Carl Zeiss Meditec Parts Department and order a “Fan Filter” (PN 2660100029381).

3. Return the clean and dry air filter to the locating pins in the air filter cover. Close and latch the air filter cover.

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Replacing Parts

Stimulus Projection Lamp

This lamp is responsible for projecting the standard light stimulus. With the aid of color filters, it is also used to create red and blue stimuli for color testing. If needed, you may order a new lamp by calling the Carl Zeiss Meditec Parts Department and asking for PN 2660021106082 (Projection Lamp).

1. Turn off the HFA II-i and lower the table. To remove the top access panel, rotate it counterclockwise until you align the lamp symbol on the cover with the raised dot that is molded into the top of the case. Standing in front of the bowl opening, you will find that the projection lamp is located inside the open case top, at the 12 o’clock position. Allow the lamp to cool completely (approximately five minutes) before handling it. Do NOT touch the two disk-shaped filters.

2. Remove the connector cable by pulling its connector straight upward. Then use a screwdriver to loosen the screw.

Figure 15.1 Close-up of Lamp Assembly, Indicating Cable Connector Removal
3 Now, slide the wishbone-shaped plate that holds the lamp assembly in place away from you.

4 Remove the old expended lamp assembly. Insert the replacement lamp into the housing. Note the notch in the base of the lamp housing lines up with the pin to the right of the assembly. Do NOT touch the glass part of the lamp with your fingers, as this will shorten the life expectancy of the lamp. If your finger touches the glass portion of the lamp, wipe the lamp clean with a soft cloth.

5 Slide plate back into position, tighten screw and replace connector cable.

6 To replace the top access panel, insert the panel into the opening. As you do so, align the lamp image on the lid with the raised dot on the underlying case. Rotate the panel clockwise until the lamp symbol aligns with the open-circle symbol.

**Background Illumination Lamps**

The lamps responsible for illuminating the bowl surface are a fluorescent type (not incandescent) and have a long life expectancy. If you get a bowl illumination error, darken the room and restart the instrument to see if this corrects the problem. If the bowl illumination error continues, do NOT attempt to replace the lamp. These highly specialized lamps are to be replaced only by a Carl Zeiss Meditec Field Service Engineer. Contact Carl Zeiss Meditec Customer Service to arrange for a service call.
**Patient Response Button**

Should the response button malfunction, disconnect it and replace it with a new response button. The Patient Button is PN 2660100029575 and it can be ordered from the Carl Zeiss Meditec Parts Department.

**Replacing Instrument Fuses**

1. Two fuses are located in the rear of the unit. Turn off power. Unplug the power cord.

2. Using a narrow-bladed screwdriver, gently pry open the cover to expose the fuse holders. Information about the proper replacement fuses is found adjacent to the fuse holder.

   ![](image1)

   **HFA II-/Series**
   (100-240V~)
   Fuse: T4A, 250V

3. Slide out each fuse holder (marked with an arrow) and check the filament for breakage. Dispose of any defective fuses.

4. Insert the new fuse(s) in the holder. Slide the holder back into the housing with white arrows pointing to the right. Push the cover up and in until it snaps closed. Plug in the power cord.

   ☞ Note: Actual fuse ratings may vary. Replace fuses with the same rating as the original fuse that was supplied with the HFA II-.
Power Table Fuses

There are fuses on the HFA II-/i power table located at the base of the lifting column. These fuses control power to the table itself and the instrument (assuming the instrument is plugged into the outlet under the table). Information on the replacement fuses and proper ratings are posted next to the fuse location described below.

![Underside of power supply]

**Figure 15.2  HFA II-i Power Table With Mounted Printer Showing Location of Fuses**

<table>
<thead>
<tr>
<th>100-120V~ Table</th>
<th>220-240V~ Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuse: T8A, 250V~</td>
<td>Fuse: T6.3A, 250V~</td>
</tr>
</tbody>
</table>

Note: Your actual fuse ratings may vary. Replace fuses with the same rating as the original fuse that was supplied with your table.

**WARNING:** Do not power the table using extension cords and do not use multiple portable socket outlets.
Replacing Power Table Fuses

1. Turn off the power. Unplug the power cord that is attached to the table at the base of the lifting column. Move the table away from the wall to access the back of the table.

2. Use needle-nose pliers or fingernails gently to slide the fuse drawer from its housing.


4. Replace the fuse drawer. Plug in the power cord.

Note: For continued protection against fire hazard, replace only with same type and rating of fuse.
Operating the Printrex Printer

The operating instructions for the Printrex Thermal Line printer are given below. When you see the red stripe appear on the printout, it is time to change the paper roll.

Note: If you are using an optional HP LaserJet or LaserJet-compatible printer, refer to the printer documentation for operating instructions.

Loading Paper

Loading paper is extremely simple because it does not have to be threaded or aligned.

1. Unlock the door of the printer by pressing on the open circles printed on the two latches at the lower corners of the door. Pull up on the latches to open the door.

2. Remove the paper roll holder from the printer and remove the paper roll bar from the holder. Slip the empty core off the bar.

3. Slip the paper roll bar through the core of the new paper roll and install the paper roll on the holder so the paper feeds from the top of the roll toward the front of the holder. Feed a few inches of paper from the roll so it will extend over the platen after insertion.

4. Insert the paper roll in the printer and close the door with the latches unlocked. Press on the solid circles printed on the door latches to lock them. The Paper Empty and Error lights should go out when the door is latched.

5. Tear off the extra paper. For best results, hold the paper up at a 45 degree angle and tear from the right or left.
**Controls and Indicators**

Figure 15.3 shows the Printrex printer control panel. It contains a push button switch (Paper Advance) and three indicators (Paper Empty, Error and Power).

To advance the paper, press the Paper Advance button. The button will have no effect if the printer is printing.

Whenever power is applied to the printer, the Power indicator is lit. The Paper Empty indicator will be lit when the printer is out of paper. The Error indicator flashes under certain conditions such as when the door is open or when there is no paper. The printer is ready to print provided the Power indicator is lit and the Error indicator is not flashing.

**About Thermal Paper**

Storage of thermal paper for the HFA II-i requires special care. Carl Zeiss Meditec recommends that you store your printouts in plain paper folders away from possible contact with water or any of these substances:

- Organic Solvents (including alcohol)
- Cleaning fluids
- Plasticizers such as cellophane tape or PVC film (plastic sleeves)
- Petroleum solvents (gasoline, toluene, or benzene)
- Wet-type diazo copy paper
- Certain types of carbon papers
- Cast coated papers
- Papers containing tributyl phosphate
- Dissimilar thermal systems
- Carbonless paper CB solvents (most)
• Ammonia
• Certain oils
• Water (for prolonged periods of time)
• Sunlight (for prolonged periods of time)

At present, one roll of thermal paper will yield approximately 120 printouts; one box of 6 rolls will yield roughly 720 printouts. Thermal paper may be ordered from Carl Zeiss Meditec Parts Department. The item Part Number for thermal paper is 2660100024433.

Hint: For thermal printouts of exam data that you wish to have a very long shelf life, make and file a photocopy of the printout, shortly after it is thermally printed.

**Touch Screen Calibration**

Maintaining proper calibration of the touch screen is critical. The touch screen is calibrated properly if the screen recognizes the location where your finger touches the screen and responds appropriately. For example, when accessing the Main Menu, if you select RECALL LAST TEST and the instrument responds as if you selected SHOW TEST LIBRARY, the touch screen is not calibrated correctly.

Note: In addition to the standard calibration method that follows below, there are two additional ways to re-calibrate the touch screen should you have difficulty getting to the TOUCH SCREEN CALIBRATION button on the Additional Setup Screen. These two alternative methods are presented here, following the standard calibration method.

**Standard Touch Screen Calibration**

The touch screen’s response may drift periodically. If errors occur, follow this standard procedure or one of the alternative methods that follow this section:

1. Go to the Main Menu and press the **SYSTEM SETUP** icon.

2. Press **ADDITIONAL SETUP**.

3. Press **TOUCH SCREEN CALIBRATION**.

4. Verify that you wish to calibrate the touch screen by selecting **CONTINUE**.

5. Follow any screen instructions. Using the eraser end of a pencil, touch the square in the upper left-hand corner of the screen, keeping the alignment of the pencil perpendicular to the screen.

6. When prompted, touch the square in the lower right-hand corner, again keeping the pencil perpendicular to the screen.

7. You will return to the Additional Setup screen. With your finger, touch the screen in several locations to determine whether it is calibrated properly.

8. If the touch screen response still is not accurate, re-calibrate by repeating steps 1 through 7.
Care and Cleaning

Alternative Touch Screen Calibration Method Number One

If you cannot press the SYSTEM SETUP icon on the Main Menu and you have an external keyboard attached, use the following steps:

1. Press the F6 key.

2. Press the external keyboard’s Tab key until the ADDITIONAL SETUP button is highlighted.

3. Press the Enter/Return key on the external keyboard. Again press the Tab key until TOUCH SCREEN CALIBRATION is highlighted.

4. Press the Enter/Return key again. Follow the instructions on the screen to continue the standard calibration method as described starting with Step 5 on page 15-11.

Alternative Touch Screen Calibration Method Number Two

The other method for touch screen calibration can be achieved when turning the HFA II-i power on.

1. If you continuously hold the patient response button down while the HFA II-i is powering up, the option to calibrate the touch screen will be displayed. Calibrate the screen in the standard calibration method as described starting with Step 5 on page 15-11.

Note: If you accidentally get the touch screen calibration screen while starting up the HFA II-i, you can continue the regular start up by cancelling out of the calibration mode. This situation occasionally occurs when the patient response button is pressed down continuously because of the way it was placed in its holder. Always make sure that the response button is not compressed when it is placed in the holder.

Using Removable USB Storage Devices and Floppy Disks

All HFA II-i models can use removable USB storage devices and 1.44 MB 3.5” high density floppy disks with an optional USB floppy disk drive. See “Removable USB Storage Devices and USB Floppy Drives,” on page 1-26.

To ensure the integrity of the data, learn how to care for and handle these removable media properly. The information on removable media can be destroyed by static electricity and strong electromagnets. Typical sources of magnetic fields include telephones, fluorescent desk lamps, magnetic desk accessories and other electrical appliances.

• Keep your removable media at least 5 feet from these sources of magnetic fields.
• Do NOT touch the recording surface of a floppy disk.
• Remember to label removable media for easy identification. Be careful to not let the label adhere to the sliding cover of a floppy disk.
• Store floppy disks in their protective folders and in the original boxes supplied by the manufacturer or in any filing system designed for the disks.
• Do NOT store floppy disks on top of the HFA II-i.
WARNING: Never turn off the HFA II-i or remove a USB storage device or USB floppy disk drive while the hard drive or USB device is reading or writing data. Wait for the HFA progress bar to complete and/or the USB device’s activity light to cease. This may cause permanent loss of valuable data.

Using the Optional USB Floppy Disk Drive

Insert the USB cable connected to a USB floppy disk drive into any USB port on the HFA II-i. To insert a disk in the drive, first take it out of its protective case. Hold the disk so the arrow is aimed at the drive and insert it completely into the drive.

To remove a disk from a USB floppy disk drive, press the ejector button. Never remove the disk:

- When the indicator light is on.
- If the drive is running and the disk is moving.
- If the padlock is visible over the disk drive image in the upper-right corner of the screen (see Figure 2.1).

Note: Use only 1.44 MB double-sided high density (HD) disks.

How often you need to clean a USB floppy disk drive depends on how frequently you use it. One suggestion is to clean the drive at least once every six months. Head cleaning kits for floppy drives may be purchased from electronic or computer stores.