



OPERATOR MANUAL

Johnson & Johnson VISION

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Caution: Federal law (U.S.A.) restricts this device to sale by or on order of a physician.

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Table of Contents

1 — Introduction

Introduction	1-1
Document Conventions	1-3
Intended Use / Indications	1-4
Contraindications	1-4
Undesirable Side Effects	1-4
Intended Patient	1-4
Intended User	1-4
Clinical Benefits	1-5
Performance Characteristics	1-5
Device Description	1-6
VERITAS Vision System Console	1-6
VERITAS Vision System Operating Modes	1-8
FUSION Fluidics System	1-9
VERITAS Vision System Components	1-9
Accessories	1-10
WHITESTAR Technology	1-10

2 — Warnings, Cautions, and Other Residual Risks

Cautions	2-1
Warnings	2-3
Residual Risks	2-8
Regulatory Symbol Definitions	2-8
Regulatory Compliance Statements	2-10
Federal Communications Commission (FCC) Compliance Statement	2-10
Industry Canada (IC) Notice of Compliance	2-11
System Disposal	2-11
WEEE	2-11
Toxic and Hazardous Substances	2-11
Restriction of Hazardous Substances in Electrical and Electronic Equipment (EU RoHS)	2-11
RoHS information for China	2-11
Registration, Evaluation, Authorization and Restriction of Chemicals (EU REACH)	2-12
Packaging Information	2-13
Serious Incident Reporting	2-13
Instructions for Minimizing the Environmental Impact During Normal Use ..	2-13

3 — System Components

Receipt and Inspection Instructions	3-1
VERITAS Vision System Components	3-1
Tubing Packs	3-4
VERITAS Advanced Fluidics Tubing Pack	3-5
VERITAS Advanced Infusion Tubing Pack	3-6
FUSION Dual Pump Tubing Pack	3-7
Foot Pedal	3-8
Removing the Handle from the Advanced Linear Pedal	3-11
Foot Pedal Operation	3-12
Foot Pedal Storage	3-13
VERITAS Heel Insert (Optional)	3-14
Programmable IV Pole	3-15
VERITAS Remote Control	3-15
VERITAS Remote Control Storage	3-17
Surgical Media Center (SMC) (Optional)	3-17

4 — Surgery Start Up

VERITAS Vision System Setup	4-1
Front and Rear Panel Connections	4-2
IV Pole Setup	4-4
Handpiece Setup	4-4
Phacoemulsification Handpiece Setup – VERITAS Swivel	4-5
Phacoemulsification Handpiece Setup – WHITESTAR and ELLIPS FX	4-7
Irrigation/Aspiration Handpiece Setup	4-9
Diathermy Handpiece Setup	4-9
Vitreotomy Cutter Setup	4-10
Startup	4-10
Install the Tubing Pack	4-12
Cup Fill	4-13
Prime/Tune	4-14
Suggestions for Priming the Handpieces.	4-16
Verify Irrigation/Aspiration Balance	4-17
Priming for Vitrectomy	4-18
Selecting and Changing Mode Parameters	4-19
System Check-out	4-20
Phacoemulsification	4-21
Irrigation and Aspiration	4-21
Diathermy	4-21
Vitreotomy	4-22
Pre-operative Sterilization	4-22

End Case	4-22
Review Case	4-24
End Case	4-25
System Shutdown	4-26

5 — Surgeon Settings

Select Surgeon	5-1
Add a New Surgeon	5-2
Delete Surgeon	5-3
Edit a Surgeon	5-3
Edit Surgeon Settings	5-4
Foot Pedal Setup	5-6
Single Linear Foot Pedal Setup	5-7
VERITAS Foot Pedal Setup	5-15
Advanced Control Pedal Setup	5-23
Advanced Linear Pedal Setup	5-31
Set Sound Levels	5-39
Default Settings	5-39
Surgeon – Assign Order	5-41

6 — Program Settings

Create a New Program	6-1
Delete a Program	6-4
Edit a Program Name	6-5
Lock a Program	6-5
Copy a Surgeon Program	6-5
Assign Program Order	6-6
Program Settings	6-6
Phaco	6-8
Irrigation and Aspiration (I/A)	6-9
Vitrectomy (VIT)	6-10
Diathermy (DIA)	6-11
Advanced Infusion	6-12
Default Settings	6-13
Phaco Power Settings	6-19
Continuous Phaco Power	6-20
Pulse Mode	6-20
Short Pulse Phaco Power	6-20
Long Pulse Phaco Power	6-20
Low Power Pulse Phaco Power	6-20
High Power Pulse Phaco Power	6-21

Single Burst Phaco Power (Panel Only)	6-21
Multiple Burst Phaco Power (Panel Only)	6-21
Continuous Burst Phaco Power	6-21
WHITESTAR Technology	6-21
FUSION Fluidics Phaco	6-27
Occlusion Mode Settings	6-28
Occlusion Vacuum Threshold	6-30
Occlusion Mode Power Settings	6-31
Venting an Occlusion	6-33
CASE Mode	6-33
CASE One Touch	6-35
Reflux	6-35

7 — System Configuration

Setting the Maximum IV Pole Height	7-1
Testing the IV Pole	7-2
Event Log	7-3
Wireless Foot Pedal Setup	7-4
VERITAS Foot Pedal and Advanced Linear Pedal	7-4
Advanced Control Pedal	7-7
VERITAS Remote Control Setup	7-9
VERITAS Remote Control Pairing	7-9
Wireless VERITAS Remote Control Test	7-10
System Versions	7-10
System Self Test	7-11
Language Selection	7-12
Surgical Media Center (SMC) (Optional)	7-13
Set System Date and Time	7-15
Set Units of Measure for Vacuum	7-16
Service Interval	7-17
Import/Export Database	7-17
Export	7-17
Import	7-19
Backup All	7-20
Print to File	7-21
Restore Database	7-21
Restore All	7-23
Delete a Backup Database	7-25

8 — Symbol Definitions

9 — Care and Cleaning

Cleaning and Sterilization Procedures	9-1
Phaco Handpiece	9-1
Irrigation/Aspiration Handpiece	9-2
Diathermy Handpiece and Cable	9-2
Vitreectomy Cutter	9-2
Touchscreen Monitor Cleaning	9-2
Materials and Cleaning Solutions	9-2
Cleaning Process.....	9-3
General Cleaning (Console, Foot Pedal, Remote Control)	9-3

10 — Error Messages, Troubleshooting, and Diagnostics

Errors	10-1
Most Common User-Correctable Problems	10-1
Fuse Replacement Procedure	10-2
Battery Replacement – VERITAS Foot Pedal and Advanced Linear Pedal ...	10-3
Battery Replacement – VERITAS Remote Control	10-4
Charging Options for Wireless Foot Pedals	10-4
Troubleshooting	10-5
General	10-5
Irrigation	10-7
Aspiration	10-8
Phacoemulsification	10-9
Diathermy	10-9
Vitreectomy.....	10-10
Status, Warning, and Error Messages	10-10
Error Messages	10-10

11 — Warranty and Maintenance

Warranty Statement	11-1
Extended Warranty.....	11-1
Maintenance	11-2

12 — Specifications

Physical Specifications	12-1
Environmental Specifications	12-3
Electrical Specifications	12-3
Electromagnetic Compatibility	12-4
RF Wireless Technology	12-10

Bluetooth Characteristics	12-17
Phacoemulsification Specifications	12-19
Irrigation and Aspiration Specifications	12-19
Vitrectomy Specifications	12-20
Diathermy Specifications	12-20
Diathermy Power Graphs	12-21
Diathermy Power versus Load Impedance	12-24
Phaco Power Graphs	12-25
Phaco Tip Velocity	12-26
Bottle Height Pressure	12-26

13 — Accessories and Parts Reordering

List of Accessories with Part Numbers	13-1
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Index

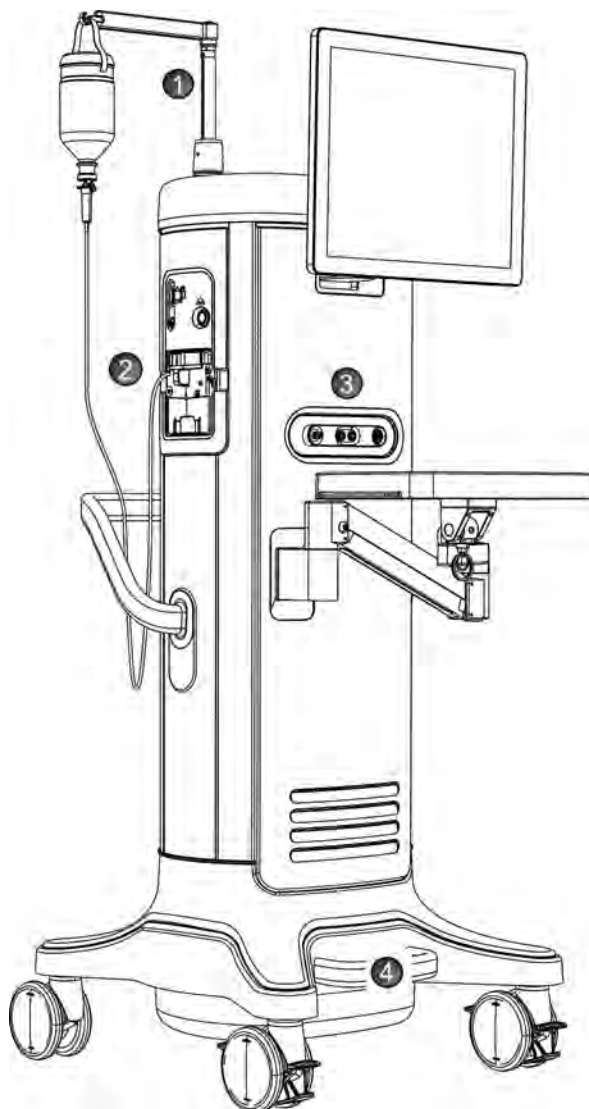
1 — Introduction

- “Introduction” on page 1-1
- “Document Conventions” on page 1-3
- “Intended Use / Indications” on page 1-4
- “Contraindications” on page 1-4
- “Undesirable Side Effects” on page 1-4
- “Intended Patient” on page 1-4
- “Intended User” on page 1-4
- “Clinical Benefits” on page 1-5
- “Performance Characteristics” on page 1-5
- “Device Description” on page 1-6

Introduction

The VERITAS™ Vision System is a premium cataract system with the intended use of phaco fragmentation and removal of the crystalline lens during cataract surgery. The VERITAS Vision System features technological advancements in fluidics management and ergonomic improvements for the console, foot pedal, handpiece, and remote control.

Figure 1-1 — VERITAS Vision System (front)



- 1. Programmable IV Pole
- 2. Tubing Pack inserted

- 3. Front Panel Connections (see [Figure 4-1](#))
- 4. Foot Loop for system repositioning

The VERITAS Vision System consists of the following components:

1. Programmable IV Pole – supports hanging bottle or bag for fluid management
2. Tubing Pack – disposable to realize the fluid handling during irrigation / aspiration (see separate Instructions for Use)
3. Wireless remote control – alternative to the touchscreen monitor (see [Figure 3-1](#))
4. Front Panel allows for the following handpiece connections:
 - a. Phacoemulsification Handpieces (VERITAS Swivel Handpiece/WHITESTAR™ Handpiece/ELLIPS™ FX Handpiece) – to be connected with the console. Ultrasound assisted surgical instrument including connections for fluid management (see separate Instructions for Use).
 - b. Irrigation / Aspiration Handpieces – to be connected with the console. Surgical instrument without Ultrasound assistance (see separate Instructions for Use).
 - c. Diathermy Handpieces – to be connected with the console. Bi-polar surgical HF-instrument (see separate Instructions for Use).
 - d. Vitrectomy cutter – to be connected with the console. Pneumatic cutter including connections for fluid management (see separate Instructions for Use).
5. Foot pedal and foot pedal cable – variants:
 - a. VERITAS Foot Pedal
 - b. Single Linear Pedal (SLP)
 - c. Advanced Control Pedal (ACP)
 - d. Advanced Linear Pedal (ALP)

Document Conventions

This manual presents two types of precautionary statements: cautions and warnings. Both types of precautionary statements must be observed to ensure safe and effective operation of the VERITAS Vision System.



WARNING!

Identifies conditions or practices that could result in patient injury.



CAUTION!

Identifies conditions or practices that could result in damage to equipment or data loss.

IMPORTANT:

Identifies instructions important to the proper operation of the device.

NOTE: Provides background information to clarify a particular step or procedure.

Intended Use / Indications

The VERITAS Vision System is a modular ophthalmic microsurgical system that facilitates anterior segment (cataract) surgery. The modular design allows the users to configure the system to meet their surgical requirements.

Contraindications

Any pre-existing patient condition/s that the health care provider determines to be a contraindication to cataract surgery.

Undesirable Side Effects

Complications that may be associated with the VERITAS Vision System include

- corneal burn
- infection/inflammation
- corneal edema
- broken capsule

Intended Patient

Adult patients with cataracts or adult patients undergoing anterior segment ophthalmic surgery (e.g., removal of the crystalline lens).

NOTE: Pregnant or nursing women were not included in the clinical trial(s) conducted.

Intended User

The JJSV Phacoemulsification System is intended for use by an ophthalmologist and support staff operating under the direction of the surgeon.

Clinical Benefits

Clinical benefits of the VERITAS Vision System include the following:

- Rapid visual rehabilitation
- Early resumption of daily activities
- Minimal ocular inflammation
- Minimal postoperative astigmatism
- Reduced potential for ocular complications

Performance Characteristics

- Phacoemulsification under irrigation / aspiration
- Independent irrigation / aspiration mode
- Diathermy – High Frequency surgical procedure for cutting soft tissue
- Vitrectomy – mechanical cutting of Vitreous tissue in the anterior eye chamber
- WHITESTAR Technology – finely modulated pulses of emulsification energy, interrupted by extremely brief cooling periods
- WHITESTAR ICE Technology – This pulse shaping technology modifies the standard “square” wave pulse by increasing the amplitude of the first millisecond of the on time “kick”. This technology then sets the remaining part of the on time to the standard power setting. This results in increased control and efficiency in phacoemulsification.
- Occlusion Mode Phaco – This mode regulates the vacuum rise time following an occlusion of the phaco tip, without limiting the choice of aspiration rate. The Occlusion mode phaco also regulates the ultrasound power modulation.
- FUSION™ Mode – allows the user to access the settings and variables for both CASE and Occlusion mode phaco
- Chamber Stabilization Environment (CASE) – an intelligent vacuum monitoring system that regulates the maximum allowable vacuum used following the occlusion of the phaco tip
- 2.1 to 3.25 mm incision phaco (19GA, 20GA, 21GA) capabilities
- Peristaltic- and/or venturi-based aspiration
- Controlling surgical parameters by supported foot pedal and wireless remote-control unit

Device Description

VERITAS Vision System Console

Operating room teams contributed significantly to the successful design of the system console. The solid wheel base and locking wheels make the console stable and smooth rolling. An adjustable height Mayo tray accommodates the handpieces and tubing. The VERITAS Remote Control uses standard commercially available AA batteries for easy replacement. The foot pedal can be stored on a hanging hook when not in use.

VERITAS Vision System Display (Graphic User Interface–GUI)

The system graphic screen display is easy to read and easy to operate. You can see at a glance the status of the system. The screen gives you visual indication of operating modes, settings, and system status. Messages cue you through the procedure with illustrations and prompts to indicate proper connections or system selections. Information is provided to help resolve error messages.

Prime/Tune

Before the start of each surgical case, the system requires that you run prime, tune or prime/tune. The prime mode incorporates the function of clearing the tubing of air, then fills the tubing and completes the fluid aspiration check and the vacuum check. The tune mode incorporates an ultrasonic power calibration check and safety check for the attached phaco handpiece. The prime/tune mode allows the system to prime and tune the handpiece at the same time.

Dual Pump

The system provides a fluid aspiration system that uses either a peristaltic (flow-based) pump or a Venturi (vacuum-based) pump system. The surgeon can use both the peristaltic pump and the Venturi pump in the Phaco, Irrigation/Aspiration (I/A), and Vitrectomy surgical modes.

Continuous Irrigation

Continuous Irrigation opens the irrigation valve for a collection of balanced salt solution during a case, independent of the foot pedal or prime cycle. Continuous irrigation can be used to fill cups prior to prime/tune and is immediately available by way of the touchscreen monitor. Tap the **Cont. Irr.** button to open the valve and start the flow of irrigation fluid. Tap the button again to close the valve and stop the flow of irrigation fluid. Surgeon control of continuous irrigation with the foot pedal is also available. The cup fill feature can be used in place of continuous irrigation to fill a cup. The cup fill feature is only available on the Prime/Tune screen. (See [“Prime/Tune” on page 4-14](#) for detailed information.)

Continuous Irrigation Auto-Off (Cont. Irr. Auto-Off)

Continuous Irrigation Auto-Off (Cont. Irr. Auto-Off) is available in the Surgeon Settings. When this feature is enabled, continuous irrigation will automatically turn on when the foot pedal is pressed, and automatically turn off when the handpiece is removed from the anterior chamber and the foot pedal is released. The time at which continuous irrigation

automatically turns off can be set per surgeon preference. Please note that when this feature is enabled, a significantly large wound leakage or air bubbles in the tubing lines may affect the continuous irrigation auto-off.

Advanced Infusion

Advanced Infusion is available when the VERITAS Advanced Infusion Pack is installed and the feature is selected in the Program Settings. When this feature is enabled, pressurized air (equivalent to 30 cm of bottle height) is added to the irrigation source. The pressurized air is supplied by an additional tubing line that is connected to the side panel of the console during pack setup.

NOTE: Using the Advanced Infusion feature in conjunction with vitrectomy at altitudes above 5,000 feet may result in lower than expected irrigation pressure.

Programmable Operating Parameters

The system is programmable through the screens on the touchscreen monitor. You can select your desired settings for each portion of the anterior surgical procedure. The instrument program memory stores up to 100 surgeon names with a maximum of 20 different setups, plus the two JJSV default settings programs—Advanced Fluidics Program and Advanced Infusion Program. This allows different users to preset their preferences, or individual users to select setups for different procedures, including a personalized initial operating mode.

MMP – Multiple Mode Programming

Multiple submodes are available within the system operating modes. The multiple submodes allows you to preset your settings for specific techniques such as phaco chop or viscoelastic removal.

Programmable IV Pole

The system has a programmable IV pole. You can set the programmable IV pole height parameters independently for each of the Phaco modes plus settings for I/A and vitrectomy. During surgery, the programmable IV pole height changes to the preprogrammed height when you switch modes.

The automated and programmable IV pole allows adjustment of the bottle height to provide gravity infusion through each procedural phase. The up and down arrows on the touchscreen or the wireless VERITAS Remote Control raises or lowers the irrigation source that contains the bottled balanced salt solution, while maintaining the sterility within the operating field. A separate up and down switch allows IV pole adjustment from the side of the system. The foot pedal can also be programmed to move the IV pole.

NOTE: The IV pole movement is calibrated in centimeters. When the IV pole height is set to inches, the height shown may not update immediately upon pressing the up arrow or down arrow.

When using the system with the Advanced Infusion Program, the effective bottle height includes an extra 30 cm to the programmed IV Pole height due to pressurizing the irrigation source.

VERITAS Vision System Operating Modes

The design of the system provides all the operating modes and surgical capabilities that the anterior segment surgeon or the cataract surgeon requires. These capabilities include:

Phacoemulsification (Phaco)

You use the phacoemulsification mode to break up (emulsify) the nucleus of the lens. You then aspirate the nucleus of the lens from the eye through a small incision. The continuous autotuning circuitry maximizes the emulsification efficiency for each lens density, even varying densities within the same lens. The system displays phaco time in minutes and seconds. The convenient selection of linear or panel preset phaco power, in a variety of power delivery options (continuous, pulsed, burst), provides increased precision, and control.

The WHITESTAR Technology allows safe removal of all lens types through small incisions with single-mode, single-instrument convenience.

The WHITESTAR Technology is a patented software program proven to change the characteristics of phacoemulsification using little or no ultrasound. The WHITESTAR Technology changes the thermal properties and improves control of the lens without reducing the cutting power or changing technique or efficiency.

Irrigation/Aspiration (I/A)

The Irrigation/Aspiration mode allows for controlled aspiration of cortical material from the eye, while maintaining intraocular stability, by replacing the aspirated material with a balanced salt solution. This mode gives you flexible control of each case with the independently adjustable vacuum level settings and flow rate settings. A peristaltic pump provides a predictable and stable aspiration rate. "Aspiration Rate" and "Vacuum" settings allows for complete control. Irrigation is gravity-fed.

NOTE: The vacuum units can be set to either mmHg or kPa. To set the vacuum units go to Configuration, Set Vacuum Units.

You can regulate the gravity-fed irrigation by adjusting the height of the IV pole.

Vitrectomy (VIT)

You use the Vitrectomy mode to remove vitreous from the eye during surgery. The system uses air pressure to drive the vitreous cutter. The wide range of user-controlled, programmable cut rates supports both anterior segment and posterior segment surgeries.

Diathermy (DIA)

Most surgeons use the Diathermy mode to coagulate blood vessels during the procedure and by some surgeons to "coag" the conjunctiva at the end of the procedure. An isolated output frequency allows noncontact tissue coagulation, eliminating adhesion, and traction. Also,

the depth of penetration of the energy field is less than that of lower frequency units, which minimizes tissue shrinkage or charring. The gentleness of the Diathermy mode allows the surgeon to stop “bleeders” within the incision with only minimal scleral shrinkage.

CASE One Touch

The One Touch button simplifies the programming of the CASE function and allows you to easily define the basic CASE settings once. You can adjust the CASE function with the CASE One Touch settings on the surgical screens. When you use these controls, the CASE functionality changes to provide enhanced control or improved efficiency to suit any particular combination of cataract density, surgical technique or personal preferences. See [“CASE One Touch” on page 6-35](#).

FUSION Fluidics System

The system has both a flow-based peristaltic pump system and a vacuum-based Venturi pump system. The patented microprocessor-based system continuously monitors and controls intraocular conditions of the flow and vacuum in the eye.

Chamber Stabilization Environment (CASE)

CASE is an intelligent vacuum monitoring system that regulates the maximum allowable vacuum used following the occlusion of the phaco tip. When the phaco tip becomes occluded, the vacuum rises. Clearing of the occlusion while the vacuum is at a high-level can lead to a post occlusion surge. When CASE is on, the system monitors the actual vacuum levels. When the vacuum exceeds a specific threshold for a specified duration, the system automatically adjusts the maximum allowable vacuum setting to a lower predefined CASE maximum vacuum level. When the occlusion clears, the system automatically restores the settings to the original programmed maximum vacuum setting. This function makes it possible to have a different maximum vacuum setting when the tip occludes than when the tip is unoccluded.

VERITAS Vision System Components

VERITAS Remote Control

The surgery can be controlled from the wireless VERITAS Remote Control keypad. You can access all surgical modes and adjust all surgical settings with the use of the wireless VERITAS Remote Control.

Foot Pedal

The foot pedal controls the various operating modes of the instrument. You can program the foot pedal settings through the user interface. You can use either the VERITAS Foot Pedal, Single Linear Foot Pedal, Advanced Control Pedal, or the Advanced Linear Pedal with the system.

The foot pedal design offers control through the use of increased linearity with the foot pedal movement. The design provides uniform pressure throughout the foot pedal movement, easing foot and leg fatigue. You can select the degrees of movement for each foot pedal position. You can save the settings for each surgeon/mode, pitch for the VERITAS Foot

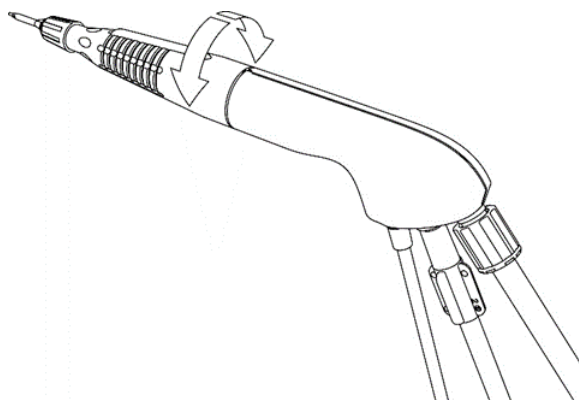
Pedal, Single Linear Foot Pedal, and the Advanced Linear Pedal, and pitch and yaw for the Advanced Control Pedal giving the pedal dual linear functionality. Programmable switches can activate reflux, giving an immediate response.

Accessories

VERITAS Swivel Handpiece

The VERITAS Swivel phaco handpiece ([Figure 1-2](#)) is the next generation handpiece from JJSV. Its front metal housing is able to rotate independently of its rear housing that is connected to the tubing and cable, thus reducing surgeon hand fatigue. The VERITAS Swivel phaco handpiece provides both longitudinal and transversal movement. You can use the handpiece with a straight tip or a curved tip. The handpiece is lightweight, slim, and easy to clean and sterilize with conventional steam autoclave methods.

Figure 1-2 — VERITAS Swivel Handpiece



WHITESTAR Handpiece

The design of the WHITESTAR phaco handpiece has a straight-through aspiration channel for more efficient removal of nuclear fragments, to minimize clogging and to facilitate cleaning. The handpiece is lightweight, slim, and well-balanced, making it comfortable to use and easy to control.

ELLIPS FX Handpiece

The ELLIPS FX phaco handpiece is available for use with the VERITAS Vision System. The ELLIPS FX handpiece provides both longitudinal and transversal movement. You can use the handpiece with a straight tip or a curved tip.

WHITESTAR Technology

The VERITAS Vision System incorporates WHITESTAR Technology to deliver finely modulated pulses of energy, interrupted by extremely brief cooling periods. This allows the system to achieve full ultrasound cutting efficiency and magnetic followability, while introducing less energy into the eye. Minimized ultrasonic time reduces the risk of thermal damage.

The WHITESTAR ICE Technology was the next advance in micropulse phacoemulsification technology. This technology combined modulated ultrasonic power (pulse shaping) with vacuum control through the use of the Chamber Stabilization Environment (CASE).

This pulse shaping technology modified the standard “square” wave pulse, by increasing the amplitude of the first millisecond of the on time “kick”. The technology then set the remaining part of the on time to the standard power setting. This process repeats for each on time pulse. This results in increased control and efficiency in phacoemulsification.

Occlusion Mode Phaco

The Occlusion mode phaco regulates the vacuum rise time following an occlusion of the phaco tip, without limiting the choice of aspiration rate through an unoccluded tip. To independently control the aspiration rate and the vacuum rise time, you can have a different aspiration rate when the tip occludes than when the tip is unoccluded.

The Occlusion mode phaco also regulates the ultrasound power modulation. You can program the power modulation of the phaco handpiece (continuous, pulse, burst) to automatically change when the phaco tip changes from an unoccluded condition to an occluded condition.

The FUSION mode allows the user to access the settings and variables for both CASE and Occlusion mode phaco. The CASE and Occlusion mode phaco can work together or independently.

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2 — Warnings, Cautions, and Other Residual Risks

- [“Cautions” on page 2-1](#)
- [“Warnings” on page 2-3](#)
- [“Residual Risks” on page 2-8](#)
- [“Regulatory Symbol Definitions” on page 2-8](#)
- [“Regulatory Compliance Statements” on page 2-10](#)
- [“System Disposal” on page 2-11](#)
- [“Toxic and Hazardous Substances” on page 2-11](#)
- [“Packaging Information” on page 2-13](#)
- [“Serious Incident Reporting” on page 2-13](#)
- [“Instructions for Minimizing the Environmental Impact During Normal Use” on page 2-13](#)



Cautions

Once you have set the system up and you have verified that all the functions are operating properly, you are almost ready to use your system.

Read the following safety cautions carefully before using the system in surgery.

- Do not use extension cords with your system.
- Do not overload your electrical receptacle (outlet).
- The instrument has ventilation openings at the rear of the console to allow ambient air intake and the release of heat generated during operation. Do not block the openings; as heat build-up can cause system failures which can result in a fire hazard.
- Do not try to move the system cart on deep pile carpets or over objects on the floor, such as cables and power cords.
- Take care not to trip over power and foot pedal cords.
- Do not try to lift the system console.
- Do not place the instrument on uneven or sloped surfaces.
- Only use disposables, accessories, or other surgical instruments designed for this system. For optimum performance of the system and safety, use only parts recommended by JJSV.

- Do not operate the system in a condensing environment (over 95% relative humidity). Take care to protect the instrument from fluid sprays or fluid buildup. To protect the patient from contaminated fluids or handpieces, use only:
 - ▶ sterile tubing packs
 - ▶ sterile irrigation fluid
 - ▶ sterile handpieces
- Wrap the excess power cord neatly around the cord wrap on the back of the console.
- Use caution when you use handpieces with sharp edges or pointed tips.
- Always replace the tubing pack and the balanced salt solution bottle between cases.
- Use extreme caution when you lower or raise the balanced salt solution bottle to decrease fluid flow or increase fluid flow, and fluid pressure.
- If you do not properly prime the I/A tubing, errors can occur.
- Care should be taken to avoid abrasion of tissues during phacoemulsification.
- It is very important that the electrical connectors on the handpieces are completely dry before you attach the handpiece to the system receptacles.
- The phaco handpiece is a very delicate instrument and you must handle the handpiece with EXTREME care.
- The ultrasonic titanium phaco tip must never touch any solid material while in use.
- Handpieces can be extremely hot immediately after sterilization. Use care and caution when handling.
- Do not activate the phaco handpiece and vitrectomy cutter with the tip in the air. Exposure of the tip to air drastically reduces the useful life of the handpiece. If you introduce power to the phaco handpiece or vitrectomy cutter, the tip must be in a test chamber filled with balanced salt solution, in a container of balanced salt solution, or in the patient's eye.
- Failure to properly attach the tubing to the vacuum source or pressure source can affect the vitrectomy cutter operation.
- You must check the diathermy cable periodically for damage. If the cable shows signs of damage, replace the cable immediately with the same type of cable. Use of other types of cables can affect the diathermy performance.
- During surgery, the diathermy output power must be as low as possible for the intended purpose. JJSV recommends the 30% setting to start.
- You must position the diathermy cable in such a way that the cable avoids contact with the patient or other leads. When you use diathermy, grounded or ungrounded metal parts must not come in contact with the patient.
- For proper operation of the diathermy, replace the handpiece with the same type.
- Do not exceed the maximum weight of two 500 ml balanced salt solution bottles on the IV pole bottle holder.

- Never handle the foot pedal by its cable.
- Do not attempt to carry the foot pedal by the heel when the heel insert is attached. The heel insert could become loose causing the foot pedal to drop.
- Do not place the foot pedal on a wet surface.
- Securely attach plugs, handpiece cables, and other connectors.
- 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.
- Never attempt to straighten a bent phaco ultrasonic tip. This might produce a broken tip when you apply ultrasound.
- Perform functional checks of the system before first use of the day.
- If you do not hear a tone when you press the foot pedal and volume adjustment is unsuccessful, the mode is not functioning properly. Refer to [Chapter 10, "Error Messages, Troubleshooting, and Diagnostics"](#).
- Only use the JJSV specified replacement battery in the Advanced Linear Pedal to ensure correct system performance. See ["Charging Options for Wireless Foot Pedals" on page 10-4](#).



Warnings

- All personnel who might operate this equipment must read and understand the instructions in this manual before they use the system. Failure to do so might result in the improper operation of the system. Only a trained licensed physician can use this device.
- Do not modify the VERITAS™ Vision System.
- The system comes equipped with a 3-prong power plug which you must plug into an outlet with a ground receptacle. If the plug does not fit the outlet, contact an electrician.
- To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- Ensure the balanced salt solution bottle is at or above the eye level of the patient.
- The surgical staff must monitor the balanced salt solution bottle height and fluid level at all times. A low bottle or empty bottle affects the fluid balance and the intraocular pressure (IOP) while aspirating. Low bottle height or low or empty bottle fluid level can result in:
 - ▶ Inadvertent chamber shallowing or collapse
 - ▶ Aspiration or abrasion of the iris or other tissue
 - ▶ An ultrasonic wound heating commonly called wound burn (extreme case)
- Do not attempt to use the system if the system fails to perform properly as stated in this manual.

- Do not use the system in the presence of any of the following as a fire can result:
 - ▶ flammable anesthetics
 - ▶ other flammable gases
 - ▶ flammable fluids
 - ▶ flammable objects
 - ▶ oxidizing agents
- Ensure the patient does not have a cardiac pacemaker or other active implant as this unit might interfere with any cardiac pacemaker; therefore obtain qualified advice prior to such use.
- The patient must not come into contact with grounded metal parts or metal parts that have appreciable capacitance to ground. JJSV recommends the use of an antistatic mat for this purpose.
- Use proper handling and disposal methods for biohazards when you dispose of the tubing pack, Mayo tray drape, and monitor drape.
- Ensure the tubing pack drain bag does not over-fill. The maximum capacity of the bag is 600 cc.
- Use caution when you extend, retract, or swivel the Mayo tray articulating arm. Stay clear of the hinged hardware.
- Do not modify the pole height or manually force the pole height because this could cause incorrect indication of bottle height and patient injury.
- Please note that when Cont. Irr. Auto-Off is enabled, a significantly large wound leakage or air bubbles in the tubing lines may affect the feature.
- Bottles are the only irrigation source specified for use with the VERITAS Advanced Infusion Tubing Pack. Using the VERITAS Advanced Infusion Tubing Pack with a bag as the irrigation source could result in a lower irrigation pressure than what is reported by the system.
- Operating phacoemulsification without an adequate irrigation flow can result in an elevated temperature of the tip and subsequent damage to the eye tissue or could cause the chamber to collapse.
- Place monitoring electrodes or other types of equipment as far from those of the VERITAS Vision System as possible. JJSV recommends high current limiting devices for the protection of such systems. Do not use needle monitoring electrodes.
- Keep the diathermy cord away from the patient and other handpieces or leads (for example, monitoring electrodes). Keep unused ACTIVE ELECTRODES away from the patient.
- The output power selected must be as low as possible for the intended purpose.

-
- This unit complies with all Electromagnetic Interference (EMI) standards and requirements. It is possible that interference provided by the operation of the HIGH FREQUENCY (HF) SURGICAL EQUIPMENT can adversely influence the operation of other electronic equipment.
 - Do not have skin-to-skin contact on the patient. For example, between the arms and the torso. Insert dry gauze to avoid contact, as appropriate.
 - ▶ The unit does not contain any neutral electrode.
 - ▶ The diathermy output is bipolar.
 - ▶ JJSV recommends that you check the condition of all interconnecting and handpiece cables on a regular basis.
 - Risk of burns and fire. Do not use the system near conductive materials such as metal bed parts, inner spring mattresses, or similar items. Replace electrode cables on evidence of deterioration.
 - Hazardous electrical output. This equipment is for use only by qualified personnel.
 - If there is damage to the cord or the plug, do not use the instrument. A damaged cable can cause an electric shock to the user or a fire hazard to the system. Call JJSV customer service to order a new cord.
 - Disconnect the power before you service the equipment.
 - Remove the power cord from the power outlet when the equipment is not in use.
 - Do not obstruct the power outlet so you can readily remove the power cord.
 - To prevent the risk of fire or damage to the instrument, replace the fuses with the exact type and rating (check the voltage sticker on the back panel of the system to confirm your system voltage).
 - Not recommended for use in condensing environments. If exposed to a condensing environment, allow the system to equilibrate to typical operating room conditions prior to use. Only use the system within the stated relative humidity conditions.
 - You do not need to use a NEUTRAL ELECTRODE with this HIGH FREQUENCY (HF) SURGICAL EQUIPMENT.
 - Failure of the HIGH FREQUENCY (HF) SURGICAL EQUIPMENT could result in an unintended increase of output power.
 - Do not replace the foot pedal battery while in use with a patient.
 - Do not replace the remote control battery while in use with a patient.
 - Do not try to replace the batteries for the Advanced Control Pedal. Call your JJSV technical service representative to replace the batteries.
 - Sterility assurance is the responsibility of the user. You must sterilize all non-sterile accessories prior to use.

- Prior to using any invasive portions of the handpiece assembly, examine under the microscope for any obvious damage, oxidation, or the presence of foreign material. You must note any questionable characteristics; use a backup handpiece for surgery. Use of contaminated or damaged system accessories can cause patient injury.
- Do not have the handpiece tip in the eye of the patient when you prime and tune the handpiece.
- Do not use non-JJSV approved products with the VERITAS Vision System, as this can affect overall system performance. JJSV cannot be responsible for system surgical performance if you use these products in surgery.
- Use tips and sleeves that are designed to work together. Using improperly matching tip/sleeve combinations can result in insufficient fluid flow.
- Do not use the sleeves beyond their useful life. Using sleeves beyond their useful life can result in insufficient fluid flow or debris in the eye.
- Inspect batteries for damage before installation. Do not install damaged batteries. Installing damaged batteries could result in a fire.
- Avoid balanced salt solution free flow conditions. Balanced salt solution free flow can result in a slip hazard.
- The Advanced Infusion feature must only be used with bottles and is not to be used with bags. Using the Advanced Infusion feature with a bag may result in lower than expected irrigation pressure.
- Do not use the ultrasonic tip beyond its specified useful life. Using the ultrasonic tip beyond its specified useful life may result in:
 - ▶ exfoliation of the tip leaving debris in the eye
 - ▶ reduced cutting capability, which may increase time required for surgery
 - ▶ insufficient flow of fluid
- The VERITAS Swivel handpiece is an inseparable assembly. The user must not attempt to disassemble the swivel joint.
- If the sterile packaging for a single-use accessory is damaged, notify JJSV. Do not use the accessory as sterility cannot be assured.
- All tubing packs are single-use. Reusing a single-use device can cause bodily fluids from one patient to enter the eye of another patient. This can lead to medical conditions including: Toxic Anterior Segment Syndrome (TASS), Chemosis, Conjunctivitis Microbial, Endophthalmitis, Infectious Keratitis, Anterior Uveitis, and Keratoconjunctivitis.
- Do not charge the Foot Pedal in the patient environment. Do not come in contact with patient when touching the device under charge.
- When using Advanced Infusion, the effective bottle height cannot go below 30cm without re-priming and selecting the Advanced Fluidics program.

- This equipment/system is intended for use by healthcare professionals only. This equipment/system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as re-orienting or relocating the VERITAS Vision System or shielding the location.
- The VERITAS Vision System needs special precautions regarding electromagnetic compatibility (EMC) and needs to be installed and put into service according to the EMC information provided in this manual.
- Portable and mobile RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the VERITAS Vision System, including cables specified by JJSV. Otherwise, degradation of the performance of this equipment could result.
- The use of accessories, transducers and cables other than those specified by JJSV, may result in increased electromagnetic EMISSIONS or decreased electromagnetic IMMUNITY of the VERITAS Vision System.
- The VERITAS Vision System should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, the VERITAS Vision System should be observed to verify normal operation in the configuration in which it will be used.
- Do not replace the foot pedal battery when the pedal is attached to a power source.
- The VERITAS Vision System may be interfered with by other equipment, even if that other equipment complies with regulatory emission requirements such as the International Special Committee on Radio Interference (CISPR).
- Inadvertent activation of functions that are intended for priming or tuning handpieces while the handpiece is in the eye can create a hazardous situation that could result in patient injury.
- Danger of ignition of endogenous gases (e.g., cotton and gauze saturated with oxygen may be ignited by sparks produced during normal use of HIGH FREQUENCY (HF) surgical equipment).
- Ensure the maximum capacity of the drain container is not exceeded as this could cause a hazardous situation to the patient.
- The ophthalmic irrigation solution source shall be at or above the patient's eye level.
- Never intentionally modify handpieces or tips (e.g., do not bend, cut, or engrave them) as they could break or malfunction.
- Use caution when using clamps on a tubing set.
- Use only recommended tubing set(s).
- Do not touch an activated ultrasonic handpiece tip, as injuries could occur.

Residual Risks

The final Relative Residual Risk Level Rating for all VERITAS Vision System items was determined to be either Low or Medium. Risk has been mitigated As Far As Possible (AFAP), and is outweighed by the device's benefits.

Regulatory Symbol Definitions

The following symbols with regulatory relevance based on Reference Standards appear on the VERITAS Vision System front and back panels.

Symbol	Definition	Reference Standard
	Caution	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference #5.4.4
	General warning sign	IEC 60601-1:2005+AMD1:2012 Medical electrical equipment - Part 1: General requirements for basic safety and essential performance Symbol reference Table D.2 #2 (ISO 7010-W001)
	Consult instructions for use	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference #5.4.3
	Follow instructions for use	IEC 60601-1:2005/(R)2012 Medical electrical equipment – Part 1: General requirements for basic safety and essential performance Symbol reference Table D.2 #10 (ISO 7010-M002)
	Indicates compliance with the Medical Device Directive.	MDR 2017/745 Regulation (EU) 2017/745
	Authorized Representative in the European Community	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference # 5.1.2

Symbol	Definition	Reference Standard
	Catalogue number	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference # 5.1.6
	Serial number	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference # 5.1.7
	Date of manufacture	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference # 5.1.3
	Manufacturer	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference # 5.1.1
	Medical Device	MedTech Europe Guidance on Use of Symbols to Indicate Compliance with the MDR, December 2019 (Version 2.0) (included in the ISO 15223-1 revision process)
	Do not dispose with household waste. Contact JJSV Technical Support for a disposal location.	EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE). Symbol reference Annex IX
	Keep dry	ISO 15223-1:2016 Medical devices - Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference #5.3.4.
	Temperature limit	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference #5.3.7

Symbol	Definition	Reference Standard
	Humidity limitation	ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements Symbol reference #5.3.8
	Packaging unit	ISO 7000 Graphical symbols for use on equipment – Index and synopsis
	China RoHS – Label	Standard of the Electronics Industry of the People's Republic of China SJ/T 11364 – 2014
	Warning; Electricity	ISO 7010 – Graphical symbols – Safety colors and safety signs – Registered safety signs Symbol reference #W012

Regulatory Compliance Statements

Federal Communications Commission (FCC) Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by JJSV can void the user's authority to operate the equipment. (FCC Part 15.21)

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 or her own expense.

Industry Canada (IC) Notice of Compliance

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

System Disposal

WEEE



This symbol is located on the VERITAS Vision System and indicates that the equipment consists of electronic assemblies and other components that may be subject to Directive 2012/19/EU, of the European Parliament, which advises that Electrical and Electronic Equipment (EEE) must not be disposed of as normal domestic refuse. To prevent environmental risks or endangerments by nonprofessional disposal, the disposal of this product, including any accessories, must comply with valid practices as outlined in Directive 2012/19/EU, and local regulations. Contact JJSV Technical Support for a disposal location.

Toxic and Hazardous Substances

This section provides information about the Restriction of Hazardous Substances (RoHS) in the European Union (EU) and China. The section also provides information about Registration, Evaluation, Authorization and Restriction of Chemicals (EU REACH).

Restriction of Hazardous Substances in Electrical and Electronic Equipment (EU RoHS)

All homogeneous materials for the parts contained within the VERITAS Vision System are below the limit requirement in Directive 2011/65/EU Annex II, or are addressed by an exemption noted in Annex III or IV.

RoHS information for China

See [Table 2.1](#) for a description of the Measure for Administration of the Pollution Control by Electronic Information Products for China.

Table 2.1 – Restriction of Hazardous Substances (China)

Names and Contents of Toxic/Hazardous Substances or Elements Contained in Products						
	Toxic/Hazardous Substances or Elements					
Assembly						
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr6+)	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	X	O	O	O	O	O
Power Supply	X	O	O	O	O	O
Motherboard	X	O	O	O	O	O
Rear Panel Assembly	X	O	O	O	O	O
Pneumatics	X	O	O	O	O	O
Monitor	X	O	O	O	O	O
Base Unit	X	O	O	O	O	O
Fluidics	X	O	O	O	O	O
VERITAS Remote Control	X	O	O	O	O	O
Single Linear Foot Pedal	X	O	O	O	O	O
Advanced Control Pedal (ACP)	X	O	O	O	O	O
Advanced Linear Pedal (ALP)	X	O	O	O	O	O
VERITAS Foot Pedal	X	O	O	O	O	O

Format of this table is in compliance with SJ/T11364-2006.

O: Indicates that this toxic/hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T26572.

X: Indicates that this toxic/hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in GB/T26572.

Registration, Evaluation, Authorization and Restriction of Chemicals (EU REACH)

For information related to Article 33 of the EU REACH regulation (EC No. 1907/ 2006), please contact JJSV at ps_jjvs@its.jnj.com.

Packaging Information

The packaging for the VERITAS Vision System weights 187 pounds (85kg) and consists of wood and foam.

Serious Incident Reporting

Report all serious incidents to JJSV and the national competent authority.

Incidents should be reported to JJSV via email based on region as shown below.

Region	Mailbox
Asia-Pacific	JJSV-APAC-Complaints@its.jnj.com
Latin America	reclamacoesjjsv@its.jnj.com
Canada	JJSVCanadaQA@its.jnj.com
Distributors Market in EMEA	Dist-QA-Complaints@its.jnj.com
France	FR-QA-Complaints@its.jnj.com
Germany, Austria, Switzerland, Liechtenstein, and BeNeLux	CEM-QA-Complaints@its.jnj.com
Italy, Spain and Portugal	SEM-QA-Complaints@its.jnj.com
Japan	DL-VISAP-CL-AMO-JP-COMPLAINT@its.jnj.com
Sweden, Norway, Denmark, Iceland and Finland	Nordics-QA-Complaints@its.jnj.com
UK and Ireland	UK-QA-Complaints@its.jnj.com
United States of America	RA-VISUS-AMOProdComp@its.jnj.com

Instructions for Minimizing the Environmental Impact During Normal Use

Methods of minimizing environmental impact include:

- Using reusable accessories instead of single-use accessories where possible
- Recycling packaging materials of accessories where possible
- At the end of the surgical day, unplug the power cord from the wall

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3 — System Components

- “Receipt and Inspection Instructions” on page 3-1
- “VERITAS Vision System Components” on page 3-1
- “Tubing Packs” on page 3-4
- “VERITAS Heel Insert (Optional)” on page 3-14
- “Programmable IV Pole” on page 3-15
- “VERITAS Remote Control” on page 3-15
- “Surgical Media Center (SMC) (Optional)” on page 3-17

Receipt and Inspection Instructions

When you receive your VERITAS™ Vision System inspect the exterior packaging for any signs of damage that might have occurred during shipping and record this damage on the shipping documents. If there are any signs of damage to the exterior packaging, have authorized personnel carefully unpack the VERITAS Vision System and inspect the system for damage. If any damage to the package contents has occurred, you must immediately file a claim with the transporter. The transporters accept claims only from the recipient (you), not from the shipper (JJSV).

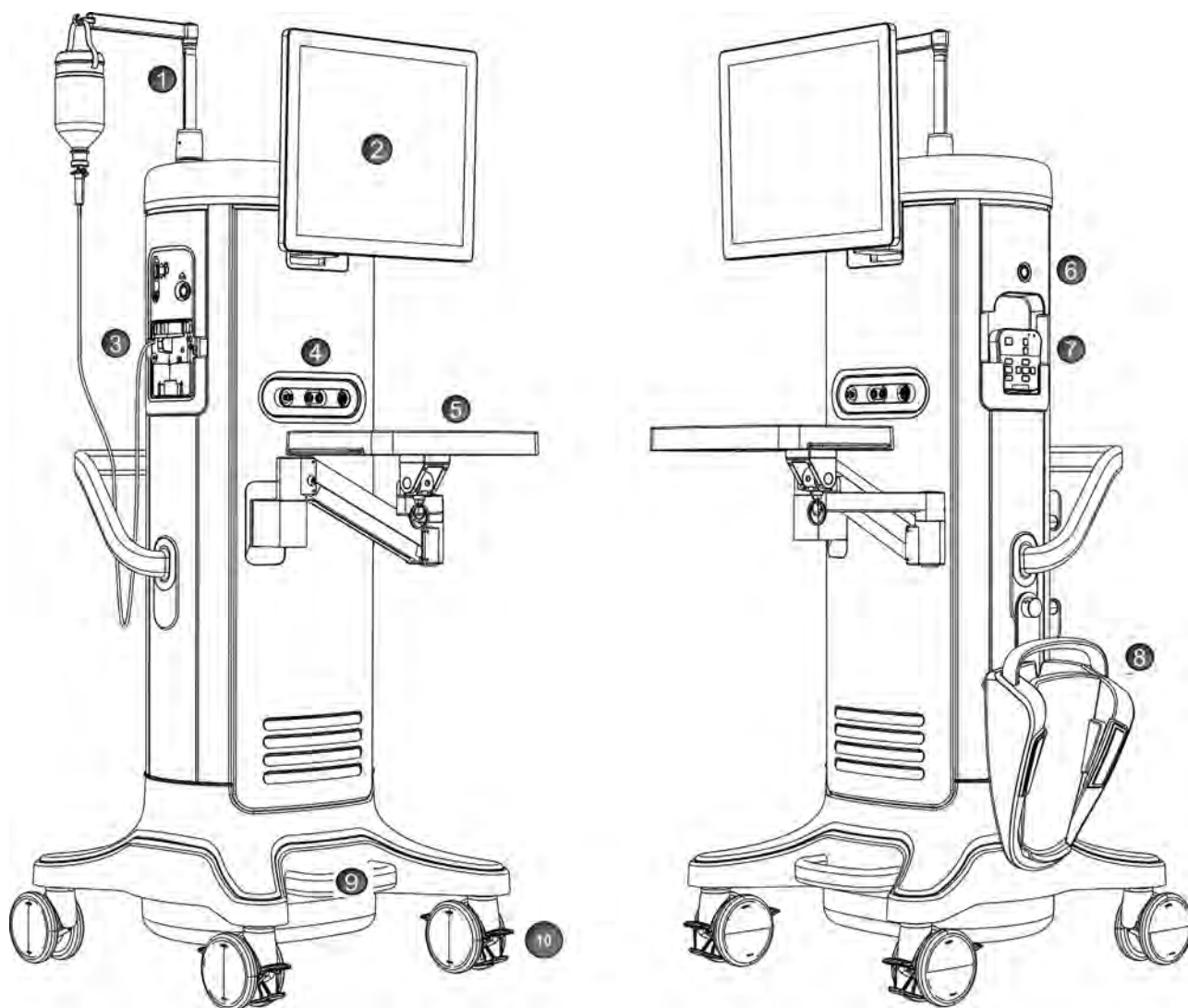
Your JJSV representative will contact you to schedule both the installation and the in-service training when you receive your new VERITAS Vision System. We suggest that you leave the VERITAS Vision System in the original packaging. Store the package in a cool, dry environment until the JJSV installation personnel arrive to assemble, install, and test your equipment. Extreme heat, cold or moisture can damage any electronic equipment.

VERITAS Vision System Components

Your VERITAS Vision System consists of all or some of the following components:

- VERITAS Vision System console with a touchscreen monitor, a Mayo tray on an adjustable arm, detachable power cord, and a programmable IV pole
- Tubing pack (disposable)
- Foot pedal and foot pedal cable (VERITAS Foot Pedal, Single Linear Pedal (SLP), Advanced Control Pedal (ACP), or Advanced Linear Pedal (ALP)) (with AC Charger for the ACP, VERITAS Foot Pedal, and the ALP)
- Wireless VERITAS Remote Control module and VERITAS Vision System Operator Manual
- Surgical Media Center (optional) and VERITAS Heel Insert (optional)

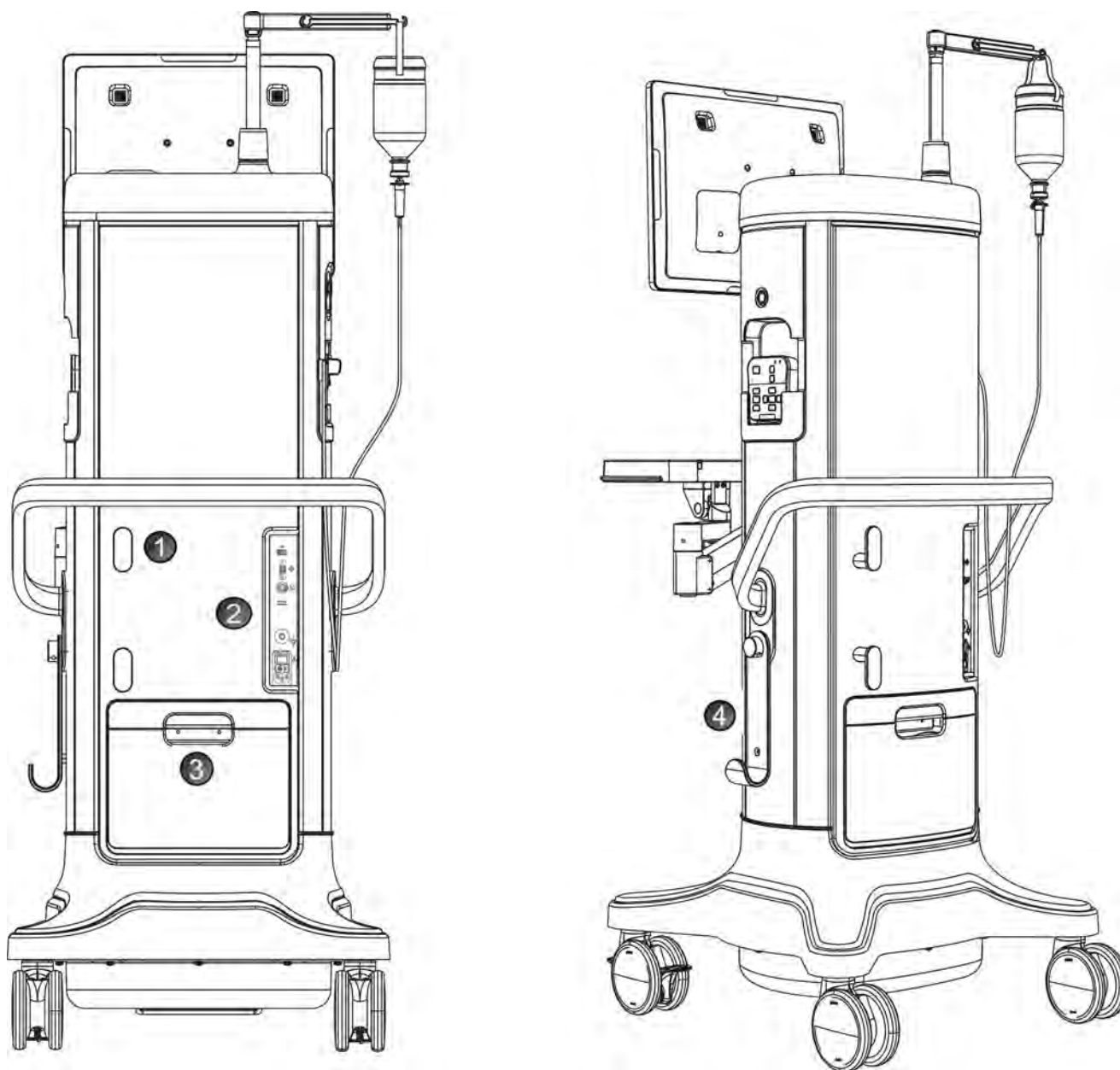
Figure 3-1 — VERITAS Vision System (front)



1. Programmable IV Pole
2. Touchscreen monitor
3. Tubing Pack inserted
4. Front Panel Connections (see [Figure 4-1](#))
5. Mayo Tray

6. On/Off button
7. VERITAS Remote Control storage
8. Foot Pedal stored on J-Hook
9. Foot Loop for system repositioning
10. Locking Wheels

Figure 3-2 — VERITAS Vision System (back)



1. Power Cord Wrap – Allows for wrapping and storage of the console power cord
2. Rear Panel Connections (see [Figure 4-2](#))

3. Storage Compartment – Allows for storage of miscellaneous accessories and foot pedal cable
4. J-Hook for foot pedal storage

Tubing Packs

Each surgical procedure requires a disposable tubing pack. The FUSION™ Dual Pump Tubing Pack, VERITAS Advanced Infusion Tubing Pack, and the VERITAS Advanced Fluidics Tubing Pack work with both the peristaltic pump and the Venturi pump. All the supported packs are dual pump packs, so you can select either pump while you are in a surgical case.

The tubing pack contains the following components:

- A tubing pack with irrigation and aspiration tubing (administration set) with an attached, sealed drain bag
- Test chamber – to test and prime/tune the phaco handpiece
- Mayo tray drape – to cover the Mayo tray and arm
- Monitor drape – to cover the front of the touchscreen monitor



WARNING!

All tubing packs are single-use. Reusing a single-use device can cause bodily fluids from one patient to enter the eye of another patient. This can lead to medical conditions including: Toxic Anterior Segment Syndrome (TASS) or Chemosia, Conjunctivitis Microbial, Endophthalmitis, Infectious Keratitis, Anterior Uveitis, and Keratoconjunctivitis.



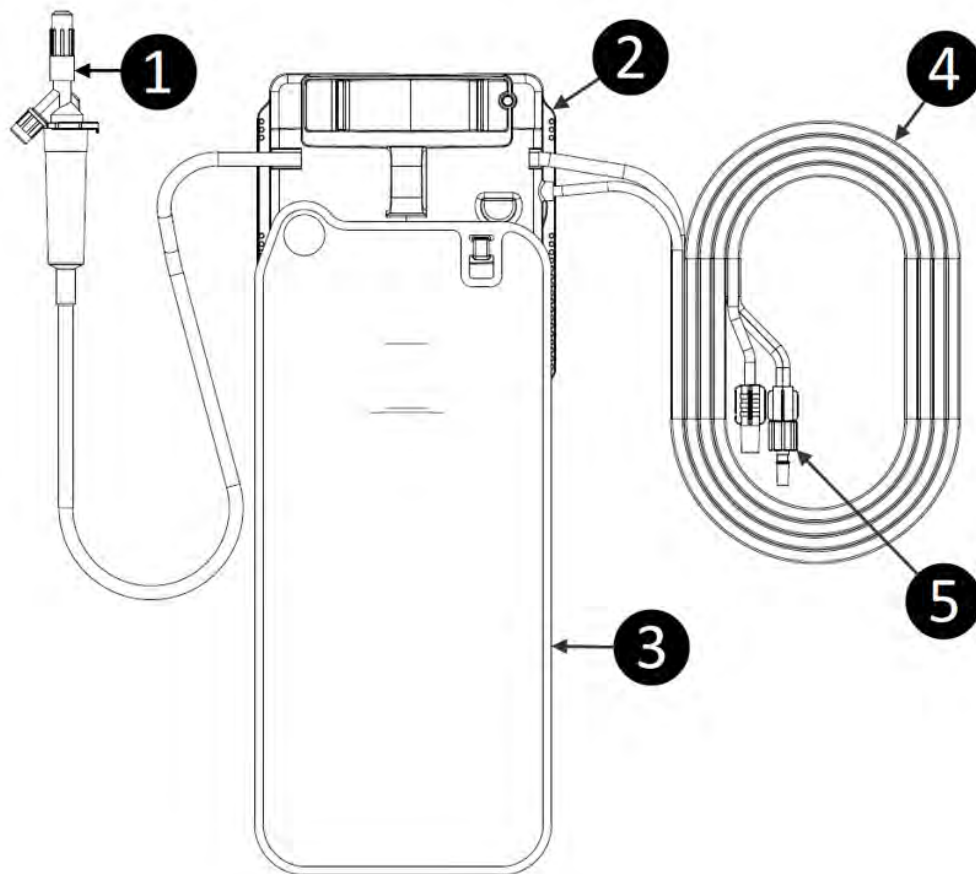
WARNING!

Use proper handling and disposal methods for biohazards when you dispose of the tubing pack, Mayo tray drape, and monitor drape.

VERITAS Advanced Fluidics Tubing Pack

The VERITAS Advanced Fluidics Tubing Pack (VRT-AF) (Figure 3-3) includes all the features of the FUSION Dual Pump Tubing Pack with smaller bore aspiration tubing. It also features a male irrigation luer lock fitting to help secure the connection to a handpiece possessing the mating feature.

Figure 3-3 — VERITAS Advanced Fluidics Tubing Pack

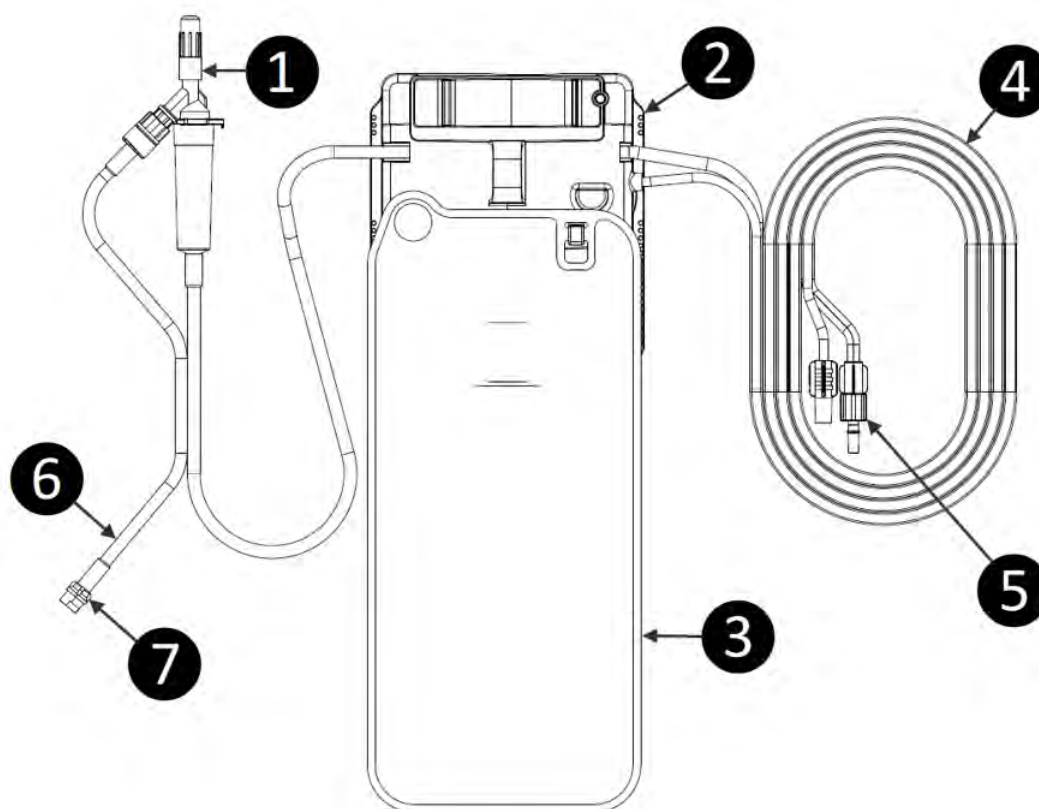


- | | |
|---------------------------------|----------------------------------|
| 1. Spike (To Irrigation Bottle) | 4. I/A Tubing Set (To Handpiece) |
| 2. Manifold | 5. Irrigation Luer Lock Fitting |
| 3. Drainage Bag | |

VERITAS Advanced Infusion Tubing Pack

The VERITAS Advanced Infusion Tubing Pack (VRT-AI) (Figure 3-4) includes all the features of the Advanced Fluidics Tubing Pack and allows for the activation of the Advanced Infusion mode to increase irrigation pressure beyond what is supplied by gravity alone. The increase in irrigation pressure is achieved by adding pressurized air (equivalent to 30 cm of bottle height) into the balanced salt solution bottle. Compared to gravity-only tubing packs, the Advanced Infusion feature allows greater irrigation pressure at the same IV pole height.

Figure 3-4 — VERITAS Advanced Infusion Tubing Pack



- | | |
|----------------------------------|---|
| 1. Spike (To Irrigation Bottle) | 5. Irrigation Luer Lock Fitting |
| 2. Manifold | 6. Infusion Line |
| 3. Drainage Bag | 7. Infusion Connector (To Console Side Panel) |
| 4. I/A Tubing Set (To Handpiece) | |



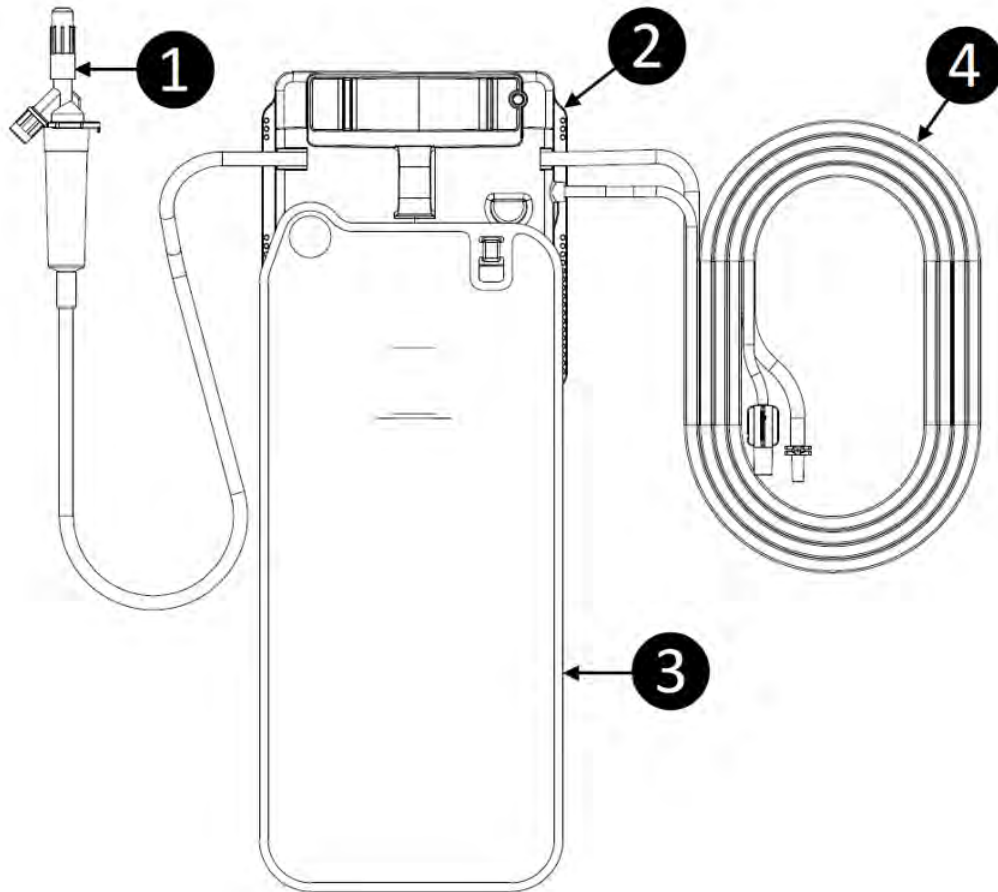
WARNING!

Bottles are the only irrigation source specified for use with the VERITAS Advanced Infusion Tubing Pack. Using the VERITAS Advanced Infusion Tubing Pack with a bag as the irrigation source could result in a lower irrigation pressure than what is reported by the system.

FUSION Dual Pump Tubing Pack

The FUSION Dual Pump (DP) Tubing Pack (OPO73) (Figure 3-5) includes support for the flow based peristaltic aspiration pump and the vacuum based Venturi aspiration pump.

Figure 3-5 — FUSION Dual Pump Tubing Pack



1. Spike (To Irrigation Bottle)

2. Cassette

3. Drainage Bag

4. I/A Tubing Set (To Handpiece)

Foot Pedal

The foot pedal controls all of the system functions, therefore, it is essential that you understand the foot pedal operation.

The system software automatically detects if a foot pedal is present and what type of foot pedal is attached during start up.

The foot pedal settings and adjustments can be selected and preset for all of the foot pedals on the Foot Pedal Setup screen. Instructions for the foot pedal settings are given in [“Edit Surgeon Settings” on page 5-4](#). The foot pedal housing incorporates a handle, making the foot pedal easy to grip for repositioning and storage.

NOTE: Always handle the foot pedal by its handle, not by its cable.

The foot pedal cable attaches to the foot pedal connector on the rear of the console. The VERITAS Foot Pedal, Advanced Control Pedal, and the Advanced Linear Pedal can also be set up with a wireless connection.

If the foot pedal is not activated four to six minutes after the system is shut down, the wireless foot pedals go into a power-save mode.

- To wake-up the VERITAS Foot Pedal after you start up the system, depress and release the treadle or any of the buttons.
- To activate the Advanced Control Pedal after you start up the system, touch the wake-up button on the foot pedal.
- To wake-up the Advanced Linear Pedal after you start up the system, tap the pedal.

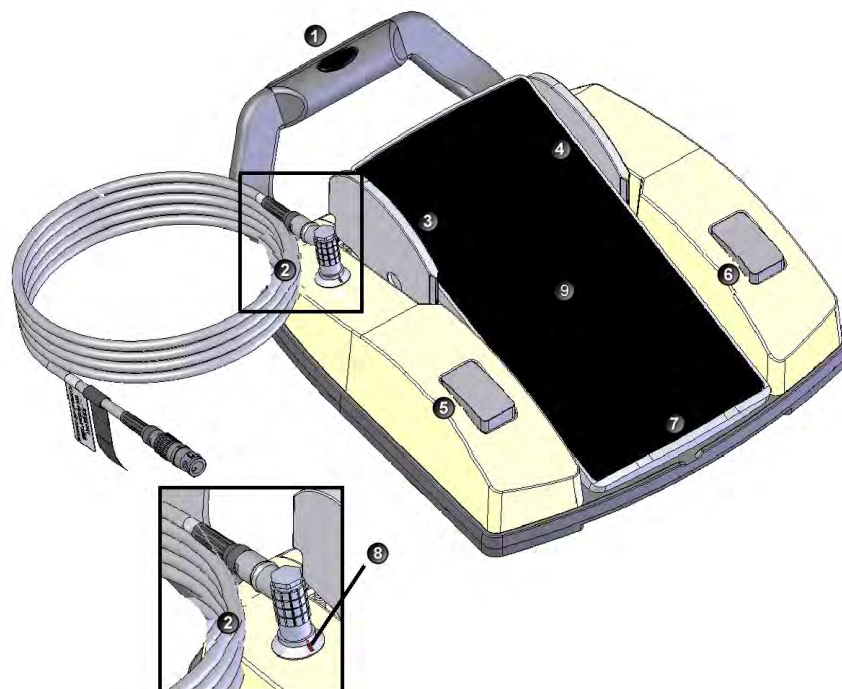
After two hours, when the system is on and the wireless Advanced Control Pedal is inactive, it will go into a power-save mode. The wireless Advanced Linear Pedal and wireless VERITAS Foot Pedal only go to sleep when the system is shut down.

Figure 3-6 — VERITAS Foot Pedal



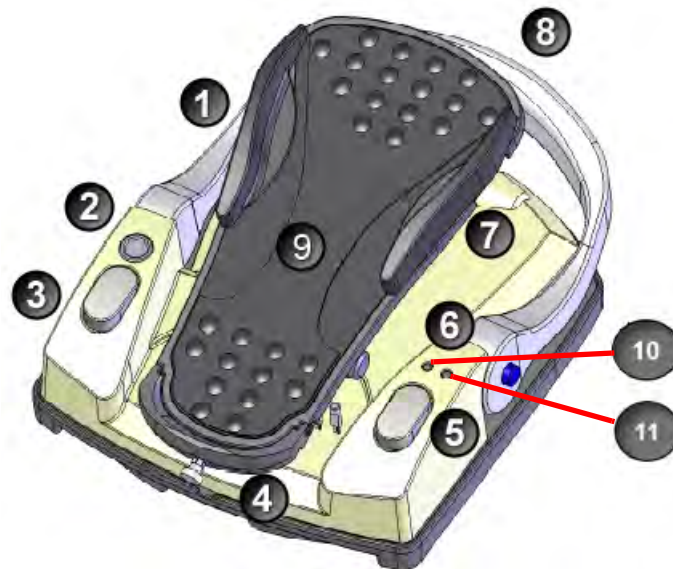
- | | | |
|-----------------------------|--------------------|-----------------------|
| 1. Handle | 4. Treadle | 7. Wireless Indicator |
| 2. Left/Right Top Switches | 5. Heel Rest | 8. Battery Indicator |
| 3. Left/Right Side Switches | 6. Cable Connector | |

Figure 3-7 — Single Linear Foot Pedal



- | | | |
|--------------------|----------------------|---------------------------|
| 1. Handle | 4. Right toe switch | 7. Heel rest |
| 2. Cable connector | 5. Left heel switch | 8. Cable connector detail |
| 3. Left toe switch | 6. Right heel switch | 9. Treadle |

Figure 3-8 — Advanced Control Pedal



- | | | | |
|---------------------|-------------------------|--------------|------------------------|
| 1. Left yaw | 4. Adjustable Heel Stop | 7. Right yaw | 10. Wireless Indicator |
| 2. Wake-up button | 5. Right heel switch | 8. Handle | 11. Battery Indicator |
| 3. Left heel switch | 6. Lights | 9. Treadle | |

Figure 3-9 — Advanced Linear Pedal

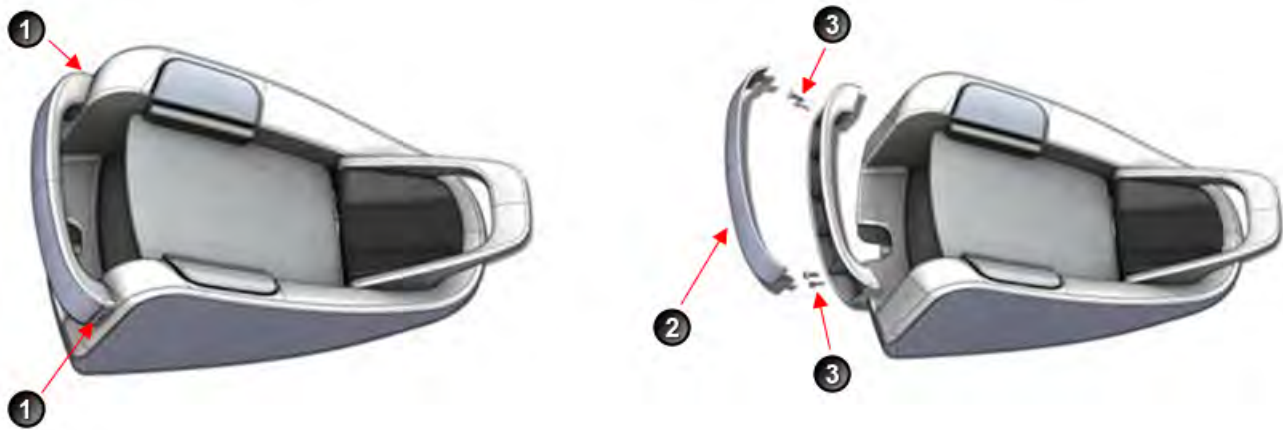


- | | | |
|---------------------------------|-----------------------|----------------------|
| 1. Handle | 4. Heel rest | 7. Battery Indicator |
| 2. Left and Right Top Switches | 5. Treadle | |
| 3. Left and Right Side Switches | 6. Wireless Indicator | |

Removing the Handle from the Advanced Linear Pedal

1. To remove the handle, press the clips on either side of the handle.

Figure 3-10 — Foot Pedal Handle Diagram



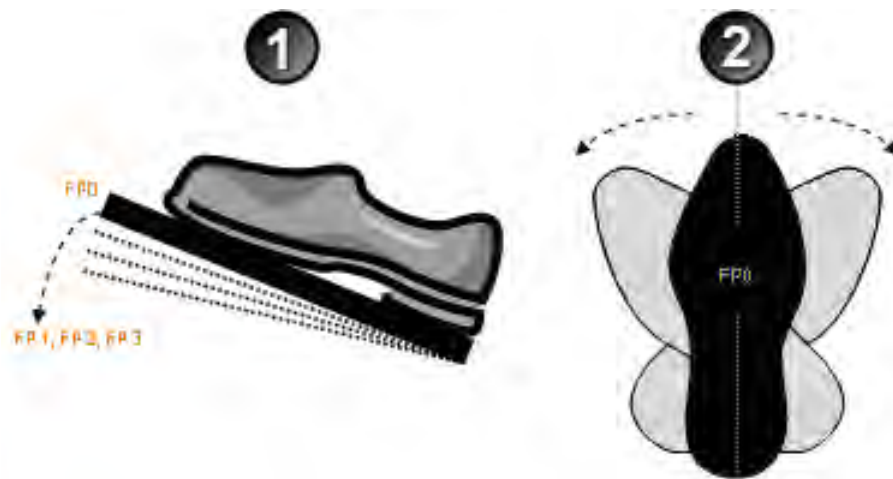
2. Remove the cover of the handle.
3. Remove the screws and store the screws and handle in a safe place.

NOTE: Do not lose the handle as it cannot be replaced.

Foot Pedal Operation

The foot pedal has three active “pitch” ranges, which are referred to as positions 1, 2 and 3 (FP1, FP2, FP3). Position 0 is the off position, and position 3 is the fully pressed position. The ranges are shown below. The Advanced Control Pedal has two Yaw switches.

Figure 3-11 — Advanced Control Pedal Pitch and Yaw Positions



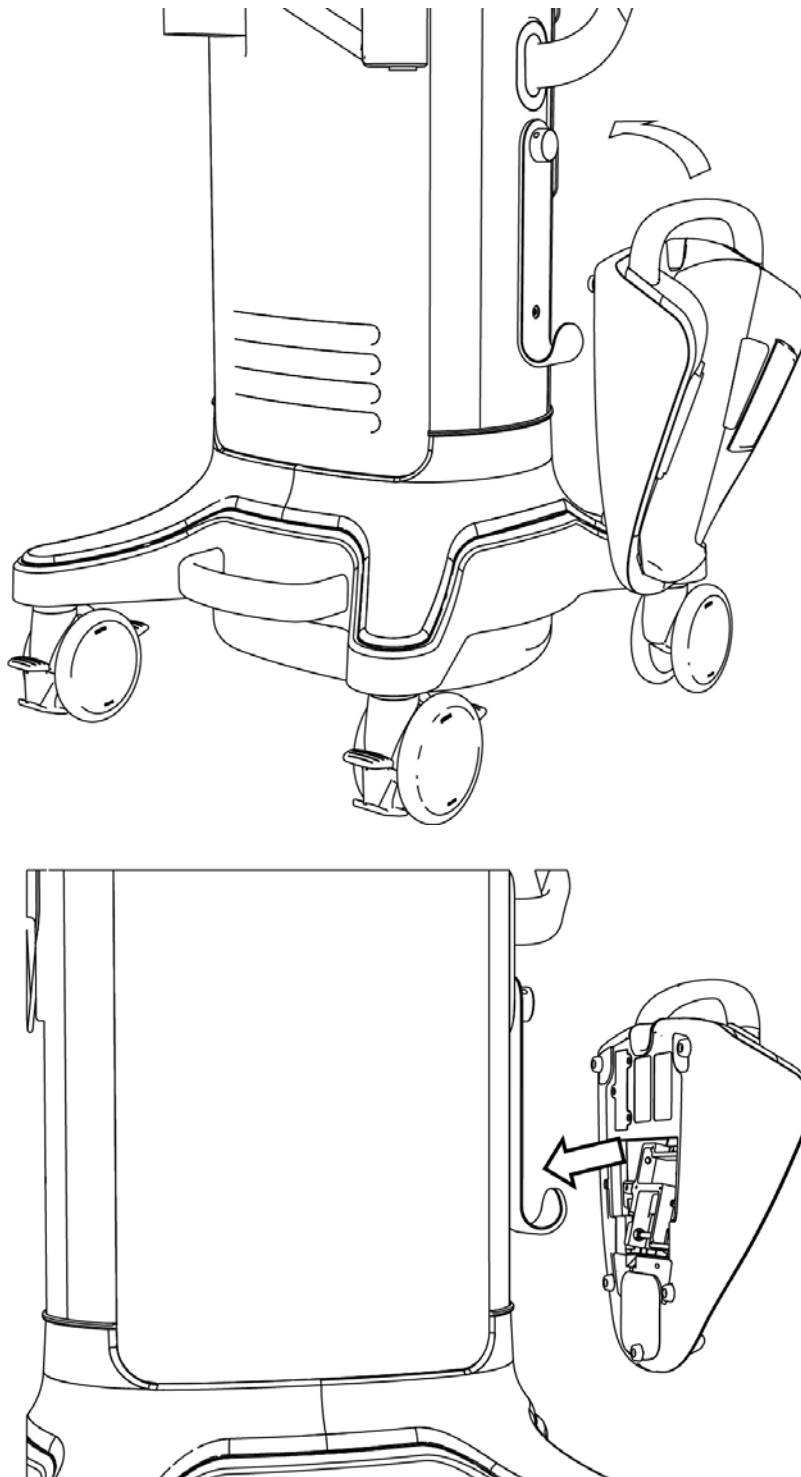
1. Pitch (Toe Down/Up, Configurable Ranges) 2. Yaw (Toe Right/Left, Configurable Ranges)

NOTE: The foot pedal position determines the function that is delivered by the handpiece, which depends on the mode selected on the touchscreen. When the foot pedal has been attached, place your foot on the pedal and press to the desired position. See [“Edit Surgeon Settings” on page 5-4](#) for foot pedal settings and programming.

Foot Pedal Storage

The Advanced Linear Pedal and VERITAS Foot Pedal can be stored on the system on the J-Hook as shown in [Figure 3-1](#), [Figure 3-2](#), and [Figure 3-12](#) below.

Figure 3-12 — Foot Pedal Storage



VERITAS Heel Insert (Optional)

The VERITAS Heel Insert (Figure 3-13) is an optional accessory for use with the VERITAS Foot Pedal. The VERITAS Heel Insert shifts the foot forward on the treadle, which may be more comfortable for some users. The VERITAS Heel Insert attaches to the VERITAS Foot Pedal by magnetic attraction. When not in use, the VERITAS Heel Insert can be stored in the storage compartment in the rear of the console.

Figure 3-13 — VERITAS Heel Insert



CAUTION!

Do not attempt to carry the foot pedal by the heel when the heel insert is attached. The heel insert could become loose causing the foot pedal to drop.

Programmable IV Pole

The programmable IV pole is controlled by the up and down arrows on the upper right of the touchscreen, next to the bottle height indicator. The buttons on the VERITAS Remote Control and the rocker switch on the side of the console can also be used to control the IV pole. The height is set on the Programmable IV Pole screen. The IV pole moves at a rate of approximately 7.6 cm per second (3 inches per second).

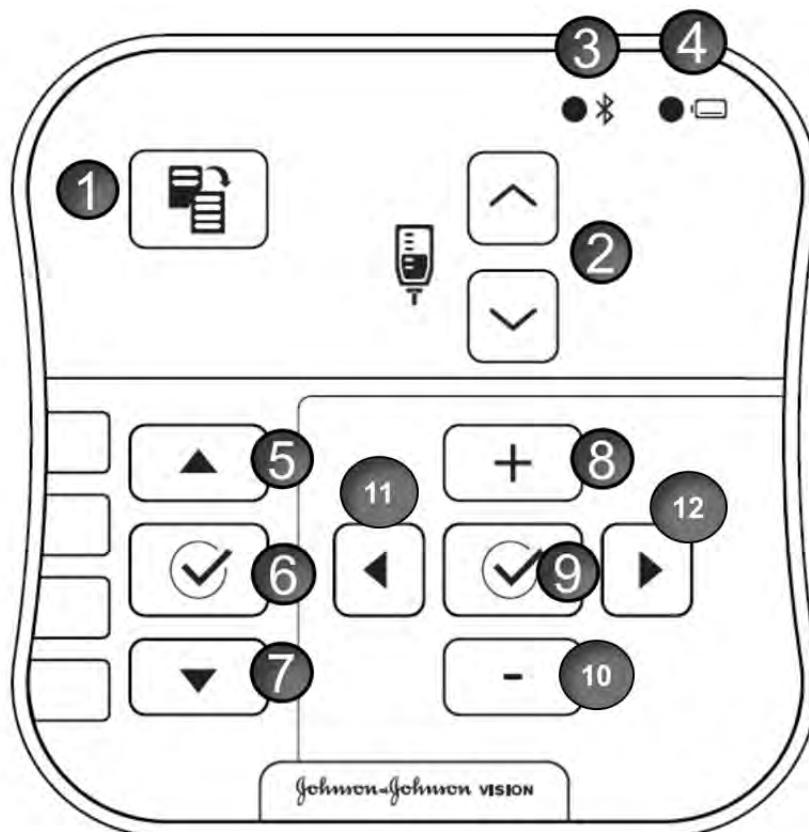
The IV pole is adjustable from 0 to 106 centimeters, and can be set for either inches or centimeters. When Advanced Infusion is enabled, the IV pole height displayed on the touchscreen monitor represents the effective bottle height, which consists of the height of the IV pole above the zero point plus 30 cm H₂O supplied by the pressurized infusion. The height measurement is relative to the distance from the irrigation valve to the center of the drip chamber. The IV pole height for each fluidic mode or submode (Phaco, I/A, Vitrectomy) is saved in the system memory. A maximum IV pole height can be set from the Configuration screen.

When a surgery mode is selected, the IV pole automatically moves to the preset height. To manually adjust the IV pole height, use the up and down arrows on the touchscreen monitor. Manual adjustments to the IV pole can also be made by pressing the rocker switch located on the side of the console. If a maximum height has been set, the IV pole does not move above that height.

VERITAS Remote Control

The wireless VERITAS Remote Control keypad can be used to move between the surgical modes and submodes. Adjustments to the surgical mode and submode settings can be made with the VERITAS Remote Control. The buttons on the remote keypad work the same as the controls on the system touchscreen monitor (see [Figure 3-14](#) below).

Figure 3-14 — VERITAS Remote Control Key Functions



- | | |
|----------------------------------|-------------------------|
| 1. Reload | 7. Mode/Submode Down |
| 2. IV Pole Up/Down | 8. Navigator Increment |
| 3. Wireless Connection Indicator | 9. Navigator Select |
| 4. Battery Indicator | 10. Navigator Decrement |
| 5. Mode/Submode Up | 11. Navigator Left |
| 6. Mode/Submode Select | 12. Navigator Right |

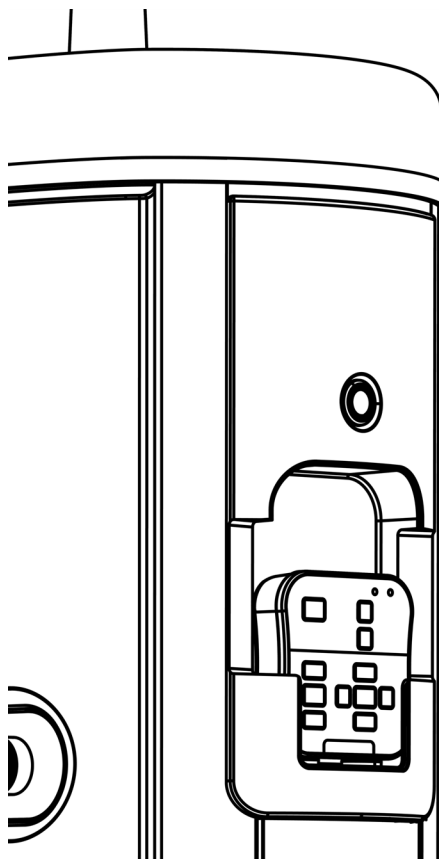
After you turn the system on, press any button to activate the VERITAS Remote Control.

NOTE: After four to six minutes of idle time, the VERITAS Remote Control goes into a power-save mode. To turn the VERITAS Remote Control on, press any button.

VERITAS Remote Control Storage

The VERITAS Remote Control can be stored on the system as shown in [Figure 3-1](#), [Figure 3-2](#), and [Figure 3-15](#) below.

Figure 3-15 — VERITAS Remote Control Module Storage



Surgical Media Center (SMC) (Optional)

The optional Surgical Media Center (SMC) is used to record the surgery and the instrument settings to be viewed at a later date and time. The surgery is displayed on a monitor with the instrument settings. The SMC hardware is attached to your system through the communication port on the rear panel (see [Figure 3-2](#) and [Figure 4-2](#)).

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4 — Surgery Start Up

- “VERITAS Vision System Setup” on page 4-1
- “Front and Rear Panel Connections” on page 4-2
- “IV Pole Setup” on page 4-4
- “Handpiece Setup” on page 4-4
- “Startup” on page 4-10
- “Install the Tubing Pack” on page 4-12
- “Cup Fill” on page 4-13
- “Prime/Tune” on page 4-14
- “Verify Irrigation/Aspiration Balance” on page 4-17
- “Priming for Vitrectomy” on page 4-18
- “Selecting and Changing Mode Parameters” on page 4-19
- “System Check-out” on page 4-20
- “Pre-operative Sterilization” on page 4-22
- “End Case” on page 4-22
- “System Shutdown” on page 4-26

VERITAS Vision System Setup

This is a general overview of the steps to prepare the VERITAS™ Vision System for surgery:

1. Attach the power cord to the power cord connector on the rear panel of the console (see [Figure 3-2](#) and [Figure 4-2](#)). Plug the power cord into a grounded power outlet.

NOTE: Do not position the equipment so that it is difficult to operate and disconnect the device.

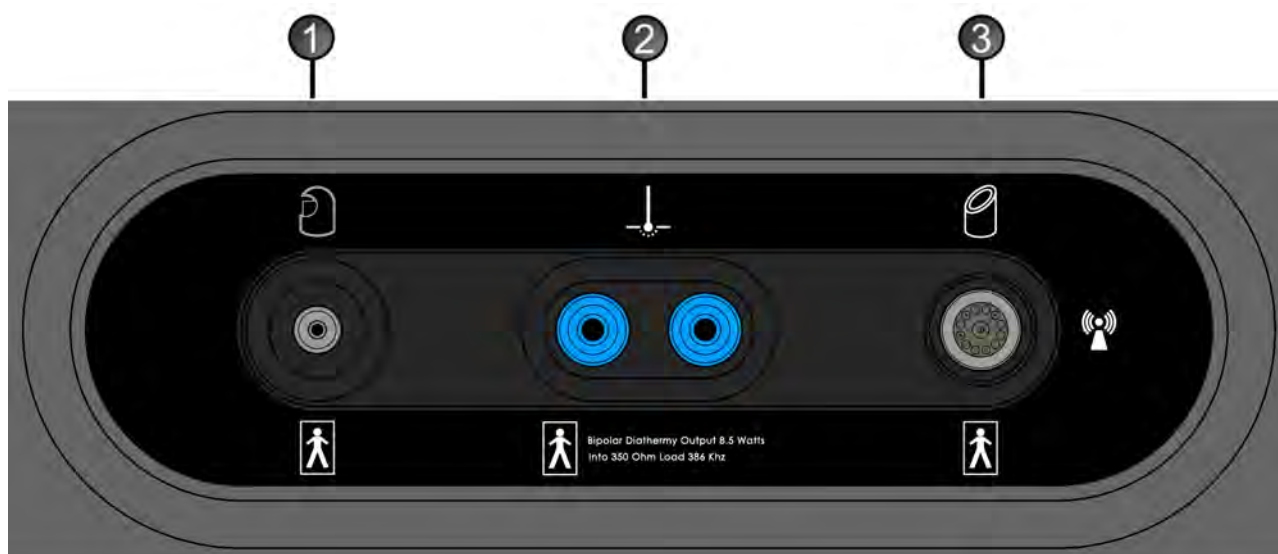
2. Attach the foot pedal to the foot pedal connector on the rear of the console (see [Figure 3-2](#) and [Figure 4-2](#)).
3. Turn the system on by pressing the Power switch on the rear panel of the console (see [Figure 3-2](#) and [Figure 4-2](#)).
4. Press the On/Off button on the right side panel above the remote control storage compartment (see [Figure 3-1](#)).
5. After completion of the self test, select the surgeon and program.
6. Install the tubing pack.

7. Assemble and attach the required accessories (phaco, vitrectomy, or diathermy handpieces) and set up the tubing.
8. Prime and tune the handpieces (see [“Prime/Tune” on page 4-14](#)).
9. Perform the final test of the fluidics and the handpiece integrity with the foot pedal (see [“Verify Irrigation/Aspiration Balance” on page 4-17](#).)

Front and Rear Panel Connections

This section shows the front and rear panel connections. See [Figure 3-1](#) and [Figure 3-2](#) for locations on the VERITAS Vision System.

Figure 4-1 — Front Panel Connections



1. Vitrectomy handpiece
2. Diathermy handpiece
3. Phaco handpiece

Figure 4-2 — Rear Panel Connections



- | | |
|-------------------------|-------------------------|
| 1. USB port | 5. Power switch |
| 2. Communication port | 6. Fuse holder |
| 3. Foot pedal connector | 7. Power cord connector |
| 4. Potential equalizer | |



CAUTION!

Securely attach plugs, handpiece cables, and other connectors.

IV Pole Setup

IMPORTANT:

Before you insert the spike into the bottle, shake the irrigation drip chamber at the end of the irrigation tubing to confirm that the irrigation valve moves. If the valve does not rattle, the valve cannot operate properly and irrigation cannot flow.

The IV pole moves to the appropriate height automatically based on the settings of the selected surgical mode. Follow these steps to set up the IV pole.

1. Remove the protector from the tip of the drip chamber spike. With the bottle upright, insert the drip chamber spike straight into the center of the rubber bottle stopper without twisting.
2. Hang the bottle of balanced salt solution on the IV pole.
3. Squeeze the drip chamber to fill the drip chamber with fluid to the half-full level.
4. Raise or lower the pole if needed. Use the IV pole up and down arrows on the upper right of the touchscreen. You can also use the rocker switch on the console.
5. Attach the I/A tubing to the handpiece.

NOTE: To ensure the bottle height does not change when you select I/A after vitrectomy during surgery, check the Bottle Height Hold checkbox on the Vitrectomy Settings screen.

Handpiece Setup

This section presents information about setting up the handpieces.

- [“Phacoemulsification Handpiece Setup – VERITAS Swivel” on page 4-5](#)
- [“Phacoemulsification Handpiece Setup – WHITESTAR and ELLIPS FX” on page 4-7](#)
- [“Irrigation/Aspiration Handpiece Setup” on page 4-9](#)
- [“Diathermy Handpiece Setup” on page 4-9](#)
- [“Vitrectomy Cutter Setup” on page 4-10](#)

Phacoemulsification Handpiece Setup – VERITAS Swivel



WARNING!

Sterility assurance is the responsibility of the user. You must sterilize all non-sterile accessories prior to use.



WARNING!

Prior to using any invasive portions of the handpiece assembly, examine under the microscope for any obvious damage, oxidation, or the presence of foreign material. Use a backup handpiece for surgery if there are any questionable characteristics of the handpiece. Use of contaminated or damaged system accessories can cause patient injury.

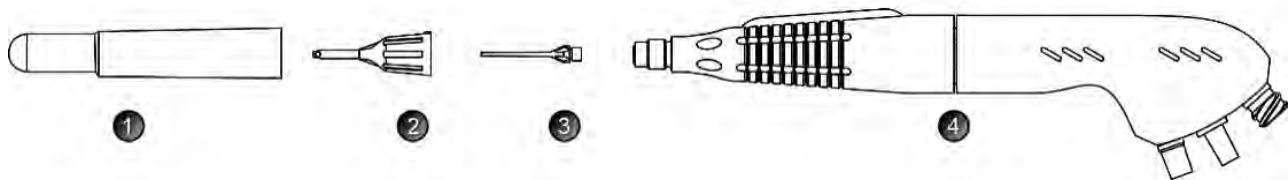
1. Use caution to prevent burns when handling the handpiece directly from sterilization.
2. Remove the tubing pack and accessories from the packaging and place them in the sterile area.
3. Assemble the phaco handpiece as shown below. You need the handpiece, phaco tip, appropriate tip wrench, one of the irrigation sleeves, and the test chamber.



CAUTION!

Never attempt to straighten a bent phaco ultrasonic tip. This might produce a broken tip when you apply ultrasound.

Figure 4-3 — Phaco Handpiece Assembly



1. Test Chamber

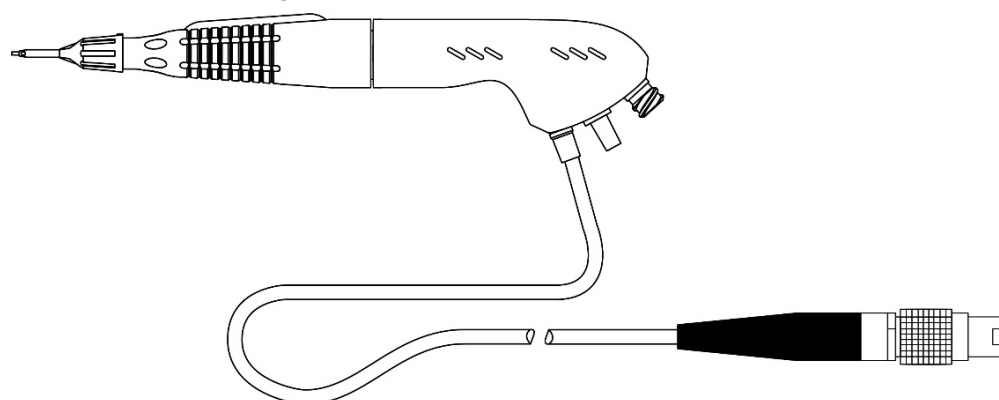
2. Irrigation Sleeve

3. Phaco Tip

4. Handpiece

4. Attach the connector end of the handpiece to the phaco receptacle on the front of the VERITAS Vision System (see [Figure 3-1](#) and [Figure 4-1](#)). Ensure there is no moisture on the connectors prior to attaching. Moisture prevents the handpiece from operating properly.

Figure 4-4 — VERITAS Swivel Handpiece



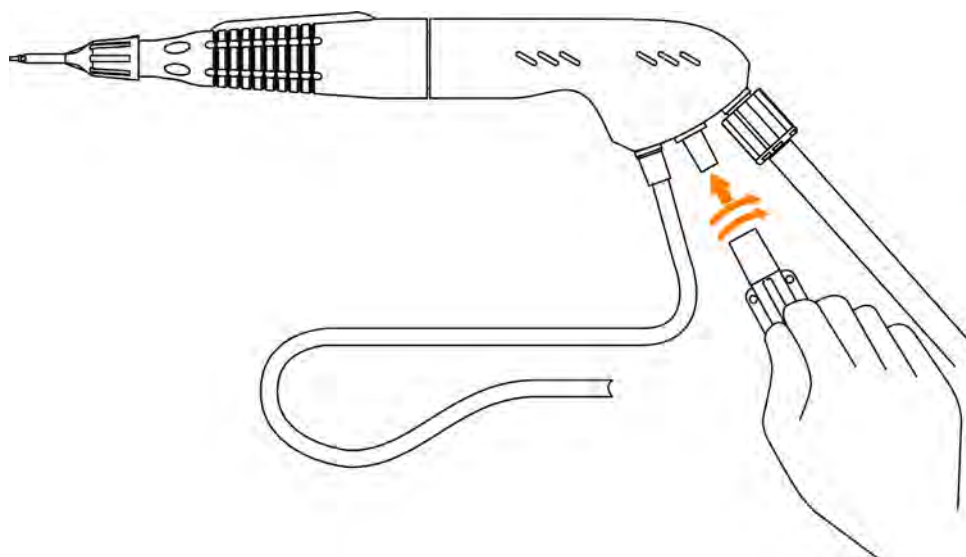
NOTE: You can use the VERITAS Swivel handpiece with WHITESTAR Technology phaco settings.

5. Insert the male luer end of the irrigation tubing into the phaco handpiece.
6. Attach the female luer fitting end of the aspiration tubing to the phaco handpiece.

NOTE: To protect the patient from contamination, use only:

- ▶ sterile tubing sets
- ▶ sterile balanced salt solution
- ▶ sterile handpieces

Figure 4-5 — Phaco Handpiece Connections



Phacoemulsification Handpiece Setup – WHITESTAR and ELLIPS FX



WARNING!

Sterility assurance is the responsibility of the user. You must sterilize all non-sterile accessories prior to use.



WARNING!

Prior to using any invasive portions of the handpiece assembly, examine under the microscope for any obvious damage, oxidation, or the presence of foreign material. Use a backup handpiece for surgery if there are any questionable characteristics of the handpiece. Use of contaminated or damaged system accessories can cause patient injury.

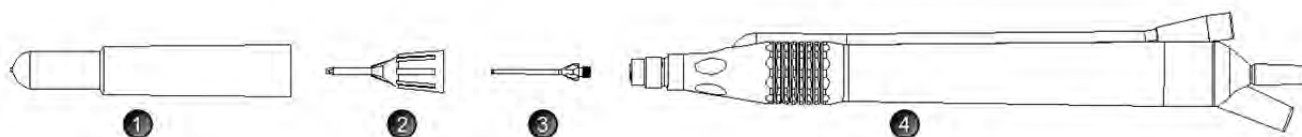
1. Use caution to prevent burns when handling the handpiece directly from sterilization.
2. Remove the tubing pack and accessories from the packaging and place them in the sterile area.
3. Assemble the phaco handpiece as shown below. You need the handpiece, phaco tip, appropriate tip wrench, one of the irrigation sleeves, and the test chamber.



CAUTION!

Never attempt to straighten a bent phaco ultrasonic tip. This might produce a broken tip when you apply ultrasound.

Figure 4-6 — Phaco Handpiece Assembly



1. Test Chamber

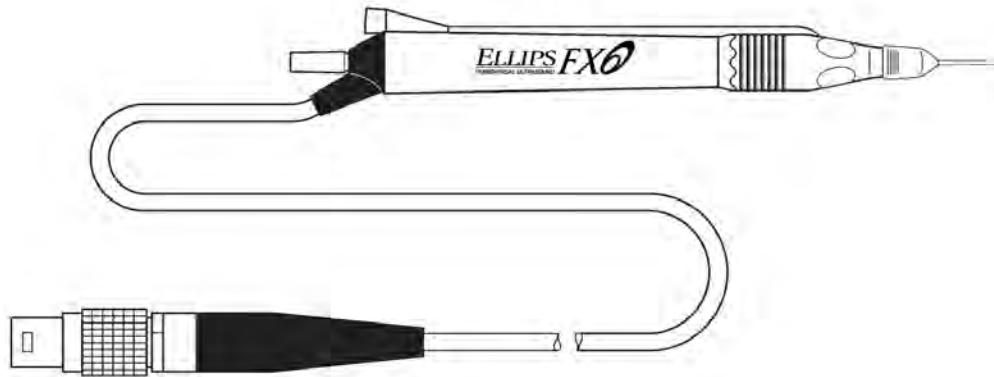
2. Irrigation Sleeve

3. Phaco Tip

4. Handpiece

4. Attach the connector end of the handpiece to the phaco receptacle on the front of the VERITAS Vision System (see [Figure 3-1](#) and [Figure 4-1](#)).
5. Ensure there is no moisture on the connectors prior to attaching. Moisture prevents the handpiece from operating properly.

Figure 4-7 — ELLIPS FX Handpiece



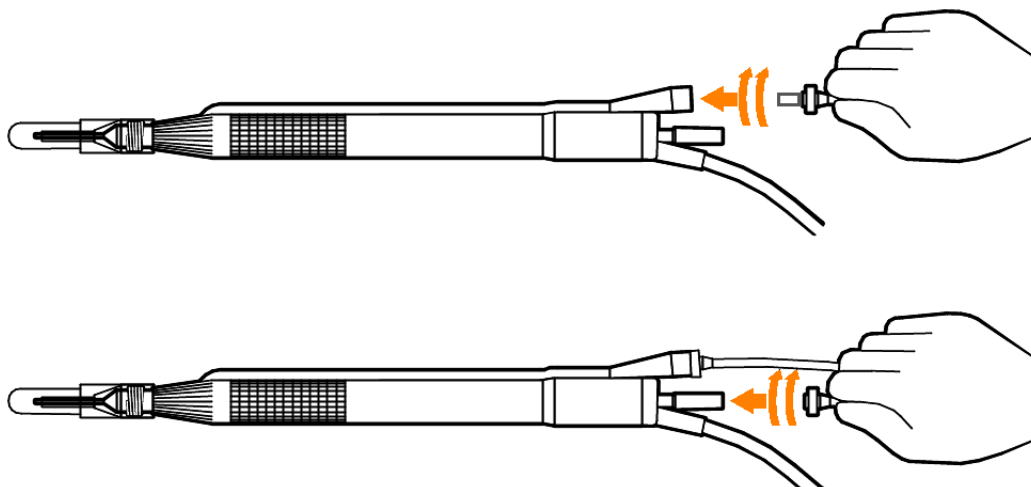
NOTE: You can use the ELLIPS™ FX handpiece with WHITESTAR™ Technology phaco settings.

6. Insert the male luer end of the irrigation tubing into the phaco handpiece.
7. Attach the female luer fitting end of the aspiration tubing to the phaco handpiece.

NOTE: To protect the patient from contamination, use only:

- ▶ sterile tubing sets
- ▶ sterile balanced salt solution
- ▶ sterile handpieces

Figure 4-8 — Phaco Handpiece Connections

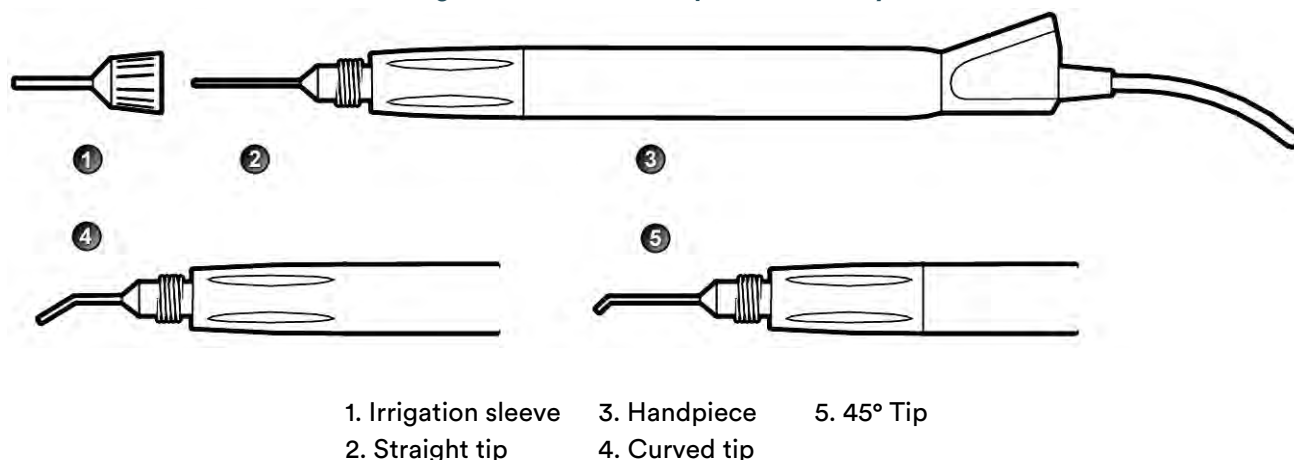


Irrigation/Aspiration Handpiece Setup

Assemble the SOLO Irrigation/Aspiration (I/A) handpiece by attaching the irrigation sleeve.

NOTE: The test chamber is provided in the FUSION™ Tubing Pack. The LAMINAR™ Flow 20 gauge irrigation sleeves can also be used and are available with the OPOS20L or any 20 gauge LAMINAR phaco tip.

Figure 4-9 — I/A Handpiece Assembly



Diathermy Handpiece Setup

1. Attach the diathermy cord to the diathermy forceps or pencil.
2. Attach the diathermy cord to the diathermy receptacle on the front panel (see [Figure 3-1](#) and [Figure 4-1](#)).

Figure 4-10 — Diathermy Forceps

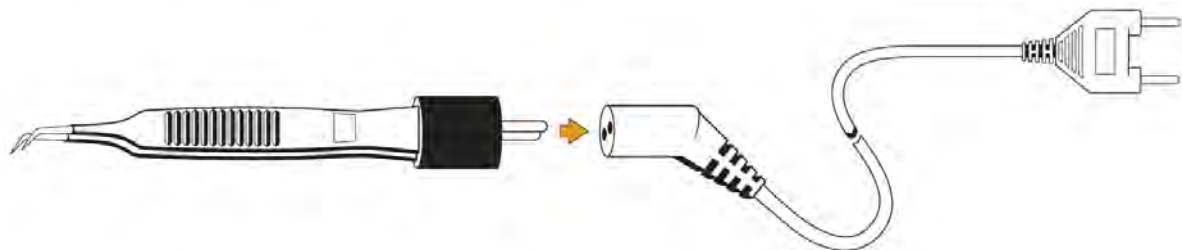
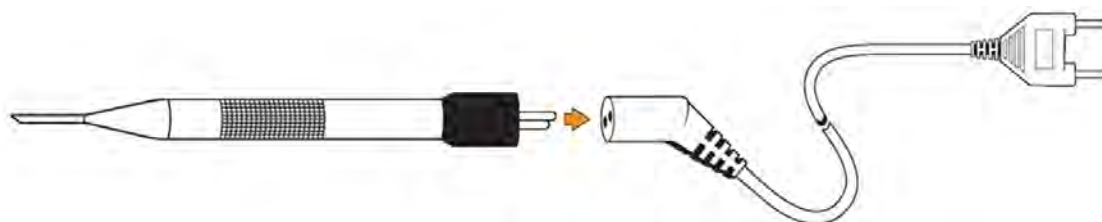


Figure 4-11 — Diathermy Pencil



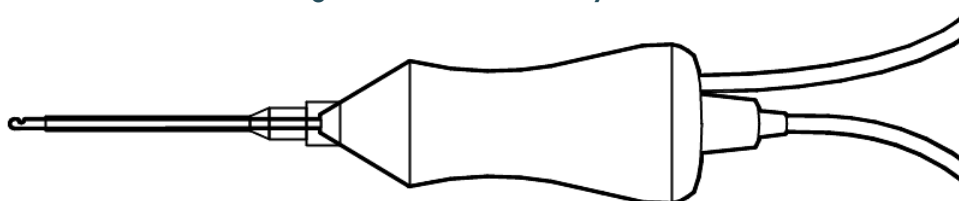
NOTE: Other diathermy accessories are regionally available. Contact your JJSV representative.

Vitrectomy Cutter Setup

If you need to use vitrectomy during surgery:

1. Attach the vitrectomy cutter as shown below. Vitrectomy requires the following components:
 - ▶ I/A Tubing (from tubing pack)
 - ▶ Vitrectomy cutter
 - ▶ Vitrectomy irrigation sleeve, or a 23 Gauge Limbal Infusion tip, if desired.
2. Use the instructions provided with the vitrectomy cutter to assemble the handpiece.

Figure 4-12 — Vitrectomy Cutter



3. Attach the connector to the vitrectomy receptacle on the front panel.

Startup



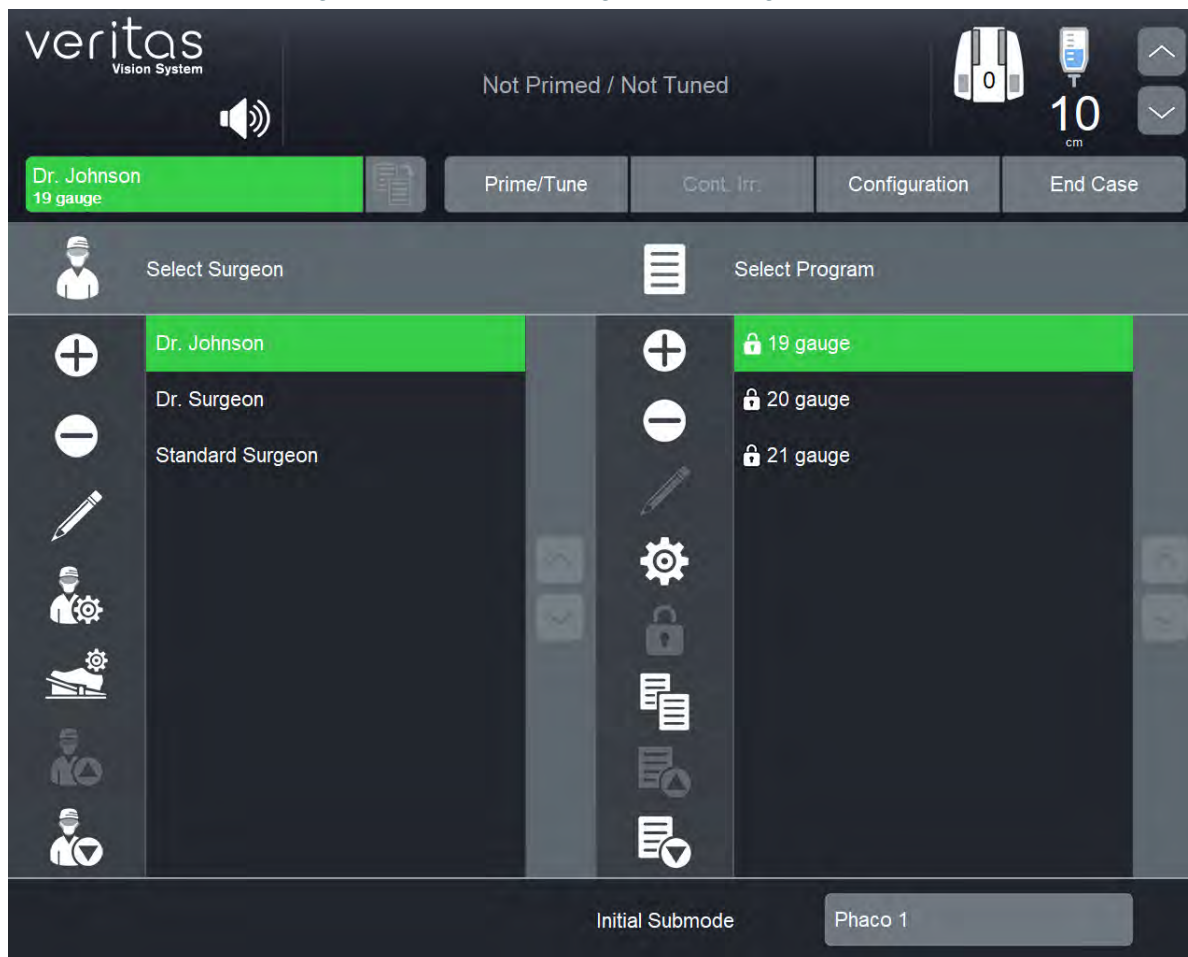
CAUTION!

Perform functional checks of the system before first use of the day.

After you have turned on the system, the system performs a series of self tests.

After start up, the Surgeons and Programs screen displays the available surgeons and programs.

Figure 4-13 — Select Surgeon and Program Screen



From the main menu you can:

- Select a Surgeon/Program and begin surgery based on the values of that program
- Access the Settings  screen, where you can edit programs and setup operating parameters
- Access the Configuration screen to set system parameters
- Access the End Case screen (see [“End Case” on page 4-22](#))

Install the Tubing Pack

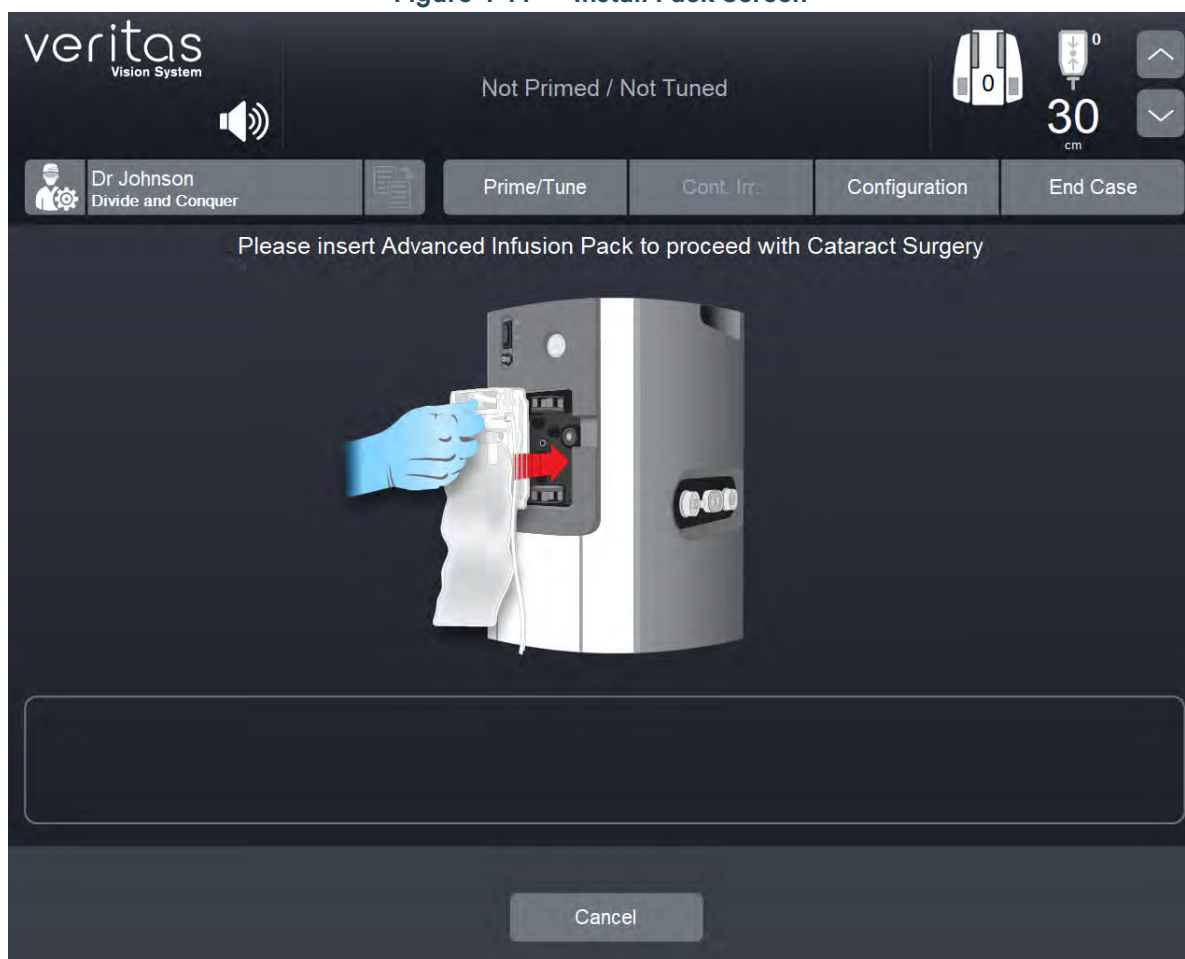
1. After you select a surgeon, you must select a program from the surgeon's available programs.

NOTE: The program at the top of the list is the default program for that surgeon.

2. Tap the **Prime/Tune** button.

NOTE: If a tubing pack is needed, the Install Pack Screen is shown.

Figure 4-14 — Install Pack Screen



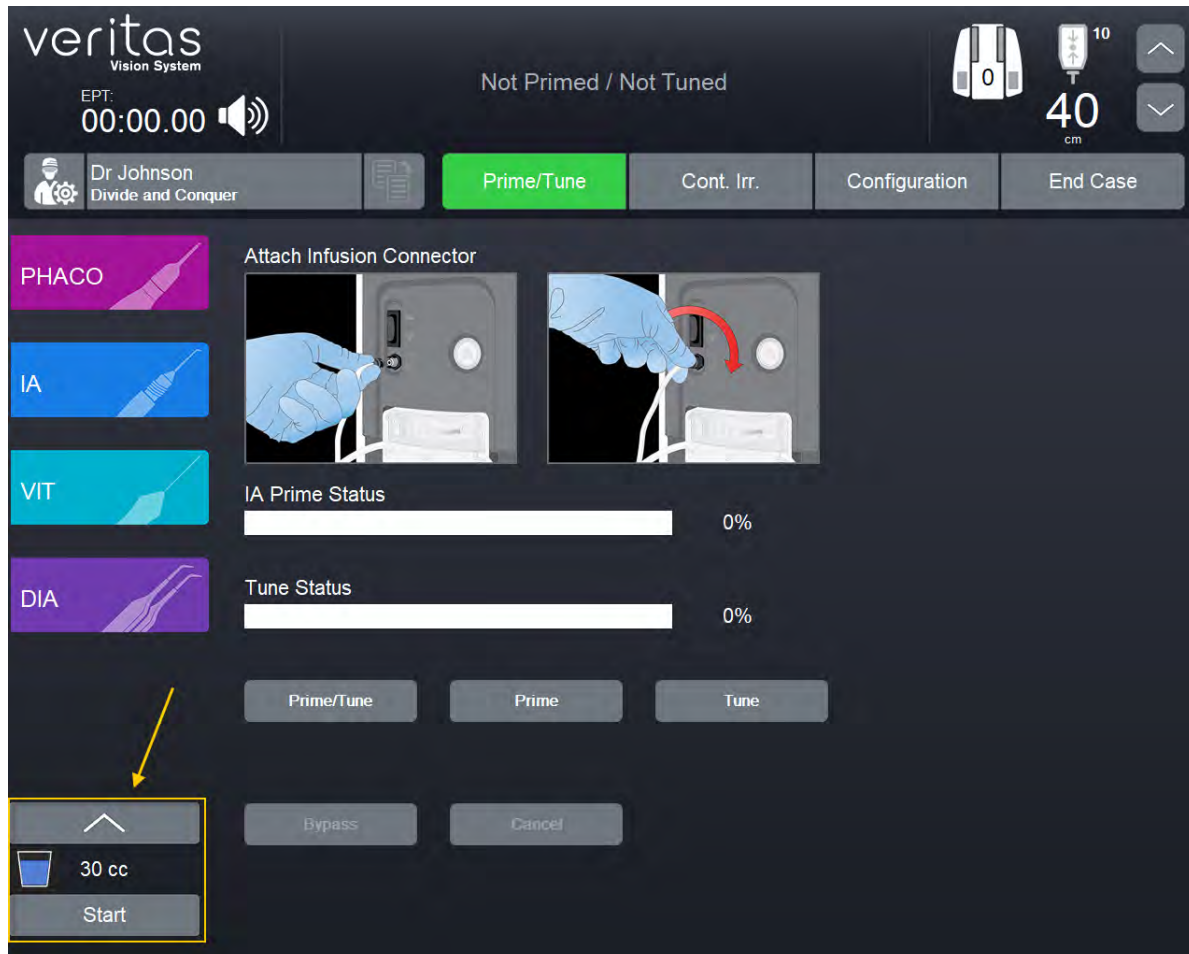
3. Install a tubing pack as shown on the screen in [Figure 4-14](#) by inserting it into the fluidics panel until the system activates the latch mechanism to retain it.
4. For VERITAS Advanced Infusion Tubing Pack (VRT-AI) only: The infusion line has a black infusion connector at the free end. Insert the infusion connector into the side panel of the VERITAS Vision System and then turn it clockwise until it clicks when fully connected as shown in [Figure 4-15](#).

Cup Fill

To collect the balanced salt solution:

1. Use the test chamber, a medicine cup, or similar container.
2. Tap the **Prime/Tune** button.

Figure 4-15 — Prime/Tune Screen with Cup Fill Controls Highlighted



3. Use the up arrow to cycle through the three available amounts of solution to be dispensed. You can choose from:
 - ▶ 30 cc
 - ▶ 60 cc
 - ▶ 90 cc

NOTE: The fill rate and time is based on using the irrigation tubing with no handpiece attached and that there is fluid in the tubing. If you use an attached handpiece to fill the cup, the fluid amount dispensed is less during the time allowed.

NOTE: Ensure you have filled the tubing with fluid using the Continuous Irrigation feature. If the tubing does not have fluid, the amount dispensed during Cup Fill may not be the amount selected.

4. Tap **Start** to turn on Cup Fill.
5. You can tap **Stop** to turn off Cup Fill. This stops the process before the system dispenses the requested amount of fluid.
6. Perform a phaco prime/tune. The Prime/Tune screen indicates the progress of the prime/tune process.

Prime/Tune

You must prime/tune:

- before each procedure
- anytime you reattach the phaco handpiece
- after you have inserted or replaced a tubing pack



WARNING!

Do not have the handpiece tip in the eye of the patient when you prime and tune the handpiece.

The prime/tune process fills the I/A tubing with fluid, performs a vacuum check, and tests and characterizes the phaco handpiece.

You can select **Continuous Irrigation** to allow fluid to free flow from the bottle to collect fluid.

The design of I/A Prime allows for a procedure that does not require a phaco handpiece. The design of tune allows for a quick tune of the phaco handpiece with an I/A tubing set. You can use tune if you replace a phaco tip during a procedure.

You can shorten the overall prime sequence by selecting **Bypass** if you used Continuous Irrigation or primed the I/A tubing.



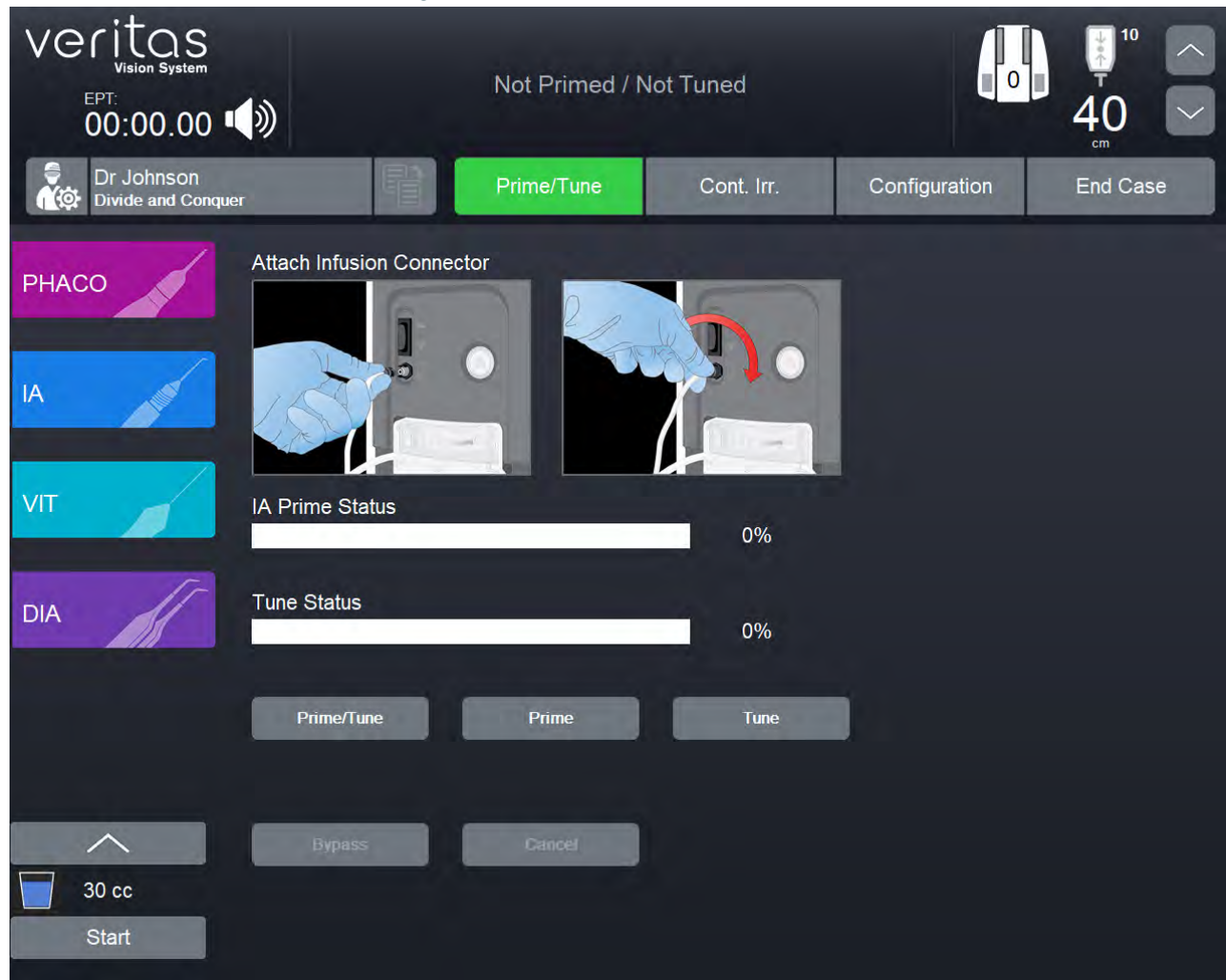
CAUTION!

If you do not properly prime the I/A tubing, errors can occur.

To access the prime/tune routines, tap the **Prime/Tune** button. The console shows the Prime/Tune screen with all the prime and tune options.

NOTE: Prime/Tune is a combination of tune followed by an I/A prime.

Figure 4-16 — Prime and Tune Screen



The system tracks the successful completion of the prime and tune cycles independently. If the system needs to be tuned again (new tip, failed tune), you only need to select and run the tune.



CAUTION!

Do not activate the phaco handpiece and vitrectomy cutter with the tip in the air. Exposure of the tip to air drastically reduces the useful life of the handpiece. If you introduce power to the phaco handpiece or vitrectomy cutter, the tip must be in a test chamber filled with balanced salt solution, in a container of balanced salt solution, or in the patient's eye.

Suggestions for Priming the Handpieces

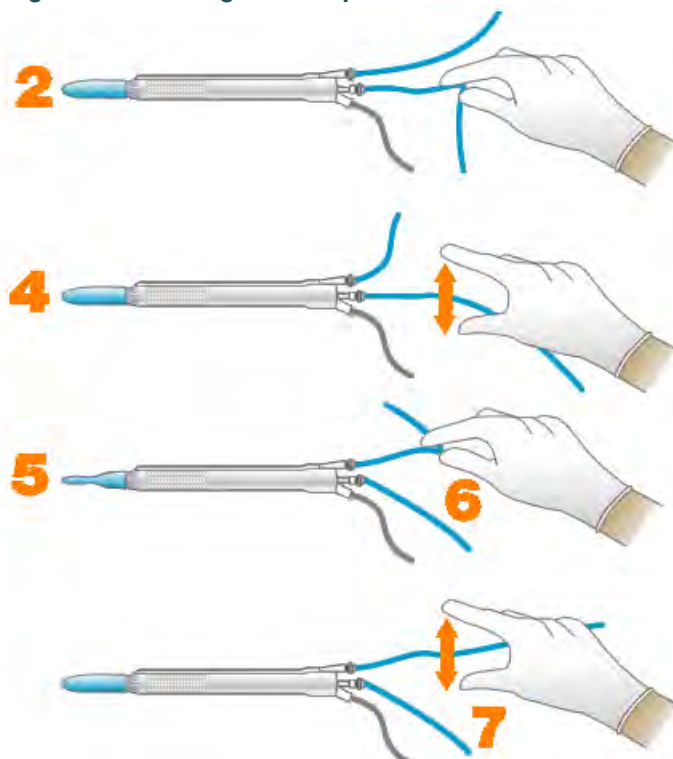
Do not lay the handpiece and the empty test chamber down and have the system fill the test chamber. When you lay down the handpiece, this allows air to collect in the test chamber and can produce an error. Point the tip of the handpiece up to reduce the amount of bubbles.

1. Use Continuous Irrigation to fill the tubing with fluid. Remember to hold the ends of the tubing over a container to catch any fluid.
2. Use the Continuous Irrigation or Cup Fill feature to fill the test chamber with fluid and to eliminate all air. Remember to remove the test chamber from the handpiece, if needed, before you start the cup fill process.
3. Place the test chamber over the handpiece tip and the sleeve hub.
4. Attach the tubing to the handpiece, if needed.
5. Tap the **Prime/Tune** button, this starts the prime and tune sequences.
 - ▶ To perform a prime only, tap the **Prime** button.
 - ▶ To perform a tune only, tap the **Tune** button.
6. Ensure low ceilings, light fixtures, or equipment do not block the movement of the IV pole. Do not manually adjust the IV pole height with the remote control or rocker switch during Prime/Tune sequences.
7. Watch the fluid fill the drip chamber. The fluid moves toward the handpiece and fills the test chamber.
8. The display screen indicates the progress of the prime and tune process.
9. As the tubing lines fill, the system software performs functional checks. The checks include:
 - ▶ Monitoring for the presence of irrigation flow (bottle height)
 - ▶ Leaks (via vacuum rise checks)
10. When you attach the phaco handpiece and tap **Prime/Tune** or **Tune**, the system automatically includes a handpiece tuning test concurrently with the prime cycle.
 - ▶ At the end of the priming sequence, the system makes an audible sound to indicate that Prime process is complete.
 - ▶ At the end of the phaco tuning test, the system makes an audible alert sound to indicate that Tune process is complete.
11. To discontinue prime or tune during the process, tap **Cancel**.
12. When prime and tune are complete, the system automatically proceeds to the preprogrammed submode or Phaco 1 operating mode. It is important that you verify the Irrigation and Aspiration balance prior to operating.

Verify Irrigation/Aspiration Balance

We strongly recommend you verify that you balanced Irrigation/Aspiration properly for your settings used in surgery.

Figure 4-17 — Irrigation/Aspiration Balance Procedure



To verify irrigation/aspiration balance:

1. In Phaco 1 mode, hold the handpiece at the approximate patient eye level.
NOTE: The numbers in the drawing [Figure 4-17](#) correspond to the steps listed.
2. Occlude the aspiration line just below the handpiece, while you press and hold the foot pedal in position 2.
3. The actual vacuum level should rise to the preset level.
4. Release the aspiration line and then watch the test chamber to ensure the test chamber does not collapse. A slight shallowing of the test chamber is normal.
5. If the test chamber collapses, raise the IV bottle height or lower the vacuum setting.
6. Pinch the irrigation tubing at the handpiece and watch for the test chamber to collapse.
7. Release the irrigation line and the test chamber should fill.
8. Tap **Reset** in the upper left corner of the screen to open the Reset Timers dialog box. Tap **Yes** to reset the timers. You are now ready to begin surgery.

Priming for Vitrectomy

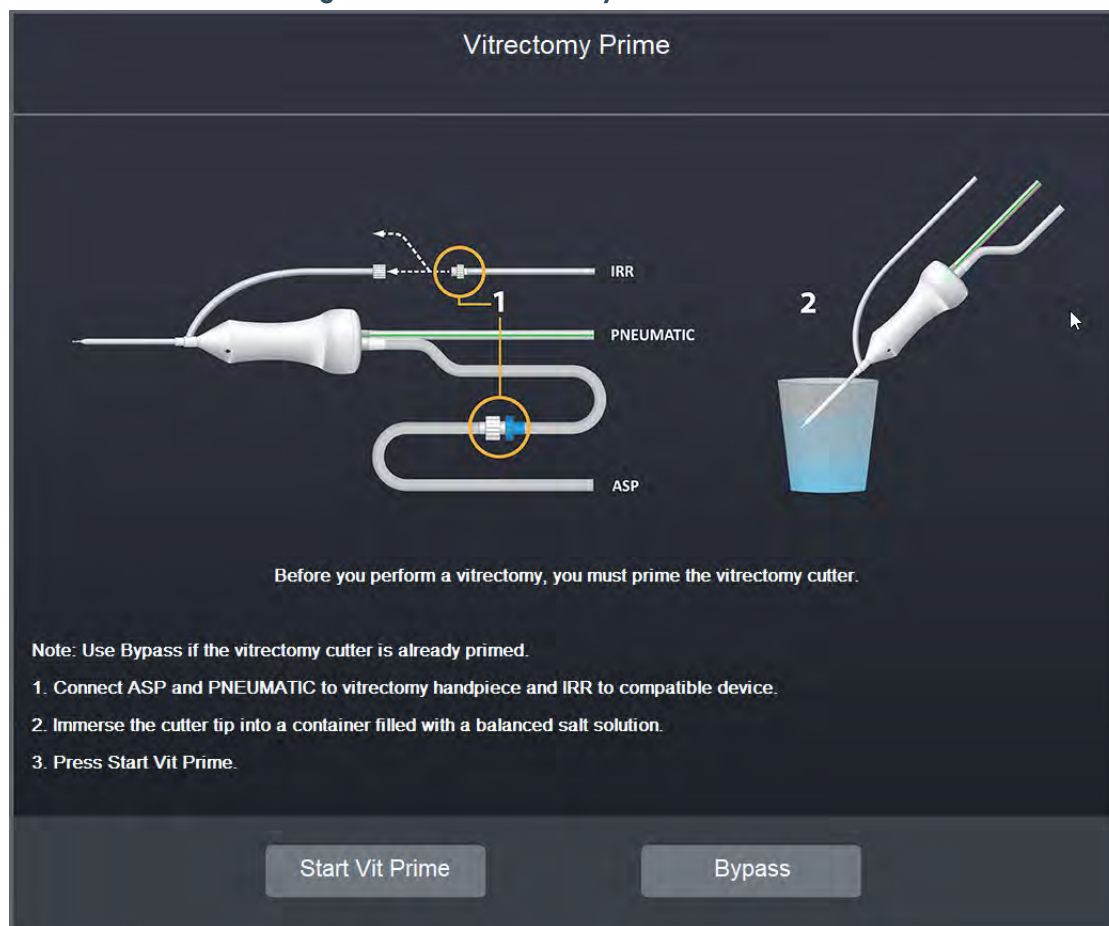
Before you perform vitrectomy, we recommend you prime the handpiece to reduce the chance of errors. Each time you select vitrectomy mode, a dialog box asks you to prime the vitrectomy handpiece. If you do not need to prime, tap **Bypass**.

To prime the handpiece:

1. Attach the irrigation tubing and the aspiration tubing of the tubing pack together.
2. Tap **Prime** on the Prime/Tune screen.
3. Tap the **VIT** button to access the Vitrectomy mode.
4. Connect the I/A tubing to the vitrectomy handpiece.
5. Immerse the cutter tip into a container filled with balanced salt solution.
6. Tap the **Start** button to start priming the vitrectomy cutter. The screen closes automatically after the system primes the handpiece.

NOTE: If you must perform vitrectomy in the middle of phaco surgery, perform Steps 3 through 6.

Figure 4-18 — Vitrectomy Prime Procedure



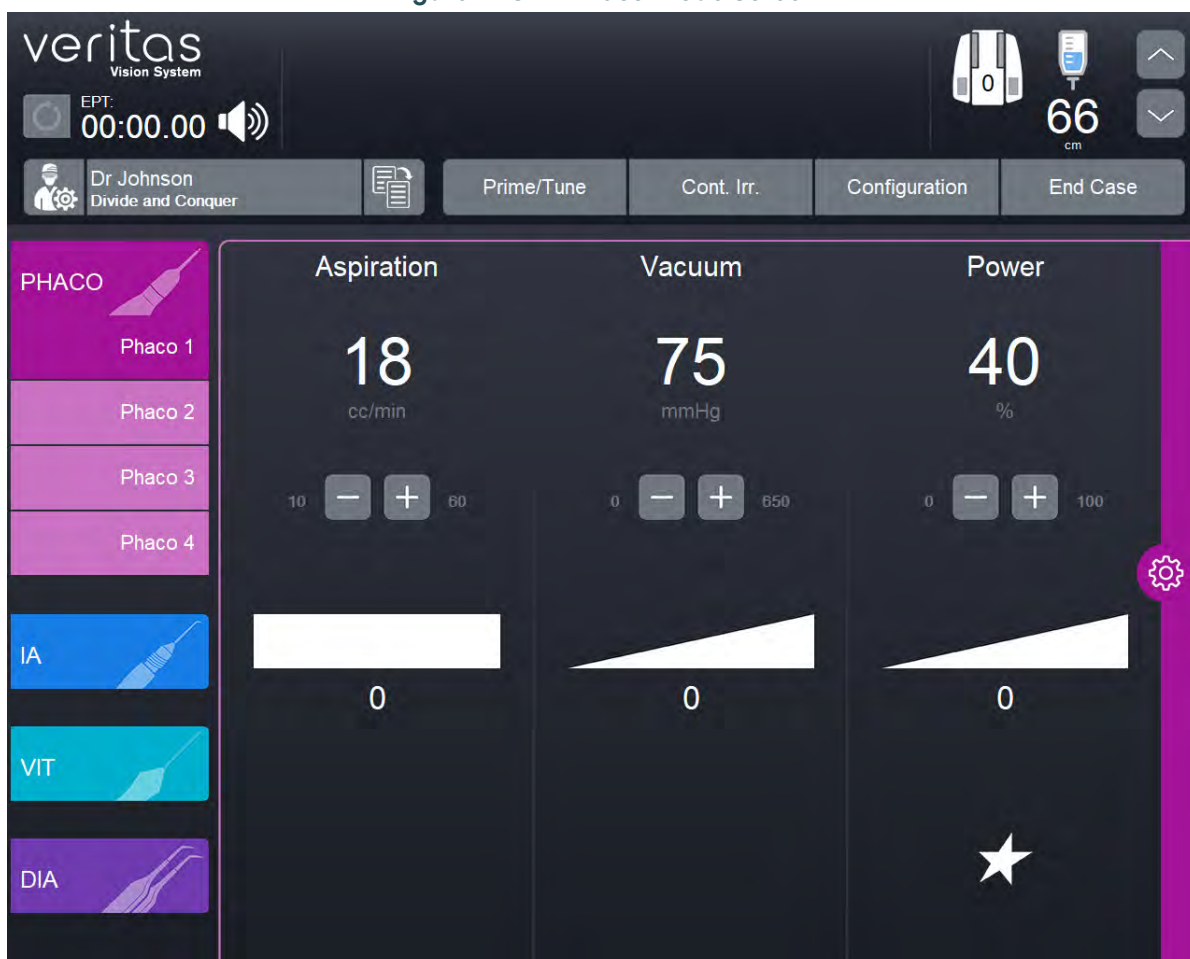
Selecting and Changing Mode Parameters

The design of the system's graphical user interface (GUI) and touchscreen is for ease-of-use, and provides a consistent look and maximum informational display during all operating modes.

Your interface with the system requires only three basic steps, which apply to all the selections, settings and operations. Once you understand this basic organization, you can move quickly and easily through all the system functions and system operations.

Panels organize the text on the display screen. The top panel shows current status, EPT or EFX timer, configuration options, the bottle height, and the foot pedal icon. The left-side column lists the operating modes and submodes. The main panel that dominates the screen shows current operating levels for aspiration, vacuum and power.

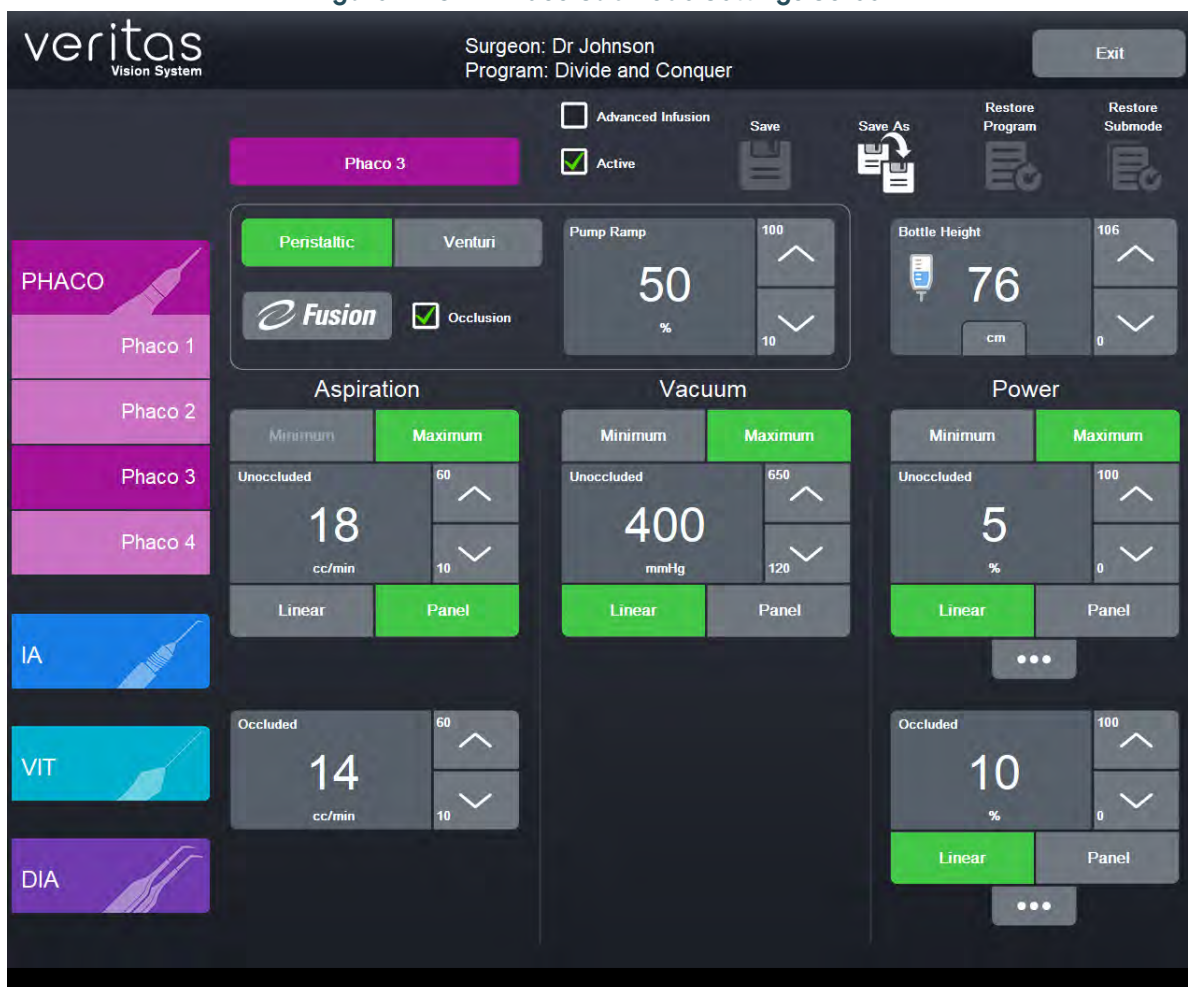
Figure 4-19 — Phaco Mode Screen



- To switch operating modes or submodes, select a button in the left panel. The control panels in the main panel show the operating levels for that mode.
- To make basic changes to the settings, tap the +/- buttons to increase or decrease a value.

- To change other control panel settings, such as Panel or Linear power and nonzero start, tap the **Settings**  button on the right side of the control panel. A Settings screen opens, and you can make your modifications.

Figure 4-20 — Phaco Submode Settings Screen



System Check-out

The purpose of the check-out procedure is to verify that installation of the system is complete and the system is operating properly. You must perform the check-out procedure prior to the first case of the day, as outlined in the following steps. You test the IA mode and handpiece, then the Phaco mode and handpiece, so that the phaco handpiece (used first) is ready for surgery.

If any of the check-out steps fail, you must repeat the steps. If the instrument still does not work correctly, refer to [Chapter 10, "Error Messages, Troubleshooting, and Diagnostics"](#).

Phacoemulsification

Follow these steps to check the system out for phacoemulsification.

1. Attach the tubing to the phaco handpiece.
2. Screw the phaco tip onto the handpiece, use your fingers to engage the screw thread, and then use the tip wrench to tighten the tip.
3. Screw the irrigation sleeve over the tip.
4. Place the test chamber over the irrigation sleeve.
5. Prime and Tune the system.
6. Select the Phaco mode.
7. Press and hold the foot pedal in position 1.
8. Observe the irrigation flow.
9. Hold the handpiece approximately at the patient's eye level, and fill the test chamber with irrigation fluid.
10. Occlude the aspiration tubing just below the phaco handpiece.
11. Press and hold the foot pedal in position 2. The actual vacuum level should rise to the preset level.
12. Release the occlusion and watch the test chamber to ensure the test chamber does not collapse. A dent or dimple in the test chamber is normal.
13. To test irrigation, pinch the irrigation tubing just below the phaco handpiece and watch for the test chamber to collapse. Release the irrigation tubing and the test chamber should fill.
14. Tap **Reset** in the upper left corner of the screen to open the Reset Timers dialog box. Tap **Yes** to reset the timers.
15. Phacoemulsification check-out is complete.

Irrigation and Aspiration

Follow these steps to check the system out for irrigation and aspiration.

1. Attach the tubing to the I/A handpiece.
2. Tap the **IA** button to select the Irrigation and Aspiration mode.
3. Hold the test chamber near the handpiece tip, press and hold the foot pedal in position 1.
4. Observe the irrigation flow.

Diathermy

Follow these steps to check the system out for diathermy.

1. Attach the diathermy forceps to the cable and the cable to the front panel of the console.
2. Tap the **DIA** button to select the Diathermy mode.
3. Press the foot pedal. You should hear a tone when you press the foot pedal.

**CAUTION!**

If you do not hear a tone when you press the foot pedal and volume adjustment is unsuccessful, the mode is not functioning properly. Refer to [Chapter 10, "Error Messages, Troubleshooting, and Diagnostics"](#).

Vitrectomy

Follow these steps to check the system out for vitrectomy.

1. Attach the irrigation tubing and aspiration tubing of the tubing pack together.
2. Tap **Prime** on the Prime/Tune screen.
3. Tap the **VIT** button to access the Vitrectomy mode.
4. Follow the instructions on the screen.
5. Tap **Start Vit Prime**. The screen closes automatically after the handpiece primes.
6. Observe that:
 - ▶ irrigation fluid flows
 - ▶ the aspiration tubing is full and clear of air
 - ▶ the vitrectomy cutter motor activates (slight sense of motion of the handpiece)
 - ▶ the cutter blade operates
7. Vitrectomy check-out is complete.

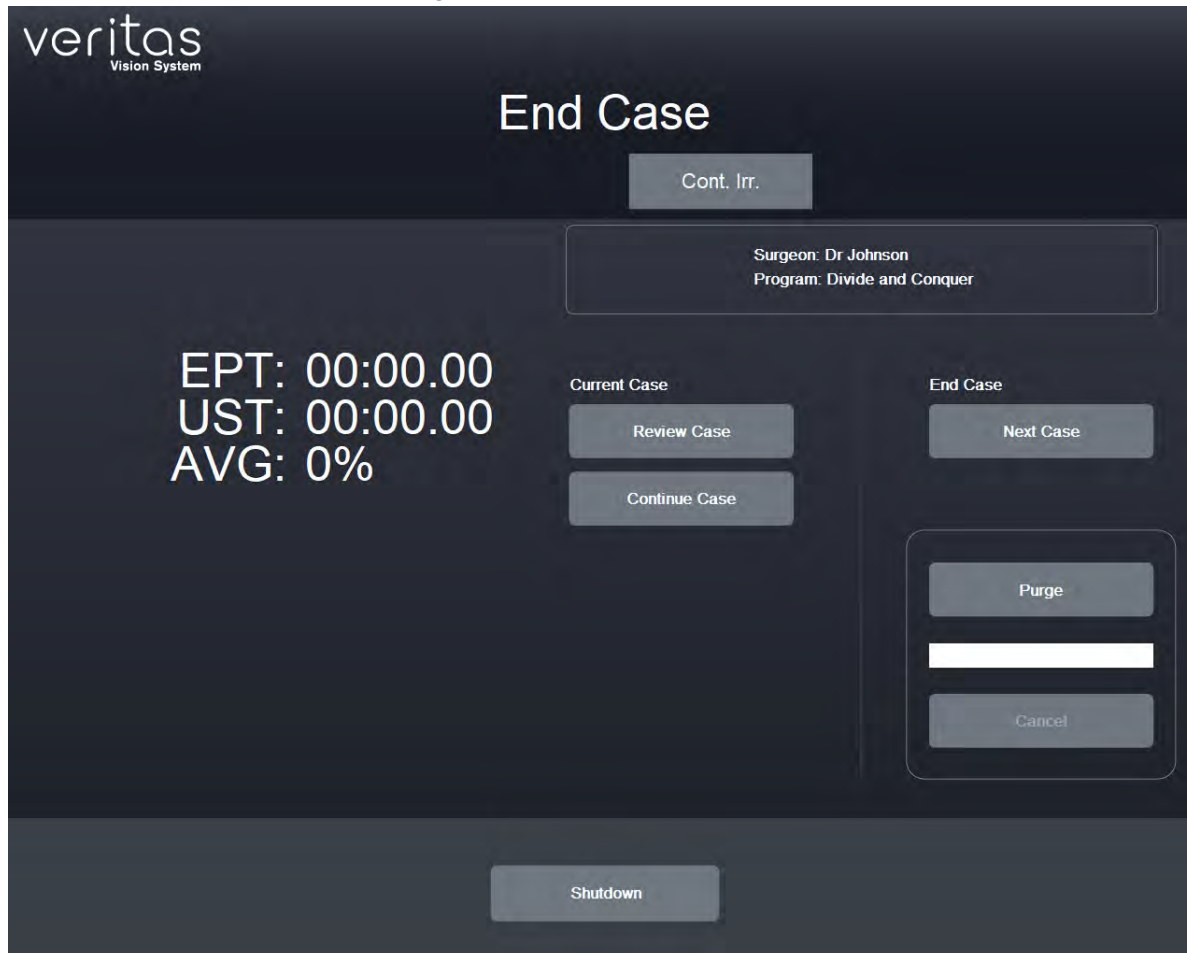
Pre-operative Sterilization

Prior to each surgical case, sterilize the system instruments with the recommended sterilization techniques, times and temperatures given in [Chapter 9, "Care and Cleaning"](#). JJSV recommends that you follow the sterilization guidelines to maximize the life of your system instruments.

End Case

End Case is available in the top panel from any screen in the main surgical work flow. End Case allows you to review and terminate the surgical case.

Figure 4-21 — End Case Screen



NOTE: For ease of viewing, the EPT, EFX, UST, and DT times are in a large font size on the End Case screen. The EFX shows only when you attach an ELLIPS FX or VERITAS Swivel handpiece.

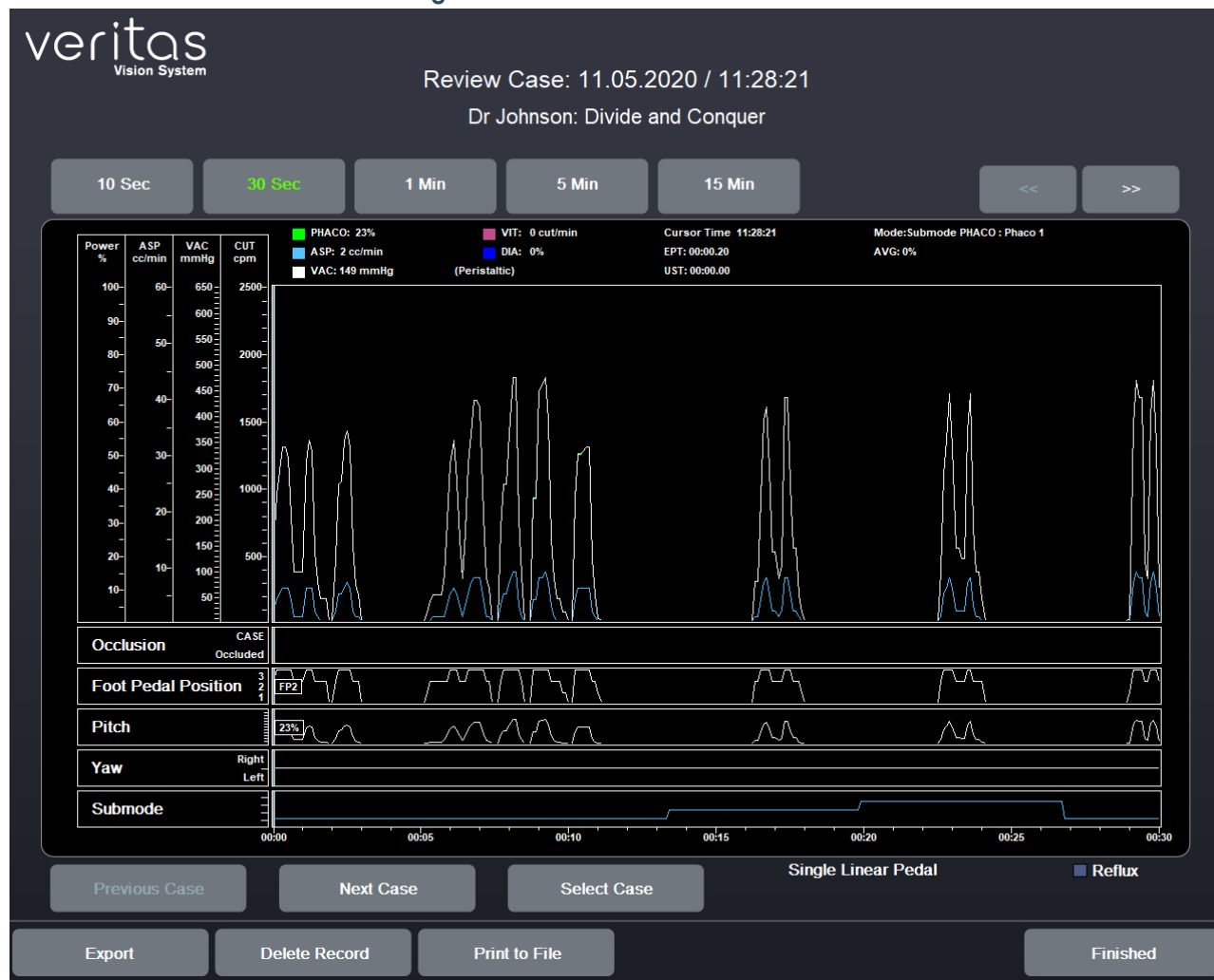
The EPT or EFX timer appears on the upper left side of the surgical screen. You can tap the timer to view the detailed timer pop-up with EPT, EFX, UST and DT timers of the surgical case. Each timer indicates the following:

- Effective Phaco Time (EPT). EPT is ultrasound time as a weighted total that takes into account the amount of power being used:
 - ▶ at 100% power: 1 sec. U/S Time = 1 sec. EPT
 - ▶ at 50% power: 1 sec. U/S Time = 0.5 sec. EPT
 - ▶ Average phaco power (AVG) = EPT/UST
- Ultrasonic (U/S) time (UST) in foot pedal position 3
- EFX when you attach an ELLIPS FX or VERITAS Swivel handpiece
- DT – Diathermy Time

Review Case

Tap **Review Case** to show a graphical history of the surgery (Figure 4-22).

Figure 4-22 — Review Case Screen



- Select a shorter time interval to adjust the time line duration and to see greater case details. For example, 10 Sec shows more detail than 15 Min.
- Select a longer time interval for an overview of the surgery or sessions, such as 1 hour or 2 hours. This view provides less detail, but gives you a better indication of the trends over time.
- Tap **Previous Case** to select and view the previous surgical case.
- Tap **Next Case** to select and view the next surgical case.
- Tap **Select Case** to select and view a specific surgical case.
- Tap **Export** to name and save the record to a USB device. Enter a name for the Case History.

- Tap **Delete Record** to remove a case from the Record database.
- Tap **Print to File** to save the data to a file format.
 - ▶ **Abbreviated Summary** – Provides overall case time, total time per mode and case timers.
 - ▶ **Extended Summary** – Provides overall case time, total time per mode/submode, timers for overall case and by submode, and surgical settings for the program used.
- Tap **Finished** to close the screen.

NOTE: Review case data for the current surgical case is only available after selecting Next Case.

End Case

Tap **Next Case** to end the current surgical case and start a new one and install a new tubing pack.

NOTE: Use a new bottle of balanced salt solution at the start of each case.

Tap **Continue Case** to return to the current case.

Tap **Purge** to remove the fluid from the irrigation and aspiration tubing before you remove the tubing pack.

Tap **Shutdown** to turn the system off. At the prompt, tap **Yes** to complete the process.

If any changes were made to the settings, you may be prompted to confirm and save the changes ([Figure 4-23](#)).

Figure 4-23 — Save Changes Confirmation Screen

Settings have been altered. Save the changes?

	Previous Value	New Value
PHACO 1		
Aspiration		
Unoccluded	18 cc/min Panel	22 cc/min Panel
Vacuum		
Peristaltic	75 mmHg	100 mmHg
IA 1		
Aspiration		
Setting changed.	26 cc/min Panel	28 cc/min Panel
Vacuum		
Peristaltic	500 mmHg	450 mmHg
End of List -----		

Previous List New List

Save Save As Cancel

NOTE: The system only prompts for Save Changes Confirmation Screen if the selected surgeon is not the system default Standard Surgeon (see [Chapter 5, "Surgeon Settings"](#)).

Tap **Save** to save any changes to the current program.

Tap **Save As** to save the program changes (made to an existing program) to a new program name when you enter a program name.

System Shutdown

The following is a general overview of the steps to be taken to shut the system down after surgery:

1. Tap **End Case**.
2. Tap **Shutdown**. At the prompt, tap **Yes**.
3. Wait for shutdown sequence to complete.
4. Turn the system off on the rear panel of the system (see ["Rear Panel Connections" on page 4-3](#)).
5. Remove the power cord from the power outlet.
6. Wrap the excess power cord neatly around the cord wrap on the back of the console.
7. Use the AC Charging Adapter to charge the VERITAS Foot Pedal, ACP, or ALP Foot Pedal.
8. Refer to [Chapter 9, "Care and Cleaning"](#) for additional information.

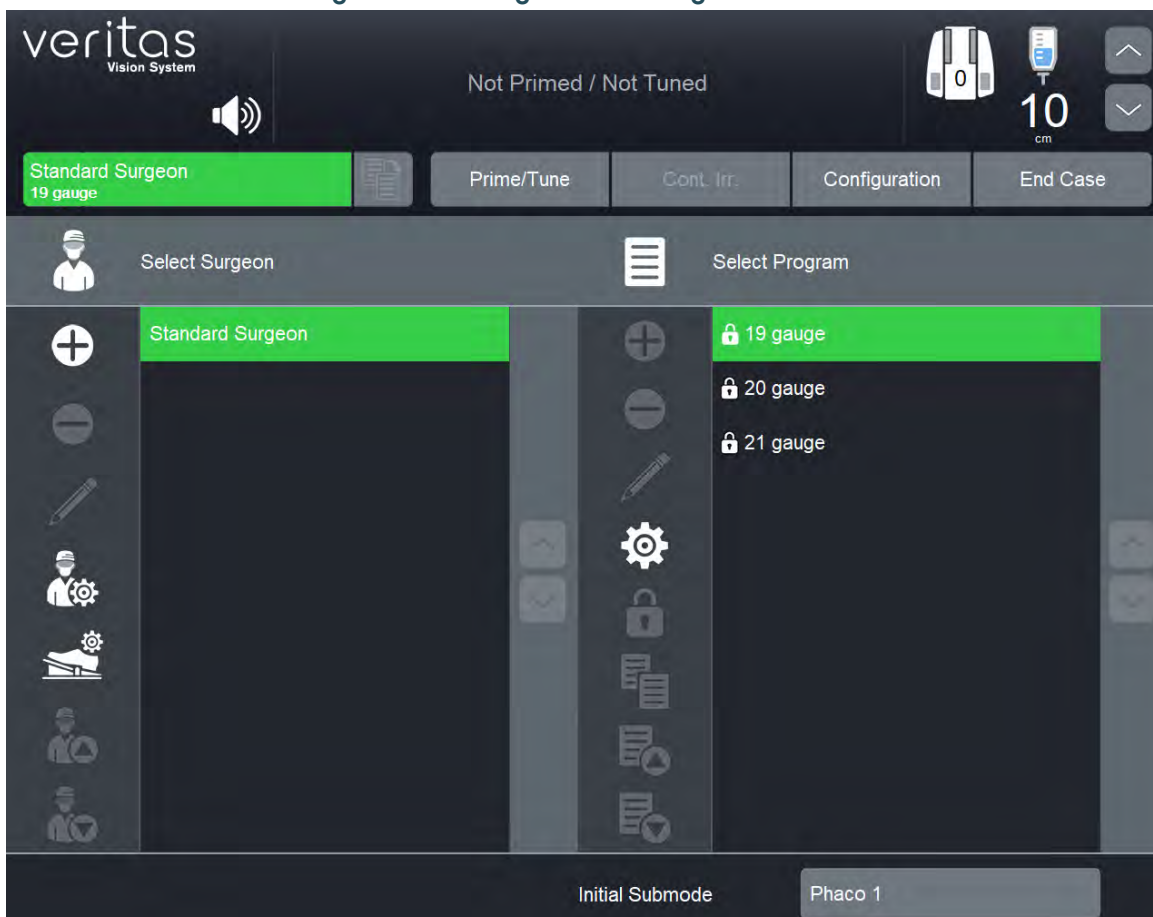
5 — Surgeon Settings

- “Select Surgeon” on page 5-1
- “Add a New Surgeon” on page 5-2
- “Delete Surgeon” on page 5-3
- “Edit a Surgeon” on page 5-3
- “Edit Surgeon Settings” on page 5-4
- “Foot Pedal Setup” on page 5-6
- “Set Sound Levels” on page 5-39
- “Surgeon – Assign Order” on page 5-41

When the system is used for the first time, Standard Surgeon is the only surgeon on the system.

Select Surgeon

Figure 5-1 — Surgeons and Programs Screen

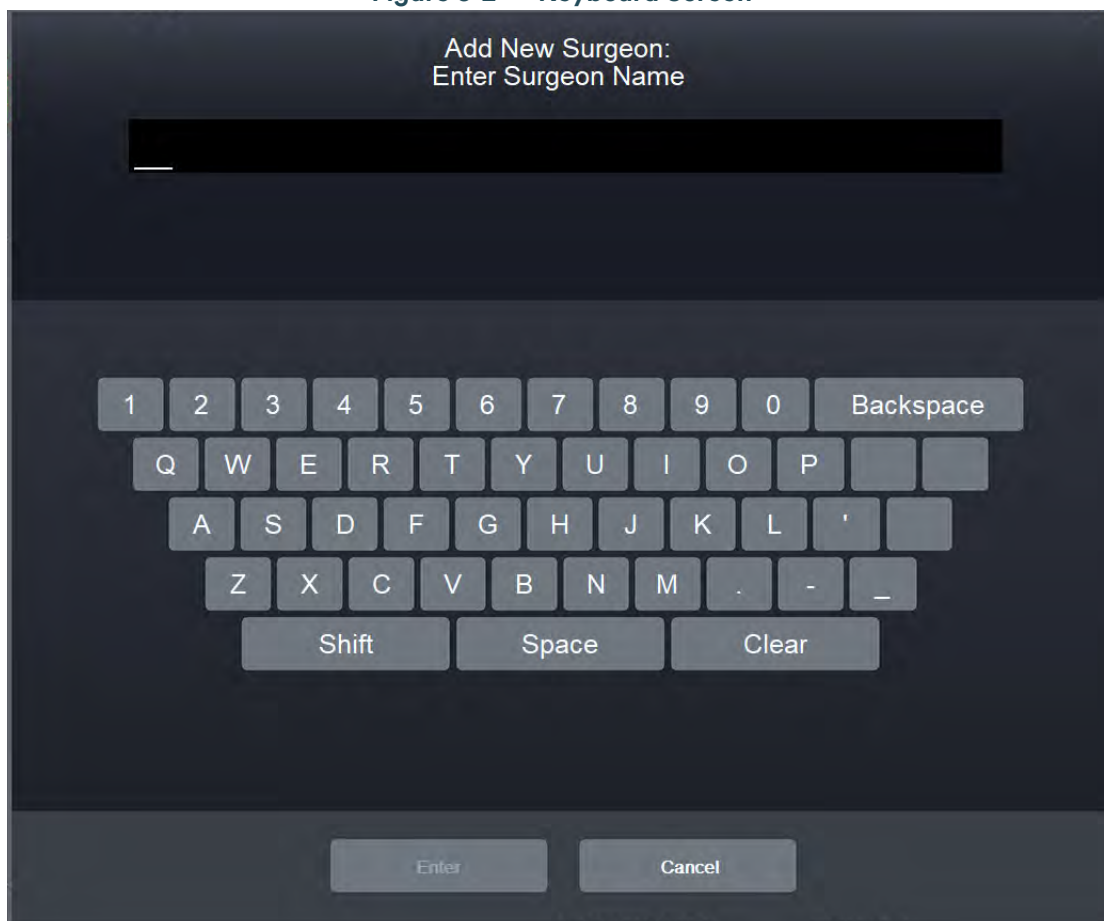


Add a New Surgeon

To create a new surgeon:

1. Tap  on Select Surgeon.
The keyboard screen opens.
2. Enter the name of the surgeon.
3. Tap **Enter** to save the new surgeon and then exit the keyboard screen. The new surgeon is now on the list of available surgeons.

Figure 5-2 — Keyboard Screen



Delete Surgeon

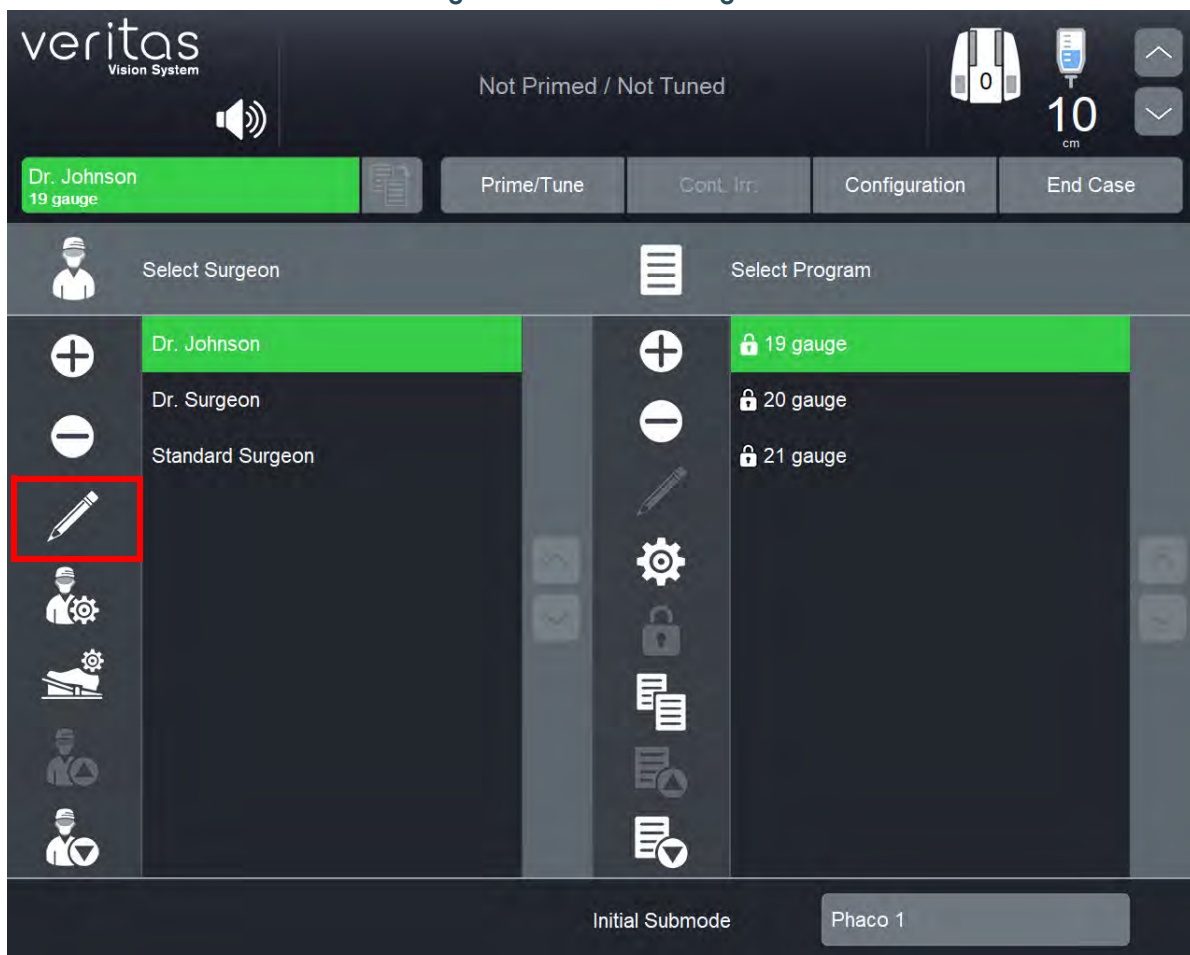
To remove a surgeon name from the list:

1. Select the name of the surgeon.
2. Tap  on Select Surgeon.
3. At the confirmation dialog box, select **Yes**.

Edit a Surgeon

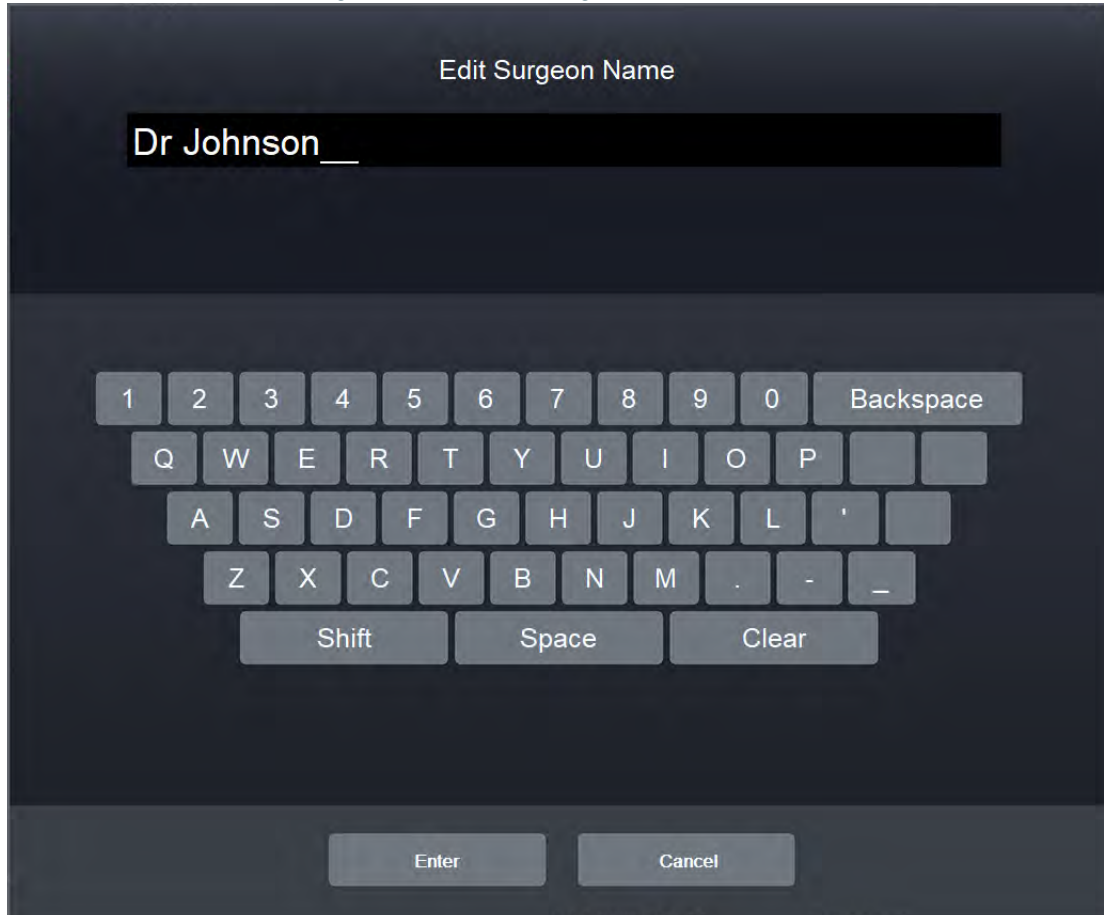
1. Select a surgeon from the list.

Figure 5-3 — Select Surgeon



2. Tap  on Select Surgeon.
The keyboard screen appears.

Figure 5-4 — Edit Surgeon Name Screen



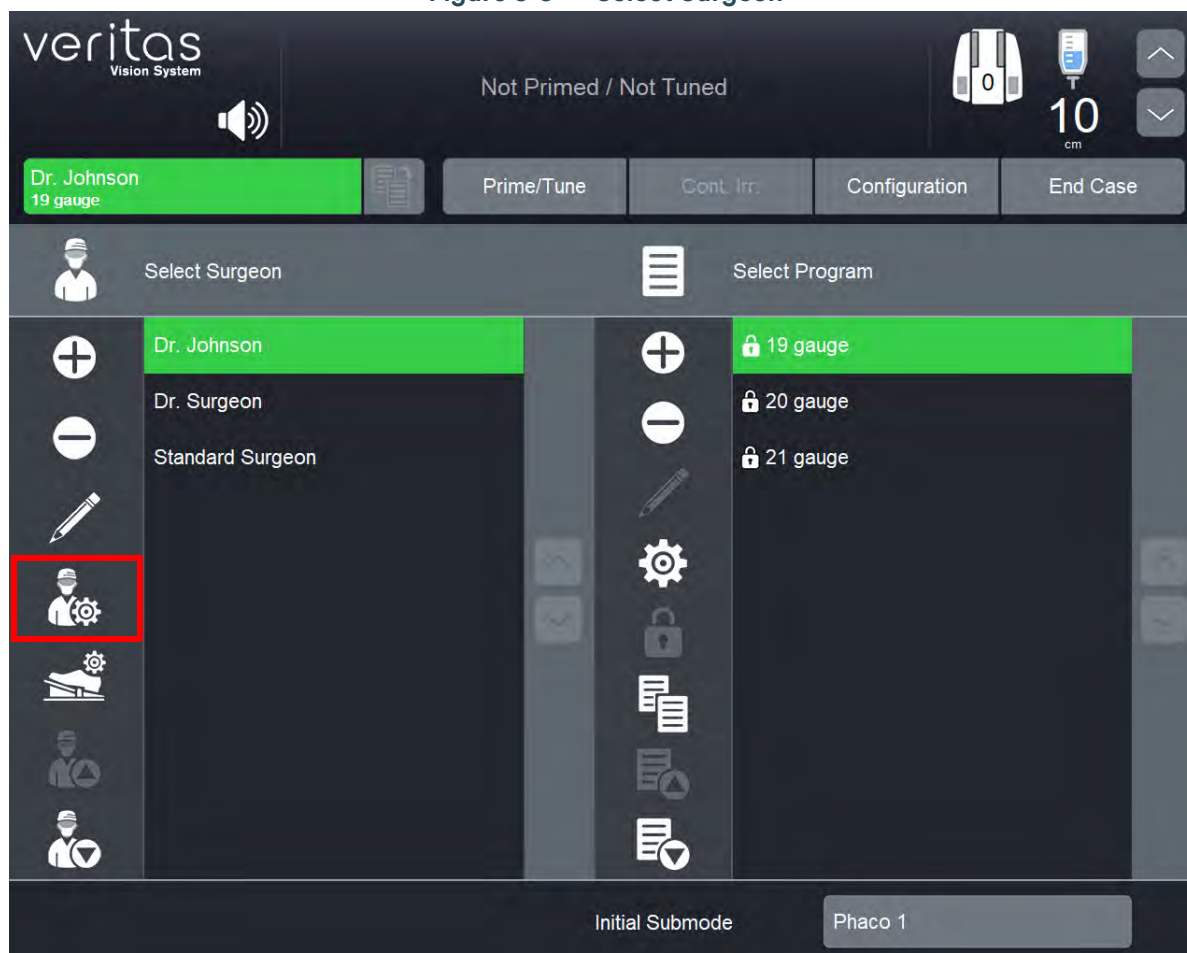
3. Edit the name.
4. Tap **Enter**.

Edit Surgeon Settings

To define venting, Tap for Irrigation, and Cont. Irr. Auto-Off setting preferences for the selected surgeon:

1. Select a surgeon from the list.

Figure 5-5 — Select Surgeon



2. Tap the Surgeon Settings option  on Select Surgeon.
The Surgeon Settings screen appears.

Figure 5-6 — Surgeon Settings Screen

Surgeon Settings

☒ Venting Strength

Low Medium High

☐ Tap for Irrigation

☐ Cont. Irr. Auto-Off

Auto-Off Time (Seconds)

1 2 3

Finished

Venting Strength – Select to toggle the option On/Off. When set to On, the fluidics system applies variable venting pressure to release the material at the aspiration tip when the foot pedal is released to position 0. You can select the amount of venting pressure (**Low**, **Medium**, or **High**) that is applied to the aspiration line. Default is set to On and Low.

Tap for Irrigation – Select to toggle On/Off for the Tap for Irrigation feature on the foot pedal. Default is Off.

Cont. Irr. Auto-Off – Select to toggle On/Off for the Cont. Irr. Auto-Off feature. When set to On, select the Auto-Off Time (Seconds) (**1**, **2** or **3**). Default is Off. When this feature is enabled, continuous irrigation will automatically turn on when the foot pedal is pressed, and automatically turn off when the handpiece is removed from the anterior chamber and the foot pedal is released.

Foot Pedal Setup

There are two types of foot pedals supported by the VERITAS™ Vision System—Single Linear and Dual Linear. Each type has its own set of switch assignments. The Single Linear Foot Pedal, VERITAS Foot Pedal, and Advanced Linear Pedal are Single Linear type foot pedals. The Advanced Control Pedal is a Dual Linear type foot pedal. The switch assignments are shared among the foot pedals belonging to each foot pedal type.

This section presents the setup, calibration, and testing process for the foot pedals, divided into four sections:

- [“Single Linear Foot Pedal Setup” on page 5-7](#)
- [“VERITAS Foot Pedal Setup” on page 5-15](#)

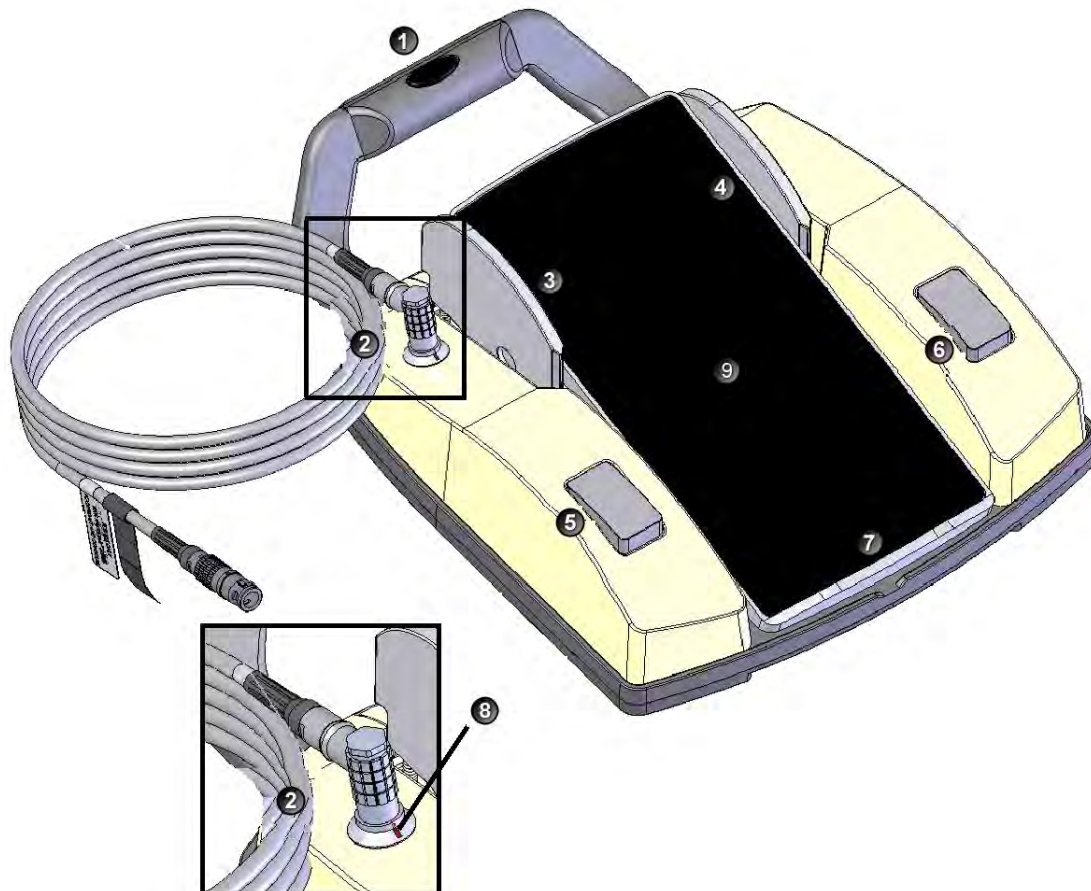
- “Advanced Control Pedal Setup” on page 5-23
- “Advanced Linear Pedal Setup” on page 5-31

Single Linear Foot Pedal Setup

This section presents the following topics for setting up a Single Linear Foot Pedal.

- “Vitrectomy Foot Pedal Modes” on page 5-8
- “Single Linear Foot Pedal Connections” on page 5-8
- “Single Linear Foot Pedal Switch Assignment” on page 5-8
- “Single Linear Foot Pedal Threshold Configuration” on page 5-12
- “Single Linear Foot Pedal Calibration and Testing” on page 5-13

Figure 5-7 — Single Linear Foot Pedal



- | | | |
|--------------------|----------------------|---------------------------|
| 1. Handle | 4. Right toe switch | 7. Heel rest |
| 2. Cable connector | 5. Left heel switch | 8. Cable connector detail |
| 3. Left toe switch | 6. Right heel switch | 9. Treadle |

Table 5.1 – Single Linear Foot Pedal Default Settings

Parameter	Available Settings	Default Settings
Pitch regions	1–100%	P1=5% P2=30% P3=60%
Switch position	Switch1= * Switch 2= *	Switch1=Off Switch 2=Off
	Right= * Left= *	Right=Reflux Left=Off
Feedback	On, Off	Off

*Table 5.3 – Single Linear Foot Pedal Switch Assignments

Vitrectomy Foot Pedal Modes

Table 5.2 – Vitrectomy Single Linear Foot Pedal Modes

Foot Pedal Positions	Vitrectomy Foot Pedal Modes		
	ICA	IAC	Side VIT
1	Irrigation	Irrigation	Irrigation
2	Irrigation/Cut	Irrigation/Aspiration	Irrigation/Aspiration
3	Irrigation/Cut/Aspiration	Irrigation/Aspiration/Cut	Irrigation/Aspiration

Single Linear Foot Pedal Connections

Attach the foot pedal cable to the connector on the left side of the foot pedal and attach the other end of the cable to the foot pedal connector on the rear panel of the system (see [Figure 3-2](#) and [Figure 4-2](#)).

Single Linear Foot Pedal Switch Assignment

The Single Linear foot pedal has four switches that you can assign specific functions for each surgeon. For Phaco and Vitrectomy foot pedal settings the switches are set per submode. Follow the steps below to assign functions to the foot pedal switches.

NOTE: In addition to showing the type and status of the foot pedal, the foot pedal icon in the top panel (shown below) also allows access to the Foot Pedal Settings screen.



1. On the Surgeons and Programs screen, select a surgeon.
2. Tap .

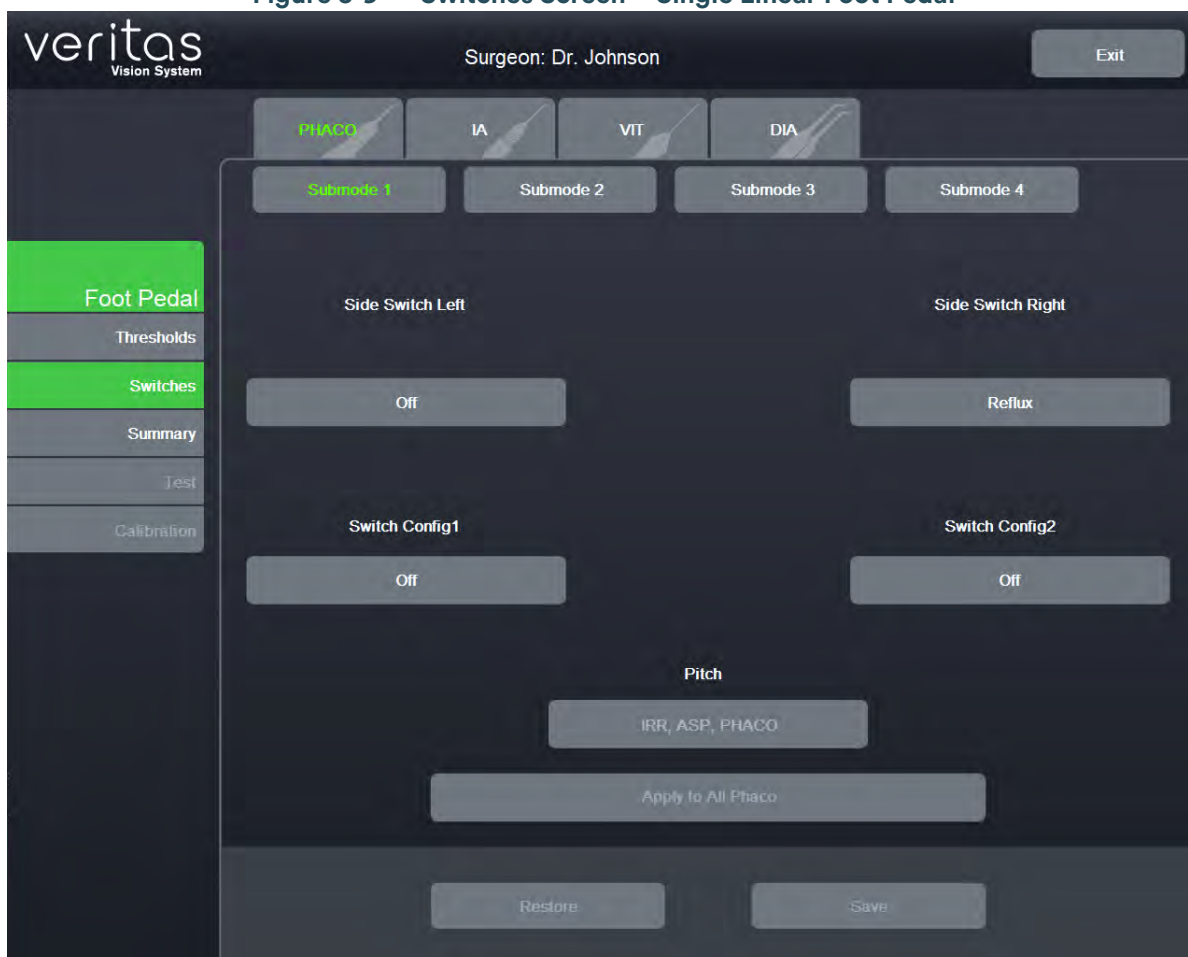
The system initially displays the Summary information on the Foot Pedal Settings screen. Each major surgical mode (Phaco, IA, Vitrectomy, and Diathermy) has individual settings for the foot pedal switches. In addition, both Phaco and Vitrectomy modes have individual settings per submode for the foot pedal switches. The Single Linear Foot Pedal screen displays the settings for the pedal linear motion (Pitch) and each of the four switches. For purposes of this example, we will discuss configuring the switches for Phaco.

Figure 5-8 — Single Linear Foot Pedal Phaco Summary Screen



3. Tap the **Switches** button to change the settings for the switches.

Figure 5-9 — Switches Screen – Single Linear Foot Pedal



The system displays the standard foot pedal switch assignment screen. The Single Linear Foot Pedal Switches screen allows you to assign or change the action for each of the four switches.

4. Select the major mode and then the applicable submode.
5. Tap the buttons under each switch name to assign or change the action for that switch. The system displays a switch assignment dialog box with the text of the current switch assignment shown in green.
6. In the PHACO Submode 1 mode, tap the **Apply to All Phaco** button to define the same switches for the other 3 Phaco submodes.

Figure 5-10 — Single Linear Foot Pedal Switch Assignment Dialog Box



7. Tap the button that represents your choice of switch setting.

Table 5.3 – Single Linear Foot Pedal Switch Assignments

Switch Setting	Description
Off	This switch has no switch assignment.
Surgeon Program Up	Selects the surgeon program above the current program in the list.
Surgeon Program Down	Selects the surgeon program below the current program in the list.
Previous Major Mode	Changes to the previous surgical mode.
Next Major Mode	Changes to the next surgical mode.
Previous Active Mode	Changes to the previous active mode.
Next Active Mode	Changes to the next active mode.
Previous Sub Mode	Changes to the previous submode.
Next Sub Mode	Changes to the next submode.
Toggle SMC Record	Activates or deactivates the surgical media center (SMC) recording function.
Bottle Up	Raises the IV pole while the switch is held down.

Switch Setting	Description
Bottle Down	Lowest the IV pole while the switch is held down.
Reflux	Activates reflux.
Continuous Irrigation	Activates or deactivates continuous irrigation.
1-Touch Up	Increments CASE mode 1-Touch (Phaco only).
1-Touch Down	Decrements CASE mode 1-Touch (Phaco only).
Toggle CASE	Activates or deactivate CASE mode (Phaco only).

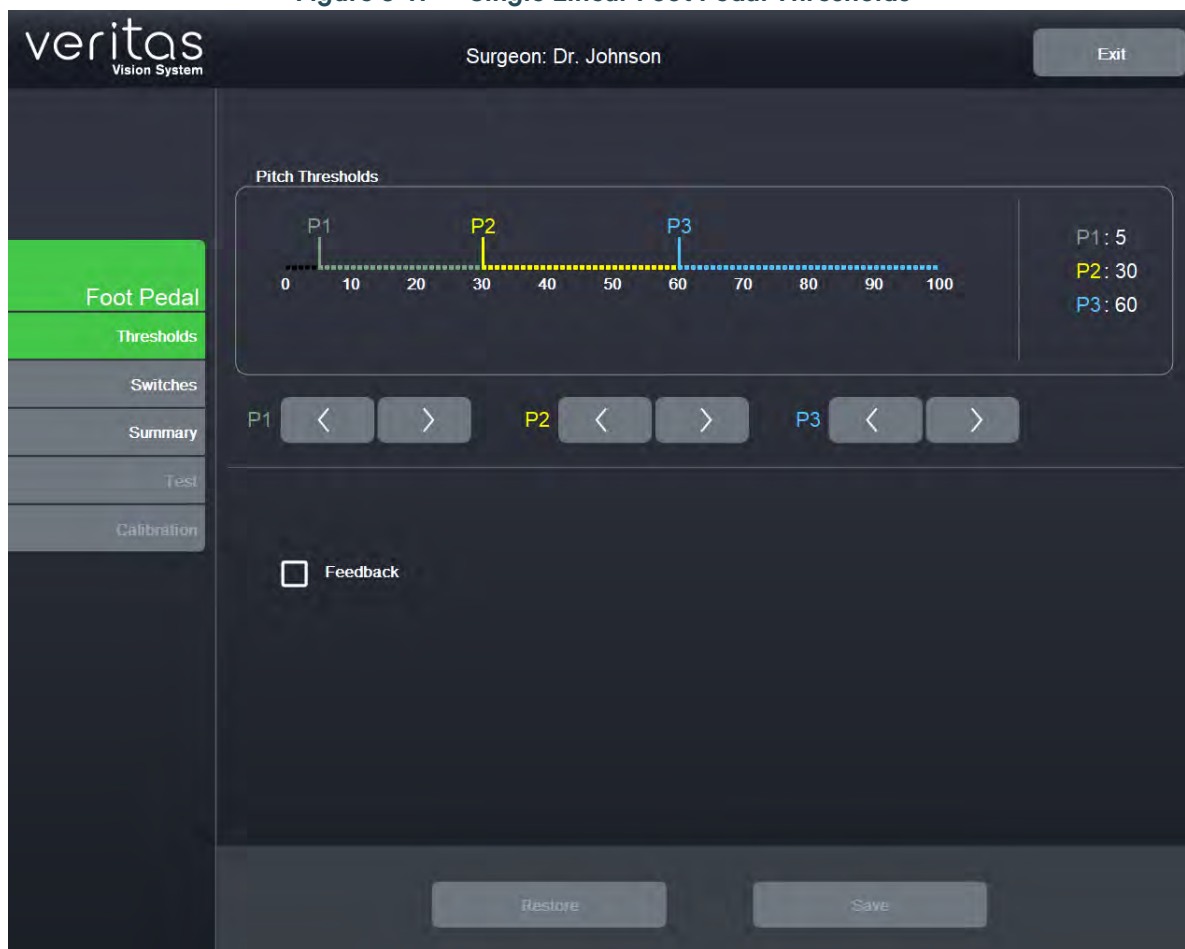
8. Tap the **Finished** button to:
 - ▶ accept your choice of switch assignment
 - ▶ close the Switch Assignment dialog box
 - ▶ return to the edit screen
 Repeat the process for all switches.
9. Tap **Save** to retain the settings.
10. Tap the **Exit** tab to close the Foot Pedal Set Up screen.

Single Linear Foot Pedal Threshold Configuration

Follow these steps to configure the thresholds for the foot pedal.

1. On the Surgeons and Programs screen, tap .
2. Tap the **Thresholds** button.
3. Use the arrow buttons to set the threshold for position 1, 2, or 3. The system announces the current value.

Figure 5-11 — Single Linear Foot Pedal Thresholds



4. Check the **Feedback** checkbox to enable foot pedal feedback. Feedback is a physical and audible click as you move the foot pedal to the next or previous position.
5. Tap **Save** to retain the settings.

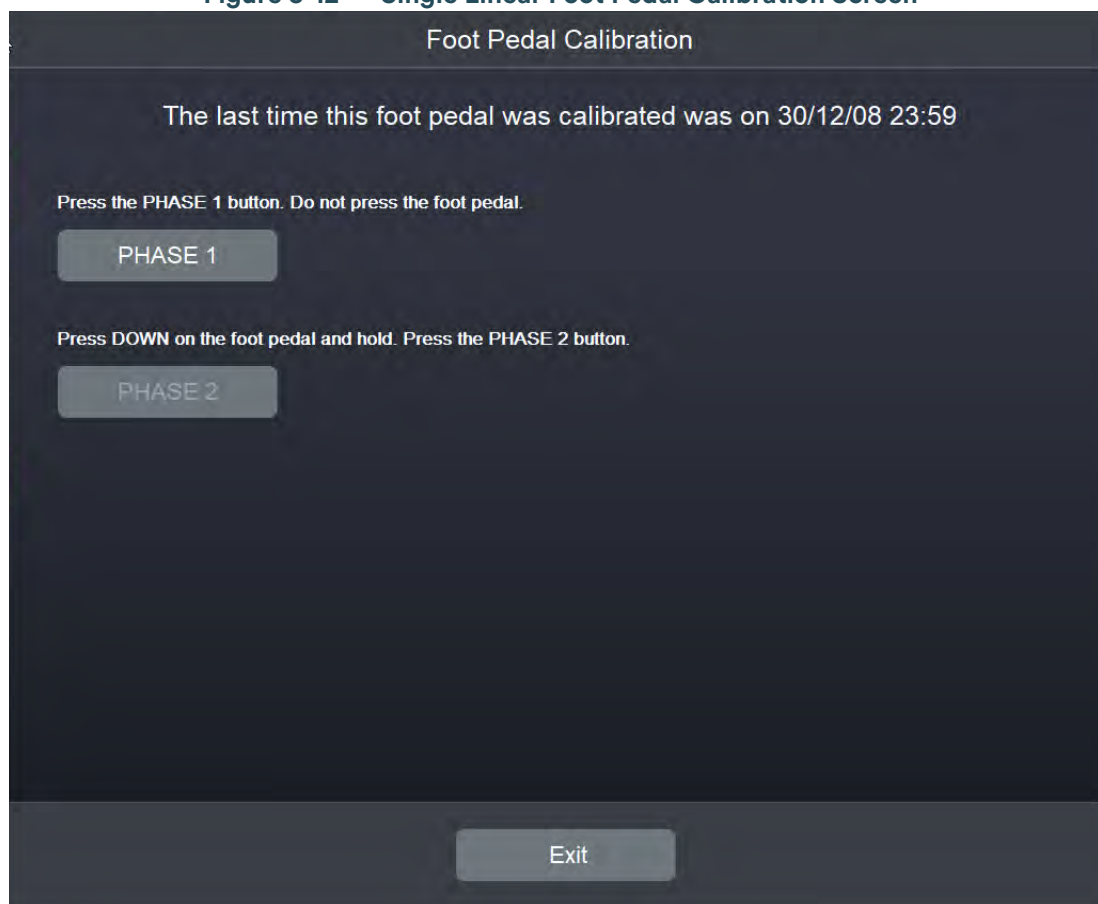
Single Linear Foot Pedal Calibration and Testing

Follow these steps to calibrate and test your foot pedal.

1. On the Surgeons and Programs screen, tap .
2. Tap the **Calibration** button.

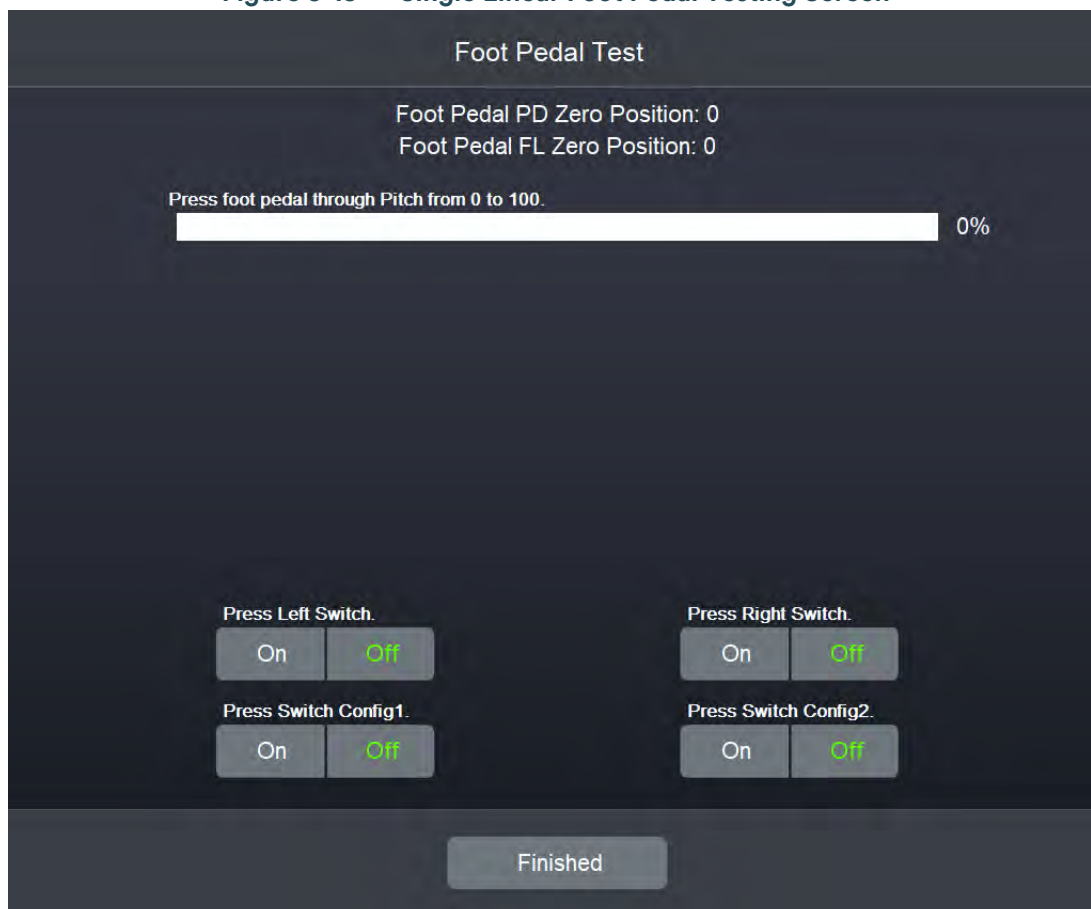
NOTE: The Calibration feature is not available during surgery.

Figure 5-12 — Single Linear Foot Pedal Calibration Screen



3. With your foot off the foot pedal, tap the **Phase 1** button.
4. Put your foot on the foot pedal, press and hold the foot pedal all the way down and tap the Phase 2 button.
5. The system automatically displays the Foot Pedal Test screen.
6. Press the foot pedal down fully to position 3. As the foot pedal travels through positions 1 and 2 to position 3, the progress bar shows its current state. When the pedal reaches the bottom of position 3, the progress bar should be solid green.
7. Press each of the four switches. When you press a switch, the On button for that switch turns green and its Off button turns white. When you release the switch, the On button for that switch turns white and its Off button turns green.
8. Tap the **Finished** button when you have completed testing the foot switches.

Figure 5-13 — Single Linear Foot Pedal Testing Screen



9. To test the foot pedal before calibration, tap the **Test** button. The Test button is not available during surgery.

VERITAS Foot Pedal Setup

This section presents the following topics for setting up a VERITAS Foot Pedal.

- [“VERITAS Foot Pedal Connections” on page 5-16](#)
- [“VERITAS Foot Pedal Switch Assignment” on page 5-16](#)
- [“Advanced Control Pedal Threshold Configuration” on page 5-28](#)
- [“VERITAS Foot Pedal Test” on page 5-22](#)



CAUTION!

Only use the JJSV specified replacement battery in the VERITAS Foot Pedal to ensure correct system performance. See [“Charging Options for Wireless Foot Pedals” on page 10-4.](#)

The VERITAS Foot Pedal does not need to be calibrated.

Figure 5-14 — VERITAS Foot Pedal



- | | | |
|-----------------------------|--------------------|-----------------------|
| 1. Handle | 4. Treadle | 7. Wireless Indicator |
| 2. Left/Right Top Switches | 5. Heel Rest | 8. Battery Indicator |
| 3. Left/Right Side Switches | 6. Cable Connector | |

VERITAS Foot Pedal Connections

You can attach the VERITAS Foot Pedal to the system either with a cable or with a wireless Bluetooth® connection.

NOTE: The blue light on the pedal indicates that the wireless connection is active. The amber light indicates that the battery needs to be charged.

To use the foot pedal with a cable, connect the foot pedal cable to the connector on the foot pedal, and attach the other end of the cable to the foot pedal connector on the rear panel of the system (see [Figure 3-2](#) and [Figure 4-2](#)). To use the foot pedal wirelessly, see “[Wireless Foot Pedal Setup](#)” on page 7-4.

VERITAS Foot Pedal Switch Assignment

The VERITAS Foot Pedal has four switches that you can assign specific functions to. Follow the steps below to assign functions to the foot pedal switches.

NOTE: In addition to showing the type and status of the foot pedal, the foot pedal icon (shown below) in the top of the screen also allows access to the Foot Pedal Settings screen.



1. On the Surgeons and Programs screen, tap .

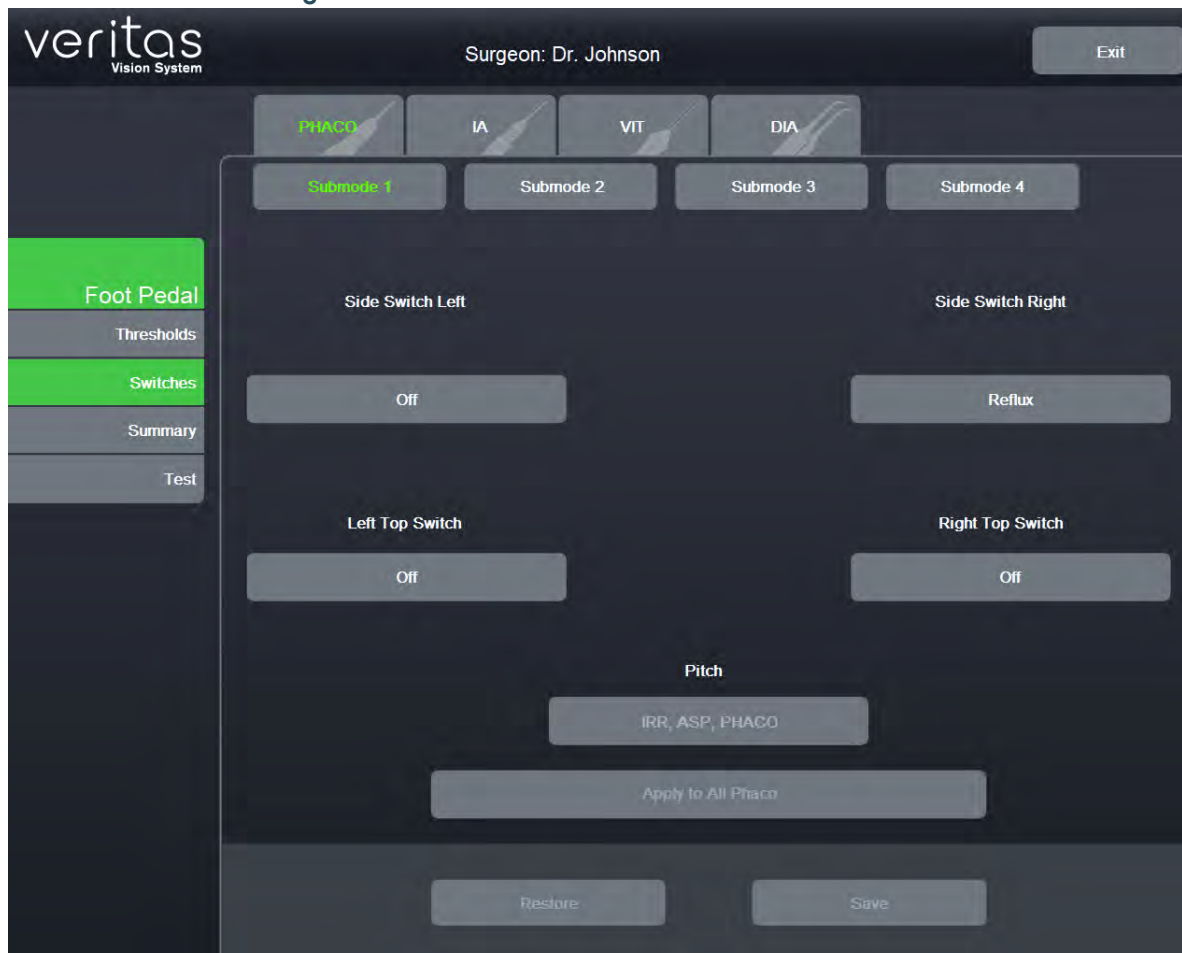
The system initially displays the Summary information on the Foot Pedal Settings screen. Each major surgical mode (Phaco, IA, Vitrectomy, and Diathermy) has individual settings for the foot pedal switches. In addition, both Phaco and Vitrectomy modes have individual settings per submode for the foot pedal switches. The VERITAS Foot Pedal screen displays the settings for the pedal linear motion (Pitch) and function assignments for each of the four switches. For purposes of this example, we will discuss configuring the switches for Phaco.

Figure 5-15 — VERITAS Foot Pedal Summary Screen



2. Tap the **Switches** button to change the settings for the switches. The system displays the VERITAS Foot Pedal Edit screen. This screen allows you to assign or change the action for each of the four switches.

Figure 5-16 — VERITAS Foot Pedal Switches Screen



3. Select the major mode and then the applicable submode.
4. Tap the button under each switch name to assign or change the action for that switch. The system displays a switch assignment dialog box with the text of the current switch assignment shown in green.

NOTE: If you select Next Major Mode, Previous Major Mode, Next Active Mode or Previous Active Mode as a foot pedal switch setting, the Vitrectomy mode cannot be selected as you cycle through the different modes and submodes.

5. In the PHACO Submode 1 mode, tap the **Apply to All Phaco** button to define the same switches for the other 3 Phaco submodes.

Figure 5-17 — VERITAS Foot Pedal Switch Assignment Dialog Box

Foot Pedal

Side Switch Left

Off	Reflux
Surgeon Program Up	Continuous Irrigation
Surgeon Program Down	1-Touch Up
Previous Major Mode	1-Touch Down
Next Major Mode	Toggle CASE
Previous Active Mode	
Next Active Mode	
Previous Submode	
Next Submode	
Toggle SMC Record	
Bottle Up	
Bottle Down	

Finished

- Tap the button that represents your choice of switch setting.

Table 5.4 – VERITAS Foot Pedal Switch Assignments

Switch Setting	Description
Off	This switch has no switch assignment.
Surgeon Program Up	Selects the surgeon program above the current program in the list.
Surgeon Program Down	Selects the surgeon program below the current program in the list.
Previous Major Mode	Changes to the previous surgical mode.
Next Major Mode	Changes to the next surgical mode.
Previous Active Mode	Changes to the previous active mode.
Next Active Mode	Changes to the next active mode.
Previous Sub Mode	Changes to the previous submode.
Next Sub Mode	Changes to the next submode.
Toggle SMC Record	Activates or deactivates the surgical media center (SMC) recording function.
Bottle Up	Raises the IV pole while the switch is held down.

Switch Setting	Description
Bottle Down	Lowers the IV pole while the switch is held down.
Reflux	Activates reflux.
Continuous Irrigation	Activates or deactivates continuous irrigation.
1-Touch Up	Increments CASE mode 1-Touch. (Phaco only)
1-Touch Down	Decrements CASE mode 1-Touch. (Phaco only)
Toggle CASE	Activates or deactivates CASE MODE (Phaco only)

7. Tap the **Finished** button to:

- ▶ accept your choice of switch assignment
- ▶ close the Switch Assignment dialog box
- ▶ return to the edit screen

Repeat the process for all switches.

8. Tap the **Save** button to retain the switch assignments.

9. Tap **Exit** to close the Foot Pedal Set Up screen.

VERITAS Foot Pedal Threshold Configuration

Follow the steps below to configure the thresholds for the foot pedal.

NOTE: In addition to showing the type and status of the foot pedal, the foot pedal icon (shown below) in the top of the screen also allows access to the Foot Pedal Settings screen.



1. On the Surgeons and Programs screen, tap  or .
2. Tap the **Thresholds** button under Foot Pedal. The system displays the foot pedal thresholds screen.

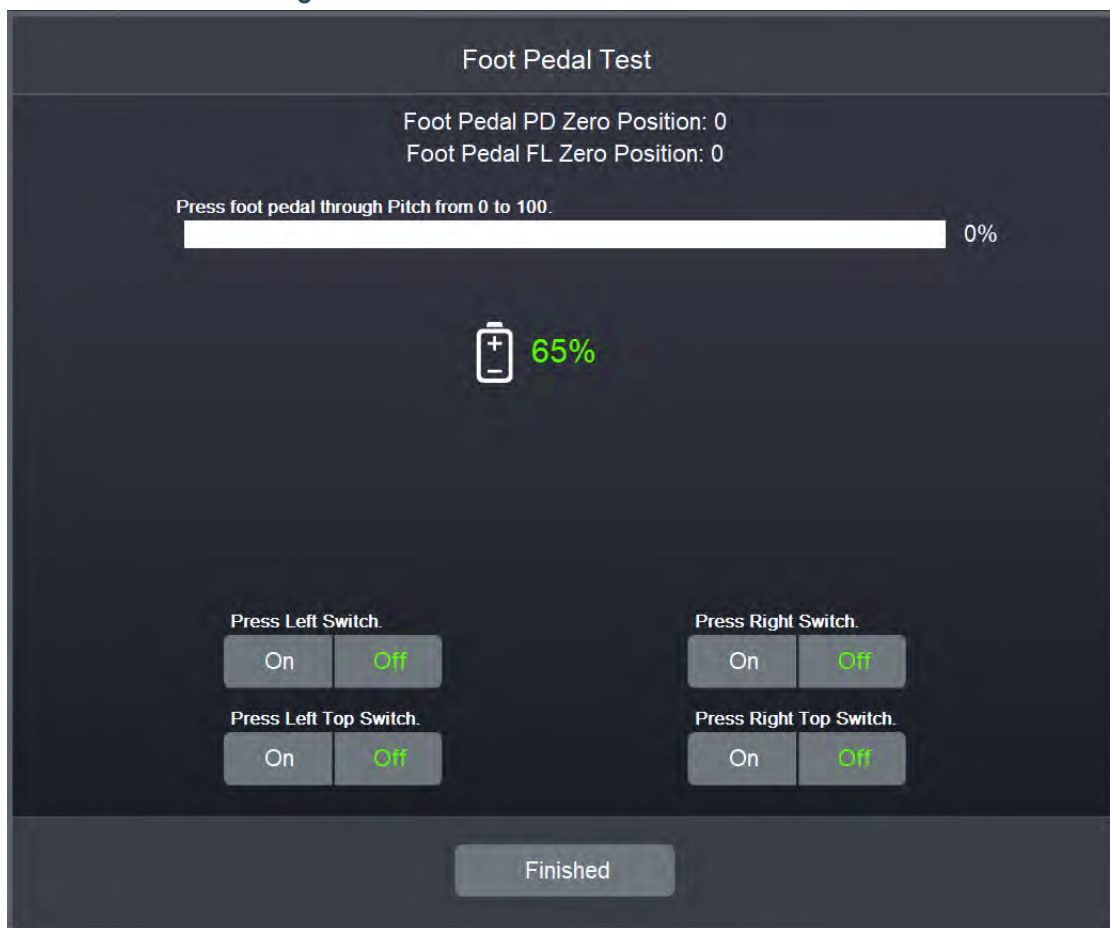
Figure 5-18 — VERITAS Foot Pedal Threshold Screen



3. Use the up and down arrows to change the threshold for each of the foot pedal pitch zones. P1 is the first zone, P2 is the second, and P3 is the final zone.
4. Check the **Feedback** checkbox to enable foot pedal feedback. Feedback is a physical and audible click as you move the foot pedal to the next or previous position.
5. Tap **Save** to retain the settings.
6. Tap **Exit** to close the Foot Pedal Set Up screen.

VERITAS Foot Pedal Test

Figure 5-19 — VERITAS Foot Pedal Test Screen



NOTE: In addition to showing the type and status of the foot pedal, the foot pedal icon (shown below) in the top of the screen also allows access to the Foot Pedal Settings screen.



1. On the Surgeons and Programs screen, tap  or .
2. Tap the **Test** button.

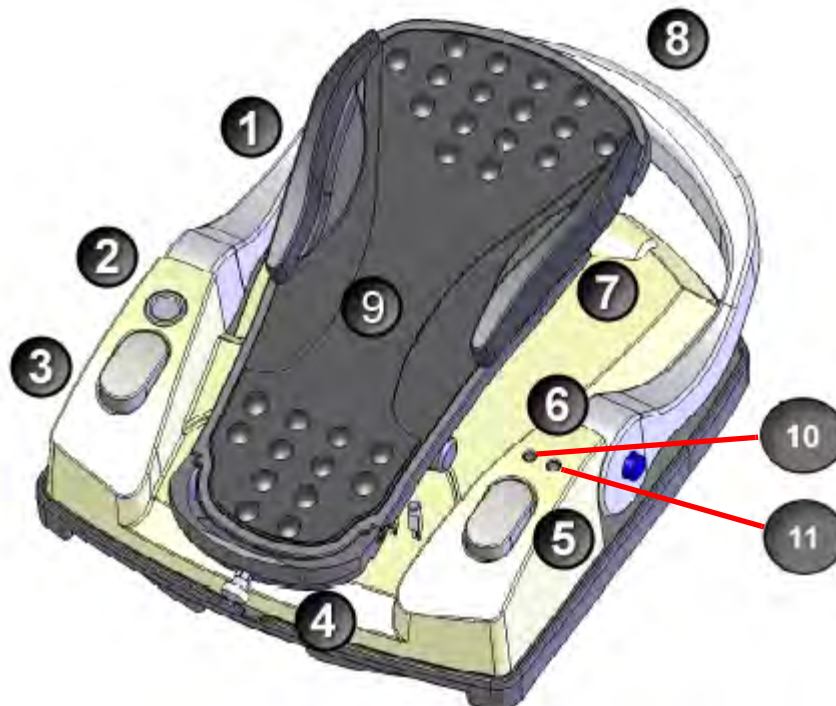
3. Press the foot pedal down fully to position 3. As the foot pedal travels through positions 1 and 2 to position 3, the progress bar shows its current state. When the pedal reaches position 3, the progress bar should be solid green.
4. Tap each of the four switches. When a switch is pressed, the On button for that switch turns green and its Off button turns white. When you release the switch, the On button for that switch turns white and its Off button turns green.
5. Tap the **Finished** button when you complete the testing of your foot switch.
6. Tap **Exit** to close the Foot Pedal Set Up screen.

Advanced Control Pedal Setup

This section presents the following topics for setting up an Advanced Control Pedal (ACP):

- [“Vitrectomy Foot Pedal Modes” on page 5-24](#)
- [“Advanced Control Pedal Connections” on page 5-24](#)
- [“Advanced Control Pedal Switch Assignment” on page 5-24](#)
- [“Advanced Control Pedal Threshold Configuration” on page 5-28](#)
- [“Advanced Control Pedal Calibration and Testing” on page 5-30](#)

Figure 5-20 — Advanced Control Pedal



- | | | | |
|---------------------|----------------------|--------------|------------------------|
| 1. Left yaw | 4. Heel rest | 7. Right yaw | 10. Wireless Indicator |
| 2. Wake-up button | 5. Right heel switch | 8. Handle | 11. Battery Indicator |
| 3. Left heel switch | 6. Lights | 9. Treadle | |

NOTE: See [“Charging Options for Wireless Foot Pedals”](#) on page 10-4.

Table 5.5 – Advanced Control Pedal Default Settings

Parameter	Available Settings	Default Settings
Right/Left Yaw	*	Right Yaw=Reflux
Pitch Region	1-100%	P1=5% P2=30% P3=60%
Yaw Position	5-100%	Left=90%
		Right=90%

* Table 5.7 – Advanced Control Pedal Switch Assignments

Vitrectomy Foot Pedal Modes

Table 5.6 – Vitrectomy Advanced Control Pedal Modes

Foot Pedal Positions	Vitrectomy Foot Pedal Modes		
	ICA	IAC	Side VIT
1	Irrigation	Irrigation	N/A
2	Irrigation/Cut	Irrigation/ Aspiration	N/A
3	Aspiration	Cut	N/A

Advanced Control Pedal Connections

You can attach the Advanced Control Pedal to the system either with a cable or with a wireless Bluetooth connection.

To use the foot pedal with a cable, connect the foot pedal cable to the connector on the foot pedal, and attach the other end of the cable to the foot pedal connector on the rear panel of the system (see [Figure 3-2](#) and [Figure 4-2](#)). To use the foot pedal wireless, see [“Wireless Foot Pedal Setup”](#) on page 7-4.

Advanced Control Pedal Switch Assignment

The Advanced Control Pedal has four switches that you can assign specific functions to. Follow the steps below to assign functions to the foot pedal switches.

NOTE: In addition to the procedure below, you can access the Advanced Control Pedal Summary screen by pressing the foot pedal icon (shown below) near the top of the screen.



1. On the Surgeons and Programs screen, tap .

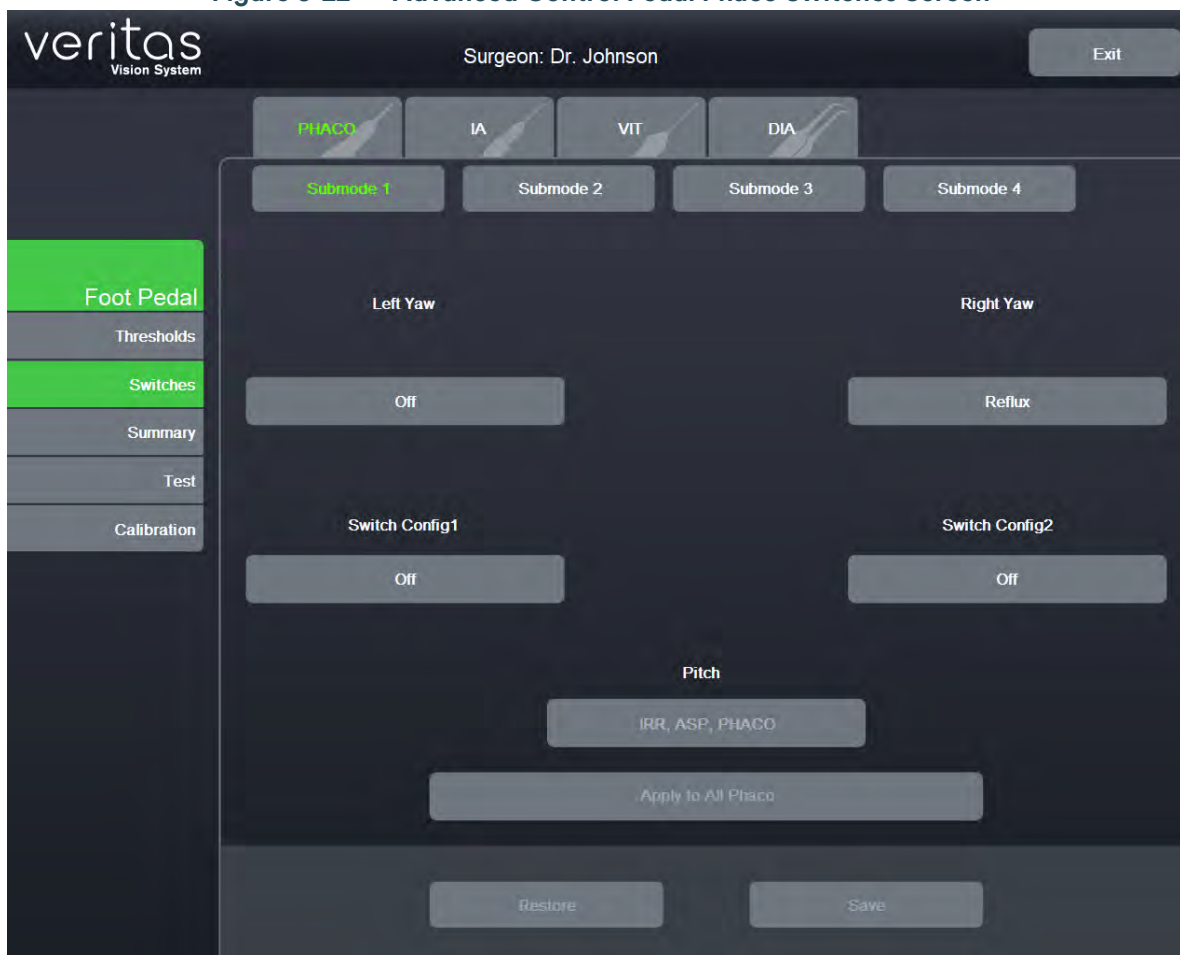
The system initially displays the Summary information on the Foot Pedal Settings screen. Each major surgical mode (Phaco, IA, Vitrectomy, and Diathermy) has individual settings for the foot pedal switches. In addition, both Phaco and Vitrectomy modes have individual settings per submode for the foot pedal switches.

Figure 5-21 — Advanced Control Pedal Phaco Summary Screen



2. Tap the **Switches** button to change the settings for the switches. The system displays the Advanced Control Pedal Edit screen. The Advanced Control Pedal Edit screen allows you to assign or change the action for each of the four switches.

Figure 5-22 — Advanced Control Pedal Phaco Switches Screen



3. Select the major mode and then the applicable submode.
4. Tap the button under each switch name to assign or change the action for that switch. The system displays a switch assignment dialog box with the text of the current switch assignment shown in green.
NOTE: If you select Next Major Mode, Previous Major Mode, Next Active Mode or Previous Active Mode as a foot pedal switch setting, the Vitrectomy mode cannot be selected as you cycle through the different modes and submodes.
5. In the PHACO Submode 1 mode, tap the **Apply to All Phaco** button to define the same switches for the other 3 Phaco submodes.

Figure 5-23 — Advanced Control Pedal Switch Assignment Dialog Box

Foot Pedal

Left Yaw

Off	Reflux
Surgeon Program Up	Continuous Irrigation
Surgeon Program Down	1-Touch Up
Previous Major Mode	1-Touch Down
Next Major Mode	Toggle CASE
Previous Active Mode	WhiteStar Increment
Next Active Mode	WhiteStar Decrement
Previous Submode	Vacuum Boost
Next Submode	Power Boost
Toggle SMC Record	ASP + VAC
Bottle Up	PHACO
Bottle Down	

Finished

- Tap the button that represents your choice of switch setting.

Table 5.7 – Advanced Control Pedal Switch Assignments

Switch Setting	Description
Off	This switch has no switch assignment.
Surgeon Program Up	Selects the surgeon program above the current program in the list.
Surgeon Program Down	Selects the surgeon program below the current program in the list.
Previous Major Mode	Changes to the previous surgical mode.
Next Major Mode	Changes to the next surgical mode.
Previous Active Mode	Changes to the previous active mode.
Next Active Mode	Changes to the next active mode.
Previous Sub Mode	Changes to the previous submode.
Next Sub Mode	Changes to the next submode.
Toggle SMC Record	Activates or deactivates the surgical media center (SMC) recording function.
Bottle Up	Raises the IV pole while the switch is held down.

Switch Setting	Description
Bottle Down	Lowers the IV pole while the switch is held down.
Reflux	Activates reflux.
Continuous Irrigation	Activates or deactivates continuous irrigation.
1-Touch Up	Increments CASE mode 1-Touch. (Phaco only)
1-Touch Down	Decrements CASE mode 1-Touch. (Phaco only)
Toggle CASE	Activates or deactivates CASE MODE (Phaco only)
WhiteStar Increment	Increment the WHITESTAR setting
WhiteStar Decrement	Decrement the WHITESTAR setting
Vacuum Boost	Activates or deactivates vacuum boost.
Power Boost	Activates or deactivates power boost
ASP + VAC	Activates or deactivates aspiration plus vacuum.
Phaco	Activates Phaco surgical mode.

NOTE: The items in bold in Table 5.7 above are only displayed when you assign functions to the left and right yaw switches.

1. Tap **Finished** to:
 - ▶ accept your choice of switch assignment
 - ▶ close the Switch Assignment dialog box
 - ▶ return to the edit screen
 Repeat the process for all switches.
2. Tap **Save** to retain the switch assignments.
3. Tap **Exit** to close the Foot Pedal Set Up screen.

Advanced Control Pedal Threshold Configuration

Follow these steps to configure the thresholds for the foot pedal.

NOTE: In addition to the procedure below, you can access the Advanced Control Pedal Summary screen by pressing the foot pedal icon (shown below) near the top of the screen.



1. On the Surgeons and Programs screen, tap .
2. Tap the **Thresholds** button under Foot Pedal. The system displays the foot pedal thresholds screen.

Figure 5-24 — Advanced Control Pedal Thresholds

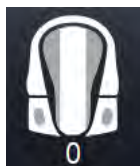


3. Use the right and left arrows to set the threshold for position 1, 2, or 3. The system announces the current value.
4. Use the up and down arrows to set the threshold for the left and right yaw controls. The threshold determines how far the user needs to move the pedal before the switch is activated.
5. Check the **Feedback** checkbox to enable foot pedal feedback. Feedback is a physical and audible click as you move the foot pedal to the next or previous position.
6. Tap **Save** to retain the settings.

Advanced Control Pedal Calibration and Testing

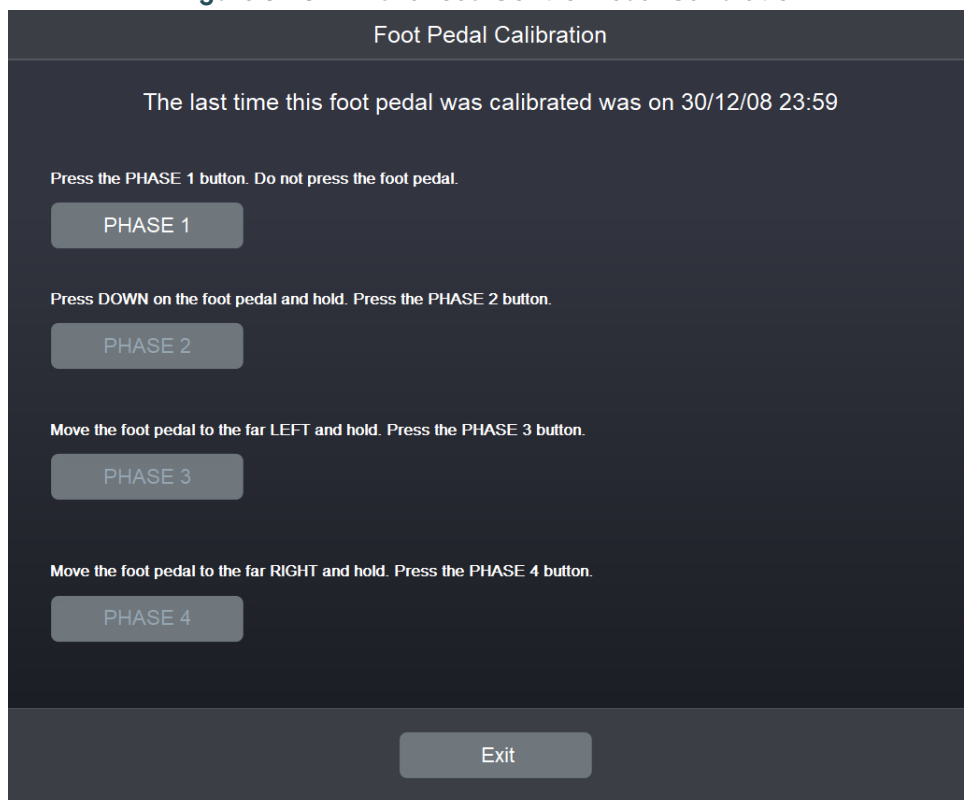
Follow the steps below to calibrate and test your foot pedal.

NOTE: In addition to the procedure below, you can access the **Advanced Control Pedal Summary** screen by pressing the foot pedal icon (shown below) near the top of the screen.



1. On the Surgeons and Programs screen, tap .
2. Tap the **Calibration** button.

Figure 5-25 — Advanced Control Pedal Calibration



3. With your foot off the foot pedal, tap the **Phase 1** button.
4. Put your foot on the foot pedal, press and hold the foot pedal all the way down and tap the **Phase 2** button.
5. Move the pedal to the far left and hold that position while you tap the **Phase 3** button.
6. Move the pedal to the far right and hold that position while you tap the **Phase 4** button.

Figure 5-26 — Advanced Control Pedal Testing

Foot Pedal Test

Foot Pedal PD Zero Position: 0
Foot Pedal FL Zero Position: 0

Press foot pedal through Pitch from 0 to 100. 0%

Press foot pedal through Left Yaw from 0 to 100. 100%

Press foot pedal through Right Yaw from 0 to 100. 0%

Press Switch Config1. On Off

Press Switch Config2. On Off

Finished

7. Press the foot pedal down fully to position 3. As the foot pedal travels through positions 1 and 2 to position 3, the progress bar shows its current state. When the pedal reaches the bottom of position 3, the progress bar should be solid green.
8. Press each of the four switches. When a switch is tapped, the On button for that switch turns green and its Off button turns white. When you release the switch, the On button for that switch turns white and its Off button turns green.
9. Tap **Finished** when you complete the testing of your foot switch.
10. Tap **Exit** to close the Foot Pedal Set Up screen.
11. To test the foot pedal without performing a calibration, tap **Test** and follow the instructions on the screen.

Advanced Linear Pedal Setup

NOTE: Only use the JJSV specified replacement battery in the Advanced Linear Pedal to ensure correct system performance. See [“Charging Options for Wireless Foot Pedals” on page 10-4.](#)

The Advanced Linear Pedal does not need to be calibrated.

Figure 5-27 — Advanced Linear Pedal



- | | | |
|---------------------------------|-----------------------|----------------------|
| 1. Handle | 4. Heel rest | 7. Battery Indicator |
| 2. Left and Right Top Switches | 5. Treadle | |
| 3. Left and Right Side Switches | 6. Wireless Indicator | |

Advanced Linear Pedal Connections

You can attach the Advanced Linear Pedal to the system either with a cable or with a wireless Bluetooth connection.

NOTE: The blue light on the pedal indicates that the foot pedal is active. The amber light indicates that the battery needs to be charged.

To use the foot pedal with a cable, connect the foot pedal cable to the connector on the foot pedal, and attach the other end of the cable to the foot pedal connector on the rear panel of the system (see [Figure 3-2](#) and [Figure 4-2](#)). To use the foot pedal wirelessly, see “[Wireless Foot Pedal Setup](#)” on page 7-4.

Advanced Linear Pedal Switch Assignment

The Advanced Linear Pedal has four switches that you can assign specific functions to. Follow these steps to assign functions to the foot pedal switches.

NOTE: In addition to the procedure below, you can access the Advanced Linear Pedal Summary screen by pressing the foot pedal symbol near the top of the screen.



1. On the Surgeons and Programs screen, tap .

The system initially displays the Summary information on the Foot Pedal Settings screen. Each major surgical mode (Phaco, IA, Vitrectomy, and Diathermy) has individual settings for the foot pedal switches. In addition, both Phaco and Vitrectomy modes have individual settings per submode for the foot pedal switches.

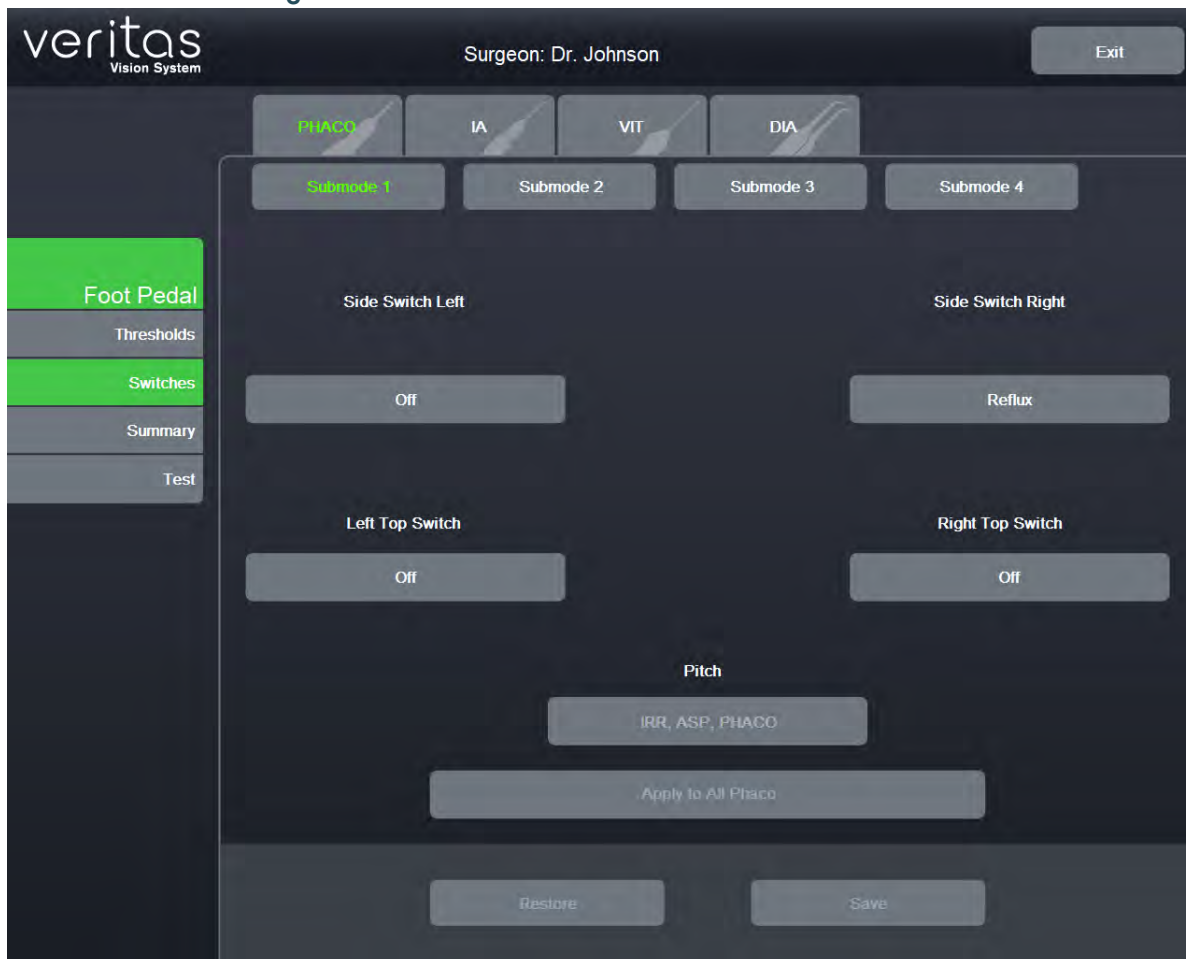
Figure 5-28 — Advanced Linear Pedal Summary Screen



2. Tap the **Switches** button to change the settings for the switches.

The system displays the Advanced Linear Pedal Edit screen. The Advanced Linear Pedal Edit screen allows you to assign or change the action for each of the four switches.

Figure 5-29 — Advanced Linear Pedal Switches Screen



3. Select the major mode and then the applicable submode.
4. Tap the button under each switch to assign or change the action for that switch.
The system displays a switch assignment dialog box with the text of the current switch assignment shown in green.

NOTE: If you select Next Major Mode, Previous Major Mode, Next Active Mode or Previous Active Mode as a foot pedal switch setting, the Vitrectomy mode cannot be selected as you cycle through the different modes and submodes.

Figure 5-30 — Advanced Linear Pedal Switch Assignment Dialog Box

5. Tap the button that represents your choice of switch setting.

Table 5.8 – Advanced Linear Pedal Switch Assignments

Switch Setting	Description
Off	This switch has no switch assignment.
Surgeon Program Up	Selects the surgeon program above the current program in the list.
Surgeon Program Down	Selects the surgeon program below the current program in the list.
Previous Major Mode	Changes to the previous surgical mode.
Next Major Mode	Changes to the next surgical mode.
Previous Active Mode	Changes to the previous active mode.
Next Active Mode	Changes to the next active mode.
Previous Sub Mode	Changes to the previous submode.
Next Sub Mode	Changes to the next submode.
Toggle SMC Record	Activates or deactivates the surgical media center (SMC) recording function.
Bottle Up	Raises the IV pole while the switch is held down.

Switch Setting	Description
Bottle Down	Lowers the IV pole while the switch is held down.
Reflux	Activates reflux.
Continuous Irrigation	Activates or deactivates continuous irrigation.
1-Touch Up	Increments CASE mode 1-Touch (Phaco only).
1-Touch Down	Decrements CASE mode 1-Touch (Phaco only).
Toggle CASE	Activates or deactivates CASE mode, (Phaco only)

6. Tap **Finished** to:

- ▶ accept your choice of switch assignment
- ▶ close the Switch Assignment dialog box
- ▶ return to the edit screen

Repeat the process for all switches.

7. Tap **Save** to retain the switch settings.

8. Tap **Exit** to close the Foot Pedal Set Up screen.

Advanced Linear Threshold Configuration

Follow the steps below to set the foot pedal thresholds.

NOTE: In addition to the procedure below, you can access the Advanced Linear Pedal Summary screen by pressing the foot pedal icon (shown below) near the top of the screen.



1. On the Surgeons and Programs screen, tap .

2. Tap the **Thresholds** button under Foot Pedal.

The system displays the foot pedal thresholds screen.

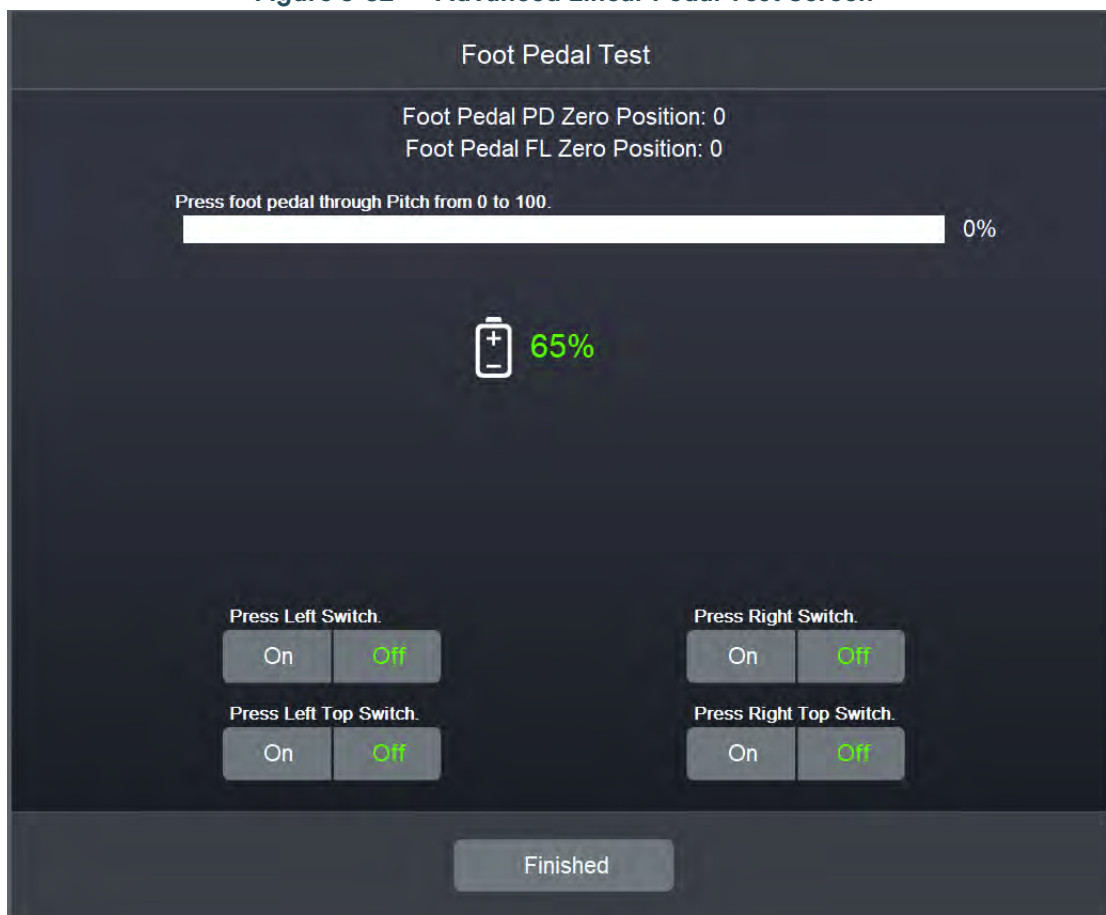
Figure 5-31 — Advanced Linear Pedal Threshold Screen



3. Use the up and down arrows to change the threshold for each of the foot pedal pitch zones. P1 is the first zone, P2 is the second, and P3 is the final zone.
4. Check the **Feedback** checkbox to enable foot pedal feedback. Feedback is a physical and audible click as you move the foot pedal to the next or previous position.
5. Tap **Save** to retain the settings.
6. Tap **Exit** to close the Foot Pedal Set Up screen.

Advanced Linear Pedal Test

Figure 5-32 — Advanced Linear Pedal Test Screen



NOTE: In addition to the procedure below, you can access the Advanced Linear Pedal Summary screen by pressing the foot pedal icon (shown below) near the top of the screen.



1. On the Surgeons and Programs screen, tap .
2. Tap the **Test** button.
3. Press the foot pedal down fully to position 3. As the foot pedal travels through positions 1 and 2 to position 3, the progress bar shows its current state. When the pedal reaches position 3, the progress bar should be solid green.

4. Press each of the four switches. When a switch is pressed, the On button for that switch turns green and its Off button turns white. When you release the switch, the On button for that switch turns white and its Off button turns green.
5. Tap **Finished** when you complete the testing of your foot switch.
6. Tap **Exit** to close the Foot Pedal Set Up screen.

Set Sound Levels

Default Settings

Table 5.9 – VERITAS Vision System Default Sound Settings

Global Parameters		
Sounds	Available Settings	Default Settings
Tone Option	VERITAS/WHITESTAR SIGNATURE PRO	VERITAS
High Vacuum	On, Off	On
Mode Change	Off, Tone, Voice	Voice On
Submode Change	Off, Tone, Voice	Voice On
Value Change	On, Off	Off
Activity Confirmation	On, Off	On
Vacuum Tone	Off-10	8
Diathermy Tone	5–10	5
Phaco Tone Volume	0-10	0
Error Tone	5–10	5
Irrigation Tone	Off-10	7
Key Press Tone	Off–10	6
Speech	Off–10	5
CASE Volume	0–10	0
Master Volume	0–10	7

The VERITAS System provides two sets of tone options—VERITAS and WHITESTAR SIGNATURE PRO. You can select the tone preference by tapping either **VERITAS** or **WHITESTAR SIGNATURE PRO**. Once you select your preferred tone, you can hear a sample of the selected tone by adjusting the volume.

Follow these steps to set the sound levels for the selected surgeon:

1. On the top panel, select the surgeon.

2. Tap .

Figure 5-33 — Sound Settings Screen



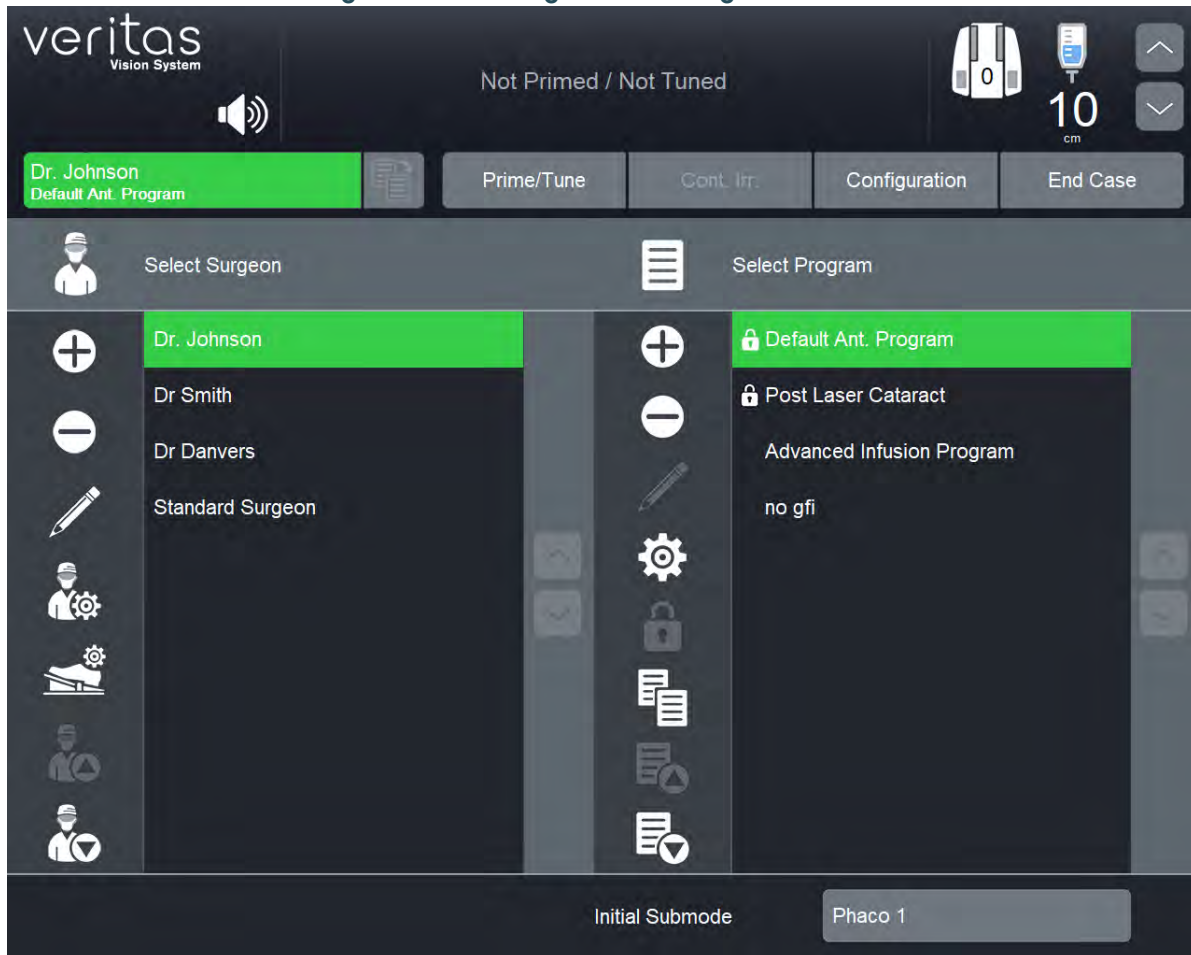
3. Use the sliders to adjust the volume for:
 - ▶ Master Volume
 - ▶ Instrument
 - ▶ Confirmation
4. Use the buttons on the right side to turn sounds on or off for the different system functions.
5. Use the up and down arrows to set the volume for:
 - ▶ CASE Activation
 - ▶ Phaco Power
6. Tap **Save** to retain any change you made.
7. Tap **Exit**.

Surgeon – Assign Order

1. Select a surgeon.

2. Use  or  to move the surgeon names up or down on the Surgeons and Programs screen.

Figure 5-34 — Surgeons and Programs Screen



3. Repeat the steps until the order is to your satisfaction.

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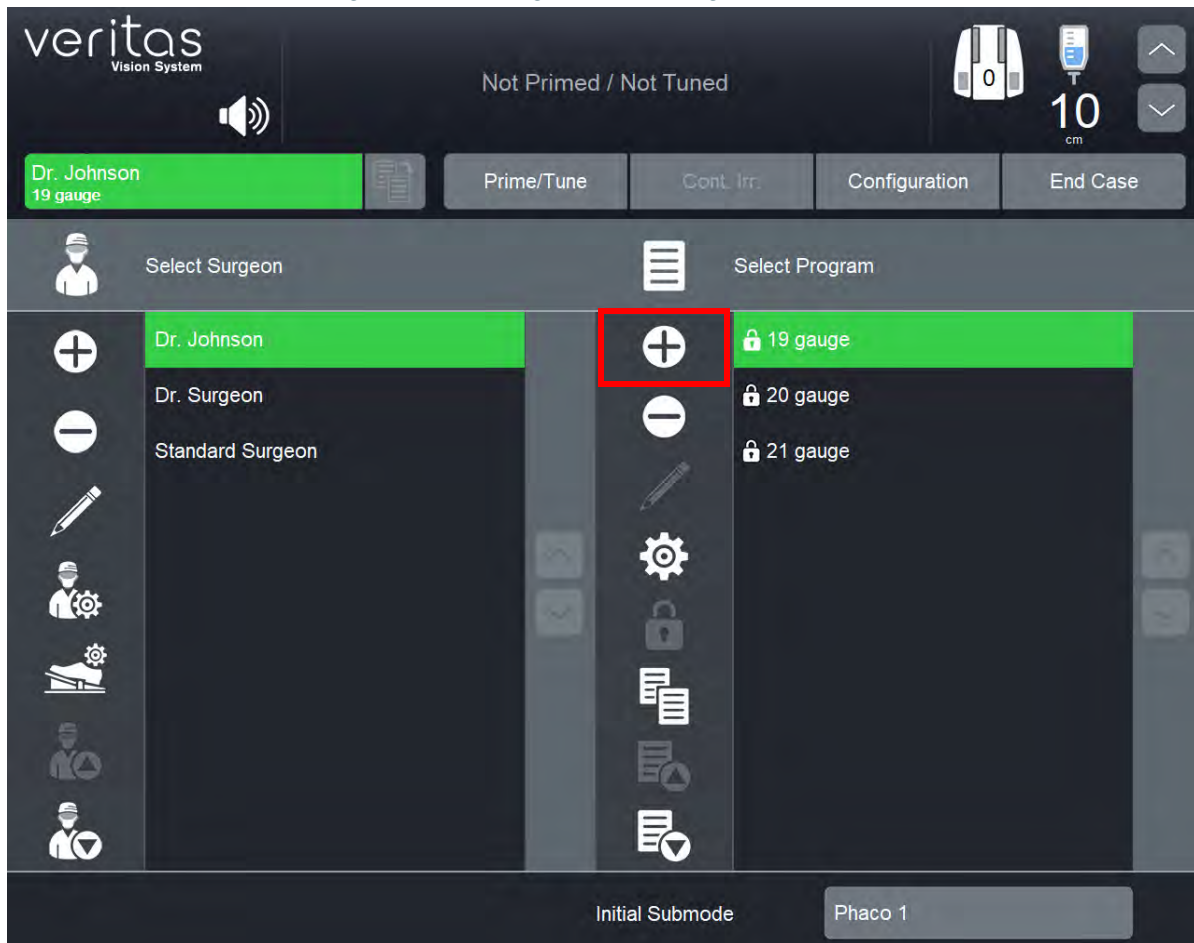
6 — Program Settings

- “Create a New Program” on page 6-1
- “Delete a Program” on page 6-4
- “Edit a Program Name” on page 6-5
- “Lock a Program” on page 6-5
- “Copy a Surgeon Program” on page 6-5
- “Assign Program Order” on page 6-6
- “Program Settings” on page 6-6
- “Default Settings” on page 6-13
- “Phaco Power Settings” on page 6-19
- “WHITESTAR Technology” on page 6-21
- “FUSION Fluidics Phaco” on page 6-27

Create a New Program

When you create a new surgeon, the system automatically assigns the three default 19 gauge, 20 gauge, and 21 gauge programs with pre-defined parameters to that surgeon ([Figure 6-1](#)). You can customize a program for that surgeon name with your preferred settings. You can also create new programs for existing surgeons.

Figure 6-1 — Surgeons and Programs Screen



1. On Select Program, tap .

Figure 6-2 — Create New Program

Save As:
Enter Program Name for Dr. Johnson

Standard Names

1 2 3 4 5 6 7 8 9 0 Backspace

Q W E R T Y U I O P

A S D F G H J K L '

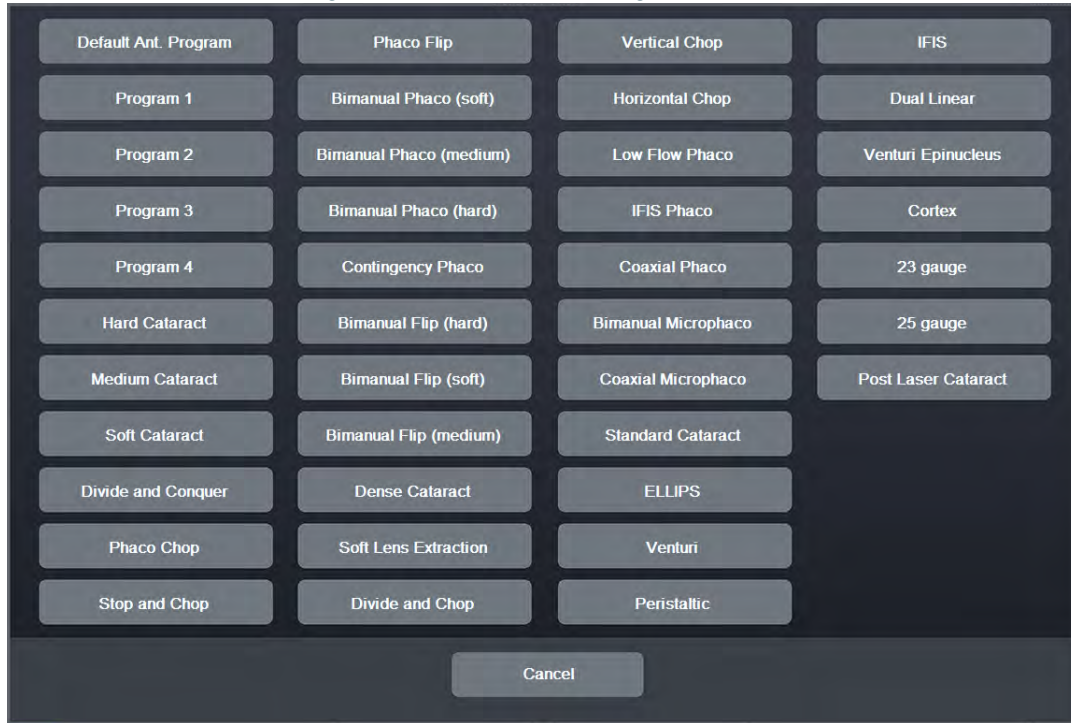
Z X C V B N M . - _

Shift Space Clear

Enter Cancel

2. Enter a program name and tap **Enter**, or tap **Standard Names**, select a program name from the list, and tap **Enter**.

Figure 6-3 — Standard Program Names

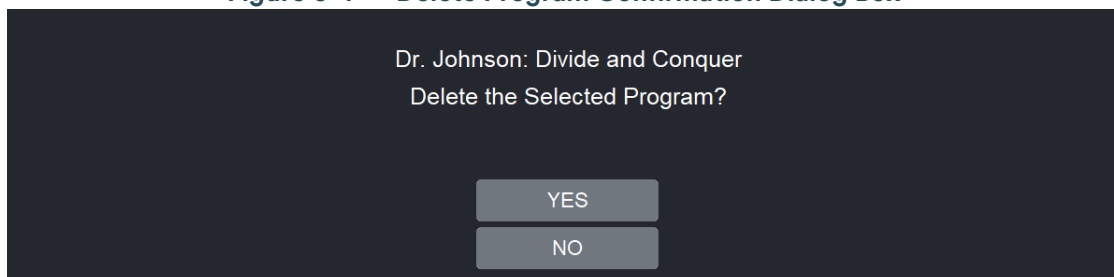


Delete a Program

Use Delete Program to remove a surgeon program from the Select Program screen. You cannot delete a program if it is the only program defined for a custom surgeon. You also cannot delete the default 19 gauge, 20 gauge, and 21 gauge programs from the Standard Surgeon. If you delete the current program, the next program on the list becomes the current program.

1. Select a program name on the list.
2. Tap .

Figure 6-4 — Delete Program Confirmation Dialog Box



3. Tap **Yes**.

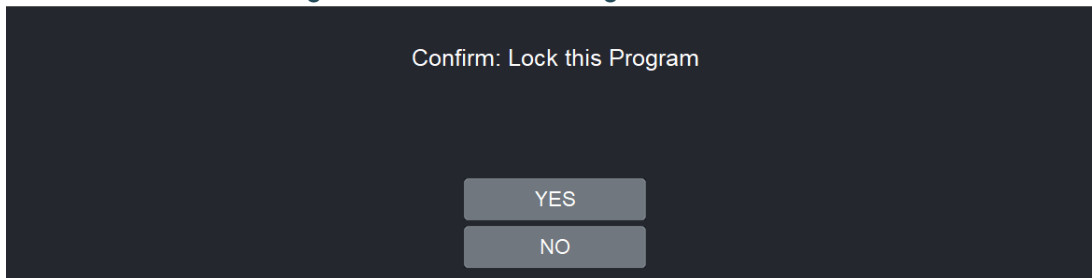
Edit a Program Name

1. Select a program name on the list.
2. Tap .
3. Enter a different program name or tap **Standard Names** and select a new name from the Standard Names list. See [“Create a New Program” on page 6-1](#).
4. Tap **Enter**.

Lock a Program

1. Tap  on the Surgeons and Programs screen ([Figure 6-1](#)) to lock a program.

Figure 6-5 — Confirm Program Lock Button



2. Tap Yes.

NOTE: Once you lock a program you cannot unlock the program. You can edit the locked program to use different settings during surgery, but you cannot save or overwrite the program settings once done. You cannot delete the default locked programs from the Standard Surgeon. You can delete all locked default programs from custom surgeons, but there must be at least one program defined for a custom surgeon.

Copy a Surgeon Program

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

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

Assign Program Order

1. Select a program on the list.
2. Use  or  to move the program names up or down on the list.

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.

Program Settings

Program settings are used to define specific settings on the VERITAS™ Vision System. There are four major surgical modes:

- Phaco (see [“Phaco” on page 6-8](#))
- Irrigation and Aspiration (I/A) (see [“Irrigation and Aspiration \(I/A\)” on page 6-9](#))
- Vitrectomy (VIT) (see [“Vitrectomy \(VIT\)” on page 6-10](#))
- Diathermy (DIA) (see [“Diathermy \(DIA\)” on page 6-11](#))

For each major mode, there are multiple submodes available that may be customized for each step in the procedure. The modes and submodes are selected by tapping their buttons on the left of the Settings screen (see [Figure 6-6](#)).

Program settings include the following:

- **Advanced Infusion:** If this checkbox is checked (enabled), program settings are customized to use the VERITAS Advanced Infusion Tubing Pack VRT-AI. If Advanced Infusion is disabled, program settings are customized to support tubing packs using gravity-based infusion only (VERITAS Advanced Fluidics Tubing Pack VRT-AF or FUSION™ Dual Pump Tubing Pack OPO73). See [“Advanced Infusion” on page 6-12](#).
- **Save:** Saves the program with the current settings.
- **Save As:** Saves the program changes with a custom name or a name from the Standard Name list for any surgeon other than Standard Surgeon (see [Figure 6-2](#)).
- **Restore Program:** Restores all changes made to the current program to what it was previously saved as.

All or some of the submodes within each of the major modes are programmable. Submode names are preset with Standard Names but may be renamed by tapping on the submode name near the top of the Settings screen (see [Figure 6-6](#)). You can select from the Standard Name list or enter a custom name.

The default submode names are:

- Phaco – Phaco 1, Phaco 2, Phaco 3, Phaco 4
- I/A – IA 1, IA 2, IA 3
- VIT – ICA, IAC
- DIA – Diathermy 1, Diathermy 2

Each submode includes:

- **Active:** If this checkbox is checked (enabled), this submode can be used during surgery. If unchecked, this submode is disabled (grayed out on the left), and if tapped, will not navigate or allow you to use it. If you use the remote control and/or foot pedal switches assigned to next submode or next active submode, disabled submodes will be skipped and navigate to the next active submode. NOTE: There must be at least one Phaco submode active in a program. If there is only one active Phaco submode, its Active checkbox will be grayed out for unchecking/disabling (see [Figure 6-6](#)).
- **Restore Submode:** Restores all changes made to the current submode to what it was previously saved as.

NOTE: Submodes and their parameters are saved with their program. You cannot create additional submodes or delete them, you can only rename them.

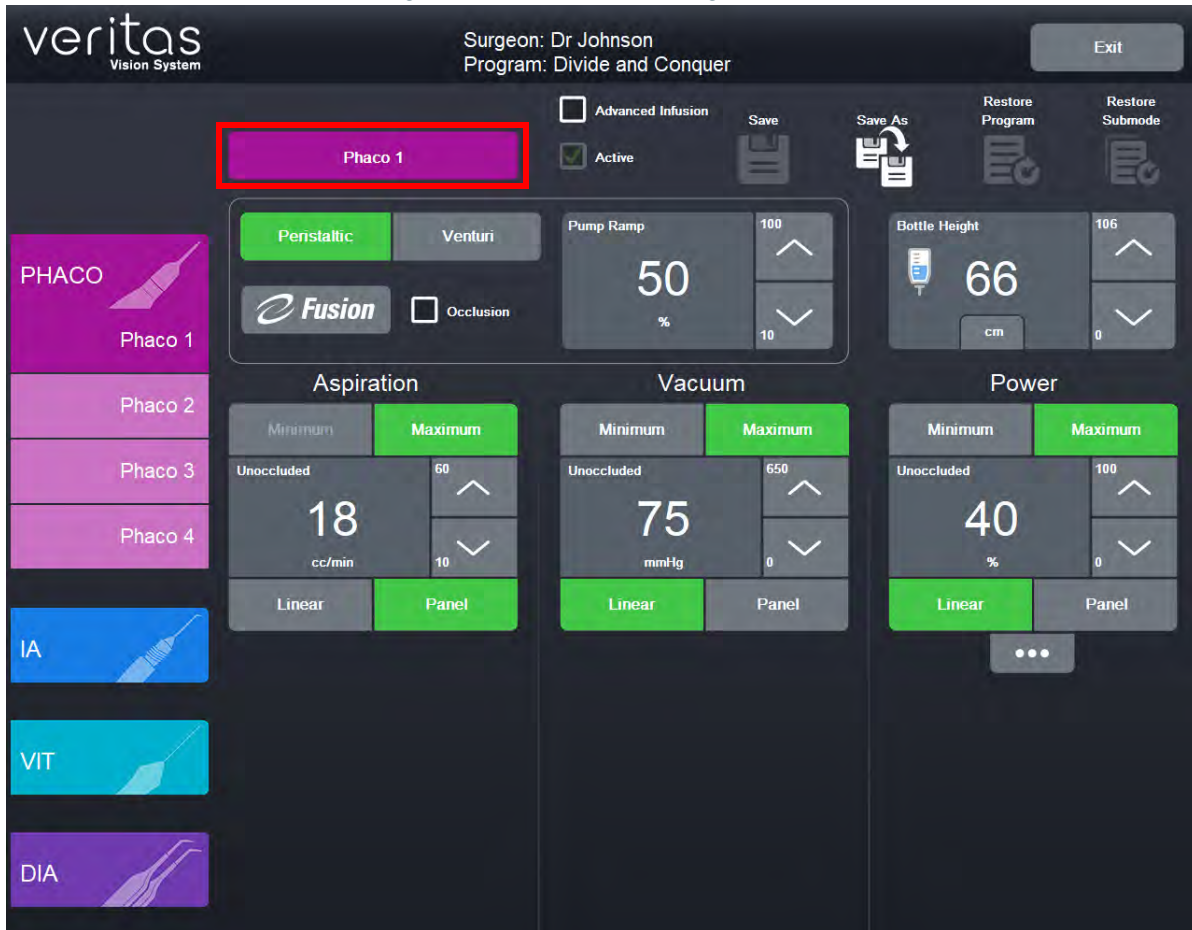
The primary settings in the submodes are:

- Aspiration
- Vacuum
- Power
- Cut Rate (Vitrectomy)
- Total Height
- Pump Type (Peristaltic or Venturi)
- Delivery Mode (Panel or Linear)
 - ▶ Linear – Provides a gradual increase based on the foot pedal position.
 - ▶ Panel – Provides a full and immediate increase when the foot pedal is pressed.

Phaco

1. Tap  to open the Settings screen.
2. Select a Phaco submode on the left ([Figure 6-6](#)).

Figure 6-6 — Phaco Settings Screen



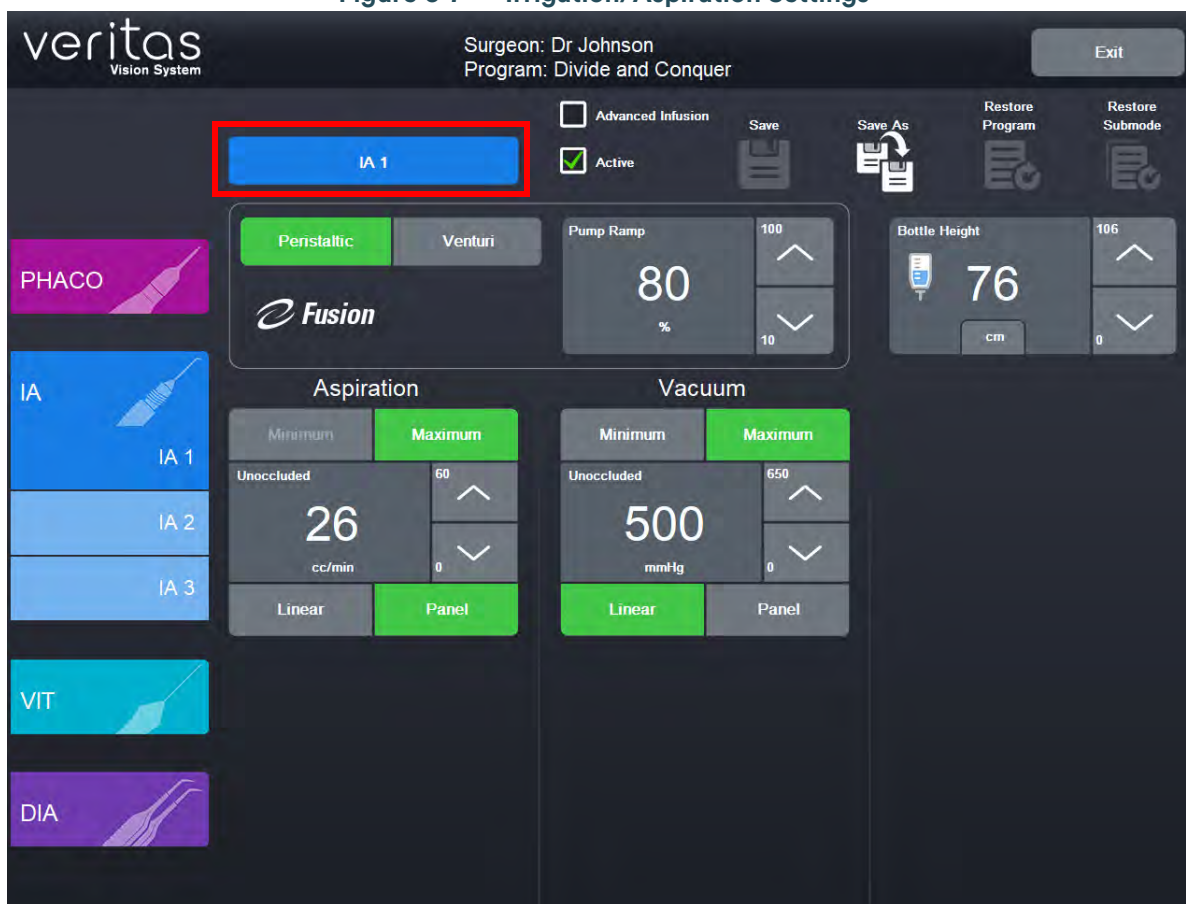
3. If desired, tap the submode name at the top of the screen (outlined in red in [Figure 6-6](#)) to customize the submode name.
4. Select the pump type (**Peristaltic** or **Venturi**).
5. Use the up and down arrows to set the **Aspiration** rate (10 to 60).
6. Use the up and down arrows to set the **Vacuum**. If you are using Venturi, the range is 0 to 600. If you are using Peristaltic, the range is 0 to 650.
7. Use the up and down arrows to set the **Power** (0% to 100%).
8. Select the delivery mode (**Linear** or **Panel**).
9. Set the **Bottle Height** (Advanced Fluidics) or **Total Height** (Advanced Infusion).
10. Tap **Save**  to save the program.

For additional information see [“FUSION Fluidics Phaco”](#) on page 6-27 and [“Occlusion Mode Settings”](#) on page 6-28.

Irrigation and Aspiration (I/A)

1. Tap  to open the Settings screen.
2. Select an Irrigation/Aspiration submode on the left (Figure 6-7).

Figure 6-7 — Irrigation/Aspiration Settings

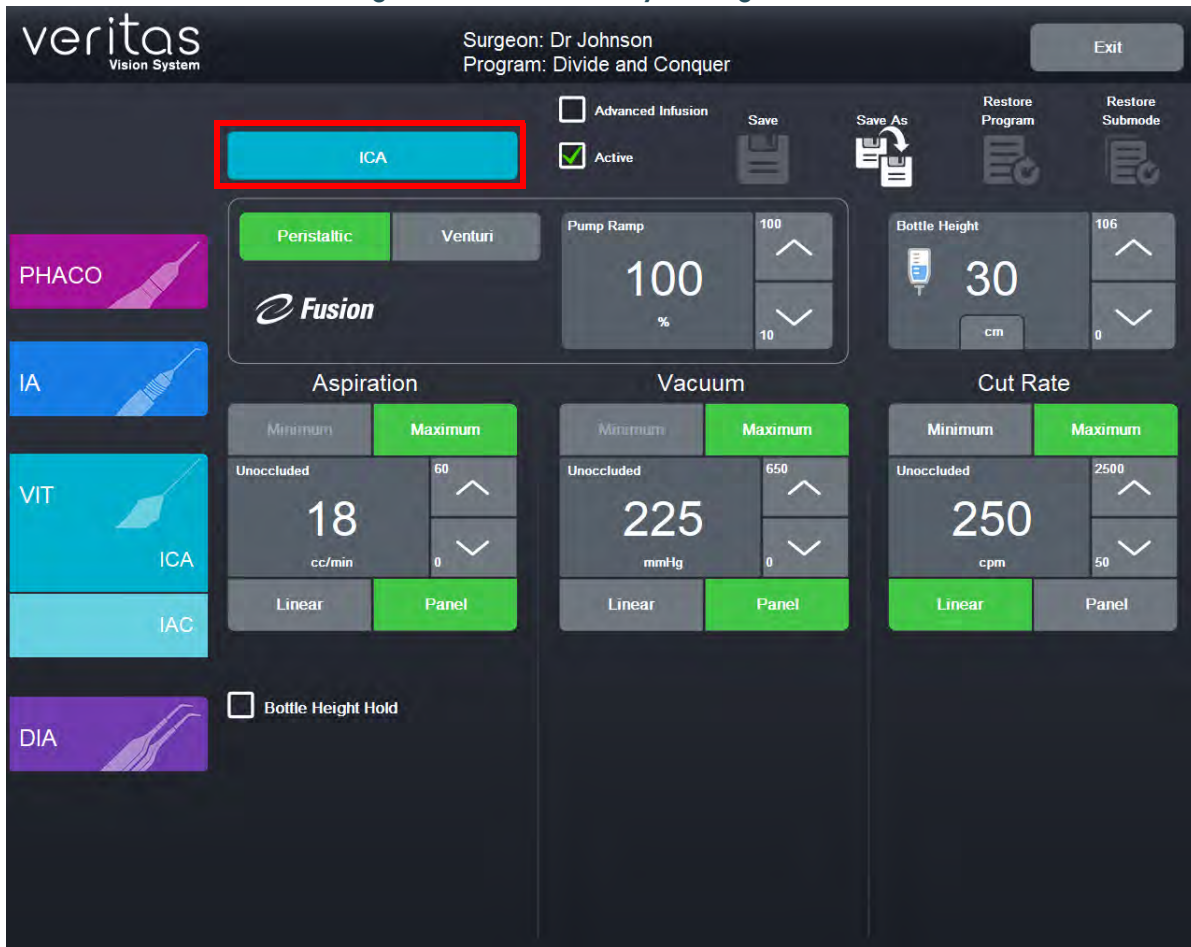


3. If desired, tap the submode name at the top of the screen (outlined in red in Figure 6-7) to customize the submode name.
4. Select the pump type (**Peristaltic** or **Venturi**).
5. Use the up and down arrows to set the **Aspiration** rate (0 to 60).
6. Use the up and down arrows to set the **Vacuum**. If you are using Venturi, the range is 0 to 600. If you are using Peristaltic, the range is 0 to 650.
7. Select the delivery mode (**Linear** or **Panel**).
8. Set the **Bottle Height** (Advanced Fluidics) or **Total Height** (Advanced Infusion).
9. Tap **Save**  to save the program.

Vitrectomy (VIT)

1. Tap  to open the Settings screen.
2. Select a Vitrectomy submode on the left ([Figure 6-8](#)).

Figure 6-8 — Vitrectomy Settings Screen



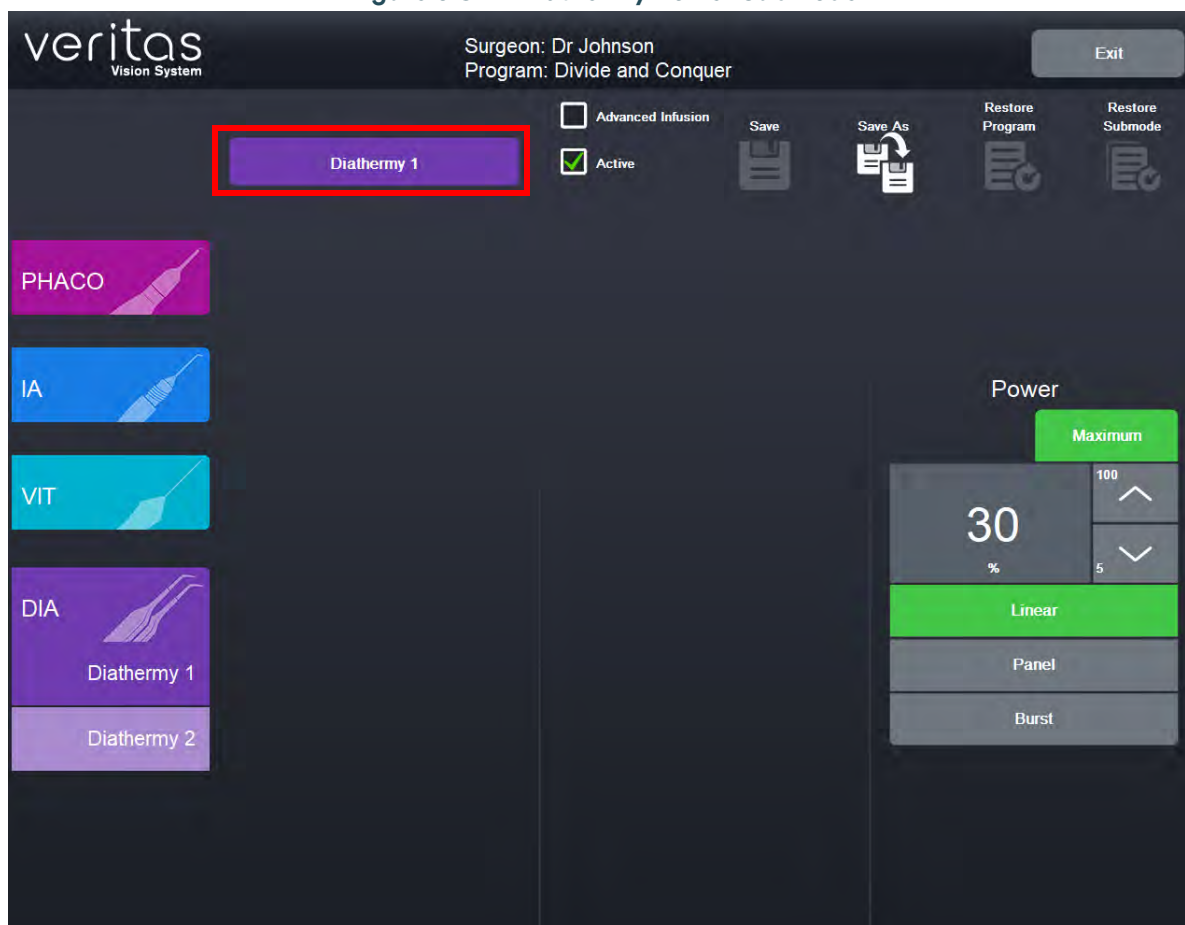
3. If desired, tap the submode name at the top of the screen (outlined in red in [Figure 6-8](#)) to customize the submode name.
 4. Select the pump type (**Peristaltic** or **Venturi**).
 5. Use the up and down arrows to set the **Aspiration** rate (0 to 60).
 6. Use the up and down arrows to set the **Vacuum**. If you are using Venturi, the range is 0 to 600. If you are using Peristaltic, the range is 0 to 650.
 7. Use the up and down arrows to set the **Cut Rate** (50 to 2500).
- NOTE: You must make a foot pedal selection for ICA, IAC, or Side Vitrectomy (VIT), which determines how the vitrectomy cutter activates as you press the foot pedal from Positions 1 through 3 only. See [“Vitrectomy Foot Pedal Modes” on page 5-8](#).
8. Select the delivery mode (**Linear** or **Panel**).
 9. Set the **Bottle Height** (Advanced Fluidics) or **Total Height** (Advanced Infusion).

10. **Bottle Height Hold:** If this checkbox is checked (enabled), the bottle height is held at the Bottle Height value specified in the Vitrectomy submode.
11. Tap **Save**  to save the program.

Diathermy (DIA)

1. Tap  to open the Settings screen.
2. Select a Diathermy submode on the left ([Figure 6-9](#)).

Figure 6-9 — Diathermy Power Submode

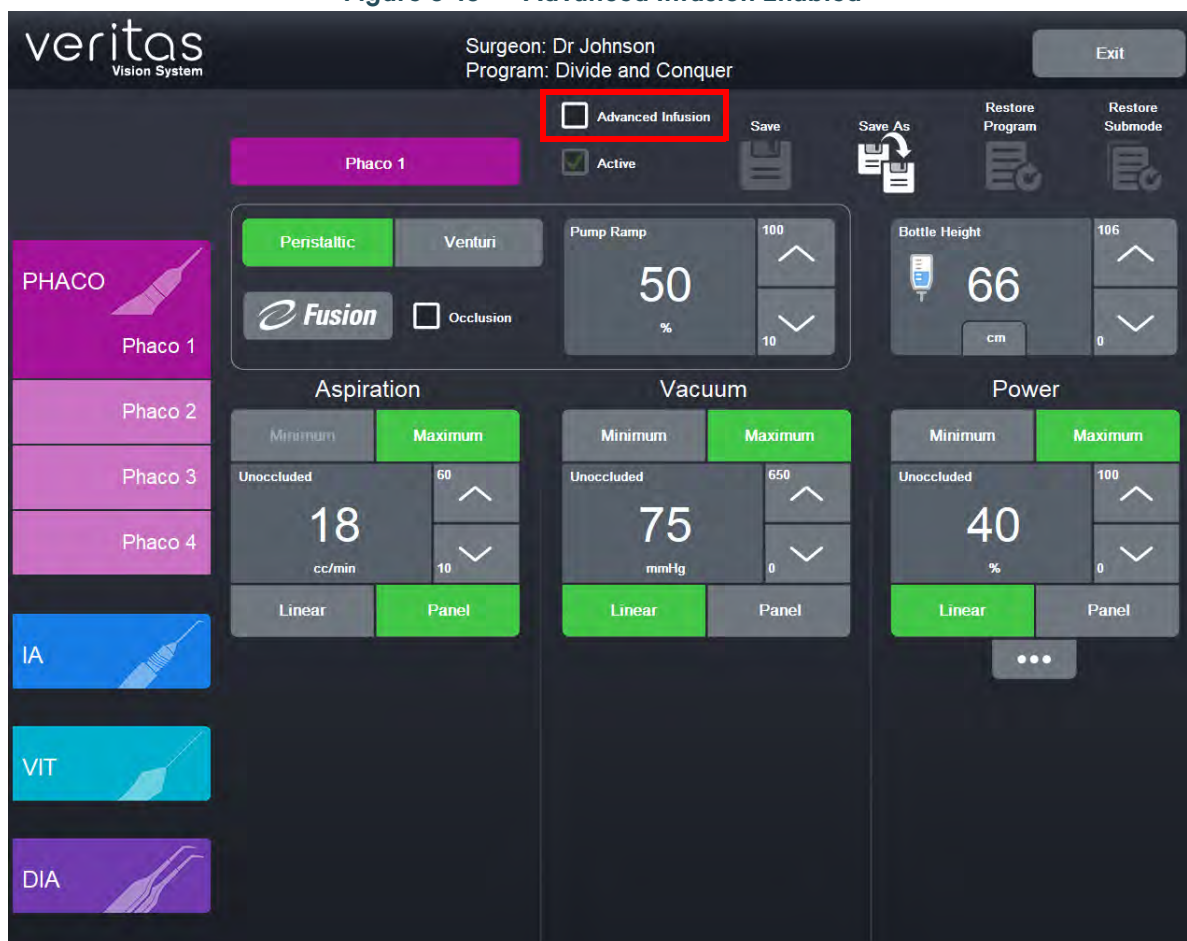


3. If desired, tap the submode name at the top of the screen (outlined in red in [Figure 6-9](#)) to customize the submode name.
4. Use the up and down arrows to set the **Power** (5% to 100%).
5. Select the delivery mode (**Linear**, **Panel**, or **Burst**).
6. Tap **Save**  to save the program.

Advanced Infusion

1. Tap  to open the Settings screen.
2. When using the Advanced Infusion Tubing Pack (VRT-AI), the **Advanced Infusion** checkbox must be checked, as outlined in red in [Figure 6-10](#) below.

Figure 6-10 — Advanced Infusion Enabled



Default Settings

Table 6.1 – 19 Gauge Program – Phaco Settings

Parameter	Available Settings	Default Settings			
Advanced Infusion (Program based)	On, Off	Off			
Function		Phaco 1	Phaco 2	Phaco 3	Phaco 4
Submode name		Phaco 1	Phaco 2	Phaco 3	Phaco 4
Pump selection	Venturi Peristaltic	Peristaltic	Peristaltic	Venturi	Peristaltic
IV Pole Height	0–106cm or 0–42 inches (Advanced Infusion disabled)	80 cm 31.5 inches	106 cm 42 inches	106 cm 42 inches	90 cm 35.5 inches
Vacuum control (Occlusion Mode/ CASE)	On, Off	Occlusion Mode off CASE off	Occlusion Mode off CASE off	Occlusion Mode off CASE on	Occlusion Mode off CASE on
Min vacuum (Peristaltic and Venturi pump)					
Unoccluded (mmHg)		0 (P) and 0 (V)	200 (P), 50 (V)	200 (P), 50 (V)	25 (P), 0 (V)
Occluded		0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting
Max vacuum (peristaltic and Venturi)					
Unoccluded (mmHg)		60 or 120 when CASE on (P), 30 (V)	350 (P), 275 (V)	350 (P), 300 (V)	175 (P), 150 (V)
Occlusion threshold		40	240	240	120
CASE Parameters					
CASE Upper threshold (% of Unoccluded vac)		90	90	90	90
CASE up time (ms)		2000	2000	2000	2000
CASE vacuum (% of Unoccluded vac)		80	80	80	80
CASE lower threshold (% of Unoccluded vac)		60	60	60	60
CASE one-touch		STD	STD	STD	STD
Peristaltic pump ramp threshold (%) / Venturi Vacuum Ramp (1 - Slowest - 5 Fastest)		50 / 1	30 / 1	20 / 1	15 / 1
Venturi pump	On, Off	Off	Off	On	Off
Min flow/aspiration rate (peristaltic and Venturi)					
Unoccluded (cc/min)		10	10	10	10
Occluded		10	10	10	10
Max flow/aspiration rate (peristaltic)					
Unoccluded (cc/mm)		20	36	36	32
Occluded		20	36	36	32
Fluidics mode type, aspiration	Panel, Linear	Panel	Panel	Panel	Panel
Fluidics mode type, vacuum	Panel, Linear	Linear	Linear	Linear	Linear
Min power					
Unoccluded (%)		0	0	0	0
Occluded		N/A	N/A	N/A	N/A

Parameter	Available Settings	Default Settings			
Max power					
Unoccluded (%)		50	40	35	10
Power delivery		Continuous	Continuous	Continuous	Continuous
WHITESTAR™ setting (duty cycle)		On 6/3 (67%)	On 8/4 (67%)	On VWS (67%) Quadrant 1 - 12/6 Quadrant 2 - 10/5 Quadrant 3 - 8/4 Quadrant 4 - 6/3	On 4/8 (33%)
Occluded mode (%)		50	40	35	10
Power delivery		Continuous	Multi-Burst	Multi-Burst	Continuous
WHITESTAR setting (duty cycle)		On 6/3 (67%)	On 8/4 (67%)	On 8/4 (67%)	On 4/8 (33%)
Power type, occluded and unoccluded		Linear	Unoccluded - Linear Occluded - Panel	Unoccluded - Linear Occluded - Panel	Linear
Short pulse rate, occluded and unoccluded	1–14 pps	6 pps	6 pps	6 pps	6 pps
Long pulse rate, occluded and unoccluded	1–6 pps	4 pps	4 pps	4 pps	4 pps
Pulse Shape Parameters					
% Kick Low		5	5	5	5
% Kick High		5	5	5	5
Low Power Limit		0	0	0	0
High Power Limit		80	80	80	80
Initial Mode	On, Off	Phaco (first enabled submode)			

Table 6.2 – 19 Gauge Program – IA, Vitrectomy, and Diathermy Settings

Surgical Mode/ Submode	Aspiration Rate cc/ mm (Min/Max) for Peristaltic Pump type	Vacuum mmHg (Min/Max), Pump Type	Power % / Cut Rate Cuts per Minute (cpm) (Min/Max)	Pump/Vac Ramp	IV Pole Height (cm)
IA1	36 Panel	0 / 550 Linear, Venturi	NA	80% / 2	90
IA2	5 Panel	0 / 10 Linear, Peristaltic	NA	20% / 1	70
IA3	48 Panel	0 / 550 Linear, Venturi *If change to Peristaltic, 600 Linear	NA	90% / 3	100
ICA (Vitrectomy)	20 Panel	250 Panel, Venturi	50 / 2000 cpm Panel	90% / 3	50
IAC (Vitrectomy)	20 Panel	0 / 300 Linear, Venturi	50 / 500 cpm Panel	90% / 3	60
DIA 1	NA	NA	5 / 30 Linear	NA	NA
DIA 2	NA	NA	5 / 30 Burst	NA	NA

Table 6.3 – 20 Gauge Program – Phaco Settings

Parameter	Available Settings	Default Settings			
Advanced Infusion (Program based)	On, Off	Off			
Function		Phaco 1	Phaco 2	Phaco 3	Phaco 4
Submode name		Phaco 1	Phaco 2	Phaco 3	Phaco 4
Pump selection	Venturi Peristaltic	Peristaltic	Peristaltic	Venturi	Peristaltic
IV Pole Height	0-106cm 0-42 inches (Advanced Infusion Off) 30-136cm 12-54 inches (Advanced Infusion On)	80 cm 31.5 inches	106 cm 42 inches	106 cm 42 inches	90 cm 35.5 inches
Vacuum control (Occlusion Mode/ CASE)	On, Off	Occlusion Mode off CASE off	Occlusion Mode off CASE off	Occlusion Mode off CASE on	Occlusion Mode off CASE on
Min vacuum (Peristaltic and Venturi pump)					
Unoccluded (mmHg)		0 (P) and 0 (V)	250 (P), 50 (V)	250 (P), 50 (V)	0 (P), 50 (V)
Occluded		0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting
Max vacuum (peristaltic and Venturi)					
Unoccluded (mmHg)		80 or 120 when CASE on (P), 70 (V)	450 (P), 350 (V)	450 (P), 300 (V)	300 (P), 250 (V)
Occlusion threshold		55	300	300	200
CASE Parameters					
CASE Upper threshold (% of Unoccluded vac)		90	90	90	90
CASE up time (ms)		2000	2000	2000	2000
CASE vacuum (% of Unoccluded vac)		80	80	80	80
CASE lower threshold (% of Unoccluded vac)		60	60	60	60
CASE one-touch		STD	STD	STD	STD
Peristaltic pump ramp threshold (%) / Venturi Vacuum Ramp (1 - Slowest - 5 Fastest)		60 / 1	35 / 2	40 / 3	20 / 1
Venturi pump	On, Off	Off	Off	On	Off
Min flow/aspiration rate (peristaltic and Venturi)					
Unoccluded (cc/min)		10	10	10	10
Occluded		10	10	10	10
Max flow/aspiration rate (peristaltic)					
Unoccluded (cc/mm)		22	38	38	34
Occluded		22	38	38	34
Fluidics mode type, aspiration	Panel, Linear	Panel	Panel	Panel	Panel
Fluidics mode type, vacuum	Panel, Linear	Linear	Linear	Linear	Linear
Min power					
Unoccluded (%)		0	0	0	0
Occluded		0	0	0	0

Parameter	Available Settings	Default Settings			
Max power					
Unoccluded (%)		50	40	35	15
Power delivery		Continuous	Continuous	Continuous	Continuous
WHITESTAR setting (duty cycle)		On 6/3 (67%)	On 8/4 (67%)	On VWS (67%) Quadrant 1 - 12/6 Quadrant 2 - 10/5 Quadrant 3 - 8/4 Quadrant 4 - 6/3	On 4/8 (20%)
Occluded mode (%)		50	40	40	15
Power delivery		Continuous	Multi-Burst	Multi-Burst	Continuous
WHITESTAR setting (duty cycle)		On 6/3 (67%)	On 8/4 (67%)	On 8/4 (67%)	On 4/8 (33%)
Power type, occluded and unoccluded		Linear	Unoccluded - Linear Occluded - Panel	Unoccluded - Linear Occluded - Panel	Linear
Short pulse rate, occluded and unoccluded	1–14 pps	6 pps	6 pps	6 pps	6 pps
Long pulse rate, occluded and unoccluded	1–6 pps	4 pps	4 pps	4 pps	4 pps
Pulse Shape Setting (WHITESTAR ICE)	On, Off	Off	Off	Off	Off
Pulse Shape Parameters					
% Kick Low		5	5	5	5
% Kick High		5	5	5	5
Low Power Limit		0	0	0	0
High Power Limit		80	80	80	80
Initial Mode	On, Off	Phaco (first enabled submode)			

Table 6.4 – 20 Gauge Program – IA, Vitrectomy, and Diathermy Settings

Surgical Mode/ Submode	Aspiration Rate cc/mm (Min/Max)	Vacuum mmHg (Min/Max), Pump Type	Power % (Min/Max)	Pump/Vac Ramp	IV Pole Height (cm)
I/A 1	N/A (Venturi Mode), 36 Panel (Peristaltic)	0 / 550 Linear, Venturi	NA	80% / 2	90
I/A 2	5 Panel	0 / 10 Linear, Peristaltic	NA	20% / 1	70
I/A 3	N/A (Venturi Mode), 48 Panel (Peristaltic)	0 / 550 Panel, Venturi *If change to Peristaltic, 600	NA	90% / 3	100
DIA 1	NA	NA	5 / 30 Linear	NA	NA
DIA 2	NA	NA	5 / 50 Linear	NA	NA
VIT 1 ICA	20 Panel	250 Linear	50 / 2000 cpm ICA Panel	90% / 3	50
VIT 2 IAC	20 Linear	0 / 300 Panel	50 / 500 cpm IAC Linear	90% / 3	60

Table 6.5 – 21 Gauge Program – Phaco Settings

Parameter	Available Settings	Default Settings			
Advanced Infusion (Program based)	On, Off	Off			
Function		Phaco 1	Phaco 2	Phaco 3	Phaco 4
Submode name		Phaco 1	Phaco 2	Phaco 3	Phaco 4
Pump selection	Venturi Peristaltic	Peristaltic	Peristaltic	Venturi	Peristaltic
IV Pole Height	0-106cm 0-42 inches (Advanced Infusion off) 30-136cm 12-54 inches (Advanced Infusion On)	80 cm 31.5 inches	106 cm 42 inches	106 cm 42 inches	90 cm 35.5 inches
Vacuum control (Occlusion Mode/ CASE)	On, Off	Occlusion Mode off CASE off	Occlusion Mode off CASE off	Occlusion Mode off CASE on	Occlusion Mode off CASE on
Min vacuum (Peristaltic and Venturi pump)					
Unoccluded (mmHg)		0 (P) and 0 (V)	300 (P), 100 (V)	300 (P), 100 (V)	0 (P), 50 (V)
Occluded		0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting	0 or 5 less than occlusion threshold setting
Max vacuum (peristaltic and Venturi)					
Unoccluded (mmHg)		100 or 120 when CASE on (P), 30 (V)	500 (P), 400 (V)	500 (P), 400 (V)	350 (P), 300 (V)
Occlusion threshold		65	335	335	235
CASE Parameters					
CASE Upper threshold (% of Unoccluded vac)		90	90	90	90
CASE up time (ms)		2000	2000	2000	2000
CASE vacuum (% of Unoccluded vac)		80	80	80	80
CASE lower threshold (% of Unoccluded vac)		60	60	60	60
CASE one-touch		STD	STD	STD	STD
Peristaltic pump ramp threshold (%) / Venturi Vacuum Ramp (1 - Slowest - 5 Fastest)		60 / 2	40 / 2	50 / 3	30 / 2
Venturi pump	On, Off	Off	Off	On	Off
Min flow/aspiration rate (peristaltic and Venturi)					
Unoccluded (cc/min)		10	10	10	10
Occluded		10	10	10	10
Max flow/aspiration rate (peristaltic)					
Unoccluded (cc/mm)		24	40	44	36
Occluded		24	40	44	36
Fluidics mode type, aspiration	Panel, Linear	Panel	Panel	Panel	Panel
Fluidics mode type, vacuum	Panel, Linear	Linear	Linear	Linear	Linear
Min power					
Unoccluded (%)		0	0	0	0
Occluded		0	0	0	0

Parameter	Available Settings	Default Settings			
Max power					
Unoccluded (%)		50	40	35	20
Power delivery		Continuous	Continuous	Continuous	Continuous
WHITESTAR setting (duty cycle)		On 6/3 (67%)	On 8/4 (67%)	On VWS (67%) Quadrant 1 - 12/6 Quadrant 2 - 10/5 Quadrant 3 - 8/4 Quadrant 4 - 6/3	On 4/8 (33%)
Occluded mode (%)		50	40	40	20
Power delivery		Continuous	Multi-Burst	Multi-Burst	Continuous
WHITESTAR setting (duty cycle)		On 6/3 (67%)	On 8/4 (67%)	On 8/4 (67%)	On 4/8 (33%)
Power type, occluded and unoccluded		Linear	Unoccluded - Linear Occluded - Panel	Unoccluded - Linear Occluded - Panel	Linear
Short pulse rate, occluded and unoccluded	1–14 pps	6 pps	6 pps	6 pps	6 pps
Long pulse rate, occluded and unoccluded	1–6 pps	4 pps	4 pps	4 pps	4 pps
Pulse Shape Setting (WHITESTAR ICE)	On, Off	Off	Off	Off	Off
Pulse Shape Parameters					
% Kick Low		5	5	5	5
% Kick High		5	5	5	5
Low Power Limit		0	0	0	0
High Power Limit		80	80	80	80
Initial Mode	On, Off	Phaco (first enabled submode)			

Table 6.6 – 21 Gauge Program – IA, Vitrectomy, and Diathermy Settings

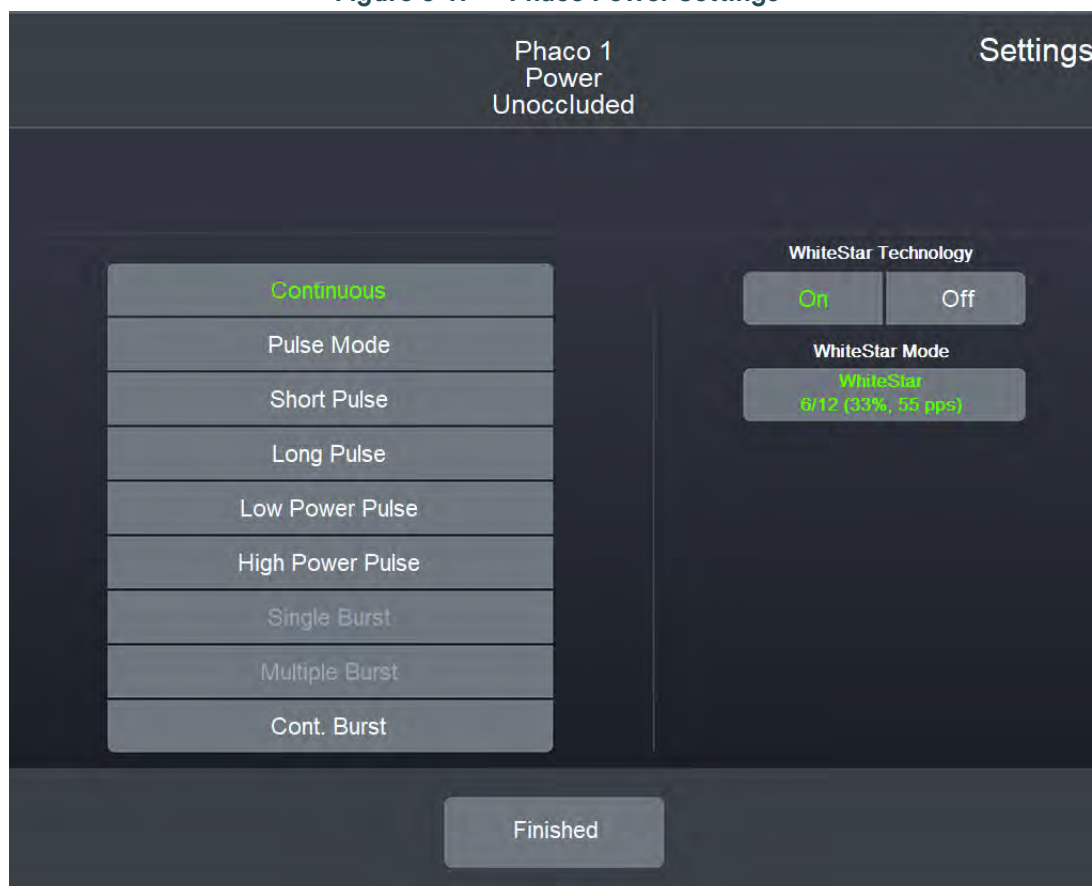
Surgical Mode/ Submode	Aspiration Rate cc/ mm (Min/Max) for Peristaltic Pump type	Vacuum mmHg (Min/ Max), Pump Type	Power % / Cut Rate cpm (Min/Max)	WHITESTAR (ICE) Pulse Shaping	Pump/ Vac Ramp	IV Pole Height (cm)
IA1	36 Panel	0 / 600 Linear, Venturi	NA	NA	60% / 3	85
IA2	5 Panel	0 / 10 Linear, Peristaltic	NA	NA	20% / 1	85
IA3	50 Panel	0 / 600 Linear, Venturi	NA	NA	90% / 4	95
ICA (Vitrectomy)	20 Panel	300 Panel, Venturi	50 / 2000 cpm Panel	NA	75% / 3	50
IAC (Vitrectomy)	20 Panel	0 / 350 Linear, Venturi	50 / 500 cpm Panel	NA	75% / 3	60
DIA 1	NA	NA	5 / 30 Linear	NA	NA	NA
DIA 2	NA	NA	5 / 30 Burst	NA	NA	NA

Phaco Power Settings

- Continuous
- Pulse Mode
- Short Pulse
- Long Pulse
- Low Power Pulse
- High Power Pulse
- Single Burst (panel only)
- Multiple Burst (panel only)
- Continuous Burst

From the Phaco Settings screen, tap  to display the Phaco Power selection.

Figure 6-11 — Phaco Power Settings



In addition to the nine Phaco power modes, you can also select the WHITESTAR mode. Additional WHITESTAR Technology information is later in this section.

Continuous Phaco Power

Continuous phaco power delivers continuous, uninterrupted phaco power to the handpiece and requires no pulse rate setting.

Pulse Mode

Pulse Mode delivers phaco in pulses of 1 to 100 ms when the foot pedal is in position 3. You can set this in a range of 1 to 100 pulses per second (pps). The default setting is 20 pps.

To set the Pulse Mode range:

1. Tap the **Pulse Mode** button.
2. Tap the **pulse setting** number. A Settings dialog box opens.
3. Tap the up or down arrows to increase or decrease the pps from 1 to 100.
4. Tap **Finished** to close the screen.

Short Pulse Phaco Power

Short pulse delivers phaco in pulses of 50 ms when the foot pedal is in position 3. You can set this in a range of 1 to 14 pulses per second (pps). The actual number of pps is on the button to the right of the Short Pulse button.

To set the Short Pulse range:

1. Tap the **Short Pulse** button.
2. Tap on the **pulse setting** number. A Settings dialog box opens.
3. Tap the up or down arrows to increase or decrease the pps from 1 to 14.
4. Tap **Finished** to close the screen.

Long Pulse Phaco Power

Long Pulse delivers phaco in pulses of 150 ms when the foot pedal is in position 3. You can set this in a range of 1 to 6 pulses per second (pps). The actual number of pps is on the button to the right of the Long Pulse button.

To set the Long Pulse range:

1. Tap the **Long Pulse** button.
2. Tap the **pulse setting** number. A Settings dialog box opens.
3. Tap the up or down arrows to increase or decrease the pps from 1 to 6.
4. Tap **Finished** to close the screen.

Low Power Pulse Phaco Power

Low Power Pulse generates short pulses of ultrasonic power in foot pedal position 3. When you press the foot pedal, the pulses become longer and eventually blend together to become continuous phaco power.

High Power Pulse Phaco Power

High Power Pulse generates continuous phaco power in foot pedal position 3. When you press the foot pedal, the continuous pulse changes into long pulses and then gradually changes to short pulses.

Single Burst Phaco Power (Panel Only)

Single Burst delivers a single burst of ultrasonic power of 110 ms duration when you press the foot pedal to position 3. You must return to foot pedal position 2, pause for approximately one-half (0.5) second, and then press the foot pedal to position 3 to obtain an additional burst of energy.

Multiple Burst Phaco Power (Panel Only)

Multiple Burst generates a burst of ultrasonic power of 110 ms duration, with additional bursts deployed beginning at approximately 1 burst per second when you press the foot pedal to position 3.

The frequency of burst increases as you press the foot pedal. At the maximum level of foot pedal position 3, the delivered rate of the bursts are 4 bursts per second.

Continuous Burst Phaco Power

Continuous Burst can deliver an ultrasonic burst duration from 50 to 150 ms. As you press the foot pedal through position 3, the bursts get closer together. At the maximum level of foot pedal position 3, the bursts blend together, and the power becomes continuous (at the preset power level). The default setting is 100 ms.

To set the Continuous Burst range:

1. Tap the **Continuous Burst** button.
2. Tap the **On Time** number. An On Time dialog box opens.
3. Tap the up or down arrows to increase or decrease the burst rate from 50 to 150.
4. Tap **Finished** to close the screen.

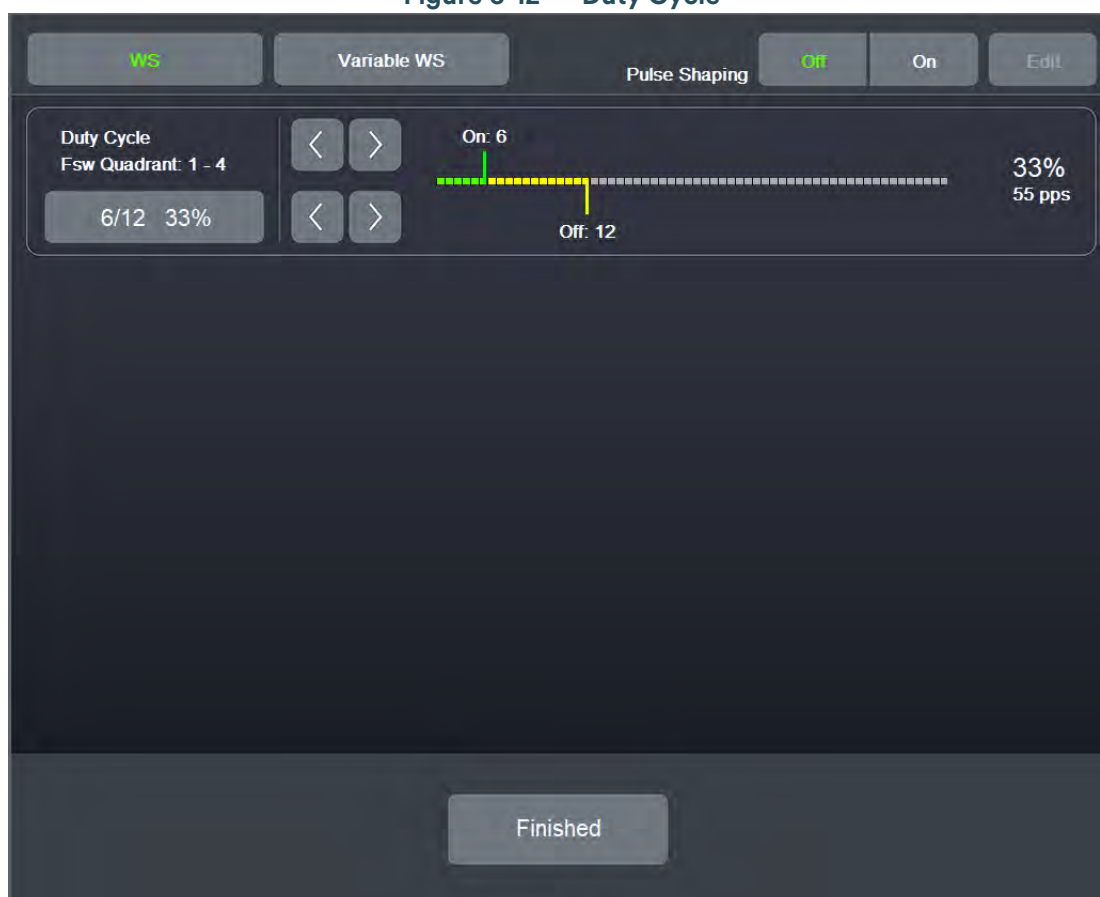
WHITESTAR Technology

WHITESTAR Technology can be applied in any phaco power delivery mode. This advanced phacoemulsification power technology delivers finely modulated pulses of energy interrupted by extremely brief cooling periods. This technology is available in linear or panel mode. When the WHITESTAR delivery mode is turned on, either  or  appears on the touchscreen.

WHITESTAR duty cycles are expressed as pulse time on/pulse time off, to achieve a desired duty cycle. For example, the duty cycle setting 6/12 means that the pulse time on is 6 ms, and the pulse time off is 12 ms, that results in a 33% duty cycle.

Table 6.7 – WHITESTAR Technology Parameter Settings

Setting	Pulse On Time (ms)	Pulse Off Time (ms)	Duty Cycle	Pulse Rate (pps)
6/12	6	12	33%	55
4/8	4	8	33%	83
6/4	6	4	60%	100
6/8	6	8	43%	71
8/4	8	4	67%	83
4/24	4	24	14%	35
6/28	6	28	18%	29
6/24	6	24	20%	33
8/24	8	24	25%	31
6/18	6	18	25%	41

Figure 6-12 — Duty Cycle

When the variable WHITESTAR Technology is used, different duty cycles are applied as the foot pedal moves through the power delivery zone. The zone is divided into four equal size quadrants, and a different duty cycle can be applied in each quadrant (Variable WS). You can also use the sliding adjustments to create custom duty cycles for Variable WS.

Figure 6-13 — Variable WHITESTAR Technology Foot Pedal Positions and Duty Cycles

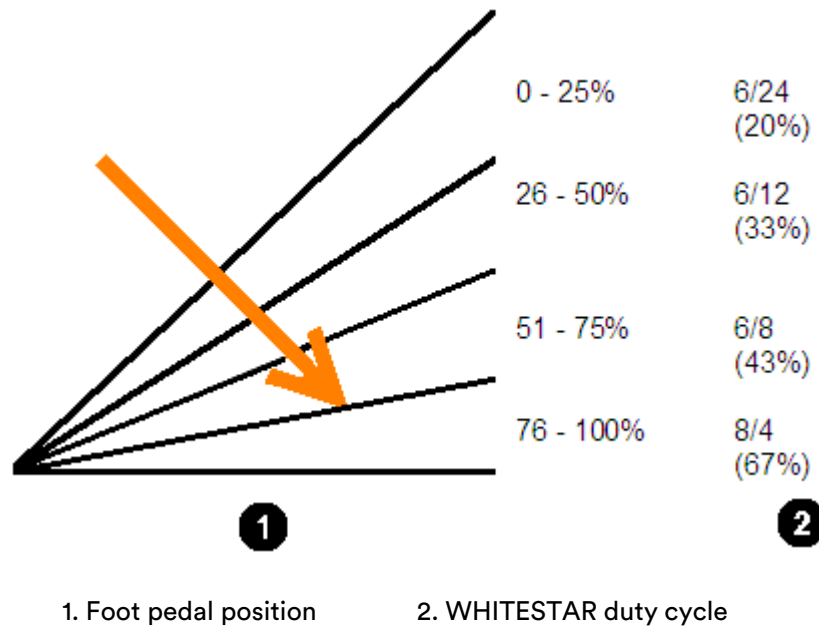


Figure 6-14 — Duty Cycles for Variable WS

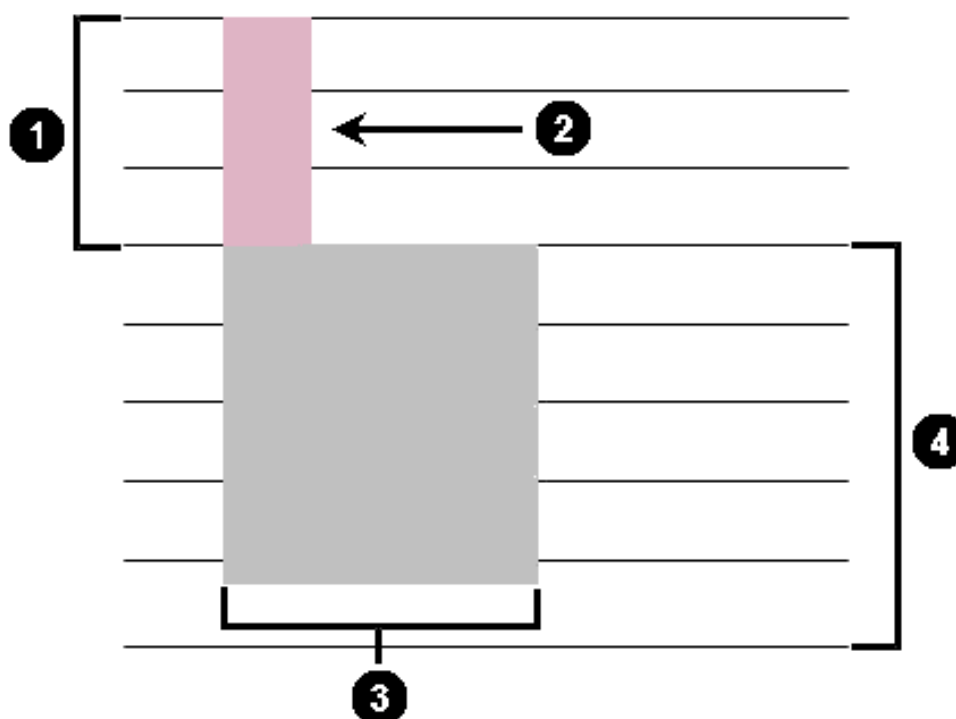


WHITESTAR ICE Technology (Pulse Shaping)

The WHITESTAR ICE Technology was the next micro-pulse advance in phacoemulsification technology, which combined modulated ultrasonic power (pulse shaping) with vacuum control through the application of the Chamber Stabilization Environment (CASE).

This pulse shaping technology modifies the standard square wave pulse, by increasing the amplitude of the two milliseconds of the on time “kick”, and then setting the remaining part of the on time to the standard power setting. This is repeated for each on time period, resulting in increased control and efficiency in phacoemulsification.

Figure 6-15 — WHITESTAR ICE Technology Pulse Shaping

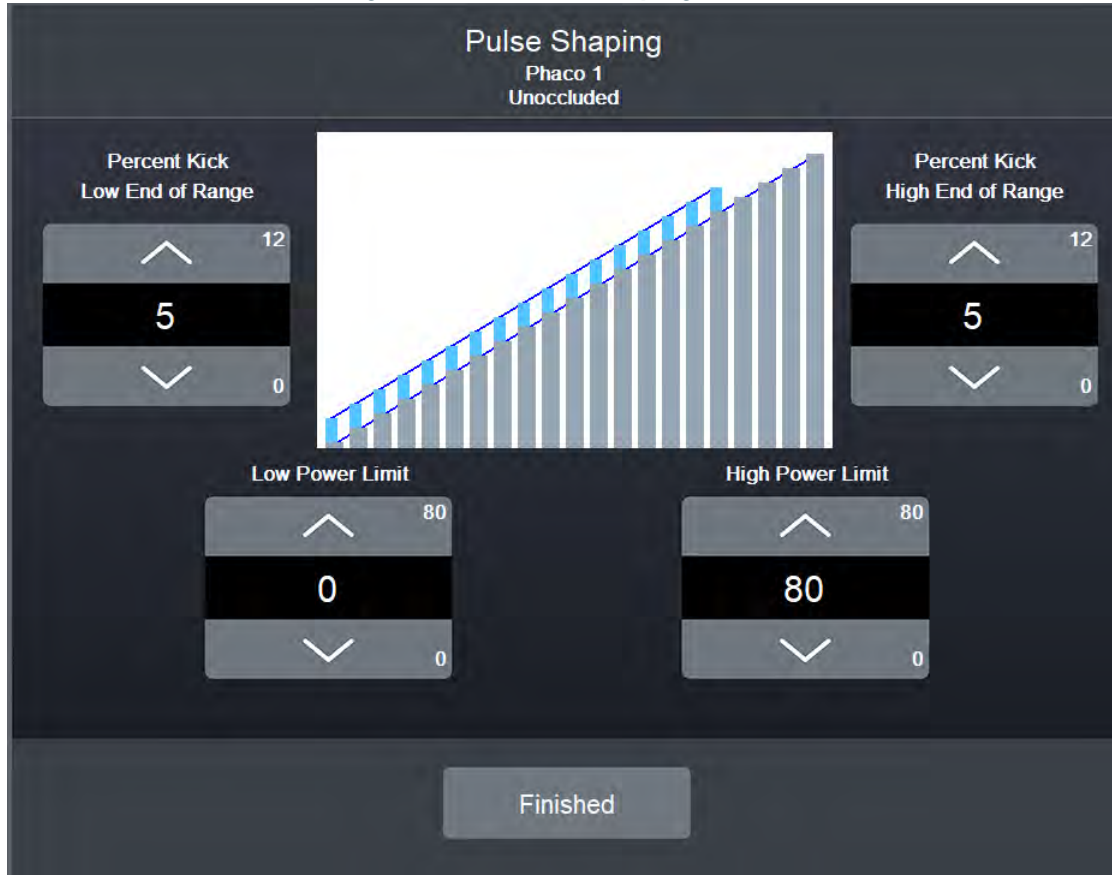


- | | |
|-----------------------|----------------------|
| 1. Kick Amplitude | 3. Burst Width |
| 2. 2 Millisecond Kick | 4. Phaco Power Level |

To access the WHITESTAR ICE Technology settings:

1. Tap  on the Settings screen.
2. Tap the **WHITESTAR mode** button.
3. Tap **On** for pulse shaping.
4. Tap **Edit** to access the pulse shaping parameter settings.
5. Tap **Finished** to close the screen. Tap **Finished** again to return to the main screen.

Figure 6-16 — Pulse Shaping Screen



There are four settings for WHITESTAR ICE Pulse Shaping:

- Low Power Limit
- High Power Limit
- Percent Kick Low End of Range
- Percent Kick High End of Range

The Low Power Limit and High Power Limit settings define the range of the applied pulse shaping. When the applied phaco power is outside these limits, there is no pulse shaping.

The Percent Kick settings determine the amplitude, or amount of the applied phaco power “kick” in the two milliseconds of phaco power, either in the low end or the high end of the power range. As the phaco power increases from the Low Power Limit to the High Power Limit, the percentage of kick interpolates for the power ranges in between the two limits.

As an example, if you establish small a kick setting for the low end of the range and establish a large kick setting for the high end of the range, the kick percentage gradually increases as the phaco power increases. When the percent kick at the low end is the same as the high end, then the kick remains constant throughout the low to high range.

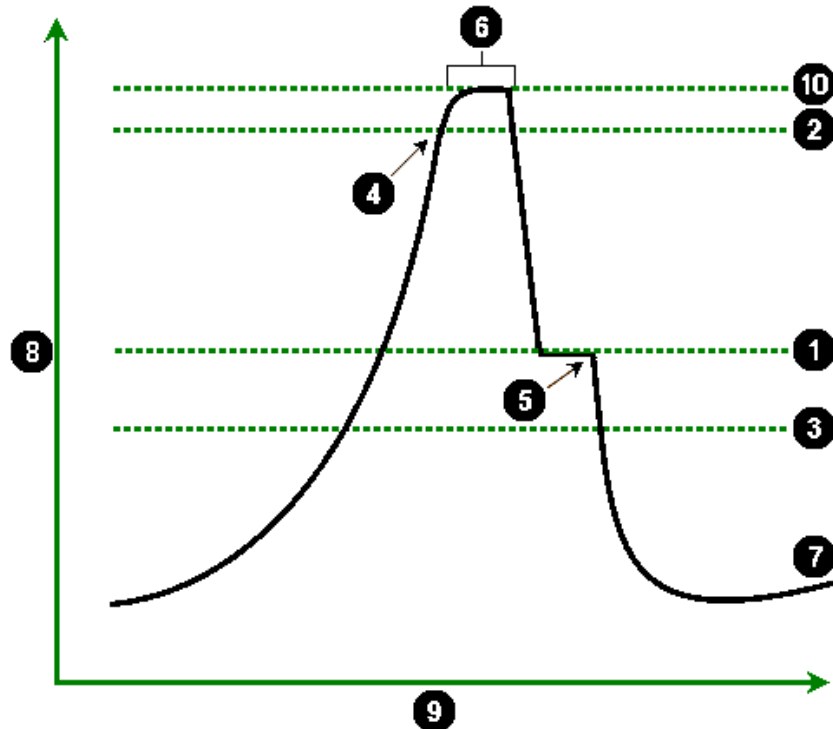
FUSION Fluidics Phaco

FUSION Fluidics Phaco  is an intelligent vacuum monitoring system that regulates the maximum allowable vacuum that follows an occlusion of the phaco tip. When the phaco tip becomes occluded, the vacuum rises. Clearing of the occlusion while the vacuum is at a high-level can cause a post-occlusion surge. With CASE enabled, the system monitors the actual vacuum levels and when the vacuum exceeds a specific threshold for a specified duration, the system automatically adjusts the maximum allowable vacuum setting to a lower predefined CASE vacuum level. When the occlusion clears, the system automatically restores to the original programmed maximum vacuum setting. It is possible to have a different maximum vacuum setting when the tip occludes than when the tip is unoccluded.

You can program the power modulation of the phaco handpiece to automatically change when the phaco tip changes from an unoccluded condition to an occluded condition.

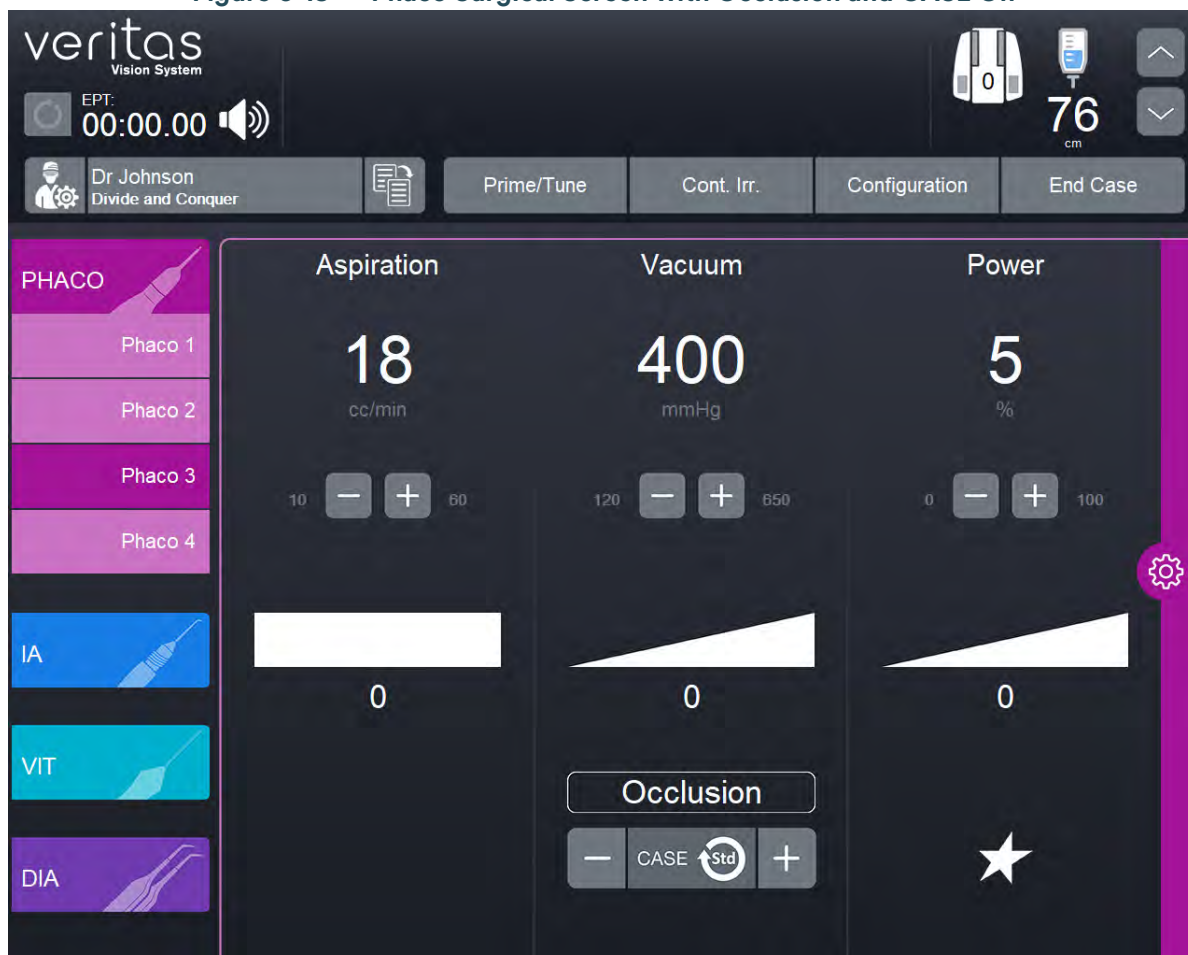
Use the FUSION Fluidics screen to adjust the settings. When Occlusion mode is on, the main Phaco operating screen provides alternative aspiration, vacuum, and power settings used when the system detects an occlusion.

Figure 6-17 — FUSION Fluidics Phaco



- | | |
|---|-----------------|
| 1. CASE Vacuum | 6. Up Time |
| 2. Upper Threshold | 7. Vacuum Level |
| 3. Lower Threshold | 8. Vacuum |
| 4. Vacuum Level crosses Upper Threshold | 9. Time |
| 5. Phaco activated | 10. Max Vac |

Figure 6-18 — Phaco Surgical Screen with Occlusion and CASE On



Occlusion Mode Settings

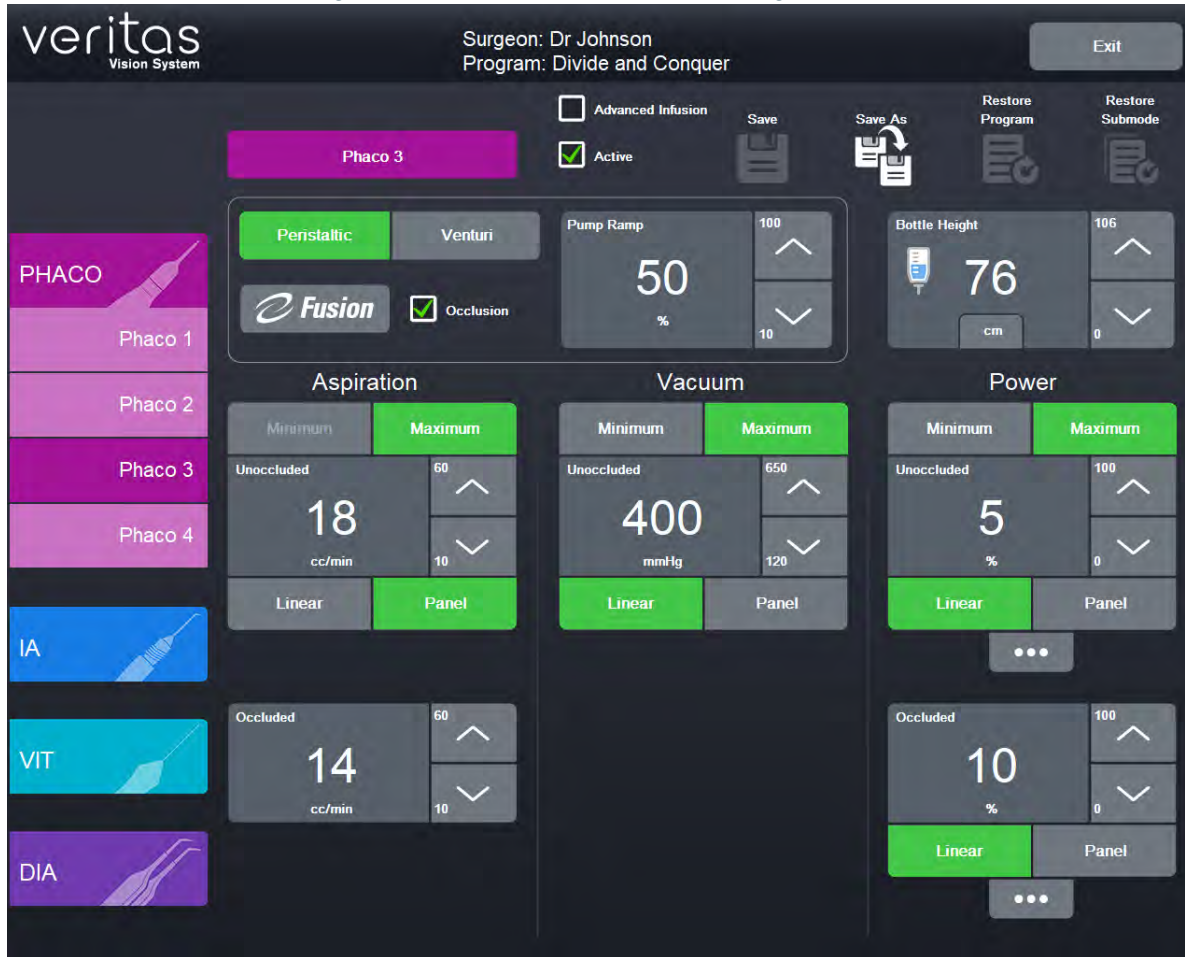
With Occlusion Mode, you can set different aspiration rates for occluded aspiration as opposed to unoccluded aspiration.

You can set a different vacuum rise time for when the phaco tip occludes without changing the aspiration rate through an unoccluded tip.

To set the occluded aspiration rate thresholds:

1. Tap **Phaco**.
2. Tap **Settings**.
3. Check the **Occlusion** checkbox to enable Occlusion Mode.

Figure 6-19 — Occlusion Mode Settings Screen



4. Use the up and down arrows to adjust the pump ramp
5. Tap the FUSION button (Fusion icon).
6. On the FUSION screen, use the up and down arrows to adjust the threshold and the Actual Max Vac.

Figure 6-20 — FUSION Settings Screen



7. Tap **Finished** to close the screen.
8. Tap **Save** to retain the settings.
9. Tap **Exit** to close the screen.

Occlusion Vacuum Threshold

In Occlusion mode phaco, you can set an occlusion threshold value for vacuum.

When in Occlusion mode phaco, there is an additional control panel for vacuum. The vacuum threshold setting lets you choose the vacuum level at which occluded settings take effect.

To adjust the occluded vacuum threshold, tap the up or down arrows. When you decrease the threshold, the occlusion settings take effect sooner.

Occlusion Aspiration Rate

In Occlusion mode phaco, you can set a different maximum flow value for aspiration. There is an additional control panel for aspiration below the standard aspiration control panel.

Figure 6-21 — Occlusion Aspiration Rate



To adjust the occluded aspiration rate in Occlusion mode phaco, tap the up or down arrows to increase or decrease the occluded aspiration rate.

Or

1. Tap .

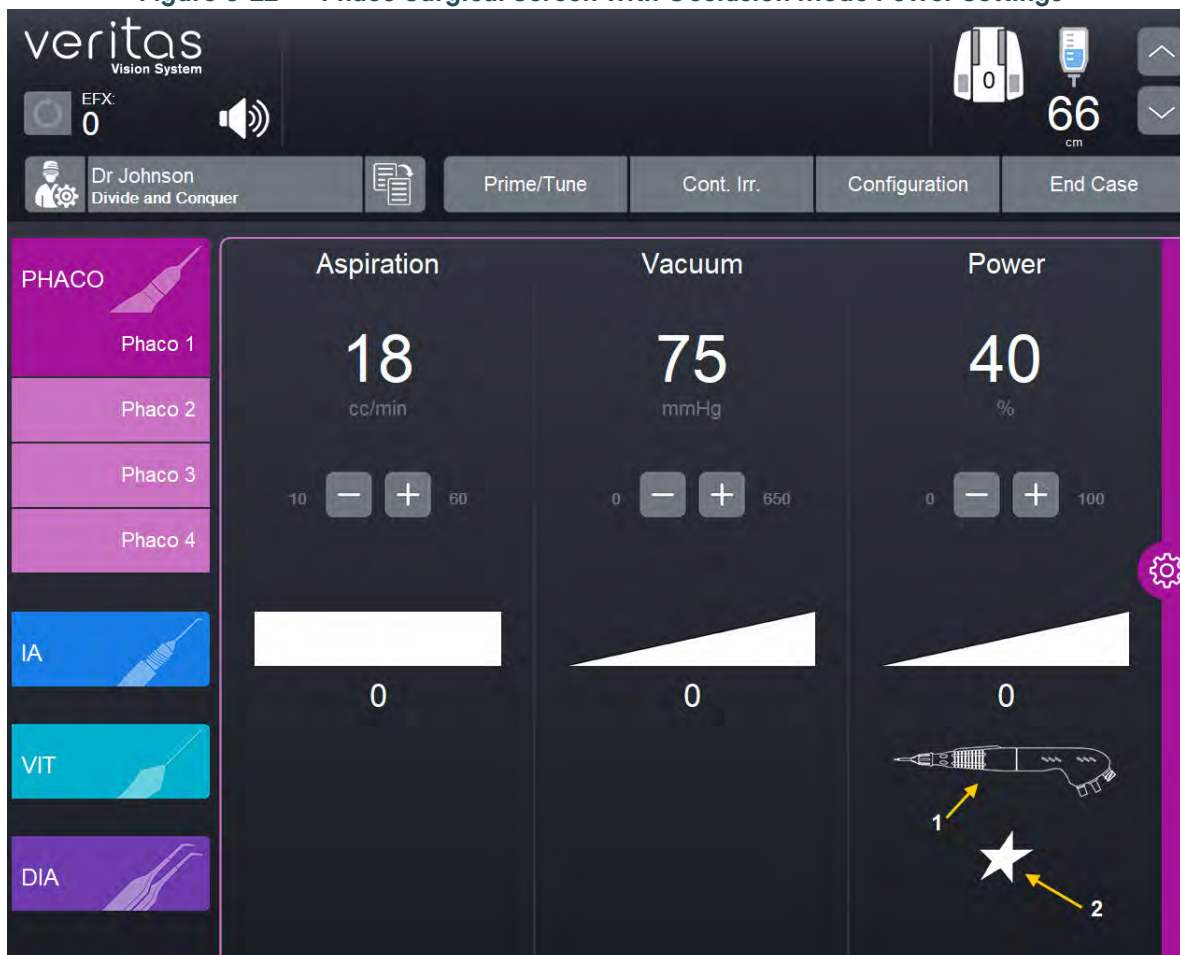
The Settings screen opens.

2. Tap the up or down arrows to increase or decrease the occluded aspiration rate.
3. Tap **Exit** to close the screen.

Occlusion Mode Power Settings

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

Figure 6-22 — Phaco Surgical Screen with Occlusion Mode Power Settings



1. VERITAS Swivel 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. Tap the Settings  button.
2. Tap  to change other power settings. A Power Settings screen opens.
3. Tap the buttons on the left of the Power Settings screen to select a power type.
4. Tap the **On** button to engage WHITESTAR Technology.
5. Tap **Finished** to close the screen.

Venting an Occlusion

As discussed earlier in this chapter, vacuum builds when the aspiration tip is blocked or occluded by tissue or other material. The fluidics system relieves vacuum in the aspiration line when the foot pedal traverses from position 2 to position 1.

The fluidics system applies variable venting pressure of Low, Medium, or High to the aspiration line as selected in the surgeon settings to release the material at the aspiration tip when the foot pedal is released to position 0. This method releases the material at the aspiration tip and gives you full control if the tip accidentally grabs the capsule or iris.

The fluidics 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.

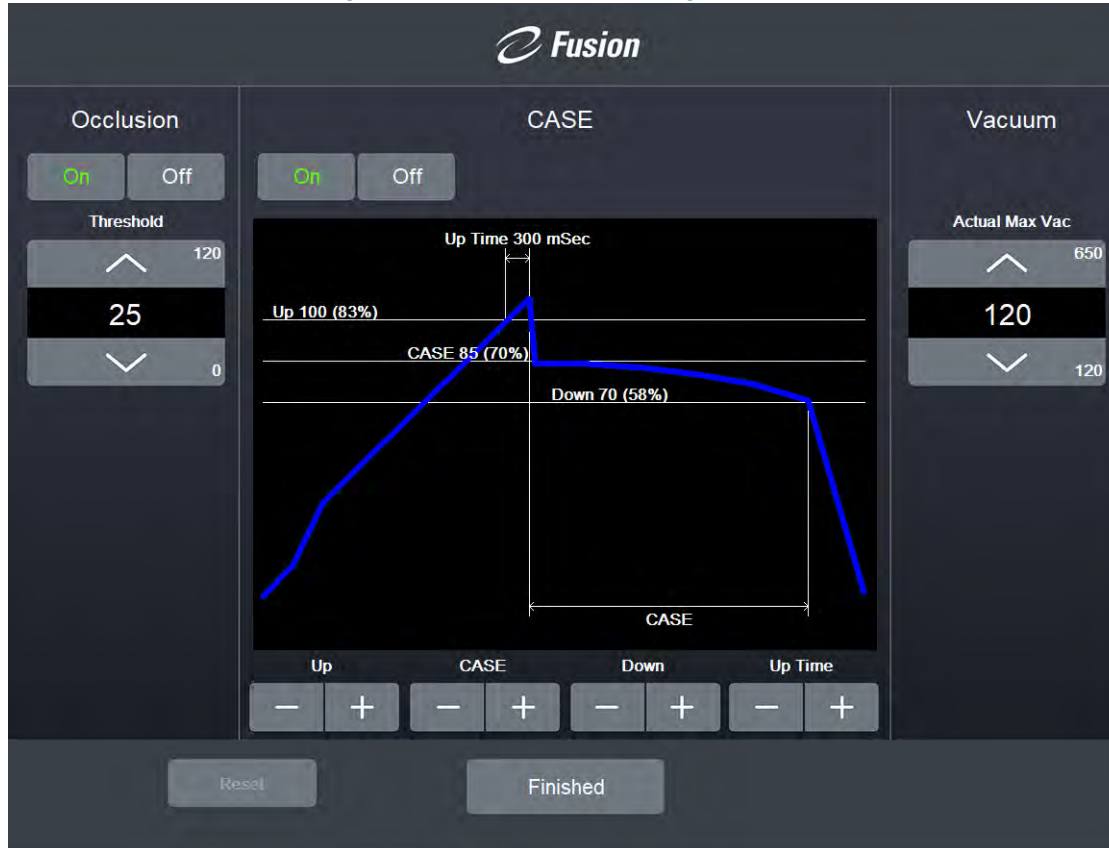
CASE Mode

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. Tap the Settings  button.
2. On the Settings screen, tap the FUSION button (.

Figure 6-23 — FUSION Settings Screen



3. On the FUSION screen, tap 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/down arrows to change the up time threshold. The up time threshold is the maximum time the system maintains the maximum threshold vacuum.
5. Tap **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 6-24 — CASE One Touch

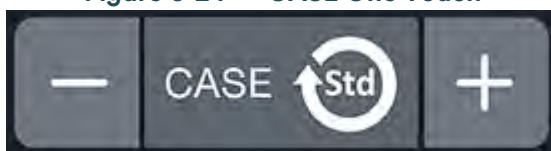


Table 6.8 – CASE One Touch Parameter Settings

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%

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 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.

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7 — System Configuration

- “Setting the Maximum IV Pole Height” on page 7-1
- “Testing the IV Pole” on page 7-2
- “Event Log” on page 7-3
- “Wireless Foot Pedal Setup” on page 7-4
- “VERITAS Remote Control Setup” on page 7-9
- “System Versions” on page 7-10
- “System Self Test” on page 7-11
- “Language Selection” on page 7-12
- “Surgical Media Center (SMC) (Optional)” on page 7-13
- “Set System Date and Time” on page 7-15
- “Set Units of Measure for Vacuum” on page 7-16
- “Service Interval” on page 7-17
- “Import/Export Database” on page 7-17
- “Backup All” on page 7-20
- “Print to File” on page 7-21
- “Restore Database” on page 7-21
- “Restore All” on page 7-23
- “Delete a Backup Database” on page 7-25

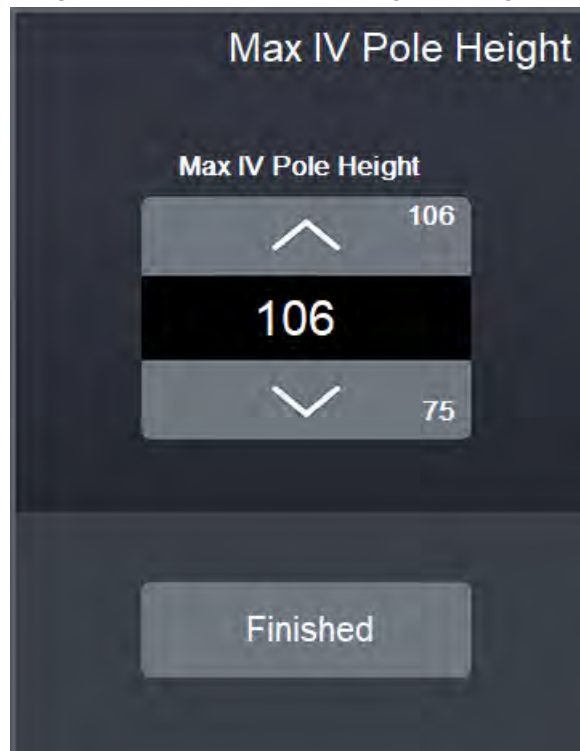
Setting the Maximum IV Pole Height

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 tap the Configuration button.

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

Figure 7-1 — Max IV Pole Height Dialog Box



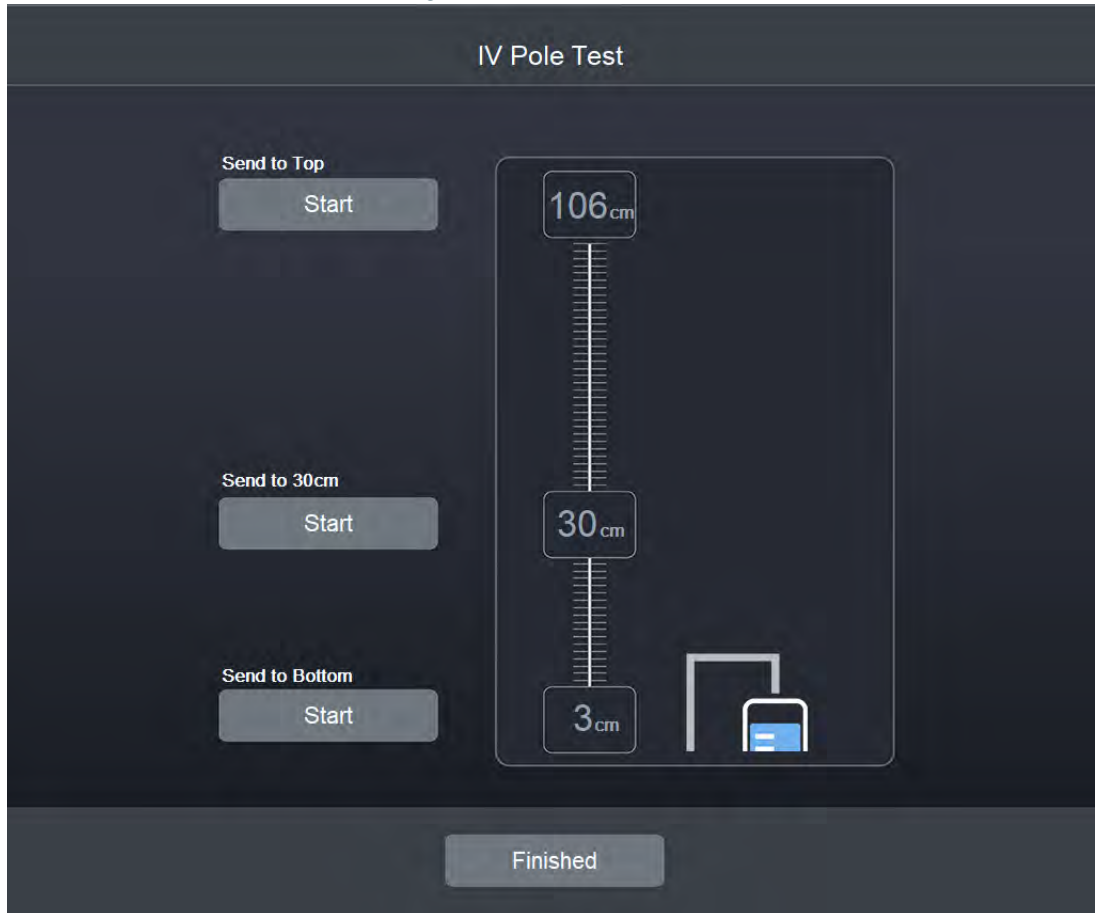
3. Use the up or down arrow to adjust the maximum IV pole height. You can set the maximum IV pole height in the range 75 cm to 106 cm. You can also tap the numeric value shown to open a numeric keypad screen to enter the exact value to use.
4. Tap **Finished** to return to the Configuration screen.
5.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

Testing the IV Pole

Follow these steps to test the IV pole.

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

Figure 7-2 — IV Pole Test

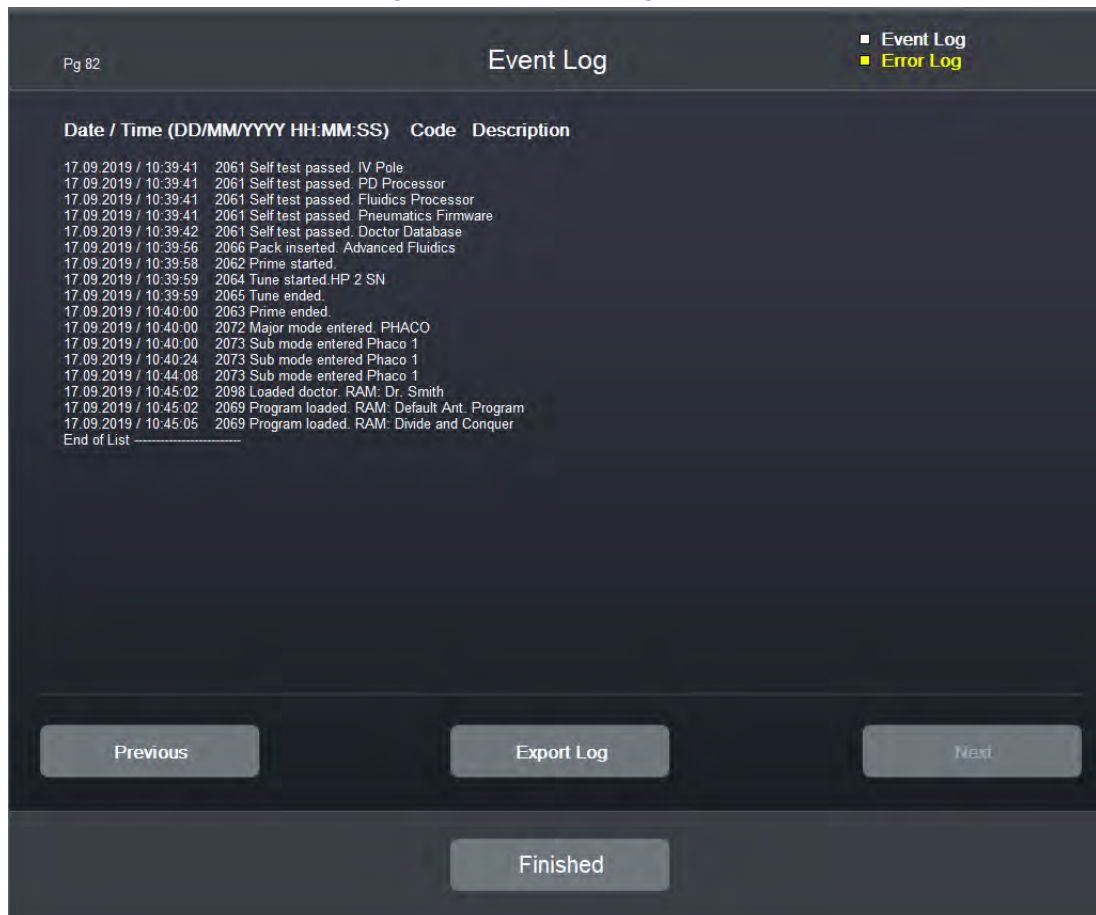


3. Tap the **Start** button under Send to Top to move the IV pole to maximum height.
4. Tap the **Start** button under Send to 30 cm to move the IV pole to a height of 30 cm.
5. Tap the **Start** button under Send to Bottom to move the IV pole to minimum height.
6. Tap **Finished** to close the IV Pole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

Event Log

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

Figure 7-3 — Event Log Screen



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

Wireless Foot Pedal Setup

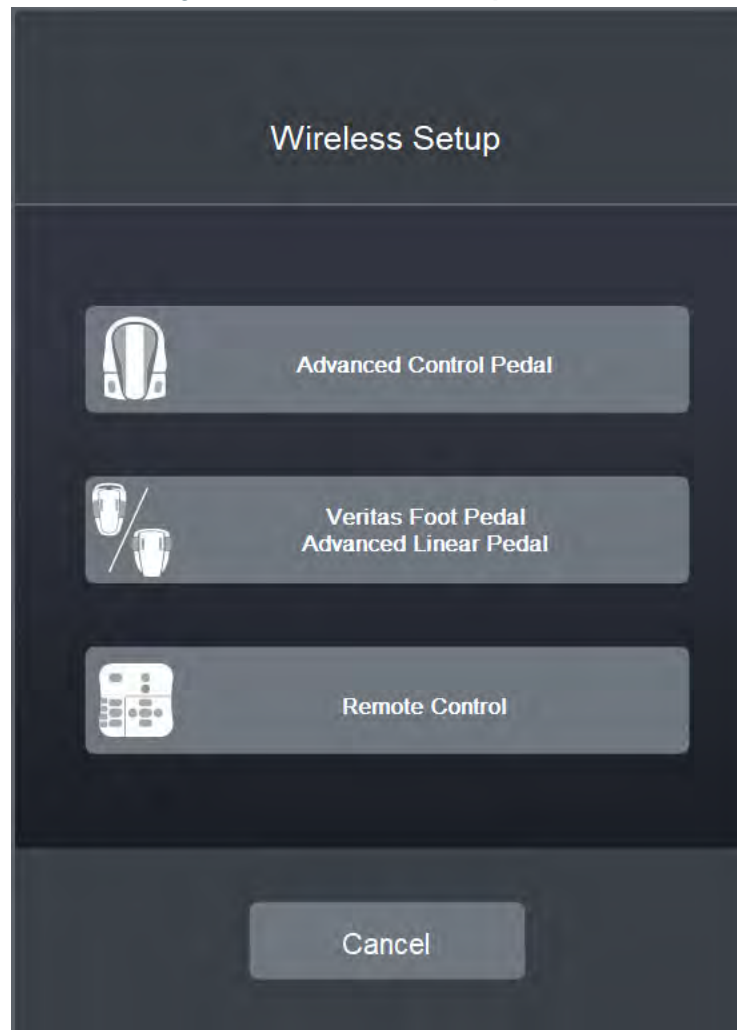
VERITAS Foot Pedal and Advanced Linear Pedal

Wireless Pairing

Follow the steps below to pair the VERITAS™ Foot Pedal or Advanced Linear Pedal to the system with a wireless Bluetooth® connection.

1. On the main screen, tap **Configuration**.
2. Tap **Wireless Setup**.

Figure 7-4 — Wireless Setup Screen



3. On the Wireless Setup dialog box, tap **Veritas Foot Pedal/Advanced Linear Pedal** (Figure 7-4).

Figure 7-5 — VERITAS Foot Pedal and Advanced Linear Pedal Pairing Screen



4. Follow the instructions on the screen to pair the foot pedal. **Cancel Pairing** can be used to abort the pairing process. **Unpair** can be used to clear the pairing of the foot pedal from the console.
5. Tap **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 searching for a console to pair with.
 - ▶ If the green light is on solid, the battery in the foot pedal is fully charged.
 - ▶ If the green light is blinking, the battery in the wireless foot pedal is charging.
 - ▶ If the amber light is on, the battery in the foot pedal is low and requires charging. See [“Charging Options for Wireless Foot Pedals” on page 10-4](#).
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 tap **Finished** to close the test screen.
8. Tap **Exit** to close the Configuration screen.

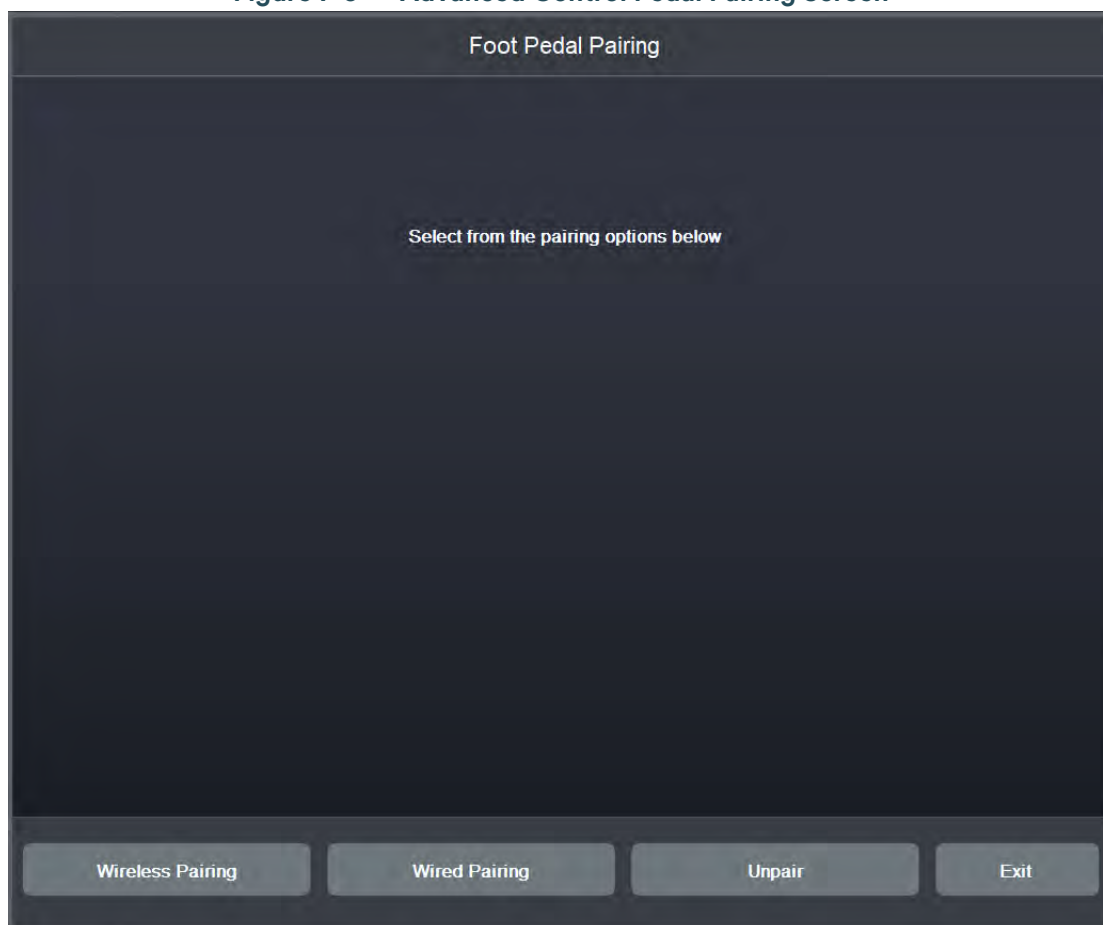
Advanced Control Pedal

Wireless Pairing

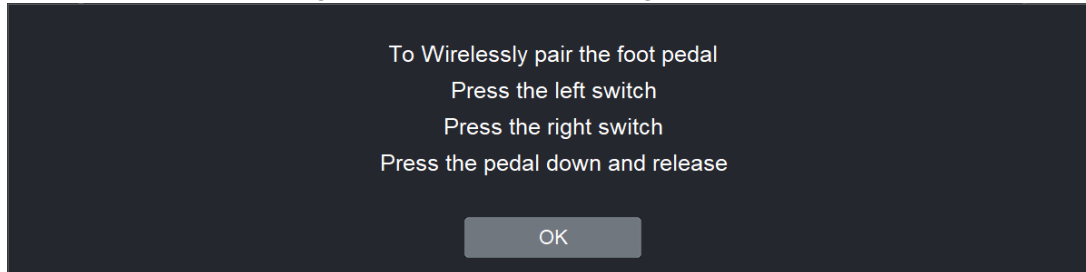
Follow the steps below to pair the Advanced Control Pedal to the system with a wireless Bluetooth connection.

1. On the main screen, tap **Configuration**.
2. Tap **Wireless Setup**.
3. On the Wireless Setup dialog box, tap **Advanced Control Pedal** (Figure 7-4).

Figure 7-6 — Advanced Control Pedal Pairing Screen



4. On the Foot Pedal Pairing screen, tap **Wireless Pairing** (Figure 7-6). **Unpair** can be used to clear the pairing of the foot pedal from the console.
5. Remove the cable from the foot pedal and select **OK**.
6. Follow the instructions on the screen (Figure 7-7).

Figure 7-7 — Wireless Pairing Instructions

7. The system communicates the appropriate data to the foot pedal. The system displays 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 Foot Pedals" on page 10-4](#).
9. Test the foot pedal or tap **Finished** to close the test screen.
10. Tap **Exit** to close the Configuration screen.

NOTE: If you have problems pairing the Advanced Control Pedal (ACP), remove any other Bluetooth devices from the area. Multiple Bluetooth devices can affect the pairing process.

Wired Pairing

1. On the main screen, tap **Configuration**.
2. Tap **Wireless Setup**.
3. On the Wireless Setup dialog box, tap the **Advanced Control Pedal** button ([Figure 7-4](#)).
4. On the Foot Pedal Pairing screen, tap **Wired Pairing** ([Figure 7-6](#)). The system displays the message: "Ensure the cable is attached to the foot pedal".
5. Tap **OK**.
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 displays 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 tap **Finished** to close the test screen.
9. Tap **Exit** to close the Configuration screen.

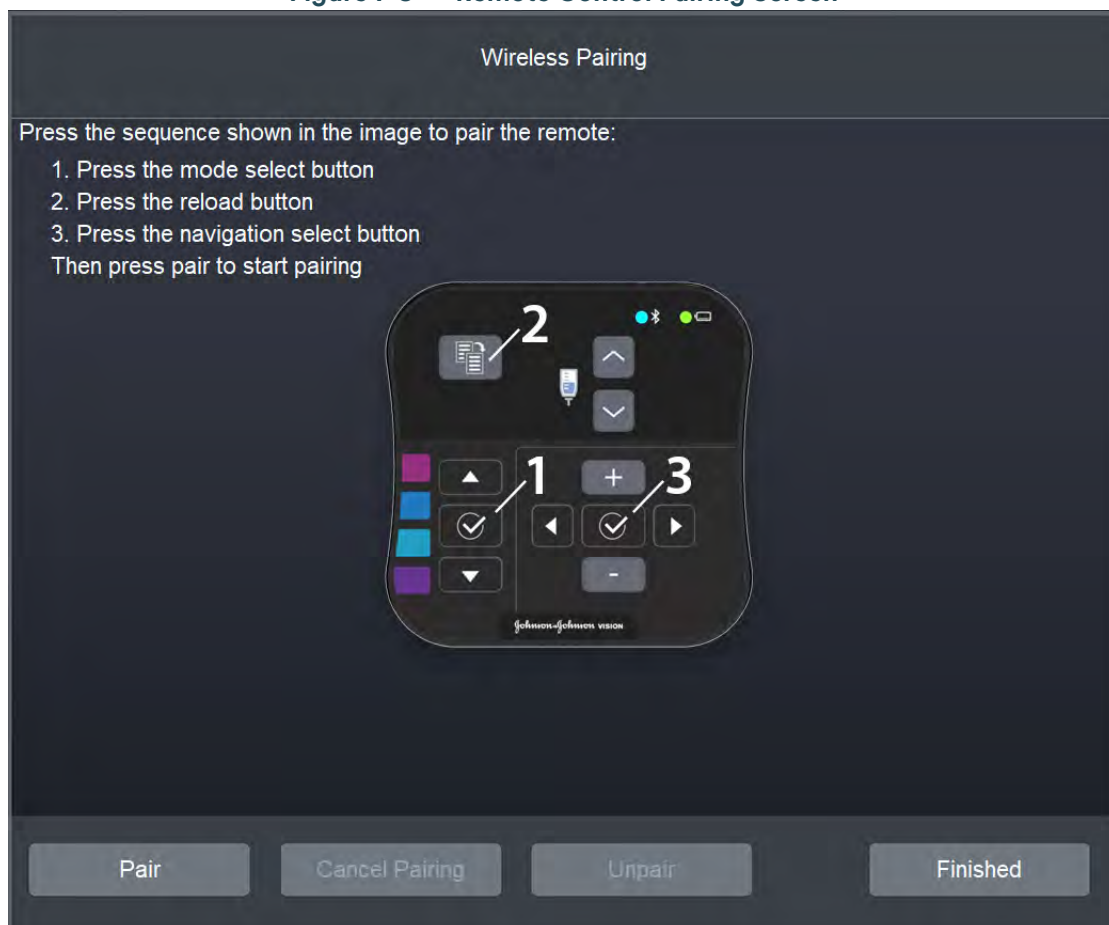
VERITAS Remote Control Setup

VERITAS Remote Control Pairing

Follow the steps below to pair the VERITAS Remote Control to the system with a wireless Bluetooth connection.

1. On the main screen, tap **Configuration**.
2. Tap **Wireless Setup**.
3. On the Wireless Setup dialog box, tap **Remote Control** (Figure 7-4).

Figure 7-8 — Remote Control Pairing Screen



4. Follow the instructions on the screen to pair the VERITAS Remote Control. **Cancel Pairing** can be used to abort the pairing process. **Unpair** can be used to clear the pairing of the foot pedal from the console.
5. Tap **Pair**.
 - ▶ If the green light is off, the remote is not awake. Press any button on the remote to wake it up.

- ▶ If the green light remains off after button presses, remove the back battery cover to replace or install batteries (2x AA DURACELL® COPPERTOP). See [“Battery Replacement – VERITAS Remote Control”](#) on page 10-4.
 - ▶ If the amber light is on, the remote battery is low. Replace batteries to ensure optimal performance. See [“Battery Replacement – VERITAS Remote Control”](#) on page 10-4.
 - ▶ If the blue light is on, the VERITAS Remote Control is paired.
 - ▶ If the blue light is blinking fast, the VERITAS Remote Control is searching for a connection.
 - ▶ If the blue light is off, the VERITAS Remote Control is not paired.
6. When pairing completes, the system displays a green checkmark and the remote battery percentage.
 7. Test the VERITAS Remote Control or tap **Finished** to close the test screen.
 8. Tap **Exit** to close the Configuration screen.

NOTE: If you have problems pairing the VERITAS Remote Control, remove any other Bluetooth devices from the area. Multiple Bluetooth devices can affect the pairing process.

Wireless VERITAS Remote Control Test

1. On the main screen, tap **Configuration**.
2. Tap **Wireless Remote Test**.
3. Follow the instructions on the screen.
4. Tap  to refresh the battery status for the VERITAS Remote Control.
5. Tap **Finished** to close the dialog box.
6. Tap **Exit** to close the Configuration screen.

System Versions

Displays the software and firmware versions of the system.

1. On the main screen, tap **Configuration**.
2. Tap **System Versions**.

Figure 7-9 — System Versions Screen



3. Tap **Finished** to close the System Versions dialog box.
4. Tap **Exit** to close the Configuration screen.

System Self Test

System Self Test performs a test of all system components. An error message appears if the system fails the Self Test.

1. On the main screen, tap **Configuration**.
2. Tap **Self Test**.

Figure 7-10 — Self Test Screen



The Self Test closes automatically.

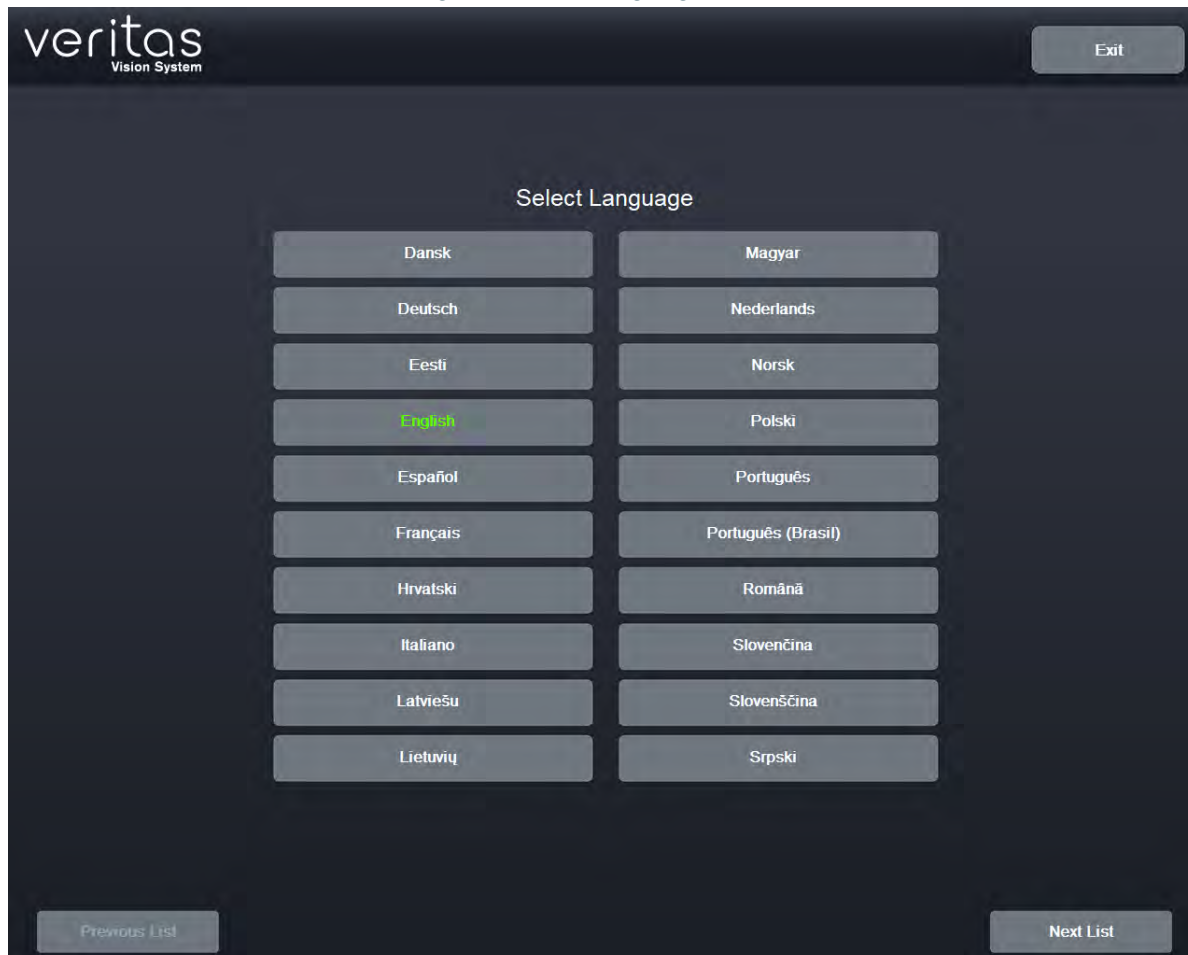
3. Tap **Exit** to close the Configuration screen.

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, tap **Configuration**.
2. Tap **Language**.

Figure 7-11 — Language Screen



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

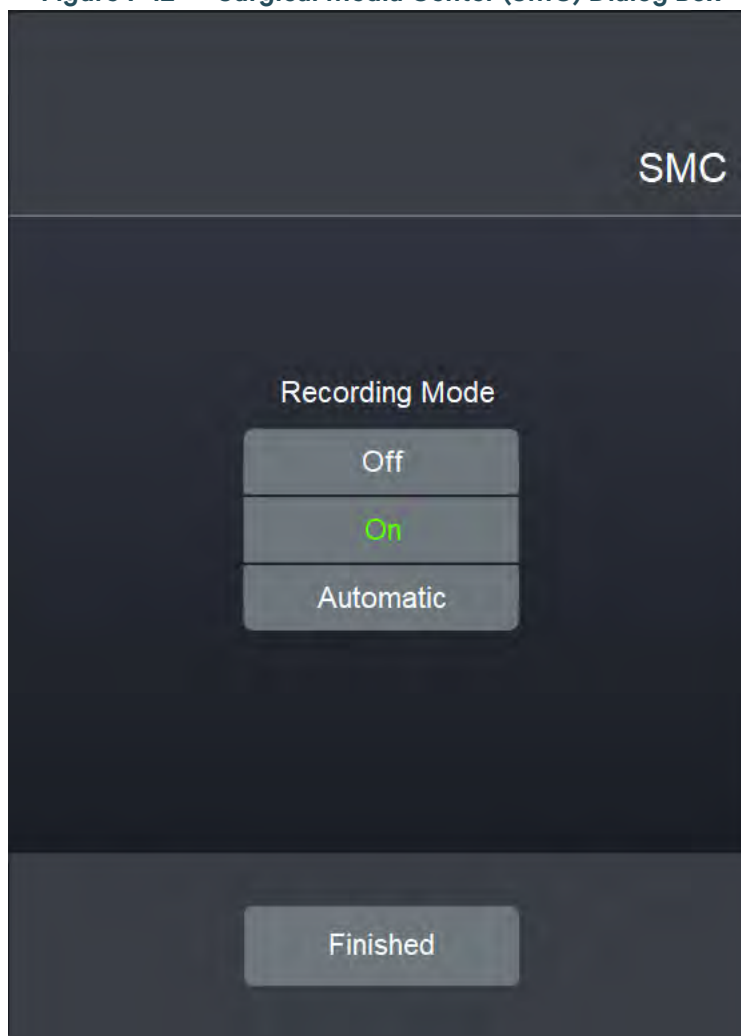
Surgical Media Center (SMC) (Optional)

The optional 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 communication port on the rear panel (see [Figure 3-2](#) and [Figure 4-2](#)).

Follow these steps to configure the Surgical Media Center.

1. Tap **Configuration**.
2. Tap **SMC**.

Figure 7-12 — Surgical Media Center (SMC) Dialog Box



3. The system displays an SMC dialog box. Tap 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. Tap **Finished** to accept the change and close the SMC dialog box.
5. Tap **Exit** to close the Configuration screen.

Set System Date and Time

Follow these steps to set the system date and time.

1. Tap **Configuration**.
2. Tap **Set Date/Time**.

Figure 7-13 — Set Date/Time Dialog Box

The dialog box is titled "Set Date / Time". It contains two main sections: "Date Format" and "Time Format".

Date Format: This section has three columns: "Day", "Month", and "Year". Each column has a spinner control with up and down arrows. The "Day" column shows "17" with range markers "31" and "1". The "Month" column shows "9" with range markers "12" and "1". The "Year" column shows "2019" with range markers "2030" and "2005". To the left of these spinners are two buttons: "Day / Month / Year" (highlighted in green) and "Month / Day / Year".

Time Format: This section has two columns: "Hour" and "Minute". Each column has a spinner control with up and down arrows. The "Hour" column shows "10" with range markers "23" and "0". The "Minute" column shows "58" with range markers "59" and "0". To the left of these spinners are two buttons: "24 Hour" (highlighted in green) and "12 Hour".

At the bottom of the dialog box are two buttons: "Enter" and "Cancel".

3. On the Set Date/Time screen, tap the up and down arrows to set the day, month, year, hour, and minute.
4. You can change the way the date is displayed.
 - ▶ Tap **Day/Month/Year** to display the date in that format; for example, the date December 21, 2011 would be displayed as 21.12.2011.
 - ▶ Tap **Month/Day/Year** 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.
 - ▶ Tap **24 Hour** to display the time of day in 24-hour format; for example, 2:45:43 PM would be displayed as 14:45:43.

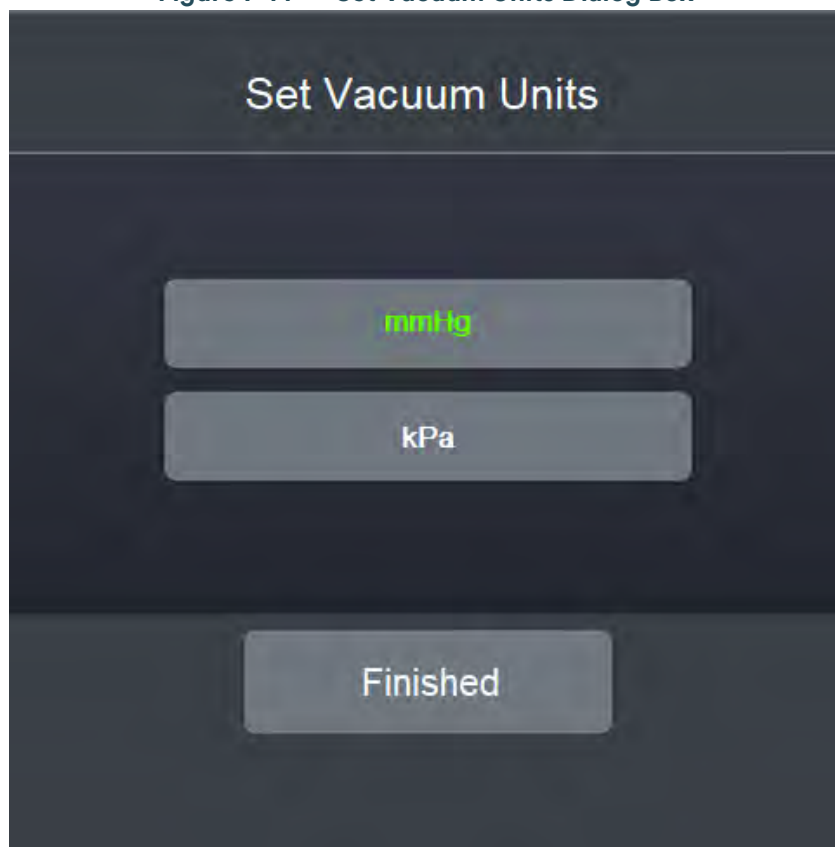
- ▶ Tap **12 Hour** to display the time of day in 12-hour format; for example, 2:45:43 PM would be displayed as 2:45:43 PM.
- 6. Tap **Enter** to return to the Configuration screen.
- 7. Tap **Exit** to close the Configuration screen.

Set Units of Measure for Vacuum

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

1. Tap **Configuration**.
2. Tap **Set Vacuum Units**.

Figure 7-14 — Set Vacuum Units Dialog Box



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

Service Interval

The Service Interval screen provides information on the previous and upcoming date for Preventative Maintenance, as well as system usage count information.

1. On the main screen, tap **Configuration**.
2. Tap **Service Interval**.

Figure 7-15 — Service Interval Screen



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

Import/Export Database

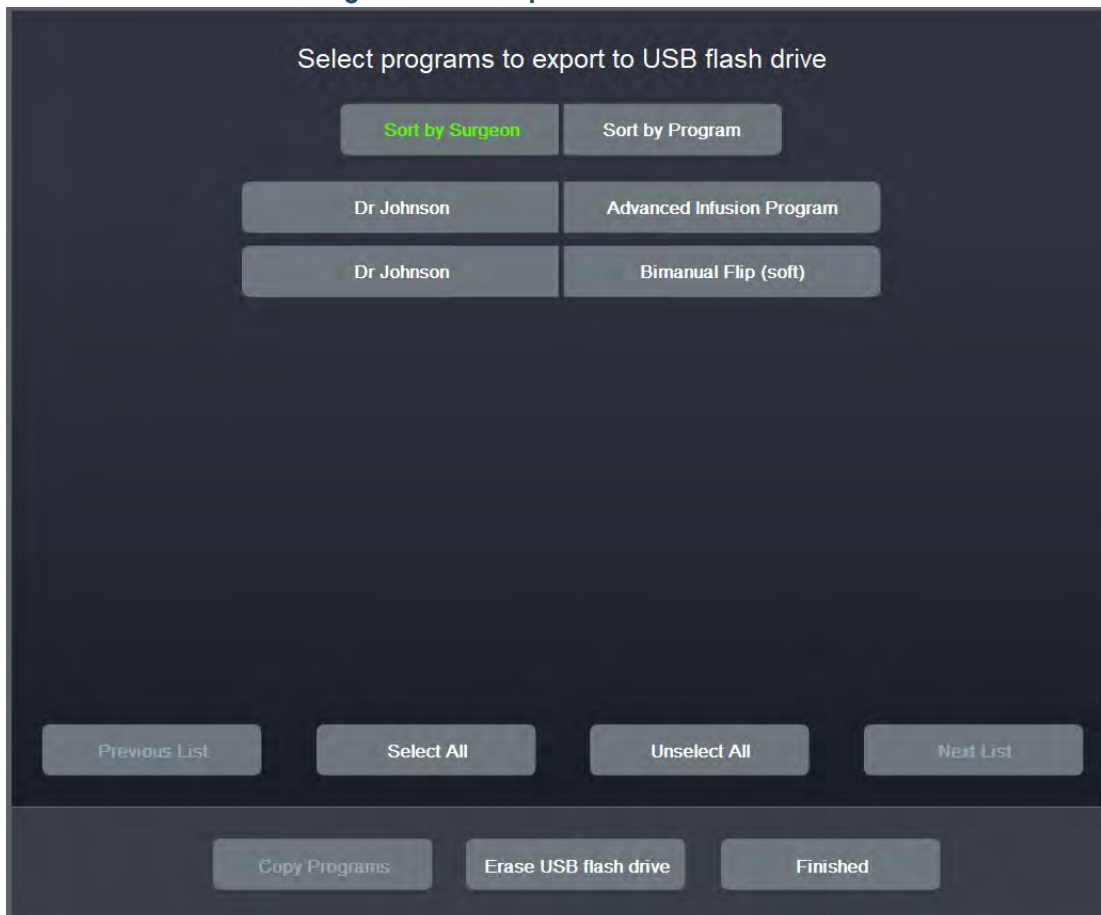
Export

Export can be used to export surgeon program(s) to a USB drive.

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

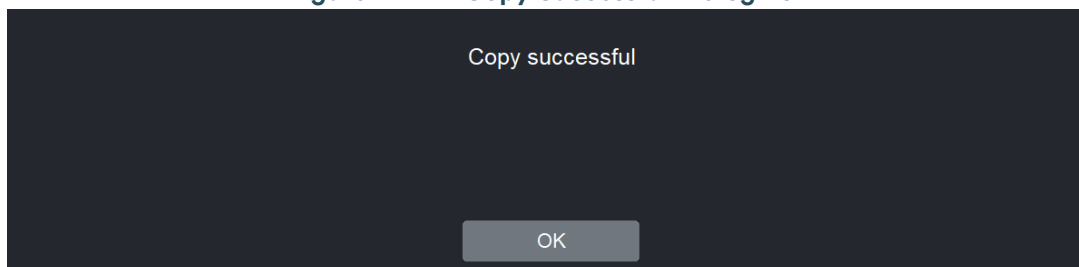
NOTE: Ensure you place the USB device into the USB port on the back of the system.

Figure 7-16 — Export Database Screen



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

Figure 7-17 — Copy Successful Dialog Box



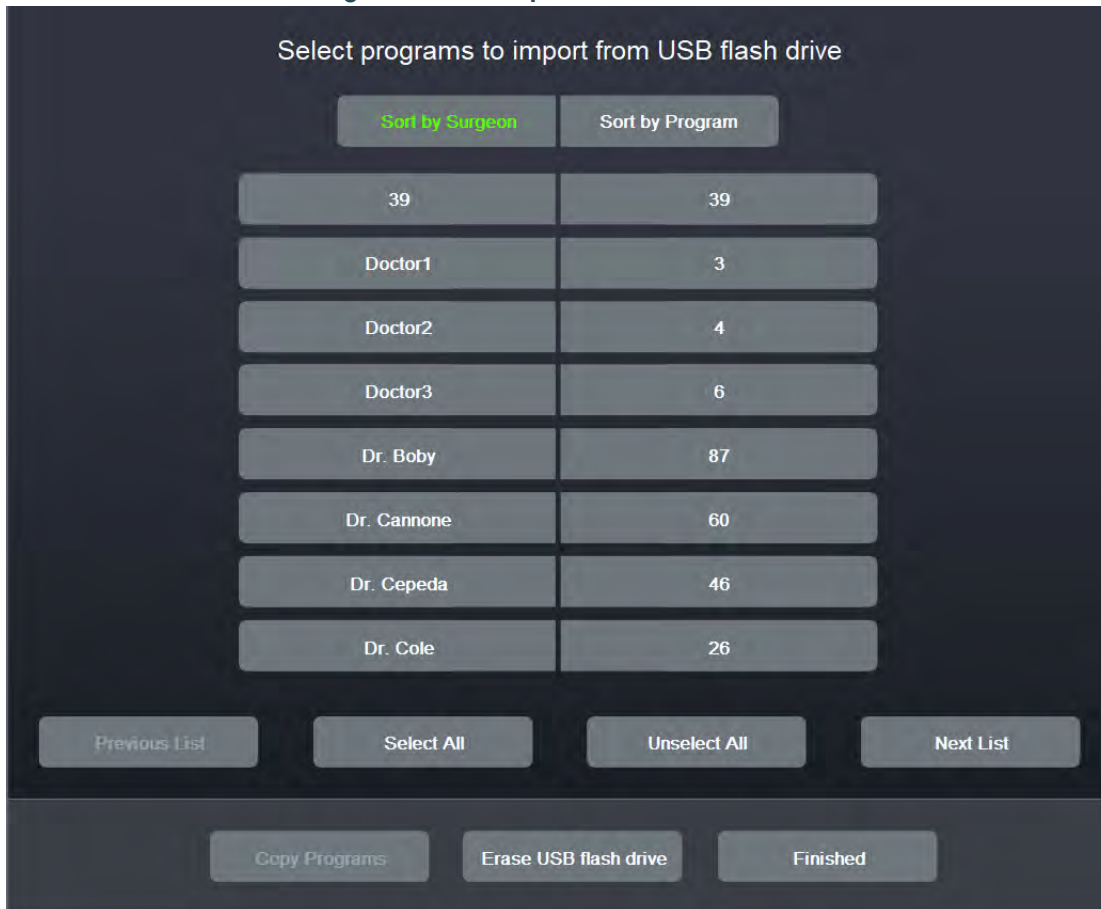
Import

Import can be used to import surgeon program(s) that have been saved on a USB drive.

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

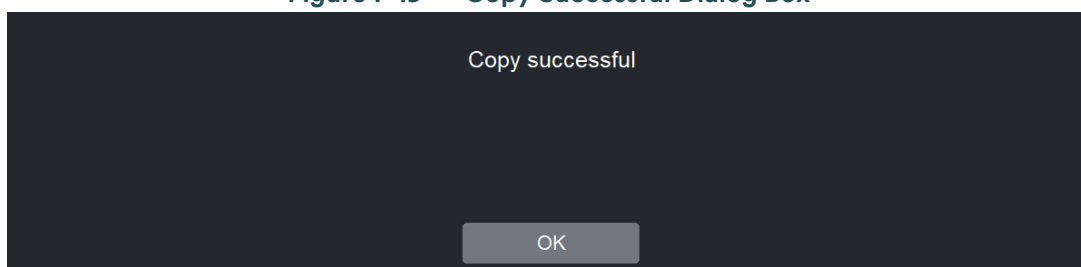
NOTE: Ensure you place the USB device into the USB port on the back of the system.

Figure 7-18 — Import Database Screen



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

Figure 7-19 — Copy Successful Dialog Box



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

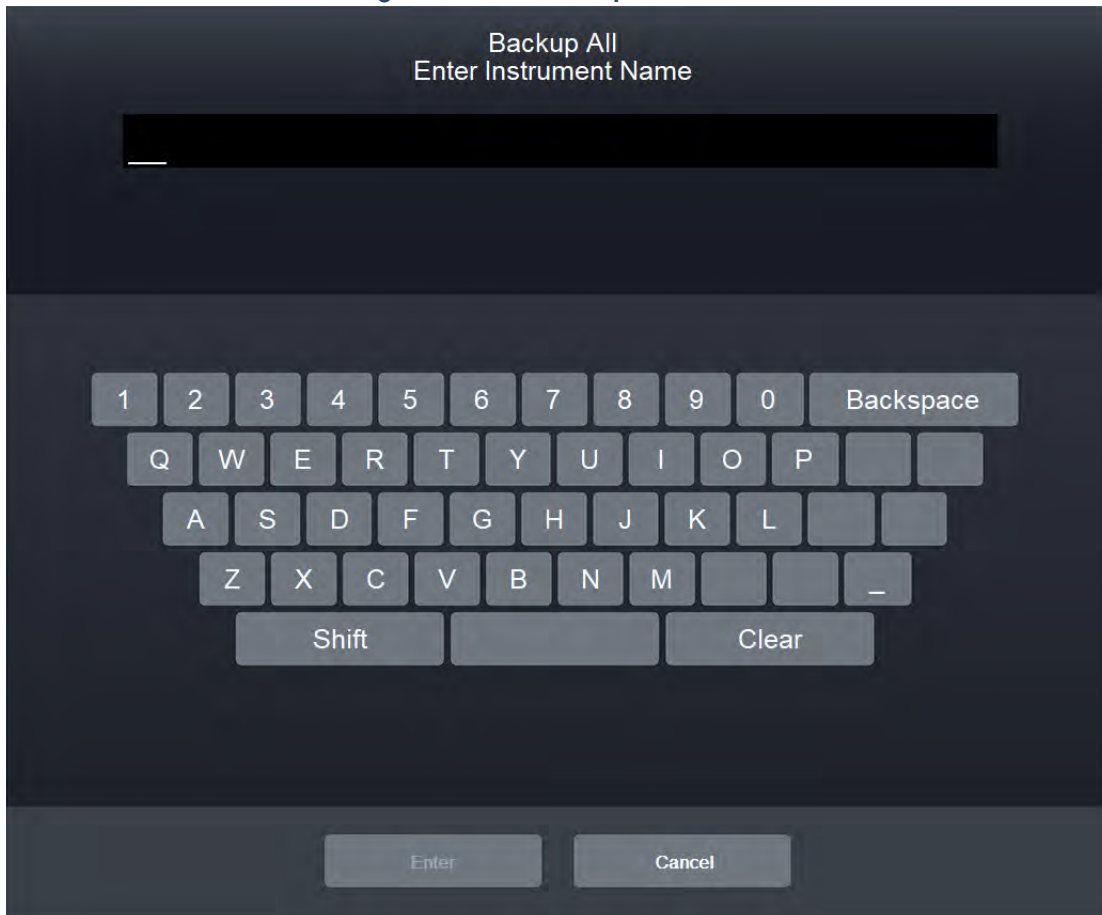
Backup All

Backup All saves a backup of the database to the USB device attached to the system.

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

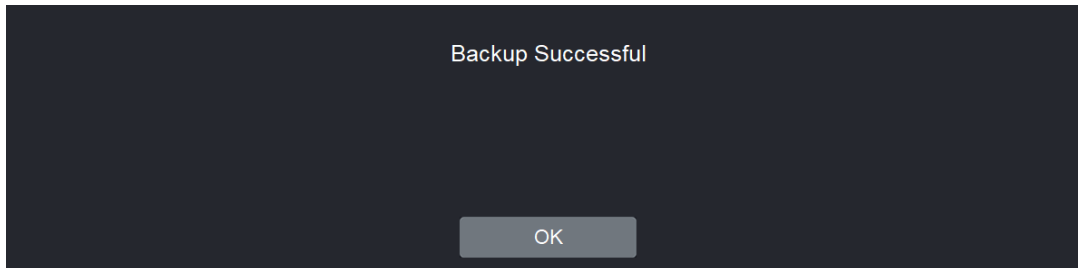
NOTE: Ensure you place the USB device into the USB port on the back of the system.

Figure 7-20 — Backup All Screen

The screenshot shows a dark-themed interface for the 'Backup All' function. At the top, the text 'Backup All' and 'Enter Instrument Name' is displayed. Below this is a long, empty text input field. The bottom half of the screen features a virtual keyboard with keys for numbers 1-0, letters QWERTYUIOP, ASDFGHJKL, ZXCVBNM, and function keys like Backspace, Shift, Clear, Enter, and Cancel.

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

Figure 7-21 — Backup Successful Dialog Box



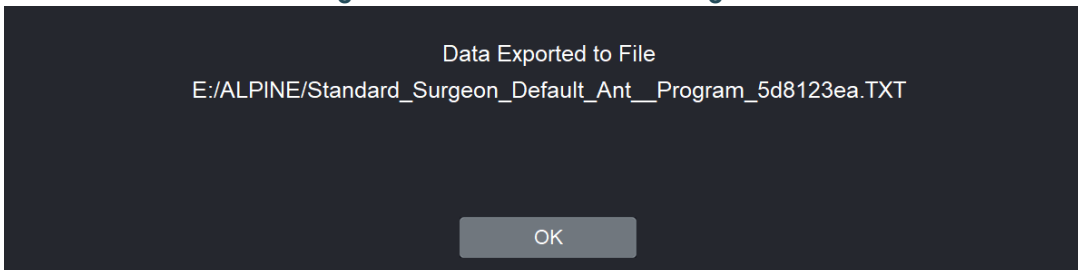
5. Tap **Exit** to close the Configuration screen.

Print to File

Print to File can be used to export a text file of the selected surgeon program to a USB drive.

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

Figure 7-22 — Print to File Dialog Box

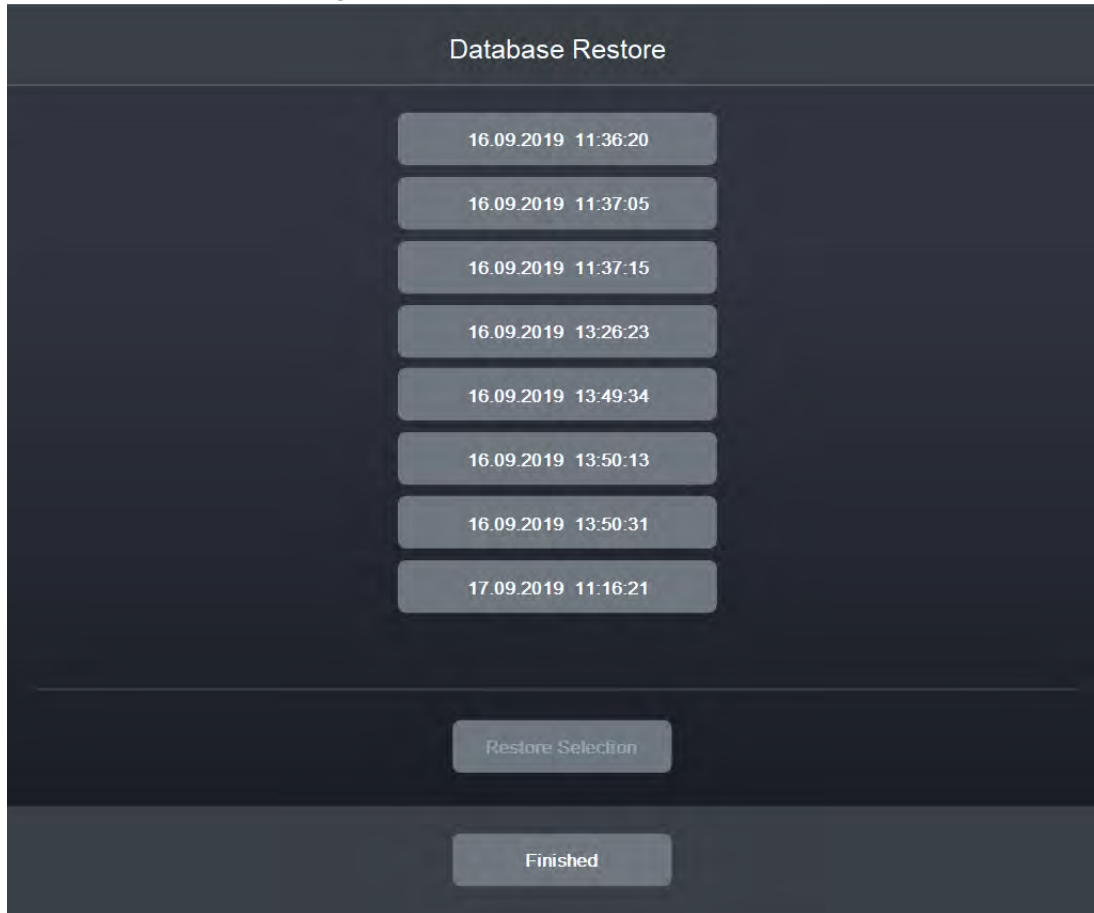


Restore Database

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.

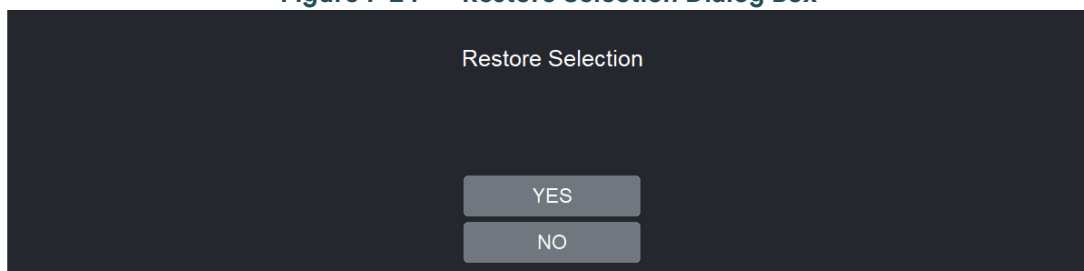
1. From Configuration, tap **Restore Database**.
2. Select a database from the list.

Figure 7-23 — Database Restore Screen



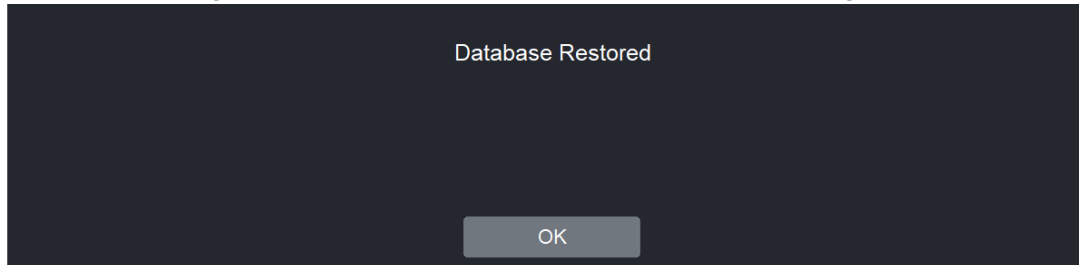
3. Tap **Restore Selection**.

Figure 7-24 — Restore Selection Dialog Box



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

Figure 7-25 — Database Restored Confirmation Dialog Box



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

Restore All

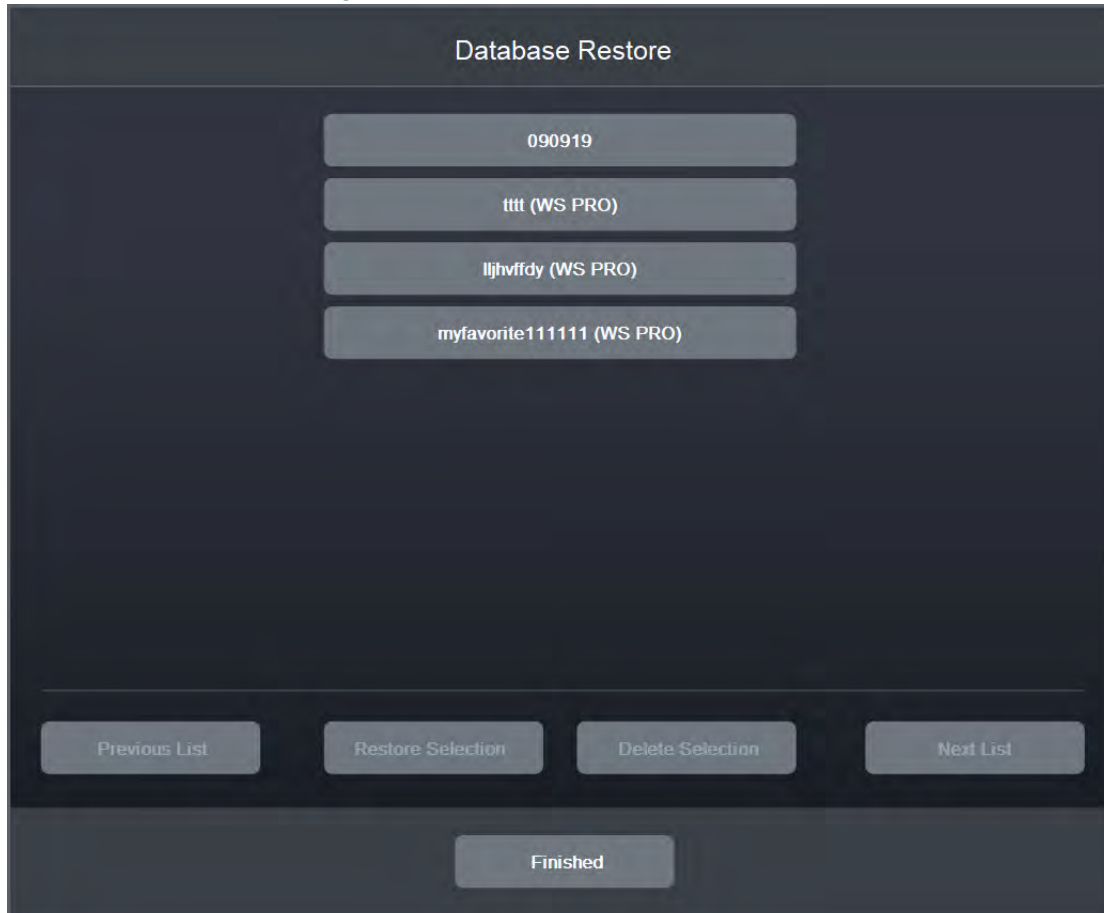
Restore All restores a database that was saved on the USB device through the Backup All option.

NOTE: If a file name has the suffix “(WS PRO)”, it indicates the database was backed up from a WHITESTAR SIGNATURE™ PRO System and can be restored and upgraded on the VERITAS Vision System.

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

NOTE: Ensure you place the USB device into the USB port on the back of the system.

Figure 7-26 — Database Restore Screen

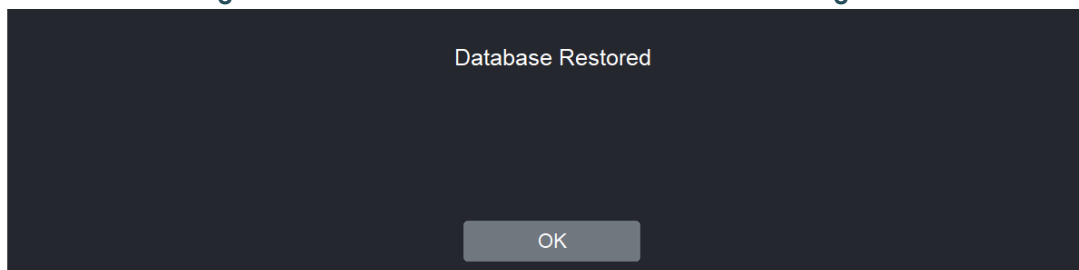


2. Select the database to restore from the list.

NOTE: This options allows you to upgrade a database saved on the USB device with the Backup All feature on the WHITESTAR SIGNATURE PRO System. The database file(s) appears in the list with “(WS PRO)” at the end of the name.

3. Tap **Restore Selection**.
4. Tap **OK** at the confirmation screen.

Figure 7-27 — Database Restore Confirmation Dialog Box



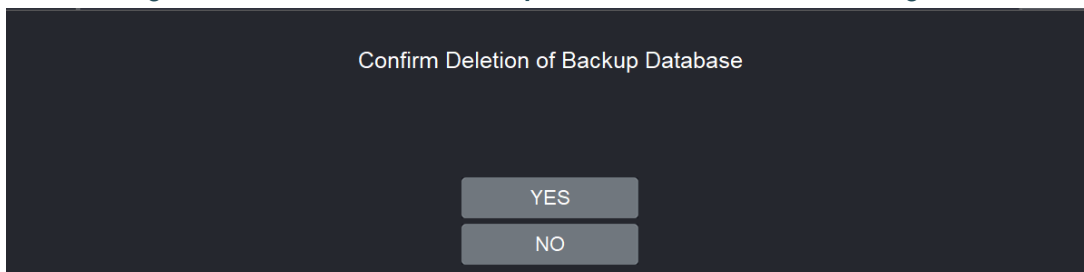
5. Tap **Finished** to close the screen.
6. Tap **Exit** to close the Configuration screen.

Delete a Backup Database

You can delete a database from your portable USB device. Contact your JJSV 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, tap **Restore All**.
3. Select the database to delete from the list.
4. Tap **Delete Selection**.
5. Tap **Yes** at the confirmation screen.

Figure 7-28 — Deletion of Backup Database Confirmation Dialog Box

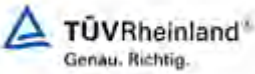
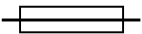


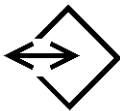
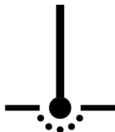
6. Tap **Finished** to close the screen.
7. Tap **Exit** to close the Configuration screen.

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8 — Symbol Definitions

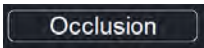
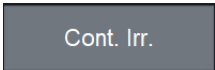
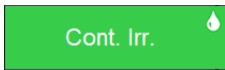
The following symbols appear on the VERITAS™ Vision System front and back panels and in the software:

Symbol	Definition
	Symbol on the power switch indicates power is on.
	Symbol on the power switch indicates power is off.
	Symbol on the Power On/Off button. If the system is in power down mode, pressing this button will cause the system to power up. If the system is powered, pressing this button for a short duration will cause the system to display a shutdown confirmation screen on touchscreen monitor. If the button is pressed for a long time, the system will enter power-down mode without any on-screen prompt.
	Brazilian National Institute of Metrology, Standardization and Industrial Quality (INMETRO)
	Product Certification Body (OCP) - TÜV Rheinland do Brasil Ltda.
	Indicates fuse.
	Single phase alternating current.
	Indicates isolation of the patient applied part from earth ground.

Symbol	Definition
	Foot pedal connection.
	Communications port
	Programmable IV pole
	Diathermy Handpiece Receptacle
	Phaco Handpiece Receptacle
	Vitreotomy Cutter Receptacle
	Do not reuse
	Potential equalizer used to identify the terminals which, when connected together, bring the various parts of an equipment or of a system to the same potential, not necessarily being the earth (ground) potential, e.g. for local bonding.
IPX8	IPX8 is the Ingress Protection code that indicates that the device is protected against the effects of continuous immersion in water.
IPX4	IPX4 is the Ingress Protection code that indicates that the device is protected against splashing water sprayed at all angles.

Symbol	Definition
IPX6	IPX6 is the Ingress Protection code that indicates that the device is protected against powerful water jets.
R_x only	Caution: Federal (USA) law restricts this device to sale by or on the order of a licensed healthcare practitioner.
	Market approval for radio products in Japan granted by the Ministry of Internal Affairs and Communications (MIC)
	Indicates Rated supply voltage(s) or rated voltage range(s); number of phases and type of current; rated supply frequency or rated frequency range in hertz; for Class II ME Equipment, symbol IEC 60417-5172
	Indicates compliance with IEC 60601-1-2 Ed. 4.0: 2014, "Electromagnetic Compatibility Requirements and Tests for Medical Electrical Equipment."
	ETL Listed Mark
	Universal Serial Bus (USB) port
	FUSION mode button used to open the CASE and the Occlusion mode settings screen.
	Foot pedal not connected to system icon. This icon appears when the foot pedal is not connected to the system. Either connect a foot pedal with a cable or wirelessly.

Symbol	Definition
	Single Linear Foot Pedal icon. Shows the current position of the foot pedal as you press the foot pedal. The number changes when the position of the foot pedal changes. When you tap the icon, the Foot Pedal Configuration screen opens.
	Advanced Control Pedal (ACP) icon. Shows the current position of the foot pedal as you press the foot pedal. The number changes when the position of the foot pedal changes. The letters indicate the location of Aspiration (A), Irrigation (I), Phaco (P), Reflux (R), WHITESTAR increment/decrement (WS) and Switch (S). When you tap the icon, the Foot Pedal Configuration screen opens.
	Advanced Linear Pedal. Shows the current position of the foot pedal as you press the foot pedal and the activated foot switch. The number changes when the position of the foot pedal changes. When you tap the icon, the Foot Pedal Configuration screen opens.
	VERITAS Foot Pedal. Shows the current position of the foot pedal as you press the foot pedal and the activated foot switch. The number changes when the position of the foot pedal changes. When you tap the icon, the Foot Pedal Configuration screen opens.
	Battery icon on the Advanced Linear Pedal Test screen, VERITAS Foot Pedal test screen, and the VERITAS Remote Control Test screen. Indicates the battery charge left in the battery.
	WHITESTAR Technology is on.
	WHITESTAR Technology is on and ICE pulse shaping is on.

Symbol	Definition
	ELLIPS FX handpiece is attached.
	VERITAS Swivel handpiece is attached.
	Occlusion Mode Indicator. This indicator displays on the Phaco mode surgical screen to indicate Occlusion Mode is enabled. During surgery, this indicator highlights in green if the vacuum threshold is tripped and the defined occluded settings of the current Phaco submode applies.
	Reload – The reload button cycles through the surgeon's programs.
	Continuous Irrigation – Used to turn continuous irrigation on or off.
	Continuous Irrigation Auto-Off – Indicates the Cont. Irr. Auto-Off feature is turned on.
	Bottle Height icon – Indicates the selected surgical program settings is customized for Advanced Fluidics surgical settings.
 	Advanced Infusion icon – A gray colored icon indicates the selected surgical program settings is customized for the Advanced Infusion surgical settings. If the icon is shown in blue, the infusion source is pressurized to have an additional 22 mmHg (30 cm) to the bottle height.
	Help – Only active when there is an error. Tap this icon to show possible solutions to clear the error.

Symbol	Definition
	Clear Error – Only active when there is an error. Tap this icon after resolving the error. The icon removes the error from the display.
	Event Log – Tap this button on the Configuration screen to view the Event Log.
	Max IV Pole Height – Tap this button on the Configuration screen to set the maximum height the IV pole can move.
	Wireless Setup – Tap this button on the Configuration screen to pair the wireless VERITAS Remote Control or the wireless foot pedals.
	View System Versions – Tap this button on the Configuration screen to view the version of the software and firmware installed on the system.
	IV Pole Test – Tap this button on the Configuration screen to test the movement of the IV pole.
	Wireless Remote Test – Tap this button on the Configuration screen to test the functionality of the VERITAS Remote Control.
	System Self Test – Tap this button on the Configuration screen to run a test of the system.
	Set Date/Time – Tap this button on the Configuration screen to set the date and time.

Symbol	Definition
	Language – Tap this button on the Configuration screen to select the language used for the user interface.
	Set Vacuum Units – Tap this button on the Configuration screen to set the vacuum units to either mmHg or kPa.
	Surgical Media Center (SMC) – Tap this button on the Configuration screen to format how the SMC starts to record surgery.
	Service Interval – Tap this button on the Configuration screen to view when the next time maintenance is due on the system.
	Import/Export Database – Tap this button on the Configuration screen to import or export a database to or from the system.
	Restore Database – Tap this button on the Configuration screen to restore a database if the current database is corrupted.
	Backup All – Tap this button on the Configuration screen to save data to a USB device.
	Restore All – Tap this button on the Configuration screen to restore data from a USB device.
	Add Surgeon or Program – Tap this icon to add a surgeon to the list of surgeons or a program to the list of programs.

Symbol	Definition
	Delete Surgeon or Program – Tap this icon to delete a surgeon from the list of surgeons or a program from the list of programs.
	Edit Surgeon or Program Name – Tap to edit the surgeon or program name.
	Foot Pedal Settings – Tap to set up or edit the foot pedal settings.
	Sound Settings – Tap to set the volume settings for the system.
	Move Doctor Name Up – Select a surgeon name on the list of surgeons and use this icon to move the doctor's name up the list. This can be used to alphabetize the list of surgeons.
	Move Doctor Name Down – Select a surgeon name on the list of surgeons and use this icon to move the doctor's name down the list. This can be used to alphabetize the list of surgeons.
	Settings – Tap to set the specific surgical program settings.
 OR 	Surgeon Settings – Tap to set the specific surgeon settings.

Symbol	Definition
	More – Opens additional settings screens.
	Save – Used to save changes made to settings during surgery.
	Save As – Located on the Program Settings screen. Used to save the program with a new name.
	Restore Program – Located on the Program Settings screen. Used to change the settings back to the previous saved settings.
	Restore Submode – Located on the Program Settings screen. Used to change the submode settings to the previous saved settings.
	Lock Program – Tap to lock the settings for the selected program. You cannot unlock a program once the program is locked.
	Copy Program – Tap to copy an existing program and rename to a new program.
	Move Program Name Up – Select a program name on the list of programs and use this icon to move the program's name up the list. This can be used to alphabetize the list of programs for the active surgeon. The name at the top of the list becomes that surgeon's default program.
	Move Program Name Down – Select a program name on the list of programs and use this icon to move the program's name down the list. This can be used to alphabetize the list of programs for the active surgeon.

Symbol	Definition
 A square icon with a dark background, featuring a white circular arrow pointing clockwise, representing a reset function.	Reset Timer – Tap to reset Phaco or Diathermy time
 A square icon with a dark background, featuring a white Wi-Fi signal symbol with a red 'X' over it, indicating a connection failure.	VERITAS Remote Control Not Connected – VERITAS Remote Control is not paired, or is paired but has not been connected. Press any VERITAS Remote Control key to connect if paired.
 A square icon with a dark background, featuring a bright green checkmark, indicating a successful pairing.	Wireless Pairing Successful – Indicates wireless pairing for VERITAS Remote Control, Advanced Linear Pedal, and VERITAS Foot Pedal is successful.

9 — Care and Cleaning

- “Cleaning and Sterilization Procedures” on page 9-1
- “Phaco Handpiece” on page 9-1
- “Irrigation/Aspiration Handpiece” on page 9-2
- “Diathermy Handpiece and Cable” on page 9-2
- “Vitrectomy Cutter” on page 9-2
- “Touchscreen Monitor Cleaning” on page 9-2
- “General Cleaning (Console, Foot Pedal, Remote Control)” on page 9-3

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 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 and Cable

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.

Touchscreen Monitor Cleaning

Materials and Cleaning Solutions

Use only the below recommended materials and cleaning solutions:

- Microfiber cloth made for cleaning electronics. The 3M Microfiber Electronics Cloth or the JP Case Microfiber Cleaning Cloth for Electronic Devices are options.
- Use a mild soap and water solution in conjunction with the microfiber cloth as well as the below alternatives:
 - ▶ U.S. Pharmacopeia (USP) green soap
 - ▶ Sodium hypochlorite solution (1:10 dilution of household chlorine bleach in water), note using this solution may lighten color over time.
 - ▶ Phenolic germicidal detergent (1% aqueous solution)
 - ▶ Cidex 2.4% Activated Glutaraldehyde Solution
 - ▶ 50% isopropyl alcohol mixed in 50% water solution
 - ▶ Steriplex
 - ▶ Novus 1

Never use the following cleaning solutions or materials to clean the touchscreen monitor:

- Alcohol/solvents at higher concentration > 50%
- Methyl, or Ethyl
- Thinner, Benzine
- Strong alkalis or lye
- Strong solvents

- Acid
- Detergents with fluoride
- Detergents with ammonia at higher concentration > 1.6%
- Abrasives
- Detergents with abrasives
- Steel wool
- Sponge with abrasives
- Steel blades
- Cloth with steel thread
- 409
- Windex
- Lysol

Cleaning Process

- Before you start cleaning the touchscreen monitor, shut down the system.
- Use the recommended microfiber cleaning cloth to wipe the unit clean.
- If needed, apply one of the recommended cleaning solutions directly to the cleaning cloth, then use the cloth and cleaning solution in combination to further wipe the unit clean.
- Avoid getting liquids inside the unit as this may damage the unit and void manufacturer warranty.
- Never spray cleaning solutions directly on the unit.

General Cleaning (Console, Foot Pedal, Remote Control)

At the end of the surgical day, thoroughly wipe down the system, remote control, IV pole, and foot pedal using a cloth dampened with a disinfectant cleaner.

NOTE: Do not clean the console, foot pedal, mayo tray, or accessories using solvents, abrasives, or any disinfectant cleaner that is not compatible with plastic parts made of LEXAN EXL 9112 and Eastman Tritan MXF.

NOTE: Be careful not to saturate any part of the system, remote control, or foot pedal with liquid. Excessive liquid can damage the system electronics.

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10 — Error Messages, Troubleshooting, and Diagnostics

- “Errors” on page 10-1
- “Most Common User-Correctable Problems” on page 10-1
- “Fuse Replacement Procedure” on page 10-2
- “Battery Replacement – VERITAS Foot Pedal and Advanced Linear Pedal” on page 10-3
- “Battery Replacement – VERITAS Remote Control” on page 10-4
- “Charging Options for Wireless Foot Pedals” on page 10-4
- “Troubleshooting” on page 10-5
- “Status, Warning, and Error Messages” on page 10-10

Errors

During the operation of the VERITAS™ Vision System, various errors may be displayed to indicate a fault that can affect the system. When errors are detected, the following occurs:

- A tone is generated.
- A message is displayed indicating the error.
- Depending on the error, the system may go into a safe state without user intervention:
 - ▶ Phaco, I/A, Vitrectomy, and Diathermy functions are disabled when required.
 - ▶ For certain errors, the Irrigation valve is automatically opened to the balanced salt solution and the aspiration path is vented ensuring that there is no residual vacuum and chamber pressure is maintained in the eye during the error state.
 - ▶ For other safe state errors, the foot pedal can be used to open the Irrigation valve to balanced salt solution and the aspiration path is vented ensuring there is no residual vacuum, and chamber pressure is maintained in the eye during the error state. In this state, all the surgical modes become inoperative.

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 JJSV for technical service:

- Ensure the system is plugged into a power receptacle.
- Ensure there is electrical power to the receptacle.
- If there is no phacoemulsification, ensure the phaco tip is tight on the handpiece.
- If there is no phacoemulsification, ensure the phaco tip is compatible with the handpiece (for example, non-JJSV phaco tip on an JJSV handpiece).

- If there is no phacoemulsification, confirm there is no damage to the phaco tip/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 tubing 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.



WARNING!

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 10.1 – Fuse Specifications

Voltage	Quantity	Fuse Specifications
100/120/240	2	6.3A, 250V, Bussmann 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 rear panel of the system (see [Figure 4-2](#)).
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 10.1](#)).
7. Replace the fuse holder. Ensure 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.

Battery Replacement – VERITAS Foot Pedal and Advanced Linear Pedal



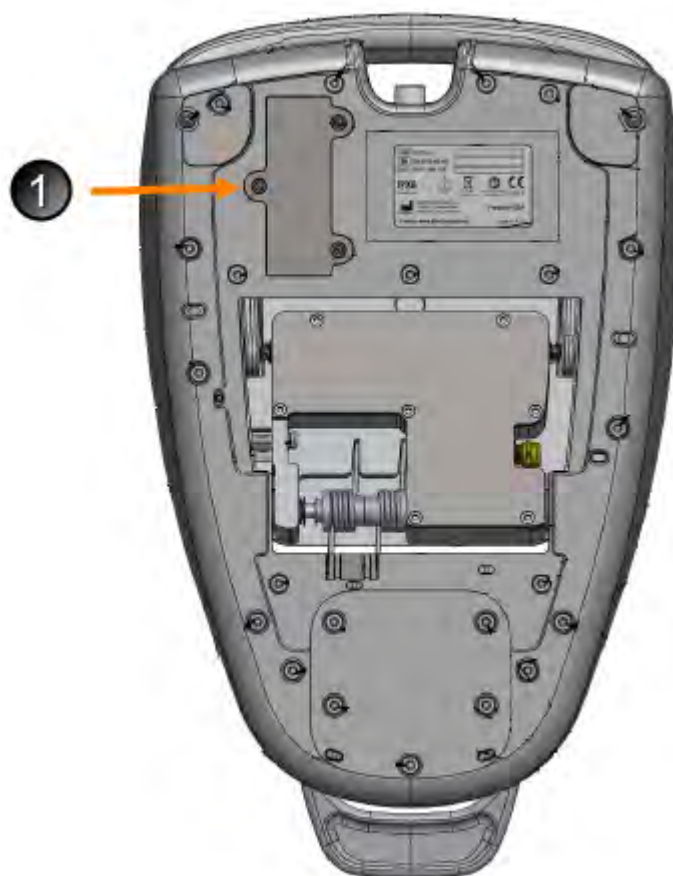
WARNING!

Do not replace the foot pedal battery while in use with a patient.

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

NOTE: Do not install a damaged battery.

Figure 10-1 — Bottom View Foot Pedal



1. Battery Cover

To replace the battery in the VERITAS Foot Pedal and Advanced Linear Pedal:

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: Ensure to align the positive and negative ends of the battery.
NOTE: Do not install a damaged battery.
4. Replace the cover and tighten the screws.

Battery Replacement – VERITAS Remote Control

To replace the batteries in the VERITAS Remote Control.

1. Turn to the bottom side of the remote.
2. Use a flat screwdriver to remove the two screws.
3. Remove and properly dispose the used batteries.
4. Install two new DURACELL® COPPERTOP AA batteries.
5. Close the battery compartment and tighten the screws.
6. Test on a VERITAS Vision System to ensure the remote is fully functional and verify the battery percentage is renewed.



WARNING!

Do not replace the remote control battery while in use with a patient.

Charging Options for Wireless Foot Pedals

Figure 10-2 — 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.

Table 10.2 – Charging Options

The System Is:	Advanced Linear Pedal (ALP)	Advanced Control Pedal (ACP)	VERITAS Foot Pedal
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 or Wired Mode
Attached to a power source and the system is on and in-use	* Wired Mode	* Wired Mode	* Wired Mode

* The AC Charger cannot be used for charging while the system is operating with VERITAS Foot Pedal, 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 system 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 JJSV for technical service.

The wireless VERITAS Remote Control does not pair

1. One VERITAS Vision System can only uniquely pair with 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.

**CAUTION!**

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 thirty-two (32) devices.

3. Check to see if the VERITAS Remote Control is in “sleep” mode. If the remote is in “sleep” mode, press any button on the remote. Follow on screen instructions to complete the key-sequence to pair the remote.

NOTE: Always wake the remote up before you pair the remote.

4. Only pair the VERITAS Remote Control with one system at a time. Ensure you did not pair the remote with another console. You must:
 - a. Unpair the remote from the system. Be within close proximity to the system you are trying to pair to (within 3 meters).
 - b. Pair the remote with the new system. Ensure this system is at least 40 meters away from the first system.
5. Once you pair a remote, you cannot pair that remote with another system. (You cannot pair one remote with two (2) systems.) To replace the first paired remote with a second remote:
 - a. Unpair the remote from the system.
 - b. Move the first remote out of range from the system.
 - c. Wait for the first remote to go into “sleep” mode, and then tap the **Unpair** button on the wireless remote setup page.
 - d. Pair the new remote.
6. Ensure the batteries are new before you pair the remote with the system. Low batteries can cause pairing failures.
7. Replace the batteries if pairing has failed after several attempts.

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 system.
3. Perform a Foot Pedal Calibration (if using a Single Linear Foot Pedal or Advanced Control 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 touchscreen, VERITAS Remote Control, or the rocker switch on the side of the system.

Priming Errors

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

Irrigation

No Irrigation Flow

1. Ensure 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 ensure 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 tubing 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. Ensure 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 pack.

Aspiration

No aspiration

1. Ensure 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. Ensure 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. Ensure 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, if applicable. 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. Ensure 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 tubing 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 ensure you have balanced the handpiece.
6. Ensure you balanced irrigation and aspiration.

Phacoemulsification

No phacoemulsification

1. Ensure you selected the Phaco mode on the touchscreen.
2. Ensure the system is primed and tuned.
3. Check the foot pedal operation.
4. Ensure you properly connected the phaco handpiece cord to the phaco receptacle on the front of the system.
5. Check the phaco power setting.
6. Ensure 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. Ensure 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

No diathermy or poor diathermy

1. Ensure you selected the diathermy mode on the touchscreen.
2. Check the foot pedal operation.
3. Check the diathermy power setting.
4. Check the diathermy cord for a secure connection to the diathermy handpiece and to the diathermy receptacles on the system.
5. Ensure 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. Ensure the volume setting is at a level of 6 or greater on Sounds screen.
2. Check for sounds when you push any touchscreen or remote buttons.
3. Check for an audible confirmation upon completion of system start-up test (at power up).

Vitrectomy

No vitrectomy cutting or poor cutting

1. Ensure you selected the Vitrectomy mode on the touchscreen.
2. Verify that the surgeon is in foot pedal position 3, if using IAC foot pedal mode for 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 touchscreen. 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. Tap  to open the corrective action for that error. After you correct the error, tap  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 following list of error messages 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV for technical service.

124 Fluidics rotary vane fault.

Probable cause: Pump or drive circuit failure.

Corrective action:

1. Prime the system again.
2. If the error does not clear or if the error continues to occur, document the error message and contact JJSV 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 Fluidics Tubing pack.
6. Insert the Fluidics Tubing pack.
7. Insert a new Fluidics Tubing pack.
8. If the error does not clear or if the error continues to occur, document the error message and contact JJSV 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 Fluidics Tubing pack.
4. If the error does not clear or if the error continues to occur, document the error message and contact JJSV for technical service.

130 Fluidics encoder error.

Probable cause:

- There is a Fluidics 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 Fluidics Tubing pack.
8. Reinstall the Fluidics Tubing pack.
9. Install a new Fluidics Tubing pack.
10. If the error does not clear or if the error continues to occur, document the error message and contact JJSV 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 JJSV for technical service.

134 Fluidics drain pump rotational error.

Probable cause:

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

Corrective action:

1. Insert a new Fluidics Tubing pack.
2. Select **Next Case** and prime the system.
3. If the error does not clear or if the error continues to occur, document the error message and contact JJSV 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 JJSV for technical service.

148 Fluidics Tubing pack pressure error.

Probable cause: There is a leak.

Corrective action:

1. Reinsert the Fluidics Tubing 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 JJSV for technical service.

149 Fluidics strain gauge error.

Probable cause:

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

Corrective action:

1. Reinsert the Fluidics Tubing 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 JJSV for technical service.

151 Peristaltic pump stall.

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

Corrective Action:

1. Reinsert the Fluidics Tubing 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 JJSV for technical service.

160 Advanced Infusion pressure is too low.

Probable Cause: Pressure sensor malfunction, regulator malfunction, leaks at connection to console or spike.

Corrective Action:

1. If changing the balanced salt solution, proceed and error will clear when spike is reinserted.
2. Otherwise, check for leakage or loose connector at the Fluidics Tubing pack and console and re-prime.
3. If error continues, try changing the Fluidics Tubing pack and re-prime.
4. If the error continues to occur, use an Advanced Fluidics Program to continue and contact JJSV for technical service.

161 Advanced Infusion pressure is too high.

Probable Cause: Pressure sensor or pressure regulator is faulty.

Corrective Action:

1. Change to an Advanced Fluidics Program.
2. Disconnect the infusion connector from the console if connected.
3. Prime the system to continue.
4. If the error continues to occur, contact JJSV for technical service.

162 Advanced Infusion not Available.

Probable Cause: Pressure sensor, GFI valve or pressure regulator is faulty or there is an internal air leak.

Corrective Action:

1. Use an Advanced Fluidics program.
2. Disconnect the infusion connector from the console if connected.
3. Prime the system to continue.
4. If the error continues to occur, contact JJSV for technical service.

164 Advanced Infusion current too high or too low.

Probable Cause: Valve or valve driver is faulty

Corrective Action:

1. Change to an Advanced Fluidics program.
2. Disconnect the infusion connector from the console if connected.
3. Prime the system to continue.
4. If the error continues to occur, contact JJSV for technical service.

165 Advanced Infusion regulator current too high or too low.

Probable Cause: Fixed regulator may not be effective at regulating pressure.

Corrective Action:

1. Change to an Advanced Fluidics program.
2. Disconnect the infusion connector from the console if connected.
3. Prime the system to continue.
4. If the error continues to occur, contact JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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. Ensure 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 JJSV 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 JJSV 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 JJSV 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 JJSV for technical service.

327 Pneumatics system pressure too low.

Probable cause:

- The system pressure is too low.
- 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 JJSV 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 foot pedal does not connect, connect foot pedal to console via cable to continue with current case.
 - ▶ If the foot pedal does not connect, pair the foot pedal to the system.
 - ▶ If foot pedal still does not connect, with foot pedal cable disconnected, remove and reinsert foot pedal battery (ALP and VERITAS foot pedal only).
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 JJSV 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. Ensure the wireless foot pedal is paired and has power.
7. Run the Foot Pedal Test.
8. Replace the foot pedal cable.

9. Replace the foot pedal.
10. If the error still does not clear or if the error continues to occur, document the error message and contact JJSV for technical service.

420 Foot pedal battery too low.

Probable cause: Foot pedal battery too 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 Fluidics 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 Fluidics Tubing pack with a new Fluidics 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 JJSV 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. Tap the drip chamber to ensure the valve operates properly.
4. If the error still does not clear, replace the Fluidics Tubing pack with a new Fluidics Tubing pack and prime the system.
5. If the error does not clear or if the error continues to occur, document the error message and contact JJSV for technical service.

503 Prime low vacuum error.

Probable cause: Hardware failure.

Corrective action:

1. Remove the Fluidics Tubing pack.
2. Reinstall the Fluidics Tubing pack and reprime.
3. If the error does not clear, replace the tubing pack with a new Fluidics 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 JJSV 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 JJSV for technical service.

513 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 JJSV for technical service.

514 IV Pole 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 JJSV for technical service.

515 IV Pole calibration error.

Probable cause: Communication error.

Corrective action:

1. Run **Self Test**.
2. If the error still does not clear or if the error continues to occur, document the error message and contact JJSV for technical service.

516 IV Pole communication 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 JJSV for technical service.

517 IV Pole is jammed.

Probable cause:

- IV Pole motor failure.
- There is an obstruction that does not allow the IV pole to move.

Corrective action:

1. Check the IV pole for obstructions.
2. Prime the system.
3. If the error still does not clear or if the error continues to occur, document the error message and contact JJSV for technical service.

601 Tune excessive vacuum error.

Probable cause: There is too much vacuum.

Corrective action:

1. Check tubing 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 JJSV for technical service.

605 Tune no handpiece error.

Probable cause: Hardware failure.

Corrective action:

1. Attach handpiece to the system.
2. Retune the handpiece.
3. If the error still does not clear, replace the handpiece with a new handpiece, and tune the handpiece.
4. If the error still does not clear or if the error continues to occur, document the error message and contact JJSV for technical service.

11 — Warranty and Maintenance

Warranty Statement

Johnson & Johnson Surgical Vision, Inc. (JJSV) warrants for a period of one year (12 months) from the date of installation of the VERITAS™ Vision System console, foot pedal, wireless VERITAS Remote Control, the programmable IV pole, and the phaco handpiece to be free from defects in materials and workmanship when properly installed, maintained, and used for the intended purpose. In no event shall the date of installation be deemed to occur later than six months from the date of delivery of the VERITAS Vision System by JJSV to the common carrier.

You are required to provide JJSV with prompt written notice of any defect or defects and permit JJSV to have access to the VERITAS Vision System within a reasonable time after notification of any defect. In the event that you do not provide JJSV with prompt notification of a defect or permit access to the VERITAS Vision System within a reasonable time after notification, JJSV is hereby released from all liability with reference to such defect and subsequent damage, if any, resulting from the inability of JJSV to correct such defect.

MISUSE AND MISHANDLING ARE NOT COVERED UNDER WARRANTY. JJSV's sole obligation is to repair or replace, at JJSV's option, the defective part(s), which shall be returned freight prepaid to JJSV by you and then returned to you freight collect once repaired or replaced.

The irrigation/aspiration handpiece set, diathermy handpiece and diathermy cord are warranted for ninety (90) days.

This warranty applies only to the original purchaser/user of the device and may not be transferred. This warrant will be void if and only so long as the equipment is used in any country other than the country to which it was originally shipped by JJSV.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL JJSV BE LIABLE TO THE PURCHASER/USER FOR CONSEQUENTIAL, SPECIAL, INCIDENTAL, OR PUNITIVE DAMAGES, LOSS OF PROFITS OR LOSS OF USE. The liability of JJSV for breach of this warranty shall, in any case, be limited to the total amount paid by you for the VERITAS Vision System furnished by JJSV and any work performed by JJSV in connection therewith.

Extended Warranty

Extended warranty contracts (excluding the phaco handpiece) are available. Contact JJSV for information on the availability of an extended warranty contract.

Maintenance

User maintenance of the VERITAS Vision System is only for those adjustments and corrective actions in [Chapter 10, "Error Messages, Troubleshooting, and Diagnostics"](#). There are no user serviceable components within the console and you must not attempt to access the internal components. Any attempt to do so will void the warranty.

JJSV recommends, at least annually, routine or periodic maintenance of the VERITAS Vision System by an JJSV representative. JJSV recommends the measurement of PE resistance and leakage current according to IEC 60601-1 every two years.

If a problem continues following setup, check-out and troubleshoot as per the procedures in this manual, then contact JJSV for corrective action:

- 1-800-511-0911 in US and Canada
- If outside the United States or Canada, contact your local JJSV office or service representative

12 — Specifications

- “Physical Specifications” on page 12-1
- “Environmental Specifications” on page 12-3
- “Electrical Specifications” on page 12-3
- “Electromagnetic Compatibility” on page 12-4
- “RF Wireless Technology” on page 12-10
- “Bluetooth Characteristics” on page 12-17
- “Phacoemulsification Specifications” on page 12-19
- “Irrigation and Aspiration Specifications” on page 12-19
- “Vitrectomy Specifications” on page 12-20
- “Diathermy Specifications” on page 12-20
- “Diathermy Power Graphs” on page 12-21
- “Diathermy Power versus Load Impedance” on page 12-24
- “Phaco Power Graphs” on page 12-25
- “Phaco Tip Velocity” on page 12-26
- “Bottle Height Pressure” on page 12-26

Physical Specifications

Table 12.1 – System Physical Specifications

		English / U.S.	Metric
VERITAS™ Vision System Console			
Console dimensions (with display)	Width	24 inches	61 cm
	Depth	24 inches	61 cm
	Height	62 inches	158 cm
Electrical enclosure current leakage		IEC 60601-1 compliance AAMI 60601-1	
Weight (including IV pole)		185 pounds	84 kg
VERITAS Foot Pedal			
Dimensions	Width	9.8 inches	25 cm
	Length	15.6 inches	39.6 cm
	Height	4.9 inches	12.4 cm
Weight		9 pounds	4 kg

		English / U.S.	Metric
Single Linear Foot Pedal			
Dimensions	Width	12 inches	31 cm
	Length	10.5 inches	27 cm
	Height	5.5 inches	14 cm
Weight		10 pounds	4.5 kg
Advanced Control Pedal			
Dimensions	Width	10.5 inches	27 cm
	Length	14 inches	36 cm
	Height	5.5 inches	14 cm
Weight		15 pounds	7 kg
Advanced Linear Pedal			
Dimensions	Width	9.8 inches	25 cm
	Length	15.6 inches	39.6 cm
	Height	4.9 inches	12.4 cm
Weight		9 pounds	4 kg
Programmable IV Pole			
Maximum travel		41 inches	106 cm
Velocity		3 inches/sec	7.6 cm/sec.
Maximum lift weight		2.4 pounds	1.1 kg
VERITAS Remote Control			
	Width	4 inches	10.16 cm
	Length	4 inches	10.16 cm
	Height	1.3 inches	3.3 cm
	Weight	0.55 pounds	.25 kg

Table 12.2 – System Cables

Manufacturer	Manufacturer Part Number	Description	Maximum Length
JJSV	2410-0165	Power cord, hospital grade, 20 ft., 6.1 meters	6.1 meter
JJSV	0100-0055	Cable Assy, Foot Pedal, SLFP and ACP	3.7 meter
JJSV	0100-6303	Cable Assy, Foot Pedal, ALP and VERITAS Foot Pedal	3.7 meter
JJSV	690697	WHITESTAR™ Phaco Handpiece, Coaxial	2.2 meter
JJSV	690880	ELLIPS™ FX Phaco Handpiece	2.2 meter
JJSV	SCP680600	Diathermy Cord	3.6 meter
JJSV	VRT691027	VERITAS Swivel Phaco Handpiece	2.2 meter

Environmental Specifications

Table 12.3 – Environmental Specifications

Environmental Specifications	Operating Temperature	10 to 40°C
	Humidity	Up to 95% RH, non-condensing
	Ambient Pressure	See Vitrectomy Specifications for additional information. 70 kPa to 106.0 kPa
	Maximum Altitude	10,000 ft (3,048 m)
Storage/Transportation Conditions	Storage Temperature	-20 to 60°C
	Humidity	Up to 95% RH, non-condensing

Electrical Specifications

Table 12.4 – Electrical Specifications

	Voltage	Frequency	Rated Power	Fuse Rating	Enclosure Current Leakage
System	100-240 Vac	50-60 Hz	750 VA	6.3A, 250V, Bussmann GDA	<500 µA

Per IEC 60601-1, the VERITAS Vision System is a Class 1 device.

Electromagnetic Compatibility

Like other electrical medical devices, the VERITAS Vision System requires special precautions to ensure electromagnetic compatibility with other electrical medical devices. To ensure electromagnetic compatibility (EMC), the VERITAS Vision System must be installed and operated according to the EMC information provided in this manual. Consult the tables on the following pages for guidance in placing the VERITAS Vision System.



WARNING!:

Use of accessories, transducers, and cables other than those provided with the VERITAS Vision System could cause increased electromagnetic emissions or decreased electromagnetic immunity of this equipment, resulting in improper operation.



WARNING!:

Use of the VERITAS Vision System adjacent to or stacked with other equipment could result in improper operation and should be avoided. If such use is necessary, observe and verify normal operation of the VERITAS Vision System in the configuration in which it will be used prior to use.



WARNING!:

Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the VERITAS Vision System, including cables specified by JJSV. Otherwise, degradation of the performance of this equipment could result.



WARNING!:

This equipment/system is intended for use by healthcare professionals only. This equipment/system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as reorienting or relocating the VERITAS Vision System or shielding the location.

NOTE: The VERITAS Vision System has been designed and tested to comply with IEC 60601-1-2 Ed. 4.0: 2014 requirements for EMC with other devices.

NOTE: The VERITAS Vision System EMISSIONS characteristics make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

Table 12.5 – Electromagnetic Emissions

Guidance and manufacturer's declaration - electromagnetic emissions		
The VERITAS Vision System is intended for use in the electromagnetic environment specified below. The customer or the user of the VERITAS Vision System should assure that it is used in such an environment.		
Emissions Test	Compliance	
RF emissions CISPR 11	Group 1	The VERITAS Vision System uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage Fluctuations/ Flicker emissions IEC 61000-3-3	Complies	
The VERITAS Vision System is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.		

Table 12.6 – Guidance and Manufacturer's Declaration: Electromagnetic Immunity

The VERITAS Vision System is intended for use in the electromagnetic environment specified below. The customer or the user of the VERITAS Vision System should ensure it is used in such an environment.			
Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment: Guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air (*)	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/ burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV Differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions, and voltage variations on power supply input lines IEC 61000-4-11	Voltage Dips 30% reduction, 25/30 periods At 0° Voltage Dips > 95% reduction, 0.5 period At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° Voltage Dips > 95% reduction, 1 period At 0° Voltage Interruptions > 95% reduction, 250/300 periods	Voltage Dips 30% reduction, 25/30 periods At 0° Voltage Dips > 95% reduction, 0.5 period At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° Voltage Dips > 95% reduction, 1 period At 0° Voltage Interruptions > 95% reduction, 250/300 periods	Mains power quality should be that of a typical commercial or hospital environment. If the user of the VERITAS Vision System requires continued operation during power mains interruptions, it is recommended that the VERITAS Vision System be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power-frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

(*) When ± 2 kV, ± 4 kV & 6 kV contact discharge were applied to all metal parts of the ACP and ALP Foot Pedal, performance interruption occurred. ACP Foot Pedal loses communication to the system. It requires user intervention to recover all its function without losing stored data. Per client declaration it is an acceptable performance criteria. Below is client justification for the observed EUT performance.

Foot pedals (wireless & wired mode): If the wireless connection is lost during surgery, the console will be placed into a safe state, causing the surgical procedure to halt. Upon reconnection of the foot pedal cable, the error is removed and the procedure can recommence.

Table 12.7 – Guidance and Manufacturer’s Declaration: Electromagnetic Immunity

The VERITAS Vision System is intended for use in the electromagnetic environment specified below. The customer or the user of the VERITAS Vision System should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the VERITAS Vision System, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz (6 Vrms in ISM radio Bands within 150kHz - 80MHz)	3 Vrms	Recommended separation distance: $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2.7 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a , should be less than the compliance level in each frequency range. ^b Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,7 GHz	3 V/m	
At 80 MHz and 800 MHz, the higher frequency range applies.			
NOTE: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the VERITAS Vision System is used exceeds the applicable RF compliance level above, the VERITAS Vision System should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the VERITAS Vision System.

b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Table 12.8 – Recommended separation distances between portable and mobile RF communications equipment and the VERITAS Vision System

Recommended separation distances between portable and mobile RF communications equipment and the VERITAS Vision System			
The VERITAS Vision System is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the VERITAS Vision System can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the VERITAS Vision System as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Table 12.9 – Immunity to RF Wireless Communications Equipment

Test Frequency (MHz)	Band ^{a)} (MHz)	Service ^{a)}	Modulation ^{b)}	Maximum Power (W)	Distance (m)	Immunity Test Level (V/m)
1720	1 700 – 1 990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation ^{b)} 217 Hz	2	0.3	28
1845						
1970						
2450	2 400 – 2 570	Bluetooth®, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation ^{b)} 217 Hz	2	0.3	28
5240	5 100 – 5 800	WLAN 802.11 a/n	Pulse modulation ^{b)} 217 Hz	0.2	0.3	9
5500						
5785						

a) For some services, only the uplink frequencies are included.

b) The carrier shall be modulated using a 50% duty cycle square wave signal.

c) As an alternative to FM modulation, 50% pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.

RF Wireless Technology

Table 12.10 – RF Wireless Technology Used on the VERITAS Vision System

Devices	RF Wireless Technology	Part Number	Operating Frequencies	Operating Distances	Industry Standard	Device System Wireless Functions, Capabilities, and Limitations
NGP680703 Advanced Linear Pedal (ALP)* VRT680700 VERITAS Foot Pedal* VRT680135 VERITAS Remote Control	Bluetooth Low Energy (three individual chips)	Texas Instruments CC2541F25 6RHAT	2.402 to 2.480 GHz, Adaptive Frequency Hopping GFSK (Gaussian Frequency-Shift Keying) over 37 Channels 2 MHz apart, 3 advertising Channels	Class 2 - 3 meters	Bluetooth Specification version 4.0 FCC CFR47, Part 15, sections 15.205, 15.209, 15.247 and 15.249 	Foot Pedal Wireless Technology: Wirelessly and uniquely connects the foot pedal to the console to facilitate full functional control of the VERITAS Vision System the same as if connected by cord. Function is limited to a 3 meter range. The ALP and VERITAS Foot Pedal are Bluetooth 4.0 (Bluetooth Low Energy) devices that utilize two TI CC2541 chips that communicate with the console through a transceiver that also utilizes two CC2541 chips. <u>Functional ability:</u> Consists of four programmable switches and a treadle that allows the operator to activate different functionalities at its corresponding pitch zone. <u>Limitations during device operation:</u> The device must be used within the specified operating range. VERITAS Remote Control Wireless Technology: Wirelessly and uniquely connects the VERITAS Remote Control to the console to navigate the GUI display. Function is limited to a 3 meter range.

Devices	RF Wireless Technology	Part Number	Operating Frequencies	Operating Distances	Industry Standard	Device System Wireless Functions, Capabilities, and Limitations
						The VERITAS Remote Control is powered with AA alkaline batteries, and has a Bluetooth 4.0 device that utilizes a TI CC2540 Bluetooth module for its RF communication. It communicates with the system via a Bluetooth receiver residing in the system, which also utilizes a CC2541 Bluetooth module. The VERITAS Remote Control is an accessory that provides an alternative method for the operator to navigate through the different surgical modes, set various parameters, and perform IV pole height adjustment. <u>Functional ability:</u> The VERITAS Remote Control consists of 11 buttons with their functionality described below: • IV Pole Up/Down: IV pole height adjustment. • Mode: for operator to select preprogrammed surgeon mode. • Navigator Up, Down, Left, Right, and Enter: navigate to access different functional icons on the screen within the surgical mode. • Up, Down, Enter: for operator to navigate to desired surgical mode. <u>Limitations during device operation:</u> The device must be used within the specified operating range.

Devices	RF Wireless Technology	Part Number	Operating Frequencies	Operating Distances	Industry Standard	Device System Wireless Functions, Capabilities, and Limitations
NGP680702 WHITESTAR SIGNATURE™ ACP*	Bluetooth 2.0 (three individual chips, two for foot pedal, one for remote)	Texas Instruments LMX9830S M/NOPB	2.402 to 2.480 GHz, Adaptive Frequency Hopping over 79 Channels, 1 MHz Apart	Class 2 - 3 meters	Bluetooth Specification version 2.0 + EDR FCC CFR47, Part 15, Sections 15.205, 15.209, 15.247 and 15.249 	ACP Wireless Technology: Wirelessly and uniquely connects the ACP to the console to facilitate full functional control of the VERITAS Vision System the same as if connected by cord. Function is limited to a 3 meter range. The ACP is a Bluetooth 2.0 device that utilizes two TI LMX9838 Bluetooth modules, which communicate with the console through a wireless transceiver that utilizes two TI LMX9830 Bluetooth modules. <u>Functional ability:</u> The ACP consists of several linear controls and digital switches to activate different functionalities at its corresponding pitch zone. <u>Limitations during device operation:</u> The device must be used within the specified operating range.

Devices	RF Wireless Technology	Part Number	Operating Frequencies	Operating Distances	Industry Standard	Device System Wireless Functions, Capabilities, and Limitations
VRT680300 VERITAS Vision Console*	Wireless PCIe-M Card 802.11b/g/n	Advantech EWM- W142H01E	2.4 to 2.483 GHz, DSSS and OFDM modulation over 16 Channels 5MHz apart	Up to 3 meters	IEEE 802.11N- 2009	Console Wireless Technology: The VERITAS Vision Phacoemulsification System console downloads surgery case data via Wi-Fi to iPad device for formatting/ printing/ presentation. The system has a Wi-Fi adapter that allows the surgical data to be downloaded to an iPad device with our proprietary application, using IEEE 802.11 b/g/n standard <u>Functional ability:</u> it provides the operator with an ability to download data from the system to an iPad device. Please note that the console does not store any patient information. The iPad device connection to the system is password-protected and data flow is unidirectional from the console to the iPad device. <u>Limitations during device operation:</u> The device must be used within the specified operating range.

* All devices are on the 2.4 GHz ISM band.

Antenna must be installed to provide 20cm separation distance from the transmitting antenna to the body of the user during normal operating condition.

Table 12.11 – Wireless Technologies Used for Each of the Wireless Devices

Devices	RF Wireless Technology	Operating Distances	Quality of Service and Security	Device System Wireless Function, Capabilities, and Limitations
NGP680703 Advanced Linear Pedal (ALP)* VRT680700 VERITAS™ Foot Pedal*	Bluetooth Low Energy (two individual chips)	Class 2 - 3 meters	In addition to the inherent data integrity by using the Bluetooth technology, the system design also incorporated redundant Bluetooth channels (2 channels) to further improve the quality of service for this wireless device, and reduce the chance of losing wireless connection between the foot pedal and the console. The wireless communication is secured by Bluetooth encrypted data technology.	Wireless Technology: Wirelessly and uniquely connects the foot pedal to the console to facilitate full functional control of the VERITAS Vision System the same as if connected by cord. Function is limited to a 3 meter range. The ALP and VERITAS foot pedal are Bluetooth 4.0 (Bluetooth Low Energy) devices that utilize two TI CC2541 chips that communicate with the console through a transceiver that also utilizes two CC2541 chips. Functional ability: Consists of four programmable switches and a treadle that allows the operator to activate different functionalities at its corresponding pitch zone. Limitations during device operation: The device must be used within the specified operating range.
NGP680702 Advanced Control Pedal (ACP)*	Bluetooth 2.0 (two individual chips)	Class 2 - 3 meters	In addition to the inherent data integrity by using the Bluetooth technology, the system design also incorporated redundant Bluetooth channels (2 channels) to further improve the quality of service for this wireless device, and reduce the chance of losing wireless connection between the foot pedal and the console. The wireless communication is secured by Bluetooth encrypted data technology.	ACP Wireless Technology: Wirelessly and uniquely connects the ACP to the console to facilitate full functional control of the VERITAS Vision System the same as if connected by cord. Function is limited to a 3 meter range. The ACP is a Bluetooth 2.0 device that utilizes two TI LMX9838 Bluetooth modules, which communicate with the console through a wireless transceiver that utilizes two TI LMX9830 Bluetooth modules. Functional ability: The ACP consists of several linear control and digital switches to activate different functionalities at its corresponding pitch zone. Limitations during device operation: The device must be used within the specified operating range.

Devices	RF Wireless Technology	Operating Distances	Quality of Service and Security	Device System Wireless Function, Capabilities, and Limitations
VRT680135 VERITAS Vision Remote Control*	Bluetooth Low Energy (one chip)	Class 2 - 3 meters	The quality of service is ensured by the Bluetooth technology. The VERITAS Vision System uses the touchscreen as the primary user interface device. In the rare event of losing communication between the VERITAS Remote Control and the console, the user can continue to operate all system functions by using the touchscreen. The wireless communication is secured by Bluetooth encrypted data technology.	VERITAS Remote Control Wireless Technology: Wirelessly and uniquely connects the VERITAS Remote Control to the console to navigate the GUI display. Function is limited to a 3 meter range. The VERITAS Remote Control is powered with replaceable standard AA Alkaline batteries, and has a Bluetooth 4.1 device that utilizes a TI CC2540 Bluetooth module for its RF communication. It communicates with the system via a Bluetooth receiver residing in the system, which also utilizes a TI CC2541 Bluetooth module. The VERITAS Remote Control is an accessory that provides an alternative method for the operator to navigate through the different surgical modes, set various parameters, and perform IV pole height adjustment. <u>Functional ability:</u> The VERITAS Remote Control consists of 12 buttons with their functionality described below: • IV Pole Up/Down: IV pole height adjustment. • Mode: for operator to select preprogrammed surgeon mode. • Navigator Up, Down, Left, Right, and Enter: navigate to access different functional icons on the screen within the surgical mode. • Up, Down, Enter: for operator to navigate to desired surgical mode. <u>Limitations during device operation:</u> The device must be used within the specified operating range.

Specifications

Devices	RF Wireless Technology	Operating Distances	Quality of Service and Security	Device System Wireless Function, Capabilities, and Limitations
VRT680300 VERITAS Vision Console*	Wireless PCIe-M Card 802.11b/g/n	Up to 3 meters	The quality of service is ensured by the Wi-Fi technology. Downloading data from the VERITAS Vision System to the iPad device application does not interfere with system surgical functions. In the rare event of losing communication between the iPad device and the console while downloading data, the application will notify the user to retry. The wireless communication is secured by Wi-Fi connection password.	Console Wireless Technology: The VERITAS Vision Phacoemulsification System console downloads surgery case data via Wi-Fi to iPad device for formatting/ printing/ presentation. The system has a Wi-Fi adapter that allows the surgical data to be downloaded to an iPad device with our proprietary application, using IEEE 802.11 b/g/n standard <u>Functional ability:</u> The Wi-Fi adapter provides the operator with an ability to download data from the system to an iPad device. Please note that the console does not store any patient information. The iPad device connection to the system is password-protected and data flow is unidirectional from the console to the iPad device. <u>Limitations during device operation:</u> The device must be used within the specified operating range.

* All devices are on the 2.4 GHz ISM band.

Bluetooth Characteristics

Table 12.12 – RF Receive Section

Parameter	Test Conditions	Min	Typ	Max	Unit
Receiver sensitivity ⁽²⁾	High-gain mode		-93		dBm
Receiver sensitivity ⁽²⁾	Standard mode		-87		dBm
Saturation ⁽³⁾			6		dBm
Co-channel rejection ⁽³⁾			-5		dB
Adjacent-channel rejection ⁽³⁾	±1 MHz		-5		dB
Alternate-channel rejection ⁽³⁾	±2 MHz		30		dB
Blocking ⁽³⁾			-30		dBm
Frequency error tolerance ⁽⁴⁾	Including both initial tolerance and drift	-250		250	kHz
Symbol rate error tolerance ⁽⁵⁾		-80		80	Ppm
Spurious emission. Only largest spurious emission stated within each band.	Conducted measurement with a 50-Ω single-ended load. Complies with EN 300 328, EN 300 440 class 2, FCC CFR47, Part 15 and ARIB STD-T-66		-75		dBm
Current consumption	RX mode, standard mode, no peripherals active, low MCU activity, MCU at 250 kHz		19.6		mA
	RX mode, high-gain mode, no peripherals active, low MCU activity, MCU at 250 kHz		22.1		

(1) 0.1% BER maps to 30.8% PER

(2) The receiver sensitivity setting is programmable using a TI BLE stack vendor-specific API command. The default value is standard mode.

(3) Results based on standard gain mode.

(4) Difference between center frequency of the received RF signal and local oscillator frequency

(5) Difference between incoming symbol rate and the internally generated symbol rate

Table 12.13 – RF Transmit Section

Parameter	Test Conditions	Min	Typ	Max	Unit
Output power	Delivered to a single-ended 50-Ω load through a balun using maximum recommended output power setting		-3.88		dBm
	Delivered to a single-ended 50-Ω load through a balun using minimum recommended output power setting		-20		
Programmable output power range	Delivered to a single-ended 50-Ω load through a balun		24		dB
Spurious emissions	Conducted measurement with a 50-Ω single-ended load. Complies with EN 300 328, EN 300 440 class 2, FCC CFR47, Part 15 and ARIB STD-T-66 ⁽¹⁾		-41		dBm
Current consumption	TX mode, -23-dBM output power, no peripherals active, low MCU activity, MCU at 250 kHz		21.1		mA
	TX mode, -6-dBM output power, no peripherals active, low MCU activity, MCU at 250 kHz		23.8		
	TX mode, 0-dBM output power, no peripherals active, low MCU activity, MCU at 250 kHz		27		
	TX mode, 4-dBM output power, no peripherals active, low MCU activity, MCU at 250 kHz		31.6		
Optimum load impedance	Differential impedance as seen from the RF port (RF_P and RF_N) toward the antenna		70 + j30		Ω

(1) Designs with antenna connectors that require conducted ETSI compliance at 64 MHz should insert an LC resonator in front of the antenna connector. Use a 1.6-nH inductor in parallel with a 1.8-pF capacitor. Connector both from the signal trace to a good RF ground.

Table 12.14 – Wireless Quality of Service and Security

Device	RF Wireless Technology	Part Number	Operating Frequencies	Operating Distances	Industry Standard	Quality of Service and Security
VERITAS Vision Console	Bluetooth	Texas Instruments CC2541	2.402 to 2.480 GHz	Up to 3 meters	Bluetooth Specification version 4.0 FCC CFR47 Part 15, Subpart C “Intentional Radiators”	The VERITAS Vision Console wireless communication has low latency, high data integrity, and is robust in the presence of interference as defined by the Bluetooth specification.

Phacoemulsification Specifications

Table 12.15 – Phacoemulsification Specifications

	Phaco Power	1%-5% in 1% increments, 5-100%, in 5% increments
Peristaltic Pump	Vacuum Level	10–650 mmHg in 5 mmHg increments
	Pump Flow Rate	10-60 cc/minute
Venturi Pump	Vacuum Level	0-600 mmHg in 5 mmHg increments

Irrigation and Aspiration Specifications

Table 12.16 – Irrigation and Aspiration Specifications

Peristaltic Pump	Vacuum Level	0–650 mmHg in 5 mmHg increments
	Pump Flow	0-60 cc/minute
Venturi Pump	Vacuum Level	0-600 mmHg in 5 mmHg increments

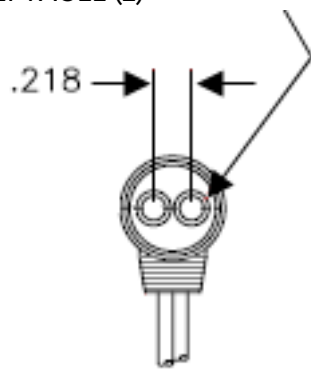
Vitrectomy Specifications

Table 12.17 – Vitrectomy Specifications

Peristaltic Pump	Vacuum Level	0–650 mmHg in 5 mmHg increments
	Pump Flow Rate	0-60 cc/minute, in 1 cc increments
Venturi Pump	Vacuum Level	0-600 mmHg in 5 mmHg increments
Atmospheric Pressure/Altitude	Density Altitude (DA) conditions are 2,500 cpm from sea level to 3,000 feet (914.4 m) elevation and shall be de-rated by 100 cpm per 1,000 ft (304.8 m) additional elevation up to a maximum of 10,000 ft (3,048 m) above sea level.	
Indicated Cut Rate	Actual Cut Rate Upper Limit (cpm)	Actual Cut Rate Lower Limit (cpm)
2500	3000	2000

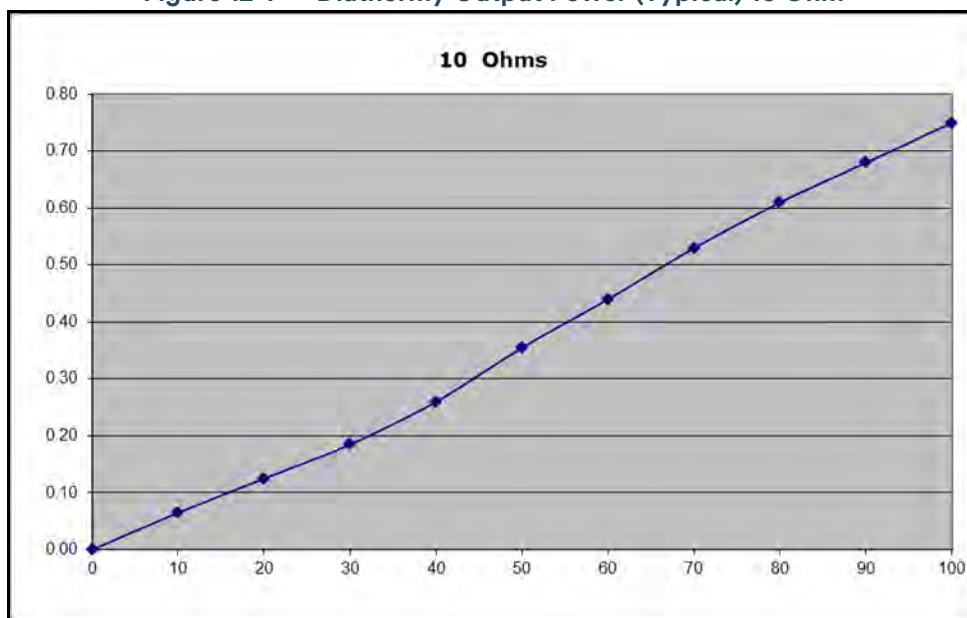
Diathermy Specifications

Table 12.18 – Diathermy Specifications

Power Adjustment	5% to 100%, in 5% increments
Diathermy Power (maximum power into rated load)	8.5 Watts into 350 Ohms 386 kHz
Maximum Output Current	0.17 Amps
Diathermy Type	Bipolar
Rated Peak Voltage	160 Volts
Power Cord Length	12 ft (3.6 m)
Connector of diathermy forcep/probe	Ø.072 RECEPTACLE (2)  All measurements are in inches.

Diathermy Power Graphs

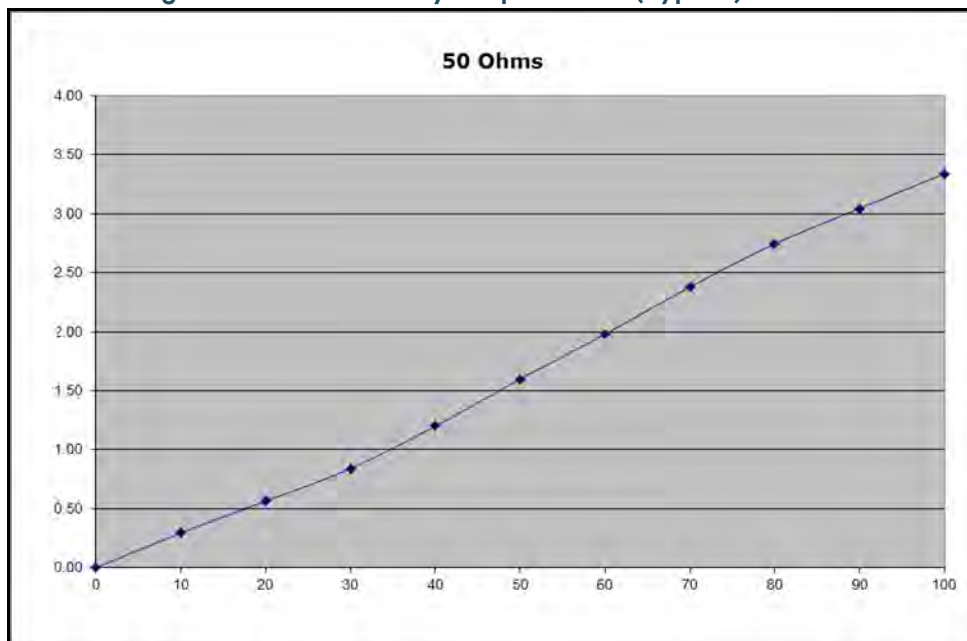
Figure 12-1 — Diathermy Output Power (Typical) 10 Ohm



Y Axis = Watts

X Axis = Settings

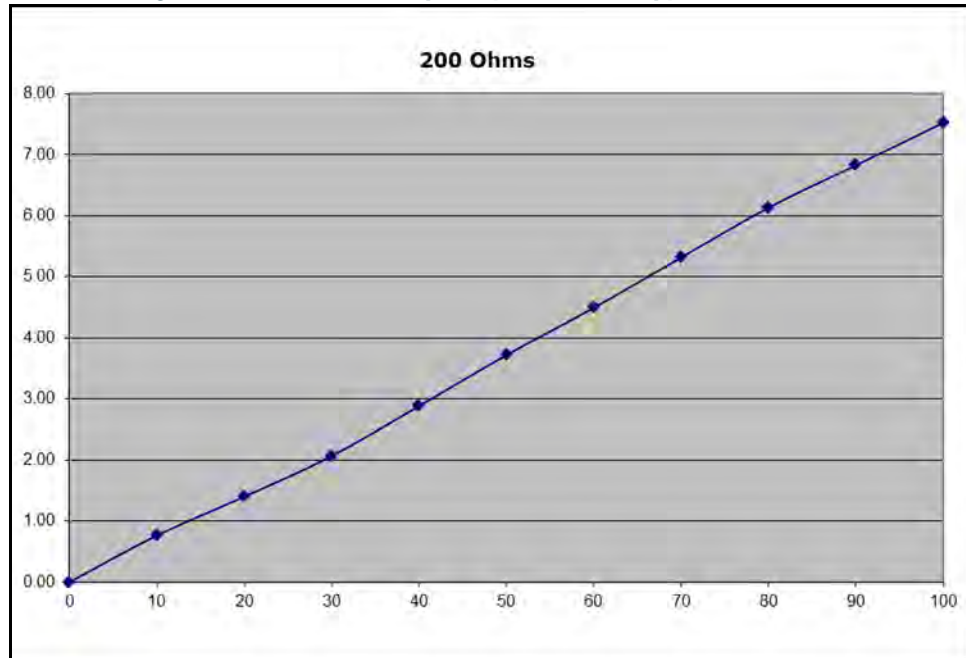
Figure 12-2 — Diathermy Output Power (Typical) 50 Ohm



Y Axis = Watts

X Axis = Settings

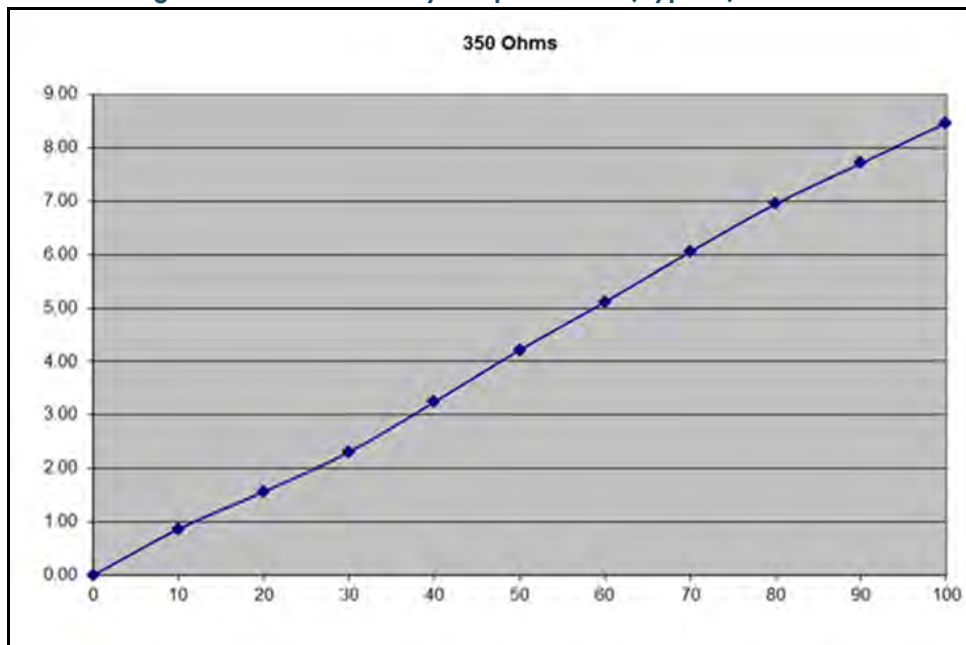
Figure 12-3 — Diathermy Output Power (Typical) 200 Ohm



Y Axis = Watts

X Axis = Settings

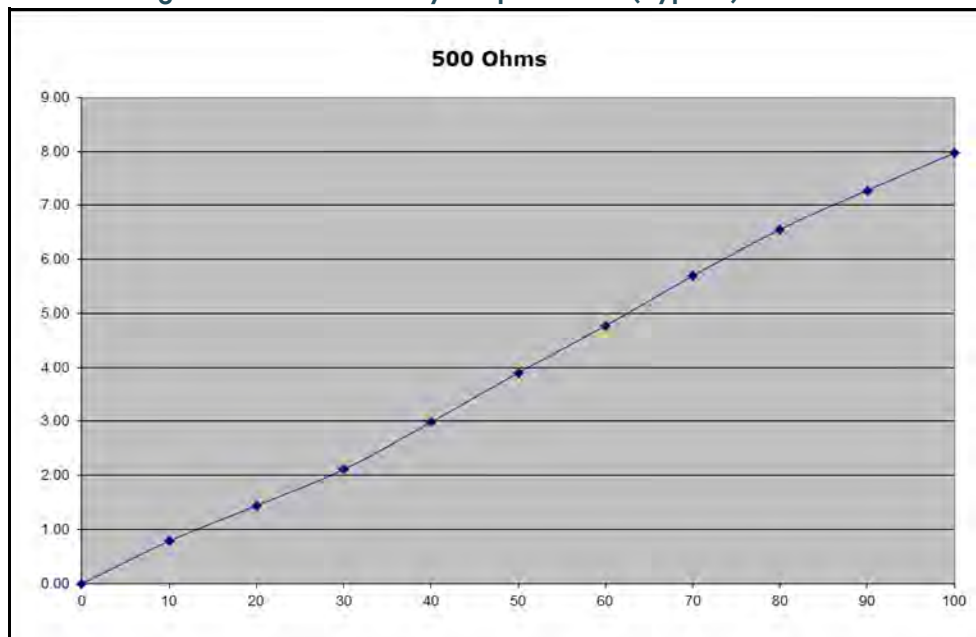
Figure 12-4 — Diathermy Output Power (Typical) 350 Ohm



Y Axis = Watts

X Axis = Settings

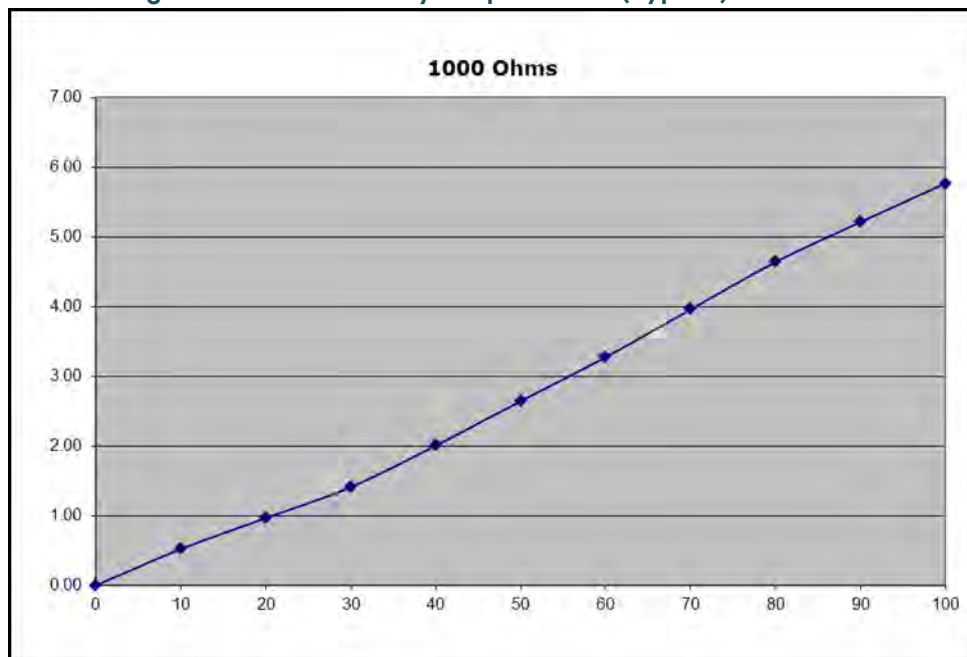
Figure 12-5 — Diathermy Output Power (Typical) 500 Ohm



Y Axis = Watts

X Axis = Settings

Figure 12-6 — Diathermy Output Power (Typical) 1000 Ohm

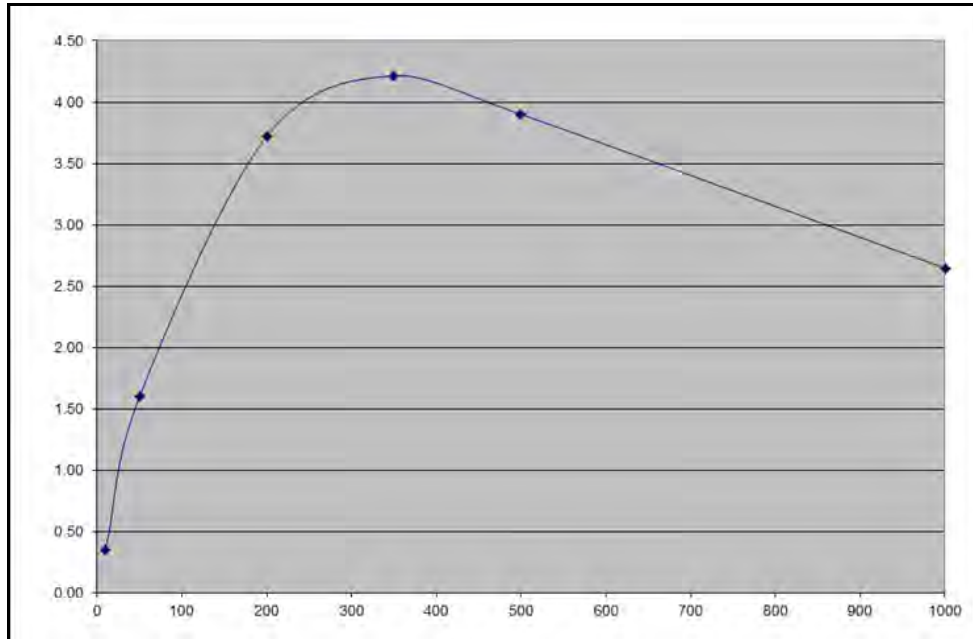


Y Axis = Watts

X Axis = Settings

Diathermy Power versus Load Impedance

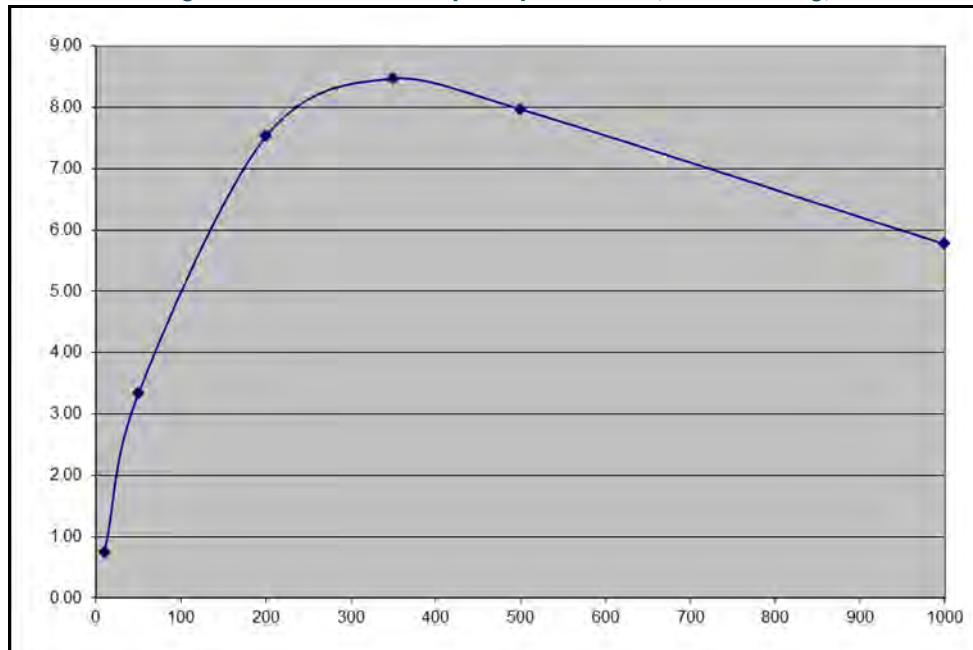
Figure 12-7 — Diathermy Output Power (50% Setting)



Y Axis = Watts

X Axis = Impedance (Ohms)

Figure 12-8 — Diathermy Output Power (100% Setting)

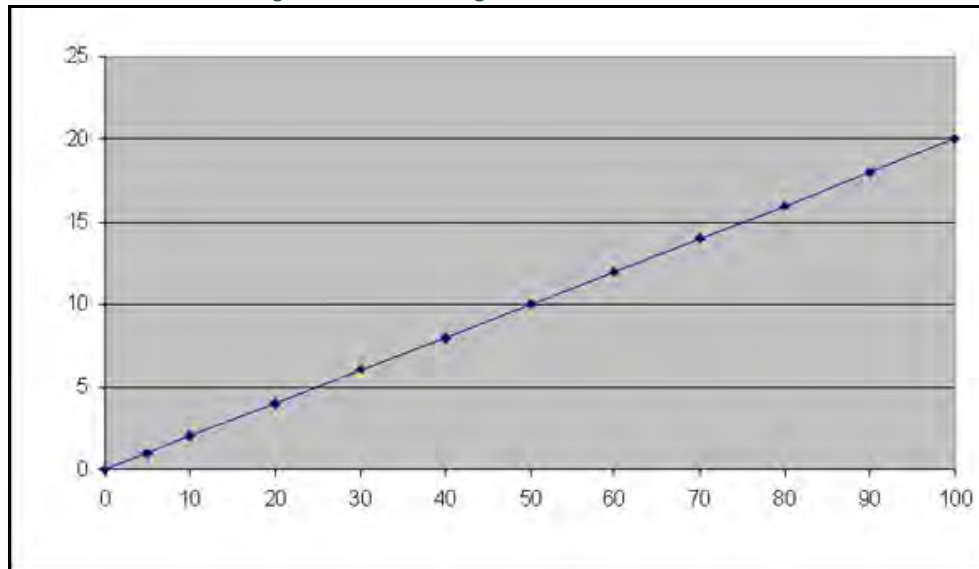


Y Axis = Watts

X Axis = Impedance (Ohms)

Phaco Power Graphs

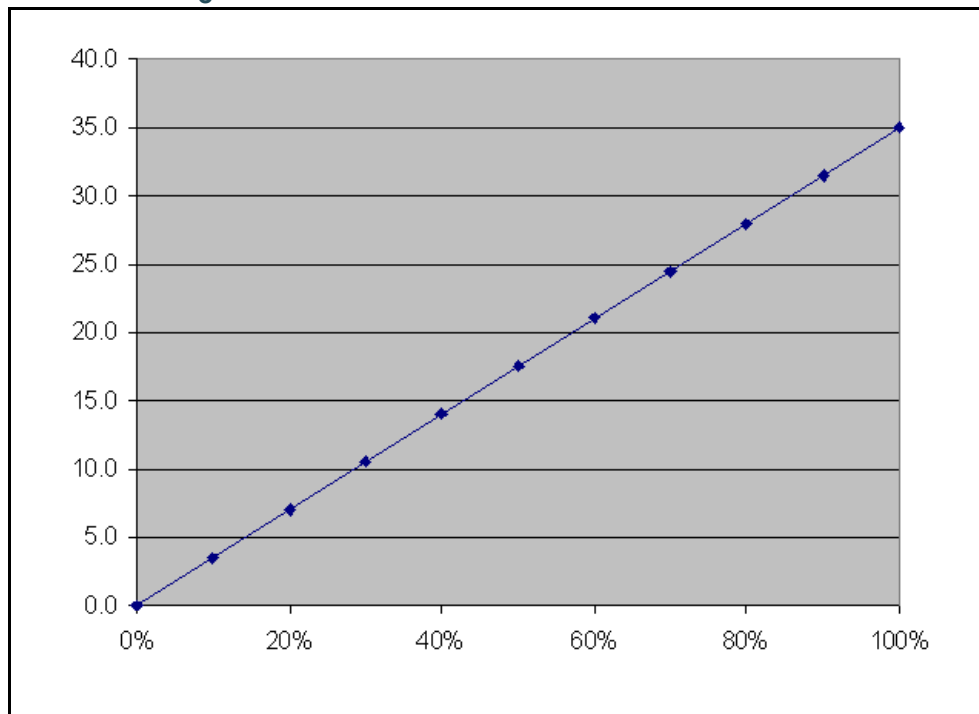
Figure 12-9 — Longitudinal Phaco Power



Y Axis = Output Power (Watts)

X Axis = GUI Settings %

Figure 12-10 — ELLIPS FX Phaco Power Linear Mode



Y Axis = Power (Watts)

X Axis = GUI Settings %

Phaco Tip Velocity

Nominal Velocity for the VERITAS Swivel handpiece, ELLIPS FX handpiece, and the WHITESTAR handpiece at 100% power, continuous, with the OPOR3020L Phaco tip is shown in the following table.

Handpiece	Nominal Longitudinal Velocity (m/s)
VERITAS FX (VRT691027 (A))	8.85
ELLIPS FX (690880 (A))	8.85
WHITESTAR (690697 (A))	11.13

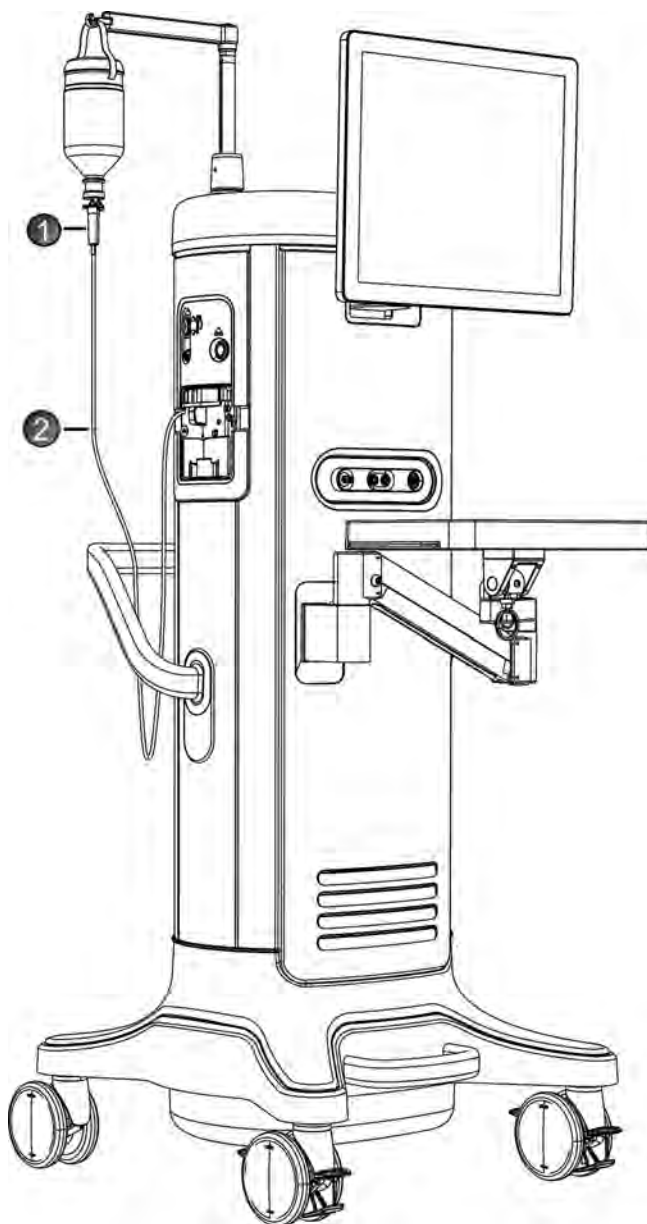
Bottle Height Pressure

The VERITAS Vision System has a built in IV pole to generate positive pressure using balanced salt solution to provide positive irrigation fluid.

Measurement points:

- All measurements are taken with a pressure meter at the same height as the pressure sensor in the VERITAS Vision System.
- This position is defined as 42.5 inches or 108 cm from the floor.

Figure 12-11 — VERITAS Vision System



1. Center of Drip Chamber
2. Center of pressure sensor is 42.5 inches or 108 cm from the floor

If Advanced Infusion is enabled, the irrigation pressure will be 30 cmH₂O (22.1 mmHg) greater than the physical IV Pole height. The effective bottle height will be displayed on screen.

Table 12.19 – Effective Irrigation Pressure as a Function of Bottle Height

Bottle Height (cm)	Pressure not using Advanced Infusion (mmHg)	Advanced Infusion Pressure (mmHg)
0	0.0	22.1
20	14.8	36.9
40	29.6	51.7
60	44.4	66.5
80	59.2	71.3
100	74.0	96.1
105	77.7	99.8

13 — Accessories and Parts Reordering

Table 13.1 – VERITAS Vision System Part Number

Name	Description	Part number
VERITAS™ Vision Console	An ophthalmic microsurgical system.	VRT680300

List of Accessories with Part Numbers

The following table is a list of accessories that you can use to reorder parts for your VERITAS Vision System. Your JJSV representative can advise you of recommended inventory levels based your facility's volume of phacoemulsification procedures. You can order any of the items listed below through your JJSV representative or directly through JJSV customer service. Your JJSV representative can confirm the availability of these items in your area.

Accessories and Parts List

System Accessories	Part Number	Description
Phaco Handpiece	VRT691027	VERITAS Swivel Phaco Handpiece (Type BF Applied Parts)
	690880	ELLIPS™ FX Phaco Handpiece (Type BF Applied Parts)
	690697	WHITESTAR™ Phaco Handpiece (Type BF Applied Parts)
	OPOR0019L	19 Gauge LAMINAR™ Flow Phaco Tip, 0° Round Tip
	OPOR1519L	19 Gauge LAMINAR Flow Phaco Tip, 15° Round Tip
	OPOR3019L	19 Gauge LAMINAR Flow Phaco Tip, 30° Round Tip
	OPOR4519L	19 Gauge LAMINAR Flow Phaco Tip, 45° Round Tip
	OPOF0019L	Flared Laminar Flow Phaco Tip 0°
	OPOF3019L	Flared Laminar Flow Phaco Tip 30°
	OPOR0020L	20 Gauge LAMINAR Flow Phaco Tip, 0° Round Tip
	OPOR1520L	20 Gauge LAMINAR Flow Phaco Tip, 15° Round Tip
	OPOR3020L	20 Gauge LAMINAR Flow Phaco Tip, 30° Round Tip
	OPOR4520L	20 Gauge LAMINAR Flow Phaco Tip, 45° Round Tip
	OPOCR3019L	Disposable LAMINAR Flow Phaco Tip, 19 Gauge, 30° Curved
	OPOCR3020L	Disposable LAMINAR Flow Phaco Tip, 20 Gauge, 30° Curved
	OPOCR4520L	20 GA CURVED PT 45D INFS DISPOSABLE
	OPOCR3020R	20 GA Curved Phaco Tip, Reusable
	OPOCR4520R	20 GA CURVED PHACO TIP 45D INFS REUSABLE
	OPOS19L	19 Gauge LAMINAR Flow Irrigation Sleeve and Test Chamber
	OPOS20L	20 Gauge LAMINAR Flow Infusion Sleeve and Test Chamber
	OPOD20L	Disp LAM Flow Infus Slv/TC 20G

System Accessories	Part Number	Description
	OPOM20LD	20G MICRO LAMINAR SLEEVE & TEST CHAMBER
	OPOM20L	OPOM20L PHACO SLEEVE & TC
	OPOHF20L	20G LD LAMINAR FLOW SLEEVE & TEST CHAMBER
	OPOHF21L	21G HIGH FLOW LAM SLEEVE & TEST CHAMBER
	OPOS21L	OPOS21L PHACO SLEEVE & TC
	OPOS21LD	PKG ASSY, OPOS21LD 21GA IRRIGATION
	OPOR0021R	21GA LAMINAR Phaco Tip 0D SL Reusable
	OPOR0021G	21GA LAMINAR Phaco Tip 0D SL
	OPOR1521R	21GA LAMINAR Phaco Tip 15D SL Reusable
	OPOR1521G	21GA LAMINAR Phaco Tip 15D SL
	OPOR3021R	21GA LAMINAR Phaco Tip 30D SL Reusable
	OPOR3021G	21GA LAMINAR Phaco Tip 30D SL
	OPOR4521R	21GA LAMINAR Phaco Tip 45D SL Reusable
	OPOR4521G	21GA LAMINAR Phaco Tip 45D SL
	OPOCR3021L	LAMINAR FLOW PHACO CVD TIP 30D 21G INFSL
	OPOCR4521L	LAMINAR FLOW PHACO CVD TIP 45D 21G INFSL
	OPOCR3021R	LMNR FLOW PHACO CVD TIP 30D 21G SL REUSE
	OPOCR4521R	LMNR FLOW PHACO CVD TIP 45D 21G SL REUSE
	OPOF3020R	LMNR FLW Phaco FLRD Tip 30D 20G SL Reuse
	OPOF4520R	LMNR FLW Phaco FLRD Tip 45D 20G SL Reuse
	OPOMTWL	LAMINAR Flow Tip Wrench
I/A Handpiece	OPOIA20CRV	SOLO I/A Handpiece, 20 Ga., Curved Silicone Sleeve Tip
	OPOIA2045D	SOLO I/A Handpiece, 20 Ga., 45° Silicone Sleeve Tip
	OPOIA20STR	SOLO I/A Handpiece, 20 Ga., Straight Silicone Sleeve Tip
	OPOIA20KIT	SOLO I/A Handpiece Kit
	OM055002	PHACOFIT™ Titanium Handle
	OM05510110	PHACOFIT I/A Tip Curved 0.5 mm Port
	OM05510112	PHACOFIT O-Ring's I/A Tip (5PK)
	OM05510113	PHACOFIT Titanium, Multi-Tip Set
	OM05510114	PHACOFIT Cleaning/Flushing Kit
	OM05510115	PHACOFIT Tip, Luer Adapter (Aspiration)
	OM05510116	PHACOFIT Tip, 45 Degree Silicone (No Sleeve)
	OM0551011	PHACOFIT I/A Tip Straight 0.3 mm Port
	OM0551012	PHACOFIT I/A Tip Curved 0.3 mm Port
	OM0551013	PHACOFIT I/A Tip 45 Degree 0.3 mm Port
	OM0551014	PHACOFIT I/A Tip 90 Degree 0.3 mm Port
	OM0551015	PHACOFIT I/A Tip Binkhorst 0.3 mm Port

System Accessories	Part Number	Description
	OM0551016	PHACOFIT I/A Tip Straight SI 0.3 mm Port
	OM0551017	PHACOFIT I/A Luer Adapter, F/F
	OM0551018	PHACOFIT I/A Tip Curved, SI, 0.3 mm Port
	OM0551019	PHACOFIT I/A Tip Straight 0.5 mm Port
	OM0551020J	PHACOFIT Athlete I/A Tip Straight Type
	OM0551021J	PHACOFIT Athlete I/A Tip 45 Degree Type
	DUA02020	DUET STARTER KIT, 20GA
	DU02100	DUET ASPIRATION HANDLE
	DU02200	DUET IRRIGATION HANDLE
	AHP-0001	ALLEGRO Handpiece
	BRT-1031	MST Barrett V2, 21g, straight, capsule polish, 0.3mm port
	BRT-1032	MST Barrett V2, 21g, bent, capsule polish, 0.3mm port
	DU-02354	22g curved Irrigator, Closed Ended
	DU-02355	22g Curved Aspiration .3mm Port
	MA345	45° Angled I/A Tip
	MA390	90° Angled I/A Tip
	MBT306	Binkhorst I/A Tip
	MCT302	Curved I/A Tip
	MFR-0001	MAESTRO Flush Kit Replacement
	MH311	InterTip Round I/A handle
	MHP-0001	MAESTRO I/A Handpiece
	MK-0001	MAESTRO I/A Kit
	MOR310	Multi Tip O Ring Set
	MOR310	Multi-Tip Sterilization Tray
	MST301	Straight I/A Tip
	PT-30630	MST Dewey Radius S2 PH Tip, 30D 6/box
	PT-30730	MST Dewey Radius S2 Bent PH Tip, 30D 6/box
	S-IA-02020-6	Soft I/A Straight six pack
	S-IA-02021-6	Soft I/A Curved six pack
	S-IA-02022-6	Soft I/A 45 deg six pack
	TI-98431	MST Barrett V2, 21g, straight, capsule polish, 0.3mm port for PhacoFit
	TI-98432	MST Barrett V2, 21g, bent, capsule polish, 0.3mm port for PhacoFit
	TW-20001	MST Metal Wrench
	DU02335	DUET MST Fine/Nagahara Tip
	ASP-0001-P	I/A HP Purple Sleeve, 19G Disp
	ASP-0001-R	I/A HP Red Sleeve, 20G Disp
	AT-0001-R	ALLEGRO Single Use Silicone I/A Tip

System Accessories	Part Number	Description
Diathermy Handpiece	SCP680600	Diathermy Power Cable
	K121085	Bipolar Forceps, Curved Iris 0.5 mm Tip
	K147000	18 Gauge Straight Diathermy Pencil, reusable
Vitreotomy Cutter	NGP0020	20 gauge Vitreous Cutter (includes irrigation sleeve)
	NGP0023	23 gauge Vitreous Cutter
	NGP0025	25 gauge Vitreous Cutter
Tubing Packs	OPO73	FUSION™ Dual Pump Tubing Pack (disposable, sterile)
	VRT-AF	VERITAS Advanced Fluidics Tubing Pack (disposable, sterile)
	VRT-AI	VERITAS Advanced Infusion Tubing Pack (disposable, sterile, pressurized infusion)
VERITAS Remote Control	VRT680135	VERITAS Vision System Remote Control
Foot Pedal	VRT680700	VERITAS Foot Pedal
	NGP680701	Single Linear Foot Pedal
	NGP680702	Advanced Control Pedal
	NGP680703	Advanced Linear Foot Pedal
	0100-1835	AC Charger, Wireless Foot Pedal
	0100-0055	CABLE ASSY, FOOT PEDAL (Single Linear Foot Pedal and Advanced Control Pedal)
	0100-6303	CABLE ASSY, FOOT PEDAL (VERITAS Foot Pedal and Advanced Linear Pedal)
	4006-0023T	LI-BATTERY, VERITAS Foot Pedal, and Advanced Linear Pedal
Miscellaneous	2410-0165	Power cord, hospital grade, 20 ft., 6.1 meters (North America)
	OM05510114	I/A Cleaning Kit
	0100-8750	VERITAS Vision System Dust Cover
	MSR309	Sterilization Tray
	0100-7403	VERITAS Heel Insert

Index

Numerics

- 19 Gauge Program
 - IA, Vitrectomy, and Diathermy Settings 6-14
 - Phaco Settings 6-13
- 20 Gauge Program
 - IA, Vitrectomy, and Diathermy Settings 6-16
 - Phaco Settings 6-15
- 21 Gauge Program
 - IA, Vitrectomy, and Diathermy Settings 6-18
 - Phaco Settings 6-17

A

- Add a Surgeon 5-2
- Advanced Control Pedal 1-9, 3-8, 3-10, 8-4, 12-2
 - Calibration 5-30
 - Connections 5-24
 - Default Settings 5-24
 - Setup 5-23
 - Switch Assignment 5-24
 - Testing 5-30
 - Threshold Configuration 5-28
- Advanced Fluidics Tubing Pack 3-5
- Advanced Infusion 1-7
 - Fluidics Pack 3-6
- Advanced Linear Pedal 1-9, 3-8, 3-10
 - Battery Replacement 10-3, 10-4
 - Connections 5-32
 - Handle 3-11
 - Setup 5-31
 - Switch Assignment 5-32
 - Test 5-38
 - Threshold Configuration 5-36
- Anterior chamber too deep 10-7
- Anterior Segment
 - Surgery 4-1
- Aspiration
 - Specifications 12-19
- Aspiration Rate
 - Occlusion 6-30
- Assign Order
 - Program 6-6
 - Surgeon 5-41

B

- Backup All 7-20
- Balance
 - Irrigation/Aspiration 4-17
- Battery
 - Charging 5-24, 5-32, 10-5
 - Replacement
 - VERITAS Foot Pedal and Advanced Linear Pedal 10-3
 - VERITAS Remote Control 10-4
- Begin Tune 4-16
- Bottle Height
 - Phaco 6-13, 6-15, 6-17
- Bypass 4-14, 4-18

C

- Calibrate
 - Foot Pedal
 - Advanced Control Pedal 5-30
 - Single Linear 5-13
- CASE Mode 6-33
- CASE One Touch 1-9, 6-35
- CASE Vacuum 6-34
- Caution
 - defined 1-3
- Chamber partially collapses 10-8
- Chamber Stabilization Environment (CASE) 1-9
- Charging
 - Battery 5-24, 5-32, 10-5
- Charging Wireless Devices 10-4
- Checkout
 - System 4-20
- Cleaning/Care 9-1
- Common Problems 10-1
- Compliance Statements 2-10
- Connections
 - Advanced Control Pedal 5-24
 - Advanced Linear Pedal 5-32
 - Front Panel 4-2
 - Rear Panel 4-3
 - Single Linear Foot Pedal 5-8
 - VERITAS Foot Pedal 5-16
- Console Dimensions 12-1
- Cont. Irr. Auto-Off 1-6, 5-4, 5-6
- Continuous Burst 6-19
 - Phaco Power 6-21
- Continuous Irrigation 1-6, 4-14
 - Cup Fill 4-14

Continuous Phaco Power 6-20

Copy a Program 6-5

Cup Fill 4-13, 4-14

Custom Duty Cycles 6-23

Cutter

Vitrectomy 4-10

D

Database

Delete Backup Database 7-25

Export 7-17

Import 7-19

Import/Export 7-17

Restore 7-21, 7-25

Date and Time

Set 7-15

Default Settings 6-13

Foot Pedal

Advanced Control Pedal 5-24

Single Linear 5-8

IA, Vitrectomy, and Diathermy 19 Gauge

Program 6-14

IA, Vitrectomy, and Diathermy 20 Gauge

Program 6-16

IA, Vitrectomy, and Diathermy 21 Gauge

Program 6-18

Phaco 19 Gauge Program 6-13

Phaco 20 Gauge Program 6-15

Phaco 21 Gauge Program 6-17

Delete

Backup Database 7-25

Database 7-25

Program 6-4

Surgeon 5-3

DIA (Diathermy) 1-8

Diagnostics 10-1

Diathermy 1-8

Forceps 4-9

Handpiece 4-9, 9-2

Part Numbers 13-4

Output Power 12-24

Dimensions 12-1, 12-2

Disposal 2-11

Dual Pump 1-6

Dual Pump Tubing Pack 3-7

Duty Cycles 6-21

E

Edit

Surgeon 5-3

Effective Phaco Time 4-23

Electrical

Specifications 12-3

ELLIPS FX Handpiece 1-10, 4-7, 4-8

End Case 4-22

Environmental

Specifications 12-3

EPT 4-23

Error Messages 10-1

Export Database 7-17

F

Failed to pair 10-6

Feedback

Foot Pedal 5-8

Fluid

Using too much fluid 10-8

Fluidics 1-9

Fluidics Mode

Phaco 6-13, 6-15, 6-17

Foot Pedal 1-9, 3-7

Advanced Control Pedal 3-10, 8-4

Calibrate 5-30

Connections 5-16, 5-24

Default Settings 5-24

Setup 5-23

Switch Assignment 5-16, 5-24

Testing 5-30

Threshold Configuration 5-20, 5-28

Advanced Linear Pedal

Configuration 5-36

Connections 5-32

Setup 5-31

Test 5-38

Feedback 5-8

Heel Insert 3-14

Modes

Vitrectomy 6-10

Operation 3-12

Part Number 13-4

Pitch 3-12

Pitch Regions 5-8

Positions 6-23

Setup 5-6

- Single Linear 1-9, 1-10, 3-8
 - Calibration 5-13
 - Default Settings 5-8
 - Setup 5-7
 - Switch Assignment 5-8
 - Testing 5-13
 - Threshold Configuration 5-12
- Single Linear Foot Pedal 3-9, 3-10
- Storage 3-13
- VERITAS Foot Pedal 3-9, 5-16
- Wireless Setup 7-4

Forceps

- Diathermy 4-9

Front Panel Connections 4-2

Fuse

- Replacement 10-2

FUSION 6-33

FUSION button 6-29

FUSION Dual Pump Tubing Pack 3-7

FUSION Fluidics 1-6, 6-27, 6-33

FUSION Tubing Pack 3-4, 13-4

G

Graphic User Interface 1-6

Graphs

- Phaco Power 12-25

GUI 1-6

H

Handle

- Advanced Linear Pedal 3-11

Handpiece

- Cleaning 9-2

- IA 4-9

- Phaco 4-6, 4-8

- Setup

- Diathermy 4-9

- I/A 4-9

- Phaco 4-5, 4-7

- Vitrectomy 4-10

- Warranty 11-1

Heel Insert 3-14

High Power

- Limit 6-26

High Power Pulse

- Phaco Power 6-21

I

IA

- Handpiece 4-9

IAC 6-10

ICA 6-10

ICE Pulse Shaping

- WHITESTAR Technology 6-26

Import Database 7-19

Import/Export Database 7-17

Incident Reporting 2-13

Inspection Instructions 3-1

Install Tubing Cassette 4-12

Irrigation

- Continuous 4-14

- Flow does not stop 10-7

Irrigation/Aspiration (I/A) 1-8

- Balance 4-17

IV Pole

- Does not work 10-6

- Programmable 3-15

- Setup 4-4

- Testing 7-2

K

Kick 6-26

L

LAMINAR Flow 4-9

Language Selection 7-12

Locked Program 6-5

Long Pulse

- Phaco Power 6-20

- Power 6-19

Low Power

- Limit 6-26

Low Power Pulse

- Phaco Power 6-20

Lower Threshold 6-34

M

Maintenance 11-2

Maximum Height

- IV Pole 7-1

Maximum Vacuum 6-27

Mayo Tray Drape 3-4

Miscellaneous Part Numbers 13-4

MMP (Multiple Mode Programming) 1-7

Modes
 Changing Parameters 4-19
Monitor Drape 3-4
Multiple Burst
 Phaco Power 6-21
 Power 6-19
Multiple Mode Programming 1-7

N

No aspiration 10-8
No diathermy or poor diathermy 10-9
No phacoemulsification 10-9
No sound when using diathermy 10-10
No vitrectomy cutting 10-10

O

Occluded Aspiration Rate 6-28
Occlusion
 Aspiration Rate 6-30
 Vacuum Threshold 6-30
Occlusion Mode Phaco 1-11
 Settings 6-28
One Touch
 CASE 6-35
Operating Modes 1-8
Output Power
 Diathermy 12-24

P

Pairing
 VERITAS Remote Control 10-5
 Wired 7-8
 Wireless 7-4, 7-7
Panel
 Front 4-2
 Rear 4-3
Parameter Settings
 WHITESTAR Technology 6-22
Parameters
 Programming 1-7
Pencil Probe
 Diathermy 4-9
Percent Kick
 High End of Range 6-26
 Low End of Range 6-26

Peristaltic Pump 6-7, 6-8, 6-9, 6-10, 6-13, 6-15, 6-17, 12-19

Phaco

 Default Settings 6-13, 6-15, 6-17
 Handpiece 4-5, 4-7
Phaco Handpiece 1-10, 4-5, 4-6, 4-7, 4-8, 9-1
 Part Numbers 13-1

Phaco Power

 Continuous 6-20
 Graph 12-25
Phacoemulsification 1-8, 4-5, 4-7, 10-9
Physical Specifications 12-1

Pitch 3-12

Pitch Regions

 Foot Pedal 5-8
Poor aspiration 10-8
Poor phacoemulsification 10-9

Positions

 Foot Pedal 3-12

Power

 Continuous Burst 6-19
 Long Pulse 6-19
 Multiple Burst 6-19
 Short Pulse 6-19
 Single Burst 6-19
 Switch 10-1

Precautions

 Safety 2-1

Prime

 Bypass 4-14
Prime/Tune 1-6, 4-14

Priming

 Vitrectomy 4-18

Program

 Assign Order 6-6
 Delete 6-4
 Lock 6-5
 Locked 6-5
 Select 4-10

Program Name

 Edit 6-5
Programmable IV Pole 1-7, 3-15
 Setup 4-4
 Specifications 12-2
 Testing 7-2

Pulse

- Off Time 6-22
- On time 6-22
- Pulses per second 6-20
- Rate 6-22

Pulse Shaping 6-25

R

- Rear Panel Connections 4-3
- Reduced/insufficient irrigation flow 10-7
- Reflux 6-35
- Regulatory Compliance Statements 2-10
- Remote Control
 - Battery Replacement 10-4
- Replacing
 - Batteries 2-5
 - VERITAS Foot Pedal and Advanced Linear Pedal 10-3
 - VERITAS Remote Control 10-4
- Fuse 10-2
- Reporting
 - Serious Incidents 2-13
- Reset
 - Timers 4-17, 4-21
- Restore All 7-23
- Restore Database 7-21
- Restriction of Hazardous Substances 2-12
- RF Wireless Technology
 - Specifications 12-10

S

- Selecting a Language 7-12
- Self Test 4-10
- Serious Incident Reporting 2-13
- Service Interval 7-17
- Set Sound Levels 5-39
- Set Vacuum Units 1-8
- Settings
 - Occlusion Mode 6-28, 6-31
- Setup
 - Advanced Control Pedal 5-23
 - Surgical Media Center (SMC) 7-13
 - System 4-1
- Short Pulse
 - Phaco Power 6-20
 - Power 6-19

Shutdown

- Sequence 4-26
- System 4-26

Side vitrectomy 6-10

Single Burst

- Phaco Power 6-21
- Power 6-19

Single Linear Foot Pedal 3-9

- Calibration 5-13
- Connections 5-8
- Default Settings 5-8
- Setup 5-7
- Switch Assignment 5-8
- Testing 5-13
- Threshold Configuration 5-12

Sleep Mode 10-6

SMC (Surgical Media Center) 3-17

Software Versions 7-10

SOLO Handpiece 4-9

Sounds

- Set Sound Levels 5-39

Specifications

- Electrical 12-3
- Environmental 12-3
- Fuse 10-2
- IA 12-19
- IV Pole 12-2
- Phacoemulsification 12-19
- Physical 12-1
- Vitrectomy 12-20

Startup 4-10

Status 10-10

Sterilization 4-22

Storage Conditions 12-3

Surgeon

- Add 5-2, 6-1
- Assign Order 5-41
- Copy 6-5
- Edit 5-3
- Settings
 - Edit 5-4

Surgical Media Center (SMC) 3-17

- Setup 7-13

Switch Assignment

- Advanced Control Pedal 5-24
- Advanced Linear Pedal 5-32
- Single Linear Foot Pedal 5-8
- VERITAS Foot Pedal 5-16

Symbol Definitions 8-1

System

- Checkout 4-20
- Components 3-1
- Console 1-6
- Disposal 2-11
- Does not turn on 10-5
- Self Test 4-10
- Set Date and Time 7-15
- Shutdown 4-26
- Startup 4-10

T

Tap for Irrigation 5-6

Test

- Advanced Control Pedal 5-30
- Advanced Linear Pedal 5-38
- Foot Pedal
 - Single Linear 5-13
- System 7-11
- VERITAS Foot Pedal 5-22
- VERITAS Remote Control 7-10

Test Chamber 3-4, 13-1

Threshold

- Vacuum 6-30

Threshold Configuration

- Advanced Control Pedal 5-20, 5-28
- Advanced Linear Pedal 5-36
- Single Linear Foot Pedal 5-12
- VERITAS Foot Pedal 5-20

Time and Date

- Set 7-15

Timers

- Reset 4-17

Touchscreen

- Cleaning 9-2
- Using 4-19

Troubleshooting 10-1, 10-5

Tubing Cassette 3-4

- Install 4-12

Tubing Packs 3-4

- FUSION Dual Pump Tubing Pack 3-7
- VERITAS Advanced Fluidics Tubing Pack 3-5
- VERITAS Advanced Infusion Fluidics Pack 3-6

Tune 4-14

- Begin 4-16

U

Ultrasonic (U/S) Time 4-23

Units of Measure

- Set units of measure for vacuum 7-16

Unpair 10-6

Up Time

- Threshold 6-34

Upper Threshold 6-34

V

Vacuum

- Monitoring 6-27
- Set units of measure 7-16

Vacuum units 1-8

Venting

- Occlusion 6-33

Venting Strength 5-6

Venturi Pump 6-7, 6-8, 6-9, 6-10, 6-13, 6-15, 6-17, 6-34, 12-19

VERITAS Advanced Fluidics Tubing Pack 3-5

VERITAS Advanced Infusion Fluidics Pack 3-6

VERITAS Foot Pedal 1-9, 3-9, 5-16

- Battery Replacement 10-4

- Connections 5-16

- Heel Insert 3-14

- Setup 5-15

- Switch Assignment 5-16

- Test 5-22

- Threshold Configuration 5-20

VERITAS Heel Insert 3-14

VERITAS Remote Control 1-9, 2-10, 3-15

- Battery Replacement 10-4

- Does not pair 10-5

- Pairing 7-9

- Part Number 13-4

- Storage 3-17

- Test 7-10

VERITAS Swivel Handpiece 1-10, 4-5, 4-6

VERITAS Vision System 3-2

- Components 3-1

- Maintenance 11-2

- Physical Specifications 12-1

Vitrectomy 1-8, 4-10

- Advanced Control Pedal Modes 5-24

- Foot Pedal Modes 5-8

- Handpiece 4-10

- Prime 4-18

W

Wake-up 3-8
Warranty 11-1
WEEE Symbol 2-11
WHITESTAR Handpiece 1-10
WHITESTAR Technology 1-10, 6-21
Wired Pairing 7-8

Wireless Devices

Charging Options 10-4
Wireless Foot Pedal Setup 7-4
Wireless Pairing 7-4, 7-7

Y

Yaw 3-12

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