Occlusion Mode Power Settings

You can set different power levels when the phaco tip occludes.

When you are in Occlusion mode phaco, there is an additional control panel for power.

Figure 5.18 – Phaco Surgical Screen with Occlusion Mode Power Settings

1. **WHITESTAR** Technology with Pulse Shaping with **ELLIPS FX** Technology
2. **WHITESTAR** Technology without Pulse Shaping

To adjust the occluded power delivery:

Note: Nonzero start parameters are the same for unoccluded and occluded settings. When the current value reaches the occlusion threshold then the system uses the occlusion settings. You cannot set the nonzero start value higher than the occlusion threshold.

1. In Occlusion Mode phaco, press the **up** or **down** arrows to increase or decrease the occluded power level.
2. Press the **Settings** button.
3. Press to change other power settings. A **Power Setting**s screen opens.
4. Press the buttons on the left of the **Power Settings** screen to select a power type.
5. Press the **On** button to engage **WHITESTAR** Technology.
6. Press **Finished** to close the screen.

Venting an Occlusion

When there is a blockage or an occlusion to the aspiration port by some tissue or other material, the vacuum pressure builds up. The aspiration flow system vents to the bottle when you release the foot pedal. Another choice is that you can release the foot pedal to position 1 and that causes the aspiration system fluid to vent using pump rotation. This is used with the OPO70 **FUSION** Pack. The OPO71 **FUSION** Dual Pump Pack uses a pump mechanism.

These methods release the material at the aspiration port and gives you full control if the tip accidentally grabs the capsule or iris. The internal fluidic system maintains the desired vacuum level when you hold the foot pedal at a constant position. The two adjustments associated with aspiration flow are **Max Vac** and **Max Flow**.

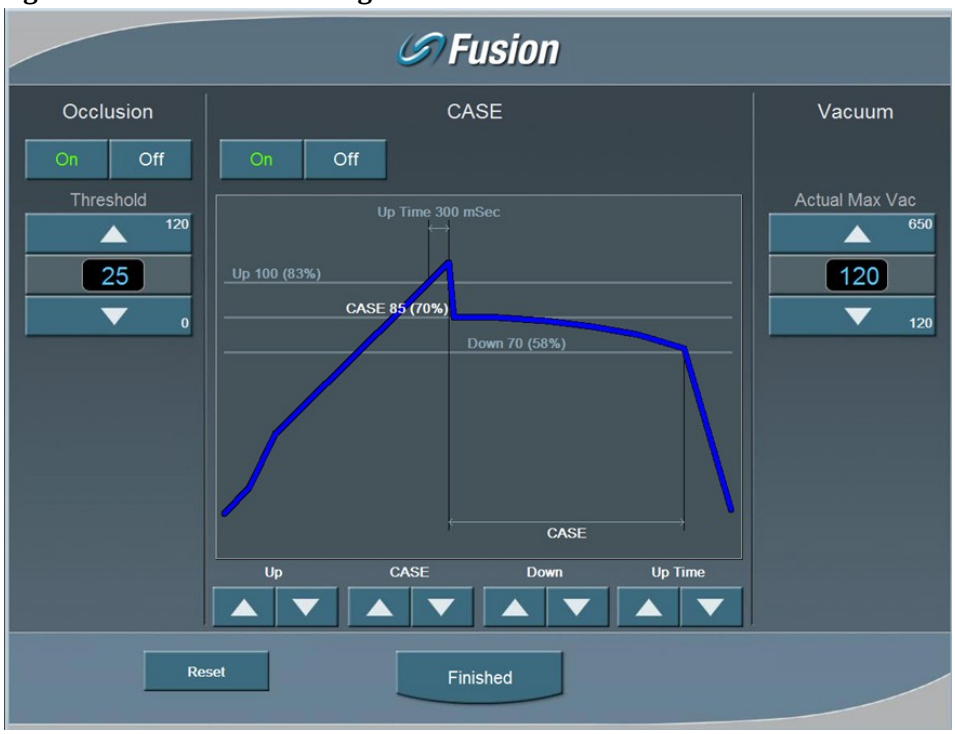
CASE Mode

CASE maintains a stable chamber by detecting an impending occlusion break, and reducing the vacuum before occlusion surge can occur. When the system detects the occlusion, the system waits long enough to allow you to grasp the particle firmly, and then reduces the vacuum to a lower level that allows the occlusion to clear safely. When you clear the occlusion, the vacuum returns to the previous vacuum level.

To access CASE settings:

1. Press the **Settings** button.
2. On the **Settings** screen, press the **FUSION** button ( ).

Figure 5.19 – FUSION Settings Screen



3. On the **FUSION** screen, press the **On** button to turn CASE mode on.
   Note: If the Venturi pump option is on, you cannot access the **FUSION** Fluidics screen. There is no **Occlusion mode phaco** or **CASE** mode with Venturi.

4. The **FUSION** screen shows the CASE settings as a graph. Use the **up** and **down** arrows at the bottom of the screen to adjust the:
   - **Upper Threshold (Up)** – This is the maximum threshold vacuum setting. You define the amount for the upper threshold by the up time threshold setting.
   - **CASE Vacuum (CASE)** – This is the optimum occlusion vacuum setting
   - **Lower Threshold (Down)** – After the occlusion clears, the vacuum level drops to the lower vacuum threshold setting to allow the occlusion to safely clear, and then gradually returns to the previous levels.

   Note: You cannot set the nonzero start value higher than the CASE up threshold or the CASE vacuum setting. You cannot set the nonzero start value higher than the CASE down threshold. When the current vacuum level reaches the CASE threshold, the system uses the CASE settings. When the current vacuum level goes below the CASE down threshold, the system uses the nonzero start settings as long as the system is also out of CASE mode.

   - **Up Time** – Use the **up** and **down** arrows to change the up time threshold. The up time threshold is the maximum time that the system maintains the maximum threshold vacuum.

5. Press **Finished** to close the screen

CASE One Touch

To simplify the programming of the CASE function, you only need to define the basic CASE parameters once. You can adjust the CASE function quickly and easily from the CASE One Touch settings on the surgical screen. Use these controls to change the CASE functionality for greater efficiency (**up** arrow) or more control (**down** arrow) to suit any particular combination of cataract density, surgical technique, or personal preference.

When CASE is **On**, use the **One Touch** buttons to adjust the CASE parameters.

Figure 5.20 – CASE One Touch

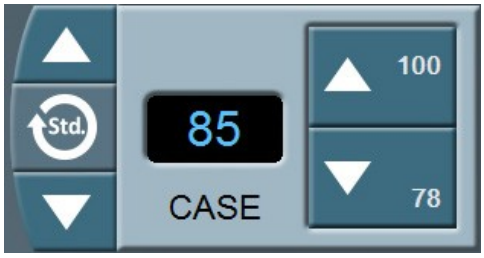


Table 5.7 – CASE One Touch Parameter Settings

Parameter	CASE -2	CASE -1	CASE STD	CASE +1	CASE +2
Pump Ramp Setting	Program default	Program default	Program default	CASE STD +10%	CASE STD +20%
CASE Occlusion Delay	CASE STD -200 ms	CASE STD -100 ms	Program default	CASE STD +100 ms	CASE STD +200 ms
CASE Upper Threshold	CASE STD -5%	Program default	Program default	Program default	CASE STD +5%

Passive Reflux

Moving the foot pedal to position one or zero vents any excess vacuum You can select how venting works by setting the **Passive Reflux** feature. Enabling **Passive Reflux** provides a small amount of positive pressure to gently push the particle away from the tip. Disabling **Passive Reflux** gently releases the particle while keeping the particle at or near the tip. The system default is enabled.

1. Select **Surgeons and Programs**.
2. Select the surgeon and program.
3. Press the **Settings** button.
4. Select the applicable operating mode and submode.
5. Select the **Passive Reflux** box to enable or disable.

Reflux

Reflux is the controlled back flow of fluid through the aspiration port of the handpiece. Reflux is used to gently release or dislodge unwanted material from the handpiece tip. Reflux can also be used to "tent" the incision site to allow easier tip insertion. Reflux pressure depends on bottle head pressure (IV pole height and gravity) for the **FUSION** Pack (OPO70), and as such, is not intended to clear a clogged handpiece. However, reflux can be used to identify a blockage.

The reflux action can be programmed on any available foot pedal switch. This causes fluid to be expelled from the aspiration line into or towards the eye.

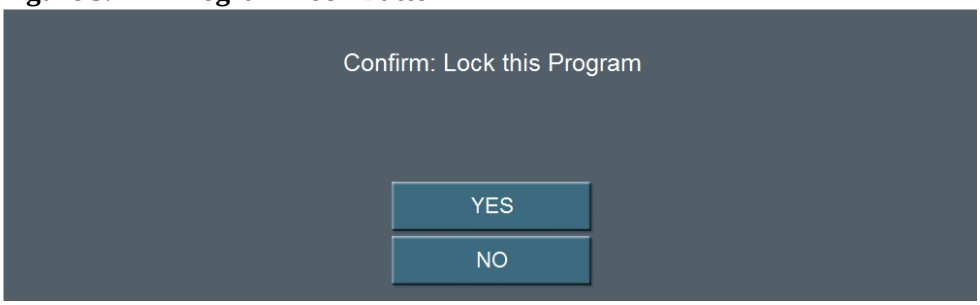
The reflux is active until the foot pedal switch is released.

Lock a Program

Press the to lock the program.

Note: Once you lock a program you cannot unlock the program. You cannot edit a locked program.

Figure 5.21 – Program Lock Button



Copy a Surgeon Program

You can copy the settings of one surgeon program for use by another surgeon. To copy a surgeon program:

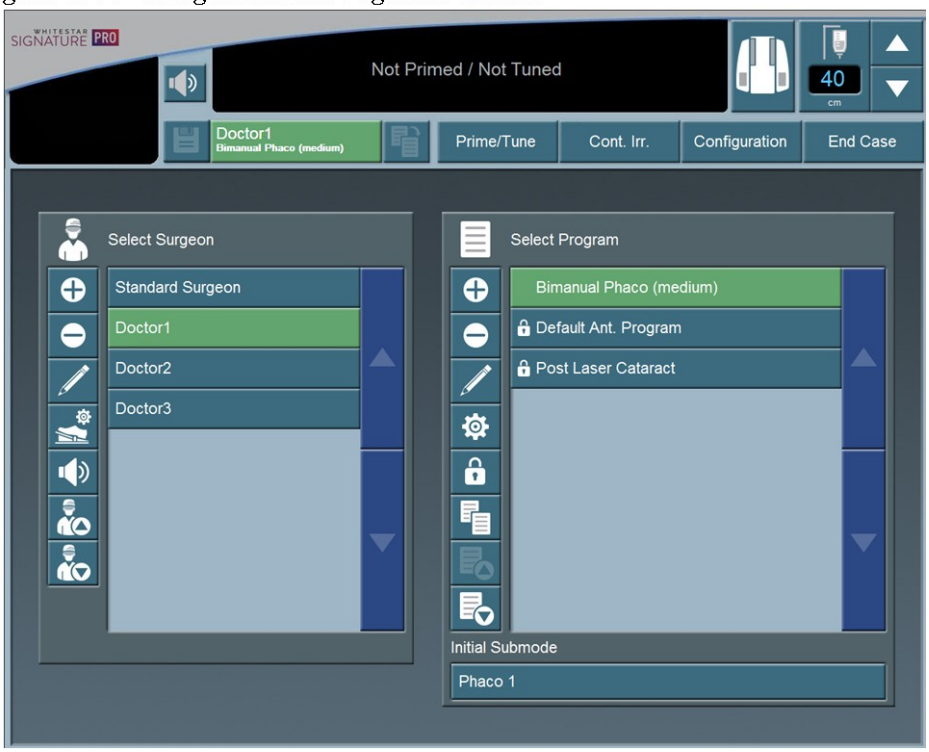
1. Select a program name on the list.
2. Press  .
3. Select a surgeon and program from the **Copy Program** list.
4. Press **Enter**.
5. Press  if you need to edit the name of the program.

Program – Assign Order

1. Select a program.
2. Use  or  to move the program names up or down on the **Surgeons and Programs** screen.

   Note: **Assign Program Order** is also used to select your preferred program. By moving a program to the top of the list, that program becomes your default or preferred program.

Figure 5.22 – Surgeons and Programs Screen



6 SYSTEM CONFIGURATION

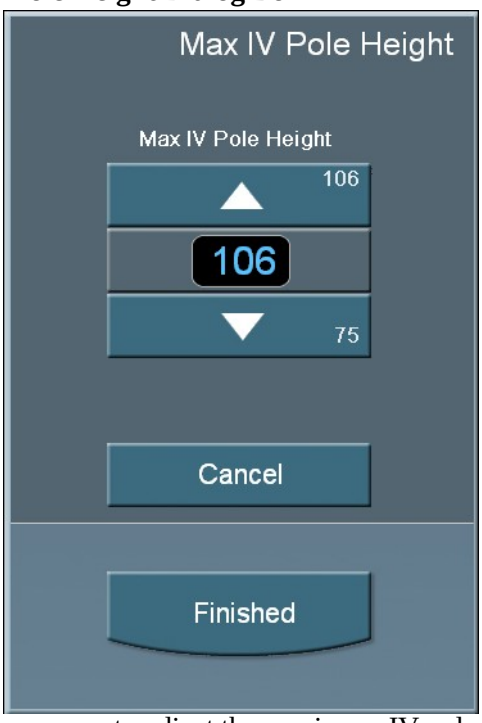
Setting the Maximum IV Pole Height

Follow these steps to set the maximum IV pole height.

Note: The Configuration screen is only available when you are not in a case. If you need to access the Configuration screens you must select **End Case**, select **Next Case**, then press the **Configuration** button.

1. Press **Configuration**.
2. Press the **Max IV Pole Height** button.

Figure 6.1 – Max IV Pole Height Dialog Box



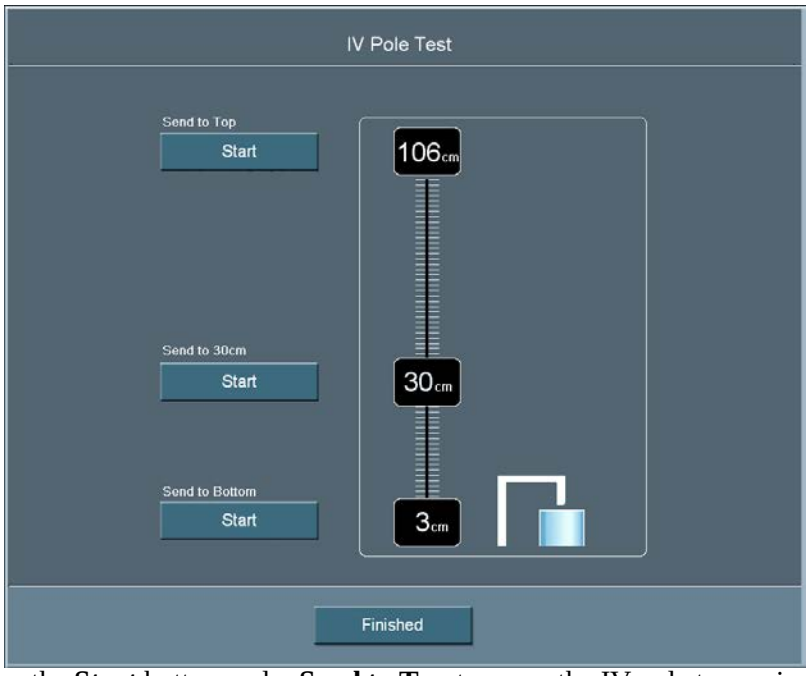
3. Use the **up** or **down** arrow to adjust the maximum IV pole height. You can set the maximum IV pole height in the range 75 cm to 106 cm. You can also press the numeric value shown to open a numeric keypad screen to enter the exact value to use.
4. Press the **Finished** button to return to the Configuration screen.
5. Press **Exit** to close the **Configuration** screen.

Testing the IV Pole

Follow these steps to test the IV pole.

1. Press **Configuration**.
2. Press the **IV Pole Test** button.

Figure 6.2 – IV Pole Test

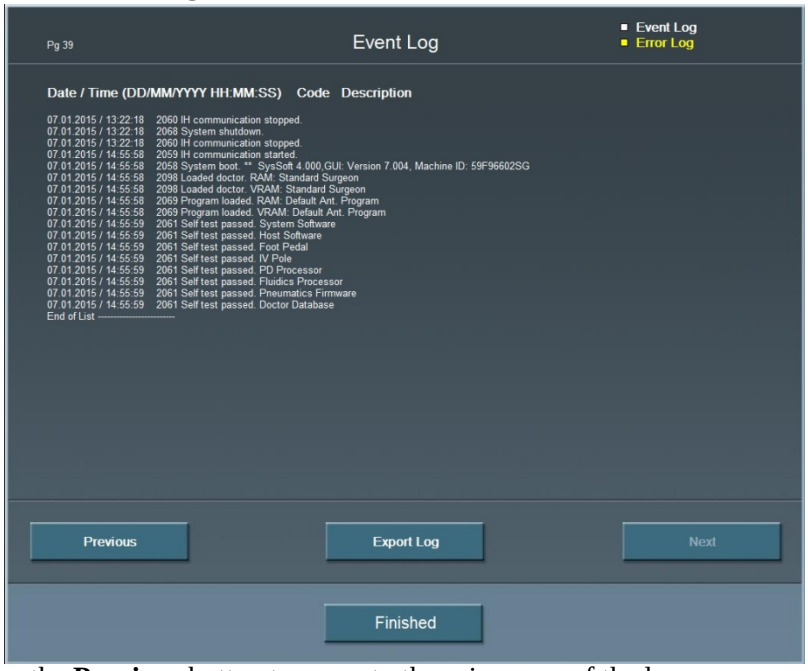


3. Press the **Start** button under **Send to Top** to move the IV pole to maximum height.
4. Press the **Start** button under **Send to 30 cm** to move the IV pole to a height of 30 cm.
5. Press the **Start** button under **Send to Bottom** to move the IV pole to minimum height.
6. Press **Finished** to close the IV Pole Test dialog box and return to the **Configuration** screen.
7. Press **Exit** to close the **Configuration** screen.

Event Log

1. Press **Configuration**.
2. Press the **Event Log** button.

Figure 6.3 – Event Log Screen



3. Press the **Previous** button to move to the prior page of the log.
4. Press the **Next** to move to the next page of the log.
5. Press the **Export Log** button to save the log file to an external USB device.
6. Press **Finished** to close the Event Log dialog box and return to the **Configuration** screen.
7. Press **Exit** to close the **Configuration** screen.

Wireless Setup - Foot Pedal and Remote Control

Pairing

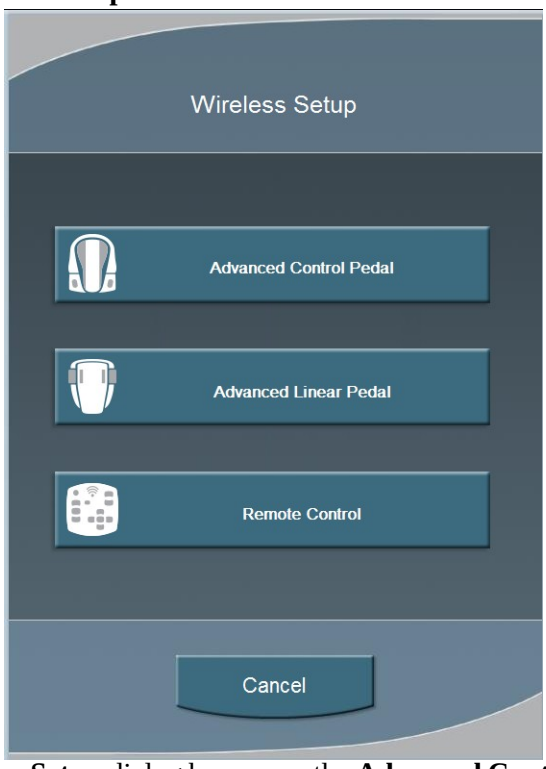
Foot Pedal - Advanced Control Pedal

Follow these steps to pair the Advanced Control Pedal to the system with a wireless BLUETOOTH connection.

Wireless Pairing

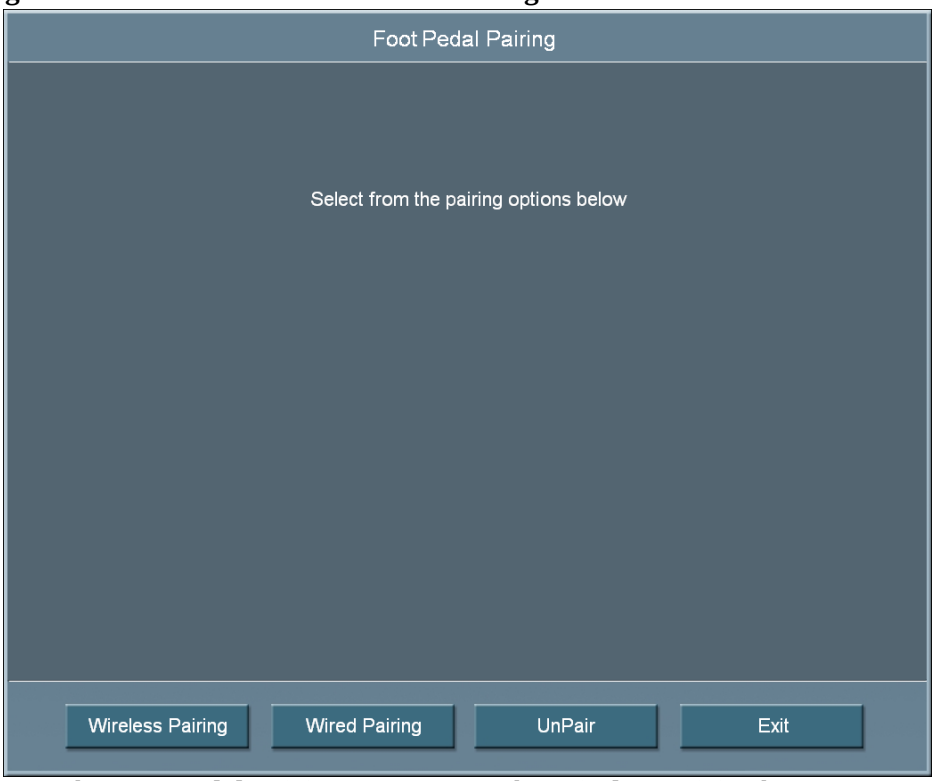
1. On the main screen, press **Configuration**.
2. Press **Wireless Setup**.

Figure 6.4 – Wireless Setup Screen



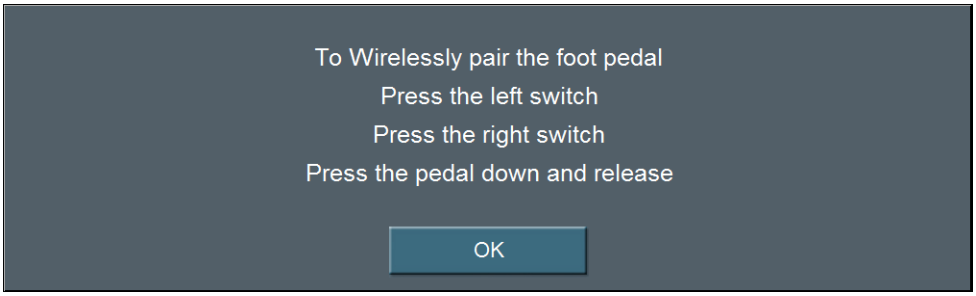
3. On the **Wireless Setup** dialog box, press the **Advanced Control Pedal** button.

Figure 6.5 – Advanced Control Pedal Pairing Screen



4. On the **Foot Pedal Pairing** screen, press the **Wireless Pairing** button.
5. Remove the cable from the foot pedal and select **OK**.
6. Follow the instructions on the screen.

Figure 6.6 – Wireless Pairing Instructions



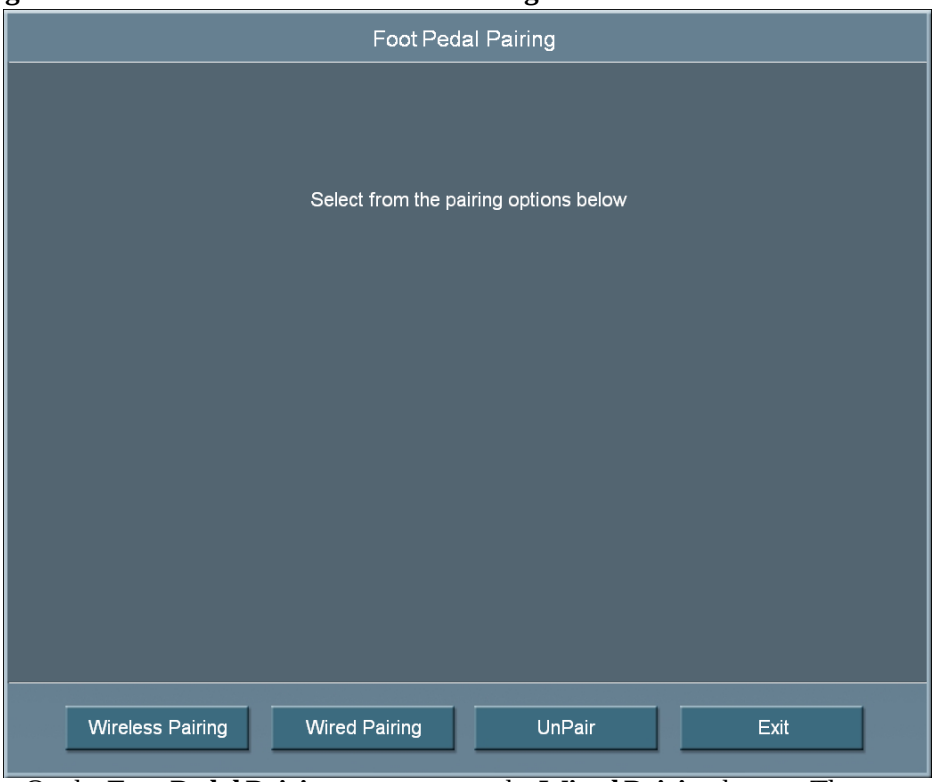
7. The system communicates the appropriate data to the foot pedal. The system shows a progress screen during the pairing process.

8. When pairing completes, the progress screen closes and the system displays the message **The foot pedal is now paired with the system.**
   - If the blue light is on, the wireless foot pedal is paired.
   - If the blue light is blinking the wireless foot pedal is not paired.
   - If the green light is on, the batteries in the foot pedal are charged.
   - If the green light is blinking, the batteries in the wireless foot pedal need to be charged. See “Charging Options for Wireless Devices” on page 8-5.
9. Test the foot pedal or press **Finished** to close the test screen.
10. Press **Exit** to close the **Configuration** screen.

Wired Pairing

1. On the main screen, press **Configuration**.
2. Press **Wireless Setup**.
3. On the **Wireless Setup** dialog box, press the **Advanced Control Pedal** button.

Figure 6.7 – Advanced Control Pedal Pairing Screen



4. On the **Foot Pedal Pairing** screen, press the **Wired Pairing** button. The system displays the message **Make sure that the cable is attached to the foot pedal**.
5. Press the **OK** button.
6. The system communicates the appropriate data to the foot pedal. When the system receives the appropriate data back from the foot pedal the system displays the message **Remove the cable from the foot pedal**. The system shows a progress screen during the pairing process.

7. When pairing completes, the progress screen closes and the system displays the message **The foot pedal is now paired with the system.**
8. Test the foot pedal or press **Finished** to close the test screen.
9. Press **Exit** to close the **Configuration** screen.

Foot Pedal - Advanced Linear Pedal

Figure 6.8 – Advanced Linear Pedal Pairing Screen

1. On the main screen, press **Configuration**.
2. Press **Wireless Setup**.
3. Press the **Advanced Linear Pedal** button.
4. Follow the instructions on the screen.
5. Press **Pair**.
   - If the blue light is on, the wireless foot pedal is paired.
   - If the blue light is blinking (fast) the wireless foot pedal is searching for a connection.
   - If the blue light is blinking (slow) the wireless foot pedal is not paired.
   - If the green light is on, the batteries in the foot pedal are charged.
   - If the green light is blinking, the batteries in the wireless foot pedal are charging.
   - If the amber light is on, the batteries in the foot pedal need charging. See “Charging Options for Wireless Devices” on page 8-5.

6. When pairing completes, the progress screen closes and the system displays the message **The foot pedal is now paired with the system.**
7. Test the foot pedal or press **Finished** to close the test screen.
8. Press **Exit** to close the **Configuration** screen.

Remote Control Pairing

Note: Make sure that the **back light** feature for the wireless remote control is off before you start the wireless setup process.

1. On the main screen, press **Configuration**.
2. On the **Wireless Setup** dialog box, press **Remote Contro**l.
3. Press **Remote Pair**.

Figure 6.9 – Wireless Remote Pair Screen

4. Follow the instructions shown on the screen.
5. Press the corresponding buttons on the wireless remote control as prompted.
6. Verify for each button that the corresponding button on the screen lights. If the button does not light on the screen, the test fails. If the test fails contact AMO for technical service. If remote pairing fails, follow the instructions on the screen.
7. Press **Exit** to close the screen.
8. Press **Exit** to close the **Configuration** screen.

Wireless Remote Test

1. On the main screen, press **Configuration**.
2. Press **Wireless Remote Test**.
3. Follow the instructions on the screen.
4. Press **Finished** to close the dialog box.
5. Press **Exit** to close the **Configuration** screen.

Touch Screen Calibration

You must calibrate the system touch screen as part of the system setup. Follow these steps to calibrate the touch screen.

1. On the main screen, press **Configuration**.
2. Press **Touch Screen Calibration**.

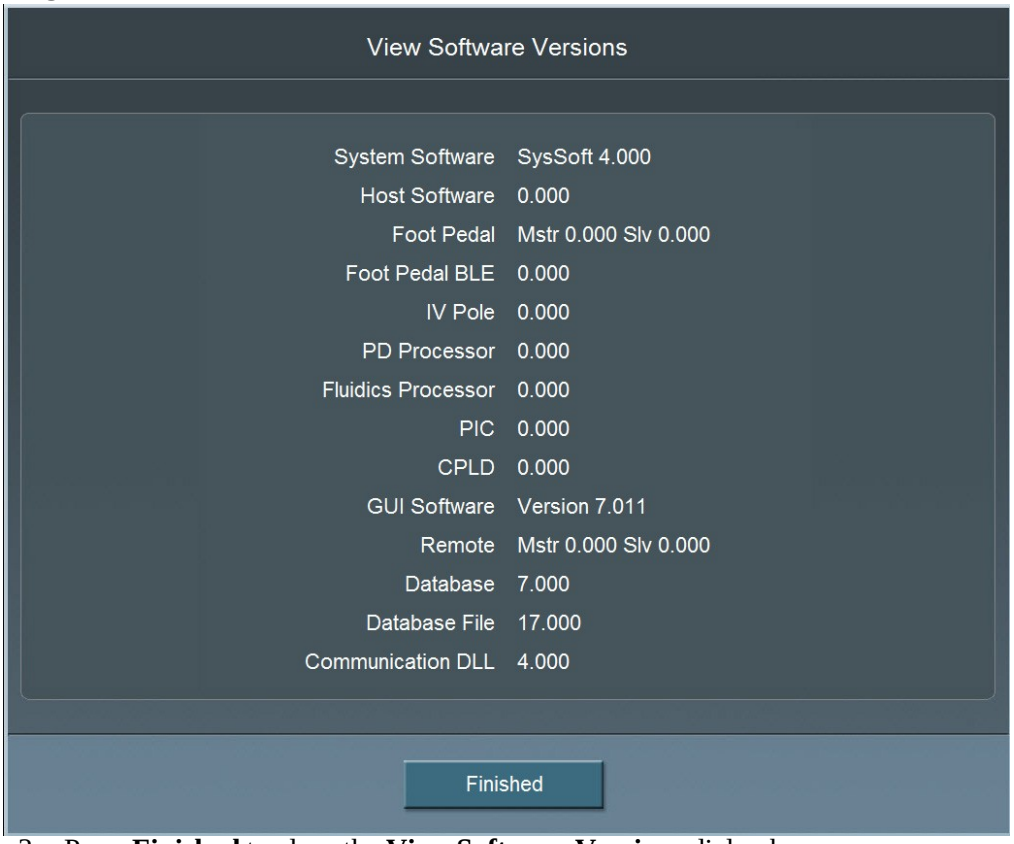
Figure 6.10 – Touch Screen Target Circle

3. Press the arrow on the screen. When released, the arrow moves to the next calibration point.
4. Repeat for all the calibration points.
5. Press **Confirm** at the completion of the calibration process.

View Software Versions

1. On the main screen, press **Configuration**.
2. Press **View Software Versions.**

Figure 6.11 – View Software Versions Screen

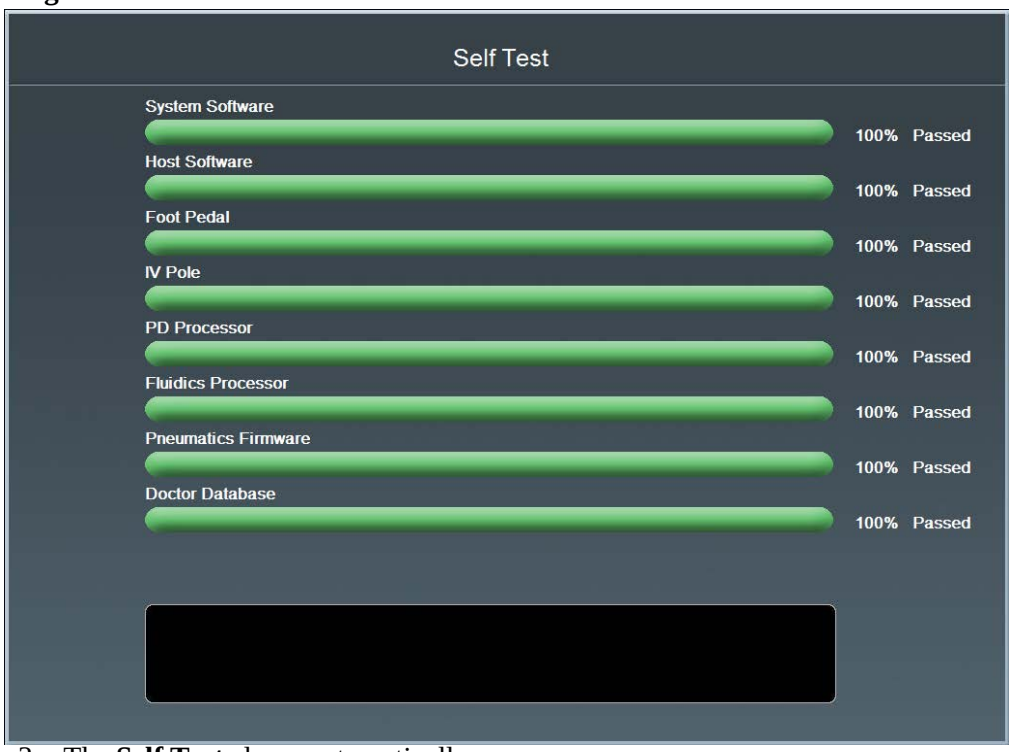


3. Press **Finished** to close the **View Software Versions** dialog box.
4. Press **Exit** to close the **Configuration** screen.

System Self Test

1. On the main screen, press **Configuration**.
2. Press **Self Test.**

Figure 6.12 – Self Test Screen



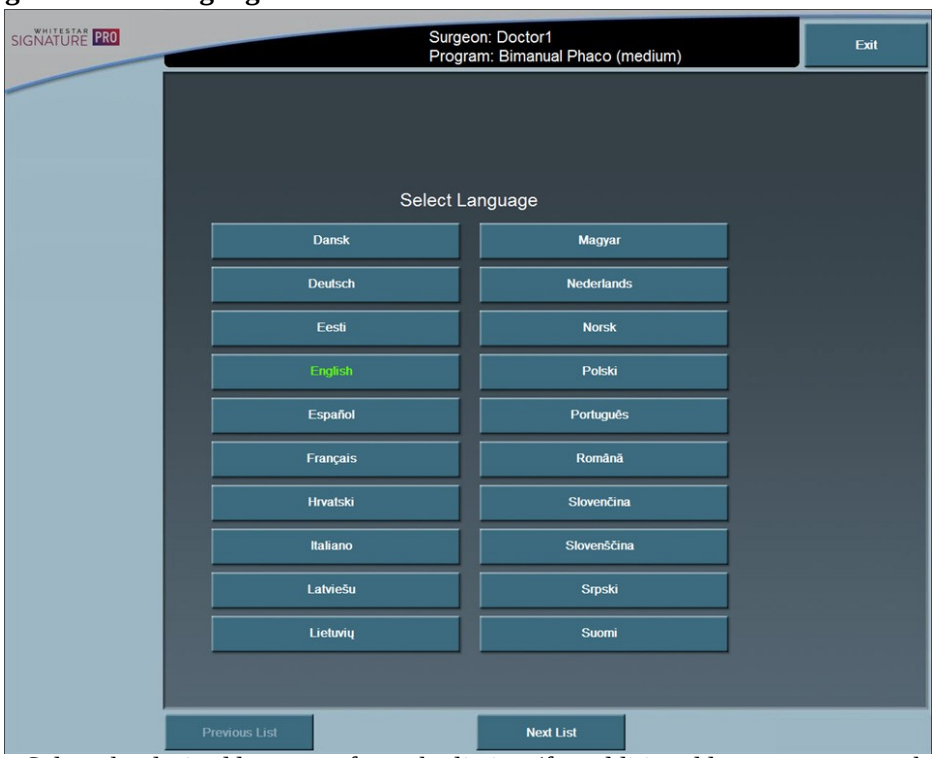
3. The **Self Test** closes automatically.
4. Press **Exit** to close the **Configuration** screen.

Language Selection

The system features a 31-language user interface. Before you proceed, select one of the languages for your display screen. (English is the default language).

1. On the main screen, press **Configuration**.
2. Press **Language.**

Figure 6.13 – Language Screen



3. Select the desired language from the listing (for additional languages, press the **Next List** button).
4. Press **Yes** at the confirmation pop-up. The screen automatically changes to the selected language.
5. Press **Exit** to close the **Language** screen.
6. Press **Exit** to close the **Configuration** screen.

Note: If you press the screen under the letter A in the **WHITESTAR SIGNATURE PRO** logo 20 times, the system changes to the default language (English).

Surgical Media Center (SMC) (Optional)

The Surgical Media Center (SMC) is used to integrate and record the video image from the surgical microscope and the surgical operating data to be viewed at a later date and time. The surgery displays on a separate monitor with the instrument settings. The SMC hardware is attached to the communications port on the rear panel. (Figure 4.6 – Rear Panel Connections.)

Follow these steps to configure the Surgical Media Center.

1. Press **Configuration**.
2. Press **SMC**.

Figure 6.14 – Surgical Media Center (SMC) Dialog Box

3. The system displays an **SMC** dialog box. Press the appropriate button to choose one of the three options. You can choose from:

   Off - The surgical media center function is disabled.

   On - The surgical media center function records continuously, even between cases

   Automatic - The **SMC** function records only during cases, not between them

   Note: A foot pedal switch can be set up to activate the surgical media center record function.

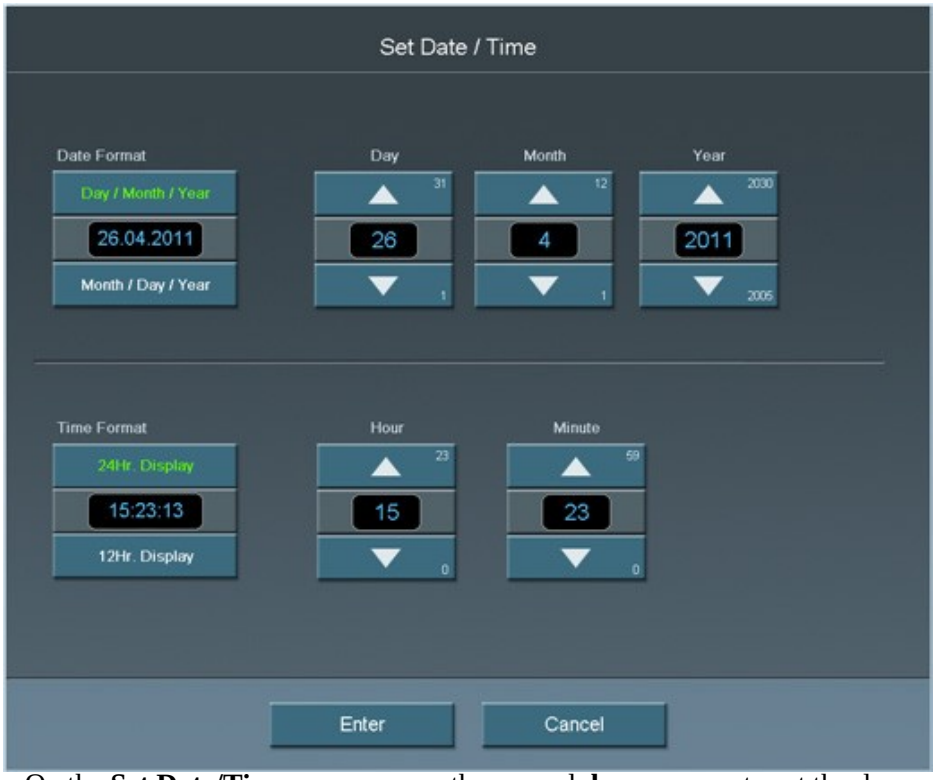
4. Press **Finished** to accept the change and close the **SMC** dialog box.
5. Press **Exit** to close the **Configuration** screen.

Set the System Date and Time

Follow these steps to set the system date and time.

1. Press **Configuration**.
2. Press the **Set Date/Time** button.

Figure 6.15 – Set Date/Time Dialog Box



3. On the **Set Date/Time** screen, press the **up** and **down** arrows to set the day, month, year, hour, and minute.
4. You can change the way the date is displayed.

   Press the **Day/Month/Year** button to display the date in that format; for example, the date December 21, 2011 would be displayed as 21.12.2011.

   Press the **Month/Day/Year** button to display the date in that format; for example, the date December 21, 2011 would be displayed as 12.21.2011

5. You can change the way the time of day is displayed.

   Press the **24Hr. Display** button to display the time of day in 24-hour format; for example, 2:45:43 PM would be displayed as 14:45:43.

   Press the **12Hr. Display** button to display the time of day in 12-hour format; for example, 2:45:43 PM would be displayed as 2:45:43 PM.

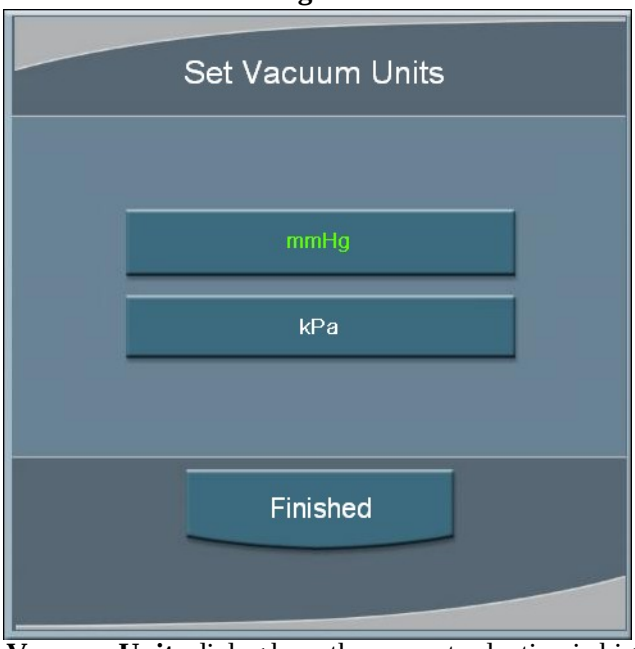
6. Press **Enter** to return to the Configuration screen.
7. Press **Exit** to close the Configuration screen.

Set Units of Measure for Vacuum

Follow these steps to set the units of measure for vacuum.

1. Press **Configuration**.
2. Press the **Set Vacuum Units** button.

Figure 6.16 – Set Vacuum Units Dialog Box

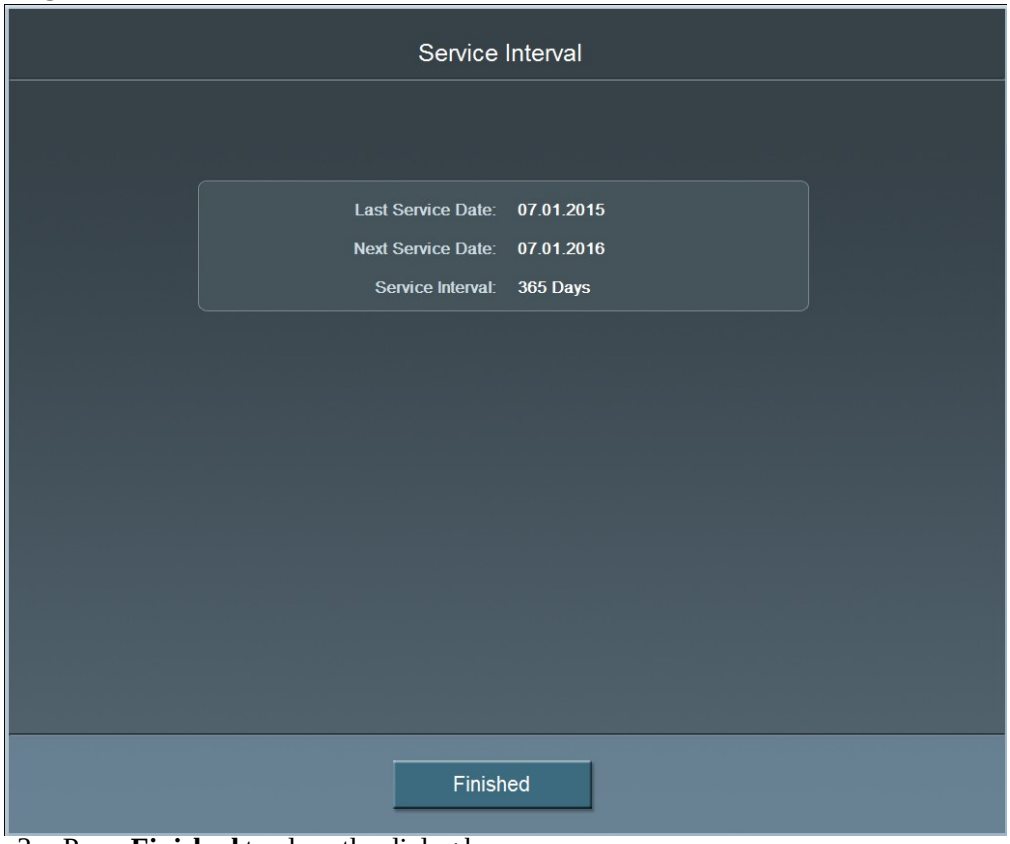


3. On the **Set Vacuum Units** dialog box, the current selection is highlighted in green. Press the button for the units of measure you want to use for the display of vacuum settings.
4. Press **Finished** to return to the **Configuration** screen
5. Press **Exit** to close the **Configuration** screen.

Service Interval

1. On the main screen, press **Configuration**.
2. Press **Service Interval.**

Figure 6.17 – Service Interval Screen



3. Press **Finished** to close the dialog box.
4. Press **Exit** to close the **Configuration** screen.

Import/Export Database

Export

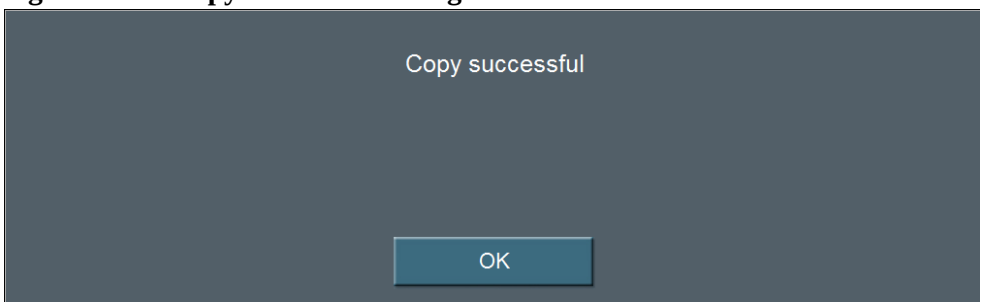
1. From **Configuration**, press **Import/Export Database**.

   Note: Make sure that you place the USB device into the USB port on the back of the system.

Figure 6.18 – Export Database Screen

2. Press the **Export** button.
3. Select a file to export from the list or use the **Select All** to export all of the files listed.
4. Press the **Copy Programs** button.
5. Press **OK** to close the screen.
6. Press **Exit** to close the Configuration screen.

Figure 6.19 – Copy Successful Dialog Box

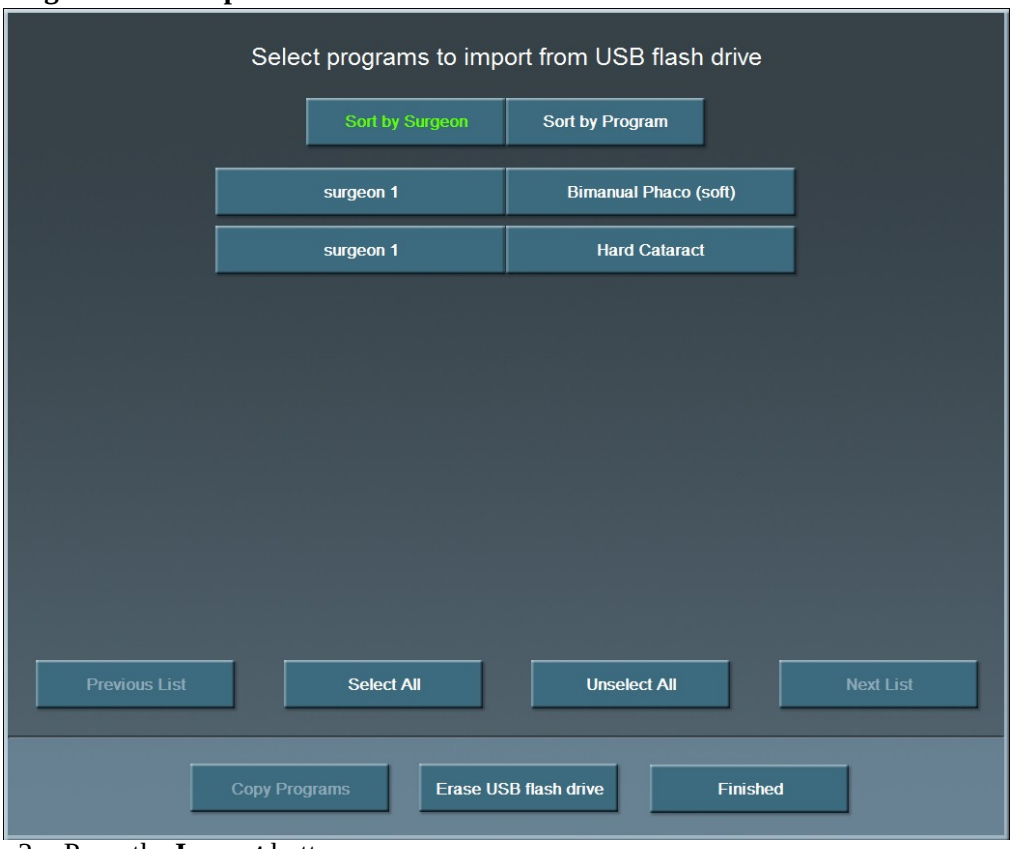


Import

1. From **Configuration**, press **Import/Export Database**.

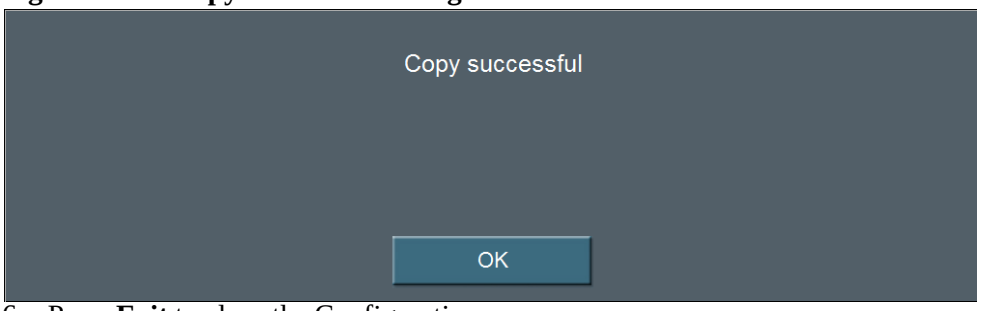
   Note: Make sure that you place the USB device into the USB port on the back of the system.

Figure 6.20 – Import Database Screen



2. Press the **Import** button.
3. Select a file to import from the list or use the **Select All** to import all of the files listed.
4. Press the **Copy Programs** button.
5. Press **OK** to close the screen.

Figure 6.21 – Copy Successful Dialog Box



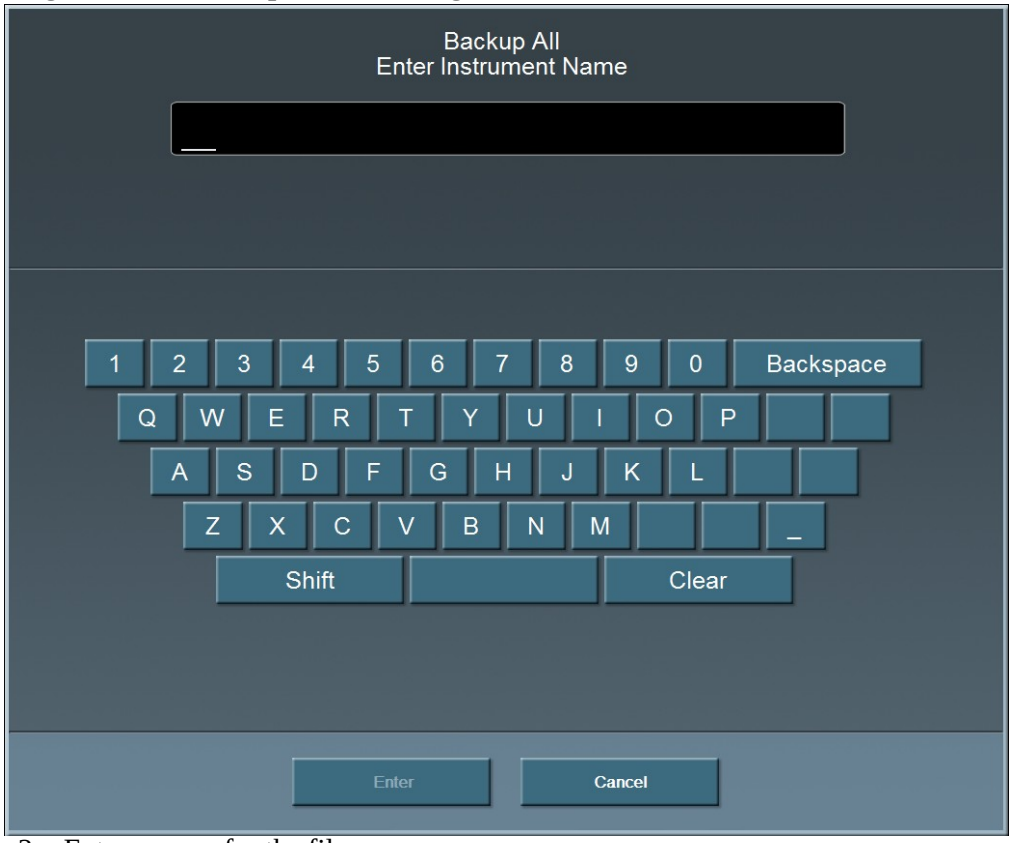
6. Press **Exit** to close the Configuration screen.

Backup All

1. From **Configuration**, press **Backup All**.

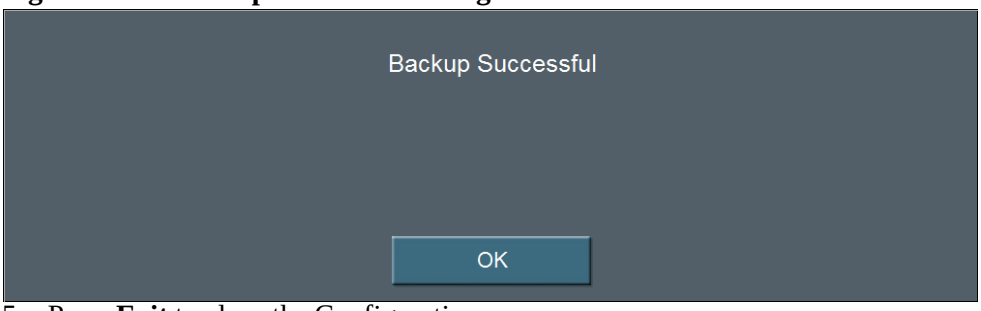
   Note: Make sure that you place the USB device into the USB port on the back of the system.

Figure 6.22 – Backup All Event Logs



2. Enter a name for the file.
3. Press **Enter**.
4. Press **OK** to complete the backup.

Figure 6.23 – Backup Successful Dialog Box

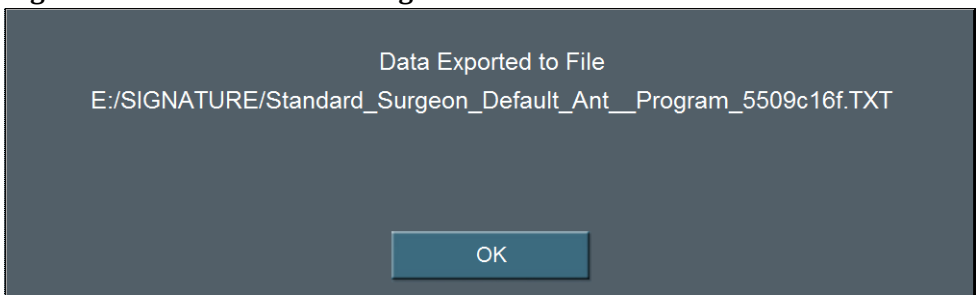


5. Press **Exit** to close the Configuration screen.

Print to File

1. From **Configuration**, press **Print to File**.
2. Press **OK** to close the confirmation dialog box.

Figure 6.24 – Print to File Dialog Box

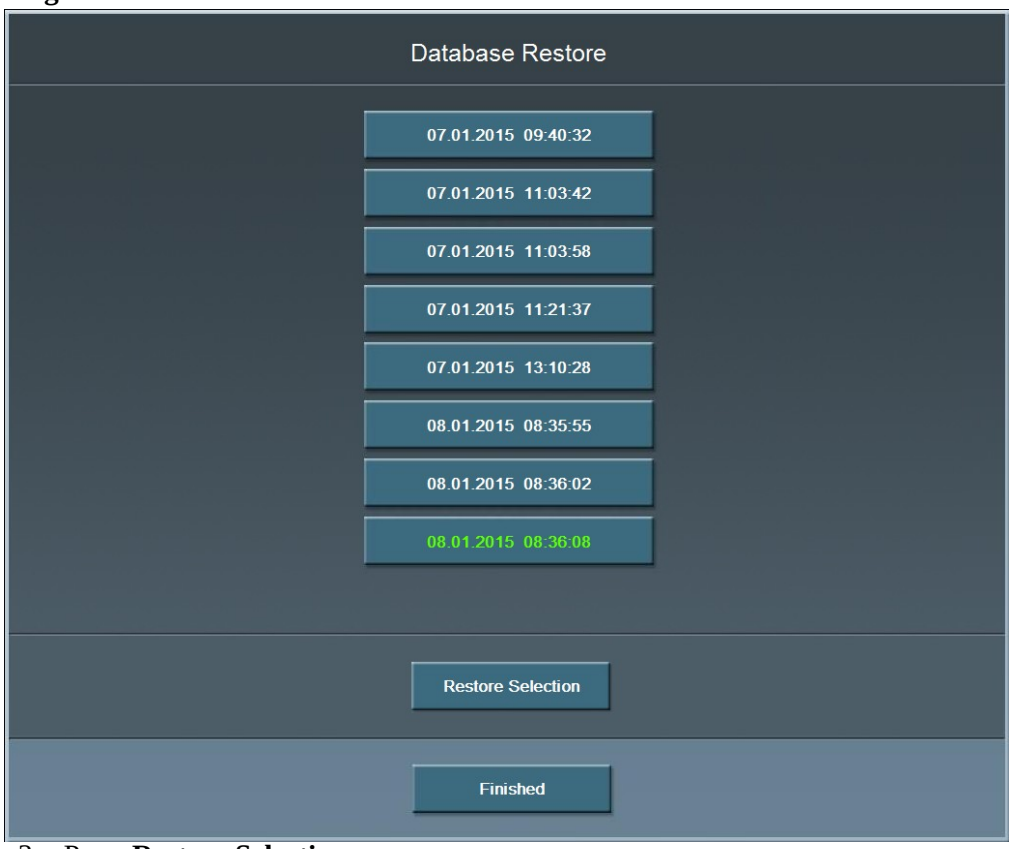


Restore Database

Note: When you save a new surgeon or save changes to an existing program the system updates this list. The database names are a date and time stamp.

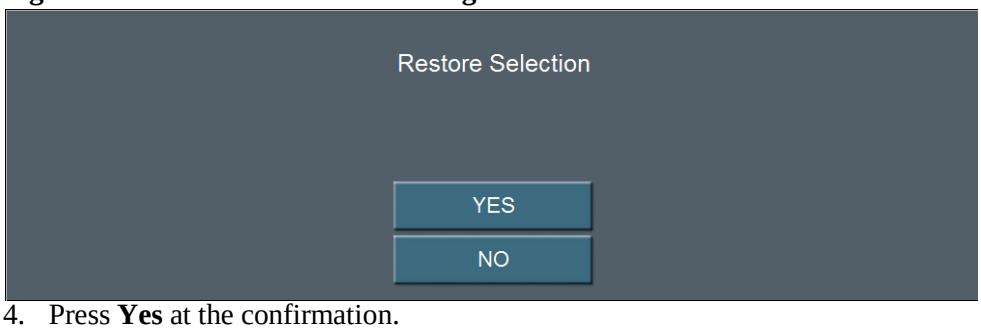
1. From **Configuration**, press **Restore Database**.
2. Select a database from the list.

Figure 6.25 – Database Restore Screen



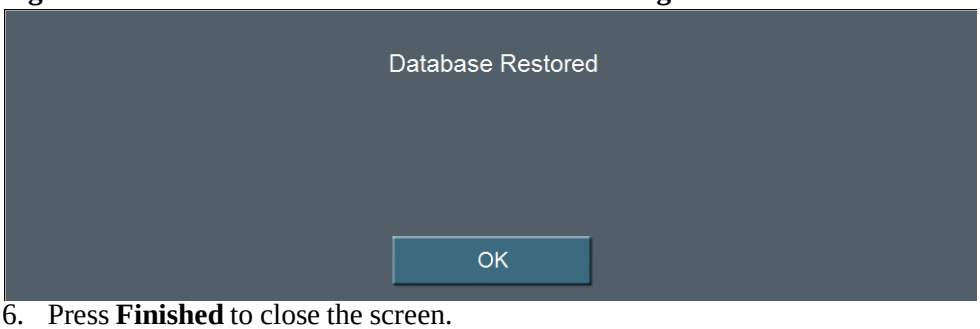
3. Press **Restore Selection**.

Figure 6.26 – Restore Selection Dialog Box



4. Press **Yes** at the confirmation.
5. Press **OK** or wait for the dialog box to close.

Figure 6.27 – Database Restored Confirmation Dialog Box



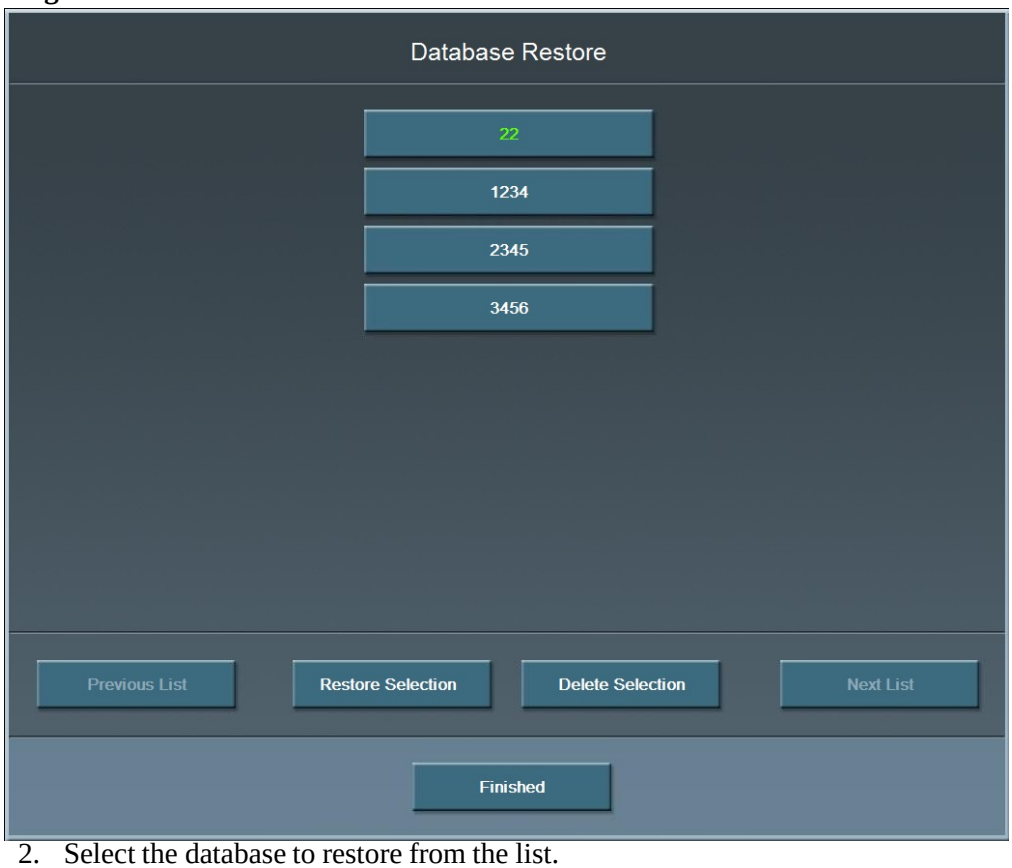
6. Press **Finished** to close the screen.
7. Press **Exit** to close the **Configuration** screen.

Restore All

1. From **Configuration**, press **Restore All**.

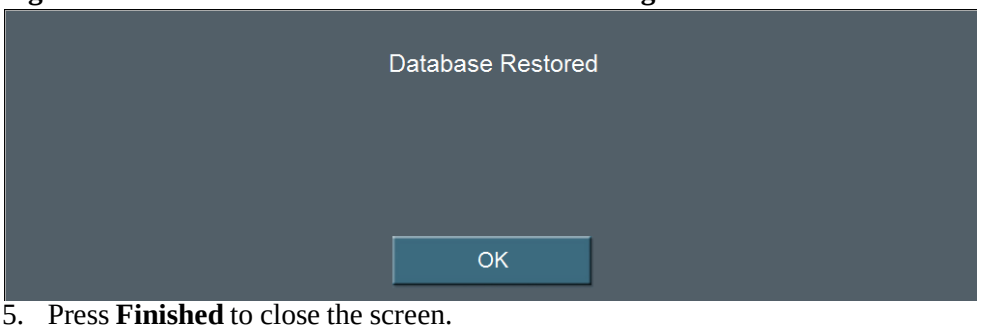
   Note: Make sure that you place the USB device into the USB port on the back of the system.

Figure 6.28 – Database Restore Screen



2. Select the database to restore from the list.
3. Press **Restore Selection**.
4. Press **OK** at the confirmation screen.

Figure 6.29 – Database Restore Confirmation Dialog Box



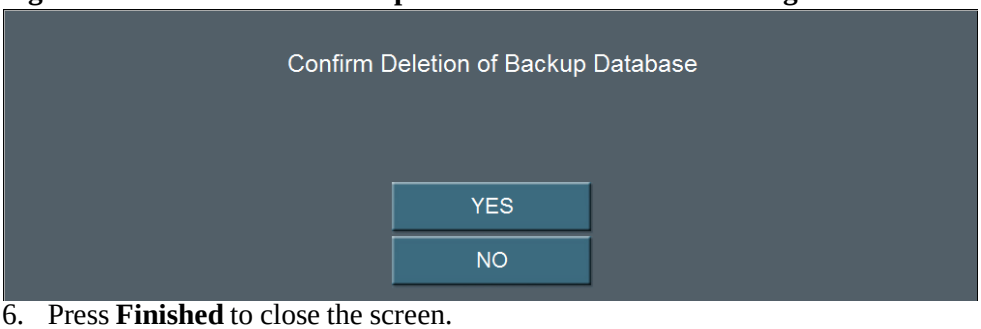
5. Press **Finished** to close the screen.
6. Press **Exit** to close the **Configuration** screen.

Delete a Backup Database

You can delete a database from your portable USB device. Contact your AMO service representative to delete the database from your system's hard drive.

1. Insert the USB device into the port on the back of the system.
2. From **Configuration**, press **Restore All**.
3. Select the database to delete from the list.
4. Press **Delete Selection**.
5. Press **Yes** at the confirmation screen.

Figure 6.30 – Deletion of Backup Database Confirmation Dialog Box



6. Press **Finished** to close the screen.
7. Press **Exit** to close the **Configuration** screen.

7 CARE AND CLEANING

Cleaning and Sterilization Procedures

Handle all previously used reusable items according to the Directions for Use for the particular product. Dispose of all single-use items or items which have completed their recommended useful life in accordance with:

- accepted hospital practices and hospital procedures
- local governing ordinance and recycling plans

The items for disposal can include the following:

- waste materials
- waste collection bags
- tubing
- phaco tip
- irrigation sleeves
- test chambers

Note: Inspect the Diathermy, Vitrectomy and Phaco handpiece cables for possible damage on a daily basis.

Phaco Handpiece

Refer to the phaco handpiece product Directions for Use for cleaning, handling, and sterilization instructions.

Irrigation/ Aspiration Handpiece

Refer to the irrigation/aspiration handpiece product Directions for Use for cleaning, handling, and sterilization instructions.

Diathermy Handpiece

Refer to the diathermy handpiece product Directions for Use for cleaning, handling, and sterilization instructions.

Vitrectomy Cutter

The vitrectomy cutter is a disposable, single-use instrument.

Touch Screen Cleaning

Use a soft cloth dampened with either:

- alcohol
- ethanol
- neutral detergent

Note: Never use organic solvents on the touch screen. Use only those items listed above.

8 ERROR MESSAGES TROUBLESHOOTING AND DIAGNOSTICS

Most Common User-Correctable Problems

Use the information in this section if you are not successful with the system check-out. Consult this section to resolve the problem before you call AMO for technical service:

- Make sure that you plugged the system in to a power receptacle.
- Make sure that there is electrical power to the receptacle.
- If there is no phacoemulsification, make sure that the phaco needle is tight on the handpiece.
- If there is no phacoemulsification, make sure that the phaco needle is compatible with the handpiece (for example, non-**AMO** phaco needle on an **AMO** handpiece).
- If there is no phacoemulsification, confirm there is no damage to the phaco needle/handpiece by dropping or misuse.
- If no irrigation occurs, shake the drip chamber to confirm that the ball or the valve moves freely. If there is no rattle sound, replace the drip chamber with another disposable pack.

Fuse Replacement Procedure

If the system does not turn on when you press the power switch, you have confirmed that you attached the power cord properly, and you plugged the cord in, check to see if the fuse is bad.

Note: To prevent the risk of fire or damage to the instrument, replace the fuses with the exact type and rating as indicated below (check the voltage sticker on the back panel of the system to confirm your system voltage):

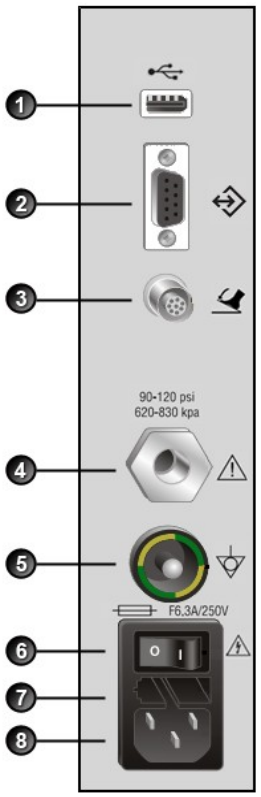
Table 8.1 – Fuse Specifications

	Voltage	**Quantity**	**Fuse Specifications**
Console	100/120/240	2	6.3A, 250V, Bussman GDA

To replace the console fuses:

1. Unplug the system electrical power.
2. Unplug the power cord from the back panel.
3. Locate the fuse holder on the back panel of the system.

Figure 8.1 – Rear Panel Connections



1. USB port
2. Communication port
3. Foot pedal connector
4. Compressed air
5. Potential equalizer
6. Power switch
7, Fuse holder
8. Power cord connector

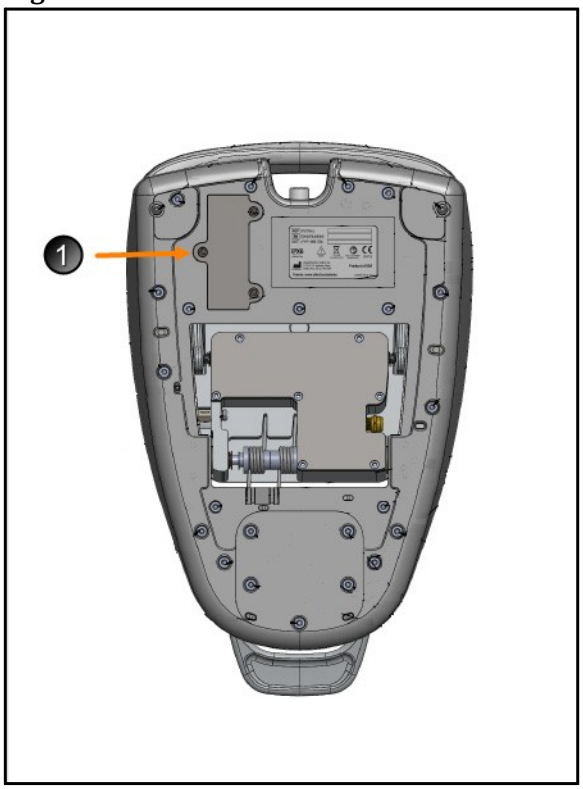
4. Use a small screwdriver to gently pry open the cover and expose the fuse holder.
5. Gently pry out the fuse holder.
6. Remove the bad fuse and replace the fuse with a new fuse (See value and size in Table 8.1 – Fuse Specifications).
7. Replace the fuse holder. Make sure that the arrows point to the right side of the back panel. Tilt the fuse holder slightly to the right and push in.
8. Push the fuse holder cover up and in until the cover snaps closed.
9. Reattach the power cord to the back panel.
10. Plug the system into an electrical receptacle.

Advanced Linear Pedal Battery Replacement

To replace the battery in the Advanced Linear Pedal:

Note: Remove the battery when shipping or transporting the foot pedal.

Figure 8.2 – Bottom View Advanced Linear Pedal

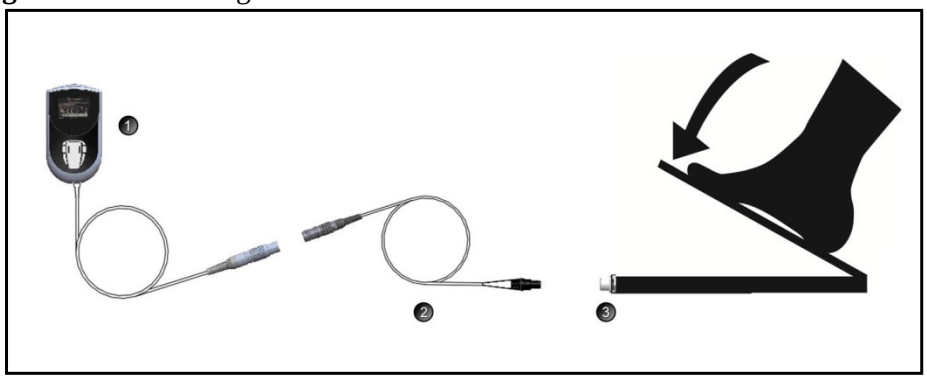


1. Battery Cover

1. Use a flat-head screwdriver to remove the battery cover.
   Note: The screws cannot be separated from the cover.
2. Remove the battery.
   Note: Dispose of the used battery in the proper manner.
3. Insert a new battery.
   Note: Make sure to align the positive and negative ends of the battery.
4. Replace the cover and tighten the screws.

Charging Options for Wireless Devices

Figure 8.3 – AC Charger for the Foot Pedal



1. AC Charger
2. Foot Pedal Cable
3. Foot Pedal

1. Disconnect the foot pedal cable from the console.
2. Attach the AC charger cable to the foot pedal cable.
3. Plug the AC charger into a power receptacle.

   Note: When the green light is no longer blinking, the foot pedal batteries are charged.

Figure 8.4 – AC Charger for the Remote Control

1. AC Charger
2. Remote Control

1. Attached the AC charger cable to the remote control.
2. Plug the AC charger into a power receptacle.

Table 8.2 – Charging Options

The System Is:	Advanced Linear Pedal (ALP)	Advanced Control Pedal (ACP)	Remote Control
Not attached to a power source and the system is off	AC Charger	AC Charger	AC Charger
Attached to a power source and the system is off	AC Charger	AC Charger	AC Charger
Attached to a power source and the system is on	AC Charger or Wired Mode	AC Charger or Wired Mode	AC Charger
Attached to a power source and the system is on and in-use	** Wired Mode	** Wired Mode	AC Charger

** The AC Charger cannot be used for charging while the system is operating with an ALP or an ACP in surgical modes.

Troubleshooting

General

The system does not come on when you turn the power switch to on

1. Turn the power switch off.
2. Confirm that you attached the power cord to the console back panel.
3. Confirm that you plugged the power cord into the electrical receptacle or another power source.
4. Confirm that there is electrical power to the wall receptacle or to the power source.
5. Turn the system on.
6. If the system still does not come on, turn the power off. Check for bad fuses and replace the fuse if necessary.
7. Contact AMO for technical service.

The wireless remote control does not pair

1. Make sure that you are pairing only one remote. If you try to pair more than one remote at the same time, the pairing fails.
2. Only pair the remote with one console at a time. Do not press the pairing key-sequence on multiple remote controls as this causes the pairing to fail.

   Note: **DO NOT** have any other BLUETOOTH devices in the same area as the remote and the console (other remote controls, foot pedals, cell phones, or headsets, for example) as the pairing operation will fail. The software can detect a maximum of nine (9) devices.

3. Check to see if the remote control is in “sleep” mode. If the remote is in “sleep” mode, press the back-light button on the remote. Complete the up, down, right, left, reload key-sequence to pair the remote.

   Note: Always press the back-light button before you pair the remote.

4. Only pair the remote control with one console at a time. Make sure that you did not pair the remote with another console. You must:
   - Unpair the remote from the console.
   - Shut down the console.
   - Pair the remote with the new console. Make sure this console is at least 40 meters away from the first console.
5. Once you pair a remote, you cannot pair that remote with another console. (You cannot pair one remote with two (2) consoles.)
   - Unpair the remote from the console.

- Move the first remote out of range from the console.
- Wait for the first remote to go into “sleep” mode.
- Pair the new remote.

6. Make sure that you fully charge the batteries before you pair the remote with the console. Low batteries can cause pairing failures.
7. Charge the batteries if pairing has failed after several attempts.
8. When the batteries are charging:
   - The BLUETOOTH is off.
   - You cannot use the remote.
   - You cannot pair the remote.

The foot pedal is not operating properly

1. Go to the **Configuration** screen and perform a **Foot Pedal Test**.
2. Confirm that you attached the foot pedal cable at the back of the console.
3. Perform a **Foot Pedal Calibration**, for either the Advanced Control Pedal or the Single Linear foot pedal.

The IV Pole does not respond

1. The IV pole might have reached the maximum or the minimum height.
2. Attempt a programmable IV pole height adjustment with the touch screen, remote, or the rocker switch on the side of the system.

The Touch Screen Does Not Respond

Perform the **Touch Screen Calibration** procedure as described in “Touch Screen Calibration” on page 6-11.

Priming Errors

1. Check the pack loading, including reloading the pack.
2. Verify that there are no kinks, clogs, or loose fittings.
3. Replace the handpiece and the tip and prime.
4. Replace the pack.
5. Check the test chamber for proper installation and any leaks.
6. Contact AMO Technical Service to check the vacuum.

Irrigation

No Irrigation Flow

1. Make sure you selected the appropriate mode on the screen.
2. Check for kinks in the irrigation tubing.
3. Check the tubing connection to the handpiece.
4. Tap the drip chamber to make sure the valve operates properly.
5. Check the bottle height.
6. Press the foot pedal to position 1 and check for flow.
7. Listen for the irrigation pinch valve in the tubing manifold area when you press the foot pedal to confirm that the valve operates.
8. If there is still no flow, replace the pack.

Reduced/insufficient irrigation flow

1. Check for kinks in the tubing or leaks in the tubing or the handpiece.
2. Check the bottle height.
3. Check the tubing connections.
4. Check for a pinched irrigation sleeve at the incision.

Irrigation flow continues even when foot pedal is off (position 0)

1. Check that there is no obstruction to the foot pedal or that the foot pedal is stuck in position 1.
2. Check the foot pedal operation.
3. Verify that Continuous Irrigation is not active.

Anterior chamber is too shallow or too deep

1. Check the bottle height.
2. Too shallow, check for a pinched irrigation sleeve at the incision.
3. Check the pump speed (flow rate).
4. Check for obstructions to the irrigation tubing.
5. Make sure that you balanced irrigation and aspiration.

Using large amounts of fluid

1. Check the incision size.
2. Check the bottle height.
3. Check the flow rate (pump speed too high).
4. Check that no fluid enters the collection bag when you do not use irrigation.
5. Reseat or replace the tubing.

Aspiration

No aspiration

1. Make sure you have the appropriate mode selected on the screen.
2. Check for kinks or clogs in the tubing.
3. Check the tubing connection to the handpiece.
4. Make sure there are no obstructions in the handpiece.
5. Press the foot pedal to position 2 and check the pump function.

Poor Aspiration

1. Check the flow rate.
2. Check the foot pedal operation.
3. Check for kinks or clogs in the tubing.
4. Make sure there are no obstructions in the handpiece.
5. Check the tubing connection to the handpiece.
6. Check the I/A handpiece o-rings for excessive wear. Replace the o-rings, if needed.

Not building vacuum or pump does not turn

1. Check the programming. If the surgeon is in “linear vacuum” as opposed to “linear aspiration”, you must press the foot pedal through position 2 for the vacuum to reach the preset maximum.
2. Make sure you are pressing the foot pedal.
3. Check the tubing connection to the handpiece.
4. Check for air in the irrigation and aspiration tubing.
5. Check the system vacuum settings.
6. Replace the pack.
7. Run I/A prime.
8. Check the flow rate.

Chamber shallowing or partially collapses

1. Check the bottle height and the handpieces for correct position.
2. Check the flow rate setting.
3. Check the tubing fittings to the handpiece.
4. Check for kinks in the tubing.
5. Remove the handpiece and perform the test chamber test to make sure you have balanced the handpiece.
6. Make sure you balanced irrigation and aspiration.

Phacoemulsification

No phacoemulsification

1. Make sure that you selected the phaco mode on the touch screen.
2. Make sure that the system is primed and tuned.
3. Check the foot pedal operation.
4. Make sure that you properly connected the phaco handpiece cord to the phaco receptacle on the front of the system.
5. Check the phaco power setting.
6. Make sure that the phaco tip is tight on the handpiece.
7. Check for damage to the phaco tip.
8. If there is damage to the tip, replace the tip with a new tip and retune.

Poor or intermittent phacoemulsification

1. Check all the corrective steps above for "**No phacoemulsification**".
2. Remove the phaco tip and then replace the tip. Make sure the tip is tight on the handpiece.
3. Check the phaco power delivery setting for both unoccluded and occluded (if applicable) settings.
4. Tune the phaco handpiece.

Diathermy

N› diathermy or poor diathermy

1. Make sure that you selected the diathermy mode on the touch screen.
2. Check the foot pedal operation.
3. Check the diathermy power setting.
4. Check the diathermy cord for a secure connection to the forceps and to the diathermy receptacles on the system.
5. Make sure that the diathermy cord connections are dry.
6. Try to use diathermy starting at a low power setting and gradually increase the power.
7. Replace the diathermy cord.
8. Replace the diathermy handpiece.

No sound when using diathermy

1. Make sure the volume setting is at a level of 6 or greater on **Sounds** screen.
2. Check for sounds when you push any touch screen or remote buttons.
3. Check for an audible confirmation upon completion of system start-up test (at power up).

Vitrectomy

N› vitrectomy cutting or poor cutting

1. Make sure that you selected the vitrectomy mode on the touch screen.
2. Verify that the surgeon is in foot pedal position 3, if using IAC step vitrectomy. If using ICA, verify the foot pedal is in position 2.
3. Check the foot pedal operation.
4. Check the tubing connections to the vitrectomy cutter.
5. Check the vitrectomy tubing connection to the front panel receptacle on the system.
6. Check the vitrectomy rate (cpm) setting on the touch screen. Lower the cpm, if necessary.
7. Check that irrigation and aspiration are working correctly.
8. Verify that the cutter blade moves.
9. Replace the vitrectomy cutter and try again.

Status, Warning and Error Messages

The system shows status, warning, and error messages on the monitor.

Alerts (Gray) show at the top of the screen. You do not need to clear an alert as with an error message. An alert, for example, can be: **Not Primed/Not Tuned**.

Error messages show at the top of the screen. Press  button to open the corrective action for that error. After you correct the error, press  to clear the error message from the screen.

The message can show possible solutions to the error or recommendations to clear the error. The messages can indicate the available options if a component or subsystem fails.

The list of messages in the following pages have corrective actions that you can take to clear the error.

Error Messages

101 Fluidics communication error.

Probable cause: Invalid data or communication error.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. If the error does not clear select **End Case**.
4. Select **Shutdown**.
5. Select **Yes** and wait for the system to power off.
6. Start up the system.
7. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

102 Fluidics write error.

Probable cause: The Microcontroller, SPI, SPI Bus, EEPROM, or ADC is bad.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

103 Fluidics read error.

Probable cause: The Microcontroller, SPI, SPI Bus, EEPROM, or ADC is bad.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

110 Fluidics RAM error.

Probable cause: Bad Microcontroller.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

111 Fluidics ROM error.

Probable cause: Bad Microcontroller.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

112 Fluidics Master communication error

Probable cause: There is no communication between the Fluidics Controller and the Instrument Host.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

114 Fluidics DAC fault.

Probable cause: Circuit failure of the I2C bus, DAC, or micro.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

118 Fluidics irrigation valve error.

Probable cause: The valve or drive circuit has failed.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

119 Fluidics pinch valve error.

Probable cause: Valve or drive circuit failure.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

123 Fluidics Venturi valve fault.

Probable cause: Valve or drive circuit failure.

Corrective action:

1. Disconnect the external air supply.
2. Prime the system again.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

124 Fluidics rotary vane fault.

Probable cause: Pump or drive circuit failure.

Corrective action:

1. Connect the external air supply.
2. Prime the system again.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

125 Fluidics pack valve error.

Probable cause: Valve or drive circuit failure.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. Eject the **FUSION** Fluidics pack.
6. Insert the **FUSION** Fluidics pack.
7. Insert a new **FUSION** Fluidics pack.
8. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

126 Fluidics motor vent error.

Probable cause: Vacuum chamber is blocked.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. Replace the **FUSION** Fluidics pack.
4. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

129 Fluidics proportional valve fault.

Probable cause: Valve or drive circuit failure.

Corrective action:

1. Disconnect the external air supply.
2. Prime the system again.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

130 Fluidics encoder error.

Probable cause:

- There is a tubing pack loading problem.
- Encoder, decoder or stepper driver circuit failed.

Corrective action:

1. Select **End Case**.
2. Select **New Case**.
3. If the error does not clear select **End Case**.
4. Select **Shutdown**.
5. Select **Yes** and wait for the system to power off.
6. Start up the system.
7. Remove the tubing pack.
8. Reinstall the tubing pack.
9. Install a new tubing pack.
10. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

131 Fluidics mode error

Probable cause:

- Instrument Host malfunction
- Bad SSC Board
- Bad Foot pedal

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. Disconnect the foot pedal from the system.
6. Connect the foot pedal to the system.
7. Press and release the foot pedal at least three times.
8. Run the **Self Test**.
9. Replace the foot pedal.
10. If the error is not corrected or if the error continues to occur, document the error message and contact AMO for technical service.

134 Fluidics drain pump rotational error.

Probable cause:

- There is a pack loading problem.
- There is an encoder, decoder circuit, or stepper driver circuit failure.

Corrective action:

1. Insert a new Dual Pump **FUSION** Fluidics pack.
2. Select **Next Case** and prime the system.
3. Replace the Dual Pump **FUSION** Fluidics pack with a **FUSION** pack.
4. Select **Next Case** and prime the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

135 Low external air pressure.

Probable cause:

- There is a leak in the external air line.
- The pressure regulator is set too low.
- The pressure sensor failed.

Corrective action:

1. Remove the tubing pack.
2. Check the o-ring for wear or damage.
3. Reinstall the tubing pack.
4. Reprime the system.
5. Disconnect external air supply.
6. Replace the Dual Pump **FUSION** Fluidics pack with a **FUSION** pack.
7. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

137 Foot pedal error.

Probable cause:

- The foot pedal has failed.
- The user pressed the foot pedal.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. Disconnect the foot pedal from the system.
6. Connect the foot pedal to the system.
7. Press and release the foot pedal at least three times.
8. Run the **Self Test**.
9. Replace the foot pedal.
10. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

148 Fluidics pack pressure error.

Probable cause: There is a leak.

Corrective action:

1. Reinsert the pack.
2. Prime the system.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

149 Fluidics strain gauge error.

Probable cause:

- The pack is not properly mounted.
- Bad strain gauge.

Corrective action:

1. Reinsert the pack.
2. Prime the system.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

151 Peristaltic pump stall.

Probable Cause: Encoder, Decoder, or Stepper driver is faulty.

Corrective Action:

1. Reinsert the pack.
2. Prime the system.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

201 Phaco communication error.

Probable cause: Bad data sent from the host or communication error.

Corrective action:

1. Check the handpiece connections.
2. Retune the handpiece.
3. If the error does not clear, select **End Case**.
4. Select **Shutdown**.
5. Select **Yes** and wait for the system to power off.
6. Start up the system.
7. Retune the handpiece.
8. If the error still does not clear, replace the handpiece with a new handpiece and tune the handpiece.
9. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

202 Phaco power error.

Probable cause: Hardware failure.

Corrective action:

1. Check the handpiece connections.
2. Retune the handpiece.
3. If the error does not clear, select **End Case**.
4. Select **Shutdown**.
5. Select **Yes** and wait for the system to power off.
6. Start up the system.
7. Retune the handpiece.
8. If the error still does not clear, replace the handpiece with a new handpiece and tune the handpiece.
9. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

203 Phaco handpiece error.

Probable cause: The handpiece is bad.

Corrective action:

1. Check the handpiece connections.
2. Retune the handpiece.
3. If the error does not clear, select **End Case**.
4. Select **Shutdown**.
5. Select **Yes** and wait for the system to power off.
6. Start up the system.
7. Retune the handpiece.
8. If the error still does not clear, replace the handpiece with a new handpiece and tune the handpiece.
9. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

204 Phaco handpiece error.

Probable cause: A wire in the handpiece is broken.

Corrective action:

1. Check the handpiece connections.
2. Retune the handpiece.
3. If the error does not clear, select **End Case**.
4. Select **Shutdown**.
5. Select **Yes** and wait for the system to power off.
6. Start up the system.
7. Retune the handpiece.
8. If the error still does not clear, replace the handpiece with a new handpiece and tune the handpiece.
9. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

206 Phaco controller ADC error.

Probable cause: Phaco controller ADC problem.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

207 Handpiece not supported.

Probable cause:

- Incompatible handpiece.

Corrective action:

1. Change to a different handpiece.
2. Tune the handpiece and continue surgery.
3. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

208 Handpiece error.

Probable cause:

- Hardware failure.
- The handpiece is shorting out.

Corrective action:

1. Check the handpiece connections
2. Retune the handpiece.
3. If the error does not clear, select **End Case**.
4. Select **Shutdown**.
5. Select **Yes** and wait for the system to power off.
6. Start up the system.
7. Retune the handpiece.
8. If the error still does not clear, replace the handpiece with a new handpiece, and tune the handpiece.
9. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

210 Phaco RAM error.

Probable cause: Bad Microcontroller.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

211 Phaco ROM error.

Probable cause: Bad Microcontroller.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

212 Phaco controller timeout.

Probable cause: Instrument Host failure or bad Microcontroller.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

213 SPI error.

Probable cause: SPI Microcontroller failure.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

214 SPI error.

Probable cause: SPI Microcontroller failure.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

281 Phaco communication error.

Probable cause: Software or hardware failure.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

283 Phaco error.

Probable cause: Phaco Drive failure.

Corrective action:

1. Check the handpiece connections.
2. Check the handpiece. Replace the tip if needed.
3. Retune the handpiece.
4. If the error still does not clear, replace the handpiece with a new handpiece, and tune the handpiece.
5. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

284 Phaco power supply error.

Probable cause: The power supply is bad.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact **AMO** for technical service.

285 Loose tip error.

Probable cause: The tip is loose on the handpiece.

Corrective action:

1. Tighten the phaco tip and then retune the handpiece.
2. If the error still does not clear, replace the handpiece with a new handpiece, and tune the handpiece.
3. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

286 Phaco handpiece impedance error.

Probable cause: The handpiece is bad.

Corrective action:

1. Check the handpiece connections.
2. Select **End Case**.
3. Select **Shutdown**.
4. Select **Yes** and wait for the system to power off.
5. Start up the system.
6. Retune the handpiece.
7. Check the handpiece. Replace the tip if needed.
8. Retune the handpiece.
9. If the error still does not clear, replace the handpiece with a new handpiece, and tune the handpiece.
10. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

287 Diathermy error.

Probable cause: Diathermy Driver failure.

Corrective action:

1. Check the diathermy cord connections.
2. Select **End Case**.
3. Select **Shutdown**.
4. Select **Yes** and wait for the system to power off.
5. Start up the system.
6. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

290 Foot pedal error.

Probable cause:

- The foot pedal has failed.
- The user pressed the foot pedal.

Corrective action:

1. Check the foot pedal. Make sure the foot pedal is connected.
2. Select **End Case**.
3. Select **Shutdown**.
4. Select **Yes** and wait for the system to power off.
5. Start up the system.
6. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

291 Phaco Diathermy power supply error.

Probable cause: Diathermy regulator or driver failure.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

308 External air pressure high/low.

Probable Cause: There is a valve or drive circuit failure.

Corrective action:

1. Check air hose connections.
2. Select **End Case**.
3. Select **Next Case**.
4. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

309 Piston pump pressure high/low.

Probable cause: The pump or the drive circuit failed.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

311 Dump valve pressure high/low.

Probable cause:

- Piston pump not working.
- The VIT dump valve not closing.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

322 Pneumatics system pressure too low.

Probable cause:

- The system pressure is too low.
- The external air valve does not work.
- The piston pump does not work.
- There is a system air leak.
- The vitrectomy cut valve is on.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

327 Pneumatics system pressure too low.

Probable cause:

- The system pressure is too low.
- The external air valve does not work.
- The piston pump does not work.
- There is a system air leak.
- The selector valve does not work.
- The vitrectomy cut valve is on.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. Check air hose connections.
4. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

328 Pneumatics system pressure too high.

Probable cause:

- The system pressure is too high.
- The external air valve does not work.
- The piston pump does not work.
- The selector valve does not work.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

352 IH Failure.

Probable cause: Hardware not functioning correctly.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

353 IH to GUI communication error.

Probable cause: Software or hardware error.

Corrective action:

1. Select **End Case**.
2. Select **Next Case**.
3. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

360 IH Fluidics - read error.

Probable cause: Communication error.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

361 IH Fluidics - write error.

Probable cause: Communication error.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

362 IH Fluidics communication error.

Probable cause: Communication error.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

370 IH Phaco read error.

Probable cause: Communication error.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

371 IH Phaco write error.

Probable cause: Communication error.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

374 Handpiece removed after being tuned.

Probable cause: Phaco handpiece removed.

Corrective action:

1. Attach the handpiece.
2. Tune the handpiece and continue surgery.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

416 Foot pedal error.

Probable cause:

- Foot pedal communication error.
- Could not open port.
- Too many wireless devices.
- Foot pedal battery too low.

Corrective action:

1. Check the wired or wireless connection to the system.
2. Wired Connection.
   - Disconnect and reconnect the foot pedal cable.
3. Wireless Connection
   - Wake up the foot pedal and allow the wireless to connect to the system.
   - If the foot pedal does not connect, pair the foot pedal to the system.
4. If the error does not clear, replace the cable or the foot pedal, and repeat steps 2 or 3.
5. If the error continues, select **End Case**, then **Shutdown**. Start up the system.
6. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

419 Foot pedal communication error.

Probable cause: Communication Error.

Corrective action:

1. Select **End Case**.
2. Select **Shutdown**.
3. Select **Yes** and wait for the system to power off.
4. Start up the system.
5. Check the foot pedal connection to the connector on the back of the system.
6. Make sure the wireless foot pedal is paired and has power.
7. Run the Foot Pedal Test.
8. Replace the foot pedal cable with a new foot pedal cable.
9. Replace the foot pedal with a new foot pedal.
10. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

420 Foot pedal battery too low.

Probable cause: Foot pedal battery to low to operate wireless.

Corrective action:

1. Connect the foot pedal to the system with the foot pedal cable to clear the error.
2. Continue with the current case once the error is cleared.

501 Prime excessive vacuum error.

Probable cause:

- The system does not prime.
- There is too much vacuum.

Corrective action:

1. Prime the system.
2. Reinstall the tubing pack and prime.
3. Check the handpiece. Replace the tip if needed.
4. If the error still does not clear, replace the handpiece with a new handpiece, and tune the handpiece.
5. If the error does not clear, replace the tubing pack with a new tubing pack and prime the system.
6. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

502 Prime low bottle height error.

Probable cause: The bottle is not at the proper height.

Corrective action:

1. Increase the bottle height.
2. Prime the system.
3. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

503 Prime low vacuum error.

Probable cause: Hardware failure.

Corrective action:

1. Remove the tubing pack.
2. Reinstall the tubing pack and reprime.
3. If the error does not clear, replace the tubing pack with a new tubing pack and prime the system.
4. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

506 Pack detect failure.

Probable cause: A pack switch failure.

Corrective action:

1. Remove the tubing pack.
2. Reinstall the tubing pack and reprime.
3. If the error does not clear, replace the tubing pack with a new tubing pack and prime the system.
4. If the error does not clear or if the error continues to occur, document the error message and contact AMO for technical service.

512 IV Pole communications error.

Probable cause: Communication error.

Corrective action:

1. Prime the system.
2. If the error still does not clear or if the error continues to occur, document the error message and contact AMO for technical service.