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CENTURION® VISION SYSTEM
OPERATOR'S MANUAL**

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PREFACE

This operator's manual is your written guide to the *Centurion®* Vision System and considers all options available to the customer; therefore, when reading this manual, ignore the options which do not apply to your specific unit.

Please read the entire manual carefully before operating the instrument. Recommended settings are given only as guidelines, and are not meant to restrict the surgeon; however, before trying other settings, the surgeon and support personnel should be experienced with the system and familiar with the new settings.

NOTE: If an inconsistency exists between the instructions in the operator's manual and the Directions For Use (DFU) supplied with a consumable pack or accessory, follow the DFU.

Equipment improvement is an on-going process and, as such, changes may be made to the equipment after this manual is printed.

Pay close attention to Warnings, Precautions, Cautions, and Notes in this manual. A Warning statement is written to protect individuals from bodily harm. A Precautionary statement is action taken in advance to protect against possible danger, failure, or injury; a safeguard. A Caution statement is written to protect the instrument from damage. A Note is written to bring attention to highlighted information.

If you have questions, or want additional information, please contact your local Alcon representative or the Alcon Technical Services Department at:

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CAUTION: U.S. Federal Law restricts this device to sale by or on the order of a physician.

SECTION ONE GENERAL INFORMATION

OVERVIEW OF *CENTURION®* VISION SYSTEM

Alcon's *Centurion®* Vision System is an ophthalmic surgical instrument designed to provide for cataract lens extraction using the CENTURION® *OZil®* handpiece and the INFINITI® *OZil®* handpiece.

The *Centurion®* Vision System is intended for use in small incision cataract lens extraction and IOL injection surgical procedures. This system allows the surgeon to emulsify and aspirate the lens in the eye, while replacing aspirated fluid and lens material with balanced salt solution. This process maintains a stable (inflated) eye chamber volume. Using system controls, the surgeon regulates the amount of power applied to the handpiece tip, the rate of aspiration, vacuum, and the flow of *BSS®* irrigating solution. The system includes a footswitch to enable the surgeon to control flow of fluidics, aspiration rate, phaco power, vitrectomy cut rate, IOL injection rate, anterior capsulotomy, and coagulation power.



Figure 1-1 The *Centurion®* Vision System

Key Features of the *Centurion®* Vision System

- Customized cataract lens removal options:
 - High performance CENTURION® *OZil®* handpiece with ultrasonic torsional oscillations which can be used exclusively, combined, or alternated with traditional phaco.
 - High performance INFINITI® *OZil®* handpiece with ultrasonic torsional oscillations which can be used exclusively, combined, or alternated with traditional phaco.
- Advanced fluidics with quick, smooth control of aspiration.
- Advanced *Active Fluidics™* technology with quick, smooth control of irrigation flow, controlled via the front panel, footswitch, or remote control..
- Automated IV pole for traditional gravity fluidics, controlled via the front panel, footswitch, or remote control..
- Programmable IOP target setting.
- Fully programmable, multi-microprocessor control.
- Modularized fluidic connections with disposable Fluidic Management System (FMS).
- Emulation of venturi-like fluidic performance.
- Power assisted IOL insertion by way of lightweight, autoclavable *AutoSert®* handpiece.
- Ability to drive a high performance CENTURION® *UltraVit®* vitrectomy guillotine cutter.
- Bipolar coagulation capability.
- Capsulotomy using the INTREPID® capsulotomy device (ICD, future accessory).
- Several traditional modalities of ultrasonic power control including continuous, pulsed, and burst application of ultrasonic power, as well as duty cycle management.
- Wireless linear footswitch control of ultrasonic power in phaco steps (sophisticated control loop offers low-end control).
- Wireless linear footswitch control of aspiration flow rate in I/A, vit, and lens removal steps.
- Wireless linear footswitch control of vacuum in I/A, vit, and lens removal steps.
- Wireless linear footswitch control of IOL insertion.
- On-demand continuous irrigation.
- Programmable, pressurized reflux via the footswitch.
- Ability to set IOP, vacuum levels, and aspiration flow rates to desired levels in phaco, I/A, and vit steps.
- Ability to switch between surgical steps using touch screen, remote control, or footswitch.
- Emission of variable tones for confirmation of system operational status.
- Voice confirmation during surgical step or mode changes.
- Articulating flat screen: active matrix color LCD with touch screen.
- High-tech graphical user interface.
- Multi-channel IR remote control.

Indications For Use

The *Centurion®* Vision System is indicated for emulsification, separation, irrigation, and aspiration of cataracts, residual cortical material and lens epithelial cells, vitreous aspiration and cutting associated with anterior vitrectomy, bipolar coagulation, and intra-ocular lens injection. The *AutoSert®* IOL Injector Handpiece is intended to deliver qualified *AcrySof®* intraocular lenses into the eye following cataract removal.

The *AutoSert®* IOL Injector Handpiece achieves the functionality of injection of intraocular lenses. The *AutoSert®* IOL Injector Handpiece is indicated for use with *AcrySof®* lenses SN60WF, SN6AD1, SN6AT3 through SN6AT9, as well as approved *AcrySof®* lenses that are specifically indicated for use with this inserter, as indicated in the approved labeling of those lenses.

The *Centurion®* Vision System, including accessories approved by Alcon, constitutes a complete surgical system and is intended exclusively for use by licensed ophthalmic surgeons and their surgical teams. These surgical teams are experienced at conducting phacoemulsification procedures in a properly maintained surgical environment (qualified personnel, availability of backup equipment) and are familiar with the operation of the equipment used as outlined in operator's manuals and directions for use (setup/checkout procedures to be completed before the surgical procedure; processing of reusable devices; maintenance; etc.).

Patient selection for use with the *Centurion®* Vision System (such as age, ophthalmic pathology, and other factors) is determined by the surgeon. The general patient age can range from newborn to geriatric, although there have been studies that have identified the mean age of patients that underwent cataract surgery was 72.32 yrs - men and 74.89 yrs - women.¹

Intended Use Environments

The *Centurion®* Vision System is intended for use in hospitals and ambulatory surgery centers.

Phaco Handpiece Note

Throughout the rest of this manual the CENTURION® *OZil®* handpiece and the INFINITI® *OZil®* handpiece will be referred to as phaco handpieces, unless one or the other must be referred to exclusively.

Trademark Note

A button, mode, or step labeled *OZil®*, *AutoSert®*, or UltraChop refers to a display screen control used with a phaco handpiece, INTREPID® *AutoSert®* IOL injector, or ALCON® *UltraChopper®* tip, respectively.

Abbreviation Descriptions

Many of the abbreviations used in this manual and on the *Centurion®* Vision System are described in Table 1-6. Icons are identified in Figure 1-2.

Accessory Equipment

Accessory equipment connected to or used with this equipment must be certified according to the respective IEC Standard (e.g., IEC 60950-1 for data processing equipment, and IEC 60601-1 for medical equipment). Furthermore, all configurations shall comply with clause 16 of IEC 60601-1:2005 (as amended). Anyone connecting additional equipment or otherwise

1. "Age and sex profile of patients having cataract surgery between 1986 and 2003"
Philip O'Reilly, FRCOphth, U. Mahmoud, FRCOphth, P. Hayes, FRCOphth, P. Tormey, FRCOphth, S. Beatty, MD.
Journal of Cataract Refractive Surgery 2005; 31:2162-2166

causing a different system configuration than provided by Alcon is responsible for continued compliance to the requirements of clause 16 of IEC 60601-1:2005 (as amended). If in doubt, consult the Technical Services department or your local Alcon representative.

Follow local governing ordinances and recycling plans regarding disposal or recycling of device components and packaging.

User Information – Environmental Considerations

The equipment that you have purchased requires the use of natural resources for its production and operation. This equipment may also contain hazardous substances which could have potential effect on the environment and human health if disposed of improperly.

In order to avoid the entry of any such substances into our environment, and to promote natural resource conservation, please install, maintain, and operate the equipment in accordance with the instructions. Information on the location of hazardous substances, resource consumption and emissions of the equipment can be found throughout this Operator's Manual. Please use the appropriate take-back systems. Such take-back systems reuse or recycle many of the materials in your end-of-life equipment in a beneficial way. Please contact your local Alcon office for assistance in take-back options through Alcon or other providers.

The crossed-bin symbol located on this equipment reminds you to use take-back systems, while also emphasizing the requirement to collect waste equipment separately, and not dispose of it as unsorted municipal waste. The Pb notation, if present, indicates that the labeled device contains greater than 0.004% lead.



Pb

If you need more information on the collection, reuse or recycle systems available to you, please contact your local or regional waste administration, or contact your local Alcon office for more information.

Universal Precautions

Universal precautions shall be observed by all people who come in contact with the instrument and/or accessories to help prevent their exposure to blood-borne pathogens and/or other potentially infectious materials. In any circumstance, wherein the exact status of blood or body fluids/tissues encountered are unknown, it shall be uniformly considered potentially infectious and handled in accordance with OSHA or your own national guidelines.

EMC Statements

It is important to install and use the equipment in accordance with the instructions in order to prevent harmful interference with other devices in the vicinity. If this equipment causes harmful interference to other devices (determined by turning equipment off and on), the user is encouraged to try to correct interference by one or more of the following measures:

- Reorient or relocate the other device(s).
- Increase the distance between the equipment.
- Connect this equipment into an outlet on a circuit different from that to which the other device(s) is connected.
- Consult the manufacturer or your Alcon field service engineer for help.

Users should be aware of known RF sources, such as radio or TV stations and hand-held or mobile two-way radios, and consider them when installing a medical device or system.

Portable and mobile RF communications equipment such as cellular telephones can affect medical electrical equipment (see Table 1-3 for recommended separation distances).

Be aware that adding accessories or components, or modifying the medical device or system, may degrade the EMI performance. Consult with qualified personnel regarding changes to the system configuration.

WARNINGS!

The use of accessories, transducers, and cables other than those specified, with the exception of transducers and cables sold by Alcon as replacement parts for internal components, may result in increased emissions or decreased immunity of the system.

The system should not be used adjacent to, or stacked with, other equipment; and that if adjacent to or stacked use is necessary, the system should be observed to verify normal operation in the configuration in which it will be used.

MAGNETIC AND ELECTRICAL INTERFERENCE - Magnetic and electrical fields are capable of interfering with the proper performance of the device. For this reason make sure that all external devices operated in the vicinity of the device comply with the relevant EMC requirements. X-ray equipment, magnetic resonance tomography (MRT), nuclear magnetic resonance (NMR), or magnetic resonance imaging (MRI) devices are possible sources of interference as they may emit higher levels of electromagnetic radiation. See the Magnetic Resonance Unsafe icon in Figure 1-2.

Table 1-1 Guidance and Manufacturer's Declaration - Electromagnetic Emissions - The Centurion® Vision System is intended for use in the electromagnetic environment specified below. The customer or the user of the Centurion® Vision System should assure that it is used in such an environment.

Emissions Test	Compliance	Electromagnetic Environment-Guidance
RF emissions CISPR 11	Group 1	The Centurion® 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	The Centurion® Vision System is suitable for use in all establishments other than domestic and those directly connected to a low voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	The EMC Statement provides guidance on steps to take in case of electromagnetic interference.
Voltage fluctuations/ Flicker emissions IEC 61000-3-3	Complies	

Table 1-2 Guidance and Manufacturer's Declaration - Electromagnetic Immunity - The Centurion® Vision System is intended for use in the electromagnetic environment specified below. The customer or the user of the Centurion® Vision System should assure that 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	<ul style="list-style-type: none"> • ± 6 kV contact • ± 8 kV air 	<ul style="list-style-type: none"> • ± 6 kV contact • ± 8 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	<ul style="list-style-type: none"> • ± 2 kV for power supply lines • ± 1 kV for input/output lines 	<ul style="list-style-type: none"> • ± 2 kV for power supply lines • ± 1 kV for input/output lines 	Mains power quality should be that of a typical hospital (including ambulatory surgery center) environment. To avoid pre-mature shutdown due to fast transients avoid powering the Centurion® Vision System on the same branch circuit with sources that can generate fast transients (inductive switching; e.g., high current motors).
Surge IEC 61000-4-5	<ul style="list-style-type: none"> • ± 1 kV differential mode • ± 2 kV common mode 	<ul style="list-style-type: none"> • ± 1 kV differential mode • ± 2 kV common mode 	Mains power quality should be that of a typical hospital (including ambulatory surgery center) environment.
Voltage dips, short interruptions, and voltage variations on power supply input lines IEC 61000-4-11	<ul style="list-style-type: none"> • $< 5\% U_T (> 95\% \text{ dip in } U_T)$ for 0.5 cycle • $40\% U_T (60\% \text{ dip in } U_T)$ for 5 cycles • $70\% U_T (30\% \text{ dip in } U_T)$ for 25 cycles • $< 5\% U_T (> 95\% \text{ dip in } U_T)$ for 5 s 	<ul style="list-style-type: none"> • $< 5\% U_T (> 95\% \text{ dip in } U_T)$ for 0.5 cycle • $40\% U_T (60\% \text{ dip in } U_T)$ for 5 cycles • $70\% U_T (30\% \text{ dip in } U_T)$ for 25 cycles • $< 5\% U_T (> 95\% \text{ dip in } U_T)$ for 5 s 	Mains power quality should be that of a typical hospital (including ambulatory surgery center) environment. If the use of the Centurion® Vision System requires continued operation during power mains interruptions, it is recommended that the Centurion® Vision System be powered from an uninterruptible power supply with a minimum rating of 1200VA.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical hospital (including ambulatory surgery center) environment.
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Centurion® Vision System, including cables, than the recommended separation distance calculated from the equation applicable to the frequency to the transmitter.</p> <p>Recommended separation distance:</p> $d = 1.2\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = 2.3\sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ <p>where P is the maximum output power rating to the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strength from fixed RF transmitters, as determined by an electromagnetic site survey^a, should be less than the compliance level in each frequency range^b.</p> <p>Interference may occur in the vicinity of equipment marked with following symbol.</p> 

Note: U_T is the a.c. mains voltage prior to application of the test level.

Note 1: At 80 MHz and 800 MHz, the higher frequency range applies.

Note 2: 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) and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To access 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 (equipment or system) is used exceeds the applicable RF compliance level above, the (equipment or 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 Centurion® Vision System.

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

Table 1-3 Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Centurion[®] Vision System - The Centurion[®] Vision System is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Centurion[®] Vision System can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Centurion[®] 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 rates 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.

Note 1 - At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2 - These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Equipment Contains Radio Transmitters

The *Centurion®* Vision System is a medical device designed for Indoor Use Only, that incorporates short-range frequency radio transmitters for use solely by the *Centurion®* system for communication with system components. These short-range frequency radio transmitters meet the EU and AFTA countries requirements. They are also FCC; IC; R&TTE 1999/5/EC and Japanese Radio Law compliant.

- ZigBee Radio Modular (Communication link with Footswitch, SGS and Media Center)
 - Frequency or frequency band of transmission: 2.405 – 2.480 GHz
 - Type and frequency characteristics of the modulation: OQPSK (Offset quadrature phase-shift keying)
 - The Effective Radiated Power (ERP): 12.91 dBm (19.54 mW)
- Wireless LAN device (Optional)
 - Frequency or frequency band of transmission: 2.412 – 2.484 GHz and 5.180 - 5.700 GHz
 - Type and frequency characteristics of the modulation: OFDM, DSSS, CCK, DQPSK, DBPSK, 64 QAM, 16 QAM
 - The Effective Radiated Power (ERP): 17.09 dBm (51.17 mW)
- Wireless Footswitch Charger
 - Frequency or frequency band of charging transmission: 50 kHz
 - Frequency or frequency band communication transmission: 115 kHz
 - Type and frequency characteristics of the modulation: FSK (Frequency Shift Keying)
 - The Effective Radiated Power (ERP): -14.89 dBm (53.18 µW)

USA – Federal Communications Commission (FCC)

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.

CAUTION

Change or modifications made to this equipment (including antenna) not expressly approved by Alcon may void the FCC authorization to operate this equipment.

FCC Radiation Exposure Statement

CAUTION

To ensure that the radio transmitter complies with current FCC regulations limiting both maximum output RF power and human exposure to radio frequency radiation, a separate distance of at least 20 cm must be maintained between the unit's antenna and the body of the user and any nearby persons at all times, and unit's antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

Canada – Industry of Canada (IC)

This device complies with Industry Canada licence-exempt RSS standards. 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.

Cet appareil est conforme aux normes d'Industrie Canada RSS exemptes de licence. Son fonctionnement est soumis aux deux conditions suivantes: (1) Cet appareil ne doit pas provoquer d'interférences nuisibles, et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

Transmitter Antenna:

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation de l'industrie du Canada, cet émetteur de radio ne peut être utilisé qu'avec un type d'antenne approuvé pour l'émetteur par Industrie Canada et seulement avec une valeur de gain inférieur ou égale au gain maximum approuvé par Industrie Canada. Pour réduire les risques potentiels d'interférence à autrui, le type d'antenne et son gain doivent être choisis de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas la valeur qui est nécessaire pour une communication réussi.

Exposure of Humans to RF Fields:

This device complies with the RF exposure limits for humans as called out in RSS-102.

Cet appareil est conforme aux limites d'exposition RF pour les êtres humains comme elles le sont notifiées dans la norme RSS-102.

Europe – R&TTE Directive 99/5/EC

This device complies with the requirements of the Council Directive 99/5/EC (R&TTE).

CAUTION

The radio equipment is intended to be used in all EU and AFTA countries. Outdoor use may be restricted to certain frequencies and/or may require a license for operation. Contact local Authority for procedure to follow.

PRECAUTION: Combinations of power levels and antennas resulting in a radiated power of above 100 mW equivalent isotropic radiated power (e.i.r.p) are considered as not compliant with the above mentioned directive and are not allowed for use within the European community and countries that have adopted the European R&TTE directive 1999/5/EC.

For more details on legal combinations of power levels and antennas, contact Alcon Compliance.

Japan

This device complies with Japanese Radio Law.

Table 1-4 Information on the Location of Hazardous Substances in the Centurion® Vision System - The Centurion® Vision System contains hazardous substances which could have potential effect on the environment and human health if disposed of improperly.

Material Location	Hazardous Substances Contained
Printed Circuit Board Assembly	Lead, Polybrominated Biphenyls (PBB)
Other Electrical / Electronic Device	Lead, Polybrominated Biphenyls (PBB)
Cable Assembly	Lead
Power Supply	Lead, Polybrominated Biphenyls (PBB)
Host PC Module	Lead, Polybrominated Biphenyls (PBB)
Liquid Crystal Display	Lead
Battery	Lead, Lithium, Zn/MnO ₂
IV Pole Assembly	Lead, Polybrominated Biphenyls (PBB)
Remote Control	Lead
Fluidics Assembly	Lead
Pneumatic Assembly	Lead

WARNINGS AND CAUTIONS

Many of these warnings are stated elsewhere in this manual; however, for easy reference they are repeated in greater detail here. If additional information is required, please contact your local Alcon service representative, or the Technical Services Department.

There are no user serviceable components inside the *Centurion®* Vision System console or footswitch. Refer all service issues to your factory-trained Alcon service engineer.

WARNINGS!

To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth (ground).

The *Centurion®* Vision System battery can only be serviced by a factory-trained Alcon service engineer. Access by untrained personnel can lead to injury.

A qualified technician must perform a visual inspection of the following components every twelve months:

- Warning Labels (see Figure 1-3)
- Power Cord
- Fuses

In case of a deficiency, do not use the system; call Alcon Technical Services.

A qualified technician must check ground continuity and leakage current every twelve months to ensure they are within the limits of the applicable standards (for example: EN60601-1/IEC60601-1). Values must be recorded, and if they are above the limits of the applicable standards, or 50 % above initial measurement, do not use the system; call Alcon Technical Services.

If the *Centurion®* Vision System is used at the 220 V - 240 V range in the United States or Canada, it should be used on a center-tapped, 240 V single phase circuit.

Console isolation from mains is achieved through a two pole power switch. Turn OFF power switch or unplug the power cord from wall outlet to achieve isolation from mains.

Do not use the *Centurion®* Vision System near flammable anesthetics.

Do not exceed maximum capacity of drain bag (500 ml). Excessive pressure can result from exceeding drain bag maximum capacity and potentially result in a hazardous condition for the patient.

Inadvertent actuation of Prime or Tune while a handpiece is in the eye can create a hazardous condition that may result in patient injury.

Keep clear of display base when raising display from stored position to prevent skin, hair, and /or clothing from being trapped at the base.

The maximum allowable load on the instrument tray is 20 lb. (9 kg).

Place the instrument tray in the stored position prior to transportation to avoid a situation that could cause the system to tip.

Console might overbalance when it is pushed and its wheels are immobilized (blocked).

Route the footswitch cable, power cord and any other cables connected to the *Centurion®* Vision System to avoid tripping.

WARNINGS!

Appropriate use of Centurion® Vision System parameters and accessories is important for successful procedures. Use of low vacuum limits, low flow rates, low bottle heights, high power settings, extended power usage, power usage during occlusion conditions (beeping tones), failure to sufficiently aspirate viscoelastic prior to using power, excessively tight incisions, and combinations of the above actions may result in significant temperature increases at incision site and inside the eye, and lead to severe thermal eye tissue damage.

Good clinical practice dictates testing for adequate irrigation, aspiration flow, reflux, and operation as applicable for each handpiece prior to entering eye.

Ensure that the tubings are not occluded during any phase of operation.

If the handpiece test chamber is collapsed after tuning, there is a potential of low irrigation flow through the handpiece and may result in a fluidic imbalance. This, in turn, may cause a shallowing or collapsing of the anterior chamber.

Avoid setting the patient above the FMS unless PEL is used. Operating with the patient above the FMS without PEL adjustment will result in a lower irrigation pressure than indicated on the display, and possible underventing.

Use of BSS® irrigating fluid bags other than those approved by Alcon for use in the Active Fluidics™ system can result in patient injury or system damage.

Use of appropriate technique and settings is important to minimize fragments and turbulence.

Do not remove the FMS during the surgical procedure.

In the event of a system error release footswitch to the up position.

Improper handling or removal of dual irrigation handpiece tip from eye may cause draining of the fluidics system.

CAUTIONS

- Modification of the equipment is NOT allowed without prior authorization from the manufacturer. If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of the equipment.
- Avoid spilling BSS® irrigating solution, or moisture of any kind, around the electrical handpiece connectors.
- Do not spray any liquid (i.e. cleaning solution or water) upward into the console vents.
- Do not push or pull the unit by the display, the instrument tray, or the IV pole. Wrapping around the rear and sides of the system is a handle provided for moving the instrument. The unit should be pulled and not pushed, especially over elevator and door thresholds.

Phaco Handpiece Care

Phaco handpieces are surgical instruments and must be handled with care. The handpiece tip should not touch any solid object while in operation. Immediately following surgery the handpiece must be thoroughly cleaned. Be sure handpiece connector is completely dry before connecting it to console. For cleaning and sterilization procedures, see the Directions for Use (DFU) supplied with the handpiece.

WARNINGS!

If in the medical opinion of the physician a patient with a prion related disease undergoes a high risk procedure, the instrument should be destroyed or be processed according to local requirements.

Use of a phaco handpiece in the absence of irrigation flow and/or in the presence of reduced or lost aspiration flow and/or sideways orientation of the Kelman[®] and OZi[®] 12 tips can cause excessive heating and potential thermal injury to adjacent eye tissues.

Appropriate use of Centurion[®] Vision System parameters and accessories is important for successful procedures. Use of low vacuum limits, low flow rates, low bottle heights, high power settings, extended power usage, power usage during occlusion conditions (beeping tones), failure to sufficiently aspirate viscoelastic prior to using power, excessively tight incisions, and combinations of the above actions may result in significant temperature increases at incision site and inside the eye, and lead to severe thermal eye tissue damage.

Use of an ultrasonic handpiece other than an OZi[®] torsional handpiece, or use of a handpiece repaired without Alcon authorization, is not permitted, and may result in patient injury, including potential shock hazard to patient and/or operator.

The U/S tips supplied in the Centurion[®] Vision System pack are only to be used on an OZi[®] torsional handpiece. Each U/S tip is intended to be used only once per case, and then disposed of according to local governing ordinances.

Mismatching U/S tips and infusion sleeves may create potentially hazardous fluidic imbalances.

Directing energy toward non-lens material, such as iris or capsule, may cause mechanical and/or thermal tissue damage.

Perform visual inspection of accessories for burs or bent tips prior to use.

Use of appropriate technique and settings is important to minimize fragments and turbulence.

CAUTIONS

Never ultrasonically clean the phaco handpiece; irreparable damage may result.

Prior to sterilization, the phaco handpiece should always have the connector end cap secured and placed in the sterilization tray. This will prevent damage to the connectors and handpieces during handling, and especially during autoclaving.

The phaco handpiece and INTREPID® AutoSert® IOL Injector must be at room temperature just before use. Allow the handpiece to air cool for at least 15 minutes after autoclaving; never immerse the handpiece in liquid when hot.

Do not operate the phaco handpiece unless the tip is immersed in *BSS*® sterile irrigating solution or distilled water or is in surgical use. Irreparable damage to the handpiece and tip can result if run dry.

Ensure that test chamber is filled with *BSS*® sterile irrigating solution before tuning the phaco handpiece. Tuning a handpiece dry may result in premature tip failure and breakage.

Quenching a hot handpiece in water can cause damage and will void warranty.

Be sure handpiece is completely dry before connecting it to console. Damage to handpiece and console may result if plugged in when wet.

Phaco Handpiece Tips

Ensure that handpiece tip is fully tightened to the handpiece. If not securely attached, an error may be generated and/or inadequate tuning will occur. Ensure that the tip is not too tight so that it can be removed after use.

Use of a tool other than tip wrenches supplied by Alcon may cause damage to the tip and/or handpiece.

WARNING!

Poor clinical performance will result if tip is not secured tightly to the handpiece.

During any ultrasonic procedure, metal particles may result from inadvertent touching of the ultrasonic tip with a second instrument. Another potential source of metal particles resulting from any ultrasonic handpiece may be the result of ultrasonic energy causing micro abrasion of the ultrasonic tip.

Ultraflow™* II I/A Handpiece

Prior to each procedure inspect the two O-rings where the tip screws onto the Ultraflow™* II I/A handpiece. If damaged or missing, replace the o-rings. If in doubt, contact Alcon's Technical Services Department.

WARNINGS!

Use of non-Alcon surgical reusable or disposable I/A handpieces that do not meet Alcon surgical specifications, or use of an Alcon handpiece not specified for use with the Centurion® Vision System, may result in a fluidic imbalance. This, in turn, may cause a shallowing or collapsing of the anterior chamber.

Exceeding the recommended level of 100 mmHg (133 hPa) with a 0.5 mm or larger I/A tip may cause anterior chamber shallowing and/or incarceration or tearing of posterior capsule.

I/A tips are not to be used with a phaco handpiece.

Recommended Vacuum Range for I/A Tips

It is important that only the proper size I/A tip be used when operating with maximum vacuum. Only 0.2 mm or 0.3 mm I/A tips should be used with vacuum limits above 100 mmHg (133 hPa). I/A adjustable vacuum range is 0 - 700 mmHg (0 - 933 hPa).

Centurion® Vitrectomy Probe

The vitrectomy probe, a guillotine vitreous cutter, is intended for single use only.

Vitrectomy cutting performance may vary at high altitudes. Consult Alcon Technical Service for additional information.

WARNINGS!

Do not test or operate vitrectomy probe unless tip of probe is immersed in BSS® sterile irrigating solution or distilled water or is in surgical use. Irreparable damage to the probe and tip can result if run dry.

Perform visual inspection of accessories for burs or bent tips prior to use.

Connect pneumatic tubing connectors from vitrectomy probe to console prior to initiating prime of probe. Initiating prime of the vitrectomy probe, or running the vitrectomy system, with one or both pneumatic connectors disconnected may cause the flow of non-sterile air over the sterile field for a brief moment.

Do not use vitrectomy probes that are not approved for use on Centurion® system.

After filling and testing, and before surgical use, verify that the probe is properly actuating and aspirating. This may require lowering cut rate to achieve good visualization. The port should always remain in open position in footpedal position 1. If cutting port is partially closed while in position 1, replace the probe. Prior to entry into the eye, and with tip of probe in sterile irrigating solution, the surgeon should step on the footpedal for visual verification that the probe is cutting:

- If the cutter is observed to not fully close, or does not move when the probe is actuated, replace the probe.**
- If cutting port is partially closed while idle, replace the probe.**
- If air bubbles are observed in the aspiration line or exiting the probe tip during priming, replace the probe.**
- If a reduction of cutting capability or vacuum is observed during the surgical procedure, stop immediately and replace the probe.**

INTREPID® AutoSert® IOL Injector

CAUTIONS

- Do not ultrasonically clean the *AutoSert*® IOL Injector connector. Ultrasonic cleaning will cause irreparable damage.
- Use care when handling *AutoSert*® IOL Injector, particularly when cleaning. Always clean handpiece over a surface cushioned with a pad or rubber mat.
- Be sure handpiece cable connector is dry before connecting it to the console.
- Do not disconnect cable connector from *Centurion*® system console until the IOL Injector plunger is fully retracted.
- Do not immerse the *AutoSert*® IOL Injector in any fluid when the plunger is not retracted.
- As part of a properly maintained surgical environment, it is recommended that a backup IOL injector be made available in the event the *AutoSert*® IOL injector handpiece does not perform as expected.

WARNINGS!

- The INTREPID® *AutoSert*® IOL Injector is non-sterile and must be cleaned and sterilized prior to, and immediately after, each use.
- Never immerse the IOL injector in liquid after autoclaving; allow it to air cool for at least 15 minutes. Quenching could result in a potentially hazardous condition for the patient.
- The *AutoSert*® IOL Injector delivery system is for the implantation of Alcon qualified AcrySof® foldable IOLs. Unqualified lenses shall not be used with the system. See INTREPID® *AutoSert*® IOL Injector DFU or AcrySof® IOL DFU, or contact your Alcon representative, for qualified lens/cartridge combinations.
- The cartridge/IOL combination listed in the DFU, along with Alcon settings, has been validated per section 5 of BS EN ISO 11979-3:2006. Appropriate use of injector handpiece settings is important for successful IOL implantation. Inappropriate use of settings may lead to a potentially hazardous condition for the patient.
- Fully retract plunger before detaching nosecone from *AutoSert*® IOL Injector; otherwise, this could expose non-sterile portion of shaft and result in a potentially hazardous condition for the patient.
- For the intended IOL to be implanted, the proper Cartridge profile must be selected from the driving console, and the proper plunger must be attached to the *AutoSert*® IOL Injector. Failure to do so can result in a potentially hazardous condition for patient.
- The metal reusable plunger must be sterilized after each use. The reusable plunger is to be installed onto the handpiece or into the wrench prior to sterilization.

Aspiration/Vacuum Adjustments

Adjusting aspiration rates or vacuum limits above the preset values may result in aspiration levels (volumes) exceeding irrigation inflow.

WARNING!

Adjusting aspiration rates or vacuum limits above the preset values, or lowering the IOP or IV pole below the preset values, may cause chamber shallowing or collapse which may result in patient injury.

Presurgical Check-out Tests

Presurgical check-out tests must be performed as outlined in Section Three of this manual (Operating Instructions). If an Event message is displayed on the front panel, refer to the Troubleshooting section of this manual. If the problem persists, DO NOT PROCEED.

WARNINGS!

When filling handpiece test chamber, if stream of fluid is weak or absent, good fluidics response will be jeopardized. Good clinical practice dictates the testing for adequate irrigation and aspiration flow prior to entering the eye.

Ensure that tubings are not occluded or pinched during any phase of operation.

Perform visual inspection of accessories for burrs or bent tips prior to use.

IV Pole

WARNINGS!

Keep clear of the IV pole when it is in motion to prevent skin, hair, and/or clothing from being trapped in the IV pole mechanism. The IV pole moves during power on/off, priming, and bottle height adjustment.

IV pole rises automatically. To avoid stretching drip chamber tubing, and possibly pulling drip chamber out of bottle, tubing must hang freely with no interference.

When out of use, remove fluid bottle from IV pole and flip bottle hanger into its storage position to avoid injury.

Empirical numbers for bottle heights are not a replacement for competent surgical technique. The surgeon should visually and physically monitor intraocular pressure.

Footswitch

If required, the footswitch may be wiped with alcohol, mild soap and water, or any germicidal solution that is compatible with the plastic parts.

WARNING!

Route the footswitch cable properly to avoid tripping.

CAUTIONS

Do not clean the footswitch using solvents, abrasives, or any cleaner that is not compatible with plastic parts made of LEXAN EXL9112. Damage may result.

Never pick up or move the footswitch by the cable. Dropping or kicking the footswitch can cause irreparable damage.

Occlusion Tones

Two different occlusion tones (intermittent beeping tones during occlusion) indicate that the vacuum is near or at its preset limit, and aspiration flow is reduced or stopped to avoid exceeding the limit. The first type, the I/A occlusion tone, sounds when occlusion occurs during aspiration only (in the absence of ultrasonic power). The I/A occlusion tone is a lower, intermittent single beep. The second type of occlusion tone, the phaco occlusion tone, is a higher, intermittent double beep, and sounds when occlusion occurs during application of ultrasonic power.

The I/A occlusion and phaco occlusion tones indicate that the vacuum has reached its maximum allowed preset value. The I/A occlusion tone can be turned off, while the phaco occlusion tone cannot be turned off.

WARNINGS!

The phaco occlusion bell indicates no aspiration flow. Use of high phaco settings and/or prolonged use may lead to thermal injury.

Use of the phaco handpiece in the absence of irrigation flow and/or in the presence of reduced or lost aspiration flow can cause excessive heating and potential thermal injury to adjacent eye tissues.

In the event of a persistent loss of aspiration during the application of phaco power, remove phaco power via footswitch control.

Vacuum Tone

A vacuum tone is provided. The pitch will vary relative to the amount of vacuum. A high vacuum can indicate that little to no flow is occurring. This tone can be reduced in volume, but not turned off.

WARNINGS!

A moderate to high vacuum tone may indicate little to no flow is occurring. Use of the phaco handpiece in the absence of irrigation flow and/or in the presence of reduced or lost aspiration flow can cause excessive heating and potential thermal injury to adjacent eye tissues.

Do not exceed maximum capacity of drain bag (500 ml). Excessive pressure in drain bag can result from exceeding its maximum capacity and potentially result in a hazardous condition for the patient.

In the event of a persistent loss of aspiration during the application of phaco power, remove phaco power via footswitch control.

Cautery, Diathermy, Coagulation Definition

The *Centurion®* Vision System uses the word “Coagulation” in place of Cautery or Diathermy, based on the following definition:

Coagulation - Isolated, bipolar, high frequency current supplied to conductors (e.g. forceps). Current passes between these electrodes, halting bleeding. (Abbreviated “Coag” in some of the text of this operator’s manual.)

Coagulation Function

Listed below are general precautions to be followed when using the Coagulation function:

- To ensure safe operation of the coagulation function, only approved cables and accessories must be used (See your Alcon representative). Coagulation performance can be guaranteed only when using Alcon components or Alcon-endorsed components.
- To reduce the risk of accidental burns, caution should always be taken when operating high-frequency surgical equipment.
- Interference produced by the operation of high-frequency surgical equipment may adversely influence the operation of other electronic equipment.
- Accessories should be checked regularly; electrode cables should particularly be checked for possible damage to the insulation.
- Operation of the coagulation step is limited to extraocular uses only.
- The lowest power level in coagulation step should always be selected for the intended purpose.
- Skin-to-skin contact (for example between the arms and body of the patient) should be avoided, for example by insertion of dry gauze.
- When HF (high frequency) surgical equipment and physiological monitoring equipment are used simultaneously on the same patient, any monitoring electrodes should be placed as far as possible from the surgical electrodes. Needle monitoring electrodes are not recommended.
- In all cases, monitoring systems incorporating high frequency current-limiting devices are recommended.
- The cables to the surgical electrodes should be positioned in such a way that contact with the patient or other leads is avoided.
- Temporarily unused active electrodes should be stored so that they are isolated from the patient.
- The use of flammable anaesthetics or oxidizing gases such as nitrous oxide (N_2O) and oxygen should be avoided if a surgical procedure is carried out in the region of the thorax or the head, unless these agents are sucked away.
- Non-flammable agents should be used for cleaning and disinfection wherever possible.
- Flammable agents used for cleaning or disinfecting, or as solvents of adhesives, should be allowed to evaporate before the application of HF surgery. Some materials, for example cotton, wool and gauze, when saturated with oxygen may be ignited by sparks produced in normal use of the HF surgical equipment.
- Accessories should have a rated voltage equal to or greater than the maximum coagulation output voltage.

WARNINGS!

Do not use the coagulation function on patients with pacemakers or implanted defibrillatory devices. If electrosurgery is used on patients with implanted cardiac pacemakers or defibrillatory devices or pacemaker electrodes, be aware that irreparable damage to the pacemaker or defibrillatory device and its function may occur and lead to ventricular fibrillation. Please check with the pacemaker or defibrillatory device manufacturers for their recommendations.

Failure of the HF surgical equipment (coagulation circuitry) could result in an unintended increase of output power.

VideOverlay System

WARNINGS!

**Do not remove VideOverlay cover; there are no user-serviceable parts inside.
Refer servicing to qualified service personnel.**

Do not simultaneously touch the VideOverlay enclosure and the patient.

CAUTIONS

- **Do not use multiple portable socket outlets with this system.**
- **Use only the Alcon-supplied serial cable to connect the *Centurion*[®] Vision System to the VideOverlay System.**

Consumable Packs

Consumable items used with the *Centurion®* Vision System during surgery are designed to be used once and then discarded, unless labeled otherwise.

All *Centurion®* packs contain Directions for Use (DFU). It is important to read and understand the DFU's prior to use.

In all cases, the instrument setup instructions contained in the manual should be thoroughly understood prior to using any of the pack configurations.

PRECAUTION: If an inconsistency exists between the instructions in the operator's manual and the Directions For Use (DFU) supplied with a consumable pack or accessory, follow the DFU.

WARNINGS!

Mismatch of consumable components and use of settings not specially adjusted for a particular combination of consumable components may create a patient hazard.

Do not use packs that have exceeded the expiration date.

Sterile disposable medical devices should not be reused! These components have been designed for one time use only; do not reuse.

Potential risk from reuse or reprocessing the following products labeled for single use include:

- ***Bipolar Coagulation Instruments*** - Thermal injury or electrical shock caused by a damaged bipolar instrument, and foreign particle introduction into the eye.
- ***Fluid Management Components*** - Fluid path leaks or obstruction resulting in reduced fluidics performance, and foreign particle introduction into the eye.
- ***Phacoemulsification Tips*** - Reduced tip cutting performance, presence of tip burrs, fluid path obstruction, and foreign particle introduction into the eye.
- ***Vitreous Cutting Instruments*** - Reduced vitreous cutting performance, fluid path obstruction, and foreign particle introduction into the eye.

The equipment used in conjunction with the Alcon disposables constitutes a complete surgical system. Use of disposables other than Alcon disposables may affect system performance and create potential hazards, and if it is determined to have contributed to the malfunction of the equipment under contract, could result in the voidance of the contract and/or invoicing at prevailing hourly rates.

Perform visual inspection of accessories for burs or bent tips prior to use.

Do not remove the FMS during the procedure.

Do not use any Vitrectomy probes that have not been approved for use on the *Centurion®* Vision System.

PRODUCT SERVICE

For product service, please contact Alcon's Technical Services Department at the number provided below.

Operators experiencing problems with the system should refer to the Operating Instructions and Troubleshooting sections of this manual. A problem which persists should be referred to the Alcon Technical Services Department or your local authorized service representative.

For optimum performance, it is the user's responsibility to schedule preventive maintenance service on the system and its accessories a minimum of one time per year. Additional preventive maintenance may be required based upon system use. Alcon's Field Service Engineers are trained and equipped to provide the highest quality of workmanship.

Safety performance should be verified by the user (e.g., qualified service personnel) at least twice a year. Ground resistance, leakage current, and dielectric withstand voltage must be checked to appropriate national standard.

To avoid unnecessary shipping, please contact your Alcon Technical Services Department prior to return of any system or accessories. If return of the equipment is deemed necessary, a Return Material Authorization will be issued with appropriate shipping instructions.

Alcon Technical Services Department
15800 Alton Parkway
Irvine, California 92618-3818
(800) 832-7827, or (949) 753-1393

LIMITED WARRANTY

Alcon will repair or replace at its option, any system or accompanying accessories found to be defective in material and/or workmanship for a period of one (1) year from the date of initial installation. This warranty applies to the original purchaser of the system, when said system is properly installed, maintained, and operated in accordance with published instructions.

Alcon shall not be obligated to provide services under this warranty for damage to or destruction of systems covered where such damage or destruction is a result of or caused by fire or explosion of any origin, riot, civil commotion, aircraft, war, or any Act of God including, but not limited to lightning, windstorm, hail, flood or an earthquake.

This warranty does not cover damage resulting from service repair or other alteration by any person other than an Alcon-authorized service person, and any warranties provided by Alcon with respect to this equipment shall become void and of no further force and effect if this equipment is serviced by anyone other than Alcon-authorized service personnel. In particular, Alcon shall have no obligation to replace, repair or credit customer's account for the cost of the equipment, which has been subject to service or other alteration by persons other than Alcon-authorized service personnel.

The express warranty above is the sole warranty obligation of Alcon, and the remedy provided above is in lieu of any and all other remedies. There are no other agreements, guarantees, or warranties – oral or written, expressed or implied – including , without limitation, warranties of merchantability or fitness for a particular purpose. Alcon shall have no liability whatsoever for any incidental or consequential damages arising out of any defect, improper use, or unauthorized service or repair.

WARNING!

The consumable products used in conjunction with ALCON® instrument products constitute a complete surgical system. Use of consumable products and handpieces other than those manufactured by Alcon may affect system performance and create potential hazards. If it is determined that consumable products or handpieces not manufactured by Alcon have contributed to the malfunction of the equipment during warranty period, service will be provided at prevailing hourly rates.

<u>Product Requirements</u>	<u>Performance Requirements</u>
Console Dimensions: Height: No greater than 165 cm (65 in) Width: No greater than 58.5 cm (23 in) Depth: No greater than 76 cm (30 in)	Phacoemulsification: (CENTURION® OZi® handpiece and INFINITI® OZi® handpiece) Submodes: Continuous, Burst, Pulse Longitudinal Tip Stroke @ 100 %: .0084 ± .0018 cm (.0033 ± .007 in) Resonant Frequency: 30 kHz to 60 kHz Torsional Tip Stroke @ 100 %: .0069 ± .0023 cm (.0027 ± .0009 in) Resonant Frequency: 30 kHz to 60 kHz Pulse Rate Range: 1 - 250 pps On Time: 0 - 100 % Burst On Time: 2 - 500 ms Burst Off Time: 2500 - 0 ms
Console Weight: Unpackaged: No greater than 107 kg (235 lb) Packaged: No greater than 150 kg (330 lb)	Anterior Vitrectomy: Submodes: Anterior Vit, Epi Removal, I/A Cut, Peripheral Irid, Visco-Asp CENTURION® UltraVit® Probe: 1 to 4,000 cpm
Environmental Limitations – Operating: Altitude: 3,000 m (9,842 ft) Temperature: 10 °C to 35 °C (50 °F to 95 °F) Relative Humidity: 10 % to 95 % without condensation	Diathermy (Coagulation): 10 W max, 75 Ω load 76 Vpp @ 1.5 MHz ± 5 %, 75 Ω load Waveshape: Sinusoidal
Environmental Limitations – Non-Operating: Altitude: 5600 m (18,300 ft) Temperature: -40 °C to 70 °C (-40 °F to 158 °F) Relative Humidity: 10 % to 95 % without condensation	Vacuum @ Sea Level: Phacoemulsification: 0 - 650 mmHg (0 - 867 hPa) max Vitrectomy: 0 - 650 mmHg (0 - 867 hPa) max Irrigation / Aspiration: 0 - 700 mmHg (0 - 933 hPa) max
Shock, Bump & Drop: The system conforms to EN ISO 15004-1 requirements for vibration, bump, and shock.	Power IV Pole: Height Range: 20 to 110 cm
Caster Wheels: Unpackaged instrument must withstand two impacts under conditions: - 7.6 cm (3 in) free fall onto all four casters - 7.6 cm (3 in) tilt drop onto each caster (raise one caster 7.6 cm (3 in) above the floor, then allow device to fall back to normal position)	IOP Controlled Infusion: Range: 26 - 110 mmHg (35 - 150 cmH ₂ O) (35 - 147 hPa) Accuracy: ± 20 % of setpoint or 15 mmHg (20 hPa) Aspiration Flow Rate: 0 - 60 cc / min (0 - 60 mL / min) Usable Fluid Volume: ≥ 350 cc (350 mL)
Console Stability: Meet IEC 60601-1 placed on incline of 10 ° from horizontal	Voice Confirmation: Range: 0 to 65 dB
Maximum Weights: Rotating Work Surface: 4.55 kg (10 lb) Instrument Tray Arm: 9.1 kg (20 lb)	Tone Volumes @ 1 meter Errors/Faults/Invalid Key: 40 to 65 dB, short tone Diathermy: 40 to 65 dB, continuous tone Advisory/Time Expire: 0 to 65 dB, short tones Phaco/Vacuum: 0 to 65 dB, continuous tones Valid Key: Factory set and not adjustable Volume Accuracy: 6 dB
Degree of Protection by Enclosure: Meets IP10 (console), IPX1 (IR remote control), IPX6 (footswitch) as specified in IEC 60529 and IEC 60601-2-2, clause 201.11.6.5 (footswitch)	Proportional and Continuous* Reflux @ Sea Level Pressure Range: 26 to 140 mmHg (35 - 187 hPa) Pressure Accuracy: ± 10 % of setpoint + 5 mmHg (7 hPa) *Total available Reflux volume: 7 cc (7 mL) replenishable via Aspiration
IR Remote Control: Method: Infrared Channels: 6 Batteries: (2x) AA	INTREPID® AutoSert® IOL Injector: Max Speed: 4.4 mm / s
Footswitch: Dimension: 7.6 cm (3 in) tall x 22.9 cm (9 in) wide x 30.5 cm (12 in) deep Weight: No greater than 5.4 kg (12 lb) Environmental: Footswitch construction is water tight in compliance with IEC 60601-1 and IEC 60601-2-2 Electrical: Footswitch is configured for wireless transfer Channels: 16	
AC Electrical Requirements: Input Voltage: 100 - 240 VAC 50 / 60 Hz Maximum Input Current: 10 A	
Protection against Electrical Shock: Class I	
Classification of All Applied Parts: Type BF	
Data Card: USB data stick: 8 Gb min.	

Table 1-5 SPECIFICATIONS - This table is a quick reference point to identify basic system specifications, system requirements, and performance figures.

Abbrev.	Description	Abbrev.	Description	Abbrev.	Description
ABS	Aspiration Bypass System	HP	Handpiece	UL	Underwriters Laboratories
AFR	Aspiration Flow Rate	I/A	Irrigation/Aspiration	U/S	Ultrasound
Asp	Aspiration	IOL	Intraocular Lens	USB	Universal Serial Bus
BF	Body Floating	IOP	Intraocular Pressure	V	Volt
BSS	Balanced Salt Solution	IR	Infra Red	Vac	Vacuum
cc/min	Cubic centimeters per minute	Irr	Irrigation	Vit	Vitrectomy
Coag	Coagulation	IVO	<i>Infiniti®</i> Video Overlay	IEC	International Electrotechnical Commission
CPM	Cuts Per Minute	kg	Kilogram	IPN, ₁ N ₂	International Protection Code
DFU	Directions For Use	lb	Pound	N ₁	N ₁ - solid objects (0 to 6, or X - not required to be specified)
ESD	Electro Static Discharge	LCD	Liquid Crystal Diode	N ₂	N ₂ - ingress of water (0 to 8, or X - not required to be specified)
FMS	Fluidic Management System	mmHg	Millimeters of Mercury		
FTSW	Footswitch	PEL	Patient Eye Level		
HF	High Frequency	PPS	Pulses Per Second		

Table 1-6 ABBREVIATIONS USED WITH THE CENTURION® VISION SYSTEM

	Type BF equipment, providing both the attributes of basic insulation and "floated" isolation.		Eject FMS
	Follow Instructions for Use (white figure on blue background)		Utility light over instrument tray
	WARNING: The console might overbalance when it is pushed and its wheels are immobilized (blocked) (black symbol behind lined out red circle)		Connector for CENTURION® OZi® handpiece
	WARNING: Dangerous Voltage (black symbols on yellow background)		Connector for INFINITI® OZi® handpiece
	GENERAL WARNING (black symbols on yellow background)		Connector for INTREPID® AutoSet® IOL Injector
	Equipotential ground connection		Connector for Vitrectomy probe tubing
	AC Voltage		Connector for INTREPID® Capsulotomy Device
	Power stand-by state for a part of equipment		Connector for Coagulation handpiece
	ON (POWER)		Connector for Cabled Footswitch
	OFF (POWER)		Magnetic Resonance Unsafe
	Fuse Size, Type, and Rating		Non-ionizing electromagnetic radiation
T10.0AH/250V			Date of Manufacture
	Use appropriate take-back system (see Environmental Considerations in this manual) Pb notation, if present, indicates lead content greater than 0.004%.		Manufacturer
	Catalog Number		OSHA recognized NRTL, TUV SUD America mark, providing electrical safety certification to North American requirements for Medical Devices.
	Serial Number		

Figure 1-2 ICONS USED WITH CENTURION® VISION SYSTEM - Icons identifying modes, functions, etc., that are used with the Centurion® Vision System are identified in this chart. The icons shown on this page are for reference only.



DANGER: RISK OF EXPLOSION IF USED IN THE PRESENCE OF FLAMMABLE ANESTHETICS.

DANGER: RISQUE D'EXPLOSION, NE PAS EMPLOYER EN PRESENCE D'ANESTHÉSIQUES INFLAMMABLES.

CAUTION: GROUNDING RELIABILITY CAN ONLY BE ACHIEVED WHEN EQUIPMENT IS CONNECTED TO AN EQUIVALENT RECEPTACLE MARKED HOSPITAL GRADE.

CAUTION: RISK OF BURNS AND FIRE - DO NOT USE NEAR CONDUCTIVE MATERIALS. RENEW ELECTRODE CABLES UPON EVIDENCE OF DETERIORATION.

OUTPUT	DIATHERMY
POWER (W)	10
IMPEDANCE (Ω)	75
FREQUENCY (MHz)	1.5



Type BF equipment, providing both the attributes of basic insulation and "floated" isolation.

Follow Instructions for Use

Non-ionizing electromagnetic radiation.

Magnetic Resonance Unsafe

Use appropriate take-back system

WARNING: Dangerous Voltage

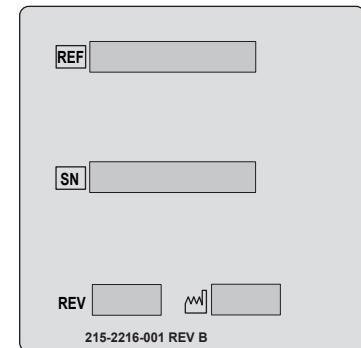
GENERAL WARNING

For applicable patents, please see the ABOUT screen on the monitor during operation.
© 2013 Novartis

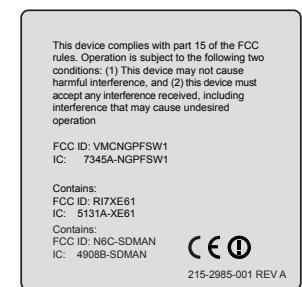
Alcon®

Manufacturer
ALCON LABORATORIES, INC.
6201 SOUTH FREEWAY
FORT WORTH, TX 76134-2099 USA
MADE IN USA

Label printed on rear panel of Centurion® Vision System



Label located on rear panel of Centurion® Vision System



Label located on rear panel of Centurion® Vision System



WARNING: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE.

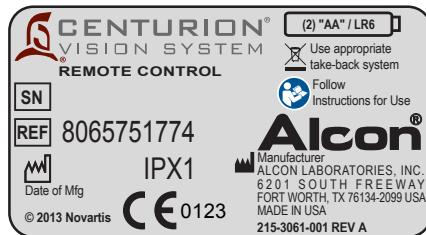


Label printed on power input module

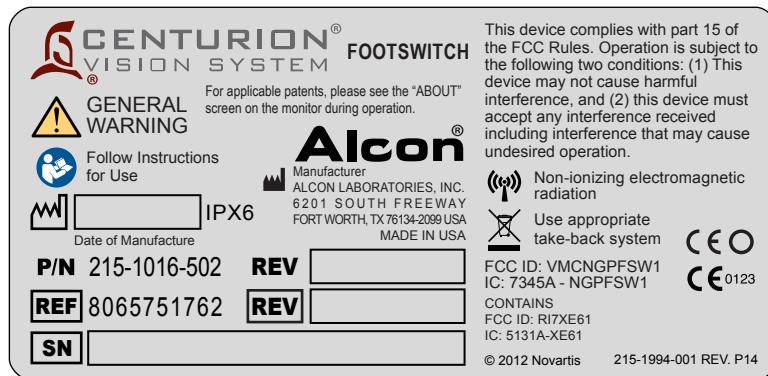


Label located on instrument tray

Figure 1-3A LABELING ON CENTURION® VISION SYSTEM - Labels used on the Centurion® Vision System are illustrated here. The labels on this page are intended for reference only.



Label located on back of remote control



Label located on bottom of footswitch

Figure 1-3B LABELING ON CENTURION® VISION SYSTEM - Labels used on the Centurion® Vision System are illustrated here. The labels on this page are intended for reference only.

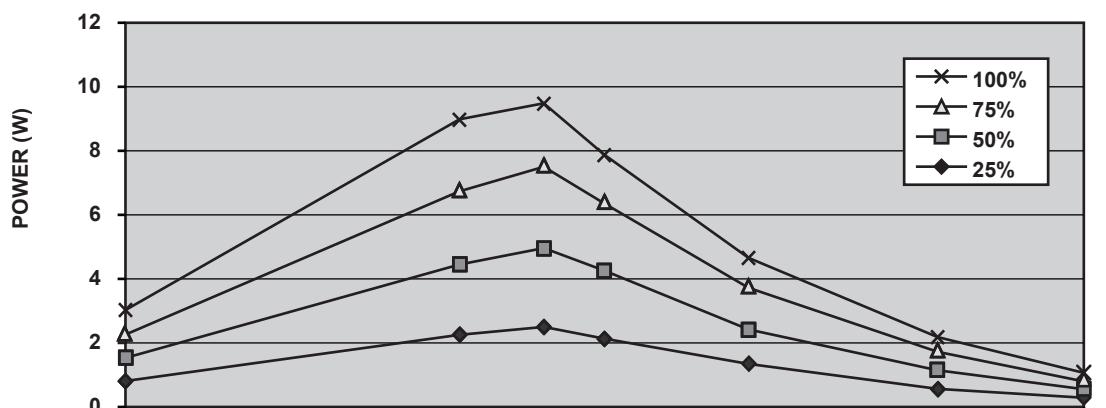
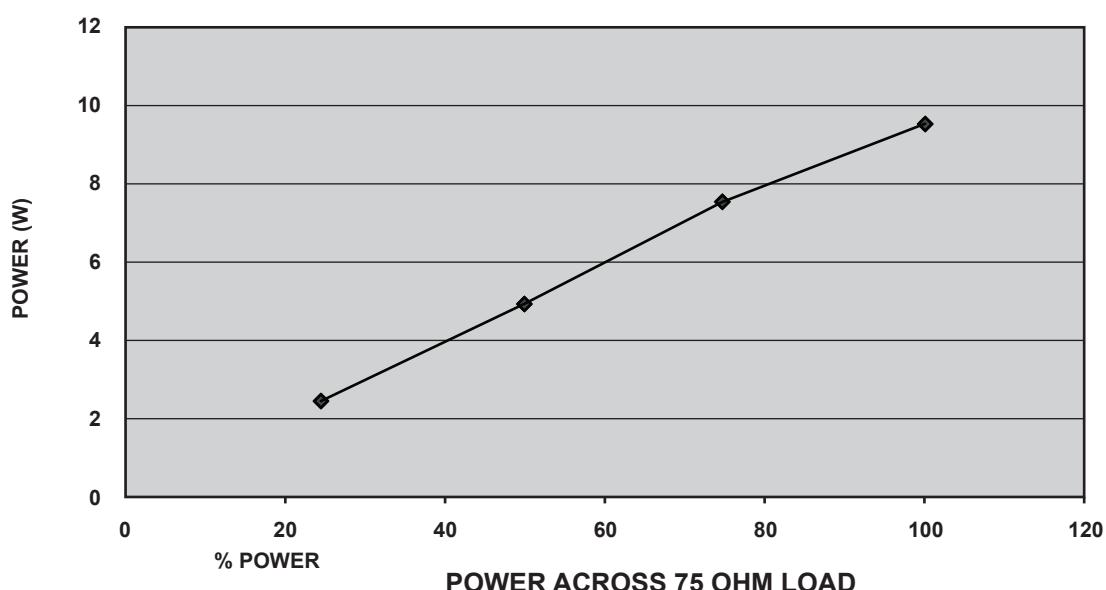
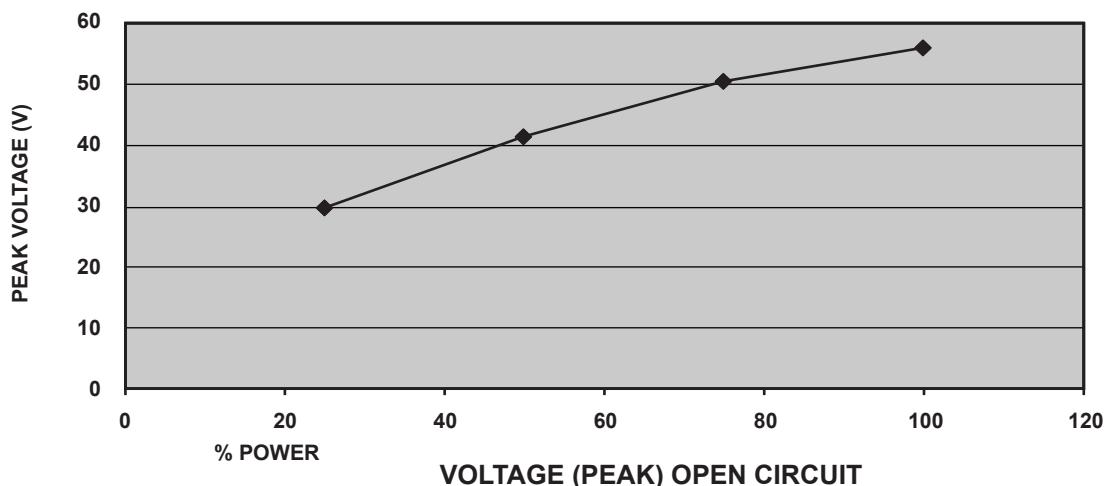

COAGULATION POWER GRAPH

POWER ACROSS 75 OHM LOAD

Figure 1-4 COAGULATION POWER OUTPUTS - Set coagulation power at the intended output control setting in the intended operating mode in reference to figures above.

Table 1-7 SUMMARY OF ALCON DEFAULT SETTINGS
Doctor Settings

No.	General Doctor Setting	Default
3	Patient Eye Level Offset Default (PEL)	-5
4	Irrigation Pressure Drop	60
5	Reflux Pressure Offset	30
6	Vent Time	0
7	Continuous Irrigation Mode Default	OFF
8	Continuous Irrigation Auto-Off Threshold	5
11	Verify PEL	Enabled
12	Estimated Incision Leakage	0
13	AutoSert® Full Extension Offset	0
14	AutoSert® Remote Control Default	Preload Lens
15	Vitrectomy Setup	ON

IP Settings

No.	Phaco IP Doctor Setting	Default
1	Phaco IP Longitudinal Pulse Duration	10
2	Phaco IP Vacuum Threshold	95
3	Phaco IP Longitudinal Power	100

Default Procedures

No.	Default Procedure	Procedure Description	Default Steps
1	Procedure 1	Divide and Conquer	PrePhaco, Sculpt, Quad, Epi, Cortex, Polish, Visco
2	Procedure 2	Phaco Chop	PrePhaco, Chop, Epi, Cortex, Polish, Visco
3	Procedure 3	Vitrectomy	Vitrectomy (Anterior Vitrectomy Mode), Vitrectomy (Epinucleus Removal Mode), Vitrectomy (I/A Cut Mode), Vitrectomy (Peripheral Iridectomy Mode), Vitrectomy (Visco Aspiration Mode)

Active Irrigation Surgical Parameters

No.	Procedure Surgical Parameter	Default
1	IOP Ramp Time	1.0

I/A Step Passive Irrigation Surgical Parameters

No.	I/A Step Surgical Parameter	Default
1	Irrigation Pressure	78

I/A Steps Active Irrigation Surgical Parameters

No.	I/A Step Surgical Parameter	Default
1	Flow Compensation	1.0

I/A Steps Fluidics Parameters

	Cortex	Polish	Visco
B/E Range 2 IOP	20/55	20/55	20/55
Control in Range 1 IOP	Fixed	Fixed	Fixed
Control in Range 2 IOP	Fixed	Fixed	Fixed
B/E Vacuum	0/500	0/20	0/650
Control in Range 2 Vacuum	Linear	Linear	Fixed
B/E Asp Rate	0/35	0/10	0/50
Control in Range 2 Asp Rate	Fixed	Linear	Linear
Vacuum Rise Time	0	0	0

Phaco Step Passive Irrigation Surgical Parameters

No.	Phaco Step Surgical Parameter	Default
1	Irrigation Pressure	95

Phaco Step Active Irrigation Surgical Parameters

No.	Phaco Step Surgical Parameter	Default
1	Flow Compensation	1.0

UltraChop Phaco Steps Active Irrigation Surgical Parameters

No.	Phaco Step Surgical Parameter	Default
1	Flow Compensation	1.0

Phaco Steps Fluidics Parameters

	PrePhaco	UltraChop	Chop	Sculpting	Quadrant	Epinucleus	Flip
B/E/E IOP	20/55/55	20/55/55	20/55/55	20/55/55	20/55/55	20/55/55	20/55/55
Control in Range 1 IOP	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Control in Range 2 IOP	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Control in Range 3 IOP	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
B/E/E Vacuum	0/180/180	0/380/380	0/380/380	0/ 80/80	0/380/380	0/380/ 380	0/380/380
Control in Range 2 Vacuum	Fixed	Fixed	Fixed	Fixed	Fixed	Linear	Fixed
Control in Range 3 Vacuum	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
B/E/E Asp Rate	0/30/30	0/40/40	0/40/40	0/23/23	0/40/40	0/30/30	0/40/40
Control in Range 2 Asp Rate	Fixed	Fixed	Fixed	Fixed	Fixed	Linear	Fixed
Control in Range 3 Asp Rate	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Vacuum Rise Time	0	0	0	0	0	0	0

Phaco Step Surgical Parameters

No.	Phaco Step Surgical Parameter	Default
1	Phaco IP	ON
2	Phaco Mode	Continuous

Continuous Phaco Mode Parameters

	PrePhaco	UltraChop	Chop	Sculpting	Quadrant	Epinucleus	Flip
B/E Longitudinal	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Control Longitudinal	Linear	Linear	Linear	Linear	Linear	Linear	Linear
B/E Torsional	0/20	0/60	0/60	0/60	0/60	0/60	0/60
Control Torsional	Linear	Linear	Linear	Linear	Linear	Linear	Linear

Pulsed Phaco Mode Parameters

	PrePhaco	UltraChop	Chop	Sculpting	Quadrant	Epinucleus	Flip
B/E Longitudinal	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Control Longitudinal	Linear	Linear	Linear	Linear	Linear	Linear	Linear
B/E Torsional	0/20	0/60	0/60	0/60	0/60	0/60	0/60
Control Torsional	Linear	Linear	Linear	Linear	Linear	Linear	Linear
B/E Longitudinal DC	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Control Longitudinal DC	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
B/E Torsional DC	0/80	0/80	0/80	0/80	0/80	0/80	0/80
Control Torsional DC	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
B/E Pulse Rate	1/20	1/20	1/20	1/20	1/20	1/20	1/20
Control Pulse Rate	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

Burst Phaco Mode Parameters

	PrePhaco	UltraChop	Chop	Sculpting	Quadrant	Epinucleus	Flip
B/E Longitudinal	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Control Longitudinal	Linear	Linear	Linear	Linear	Linear	Linear	Linear
B/E Torsional	0/20	0/60	0/60	0/60	0/60	0/60	0/60
Control Torsional	Linear	Linear	Linear	Linear	Linear	Linear	Linear
B/E Longitudinal On	2/35	2/35	2/35	2/35	2/35	2/35	2/35
Control Longitudinal On	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
B/E Torsional On	2/70	2/70	2/70	2/70	2/70	2/70	2/70
Control Torsional On	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
B/E Off	2500/0	2500/0	2500/0	2500/0	2500/0	2500/0	2500/0

IOL Injection Step Parameters

	Default
IOL Plunger Type	Standard
Initial IOL Injection Rate	1.7
IOL Injection Pause Time	3.0
Beginning IOL Injection End Rate	1.2
Ending IOL Injection End Rate	1.7
Control of IOL Injection Rate	Linear

Coagulation Step Parameters

No.	Coagulation Step Surgical Parameter	Default
1	Beginning Coagulation Power	0
2	Ending Coagulation Power	50
3	Control of Coagulation Power	Fixed

Vitrectomy Modes Passive Irrigation Parameters

	Anterior Vitrectomy	Epinucleus Removal	Peripheral Iridectomy	Visco Aspiration	I/A Cut
Irrigation Pressure	65	65	65	65	65

Vitrectomy Steps Active Irrigation Surgical Parameters

No.	Vitrectomy Step Surgical Parameter	Default
1	Flow Compensation	1.4

Stand-Alone Vitrectomy Step Active Irrigation Surgical Parameters

No.	Stand-Alone Vitrectomy Step Surgical Parameter	Default
1	Flow Compensation	1.4
2	IOP Ramp Time	1.0

Vitrectomy Modes Active Irrigation Parameters

	Anterior Vitrectomy	Epinucleus Removal	Peripheral Iridectomy	Visco Aspiration	I/A Cut
B/E/E IOP	20/55	20/55	20/55	20/55	20/55/55
Control in Range 1 IOP	Fixed	Fixed	Fixed	Fixed	Fixed
Control in Range 2 IOP	Fixed	Fixed	Fixed	Fixed	Fixed
Control in Range 3 IOP	N/A	N/A	N/A	N/A	Fixed
Vacuum Rise Time	0	0	0	0	0

Vitrectomy Modes Fluidics Parameters

	Anterior Vitrectomy	Epinucleus Removal	Peripheral Iridectomy	Visco Aspiration	I/A Cut
B/E/E Vacuum	0/350	0/500	0/350	0/650	0/350/500
Control in Range 2 Vacuum	Linear	Linear	Linear	Linear	Linear
Control in Range 3 Vacuum	N/A	N/A	N/A	N/A	Fixed
B/E/E Asp Rate	0/10	0/10	0/10	0/50	0/ 10/20
Control in Range 2 Asp Rate	Fixed	Linear	Fixed	Fixed	Fixed
Control in Range 3 Asp Rate	N/A	N/A	N/A	N/A	Fixed

Vitrectomy Modes Parameters

	Anterior Vitrectomy	Epinucleus Removal	Peripheral Iridectomy	Visco Aspiration	I/A Cut
B/E Range 2 Cut Rate	1/4000	1500/500	N/A/1	1/4000	N/A
Control in Range 2 Cut Rate	Fixed	Linear	N/A	Fixed	N/A
B/E Range 3 Cut Rate	N/A	N/A	N/A	N/A	1/4000
Control in Range 3 Cut Rate	N/A	N/A	N/A	N/A	Fixed

Irrigation Footswitch Step Passive Irrigation Surgical Parameters

No.	Irrigation Footswitch Step Surgical Parameter	Default
1	Irrigation Pressure	78

Irrigation Footswitch Step Active Irrigation Surgical Parameters

No.	Irrigation Footswitch Step Surgical Parameter	Default
1	Beginning Range 2 IOP Target	20
2	Ending Range 2 IOP Target	55
3	Control in Range 1 IOP Target	Linear
4	Control in Range 2 IOP Target	Fixed

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SECTION TWO DESCRIPTION

DESCRIPTION OF *CENTURION*® VISION SYSTEM

Description

Alcon's *Centurion*® Vision System is a multi microprocessor-controlled ophthalmic surgical instrument with associated memory and input/output (I/O) circuitry. The system communicates to the user via its Front Panel display, with voice confirmations, and with tones. An automatic self-test is initiated each time system power is turned on.

This test checks a variety of functions including the following:

- Host CPU Assembly (including Display&Touchscreen)
- Footswitch Interface
- Multifunction Assembly
- Fluidics Assembly
- *Active Fluidics*™ Assembly
- Phaco Assembly
- IV Pole Assembly
- Pneumatics Assembly

When the system successfully completes the self-test, it automatically goes into the Setup mode. If the system fails the self-test, an Event message is displayed.

This section of the manual is broken into two major parts. The first part describes the console and its accessories. All the parts of the system will be described, including the display panel, *Active Fluidics*™ system, gravity fluidics system, connectors, fluidics interface, footswitch, remote control, and VideOverlay system. The second part of this section describes the operator interface. This is where the display screens for system setup, surgery, programming, and dialogs are shown.

Trademark Note

A button, mode, or step labeled *OZil*®, *AutoSert*®, or UltraChop refers to a display screen control used with an *OZil*® torsional handpiece, INTREPID® *AutoSert*® IOL injector, or ALCON® *UltraChopper*® tip, respectively.

CENTURION[®] VISION SYSTEM CONSOLE AND ACCESSORIES

DESCRIPTION OF CONSOLE

Fluidics Module

The fluidics module is located in the center of the front panel. The module allows fast and easy insertion of the Fluidic Management System (FMS; i.e., cassette), and because the module contains all the connections required, surgery can be started with minimal delay.



Figure 2-1 The Console - The console contains all the controls, connectors, and communication devices required by the surgeon to perform cataract lens extraction surgery.

Front Display Panel and Touch Screen

The front display panel tilts and rotates, allowing easy maneuverability during setup and surgery. For storage and transport, the front panel folds down. The front display is the user's main source of system control, allowing fingertip command of system functions.

Adjustable Instrument Tray

The *Centurion*® Vision system provides an adjustable instrument tray within the sterile field. The tray is capable of accommodating a variety of positions in the operating room environment—right, left, front, and rear of the surgeon—and the tray is height adjustable. There are curved metal rods on the tray that allow for creation of sterile pouches when covered with a sterile tray support cover, and also provide cradles for the IR remote control. Two rubber clips are built into the tray surface to neatly secure the handpiece cables and tubing up and off unsterilized surfaces.

CAUTION

The maximum weight allowed on the instrument tray is 9.1 kg (20 lb.)

Front Panel Connectors

The front panel connectors are located on both sides of the fluidics module. The front panel connectors provide three self-locking phaco handpiece connectors, two connectors for the INTREPID® AutoSert® IOL Injector, one connector for a bipolar coagulation handpiece, connectors for the INTREPID® Capsulotomy Device, and luer lock pneumatic connectors for the *Centurion*® UltraVit® Probe. The left row of connectors also includes a utility light for the instrument tray. Symbols near the connectors facilitate handpiece identification.

The CENTURION® OZil® handpiece is recognized in the top two phaco handpiece connectors; only the INFINITI® OZil® handpiece is recognized in the bottom. Only one phaco handpiece can be connected at one time in either connector, unless the UltraChop feature is enabled in which case the system will accept two phaco handpieces.

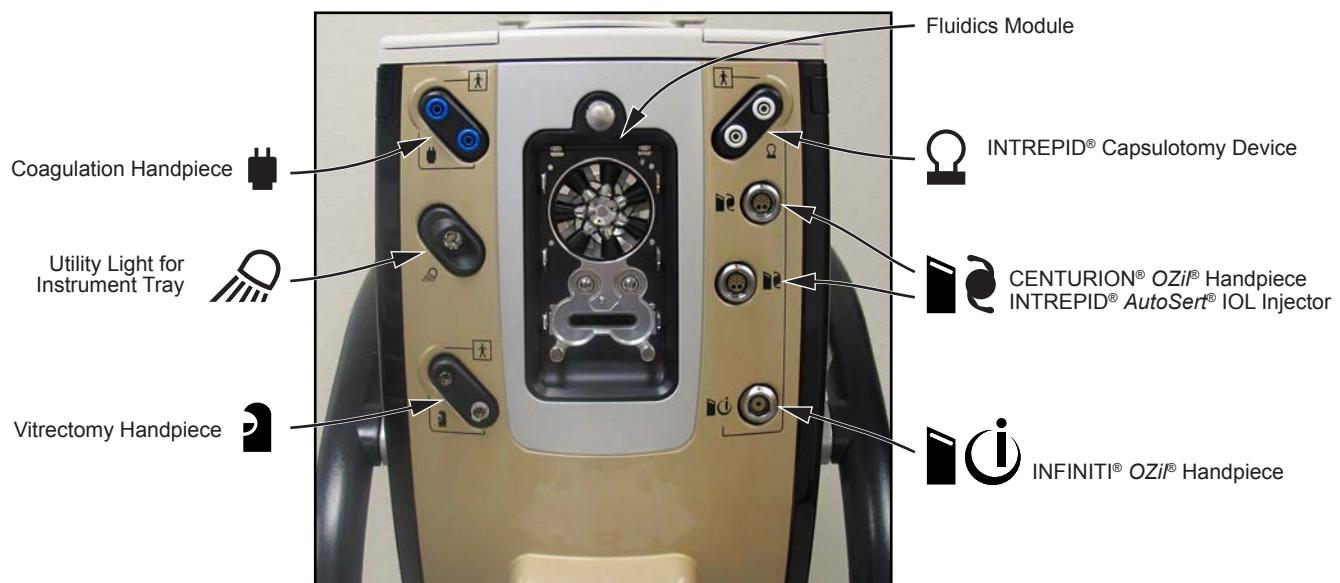


Figure 2-2 The Front Panel Connectors - The front connector panel allow quick and easy connection of handpieces and consumables.

Standby Power Switch

This pushbutton switch is used to turn secondary power ON and OFF. If system freezes and is unresponsive to operator commands, press Standby switch for five seconds to shut down system, then re-boot.

Accessory Drawer

One drawer allows storage of miscellaneous accessories.

Audio Speakers

Three audio speakers are located on the front and each side of the console. These speakers produce voice confirmations, in conjunction with multiple tones, to allow the *Centurion®* Vision System to communicate with the user. Audible tones are generated to indicate a change in the operating mode and to alert the operator of certain conditions such as an occluded line. Additionally, a varied pitch tone is generated to audibly indicate vacuum levels; the pitch increases as the vacuum level increases. Speaker volumes are adjustable via the **Custom** menus.



Figure 2-3 Rear and Side Panels

Locking Caster Wheels

Four large caster wheels support the *Centurion®* Vision System. The wheels rotate 360° for ease of system mobility, and all four wheels have a locking lever to secure the system in place. The wheels should always be locked when the unit is in use, and unlocked when being moved.

Handle Bar

A handle bar wraps around the sides and back of the *Centurion®* Vision System, and should always be used to move it.

CAUTION

The system must be moved carefully, otherwise it could tip over and become damaged. Do not push or pull the unit by the display, the instrument tray, or the IV pole. The handle bar is provided for moving the instrument. The unit should be pulled and not pushed, especially over elevator and door thresholds.

Equipotential Ground Connector

The equipotential ground connector may be used to provide a direct connection between the *Centurion®* system and the potential equalization bus-bar of the electrical installation. This connector complies to the requirements of IEC/EN 60601-1.

AC Power Cord Hanger

Used to store the power supply cord when system is out of use. Located in the middle of the rear panel.

Primary AC Power Switch

The power module contains an AC power switch, AC power connector, and a fuse holder. The power module is located at the bottom of the rear panel. A standby power switch is located at the top of the right side panel.

- AC Power Connector - Power cord from AC power outlet connects here. A hospital grade power cord must be used.
- Primary AC Power Switch - Connects AC power to power supply.
- Fuse Door - Open the fuse door to gain access to the fuse holder. Refer to label on back of system to identify fuse size and type.

Footswitch Hanger / Charging Station

When out of use, the wireless footswitch hangs on the back of the *Centurion®* Vision System. If used wirelessly, its internal lithium ion battery is charged inductively through the rear panel. If wired to the system, and system power is turned on, the footswitch battery is charged through the cable.

Input/Output (I/O) Connector Panel

This panel contains inputs and outputs for Audio input, USB communications, VideOverlay output (RS232), and Ethernet internet communications (RS422). An antenna for wireless communications is also located on this panel.

The USB port is provided for Service functions and for backing up and restoring Dr. memory. Plugging any other USB device into the port is not recommended.

Rotating Work Surface

A versatile rotating work surface is provided on the top of the *Centurion[®]* Vision System. When stowed, this work surface covers the *Active Fluidics[™]* bag bay and is locked in place. When open it allows the user to lower a bag of *BSS[®]* irrigating fluid into the bag bay.

To rotate the work surface and reveal the bag bay, press and hold the locking ring while pressing sideways on the work surface (see left image in Figure 2-4). The right image shows the work surface in the open position, allowing access to the bag bay. Once open, the surface can be rotated until the mechanical lockout feature prevents further rotation. When *Active Fluidics[™]* technology is used, this lockout feature prevents inadvertent contact of the work surface against the bag of *BSS[®]* irrigating fluid and its tubing. To return the work surface back to its stowed position, press and hold the locking ring and press sideways on the work surface.

CAUTIONS

- The maximum weight allowed on the rotating surface is 4.55 kg (10 lb.)
- Work surface must not come in contact with bag of irrigating fluid.

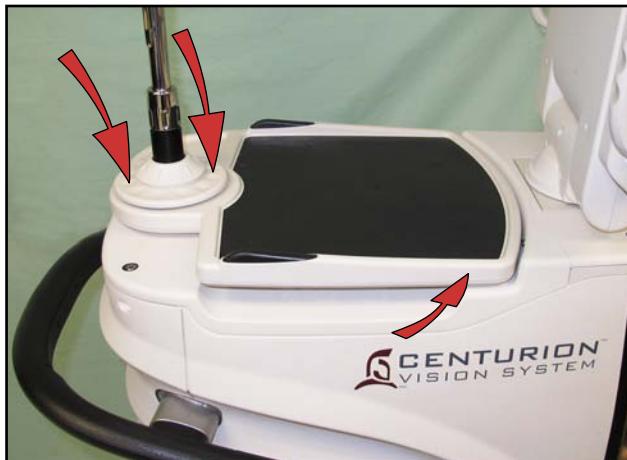


Figure 2-4 Rotating Work Surface - To rotate working surface and gain access to the *Active Fluidics[™]* bag bay, press down on locking ring and rotate work surface out of the way.

FLUIDICS ADMINISTRATION

The *Centurion®* Vision system supports two types of fluidics administration to deliver and control fluidics fluid pressure: **Gravity Fluidics** is used for fluid administration using the power IV pole, and **Active Fluidics™** technology is an automated system that administers fluid from a bag of *BSS®* irrigating fluid within its bag bay (see Figure 2-3).

Power IV Pole and Hanger for Gravity Fluidics

For gravity fluidics a container of *BSS®* irrigating fluid is hung from a hanger on top of the IV pole. Raising and lowering the pole increases and decreases the irrigation pressure delivered to the tip of the handpiece. The hanger can be installed in 45° increments by releasing the chrome nut at the bottom of the IV pole, lifting the pole up, and setting it back down at the desired angle.

Bag Bay for Active Fluidics™ Technology

For *Active Fluidics™* technology a bag of *BSS®* irrigating fluid is compressed between two plates within the *Active Fluidics™* bag bay, located under the rotating work surface on the top of the console. The pressure created by compressing the bag of irrigating fluid is monitored to provide an accurate pressure source, allowing control of intraocular pressure (IOP).

This precise pressure control creates the opportunity to tailor IOP performance based on surgical preference. There are two functions related to *Active Fluidics™* technology which allow the surgeon to tailor IOP performance: Irrigation Factor and IOP Ramp. These functions are described later in this section of the manual (Fluidics Controls).

WARNING!

Use of *BSS®* irrigating fluid bags other than those approved by Alcon for use in the *Active Fluidics™* system can result in patient injury or system damage.

DESCRIPTION OF FOOTSWITCH

The *Centurion®* Vision System utilizes the *Centurion®* or *Laureate®* footswitch. The footswitches have a footpedal and on/off toe switches (horizontal and vertical). The *Centurion®* footswitch can be used wirelessly or can be wired to the console, while the *Laureate®* footswitch must be wired. When the footswitch is operated wirelessly, it retains the same functionality as it does when it is wired to the system. The wireless footswitch is immune to interference from other wireless devices.

The footswitch icon button on the display screen is a graphical representation of the footswitch connected. When connected, the current footpedal position (0, 1, 2, or 3) is displayed in the center of the icon, and a triangular arrow appears next to the icon each time a switch is activated. If a footswitch is not connected, a wireframe footswitch is shown in the status bar and no footpedal position is displayed.

Several functions within the system's operating modes are controlled by the surgeon using the footswitch. The footpedal enables the surgeon to control irrigation flow, aspiration rate, capsulotomy activation, phaco handpiece power, vitrectomy cutting, coagulation power, and IOL injection. The switches are used to turn functions on/off, to adjust function settings, and to progress through surgical steps.

The footswitch's footpedal and switch adjustments are programmable and are available by pressing the Footswitch icon button at the top of the display screen, or by selecting Custom/Doctor Settings/Footswitch (see Figure 2-7).

PRECAUTION: A power reset switch is located in the bottom of the footswitch. In the case that a reset is required, simply press a cotton swab into the small hole in the bottom to depress the switch and turn power back on (see Figure 2-9). Re-pairing of the footswitch will restore the previously-programmed footswitch settings.

CAUTION

Never pick up or move the footswitch by the cable. Dropping or kicking the footswitch can cause irreparable damage.



Figure 2-5 The Centurion® Footswitch

Footpedal Control

Footpedal positions are shown in Figure 2-6, and footpedal positions/functions in each mode of operation are listed in Table 2-1. Footpedal control can be programmed for each doctor's personal preferences by pressing the Footswitch icon button at the top of the display screen, or by selecting *Custom/Doctor Settings/Footswitch* (see Figure 2-7).

Depending on the surgery step, the user may have the option to select *linear* or *fixed* footpedal control of a surgical parameter (i.e., aspiration, vacuum, power, coagulation). With *linear* footpedal control, the angle of depression within the pedal range is directly proportional to the parameter output. The parameter output is 0 at

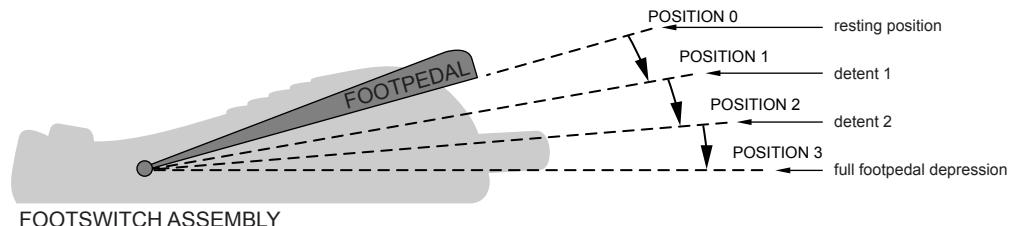


Figure 2-6 Diagram of Footpedal Positions

Mode	Footpedal Control of Surgical Functions			
	Position 0	Position 1	Position 2	Position 3
Capsulotomy	Resting		Capsulotomy	
Phaco	Resting	Irrigation	Irrigation/Aspiration	Irrigation/Aspiration/Phaco Power
	Continuous Irrigation		Irrigation/Aspiration	
I/A	Resting	Irrigation	Irrigation/Aspiration	
	Continuous Irrigation		Irrigation/Aspiration	
AutoSert® Injector	Resting		IOL Injection Rate Initial Velocity, Pause Time, End Velocity	
Coag	Resting		Coagulation Power	
Anterior Vit Epi Removal Peripheral Irid Visco Asp	Resting	Irrigation	Irrigation/Aspiration Cutting	
	Continuous Irrigation		Irrigation/Aspiration Cutting	
I/A Cut	Resting	Irrigation	Irrigation/Aspiration	Irrigation/Aspiration/Cutting
	Continuous Irrigation		Irrigation/Aspiration	

Table 2-1 Table of Footpedal Positions - The footpedal is used by the surgeon to control several surgical functions. This table shows the functions controlled, dependent on mode of operation and type of irrigation selected. As the footpedal is depressed it travels from the resting position into its active positions.

the very start of the treadle range, and the parameter output is equal to the limit value specified at the end of the treadle range. With *fixed* footpedal control, the parameter output is fixed at its limit value throughout the treadle range.



Figure 2-7 Doctor Settings Dialog Screen - Footswitch Tab

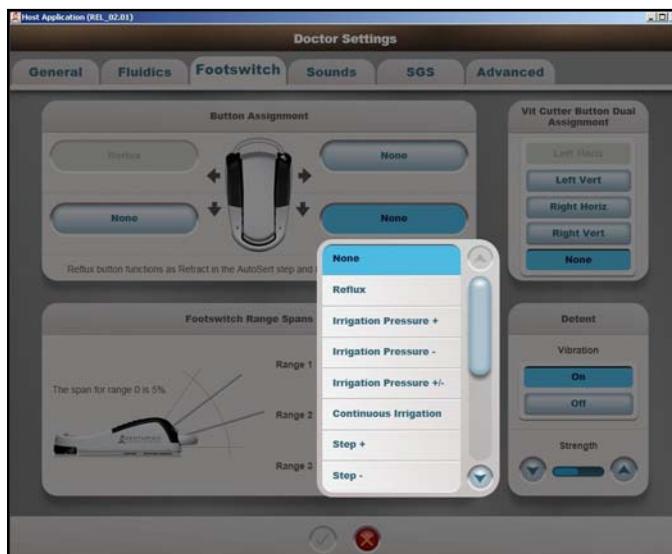


Figure 2-8 Doctor Settings Dialog Screen - Button Assignment Selections
Pressing one of the Button Assignment buttons brings up a drop-down menu of functions that can be activated with the surgeon's toe. Several selections are hidden below the selections shown here; the slide bar on the right is used to expose the other selections.

Footswitch Range Spans

The footswitch's footpedal spans in each Range are programmable and are available by pressing the Footswitch icon button at the top of the display screen, or by selecting *Custom/Doctor Settings/Footswitch* (see Figure 2-7). The span of Range 0 is always set at 0 to 5 % of the footpedal range, while Ranges 1, 2, and 3 can be changed in the Footswitch Range Spans (%) window.

Detent

Footpedal detents identify the transition from one footpedal position to another. When turned On, the footpedal vibrates when pressing through the detent from one position into the next. The vibration power can be adjusted up and down with the two Strength arrow keys.

Toe Switch Control

The footswitch has left and right toe switches that are assigned to control various surgical functions. The two toe switches operate horizontally and vertically, each direction actuating a function switch, controlling up to four system functions.

If the footpedal is not depressed, any mutually exclusive switch may be engaged. If the footpedal is depressed, certain switches may or may not be allowed to engage.

Button Assignment

Footswitch button assignments are programmable and are available by pressing the Footswitch icon button at the top of the display screen, or by selecting *Custom/Doctor Settings/Footswitch* (see Figure 2-7). From this screen, press one of the blue oval buttons next to the footswitch and select a function from the dropdown list (see Figure 2-8).

The left horizontal switch is the only switch with a factory default action: Reflux. The Reflux function can be selected for another switch, allowing the left horizontal switch to be given another function. The Reflux function must always be assigned to a switch.

The other three switches are listed as None by default, their functions are mutually exclusive, and each must be programmed by the user. When a switch is given a function already designated to another switch, the other switch is given a None designation. Choices are Reflux, Irrigation Pressure+, Irrigation Pressure-, Irrigation Pressure +/-, Continuous Irrigation, Step+, Step-, and None.

- **Reflux**

The Reflux switch has triple functionality. In most modes of operation the switch function is Reflux, while within the *AutoSert®* injector step the switch function is to Retract the plunger. One other exception is that in the Capsulotomy step it is used to Enable the capsulotomy function. At least one toe switch must be dedicated to the Reflux function.

Reflux: The default reflux pressure is equal to the current bottle height IOP pressure. The reflux pressure can be increased using the Reflux Offset control in the *Custom/Doctor Settings/Fluidics* menu. In all cases, reflux is not available when the footpedal is depressed, and is not available in a Coagulation step.

Retract: In the *AutoSert®* injector step this switch moves the plunger in a reverse direction. Control of this function is not allowed while the footpedal is depressed.

Enable: In the Capsulotomy step this switch enables the capsulotomy function.

- **Irrigation Pressure+, Irrigation Pressure-**

When using gravity fluidics, a toe switch can be selected to move the IV pole up and down to increase or decrease the irrigation pressure. These toe switch assignments are not functional when *Active Fluidics™* technology is in use.

• **Irrigation Pressure +/-** When using gravity fluidics, this switch assignment is used to increase irrigation pressure by pressing and releasing the switch, and to reduce irrigation pressure by pressing and holding the switch. This toe switch assignment is not functional when *Active Fluidics™* technology is in use.

- **Continuous Irrigation**

Delegating Continuous Irrigation to a switch on the footswitch allows the user to turn Continuous Irrigation on and off, whether or not it is enabled for the selected doctor.

- **Step+, Step-**

A switch may be assigned as step advance (Step+) or step back (Step-). The Setup, Coagulation, and Anterior Vitrectomy steps are excluded from this stepping sequence. If step advance or step back is assigned, when the switch is pressed, the next or previous step to the current step is selected in the surgery menu.

• **None** - This selection is made to eliminate functionality from the switch.

Vit Cutter Button Dual Assignment

When in Anterior Vitrectomy mode of operation, a selected footpedal button can be assigned the function of enabling and disabling the vitrectomy cutter function. This button, when in other modes, has a different assignment.

Footswitch Status LEDs

Two LEDs, one on the left and one on the right of the footpedal heel, illuminate to indicate footswitch status. The following table shows the LED display patterns with respect to the footswitch's operation state.

Left LED Indicating Connection Status with <i>Centurion®</i> System	
Color and Behavior	Description
Solid Blue	Connected (wired or wireless)
Off	When footswitch is in wireless mode and not engaged*, or in wireless mode and does not hear beacons from console, or in shipping state
Right LED Indicating Battery Status	
Color and Behavior	Description
Solid Green	Battery level > 40 % of usable range
Solid Yellow	Battery level ≤ 40 % of usable range
Blinking Green	Battery level > 40 % while charging
Blinking Yellow	Battery level ≤ 40 % while charging
Off	When footswitch is in wireless mode and not engaged*, or in shipping state

* LEDs remain on/blinking for a few seconds after disengagement of the footswitch; i.e., not pressing on the footpedal or any of the footswitch buttons.

Table 2-2 Footswitch Status LEDs

Charging Footswitch Battery

The footswitch battery can be charged using two different methods:

- The footswitch can be charged wirelessly by cradling it on *Centurion®* system footswitch hanger on the rear panel of the console.
- The footswitch can be charged by cabling it to the connector at the bottom of the *Centurion®* front panel. With system power turned on, the battery will be charged through the cable.

Pairing Footswitch with *Centurion®* System

To change the wireless channel for the footswitch, the footswitch must first be cradled onto the back of the system. This "pairs" the footswitch with the system and allows the wireless channel to be changed in the **Custom / System Settings / Wireless tab**. Note that since the wireless footswitch and the Surgical Guidance System (SGS) device share the same network, changing the wireless channel for the footswitch will require a re-pairing of the SGS device.

Footswitch Floor Security

The *Centurion*[®] footswitch has four spring-loaded ball plungers at each corner of the bottom plate (see Figure 2-9). These ball plungers are designed to allow easy sliding of the footswitch on a smooth floor, and yet still offer secure floor grip when the weight of the surgeon's foot is resting upon it.

The weight of the surgeon's foot on the footswitch causes the spring-loaded ball plungers to collapse, allowing the footswitch to rest on its rubber sole, thus preventing it from sliding on the floor. The tension of the spring-loaded ball plungers is adjustable to the surgeon's preference using a wide, flat-tip screwdriver. Simply place the screwdriver directly on top of the ball and press down until the screwdriver tip settles into the screw slot, then turn clockwise or counterclockwise to increase or decrease the spring tension.

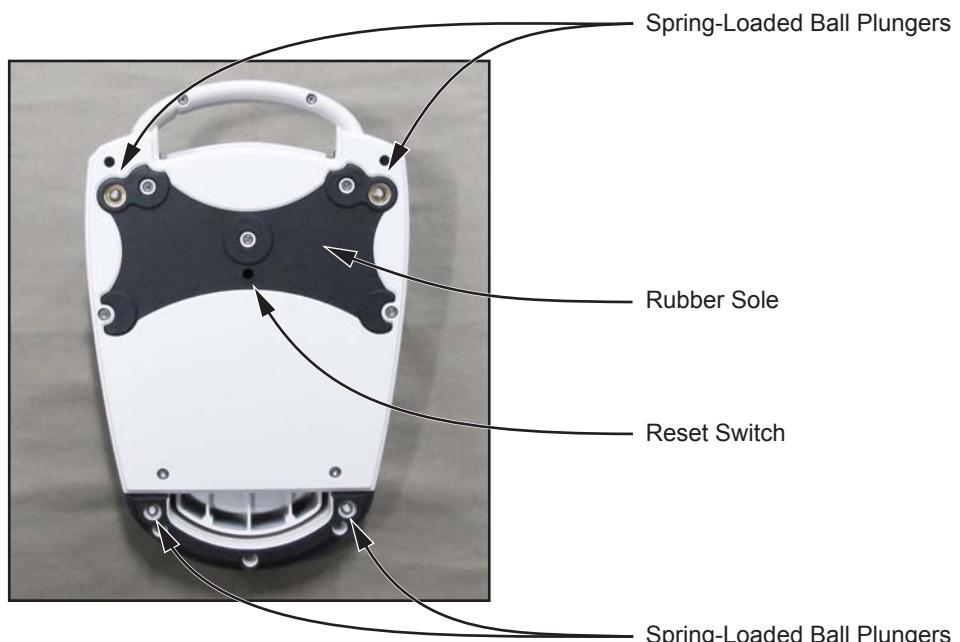


Figure 2-9 Bottom of *Centurion*[®] System Footswitch

Cabled Footswitch Connectors

The *Centurion*[®] footswitch can be wired to the *Centurion*[®] Vision System, while the *Laureate*[®] footswitch must be wired. Each footswitch cable has its own unique connector at the bottom-center of the *Centurion*[®] system's front panel (see Figure 2-10).

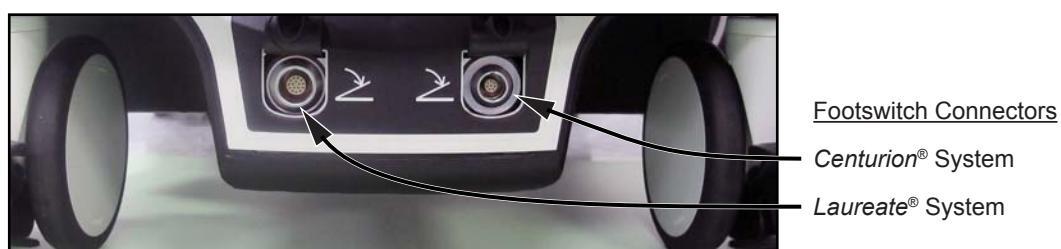


Figure 2-10 Cable Connectors for Cabled Footswitches

DESCRIPTION OF IR REMOTE CONTROL

The IR remote control for the *Centurion®* system can be used in one of two ways. It can be cradled in the curved metal rods that extend from the instrument tray, and operated under the sterile tray support cover supplied in the disposable pack; this offers the Scrub Nurse or Sterile Assistant access to the controls from the sterile field. Alternatively, the Circulating Nurse can operate the remote control outside the sterile field. Programmability and custom user setup features are functions which are not accessible from the remote control.

CAUTION

Do not sterilize the remote control as it will damage the unit.

Remote Control Keys and Buttons

The remote control allows the user to quickly navigate procedure steps and make simple parameter value adjustments (see Figure 2-11). The following describes the remote control keys and buttons with the function of each, and explanations of when they are valid. When a remote control key or button is pressed, a valid or invalid key tone is generated as appropriate.

- Parameter Selection Button (\blacktriangle , \blacktriangledown , \blacktriangleleft , \blacktriangleright)

The keys on the remote control Parameter Selection button are pressed to select parameters for adjustment, and to select Coag and Vit steps. The current selection on the display screen is indicated with a yellow border. With this button the user can move up, down, left, and right to select the desired parameter. This button is valid when the footpedal and/or a footswitch button is up or depressed, but is invalid when a dialog is displayed.

- Snap Keys (**A, B, C, D, E, F**)

Pressing remote control Snap Keys A through F causes the system to snap focus to various parameter sections on the surgery screen, reducing the number of keystrokes to invoke control of the desired section. When a parameter section is selected using the remote control, the affected setting appears with a yellow border (see Figure 2-12), allowing its values to be adjusted using other remote control keys.

Snap Key	Parameter Selected
A	Top Status Section
B	Phaco Parameter Section
C	Task Light/Menu Section
D	Fluidics Parameter Section
E	Fluidics Qualifiers Section
F	Coag/Vit Section

Pressing the *Remote Control* button icon in the upper Status Panel displays the remote control's six snap navigation buttons (A, B, C, D, E, and F) as an overlay on the current screen (white letters in center of black buttons, see Figure 2-41).



Figure 2-11 IR Remote Control - The remote control fits securely on the instrument tray and allows rotation in any orientation. The sterile tray support cover is then draped over the remote and tray to maintain the sterile field.



Figure 2-12 Remote Control Snap Keys- Remote control snap keys A through F appear as small black buttons when the Remote Control icon button at the top of the screen is pressed. In this case the Remote Control B key was pressed to activate the Torsional (%) setting, as indicated with a yellow border. Pressing the remote + and – keys changes the torsional % value.

- Parameter Value Adjustment Keys (+, -)

The remote control Parameter Value Adjustment up/down keys affect settings in the Surgery Control Window that have adjustment arrows (i.e., power, vacuum, aspiration) and the linear/fixed toggle buttons. When a surgical parameter is selected via the Parameter Selection button or remote control, a yellow border indicates that the item is selected; the Parameter Value Adjustment up/down keys can then be used to adjust its value.

- Prv and Nxt Navigation Keys (◀, ▶)

The remote control Previous (Prv) and Next (Nxt) Navigation keys are used to move left and right through the Setup Step buttons and the Surgery Menu steps. A Navigation key can also be used in an information dialog to select a button (e.g., OK, Cancel, Save).

In the Setup Screen, when a Prv key or Nxt key is used to move to a Setup Step button, the button will be highlighted, but the Enter key must be pressed to activate the button.

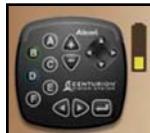
In the Surgery screens, when a step is selected using the Prv key or Nxt key on the remote control, the step is immediately selected. The Navigation keys move the remote focus to the left or right, wrapping when the end is reached.

- Enter Key (↵)

The remote control Enter key is used to execute a selection after highlighting the selection with the remote's Prv and Nxt Navigation keys.

Remote Control Batteries

When batteries in the remote control are low, a flashing battery low icon will be displayed next to the remote control display at the top of the screen.



A battery holder inside the remote holds two (2) AA batteries. To replace batteries, remove the battery cover from the bottom of the remote. Replace old batteries (see Figure 2-13) and replace cover. Dispose of batteries following local governing ordinances and recycling plans.

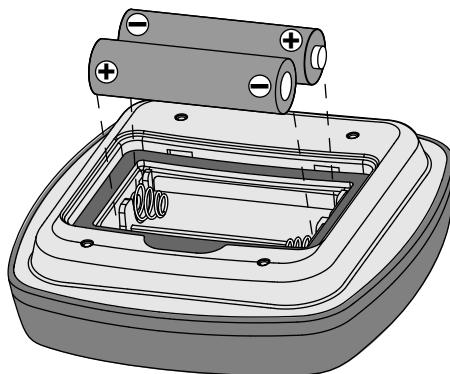


Figure 2-13 Battery orientation in remote control

Select Remote Control Channel

The remote control can be configured to operate on one-of-six channels. This feature allows six remote controls to independently control six *Centurion®* Vision Systems operating in the same room or area. Remote controls are factory preset to channel A. For proper remote operation, the *Centurion®* Vision System must be set to the same channel as the remote control.

To select a remote channel, press the *Custom* key and select *System Settings/General* tab. Select the *Change Remote Channel* button and follow the on-screen instructions (see Figure 2-14). No additional steps are needed once the remote channel is set, and only one remote channel is stored per unit.

PRECAUTION: If necessary to distinguish between remote controls, identify the remote controls and the units with unique labels.

CAUTION

Do not sterilize the remote control as it will damage the unit.

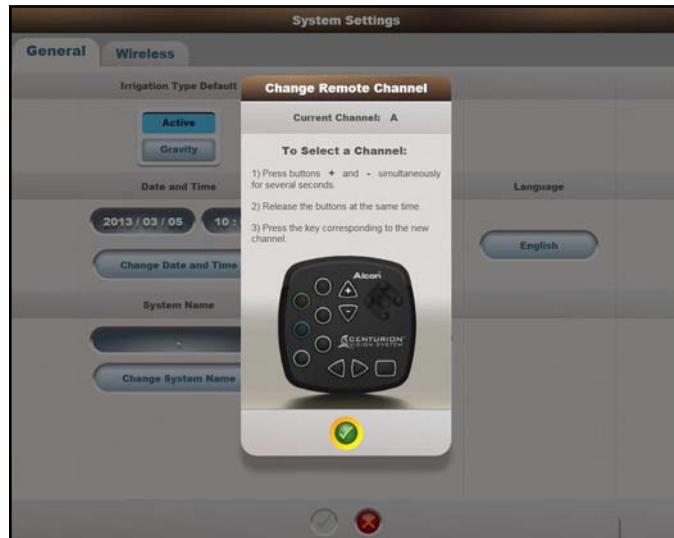


Figure 2-14 Change Remote Channel Dialog

HANDPIECES, TIPS, AND INFUSION SLEEVES

Different handpieces, tips, and infusion sleeves are required for different procedural steps and/or functions. A full selection of handpieces, along with tip styles and sizes are available. Please contact your Alcon representative for information regarding the appropriate handpieces, tips, and infusion sleeves for your specific technique and needs.

Following is a general description of the various handpieces, tips, and infusion sleeves used to perform lens removal procedures.

Phaco Handpieces

Alcon's phaco handpieces integrate irrigation, aspiration and emulsification (see Figures 2-15 & 2-16). The three functions of the lens extraction step enable the surgeon to simultaneously maintain or inflate the anterior chamber, emulsify the lens, and aspirate the lens material from the eye.

These handpieces require no disassembly other than removal of the disposable tubing, the ultrasonic tip, and the infusion sleeve.

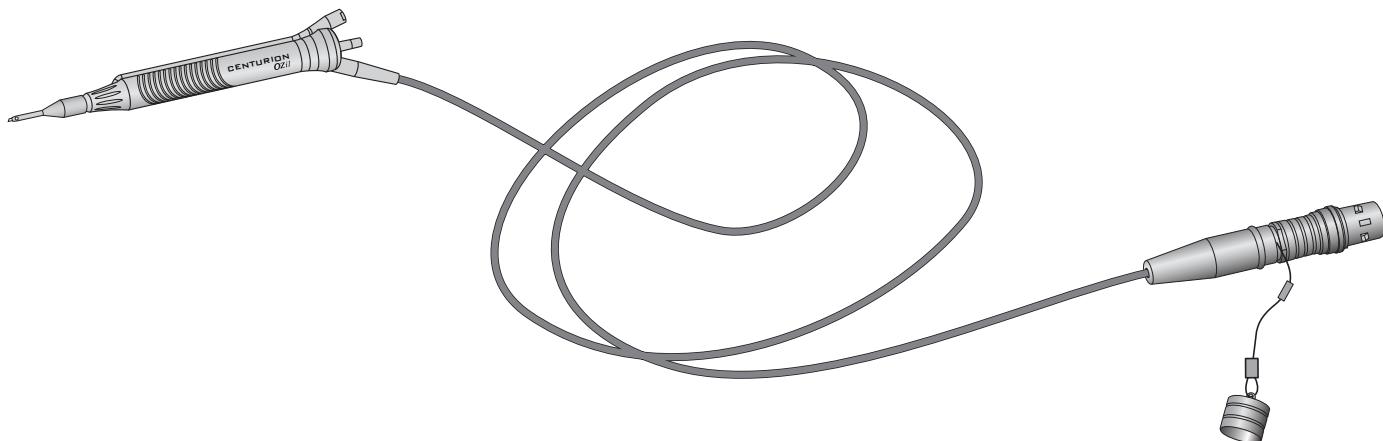


Figure 2-15 CENTURION® OZi® Handpiece

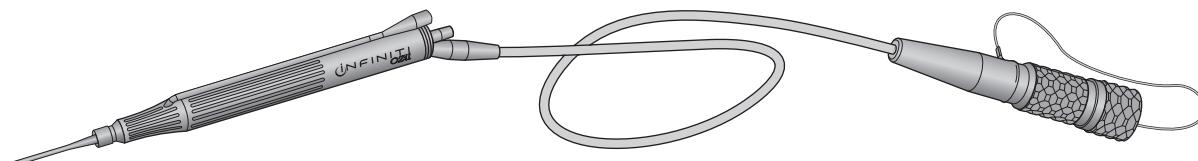


Figure 2-16 INFINITI® OZi® Handpiece

Phaco handpieces are used for ultrasonic applications on the *Centurion[®]* Vision System with *TurboSonics[®]* tips, including flared, *ABS[®]*, and/or *ALCON[®]* *UltraChopper[®]* tips. For best *OZil[®]* torsional handpiece performance, use tips recommended by your Alcon representative.

CAUTIONS

Do not test or operate a phaco handpiece unless the tip is immersed in *BSS[®]* sterile irrigating fluid or distilled water or is in surgical use. Irreparable damage to the handpiece and tip can result if run dry.

Ensure that test chamber is filled with *BSS[®]* sterile irrigating fluid before tuning the phaco handpiece. Tuning a handpiece dry may result in premature tip failure and breakage.

WARNINGS!

Use of an ultrasonic handpiece other than an *OZil[®]* handpiece, or use of a handpiece repaired without Alcon authorization, is not permitted, and may result in patient injury, including potential shock hazard to patient and/or operator.

Use of a phaco handpiece in the absence of irrigation flow and/or in the presence of reduced or lost aspiration flow can cause excessive heating and potential thermal injury to adjacent eye tissues.

TurboSonics[®] Family of Tips

U/S tips are made of medical grade titanium alloy, and are attached to a phaco handpiece to deliver mechanical energy to the lens, assisting in its removal by aspiration (with the exception of the ALCON[®] UltraChopper[®] tip – see below).

Depending on the needs and technique preferred by the surgeon, various styles of tips and tip bevels are available (see Figure 2-17). Various U/S tip styles are color coded.

- 0.7 mm and 0.9 mm U/S Tips - The 0.7 mm and 0.9 mm ultrasonic tips are designed to allow entry through a smaller incision. The 0.7 mm U/S tips are designed for use only with 0.7 mm infusion sleeves; the 0.9 mm U/S tips are designed for use only with 0.9 mm infusion sleeves.
- Aspiration Bypass System - The ABS[®] tip contains a small hole in the distal portion of the tip's wall. This helps to maintain fluid flow through the system even during occlusion of the tip's main port.
- ALCON[®] UltraChopper[®] Tip - This 0.9 mm U/S tip is designed for pre-chopping only. It is not designed to aspirate lens material.

WARNINGS!

Use 0.7 mm tips with 0.7 mm infusion sleeves; use 0.9 mm tips with 0.9 mm infusion sleeves. Mismatch of consumable components and use of settings not specially adjusted for a particular combination of consumable components may create a patient hazard.



Standard U/S Tip - The TurboSonics[®] tip with the round shaft is the original, classical U/S tip shape.



Kelman[®] Tip - The Kelman[®] tip has a bent shaft which generates torsional ultrasound motion, in addition to the conventional longitudinal motion, to enhance cutting efficiency. In addition, the 20 degree bend allows better visibility during the surgical procedure.



OZi[®] 12 Tip - Similar to the Kelman[®] tip, except its bend is 12 degrees instead of 20. This smaller bend maintains good torsional cutting efficiency with similar ergonomics to a straight tip.



ALCON[®] UltraChopper[®] Tip - This tip is similar to a standard phaco tip, but with a flattened, downward-curved end to facilitate prechopping. This tip is used for fragmentation of nuclei for a variety of densities to be used with an ultrasonic handpiece to separate a cataractous lens into smaller pieces.



ABS[®] Intrepid[®] Balanced Tip - The balanced tip has a double bend profile to enhance torsional cutting efficiency with minimum incision misting and similar ergonomics to a straight tip. The ABS[®] tip feature helps maintain fluid flow, even during occlusion of the tip's main port.



Tapered ABS[®] MicroTip - The tapered tip is a combination of the 0.9 mm tip and the flared tip. The shaft inner and outer diameters is equivalent to straight tips, while the distal end is comparable to flared tips. The tapered tip has the improved holding force of a flared tip, and the same aspiration flow characteristics as a straight tip.

Flared ABS[®] Tip - The Flared ABS[®] MicroTip and the Mini-Flared ABS[®] Tip have a larger proximal port, providing increased holding force. (Mini-Flared tips have a slightly smaller proximal port than Flared versions.) Flared tips narrow in the middle of the shaft, thus allowing smaller incisions and improving occlusion breaks by reducing outflow from the anterior chamber following occlusion breaks. To further enhance performance, Flared tips also have the Aspiration Bypass System feature.

Figure 2-17 TurboSonics[®] Tips - Shown here are samples of handpiece tips used with Alcon phaco handpieces.

Infusion Sleeves

Infusion sleeves cover the tip of the handpiece to provide irrigating fluid to the anterior chamber of the eye during surgery (see Figure 2-18). Infusion sleeves are used with phaco handpieces, and with the *Ultraflow™ * II I/A* handpiece. Infusion sleeves must be correctly matched to the specific tip type (see the following descriptions).

Depending on the needs and technique preferred by the surgeon, various styles of infusion sleeves are available.

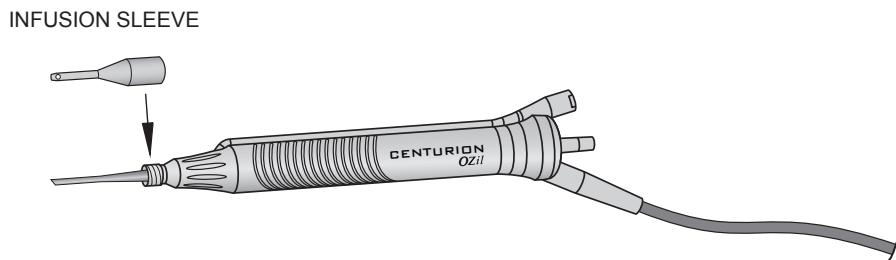


Figure 2-18 CENTURION® OZi® Handpiece with Infusion Sleeve.

- Standard *MicroSmooth®* Infusion Sleeves - These are the original infusion sleeves. Standard infusion sleeves are 0.9 mm (purple), to be used with 0.9 mm tips.
- INTREPID® Ultra Infusion Sleeves - Ultra infusion sleeves have a smaller shaft diameter than original infusion sleeves. The smaller shaft diameter of the Ultra infusion sleeves is compatible with a 2.2 mm incision. Ultra infusion sleeves are available in 0.9 mm (rose) and 0.7 mm (yellow). Refer to consumable pack DFU for compatible tips.
- INTREPID® Nano Infusion Sleeves - Nano infusion sleeves have a smaller shaft taper and proximal outer diameter than Ultra infusion sleeves. The smaller proximal OD and decreased taper of the Nano sleeves are compatible with a smaller 1.8 mm incision. Nano infusion sleeves are available in 0.9 mm (orange) and 0.7 mm (gray). Refer to consumable pack DFU for compatible tips.

WARNINGS!

Use 0.7 mm tips exclusively with 0.7 mm infusion sleeves; use 0.9 mm U/S tips exclusively with 0.9 mm infusion sleeves. Mismatching U/S tips and infusion sleeves may create potentially hazardous fluidic imbalances.

Mismatch of consumable components and use of settings not specially adjusted for a particular combination of consumable components may create a patient hazard.

Read all packaging and Directions for Use supplied with the consumable packs prior to their use.

Ultraflow™* II I/A Handpiece

The *Ultraflow™* II* handpiece is used in I/A mode to maintain chamber pressure with irrigation while removing cortical material via aspiration (see Figure 2-19). Refer to the *Ultraflow™* II I/A Handpiece DFU* for more information.

WARNINGS!

Use of non-ALCON® surgical reusable or disposable I/A handpieces that do not meet Alcon surgical specifications, or use of an Alcon handpiece not specified for use with the Centurion® Vision System, may result in a fluidic imbalance. This, in turn, may cause a shallowing or collapsing of the anterior chamber.

Exceeding the recommended level of 100 mmHg (133 hPa) with a 0.5 mm or larger I/A tip may cause anterior chamber shallowing and/or incarceration or tearing of the posterior capsule.

Perform visual inspection of accessories for burrs or bent tips prior to use.

I/A tips are not to be used with phaco handpieces.



Figure 2-19 ULTRAFLOW™* II HANDPIECE - Shown here is the *Ultraflow® II* handpiece with I/A tip.

INTREPID® AutoSert® IOL Injector

The INTREPID® AutoSert® IOL Injector is intended to deliver qualified AcrySof® intraocular lenses into the eye following cataract removal (see Figure 2-20). The IOL injector, after proper preparation with a loaded, single use cartridge, gives the surgeon footpedal control of AcrySof® lens insertion. The IOL injector supports the D/C cartridge or INTREPID® cartridge and associated lenses. Please refer to the INTREPID® AutoSert® IOL Injector DFU for qualified cartridge/IOL combinations.

The *AutoSert*® Injector step does not appear at the bottom of the surgery screen until it is added through the Custom/Procedure Builder dialog.

When connected, the *Centurion*® system begins calibrating the IOL injector, and if successful, it becomes ready for use, changing its icon in the adjustment bar from gray to green.

The IOL injector comes with a detachable and reusable plunger. Please refer to the INTREPID® AutoSert® IOL Injector DFU for instructions on proper preparation and use of the handpiece and plunger.

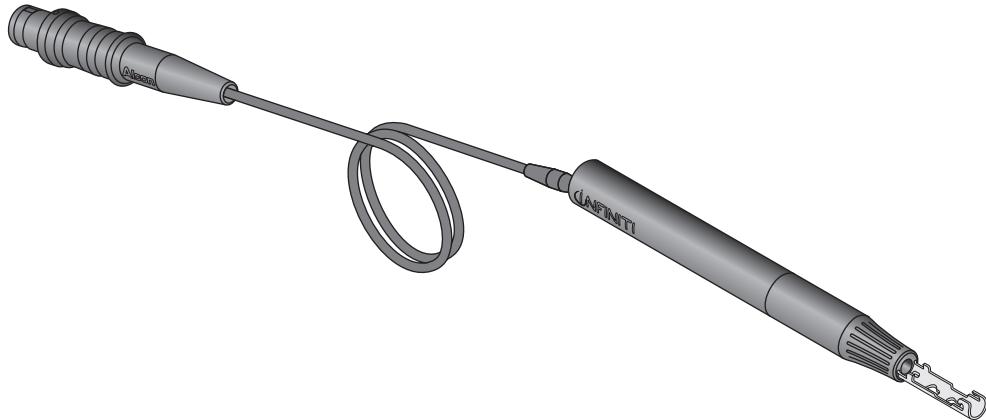


Figure 2-20 INTREPID® AutoSert® IOL INJECTOR - The *AutoSert*® Injector gives the surgeon footpedal control of IOL insertion (single use cartridge with lens not shown).

CAUTIONS

- Do not ultrasonically clean the *AutoSert*® IOL Injector connector. Ultrasonic cleaning of connector will cause irreparable damage.
- Use care when handling *AutoSert*® IOL Injector, particularly when cleaning. Always clean *AutoSert*® IOL Injector over a surface cushioned with a pad or rubber mat.
- Be sure *AutoSert*® IOL Injector cable connector is dry before connecting it to console.
- Do not immerse *AutoSert*® IOL Injector in any fluid when plunger is not retracted.
- Do not disconnect cable connector from *Centurion*® system console until the *AutoSert*® IOL Injector plunger is fully retracted.
- As part of a properly maintained surgical environment, it is recommended that a backup IOL injector be made available in the event the *AutoSert*® IOL injector handpiece does not perform as expected.

AutoSert® IOL Injector warnings are listed on next page

WARNINGS!

- The INTREPID[®] AutoSert[®] IOL Injector is non-sterile and must be cleaned and sterilized prior to, and immediately after, each use.
- Never immerse the IOL injector in liquid after autoclaving; allow it to air cool for at least 15 minutes. Quenching could result in a potentially hazardous condition for the patient.
- The AutoSert[®] IOL Injector delivery system is for the implantation of Alcon qualified AcrySof[®] foldable IOLs. Unqualified lenses shall not be used with the system. See INTREPID[®] AutoSert[®] IOL Injector DFU or AcrySof[®] IOL DFU, or contact your Alcon representative, for qualified lens/cartridge combinations.
- The cartridge/IOL combination listed in the DFU, along with Alcon settings, has been validated per section 5 of BS EN ISO 11979-3:2006. Appropriate use of injector handpiece settings is important for successful IOL implantation. Inappropriate use of settings may lead to a potentially hazardous condition for the patient.
- Fully retract plunger before detaching nosecone from AutoSert[®] IOL Injector; otherwise, this could expose non-sterile portion of shaft and result in a potentially hazardous condition for the patient.
- For the intended IOL to be implanted, the proper Cartridge profile must be selected from the driving console, and the proper plunger must be attached to the AutoSert[®] IOL Injector. Failure to do so can result in a potentially hazardous condition for patient.
- The metal reusable plunger must be sterilized after each use. The reusable plunger is to be installed onto the handpiece or into the wrench prior to sterilization.

Centurion® UltraVit® Probe

The *Centurion®* system supports the 23 gauge *Centurion® UltraVit®* vitrectomy probe (see Figure 2-21). The probe is a sterile, single-use, vitreous cutter which provides for aspiration and cutting. An irrigating cannula is provided in each pack to allow for bimanual irrigation.

The 23 gauge *Centurion® UltraVit®* probe supports higher cut rates by utilizing an additional pneumatic actuation line.

Each probe is completely preassembled and requires no lubrication or cleaning prior to surgery. These guillotine vitreous cutters are intended for single use only.

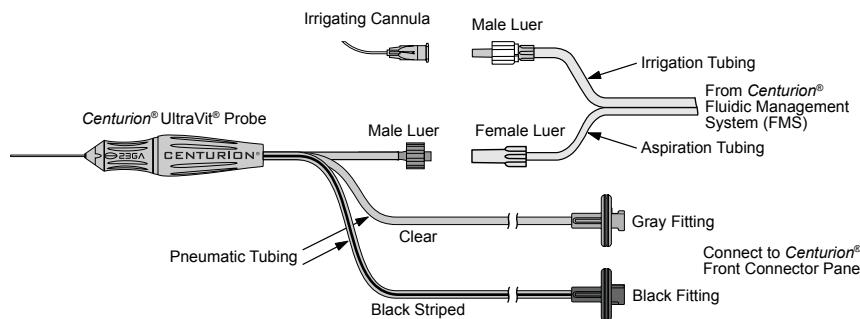


Figure 2-21 VITRECTOMY PROBES - The 23 gauge *Centurion® UltraVit®* probe operates at up to 4000 cpm and utilizes two pneumatic lines. The probe is packaged with an irrigating cannula.

VITRECTOMY PROBE WARNINGS!

Do not test or operate vitrectomy probes unless tip of probe is immersed in BSS® sterile irrigating solution or distilled water or is in surgical use. Irreparable damage to the probe and tip can result if run dry.

Connect pneumatic tubing connectors from vitrectomy probe to console prior to initiating prime of probe. Initiating prime of the vitrectomy probe, or running the vitrectomy system, with one or both pneumatic connectors disconnected may cause the flow of non-sterile air over the sterile field for a brief moment.

After filling and testing, and before surgical use, verify that the probe is properly actuating and aspirating. This may require lowering cut rate to achieve good visualization. The port should always remain in open position in footpedal position 1. If cutting port is partially closed while in position 1, replace the probe. Prior to entry into the eye, and with tip of probe in sterile irrigating solution, the surgeon should step on the footpedal for visual verification that the probe is cutting:

- If the cutter is observed to not fully close, or does not move when the probe is actuated, replace the probe.
- If cutting port is partially closed while idle, replace the probe.
- If air bubbles are observed in the aspiration line or exiting the probe tip during priming, replace the probe.
- If a reduction of cutting capability or vacuum is observed during the surgical procedure, stop immediately and replace the probe.

INTREPID® Capsulotomy Device (future feature)

The *Centurion*® system supports the INTREPID® Capsulotomy Device (ICD) used to perform capsulorhexis in the Capsulotomy mode of operation (see Figure 2-22). The ICD uses cauterization by means of a resistive heating element to create the capsulotomy and is indicated for use in the creation of an anterior capsulotomy during anterior segment ophthalmic surgery and implantation of a 6.0 mm IOL.

Please refer to INTREPID® Capsulotomy Device DFU for warnings and details on operation.

The ICD is a single-use device provided sterile to the end user, and is packaged to allow aseptic transfer into the sterile field by a non-sterile person according to its DFU.

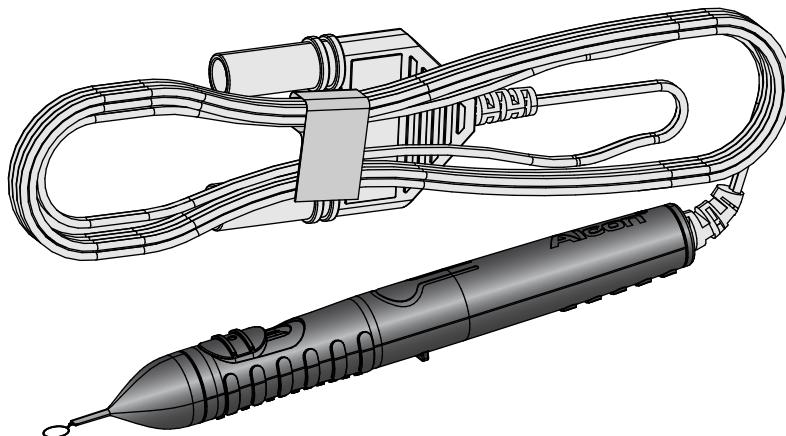


Figure 2-22 INTREPID® Capsulotomy Device - The ICD is a single-use instrument used to perform a capsulotomy through the means of a resistive heating element at the tip of the handpiece. The heating element retracts into the handpiece tip during insertion into the eye, then is extended from the tip for capsulorhexis.

Bipolar Coagulation Accessories

Bipolar coagulation handpieces and cables are not sold by Alcon. See accessories list in Section Six of this manual for bipolar cables approved for use with the *Centurion*® Vision System.

FLUIDIC MANAGEMENT SYSTEM

Description

The Fluidic Management System (FMS; i.e., cassette) is an interface between the *Centurion®* console (Fluidics Module) and the surgical handpiece (see Figure 2-23). It is used to regulate *BSS®* irrigating fluid to the handpiece, aspirate debris from the handpiece, monitor irrigation and aspiration pressure, and deposit the debris in a sealed drainage bag for disposal. This single assembly contains a rigid plastic fluidic chamber, non-invasive pressure/vacuum sensor, drain bag, *BSS®* irrigating fluid administration line, and irrigation and aspiration handpiece tubing.

Two types of FMS can be used with the *Centurion®* Vision System. For *Active Fluidics™* technology the FMS has short, clear tubing with an irrigation spike that plugs into a bag of *BSS®* irrigating fluid. For Gravity Fluidics the FMS has long, clear tubing with a drip chamber that plugs into a container of *BSS®* irrigating fluid hanging from the IV pole.

The type of FMS inserted is automatically identified by the system when it is inserted into the fluidics module. Inserting the FMS into the console fluidics module establishes fluidics system connections, contributing to quick and easy surgical setup.

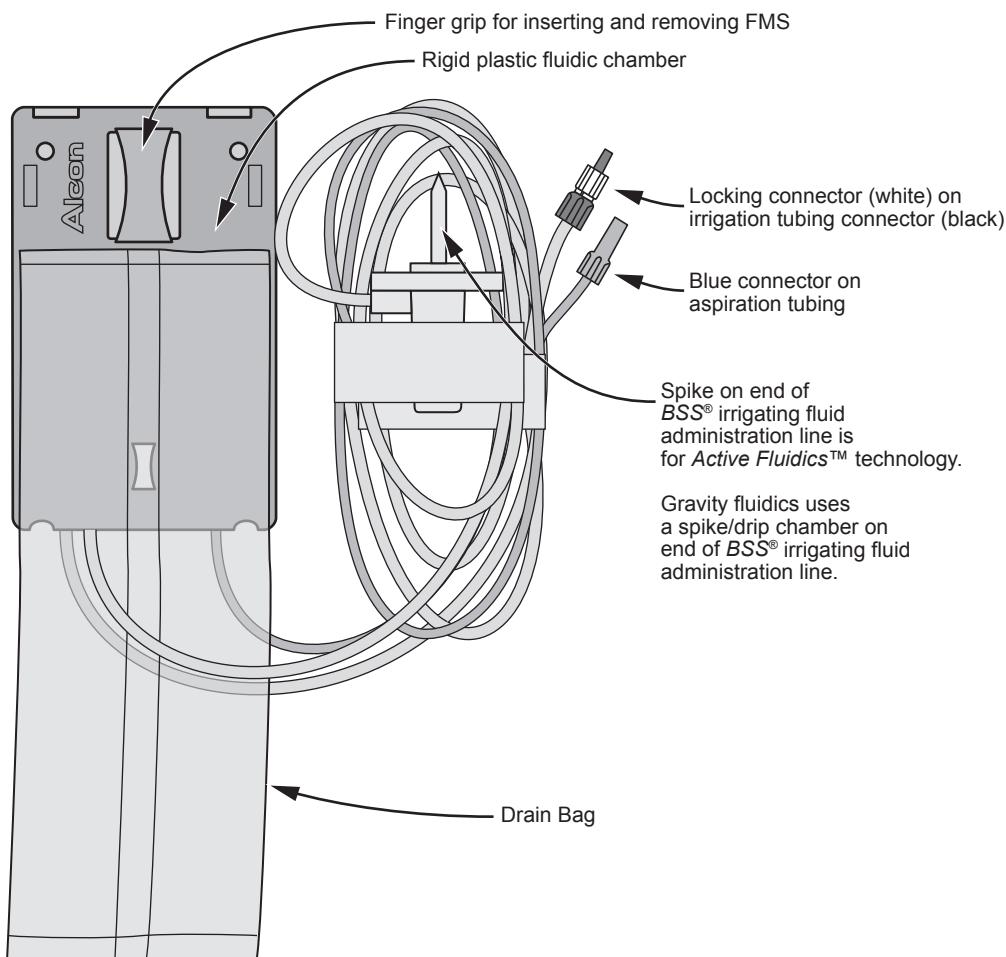


Figure 2-23 Fluidic Management System - The FMS is inserted into the Fluidics Module on the front of the console to establish fluidics system connections. Shown here is the FMS for Active Fluidics™ technology; the FMS for gravity fluidics contains longer irrigation tubing and a spiked drip chamber at the end of the irrigating fluid administration line.

CONSUMABLE PACK CONFIGURATIONS

The family of *Centurion*[®] packs consist of various combinations of fluidic management systems (FMS), handpiece tips, infusion sleeves, and other components. Consumable items used with the *Centurion*[®] Vision System during surgery are designed to be used once and then discarded, unless labeled otherwise.

Please contact your Alcon Sales representative for complete up-to-date listings, and for in-service information prior to initial use of Alcon packs. All *Centurion*[®] packs contain Directions for Use (DFU). It is important to read and understand the DFU's prior to use.

In all cases, the instrument setup instructions contained in the manual should be thoroughly understood prior to using any of the pack configurations.

PRECAUTION: If an inconsistency exists between the instructions in the operator's manual and the Directions For Use (DFU) supplied with a consumable pack or accessory, follow the DFU.

***Custom Pak*^{TM*} Surgical Procedure Pack Configurations**

To better serve our customers we offer the opportunity for surgeons to specify a *Custom Pak*^{TM*} surgical procedure pack for their own individual needs. Please contact your Alcon Sales representative for more information on how to design your own *Custom Pak*^{TM*} surgical procedure pack.

WARNINGS!

Mismatch of consumable components and use of settings not specially adjusted for a particular combination of consumable components may create a patient hazard.

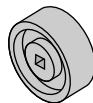
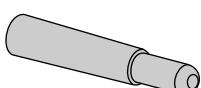
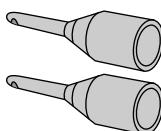
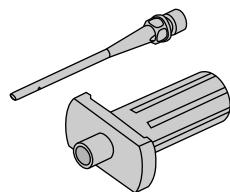
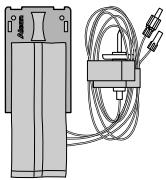
Do not use packs that have exceeded the expiration date.

Sterile disposable medical devices should not be reused! These components have been designed for one time use only; do not reuse.

The equipment used in conjunction with the Alcon disposables constitutes a complete surgical system. Use of disposables other than Alcon disposables may affect system performance and create potential hazards, and if it is determined to have contributed to the malfunction of the equipment under contract, could result in the voidance of the contract and/or invoicing at prevailing hourly rates.

Centurion® Fluidic Management System Packs

When performing a phacoemulsification procedure, one-of-two *Centurion®* FMS packs with handpiece tip is used. One FMS pack is specific for *Active Fluidics™* technology, (when using bag of *BSS®* irrigating fluid in the bag bay) and the other is for gravity fluidics (when using container of *BSS®* irrigating fluid hanging from IV pole). The pack can contain all the items listed below:



- Fluidic Management System (FMS) - This single assembly consists of a *BSS®* irrigating fluid administration line (tubing with a spike for *Active Fluidics™* technology, or spike/drip chamber for gravity fluidics), irrigation tubing and aspiration tubing, a plastic body (containing pump, valves, and sensors), and a drainage bag (maximum capacity of 500 cc [500 mL]). Inserting the FMS into its console receptacle establishes the *Centurion®* fluidic system, allowing quick and easy surgical setup.
- U/S Tip with Tip Holder/Wrench - The tip attaches to the ultrasonic handpiece. Securely tighten the tip with the all-in-one tip/wrench assembly, then remove the wrench from the tip. Several tip designs are available.
- Infusion Sleeve - This single-piece silicone sleeve fits over the handpiece tip to provide irrigating fluid into the eye, protection to the surrounding tissues, and fluidic balance. Two infusion sleeves are provided; one to be used with the phaco handpiece/tip, and a second to be used with the I/A handpiece/tip.
- Test Chamber - The test chamber is a small elastomeric cap that fits over the handpiece tip to facilitate a functional irrigation and aspiration check of the handpiece and instrument prior to surgery.
- I/A Tip Wrench - A separate wrench is required to securely fasten the I/A tip to its handpiece, and also to remove the tip when the surgery is completed.
- Tray Support Cover - The tray support cover is a sterile plastic bag that is placed around the instrument tray and support arm. The cover is used to form a pouch in the tray to provide storage for the handpiece and tubing during surgery.
- Directions for Use (DFU) - Instructions for setup and removal of pack contents (not shown).

VIDEOOVERLAY SYSTEM (optional item)

Overview

The VideOverlay system accepts operating parameters from the *Centurion®* Vision System and overlays that information onto video accepted from the microscope camera (see Figure 2-24). The VideOverlay system then outputs a video signal to a monitor and/or VCR for retrospective viewing.

For a complete description of the High Definition VideOverlay system, please refer to the operator's manual addendum which accompanied the High Definition VideOverlay system.

The VideOverlay system is powered by an external power supply. The external power supply can operate from a 100 VAC to 240 VAC source, and provides an output of 12 VDC at 1.25 amps to power the VideOverlay system.

WARNINGS!

- **Do not remove VideOverlay cover; there are no user-serviceable parts inside. Refer servicing to qualified service personnel.**
- **Patient environment defines a volume in which intentional or unintentional contact can occur between the patient and parts of the equipment or between the patient and other persons touching parts of the equipment. Please ensure that the VideOverlay system is outside the patient environment.**

CAUTIONS

- **Do not use multiple portable socket outlets with this system.**
- **Use only Alcon-supplied serial cable to connect *Centurion®* Vision System to VideOverlay system.**

PRECAUTIONS:

- This unit is not a medical device and should be located/stored with other video equipment (i.e., VCR, monitor, etc.).
- When connected to the *Centurion®* Vision System, the VideOverlay system does not increase the leakage current of the *Centurion®* Vision System.
- The VideOverlay system is for information purposes only, and is not intended to substitute for the *Centurion®* Vision System display.

To set up the HD IVO, refer to documentation that came with HD kit.

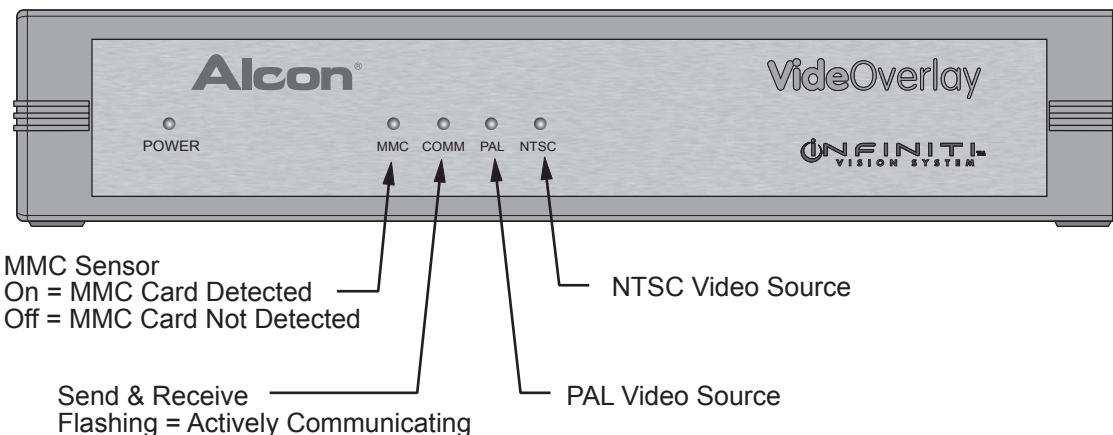


Figure 2-24 Standard VideOverlay Front Panel

Setup For Standard VideOverlay System

1. Ensure electric power to all systems is turned OFF. Attach the 12 V end of the external power supply to the VideOverlay system.
2. Attach the appropriate wall outlet adapter (USA, United Kingdom, Australia, or Europe) to the AC end of the external power supply, and plug it into an appropriate wall outlet (see Figure 2-26).
3. The VideOverlay system can operate using either Composite Video inputs/outputs or S-Video inputs/outputs. Appropriate cables should be used to configure the VideOverlay system. Connect the microscope camera output to the Composite or S-Video input of the VideOverlay system (see Figures 2-25 & 2-27).

PRECAUTION: If the microscope camera output has an RCA or BNC connector, connect the camera output to the VideOverlay Composite input. Do not use an adapter cable to connect the camera output to the VideOverlay S-Video input or loss of color will occur.

4. Connect the Composite or S-Video output of the VideOverlay system to a monitor or a VCR. The video output selected must be the same configuration as that used for the video input (Composite or S-Video).
5. With the video output connected to a monitor, turn the monitor and microscope camera power ON, and leave the VideOverlay system power OFF. If the video input and output cables are connected properly, the microscope camera image will appear on the monitor.
6. Connect the serial cable between the VideOverlay system and *Centurion®* Vision System.
7. Turn *Centurion®* Vision System power ON. Turn VideOverlay system power ON with its rear panel switch. The MMC light and either the PAL or NTSC Video source light should be illuminated (if not illuminated, check power supply connections).
8. With the *Centurion®* system touchscreen interface running, make sure the Send & Receive light blinks (if not blinking, check serial cable).
9. Observe the monitor video display. If the system does not operate correctly, contact an Alcon Technical Service representative.

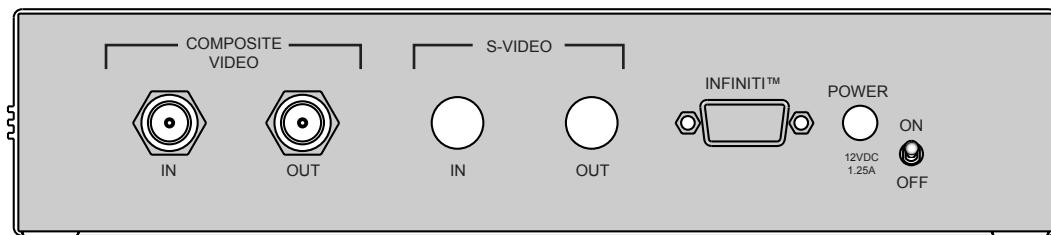


Figure 2-25 VideOverlay Rear Panel

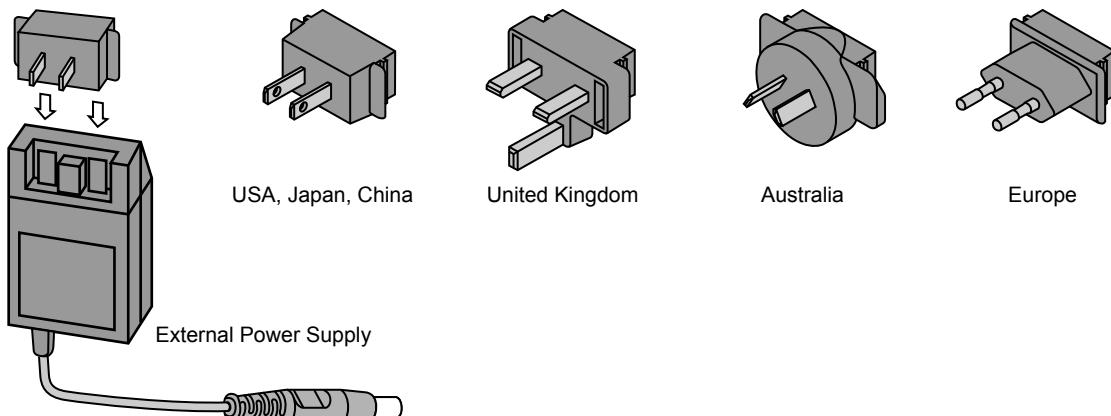


Figure 2-26 Wall Outlet Adapters

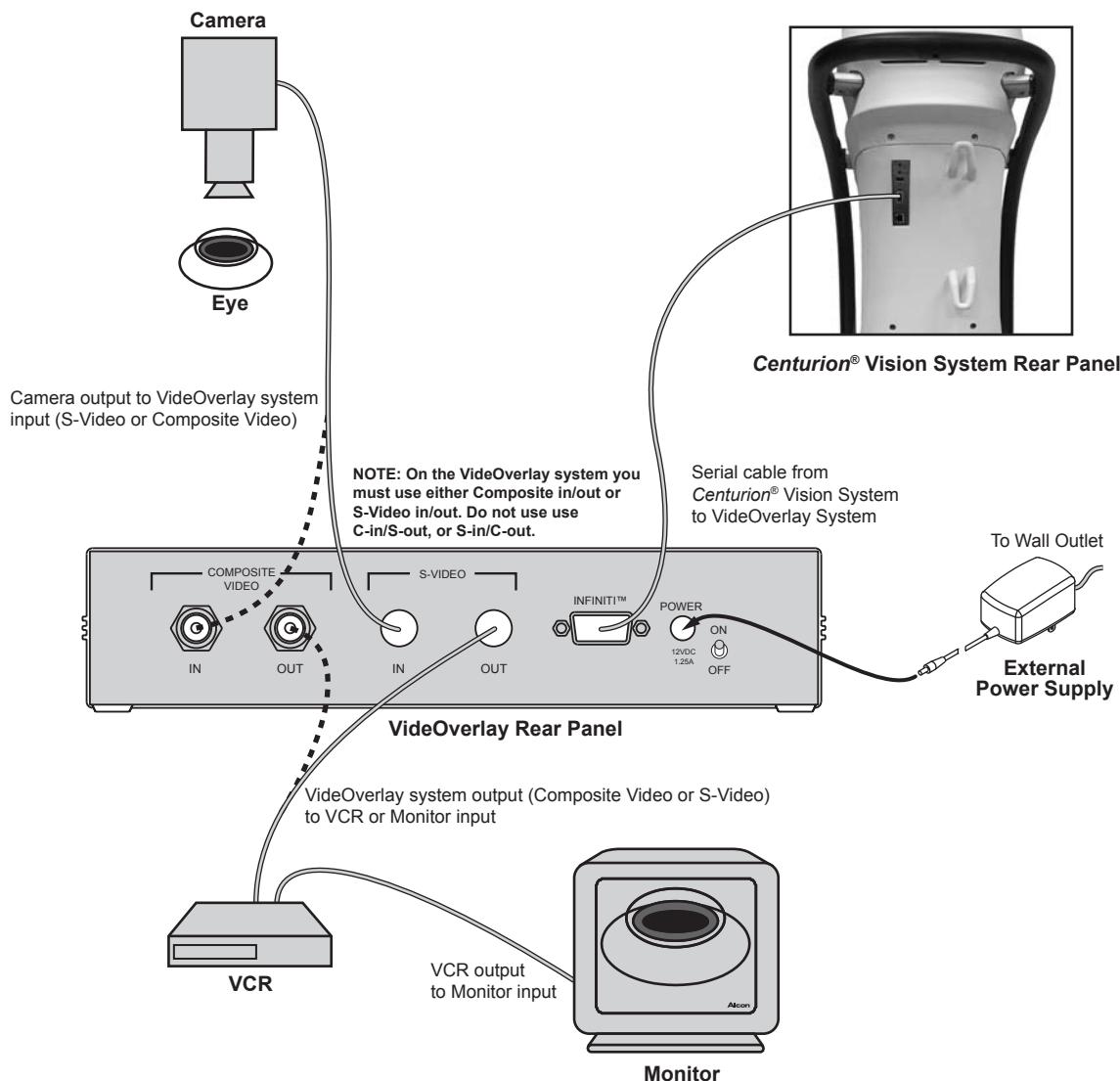


Figure 2-27 Standard VideOverlay Connection Diagram

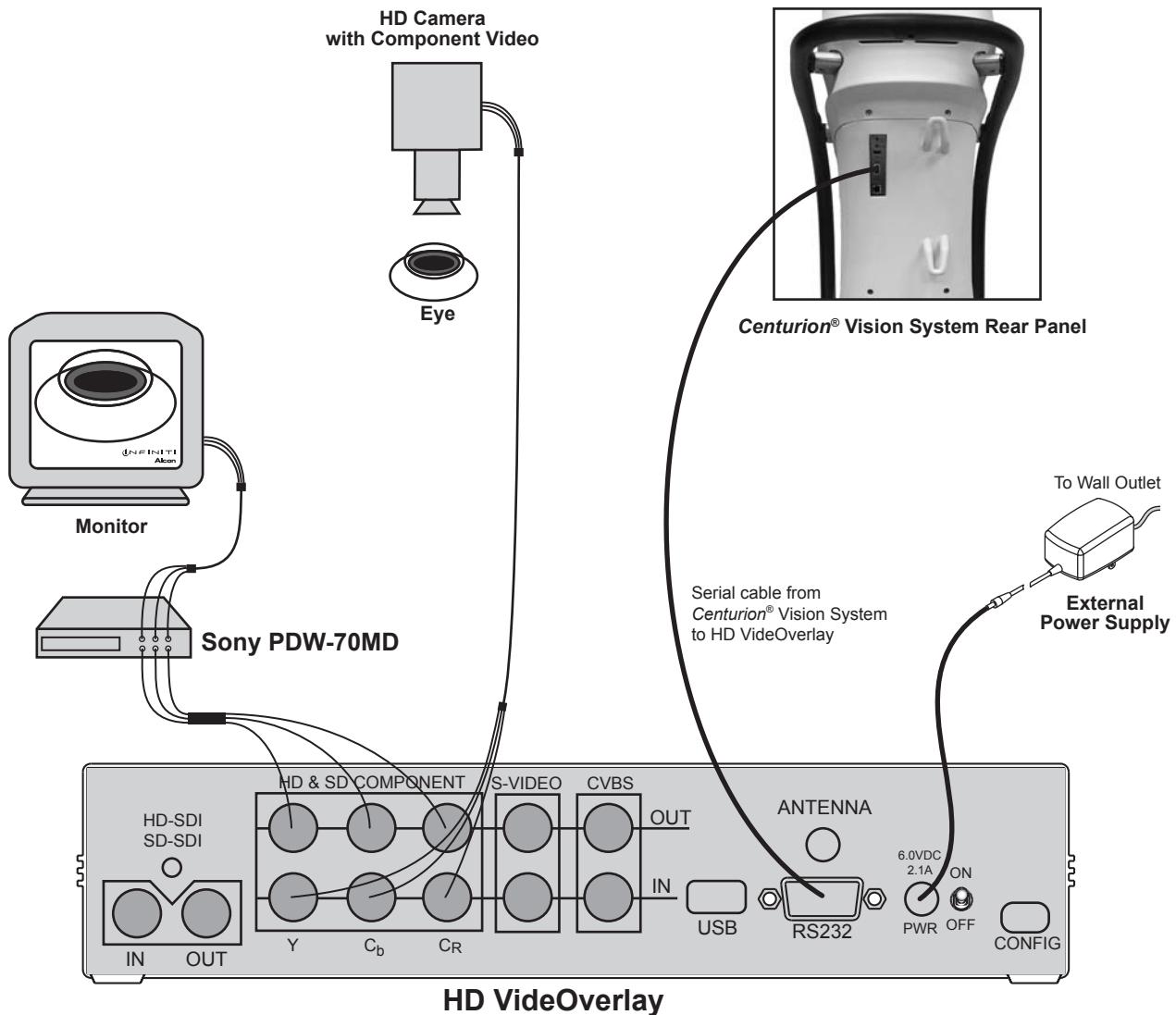


Figure 2-28 High Definition VideOverlay Connection Diagram

CENTURION[®] VISION SYSTEM OPERATOR INTERFACE

FRONT DISPLAY PANEL AND TOUCH SCREEN

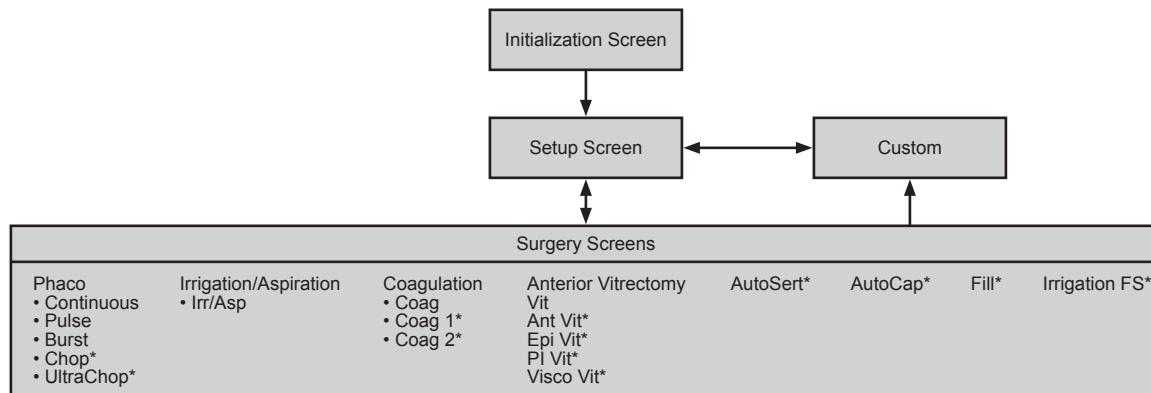
The *Centurion[®]* Vision System front display panel and touch screen has a flat, non-glare surface, and is mounted above the console. For ease of viewing the display panel swivels and rotates, and it folds down into a protected position for storage.

Control buttons are located within the active touch screen area. There are three basic types of pushbuttons on the display screen: up/down arrow buttons, momentary buttons, and slider buttons. The user can press and hold the up/down arrow buttons until the desired adjustment is complete, he can press the momentary buttons with a single push-and-release to activate a function, and he can press and hold slider buttons while moving the slider until the desired adjustment is complete.

The *Centurion[®]* Vision System emits an audible tone to indicate button activation. Activation of a valid touchscreen button or remote control button results in a valid key tone; an invalid button results in an invalid key tone, and sometimes its icon symbol is ghosted to indicate an invalid function.

There are three types of display screens: the Setup screen, Surgery screens, and Dialogs.

- The Setup screen is used to prepare for surgery; i.e., priming the fluidic management system and testing the handpiece.
- Surgery screens contain special surgical settings for each of the current surgical procedures. Pressing the touch screen buttons (or footswitch or remote control) allows the user to adjust the settings for his current step.
- Dialogs are displayed as a result of selecting an option from the Custom drop list (i.e., Doctor Settings, System Settings, Procedure Builder, etc.) or pressing the CDE or Remote buttons. Dialogs enable the user to view and modify system settings, doctor settings, and some surgical settings. There is another class of dialogs that are displayed when the user needs to be advised or warned of a situation, or to indicate progress on a function in the Setup screen.



* These individual steps can be inserted into the bottom row of steps in a surgery screen using the *Custom / Procedure Builder* menu.

Figure 2-29 Navigating the Centurion[®] Vision System User Screens

SETUP SCREEN AND ITS FUNCTIONS

The Setup screen is displayed when one of the following occurs:

- The system is powered up and initialization is successful.
- The screen is explicitly invoked by pressing the Setup button from a Surgery screen.
- A Custom dialog screen is exited.
- The FMS is removed while in a surgery screen other than Coagulation.
- A handpiece is selected in a surgery screen and the handpiece is not tuned.
- A valid FMS is inserted while the user is in a surgery screen.

The Setup screen is divided into three sections. At the top is the Status Panel, below that is the Setup Status Window, and below that are the Setup Steps.

1. Status Panel

The Status Panel (labeled 1 in Figure 2-30) consists of buttons and readouts that are used to set up the system and then perform surgery. The Status Panel contains the same data in both the Setup screen and the Surgery screens, discussed later.

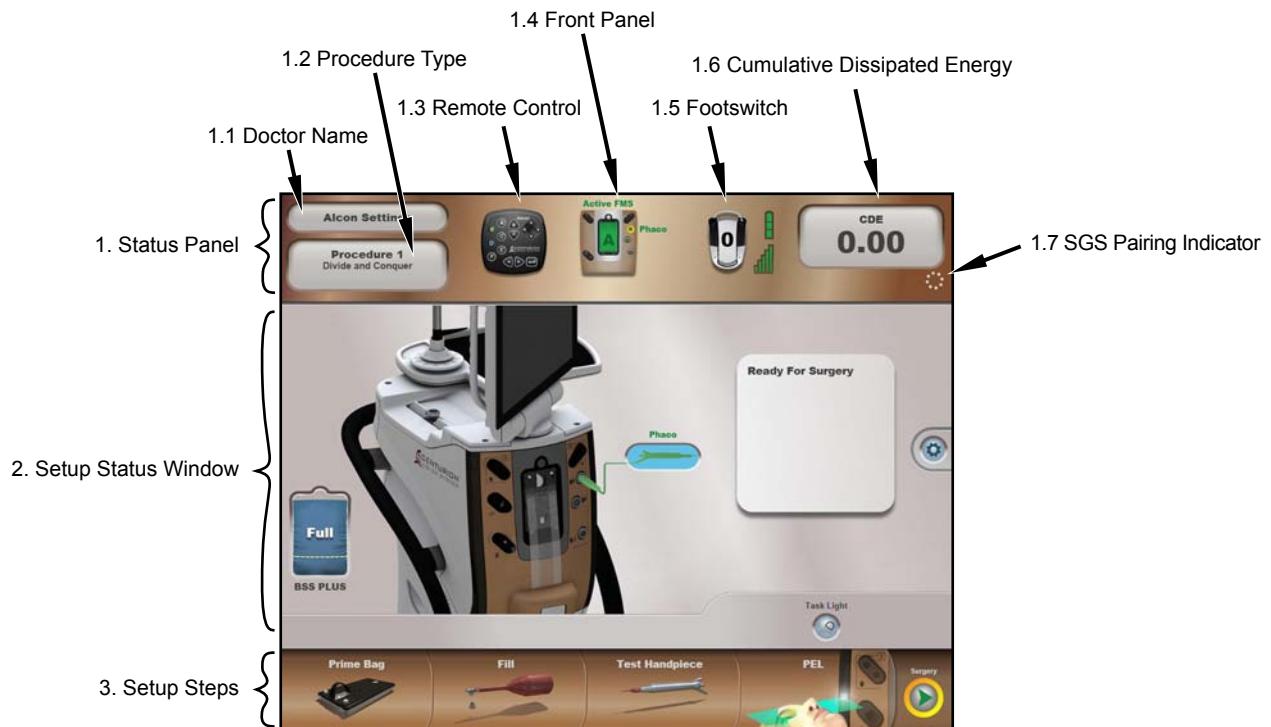


Figure 2-30 Functional Areas of the Setup Screen Using Active Fluidics™ technology

1.1

Doctor Name Button

The *Doctor Name* button in the Status Panel displays the currently-selected doctor. When pressed, and also when system is first turned on, this button displays a drop list of all the doctors entered in the system (see Figure 2-31). The first doctor at the top of the list is the Alcon Settings doctor, which contains all the Alcon defaults. A summary of Alcon Settings defaults can be found in Table 1-7.

PRECAUTION: When the selected Doctor Name is Alcon Settings, changes to settings are temporary; although, when exiting Alcon Settings a dialog appears allowing the user to save the settings under a new doctor name.

At the bottom of the list is the *Manage Doctors* selection which allows the user to add a new doctor to the list, copy a doctor's settings to a new doctor name, rename a doctor, and delete a doctor from the list. The doctors are listed with the most-recently-selected doctor in the top position, immediately below Alcon Settings.

An asterisk is placed next to the doctor name if there are unsaved changes to surgical parameters. For Alcon Settings only, an asterisk appears if there are changes to doctor settings, but not if the only change is the addition or removal of steps.

WARNING!

Ensure that appropriate Centurion® system parameters and system settings are selected prior to starting the procedure. Parameter and system settings include, but are not limited to, mode, power, vacuum, aspiration flow rate, etc.

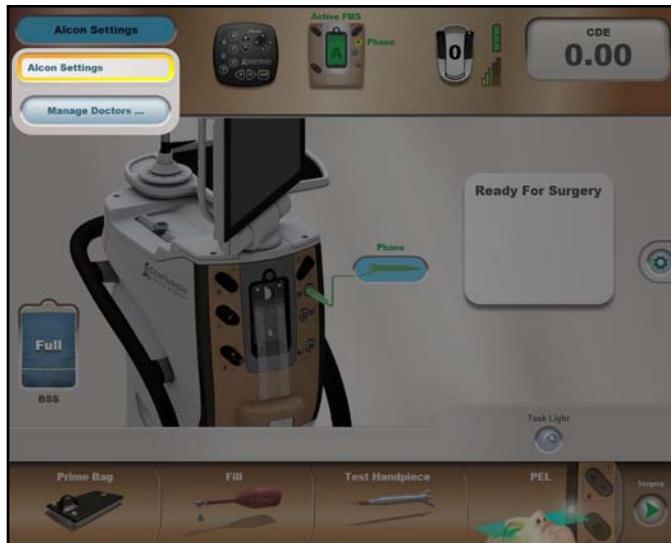


Figure 2-31 Drop List of Doctors in System

Manage Doctors...

When *Manage Doctors* is selected from the Doctor Name drop list in the Status Panel (see Figure 2-31), a dialog window appears with a window for the addition of new doctors (see Figure 2-32). Pressing the *New Doctor* button in the dialog prompts an alphanumeric keypad to appear upon which a new doctor name can be typed and accepted by pressing the Confirm (✓) button (see Figure 2-33).

A doctor name with preprogrammed settings can be selected and modified from the *Manage Doctors* dialog by pressing one of the following buttons (see Figure 2-34):

- *Copy Doctor* - An alphanumeric keypad appears where the settings used by the selected doctor can be copied to a new doctor name.
- *Rename Doctor* - An alphanumeric keypad appears where the selected doctor name can be changed.
- *Delete Doctor* - A dialog appears allowing the user to delete the selected doctor name and its settings.



Figure 2-32 Manage Doctors Dialog



Figure 2-33 Enter Doctor Name Keypad Dialog



Figure 2-34 Manage Doctors Dialog



Figure 2-35 New Doctor Name

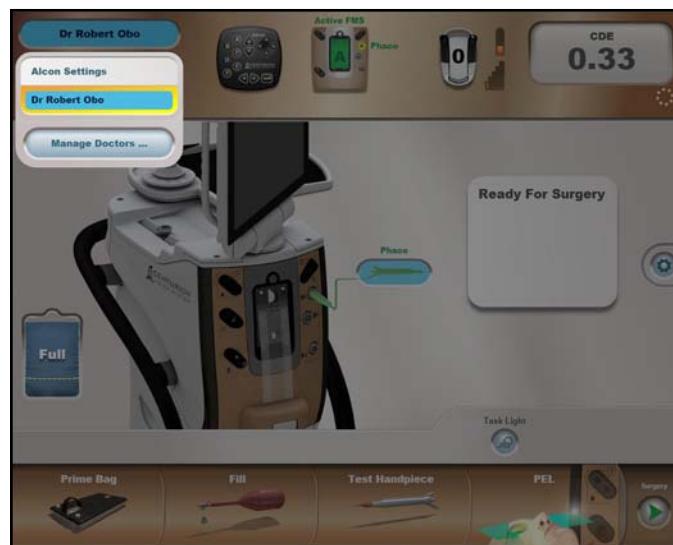


Figure 2-36 New Doctor Name Added to Drop List of Doctors

1.2

Procedure Type Button

The *Procedure Type* button in the Status Panel displays the currently-selected surgical procedure name for the currently-selected doctor name. When pressed, this button displays a drop list of the available procedures, named Procedure 1, Procedure 2, etc. (see Figure 2-37). When a procedure is selected, the drop list collapses and the procedure is selected.

The bottom button in the list, *Manage Procedures...*, is available when a doctor other than Alcon Settings is selected. When pressed, the system transitions to the Setup screen and opens the Manage Procedures dialog (see Figure 2-38). If there are unsaved changes to the current procedure, a dialog to save or discard the changes is presented, or the user can cancel the operation (X). The Manage Procedures dialog allows the user to adjust the following:

Copy Procedure - Pressing this button opens the *Procedure Names* dialog to select a new procedure name (see Figure 2-39). When a new procedure name is selected, the new procedure is highlighted and it becomes the currently-selected procedure (see Figure 2-40).

Delete Procedure - Selecting a procedure and pressing this button causes a confirmation dialog to appear, allowing the user to delete the procedure. After confirmation (✓) the next procedure is highlighted.

Edit Procedure Comments - The *Edit Procedure Comments* dialog appears, along with an alpha-numeric keypad, allowing the user to modify the comments under the selected procedure name.

Import Procedure From Doctor - The *Import Procedure* dialog allows the user to copy a doctor's procedure to a new doctor name. After confirmation, the last imported procedure is highlighted, and that procedure becomes the currently-selected procedure.

Rename Procedure - Opens the *Procedure Names* dialog so the user can select another name from the list.

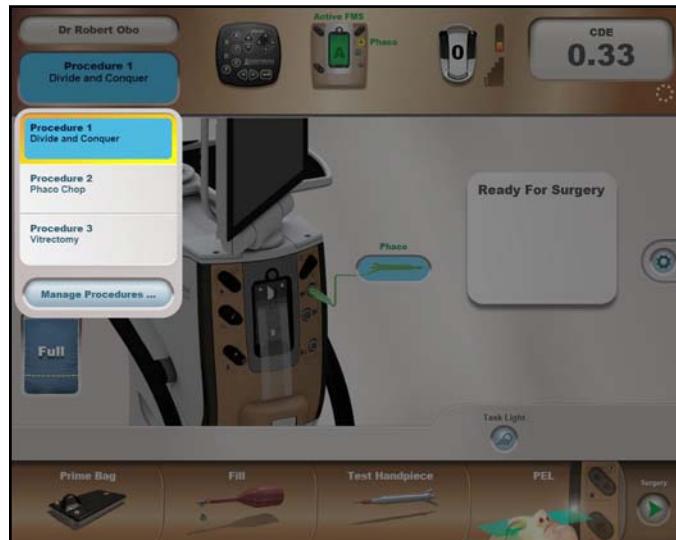


Figure 2-37 Procedure Type Droplist



Figure 2-38 Manage Procedures Dialog

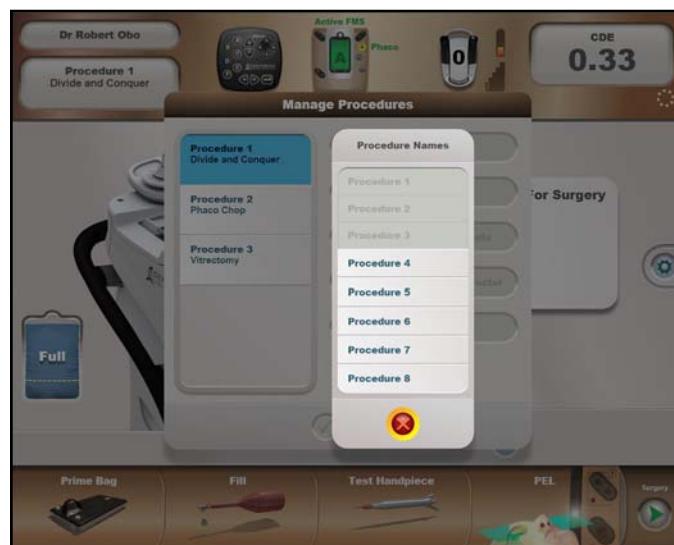


Figure 2-39 Procedure Names Dialog



Figure 2-40 Manage Procedures Dialog

1.3



Remote Control Button

Pressing the *Remote Control* button icon in the Status Panel displays the remote control's six snap keys (A, B, C, D, E, and F) as an overlay on the current screen (white letters in center of black buttons, see Figure 2-41). This feature shows the user which buttons to press on the remote control to quickly navigate around the screen. Pressing the button again dismisses the overlay. The overlay is automatically dismissed after 60 seconds, upon a step change, or upon transition between the Setup Screen and Surgery Screen.



Figure 2-41 Remote Control Snap Navigation Buttons in Continuous Phaco Mode.

1.4



Front Panel Button

The *Front Panel Status* icon button, at the top-center position in the Status Panel, is a rendering of the front connector panel. If no FMS or handpiece is inserted, the front panel image is just shown as a ghosted outline of itself. If a FMS or handpiece is inserted, the *Front Panel Status* button becomes animated.

- The rectangular FMS icon is colored pink when unprimed, and it is green when primed. A label above the FMS icon indicates the type of FMS inserted into the fluidics module (Active FMS or Gravity FMS or Calibration), or it is blank if an FMS is not present. The label is red if FMS is not primed, and green when primed.
- The three handpiece ports are plain when no handpiece is connected, and colored when a handpiece is connected (see Table 2-3). The name of the connected handpiece (Phaco, PhacoT, UltraChop, UltraChopT, *AutoSert*[®], *AutoSertT*, Not Used, Unknown, or blank if a handpiece is not present. *AutoSert*[®] not available in *Infiniti*[®] handpiece port 3) is printed to the right of its associated port. The handpiece name is printed red if the handpiece is not ready for use (not tested) and green when ready.

Port Color	Name Color	Indication
Plain	No name	No handpiece
Yellow	Red	Handpiece connected & selected, but not filled/tested
Yellow	Green	Handpiece connected & selected, and is filled/tested
Green	Green	Handpiece connected, not selected, and is filled/tested

Table 2-3 Status of Handpiece Connectors

1.5

Footswitch Button



Centurion®



Centurion® Wired



Constellation®

The *Footswitch* button icon depicts the type of footswitch connected to the *Centurion®* Vision System (*Centurion®*, *Centurion®* Wired, or *Constellation®*). When button icon is pressed, the *Custom/Doctor Settings/Footswitch* tab dialog appears (see Figure 2-46).

The side switches on the footswitch button icon become animated, and the system emits a tone, when a switch is activated. Numbers on the footswitch's footpedal reflect the position of the footpedal (0, 1, 2, 3) as it is being depressed and released.

The two paragraphs below apply to the *Centurion®* wireless footswitch, and do not apply to the *Centurion®* wired or *Constellation®* footswitches.

- A Footswitch Battery Status vertical bar, next to the *Footswitch* button, displays the wireless footswitch's battery charge with three cells. If the charge is low, one or two yellow cells are displayed; if charged, three green cells are displayed. The battery status bar is always displayed in the Setup screen. If the footswitch is not charging, and the battery charge is good, no icon is shown in the Surgery screen. If the footswitch is not charging, and the battery charge is low, the bar blinks slowly in both screens. If the footswitch is charging, the bar turns green with a lightning bolt in the middle, and is shown in both screens.
- A stairstep bar-graph, located next to the *Footswitch* button, indicates the Footswitch Signal Strength. If the wireless signal strength is low it shows 1 red or 2 yellow bars; if signal strength is good it shows 3 to 5 green bars. If a wired footswitch is being used, nothing is displayed. The signal strength icon is always displayed in the Setup screen, but in the Surgery screen only when it is low.

1.6

Cumulative Dissipated Energy (CDE)

The current CDE value is displayed on this button. The *Metrics* dialog appears when the button is pressed (see Figure 2-42). Metrics for Ultrasonics and Fluidics are displayed for the current surgical procedure. Pressing the Cancel (X) button retains the metrics and returns the system to the last screen used. Pressing the Reset Metrics (✓) button resets all metrics to zero and returns the system to the last screen used.

The CDE values are reached using the equations shown in Table 2-4.

1.7

SGS Pairing Indicator

A ring of dots at the right end of the status panel indicates the status of the Surgical Guidance System. A ring of dots indicates that the SGS is paired with the *Centurion®* system, while no ring of dots indicates that the SGS is not paired. Pairing is conducted in the *Custom/System Settings/General* window.



Figure 2-42 Metrics Dialog with Cumulative Dissipated Energy (CDE).

Total Case Time

The timer starts (Case Begin) when first step is chosen and footpedal is depressed. The timer stops (Case Ended) when the FMS and all active handpieces are removed. The timer pauses when system is placed in Set-up mode (Case is Inactive).

Ultrasonics

U/S Total Time: Sum of Longitudinal Time and Torsional Time.

Average Longitudinal Power: Average Longitudinal power over the time when Longitudinal power was applied. For example, if Ultrasound Burst mode was selected and 100 mS burst pulses at 70% stroke were generated once a second, the Average Longitudinal Power would record 70%.

Average Longitudinal Power (FP3): Average Longitudinal power over the time when Longitudinal power was applied in footpedal position 3. This takes into account the U/S modulation aspects, resulting in a significantly lower reading than Average Longitudinal Power. For example, if Ultrasound Burst mode was selected and 100 mS burst pulses at 70% stroke were generated once a second, the Average Longitudinal Power in Position 3 would record 7%.

Total Longitudinal Power On Time: Total time Longitudinal power was active. This records the Longitudinal On-time, displayed in minutes and seconds.

Average Torsional Amplitude: Average torsional amplitude over the time when torsional power was applied. For example, if OZI® Burst mode was selected and 100 mS burst pulses at 70% amplitude were generated once a second, the Average torsional amplitude would record 70%.

Average Torsional Amplitude (FP3): Average torsional amplitude over the time when torsional power was applied in footpedal position 3. This takes into account the U/S modulation aspects, resulting in a significantly lower reading than Average Torsional Amplitude. For example, if Ultrasound Burst mode was selected and 100 mS burst pulses at 70% amplitude were generated once a second, the Average Torsional Amplitude in Position 3 would record 7%.

Total Torsional Amplitude On Time: Total time torsional power was active. This records the torsional On-time in minutes and seconds.

Equivalent Average Torsional Amplitude (FP3): Average U/S energy in footpedal position 3 calculated as:

$$0.4 \times \text{Average Torsional Amplitude in Position 3}$$

Equivalent Average Ultrasonic Power (FP3): $\frac{\text{CDE}}{\text{U/S Total Time}}$

Cumulative Dissipated Energy (CDE): Total U/S energy in footpedal position 3 (both longitudinal and torsional) calculated as:

$(\text{Longitudinal Time} \times \text{Average Longitudinal Power}) + (\text{Torsional Time} \times 0.4 \times \text{Average Torsional Amplitude})$
The factor 0.4 represents approximate reduction of heat dissipated at incision as compared to conventional phaco.

Fluidics

Total Aspiration Time: Total time the system was aspirating.

Estimated Fluid Usage: An estimation of the volume of fluid aspirated based on system settings and time.

Table 2-4 CUMULATIVE DISSIPATED ENERGY (CDE) - CDE values are reached using formulas above.

2.

Setup Status Window

The Setup Status Window is where the current setup is displayed using images of the *Centurion*[®] system with its attached accessories (see Figure 2-43), and is for display only. This area also uses animated pictures to help the user perform procedures (i.e., luers being connected to a handpiece).

The system's setup status is displayed here through the use of pictures and text messages. The user is alerted to situations like handpiece status, prime status, and setup prompts.

A fluidics source must be installed: a bag of fluid in the bag bay for *Active Fluidics*TM technology, or a container of fluid hanging from the IV pole for *Gravity Fluidics*. The type of fluidics chosen is shown on the left side of the screen.

If a valid FMS is not inserted, the user is asked to insert an FMS. When a valid FMS is inserted, the fluidics mechanism performs a test of the aspiration pressure sensor. If the test fails, a dialog is displayed and the FMS is rejected.

As each handpiece is connected to the system, it is shown on the screen. Its fill/test status is represented through messages and color of the handpiece.



Figure 2-43 The Setup Status Window - In this image the phaco handpiece is filled and tested and ready for surgery. *Active Fluidics*TM technology is being used as indicated by the fluid bag on the left of the screen. If chosen as the preferred system of irrigation, gravity fluidics is represented with a hanging bottle of fluid instead of the bag.

Custom Button



The **Custom** button, located half way up the right side of the Setup and Surgery screens, enables the user to view and modify system settings, doctor settings, and some surgical settings. When the **Custom** button is pressed, a drop list menu appears with several available options (see Figure 2-44). When one of the options is selected from the menu, the respective dialog for that option is displayed and the drop list menu disappears. If no selection is made, the drop list menu disappears after about five seconds.

The following describes the purpose of each drop list menu item, the function of the controls in its dialog, and how the selections are invoked. The selections may be invoked whether the footswitch treadle and/or a footswitch button is depressed or not depressed, and the footswitch is functional when the dialog is displayed. The drop list menu items provide the user with options relating to viewing, copying, deleting, modifying, backing up, and restoring doctor/system settings.

- Doctor Settings
- Save
- Save As
- System Settings
- Backup / Restore
- Procedure Builder
- About
- View Events
- Shutdown System

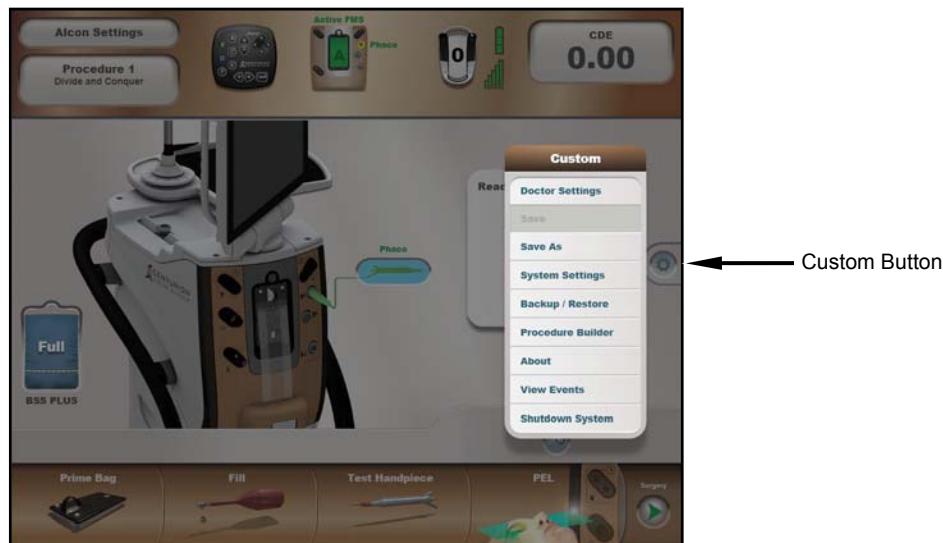


Figure 2-44 Setup Screen with Custom Drop List Menu

2.1

Custom / Doctor Settings

The Doctor Settings dialog is invoked when the user presses *Doctor Settings* on the *Custom* drop list menu (see Figure 2-45). The Doctor Settings dialog enables the user to view and modify surgeon preferences for the currently-selected doctor. The first screen to appear contains settings in the *General* tab. Other tab settings are for *Fluidics*, *Footswitch*, *Sounds*, *SGS*, and *Advanced*.

Each dialog has Confirm (✓) and Cancel (X) buttons at the bottom of the screen.

When *Confirm* is selected, all settings changed since the dialog was invoked are saved to persistent storage, the doctor dialog closes, and the settings take immediate effect. If the current doctor is the Alcon Settings default, the changes take immediate effect, but they are not saved to persistent storage; the changes are temporary. If *Cancel* is selected, the whole doctor dialog closes and the system returns to its prior settings.



Figure 2-45 Doctor Settings Dialog Screen - General Tab

Custom / Doctor Settings / General Tab

- *Default PEL (cm)* - The (Patient Eye Level) adjustment is used to establish the default PEL system offset for a particular surgeon. This is the value of PEL which will be used for the selected surgeon unless the value is changed through the Verify PEL function during system setup (see next description).
- *Verify PEL (cm)* - The Verify PEL button is used to automatically turn the Verify PEL dialog On or Off. When turned On, the Verify PEL dialog is automatically opened following the handpiece test. Upon completion of PEL verification, the Surgery screen is automatically entered. When turned Off, the PEL step button at the bottom of the Setup screen must be manually pressed to open the Verify PEL dialog.
- *Default Procedure* - Press this button to display a list of procedures the doctor can select from to be his default procedure when beginning a case.
- *Vit Setup* - If the On button is selected, when entering the anterior vitrectomy mode a window appears to guide the user through the Vitrectomy Setup.

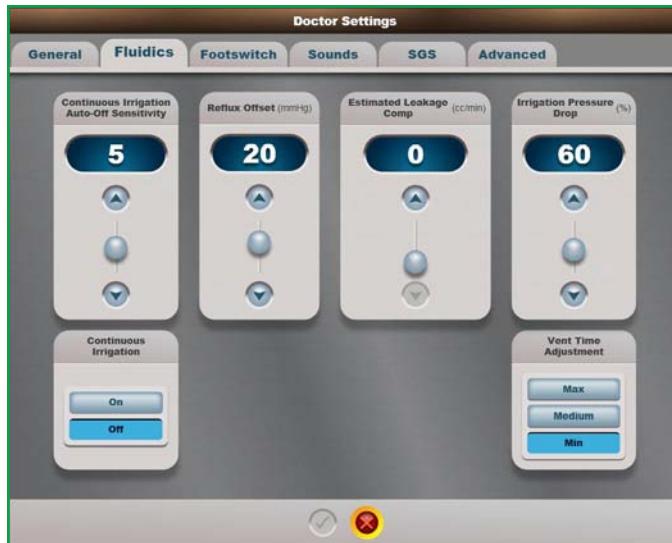


Figure 2-46 Doctor Settings Dialog Screen - Fluidics Tab

Custom / Doctor Settings / Fluidics Tab

- *Continuous Irrigation Auto-Off Threshold* - The Continuous Irrigation Auto-Off feature is used to automatically turn continuous irrigation Off when the handpiece is removed from the eye. The threshold value ranges from 0 (Off) to 10 (Max). The threshold is used to customize the performance to the particular surgical environment such as tip/sleeve combination and height of instrument tray.
- *Continuous Irrigation* - Continuous Irrigation is applicable for lens removal, I/A, and vitrectomy surgical steps. When Continuous Irrigation is set to On (enabled), continuous irrigation will be active following the first footpedal depression and the continuous irrigation On tone is generated. When transitioning to another step of the same surgical type, continuous irrigation remains activated. When transitioning to a step that is a different surgical type, continuous irrigation is deactivated but then re-activated when the footpedal is depressed (except for Coagulation and *AutoSert®*).
- *Reflux Offset (cmH₂O [hPa])* - Reflux pressure is limited to a level equal to the current infusion pressure plus the value specified for the Reflux Offset, or the maximum infusion pressure the system is capable of, whichever is less.
- *Estimated Leakage Comp (cc/min [mL/min])* - Estimated Leakage Compensation adjusts for pressure losses due to incision leakage while the system is maintaining the programmed target IOP. Increasing this value is similar to adjusting the target IOP setting.

- *Irrigation Pressure Drop (%)* - When the acquired value of the irrigation pressure sensor is below the value specified by the Infusion Pressure Drop, the system will display an advisory dialog. When this setting is 100%, this feature is disabled.
- *Vent Time Adjustment* - This feature is used to adjust the degree of venting pressure at the handpiece tip that is adjusted in response to a vent (during transition from footpedal position 2 to position 1). There are three settings: Min, Medium, and Max. Minimum is the default which provides unmodified venting performance. Settings Mid and Max increase the net pressure experienced at the handpiece tip after a vent.



Figure 2-47 Doctor Settings Dialog Screen - Footswitch Tab

Custom / Doctor Settings / Footswitch Tab

- *Button Assignment* - Pressing a button next to a switch activates a drop-down list with functions that can be selected for that footswitch button.
- *Vit Cutter Button Dual Assignment* - When in Anterior Vitrectomy mode of operation, a selected footpedal button can be assigned the function of enabling and disabling the vitrectomy cutter function. This button, when in other modes, has a different assignment.
- *Footswitch Range Spans (%)* - The buttons on the screen allow you to adjust the treadle settings to your own personal preferences.
- *Detent* - The user can set the amount of Strength required to transition through the footpedal detents, and the footpedal Vibration feature can be turned On or Off.



Figure 2-48 Doctor Settings Dialog Screen - Sounds Tab

Custom / Doctor Settings / Sounds Tab

The *Sounds to Adjust* dialog enables the surgeon to set a volume level for all tones and voice confirmations. The volume levels are set individually or all at the same time by pressing the Individual or All button at the top of the screen. When an individual button is selected, the volume level adjustment will pertain only to that selection. The tones and voices are adjusted with the Volume buttons located at the bottom of the screen. Each selection – except for Vacuum Level, Phaco Occlusion, Coagulation Power, and Low Bag Fluid Voice – may be turned Off so that no tone will be heard. Pressing the Play button emits a sample of the volume level selected.



Figure 2-49 Doctor Settings Dialog Screen - SGS Tab

Custom / Doctor Settings / SGS Tab

For details on the features associated with the optional Surgical Guidance System, refer to your SGS operator's manual addendum.



Figure 2-50 Doctor Settings Dialog Screen - Advanced Tab

Custom / Doctor Settings / Advanced Tab

- *AutoSort[®] Full Extension Offset (mm)* - When using a D/C cartridge, this feature is used to adjust the full extension position at which the *AutoSort[®]* IOL injector stops moving forward. The adjusted position is defined in millimeters relative to the maximum extension position. At the default setting (0) the *AutoSort[®]* IOL injector is at its maximum extension.
- *AutoSort[®] Remote Default* - When using a D/C cartridge, the Load Plunger and Preload IOL buttons are selected to set the default value of the remote control focus to be either Load Plunger or PreLoad IOL buttons.
- *Irrigation Tone* - Pressing the Irrigation Tone On or Off button determines whether or not the current doctor's preference is to hear a clicking sound as the footpedal is depressed and fluidics begin flowing, and again when the footpedal is released and fluidics stop.
- *CME Compliant Video Overlay* - If the system is connected to a CME (Continuing Medical Education) Compliant Video Overlay, the On button should be selected; if not, select the Off button. This feature causes the Alcon logo to be displayed or not displayed on the VideOverlay.

2.2

Custom / Save

The Save dialog can be invoked when a change has been made to the current surgical parameters and the user selects the Save option from the **Custom** drop list menu (see Figure 2-43). If there are no unsaved changes, or if no active surgery has taken place, the *Save* button is disabled.

The Save dialog provides the user with Save (✓) and Cancel (X) buttons. If the Save Changes button is pressed, the changes are saved to the current doctor. If Cancel is selected, surgical parameters are not saved and the dialog closes.

The Alcon Settings doctor is the factory default and cannot be permanently changed, so the Save button is disabled when Alcon Settings is the current doctor.

2.3

Custom / Save As

Pressing the *Save As* button (see Figure 2-43) opens the Enter Doctor Name dialog for creation of a new doctor as a copy of the active doctor settings. A keyboard appears on the screen allowing the user to type a new doctor name. Adding a new doctor does not change the currently-selected doctor. If the maximum number of doctors has been reached, a notification dialog appears.



Figure 2-51 Save As Dialog Screen

2.4

Custom / System Settings

The System Settings dialog only opens when in the Setup Screen. If in an inactive Surgery Screen, the system transitions to the Setup Screen and the System Settings dialog opens. If a surgical case is active, a confirmation dialog opens stating that the Setup Screen must be entered before proceeding, requiring confirmation before transitioning to the Setup Screen/System Settings dialog.

Custom / System Settings / General Tab

- *Irrigation Type Default* - This button sets the type of fluidics displayed as the system default. The *Active Fluidics™* FMS is shown with a bag of *BSS®* irrigating fluid in the system's bag bay. The Gravity fluidics FMS is shown with a container of *BSS®* irrigating fluid hanging from the IV pole hook.
- *Irrigation Fill* - When Irrigation Fill is turned On, irrigation is activated without reflux to the handpiece (fluid will only stream from irrigation port). The result is that the Irrigation Fill step replaces the Fill step, in all instances, for all users of the console. When turned Off, the Fill step activates both irrigation and reflux to clear air bubbles from the fluidics system.
- *Date and Time* - Pressing the Change Date and Time button allows the user to change the date and time.
- *Remote Control* - Pressing the Change Remote Control button allows the user to change the remote control communication channel in the event of a conflict with another system.
- *Language* - Pressing this button presents a list of available languages to be used by all users of the system.

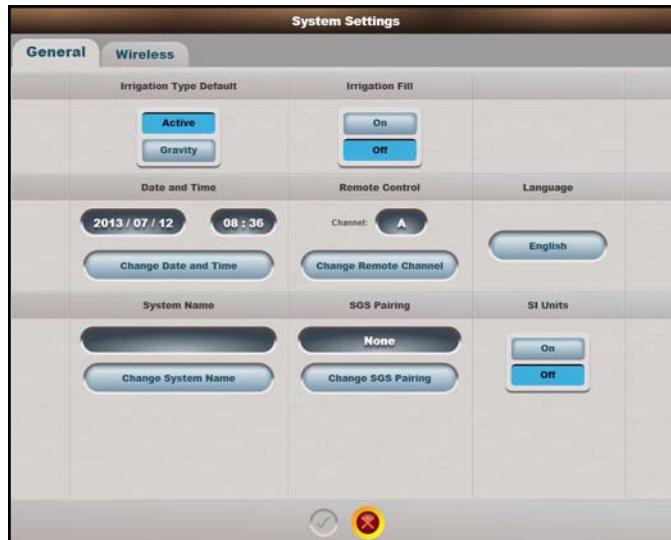


Figure 2-52 System Settings Dialog Screen - General Tab

- *System Name* - Pressing the Change System Name button brings up a keyboard so the user can change the system name to facilitate identification.
- *SGS Pairing* - To change pairing of the Surgical Guidance System, press Change SGS Pairing to bring up its dialog. Press Find, and after the SGS device is located, the SGS ID number is displayed. Select the desired SGS device, then press the Pair button. The device ID number of the Paired SGS device will be displayed.
- *SI Units* - Display objects are converted to SI units when turned On. The unit labels and displayed values are converted as follows:

<u>Default Units Label</u>	<u>SI Units Label</u>	<u>SI Value</u>
“mmHg”	“hPa”	hPa = mmHg * 1.33322
“cmH ₂ O”	“hPa”	hPa = cmH ₂ O * 0.980638
“cc/min”	“mm ³ /sec”	mm ³ /sec = cc/min * 16.667

Note that Equivalent Bottle Height is an alternate representation of the IOP surgical parameter. It is not itself a setting or actual value, and is never displayed in SI units.

Custom / System Settings / Wireless Tab

- *Footswitch Network* - This setting is used to turn the wireless footswitch network on or off. When the wireless network is OFF, an icon appears in the status panel below the CDE display indicating that the wireless connection has been disabled.
- *Footswitch Channel* - Used to adjust the displayed channel value up or down, allowing user to select different frequency bands such that signal integrity can be maximized. For an indication of wireless channel integrity, a Green circle indicates high quality, yellow medium quality, amber low quality, and red indicates the signal is too weak to use. May be invisible for up to 10 seconds after Wireless tab is selected. If Footswitch Network setting is changed from Off to On, the Footswitch Channel Quality Status will not become visible until changes are saved.
- *Footswitch Network Region* - This feature establishes the appropriate network configuration for the particular region of the world (Japan, North America, World). To change the wireless channel for the footswitch, the footswitch must first be cradled onto the back of the system. This "pairs" the footswitch with the system and allows the wireless channel to be changed. Note that since the wireless footswitch and the Surgical Guidance System (SGS) device share the same network, changing the wireless channel for the footswitch requires a re-pairing of the SGS device by depressing the Change SGS Pairing button under the General tab.
- *Wi-Fi Network* - These buttons turn the Wireless Footswitch/Surgical Guidance System wireless network On and Off. If it is desired to use the SGS or footswitch wirelessly, then the wireless network must be turned ON.
- *Wi-Fi Channel* - Sets wireless channel. Change this setting in the event of a conflict with another wireless device. See Footswitch Channel for wireless channel integrity.
- *Wi-Fi Network Region* - The Wi-Fi Network Region setting (Europe, Japan, North America) matches the system to its geographic location. This establishes the appropriate network configuration for the particular region of the world.
- *Wi-Fi SSID* - Shows Current Wi-Fi Network SSID system setting; this is the unique identification of the system on the Wi-Fi network. The Change SSID button is used to modify the system identification on the network.



Figure 2-53 System Settings Dialog Screen - Wireless Tab



Figure 2-54 Backup/Restore Dialog Screen - Backup Tab

2.5

Custom / Backup/Restore / Backup Tab

This dialog contains a list of all doctors on the system, except Alcon Settings. When a selected doctor name is highlighted, the Backup Doctor button is enabled. With USB removable media (flash drive) inserted into the rear panel's USB slot, pressing Backup Doctor copies the highlighted doctor file from the console to the flash drive. With no doctor name highlighted, pressing the Backup All Doctors button copies the full backup (all doctor files except Alcon Settings) from the console to the flash drive.



Figure 2-55 Backup/Restore Dialog Screen - Restore Tab

Custom / Backup/Restore / Restore Tab

With USB removable media (flash drive) inserted into the rear panel's USB slot, this dialog contains a list of all doctors on the removable media. When a selected doctor name is highlighted, the Restore Doctor button is enabled and can be pressed to copy the doctor settings to the console. With no doctors highlighted on the flash drive, the Restore All Doctors button is enabled, allowing the system to perform a full backup from the highlighted directory on the flash drive to the console. If a doctor file already exists, the Resolve Name Conflict dialog appears and must be resolved.

2.6

Custom / Procedure Builder

The current doctor can customize his surgery steps across the bottom of the surgery screen by using the Procedure Builder dialog (see Figure 2-56). Steps can be added, deleted, copied, and renamed; and the sequence of steps can be reordered with the Move buttons.

The Procedure Builder dialog only opens in the Setup Screen. If the user is in an inactive Surgery Screen, the system transitions to the Setup Screen and the Procedure Builder dialog opens; if a surgical case is active, the Return to Setup confirmation dialog opens, requiring user confirmation before transitioning to the Setup Screen/Procedure Builder dialog.

Pressing the New Step button in the Procedure Builder dialog opens another dialog that offers all available steps that can be selected (see Figure 2-57). Selecting a step closes that dialog and places the step at the bottom of the Procedure Builder dialog where it can be moved up to the user's desired position.

Selecting a step in the Procedure Builder dialog allows the user to move the step up or down, or to delete the step completely.



Figure 2-56 Procedure Builder Dialog - When Procedure Builder is selected from the Custom drop down list, the Procedure Builder dialog appears. All the steps for the currently-selected doctor/procedure are shown from top to bottom. Pressing the New Step button brings up a dialog with available steps that can be added to the procedure.



Figure 2-57 Procedure Builder Dialog with Available Steps - Pressing the New Step button causes a dialog to appear with available steps that can be added to the selected doctor's procedure.



Figure 2-58 Procedure Builder Dialog with Fill Step Added - In this case the Fill step was selected from the right column of the Steps dialog (see prior figure). The Fill step appeared at the bottom of the existing steps, then the Move Up button was pressed to place the Fill step after the Epi step. More steps can be added, deleted, or moved prior to saving the action by pressing the Confirm (✓) button.



Figure 2-59 Step Selected in Procedure Builder Dialog - Selecting a step in the Procedure Builder Dialog allows the user to Delete, Copy, Rename, or Move the step.



Figure 2-60 Copy (or Rename) Step in Procedure Builder Dialog - In this case, the user selected Copy Step from the Procedure Builder Dialog, although Rename step brings up the same selections for the type of step selected. Copying a step duplicates all the doctor's settings to the new step name, while renaming a step simply changes the name of the step.



Figure 2-61 The About Dialog - Upon installation by an Alcon service technician, a phone number for local technical assistance is programmed into the system and is displayed at the bottom of the dialog (not shown in this image).

2.7 Custom / About

For a quick reference to the *Centurion®* system's configuration, open the *Custom / About* dialog. It is here you will find versions of Software, Hardware, and Logicware for system components (Host, I/A, Generator, MultiFunction, Footswitch).

Also shown are the versions of the Console and Footswitch Modems, and of the Footswitch Battery. Pressing the Patents button brings up a dialog of the *Centurion®* System's patent numbers. A phone number for technical assistance is printed at the bottom of the About dialog.

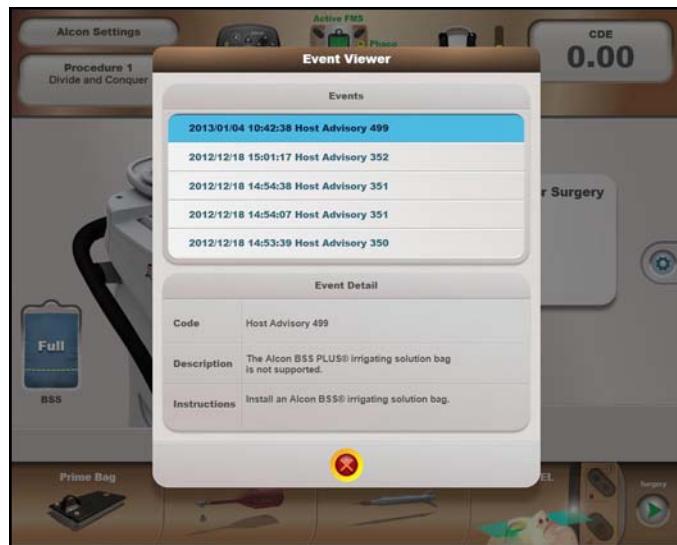


Figure 2-62 The Event Viewer Dialog.

2.8 Custom / View Events

This dialog contains information important to the service technician. The user can select an Event in the upper dialog to read its Event Detail below.



Figure 2-63 The Shutdown System Dialog.

2.9

Custom / Shutdown System

Pressing this button displays the Shut down the system? confirmation dialog. If canceled (X), the system will not shut down. If confirmed (✓) the I/V pole lowers to its bottom position and the console shuts down.

3.

Setup Steps

This area of the Setup Window is used for initiating setup functions (see Figure 2-64). If a user-defined doctor has been added in addition to Alcon Settings, at power-up the system enters the grayed-out Setup Screen with the Select Doctor dialog displayed. In this case, one of the doctor names must be selected to continue with the system setup. After selecting a doctor, the Setup Screen appears, and the Prime FMS button is highlighted.

PRECAUTION: It is important to follow the setup sequence as indicated on the *Centurion®* Vision System display screen and/or as written in section three of this operator's manual. Not following the directions could lead to priming failures.

Prime FMS / Prime Bag Button

When the system is initially turned on, the button is labeled Prime FMS. After priming, for *Active Fluidics™* technology the button becomes Prime Bag, but for Gravity Fluidics the button remains Prime FMS. The Prime FMS / Prime Bag button may be selected as long as a valid fluid container and FMS is installed, regardless of current prime and tune status.

With the irrigation and aspiration luer fittings connected together, the priming sequence can be initiated. When selected, a Prime FMS or Prime Bag dialog appears with a progress bar that shows the progress of the draw fluid priming sequence. When the priming and vacuum checks are completed successfully, the prime status becomes "Primed" and the Fill Button is highlighted.

Fill Button

The Fill button is automatically highlighted when the priming sequence has completed successfully. With handpiece inserted, and irrigation / aspiration tubing

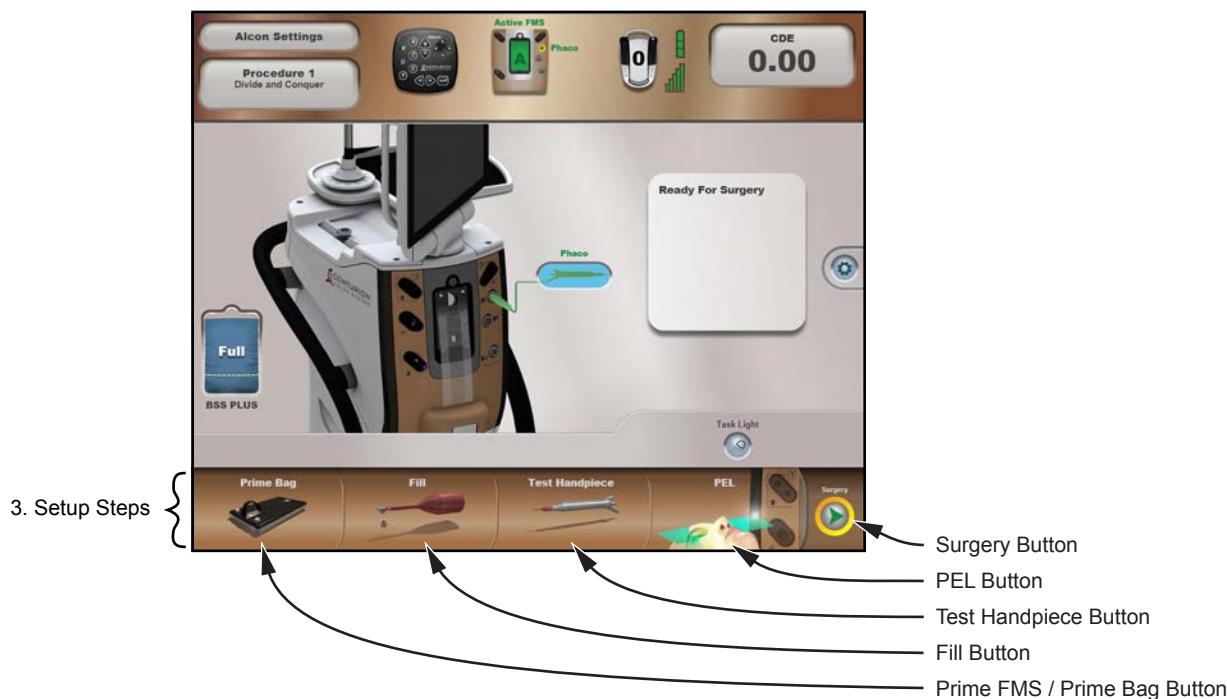


Figure 2-64 The Setup Steps Window

connected to it, pressing the Fill button activates the fluidics system to fill the handpiece. During the fill process the Fill Handpiece dialog appears on the screen with a progress bar that shows the progress of the filling sequence. Also displayed in the dialog is a Cancel button (X) and an Advance to Test Handpiece button.

Once the fill sequence is initiated it can be aborted by pressing the Cancel button (X), whereby the Fill Handpiece dialog closes and the Fill button darkens but remains highlighted. If Advance to Test Handpiece is pressed, the Fill dialog closes and the Test Handpiece function is selected.

Test Handpiece Button

The Test Handpiece button may be selected only when the FMS is primed and a phaco handpiece is connected.

The *Centurion® Vision System* allows a CENTURION® *OZil®* handpiece and INFINITI® *OZil®* handpiece to be connected at the same time, but the user must perform the Test Handpiece sequence for each handpiece. Pressing the Swap Phaco / UltraChop button switches handpieces for the testing sequence.

When the Test Handpiece button is selected the test handpiece dialog will display progress of the flow check and vacuum check. A Cancel button also appears. Once the test sequence is initiated, it can be aborted by the user by pressing the Cancel button (X) or removing the FMS, or it can be left to proceed to completion.

PEL Button

By default, the Verify PEL (cm) dialog appears upon successful completion of the handpiece test sequence. This can be changed to a manual step by entering the Custom/Doctor Settings/General dialog and pressing the Verify PEL Off button.

Test ICD Button

The Test ICD button may be selected only when a single-use INTREPID® Capsulotomy Device (ICD) handpiece has been connected, and the current doctor has added the Capsulotomy step through the Custom / Procedure Builder feature. The color of the ICD image indicates its ready state: red for not ready (not tested or failed test), or green for ready (successfully tested).

When connected, the Test ICD button replaces the Test Handpiece button used with the phaco handpiece. The Test ICD button must be pressed to prepare it for a capsulotomy.

The ICD must be enabled upon entering the Capsulotomy step, but if the ICD has not yet been tested, the user will be asked to go back to the Setup screen for testing. Pressing the Enable button in the Capsulotomy step screen is the last preparatory step prior to performing the capsulotomy. In this step, the Reflux switch can also be used to enable the the ICD.

Surgery Button

If the Surgery button is pressed the system goes to the appropriate Surgery Screen as determined by the procedure selected. The first surgery step for the doctor's procedure is entered.

SURGERY SCREEN AND ITS FUNCTIONS

The Surgery Screen contains the buttons, readouts, and controls that allow the user to perform surgical functions. This screen is displayed when one of the following occurs:

- The Surgery button is pressed from the Setup Screen.
- The handpiece and priming functions are completed in the Setup Screen and no other connected handpieces are “Not Tuned.”

The Surgery Screen is divided into three sections (see Figure 2-65). At the top is the Status Panel, below that is the Surgery Window, and below that is a row of Surgery Steps.

Depending on the procedure type and surgery step selected, the Surgery Screen contains tools and surgical parameters corresponding to the selections. Although several representative surgery screens are shown in this section of the manual, not all screens showing handpiece/procedure/steps are shown.

1. Status Panel

The buttons in the surgery Status Panel are the same as the buttons in the setup Status Panel (see Setup Screen earlier in this section of the manual for descriptions).

2. Surgery Window

The Surgery Window occupies the center of the Surgery Screen and is broken into upper and lower halves. The top half has the **surgery controls**, and the lower half has the **fluidics controls**, both of which are described on the following pages.

The actual values for certain parameters are shown in oval display buttons. With the exception of the Vacuum parameter, the upper limit for each setting represents

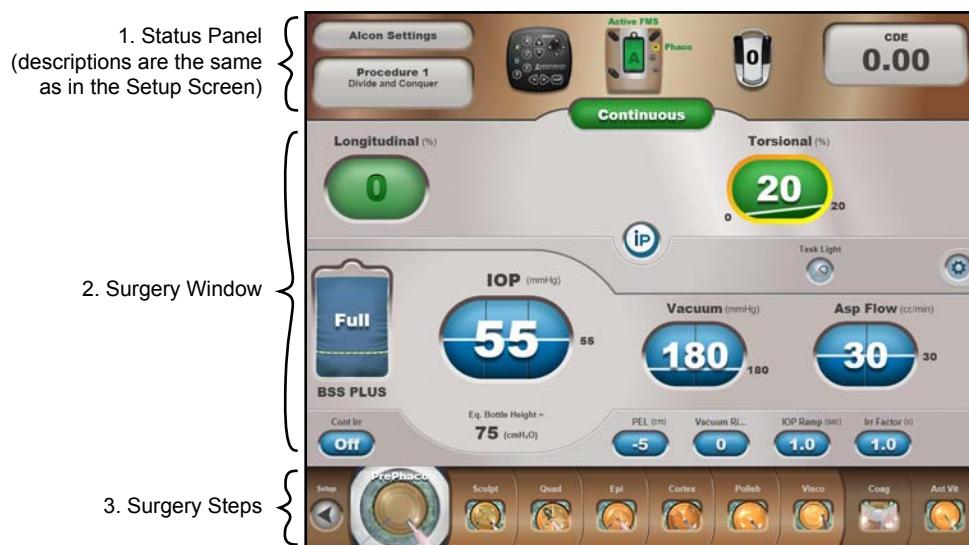


Figure 2-65 The Centurion® Vision System Surgery Screen - This screen is for phaco modes of operation. The screens for other modes of operation look similar to this, but may have more or fewer oval display buttons and surgical parameters corresponding to the surgery step.

its maximum setting. (For the Vacuum limit setting, if the vacuum limit is set to 700+ mmHg [933+ hPa], then the upper limit does not exist.)

Each surgery step has operating parameter settings that are established by default. During surgery the user may change the parameters in any of the steps. Any parameter changes made may be explicitly saved by the user using the Save As option (if Alcon Settings is doctor) or the Save option (if other than Alcon Settings is doctor) from the Custom drop list. Also, if there are unsaved changes to the surgery steps and the user changes the doctor or lens removal procedure, a dialog box appears asking the user to save or discard any unsaved changes. Powering down the system automatically dismisses any unsaved changes.

2.1

Surgery Controls

For Phaco steps, Coag steps, Vitrectomy steps, Coagulation steps, and *AutoSert*[®] injector steps, the upper half of the Surgery Window contains the surgery controls (see Figure 2-66). The surgery controls available are dependent on the type of step selected.

Mode Button

The Mode button in the top-center of the Surgery Controls area displays the current mode for the step; in Figure 2-66 it is Continuous mode in the PrePhaco step. The Phaco and Anterior Vitrectomy modes can be changed by pressing the top-center Mode button and selecting another from a drop list. Depending on the current step, the Alcon Settings mode selections are:

<u>Phaco</u>	<u>Irrigation/Aspiration</u>	<u>AutoSert</u> [®]	<u>Coagulation</u>	<u>Anterior Vitrectomy</u>
• Continuous	• Irr / Asp	• AutoSert [®]	• Coagulation	• Anterior Vit
• Pulse				• Epi Removal
• Burst				• I/A Cut

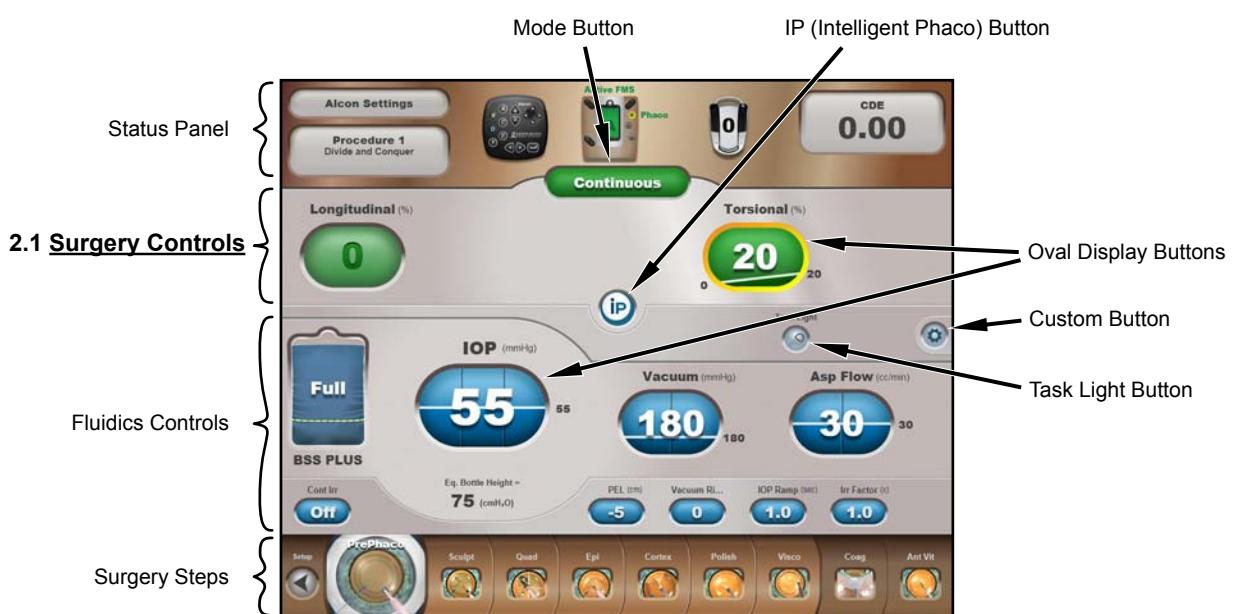


Figure 2-66 Surgery Control Window with Phaco Surgery Controls Identified - This upper half of the Surgery Control Window is used to observe current surgical performance levels, and to adjust surgery settings by pressing the oval display buttons and buttons to present control dialogs.

Oval Display Buttons

Oval display buttons (see Figure 2-66) show parameter settings for a procedure in its current step. Pressing an *Oval Display Button* brings up a dialog where the user can change settings for each footpedal position within a step (see Figure 2-67). This dialog includes buttons to toggle between linear (/) or fixed (–) footpedal control, up and down buttons to adjust setting values in small increments, and slide buttons to quickly adjust setting values in large increments.

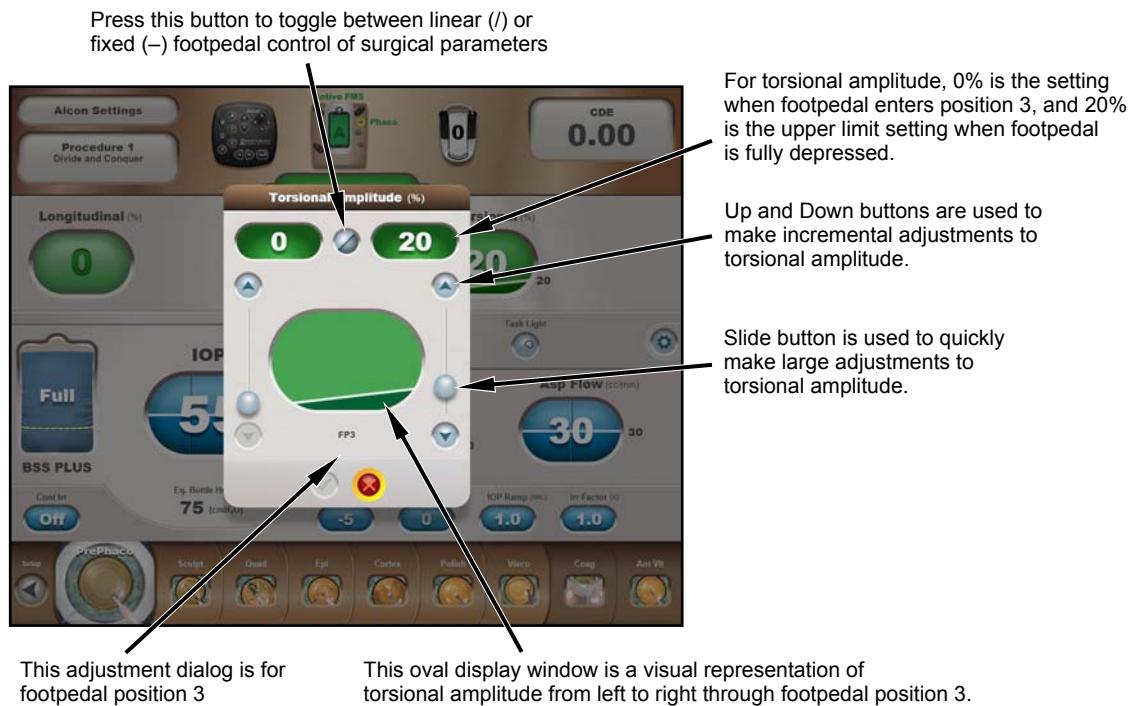


Figure 2-67 Oval Display Button Dialog - Oval display buttons on a surgical screen show parameter settings for a current step (see Figure 2-66). Pressing an oval display button brings up a dialog where the user can make adjustments to the settings according to doctor's preferences.

Task Light Button

This button is pressed to turn the front panel task light on and off. When turned on the icon in the Task Light button shows light rays; when turned off the light rays are muted.

Custom Button

Pressing this button presents a list of features that can be selected, allowing the user to adjust system settings to the surgeon's preferences. This feature is discussed at length earlier in this section of the operator's manual.

IP Button

Intelligent Phaco (IP) is used to deliver a reduced magnitude of phaco energy when a vacuum threshold setting is exceeded. This reduced phaco energy is applied only as necessary, and continues until the vacuum drops below the trigger threshold. The same IP settings are used for each enabled phaco step.

Pressing the *IP* button while in a phaco step causes the IP Settings dialog to appear on the screen (see Figure 2-68). Intelligent Phaco is enabled by pressing the On button, or disabled by pressing the Off button. After selecting On or Off and pressing the confirmation button (✓), the dialog closes. When the IP feature is enabled for a particular phaco step, the IP button is animated; when disabled, it is colored gray.

The adjustable settings are Longitudinal Pulse Duration, Vacuum Threshold, and Longitudinal/Torsional Ratio. These settings are user-adjustable so the user can specify the vacuum limit at which the IP feature is activated, and the amount of energy that is delivered when activated.

- *Longitudinal Pulse Duration (ms)* - Longitudinal Pulse Duration specifies the on-time of an applied longitudinal phaco pulse during activation, from 0 to 20 pulses per millisecond. These phaco pulses are applied until the vacuum level falls below the Vacuum Threshold setting.
- *Vacuum Threshold (% of Vacuum Limit)* - The Vacuum Threshold setting determines the percentage of the vacuum limit set value at which the IP feature is activated and its specified phaco power is applied. When vacuum reaches and/or exceeds the vacuum threshold, then the IP feature, if enabled, is activated. When the vacuum drops below the vacuum threshold value, then the IP feature is deactivated. The vacuum threshold ranges from 90% to 100% of vacuum limit.
- *Longitudinal / Torsional Ratio* - The Longitudinal / Torsional Ratio establishes the applied phaco power level relative to the applied torsional amplitude. This ratio is expressed as a decimal fraction and ranges from 0.5 to 1.0.



Figure 2-68 IP Dialog - Intelligent Phaco can be turned on and off for the current step by pressing the On and Off buttons in this dialog, then pressing the confirmation button (✓).

2.2

Fluidics Controls

The lower half of the Surgery Window contains the Fluidics Controls (see Figures 2-69 and 2-70). These parameters always involve irrigation, vacuum, and aspiration controls, and are independent of the Surgery Controls. Fluidics Controls are available in all steps but *AutoSert®* and Coagulation.

Fluidics Administration

The *Centurion®* Vision system supports two types of fluidics administration to deliver and control fluid pressure: **Active Fluidics™** technology is an automated system that administers fluid from a bag of *BSS®* irrigating fluid within its bag bay (see Figure 2-69), and **Gravity Fluidics** is used for fluid administration using the power IV pole (see Figure 2-70).

IOP Control (used with *Active Fluidics™* technology)

When the *Active Fluidics™* FMS is used, IOP (IntraOcular Pressure) control functionality becomes enabled. *Active Fluidics™* technology allows control and maintenance of intraocular pressure under the varying conditions experienced during surgery. Figures 2-71 (fixed) and 2-72 (linear) depict the surgery screen with *Active Fluidics™* technology in use. The vertical lines within the oval display button depict the separation of footpedal positions.

IOP Fluid Bag (used with *Active Fluidics™* technology)

The IOP fluid bag “fuel gauge” provides an estimated value of remaining *BSS®* irrigating fluid within the irrigation bag when using the *Active Fluidics™* FMS. As the procedure progresses the indicated value ranges from full (>500 ml) to empty (0 ml). If the volume drops to below 100 ml, the bag color changes from blue to red. An advisory is issued when the usable bag volume drops to 0 ml.

IOP Settings (used with *Active Fluidics™* technology)

Pressing the IOP oval display button brings up the IOP Setpoints dialog (see Figures 2-71 & 2-72). This dialog allows for tailoring of IOP level as a function of footswitch position. The vertical separation lines indicate the transition point between footswitch positions. The dialog in Figure 2-72 shows that linear/fixed buttons have been pressed to activate fixed footpedal control in position 1, and linear footpedal control in footpedal positions 2 and 3. The Up/Down buttons, or the Slide button, have been used to adjust new IOP settings.

IV Pole Settings (used with gravity fluidics)

When the Gravity Fluidics FMS is used, traditional gravity-fed irrigation pressure is provided from a container of *BSS®* irrigating fluid hung from a hook on the motorized IV pole (see Figure 2-70). Irrigation pressure is increased or decreased by raising or lowering the IV pole.

Using gravity fluidics, raising the IV pole to its maximum height of 150 cm results in maximum irrigation pressure (150 cm includes a 110 cm maximum vertical height above the pressure sensor plus a maximum PEL of -40 cm). In the event of power loss, bottle position is maintained; however, if the unit is turned off using the Standby switch, the IV pole automatically retracts to its storage position.

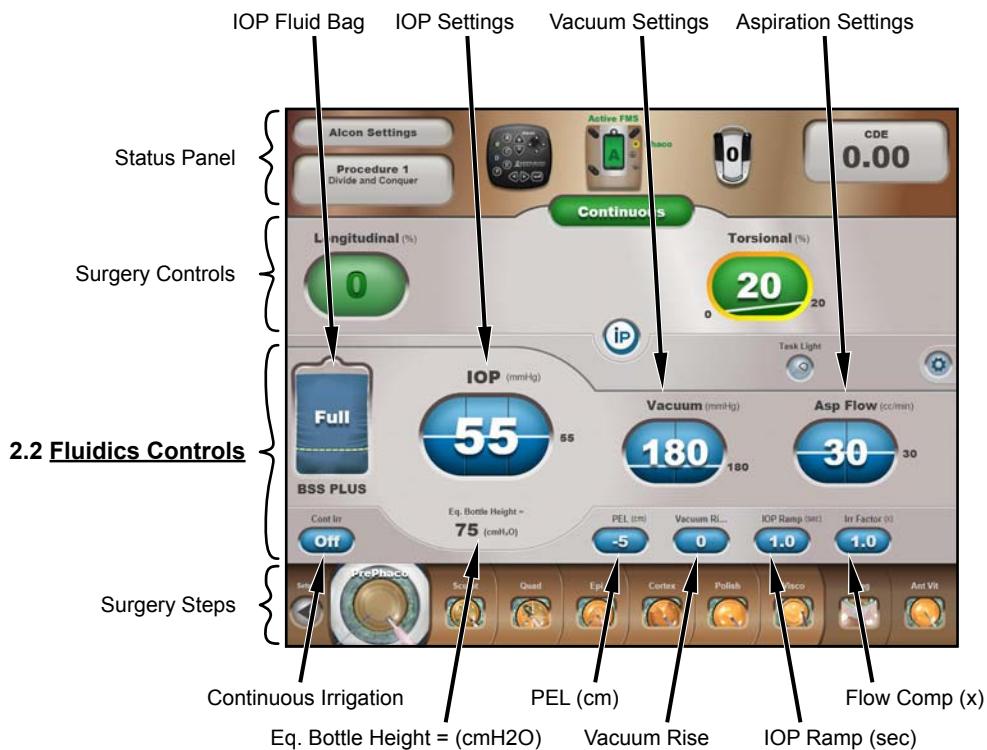


Figure 2-69 Fluidics Control Window with Active Fluidics™ Technology Selected - The lower half of the Surgery Control Window is used to observe current fluidics performance levels, and to adjust settings by pressing the oval windows and buttons to present control dialogs.

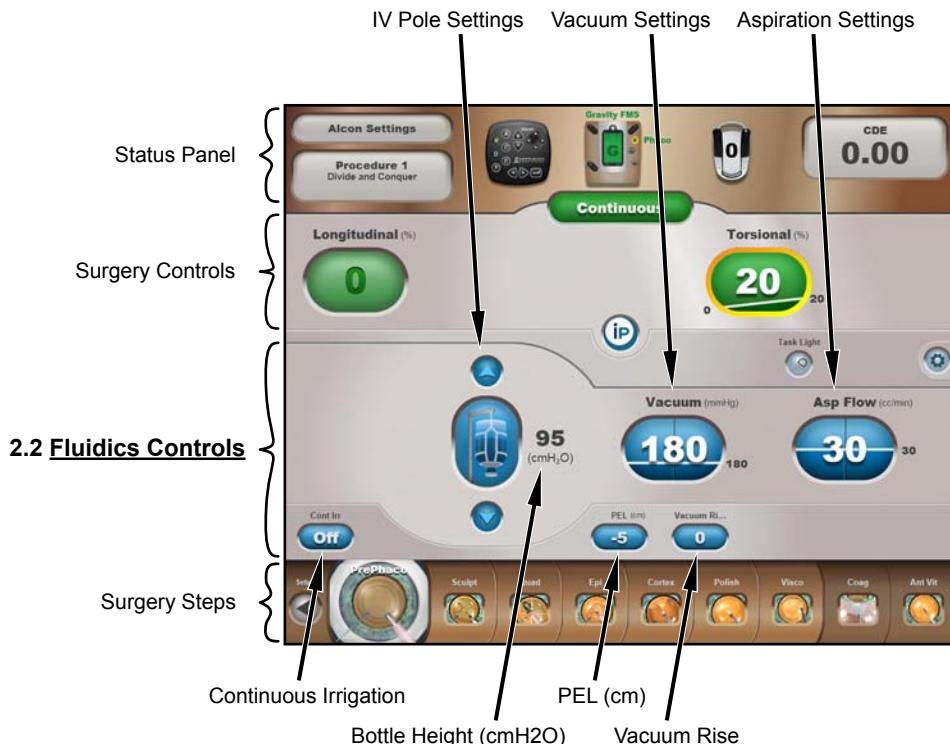


Figure 2-70 Fluidics Control Window with Gravity Fluidics Selected - The lower half of the Surgery Control Window is used to observe current fluidics performance levels, and to adjust gravity fluidics settings by pressing the oval windows and buttons to present control dialogs.

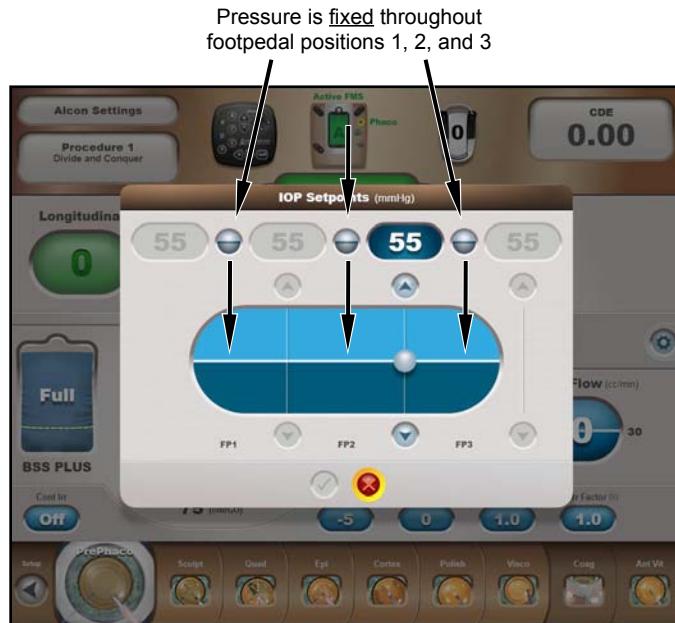


Figure 2-71 IOP Setpoints (Fixed) for Active Fluidics™ Technology - Pressing the IOP (mmHg or hPa) Oval Display Button brings up the IOP Setpoints (mmHg or hPa) dialog.

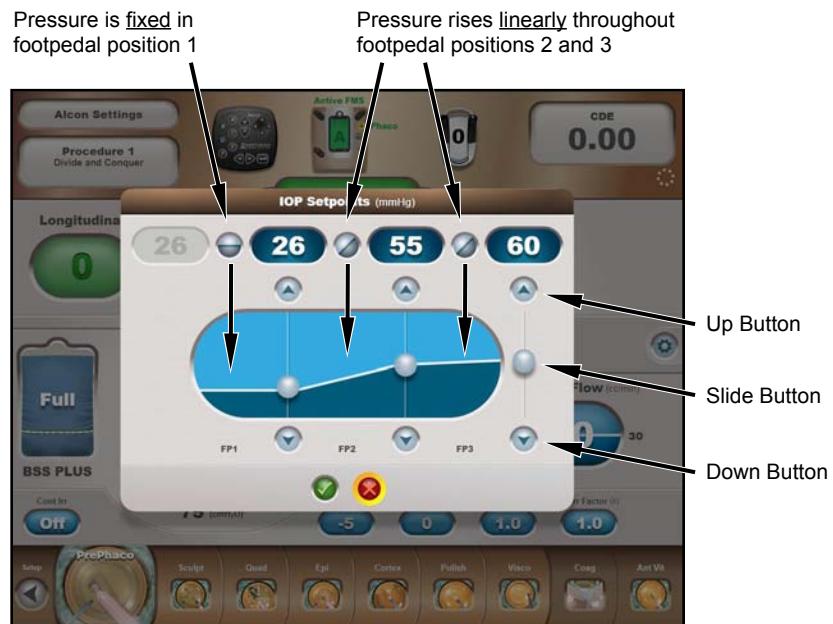


Figure 2-72 IOP Setpoints (Linear) for Active Fluidics™ Technology - This IOP Setpoints dialog is an example of how footpedal settings have been changed in linear and fixed manner in the three footpedal ranges. The new settings are accepted by pressing the green confirmation button (✓).

Vacuum Settings

The operator can adjust the vacuum limit (Vacuum / mmHg) using the front display panel or the remote control. The adjustable vacuum limit range is 0 to 700+ mmHg (0 to 933+ hPa), where 700+ mmHg (933+ hPa) is limited by atmospheric pressure.

Aspiration Settings

The operator can adjust the aspiration limit (Asp Flow / cc/min) using the front display panel or the remote control. The adjustable aspiration limit range is 12 to 60 cc/min (12 to 60 mL/min).

Continuous Irrigation

Continuous Irrigation (Cont Irr) is available in most surgical steps (except Capsulotomy, *AutoSert*®, Coag) and allows for irrigation of the eye during surgery by opening the irrigation valve, regardless of footswitch position. The Continuous Irrigation mode default setting can be set to On or Off through the Custom / Doctor Settings / Fluidics tab.

When Continuous Irrigation is enabled, footpedal range 1 is eliminated, thereby expanding the range of footpedal position 2. Continuous Irrigation remains enabled until transitioning to another step where Continuous Irrigation is disabled (irrigation valve off). Continuous Irrigation may also be automatically turned off when the tip is removed from the eye as determined by the Continuous Irrigation Auto-Off Threshold setting (Custom / Doctor Settings / Fluidics tab).

Continuous Irrigation can be turned On and Off by doing the following:

- Press the Cont Irr button on the surgery screen.
- Use the remote control's Parameter Selection keys to select the Cont Irr button, then press the + or - key on the remote control.
- Program a footswitch switch for the Continuous Irrigation function, then press the designated switch on the footswitch.

PRECAUTION: Before switching handpieces it is advised to exit the eye, then turn Continuous Irrigation off to close the irrigation valve and prevent excess *BSS*® sterile irrigating solution from flowing out of the handpiece.

Eq. Bottle Height = (cmH₂O) (used with *Active Fluidics*™ technology)
Equivalent Bottle Height is calculated when using *Active Fluidics*™ technology to present the comparative bottle height if the IV pole was used for fluidic administration. The equivalent IV pole height is calculated from the value in the IOP oval display button (1 mmHg = 1.36 cmH₂O = 1.33 hPa).

Bottle Height (cm) (used with gravity fluidics)

This readout shows the irrigation pressure at the selected IV pole height.

PEL (cm)

The PEL button allows adjustment of the Patient Eye Level setting from the surgery screen. (For details on setting the PEL, see the Setup Screen description.)

Vacuum Rise

At the onset of an occlusion, it may be desired to slow down the activity at the ultrasound tip. The Vacuum Rise feature slows the aspiration pump rate, decreasing the rate at which vacuum level rises when the ultrasound tip begins occluding. The setting values range from 0 (unadjusted rise time) to -1 to -2 (slowest rise time).

IOP Ramp (s) (used with *Active Fluidics™* technology)

IOP Ramp control applies whenever *Active Fluidics™* technology is used and the IOP function is set to a fixed pressure level. It allows adjustment of the time it takes to ramp up from no irrigation pressure to its preset fixed value when entering, and traveling through, footpedal position 1; although, if the footpedal travels immediately from position 0 to positions 2 or 3, the IOP goes instantly to its fixed IOP setting. When the IOP Ramp button is depressed, an adjustment pop-up dialog is displayed which allows adjustment of the transition time from 0 seconds (Fast) to 2.0 seconds. The Anterior Vitrectomy IOP ramp setting is independent from phaco and I/A steps.

Irr Factor (x) (used with *Active Fluidics™* technology)

When *Active Fluidics™* technology is used, the Irrigation Factor (Irr Factor) function is available, and works in conjunction with the Estimated Leakage Comp feature (*Custom/Doctor Settings/Fluidics*). This feature attempts to compensate for the pressure losses along the irrigation path by adding a factor which is based on the estimated irrigation fluid flow. The scale factor ranges from Off (0) to 2; the larger the value the more compensation is employed. This scale factor is empirically adjusted to compensate for numerous factors including: tip, sleeve, wound architecture, wound size, and surgical technique.

2.3

Surgery Window with Phaco Steps

Surgery controls vary with the phaco step and mode currently selected, although all phaco steps contain Longitudinal (%) and Torsional (%) settings. If the top-center Mode button is pressed, Continuous, Pulse, and Burst modes are offered in a drop list with different settings for each, as shown in the table below. All phaco steps contain the same fluidics controls for irrigation, vacuum, and aspiration.



Figure 2-73 Surgery Window with Phaco Steps

2.4

Surgery Window with I/A Steps

All I/A steps contain the same fluidics controls for irrigation, vacuum, and aspiration. Surgery controls are not used with the Irr/Asp step; the surgery controls area only displays the Mode button showing Irr/Asp. (Although, if AutoSert® injector step is enabled while in an I/A step, the AutoSert® injector setup dialog is displayed in the Surgery Controls area. See INTREPID® AutoSert® IOL Injector Setup for details.)



Figure 2-74 Surgery Window with I/A Steps

2.5

Surgery Window with AutoSert® Injector Step

The *AutoSert®* injector step contains a dialog at the right side of the Surgery Controls area to assist the user when setting up the INTREPID® *AutoSert®* IOL Injector. the Surgery Controls area also has oval display buttons that are used to set the rate of IOL lens insertion. Fluidics controls are not used with the *AutoSert®* injector step.



Figure 2-75 Surgery Window with *AutoSert®* Injector Step

2.6

Surgery Window with Coagulation Step

The Coagulation step contains just one surgical parameter: Power (%). This parameter is displayed in the upper portion of the Surgery Controls window. This window also contains a mode indicator showing Coagulation. Fluidics controls are not used with the Coagulation step.



Figure 2-76 Surgery Window with Coagulation Step

2.7**Surgery Window with Anterior Vitrectomy Step**

The Vitrectomy step contains a surgery control for Cut Rate parameters, and fluidics controls for irrigation, vacuum, and aspiration parameters. The Surgery Controls area also contains a top-center Mode button indicating the current Vitrectomy mode, of which four are available (Anterior Vit, Epi Removal, Peripheral Irid, Visco Asp).



Figure 2-77 Surgery Window with Anterior Vitrectomy Step

3.

Surgery Steps

Surgery screens contain step buttons at the very bottom of the screen (see Figure 2-78). These buttons represent all the surgery steps for the currently-selected doctor, plus a Setup button to quickly return to the Setup screen.

The row of Surgery Steps allows up to 12 visible buttons at one time across the bottom of the surgery screen. The Setup button is always on the far left, and the Coag & Ant Vit buttons are on the right for all surgical modes.

Procedural step buttons can be added or removed from a doctor's surgery steps by selecting or removing them in the *Custom / Procedure Builder* dialog.

Nine visible procedural step buttons are located between the Setup button and the Coag/Vit buttons; however, up to 16 procedural step buttons can be programmed into this space by the current doctor. When more than 9 procedural steps are programmed, and when selecting the step that is furthest left (next to the Setup button) or furthest right (next to the Coag/Vit buttons), the steps will scroll so that all steps before or after the selected step can be seen.

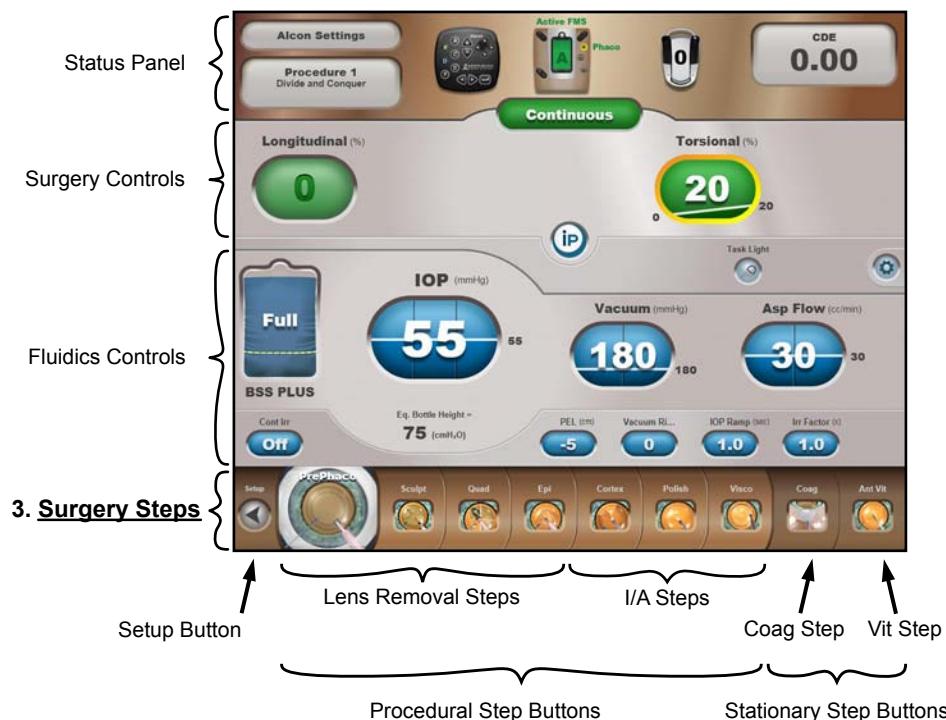


Figure 2-78 Surgery Steps - At the bottom of the Surgery Screen are the Surgery Steps. The buttons in this area allow the surgeon to control the surgical step progression.

3.1

Setup Button

When the Setup button is pressed, the user will be taken to the Setup screen. To enter the Setup screen the footpedal must be released, and the footswitch buttons must not be activated.

3.2

Procedural Step Buttons

When a surgery step is selected, its button expands in size and becomes animated, and the surgical parameters for the surgery step are displayed in the Surgery Window. Pressing Procedural Step Buttons is allowed regardless of footpedal position. A step change into Coag or Vit is allowed with the footpedal depressed, but the footpedal must be released to exit.

The *Centurion®* Vision System provides operational surgical steps to support efficient lens removal and IOL implantation. Each step allows for the adjustment of surgical parameters such as power, aspiration, and vacuum settings according to doctor preferences. These step buttons are arranged in sequential order from left to right across the bottom of the screen to provide a complete surgical procedure of different settings associated with different aspects of the procedure.

Factory-preset operating parameters for each step are programmed into the system as "Alcon Settings." These default operating parameters can be temporarily modified, and then they can be permanently saved with a new doctor's name by using the *Custom / Save As* dialog.

The procedural steps are selectable from the unit's front display screen, from the remote control unit, or from the footswitch. Selecting a new step results in a voice confirmation. (The user has the ability to turn the voice feature off via the *Custom / Doctor Settings / Sounds* dialog.)

3.3

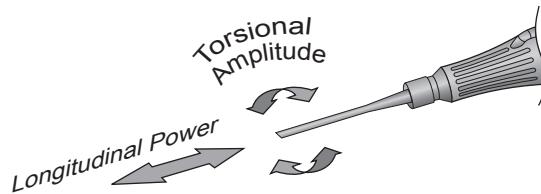
Stationary Step Buttons

Stationary step buttons are always present in Surgery screens to support Coag and Ant Vit. These two steps are selectable from the display screen and remote control, but can be exited using either the display screen, remote control, or footswitch (if footswitch button programmed for Step+, Step-, Step ±) when pedal is in position 0 or 1.

SURGERY MODES

Phaco Mode of Operation

When a phaco (phacoemulsification) step is selected, IOP target, irrigation, aspiration, longitudinal power (phaco power), and torsional amplitude (ultrasonic oscillations) are provided by the handpiece. In this mode of operation longitudinal power and ultrasonic oscillations alternately turn On and Off. Ultrasound power and torsional displacement of the phaco tip is proportional to the longitudinal and torsional settings displayed on the console front panel. The user has the ability to adjust the IOP target, aspiration rate, vacuum levels, longitudinal power, and torsional amplitude at any time during the surgical procedure via their respective adjustment dialogs or remote control. For best performance, use tips recommended by your Alcon representative.



Power/Amplitude

The Longitudinal Power and Torsional Amplitude settings are increased or decreased via adjustment dialogs in increments of 5% from a minimum of 0% to a maximum of 100%. Power and amplitude to the handpiece is controlled by one of two methods: fixed or linear footpedal control.

- If fixed footpedal control is selected (equal start and end values in footpedal position 3), the end value indicates the fixed power or amplitude delivered to the handpiece. To increase or decrease the value, press an oval display button to bring up the adjustment dialog window (see left image in Figure 2-79 for example of fixed Longitudinal Power adjustment) and use the adjustment buttons to increase or decrease the fixed value.
- If linear footpedal control is selected (unequal start and end values through footpedal position 3), the starting and end values in the dialog indicate increasing or decreasing power or amplitude throughout footpedal position 3. To change the starting and end values, press an oval display button to bring up the adjustment dialog window (see right image in Figure 2-79 for example of Torsional Amplitude adjustment) and use the adjustment buttons to increase or decrease the starting and end values.

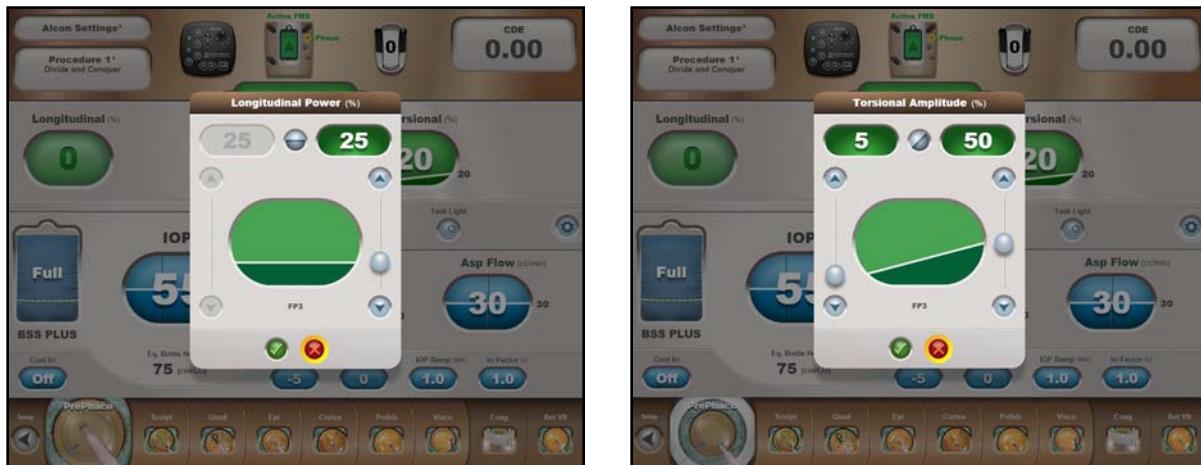


Figure 2-79 Power/Amplitude Dialogs - These two screens show a fixed Longitudinal Power dialog (left) and a linear Torsional Amplitude dialog (right), identified by the horizontal and diagonal lines in their oval display buttons. See Figure 2-67 for description of Oval Display Button Dialog.

Phaco Timing Configurations

In footpedal position 3, longitudinal power and torsional amplitude are delivered to the phaco tip through a variety of timing configurations. Depending on the mode selected (Continuous, Pulse, Burst) the timing can be continuous, or can include off-times between longitudinal/torsional pulses. The three modes are explained below.

- Continuous Phaco Mode - In this mode phaco power is delivered 100% of the time in footpedal position 3. When the Longitudinal power or Torsional amplitude setting is set to 0% (no power), then only torsional or longitudinal phaco power is delivered, for 100% of the time, to the handpiece tip. This allows the user to have continuous ultrasonic longitudinal power or torsional amplitude, if so desired. If longitudinal power and torsional amplitude are both used, then continuous phaco provides 20% of its duty cycle for longitudinal power and torsional ultrasonic oscillations for the remaining 80% when in footpedal position 3, and repeats this cycle over and over again as long as the footpedal is in position 3. This produces continuous alternations between longitudinal power and torsional amplitude.

The user can select any fixed value or linear start and end values for both Longitudinal Power % and Torsional Amplitude % when in footpedal position 3 by invoking their associated oval display button dialogs.



Figure 2-80 Continuous Phaco Surgery Screen - In this case Torsional amplitude is delivered at 20% amplitude for 100% of the time.

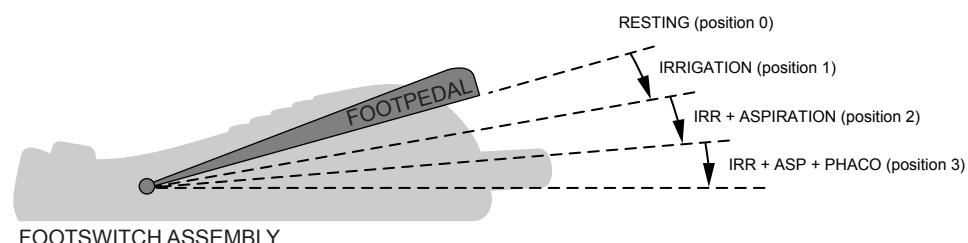


Figure 2-81 Footpedal Control In Phaco Modes of Operation

- Pulse Phaco Mode - When operating in this mode of operation, longitudinal power and torsional amplitude turn On and Off at a power and frequency determined by the Pulse Rate (pps) setting, and on a duty cycle adjustable by the operator (Time On %). The sum of Torsional Time On (%) and Longitudinal Time On (%) cannot exceed 100%. If less than 100%, the remaining duty cycle, or percent time Off, is an off-time.

For example, in the figures below, one pulse (torsional, longitudinal, off-time) is 100 ms duration because of the selected pulse rate of 10 pps. Duration of the phaco pulse, therefore, is 50 ms torsional (100 ms X 50%) plus 10 ms longitudinal (100 ms X 10%) and the remaining 40 ms is an Off period.

If Torsional (%) Amplitude Limit or Longitudinal (%) Power Limit are set to zero, then they contribute nothing to the pulse, and their duty cycles (Time On %) have no effect.

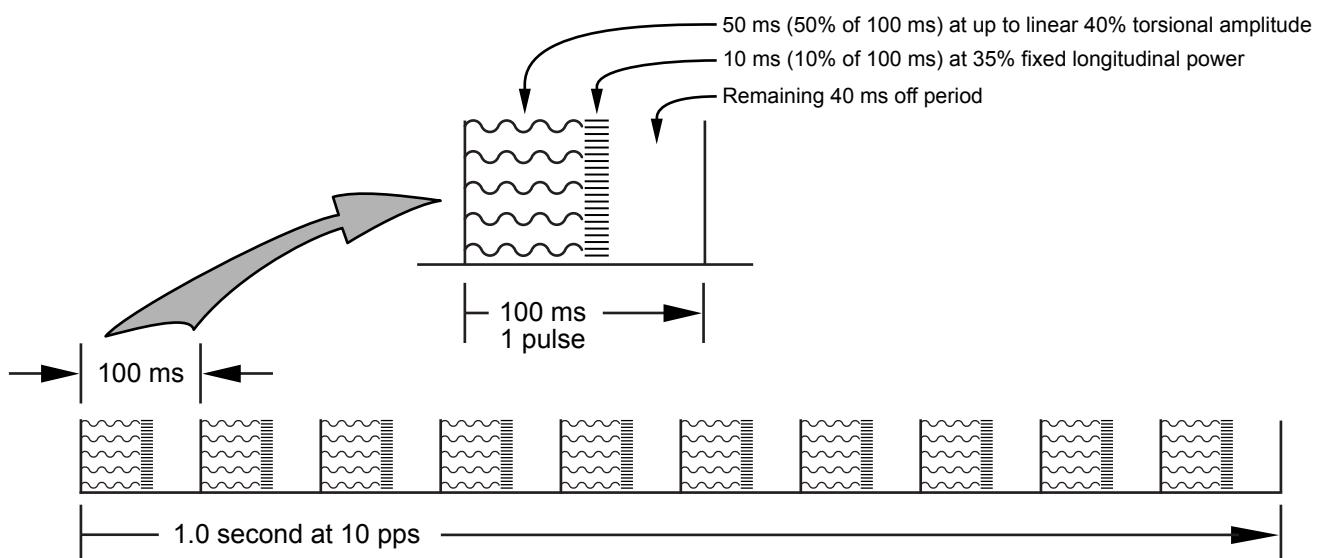


Figure 2-82 Pulse Phaco Surgery Screen and Timing Diagram - In this case Torsional oscillations are delivered at 40% amplitude for 50 ms, Longitudinal power is delivered at 35% power for 10 ms, and no power/oscillations are delivered for 40 ms.

- Burst Phaco Mode - When operating in this mode of operation, torsional burst is followed immediately by longitudinal burst, followed by a pause. Duration of the phaco burst is determined by the settings on the panel; for example, in the Figures below the On Time is 70 ms torsional, 30 ms longitudinal, and the duration of the Off Time is determined by the linear position of the footpedal in position 3. At the beginning the Off Time is equal to 2500 ms, and it is gradually reduced as the footpedal is depressed. When the footpedal is depressed all the way, the Off Time will be equal to that set on the panel – 30 ms in the given example.

If Torsional (%) Amplitude and/or Longitudinal (%) Power are set to zero, then there are no torsional or longitudinal contributions to the burst, and their duty cycles (On Time ms) have no effect.

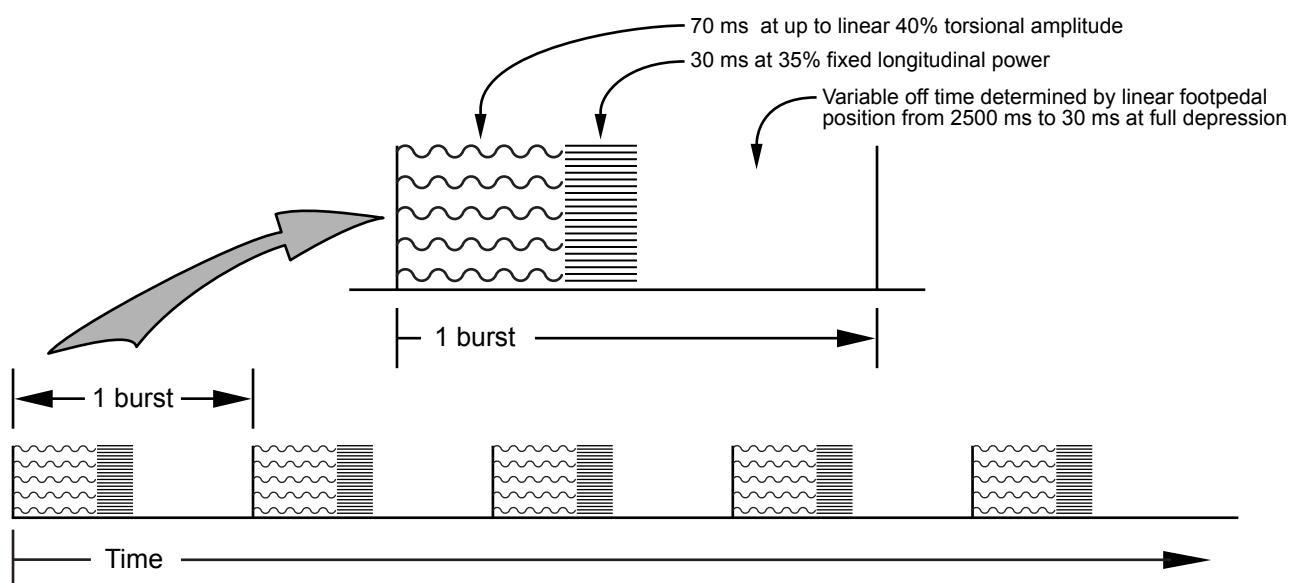


Figure 2-83 Burst Phaco Surgery Screen and Timing Diagram - In this case Torsional oscillations are delivered at 40% amplitude for 70 ms, Longitudinal power is delivered at 35% power for 30 ms, and the off time becomes reduced as the footpedal is depressed through position 3.

Irrigation/Aspiration Mode of Operation

Irrigation/Aspiration mode (Irr/Asp) provides irrigation and simultaneous peristaltic aspiration for use with I/A handpieces and tips. Irrigation/Aspiration control supports all surgical steps except coagulation.

In Irr/Asp mode there are only two footpedal positions. Irrigation is provided in footpedal positions 1 and 2; Aspiration is provided in footpedal position 2.

All Irr/Asp steps contain IOP target, vacuum, and aspiration fluidics control parameters. These parameters are displayed in the lower control panel portion of the Surgery Screen. The Surgery Control Panel in the upper portion does not contain any surgical parameters, but does contain an indication of the step type; i.e., Irr /Asp.

The left screen in Figure 2-84 is an example of an Irr/Asp surgery screen. If the *AutoSert®* injector step is enabled (Custom/Procedure Builder/New Step/*AutoSert®*), the setup controls for the INTREPID® *AutoSert®* IOL Injector are displayed in the upper control panel, as shown in the right screen (D/C cartridge selected). This allows the nurse to prepare the *AutoSert®* Injector while the surgeon is performing Irr/Asp steps.



Figure 2-84 The Irrigation/Aspiration Surgery Screen

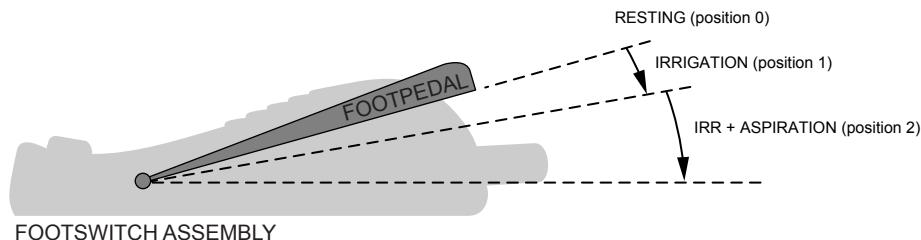


Figure 2-85 Footpedal Control in I/A Mode of Operation

Vacuum Control

The operator can adjust the vacuum limit using the front display panel or the remote control. The adjustable vacuum limit range is 0 to 700+ mmHg (0 to 933+ hPa), where 700+ mmHg (933+ hPa) is limited by atmospheric pressure.

- **Fixed Vacuum Control** - Fixed vacuum control provides a fixed vacuum limit when aspirating in footpedal position 2.
- **Linear Vacuum Control** - Linear vacuum control provides linear control of vacuum in footpedal position 2. The actual vacuum limit is proportional to the footpedal position, and tracks with footswitch penetration within the footpedal position.

Aspiration Control

The operator can adjust the aspiration limit using the front display panel or the remote control. The adjustable aspiration limit range is 5 to 60 cc/min (5 to 60 mL/min).

- **Fixed Aspiration Control** - Fixed aspiration control provides a fixed aspiration flow rate through footpedal position 2.
- **Linear Aspiration Control** - Linear aspiration control provides linear control of aspiration flow rate in footpedal position 2. Aspiration flow rate is controlled linearly based on settings and by footpedal penetration in position 2

Using Fill Step for Irrigation/Aspiration

The Fill step can be added at any location in the procedure using the *Custom/Procedure Builder* menu. It is recommended to add the Fill step before the first I/A step to facilitate removal of air from the I/A handpiece prior to use. Adding the Fill step after the last I/A step helps clean the I/A tip and handpiece.

When transitioned into the Fill step, irrigation and reflux will be enabled simultaneously for up to 10 seconds. If Irrigation Fill is enabled in the *Custom/System Settings/General* menu, this step will be Irrigation Fill, and irrigation will be enabled without reflux.

AutoSert® IOL Injector Mode of Operation

The AutoSert® injector step can be added at any location in the procedure using the *Custom/Procedure Builder* menu. The AutoSert® step is typically positioned before the last I/A step.

The INTREPID® AutoSert® IOL Injector, after preparation with a loaded, single-use cartridge, gives the surgeon footpedal control of AcrySof® lens insertion in footpedal position 2. Prior to installation of the loaded cartridge, the user must select the cartridge type which is to be inserted (D/C or INTREPID® cartridge). The INTREPID® cartridge selection may not be available in all markets. Contact your Alcon representative for the latest qualified lens/cartridge.

When connected to the *Centurion®* system, the IOL injector is calibrated, and if successful, it becomes ready for use.



Figure 2-86 AutoSert® IOL Injector Screen

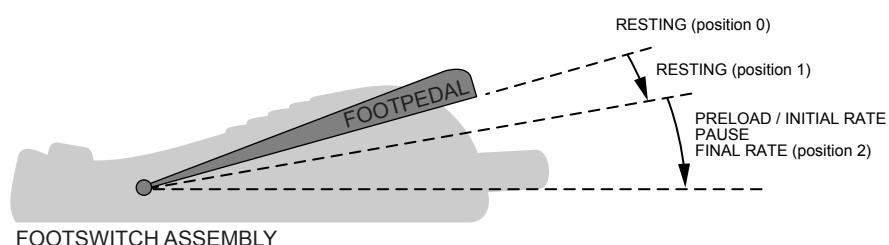


Figure 2-87 Footpedal Control in AutoSert® Injector Mode of Operation

- The Cartridge Selection button is the green button located to the right of the Load Plunger button. Prior to selecting a cartridge, the button is labeled "None." After selection the button is labeled with the particular cartridge selected (see left image in Figure 2-88). The user must select either a D or C cartridge or an INTREPID® cartridge before the INTREPID® AutoSert® IOL Injector can be prepared. The cartridge type can be selected, the plunger can be loaded, and the IOL can be preloaded in an I/A step or in the AutoSert® injector step. In the AutoSert® injector step, once the cartridge type has been selected, the user can make changes to the Initial Rate/Pause/Final Rate settings.
- The Load Plunger button is used to install a plunger, should this be required.
- The Preload IOL button is used by the nurse to prepare the IOL injector by advancing the lens to the preload lens position. Alternatively, the doctor can simply press the footpedal into position 2 and the preload activity will automatically proceed.
- The Retract button is used to retract the handpiece plunger when lens insertion is completed or when otherwise necessary. Alternatively, pressing and holding the Retract button (Reflux) on the footswitch can also be used to retract the inserter.

During each of these activities a blue Progress Bar appears to show the activity, and a red Cancel button also appears that allows the user to stop the activity at that point (see right image in Figure 2-88). Note: If the preload and retract activities are controlled with the footswitch, the progress bar and Cancel button do not appear.

After lens insertion (Initial Rate, Pause, Final Rate), the footpedal must be released and the Retract button pressed to retract the inserter.

The footpedal can be released out of position 2 during these steps, causing a pause in the insertion activity. Pressing into position 2 again causes the activity to resume from the point it stopped.



Figure 2-88 AutoSert® Injector Setup - Using the AutoSert® injector feature cannot be done until a cartridge type is selected by pressing the None button (left image). After selecting the cartridge type, the plunger can be loaded, the IOL can be preloaded (right image), the Initial Rate/Pause/Final Rate settings can be adjusted, and then the lens can be inserted.

- Initial Rate (mm/s) - Once the lens is at the Preload Lens position, the Initial Rate setting (mm/s) controls the fixed delivery velocity up to the Pause position.
- Pause (s) - Once the Pause position is reached, a preprogrammed pause in forward advancement is initiated. This momentary pause allows internal stresses on the lens to be relieved, thus ensuring proper lens delivery.
- Final Rate (mm/s) - This setting controls the fixed or linear velocity at which the lens is injected into the eye.

PRECAUTION: The default values for the Initial Rate and Pause ensure proper IOL injection over a worst case range of IOL size and ambient temperature conditions. Please refer to the INTREPID® AutoSert® IOL Injector DFU and consult with your Alcon representative for additional guidance in adjusting these parameters for your environment.

CAUTIONS

- Do not ultrasonically clean the IOL injector connector. Ultrasonic cleaning of IOL injector connector will cause irreparable damage.
- Use care when handling handpiece, particularly when cleaning. Always clean handpiece over a surface cushioned with a pad or rubber mat.
- Be sure handpiece cable connector is dry before connecting it to the console.
- Do not disconnect cable connector from *Centurion*® system console until the handpiece plunger is fully retracted.
- Do not immerse the IOL injector in any fluid when the plunger is not retracted.
- As part of a properly maintained surgical environment, it is recommended that a backup IOL injector be made available in the event the *AutoSert*® IOL injector handpiece does not perform as expected.

WARNINGS!

- The INTREPID® AutoSert® IOL Injector is non-sterile and must be cleaned and sterilized prior to, and immediately after, each use.
- Never immerse the IOL injector in liquid after autoclaving; allow it to air cool for at least 15 minutes. Quenching could result in a potentially hazardous condition for the patient.
- The AutoSert® IOL Injector delivery system is for the implantation of Alcon qualified AcrySof® foldable IOLs. Unqualified lenses shall not be used with the system. See INTREPID® AutoSert® IOL Injector DFU or AcrySof® IOL DFU, or contact your Alcon representative, for qualified lens/cartridge combinations.
- The cartridge/IOL combination listed in the DFU, along with Alcon settings, has been validated per section 5 of BS EN ISO 11979-3:2006. Appropriate use of injector handpiece settings is important for successful IOL implantation. Inappropriate use of settings may lead to a potentially hazardous condition for the patient.
- Fully retract plunger before detaching nosecone from AutoSert® IOL Injector; otherwise, this could expose non-sterile portion of shaft and result in a potentially hazardous condition for the patient.
- For the intended IOL to be implanted, the proper Cartridge profile must be selected from the driving console, and the proper plunger must be attached to the AutoSert® IOL Injector. Failure to do so can result in a potentially hazardous condition for patient.
- The metal reusable plunger must be sterilized after each use. The reusable plunger is to be installed onto the handpiece or into the wrench prior to sterilization.

Coagulation Mode of Operation

The Coagulation mode provides approximately 1.5 MHz frequency bipolar coagulation to drive a brush or forceps in footpedal position 2. The percentage of maximum available coagulation power can be set from 0% to 100% by pressing the Power display button to bring up the adjustment dialog window. In the window select either fixed or linear footpedal control, then press the up or down arrows to increase or decrease the power limit (s).

Coagulation begins upon entering footpedal position 2, and an audible tone is initialized. As in all other steps, coagulation settings are retained in memory so that when re-entering the Coagulation step, the previous settings are displayed.

- Fixed Coagulation Control - Fixed control provides bipolar coagulation at the preset limit when the footpedal enters position 2.
- Linear Coagulation Control - Coagulation Power begins at its lower setting when entering footpedal position 2, and it reaches its maximum setting when the footpedal is fully depressed.



Figure 2-89 The Coagulation Screen

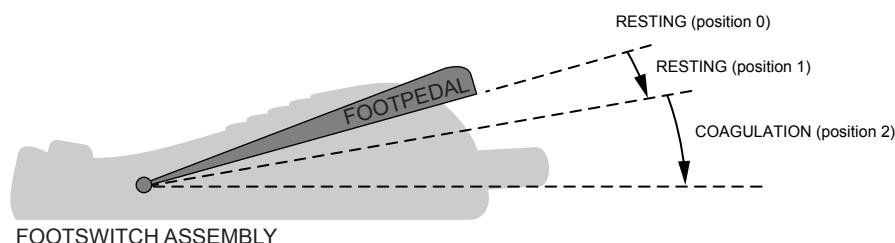


Figure 2-90 Footpedal Control in Coagulation Mode of Operation

WARNINGS!

- **Do not use the coagulation function on patients with pacemakers or implanted defibrillatory devices. If electrosurgery is used on patients with implanted cardiac pacemakers or defibrillatory devices or pacemaker electrodes, be aware that irreparable damage to the pacemaker or defibrillatory device and its function may occur and lead to ventricular fibrillation. Please check with the pacemaker or defibrillatory device manufacturers for their recommendations.**
- **Failure of the HF surgical equipment (coagulation circuitry) could result in an unintended increase of output power.**

Anterior Vitrectomy Mode of Operation

The Anterior Vitrectomy (Ant Vit) mode is used to drive a 23 gauge, pneumatically operated, *Centurion*[®] vitrectomy cutter. Fixed and linear control of the Cut Rate is adjustable from 1 to 4000 cuts per minute in four of five vitrectomy modes (only fixed control in peripheral iridotomy mode). Fixed and linear control of Vacuum and Aspiration is provided in all five vitrectomy modes.

A switch on the footswitch may be assigned to enable and disable the Vit Cutter using the *Custom/Doctor Settings/Footswitch* tab. When the Vit Cutter is disabled, I/A functionality in footpedal position 2 is unchanged, but the Vit Cutter does not cut and the message “Cut Disabled” is displayed. The assigned Vit Cutter switch may be pressed in any footpedal position, and the function takes effect immediately.

If desired, an on-screen Vitrectomy Setup dialog appears when entering the I/A step to help the user prepare the vitrectomy cutter for surgery (see Figure 90). This feature can be enabled in the *Custom/Doctor Settings/General* tab, then pressing the On button in the Vit Setup window. Now when entering the Ant Vit step a window appears to guide the user through the vitrectomy setup.



Figure 2-91 Anterior Vitrectomy Setup Dialog - This dialog appears when entering the Ant Vit step, but it must be enabled in the *Custom/Doctor Settings/General* tab.

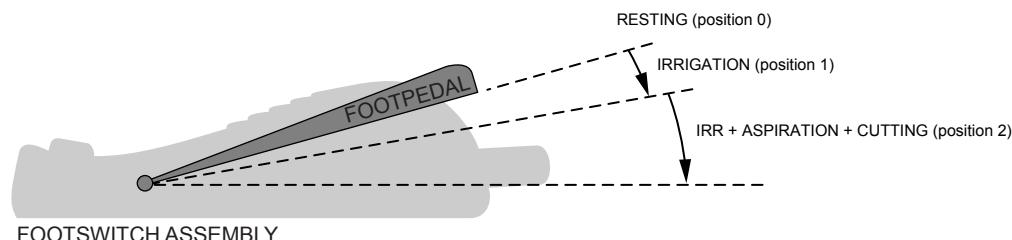


Figure 2-92 Footpedal Control In Anterior Vitrectomy Mode of Operation (except for I/A Cut which is Resting/Irrigation/Irrigation+Aspiration/Irrigation+Aspiration+Cutting)

- Anterior Vitrectomy (Anterior Vit) - The Anterior Vitrectomy mode is the system's default setting. This mode offers a high cut rate of up to 4000 cpm, vacuum up to 700+ mmHg (933+ pHa), and an aspiration rate up to 60 cc/min (60 mL/min). Each of these settings are footpedal controlled at a fixed rate or linearly.



Figure 2-93 Anterior Vitrectomy (Anterior Vit) Screen

- Epinucleus Removal (Epi Removal) - The Epinucleus Removal submode provides settings that assist in epinucleus removal while vitreous is present during surgery. As default settings, the linear cut rates (1500 down to 500 cpm) and linear vacuum limit (0 up to 500 mmHg [0 up to 667 hPa]) in opposing slopes provide vitreous removal at start of footpedal position 2, and epinucleus removal at the end of footpedal position 2.



Figure 2-94 Anterior Vitrectomy (Epi Removal) Screen

- Irrigation/Aspiration Cut (I/A Cut) - Irrigation is provided in footpedal position 1; irrigation and aspiration in position 2; and irrigation, aspiration, and cutting in position 3.



Figure 2-95 Anterior Vitrectomy (I/A Cut) Screen

- Peripheral Iridotomy (Peripheral Irid) - For a Peripheral Iridotomy using the vitrectomy probe, the open port of the probe is placed on the iris while aspirating. Once an occlusion of the iris has occurred and vacuum stability is reached, further pressing to the very end of footpedal travel will engage the cutter at a fixed cut rate as indicated by the Cut Rate setting.



Figure 2-96 Anterior Vitrectomy (Peripheral Irid) Screen

- Visco Aspiration (Visco Asp) - Visco Aspiration is a submode that uses the vitrectomy probe for viscoelastic removal after an anterior vitrectomy. Using default settings, the high cut rate (4000 cpm), high linear vacuum (0 to 650 mmHg [0 to 867 hPa]), and higher aspiration rate (50 cc/min [50 mL/min]) facilitate easy viscoelastic removal with a Vitrectomy probe.



Figure 2-97 Anterior Vitrectomy (Visco Asp) Screen

SECTION THREE OPERATING INSTRUCTIONS

INTRODUCTION

This section details a recommended setup and check-out procedure for the *Centurion®* Vision System. The steps on the following pages cover preparation for cataract lens removal surgery including capsulotomy, irrigation and aspiration, coagulation, and vitrectomy using packs supplied by Alcon.

The *Centurion®* Vision System, including Alcon-approved consumables and accessories, constitutes a complete surgical system and is intended exclusively for use by licensed ophthalmic surgeons and their surgical teams. These surgical teams are experienced at conducting phacoemulsification procedures in a properly-maintained surgical environment (qualified personnel, availability of backup equipment) and are familiar with the operation of the equipment used as outlined in operator's manuals and directions for use (setup/checkout procedures to be completed before the surgical procedure; processing of reusable devices; maintenance; etc.).

The procedures are divided into two columns and presume a surgical team of four people: Surgeon and Scrub Nurse in the sterile field, a Circulating Nurse in the non-sterile field, and a Sterilization Technician. In the left column a directive is given; in the right column the responsible team member is identified.

Any problems pertaining to setup and check-out procedures should first be directed to the Troubleshooting section of this manual. If questions still exist, contact the Alcon Technical Services Department or your local Alcon representative.

POWER UP SEQUENCE

System power-up is initiated when the Power switch is turned on and the Standby switch is pressed. After some delay (during which the Alcon splash screen is displayed) a full-screen animation concluding with "*Centurion®* Vision System" is displayed. During power-up the following are displayed at the bottom of the Startup Screen:

Release: REL_xx.xx

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2013/xx/xx 10:20

After power-up, the Setup Screen is entered. If there are no user-defined doctors, then Alcon Settings becomes the currently-selected doctor, otherwise the Select Doctor dialog is opened.

SHUT DOWN SEQUENCE

System shutdown may be initiated by pressing the *Custom/Shutdown System* button, or by pressing the Standby switch for at least two seconds, then a Shut down the system? confirmation dialog is displayed. If no FMS, phaco handpiece, or IOL handpiece is connected to the system and the Standby switch is pressed, the shutdown proceeds immediately. In some system Fault conditions it may be necessary to press the Standby switch for at least five seconds before shutdown is initiated.

INITIAL SYSTEM SETUP

1. Remove footswitch from cradle on rear of system and set on floor. If using cabled footswitch, plug cable into one-of-two connectors at bottom of console's front panel. Ensure treadle and switches are not depressed. Circulating Nurse
2. Fold instrument tray down into the horizontal position. If remote control is to be used during surgery, pull a left or right loop out from the instrument tray and place the remote control in it. Circulating Nurse
3. Plug main power cord into a suitable wall outlet or receptacle. Turn Power switch ON (located at the bottom of the rear panel; this switch remains ON in the I position). Turn system power ON using the Standby switch located at the top of the right side panel. Circulating Nurse

WARNINGS!

- To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth (ground).
- Do not use multiple portable socket outlets with this system.

4. After power-up, the Setup Screen is entered. If there are no user-defined doctors, then Alcon Settings becomes the currently-selected doctor. If there are user-defined doctors, the Select Doctor dialog appears allowing the user to select an available doctor. Circulating Nurse

If creation of a new doctor is desired, press the Doctor Name button, press the Manage Doctors button, and follow the on-screen prompts.

WARNING!

Ensure that appropriate Centurion® system parameters and system settings are selected prior to starting the procedure. Parameter and system settings include, but are not limited to, ultrasound mode, ultrasound power, vacuum, aspiration flow rate, bottle height, IOP, etc.

5. Verify remote control is functional by pressing its buttons and observing the system's actions. Circulating Nurse
6. Inspect the O-rings on the *Ultraflow™ * II* I/A handpiece tip. If damaged, the O-rings must be replaced using the *Ultraflow™ * O-ring* tool prior to sterilization. Sterilization Technician
7. Clean, inspect, and sterilize the instruments according to hospital procedure. Sterilization Technician

CAUTION

The phaco handpiece must be at room temperature before use. Allow handpiece to air cool after steam autoclave (at least 15 minutes). Never immerse in liquid to cool.

CENTURION[®] FMS PACK SETUP PROCEDURE

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Open FMS pack and aseptically transfer contents to sterile field. 2. Extend front or rear wire loop from the instrument tray. Drape tray support cover over the tray, remote control, and support arm, then push cover down into the loop to form a pouch for the handpiece. 3. For <u>Active Fluidics</u>[™] technology, rotate upper work surface to the side, open <u>Active Fluidics</u>[™] compartment door, gently lower bag of <i>BSS</i>[®] irrigating fluid into the bag bay, and slide the compartment door shut. <p>For <u>gravity fluidics</u>, hang a container of <i>BSS</i>[®] irrigating fluid from IV pole.</p> | Circulating Nurse

Circulating Nurse and Scrub Nurse

Circulating Nurse |
|---|---|

WARNING!

Use of *BSS*[®] irrigating fluid bags other than those approved by Alcon for use with Active Fluidics[™] technology can result in patient injury or system damage.

- | | |
|---|--------------------------------|
| <ol style="list-style-type: none"> 4. Grasp Fluidic Management System (FMS) and remove paper band from tubing. Uncoil tubing and place in pouch. 5. Hold FMS by handle, angle it toward the lip on bottom of fluidic module, and press top forward to insert into housing, all in one motion. Ensure that the drain bag hangs freely, and that tubing does not fall out of pouch. | Scrub Nurse

Scrub Nurse |
|---|--------------------------------|

Prime, Vacuum, and Vent Test

The setup screen is automatically entered at startup or upon removal of the FMS after completion of a procedure. If not in setup screen, press the Setup button, or access the setup screen via the remote control.

- | | |
|--|---|
| <ol style="list-style-type: none"> 6. For <u>Active Fluidics</u>[™] technology, spike <i>BSS</i>[®] irrigating fluid administration line from FMS into the bag of <i>BSS</i>[®] irrigating fluid secured within the <u>Active Fluidics</u>[™] bag bay. Verify compartment door is fully closed. <p>For <u>gravity fluidics</u>, spike <i>BSS</i>[®] irrigating fluid administration line from FMS into the container of <i>BSS</i>[®] irrigating fluid hanging from IV pole, then squeeze drip chamber to fill approximately 2/3 to 3/4 full.</p> | Circulating Nurse or Scrub Nurse

Circulating Nurse |
| <ol style="list-style-type: none"> 7. Connect FMS tubing together to create a fluidics loop: Connect FMS tubing with female aspiration luer to FMS tubing with male irrigation luer. | Scrub Nurse |

8. Ensure correct Doctor and Procedure setting are selected. Press Prime FMS on the Setup screen or Enter on the remote control to initiate the priming/test sequence. The system performs three functions: draw fluid, vacuum test, and vent test.

Scrub Nurse

For gravity fluidics the IV pole automatically elevates to the priming position during the priming test, then returns to its home position after successful completion of the testing sequence.

WARNINGS!

- **IV pole rises automatically. To avoid stretching drip chamber tubing, and possibly pulling drip chamber out of bottle, tubing must hang freely with no interference.**
- **If using gravity fluidics, keep clear of IV pole when it is in motion to prevent skin, hair, and/or clothing from becoming trapped in the IV pole mechanism.**

After successful completion of the priming sequence, the FMS prime status indicator at top of display screen (*Active Fluidics™* FMS or Gravity FMS) changes from red (not primed) to green (primed), and the setup automatically switches to the Fill step.

If the priming/test sequence fails, an advisory message is displayed.

Phaco Handpiece Setup and Test

9. Thread U/S tip onto phaco handpiece (see Figure 3-1). Tighten firmly using the tip wrench. Remove wrench and retain for tip removal. If tip is not securely attached, an Event message may be generated and/or inadequate tuning will occur. Scrub Nurse

CAUTION

Do not use the disposable tip wrench for subsequent cases; stripping of the tip wrench may occur.

10. Match proper color coding of infusion sleeve with selected tip (see Table 3-1). Tip of sleeve should clear bevel on U/S tip by 1-2 mm (see Figure 3-2), and orient port holes as shown. Avoid twisting the sleeve. Scrub Nurse

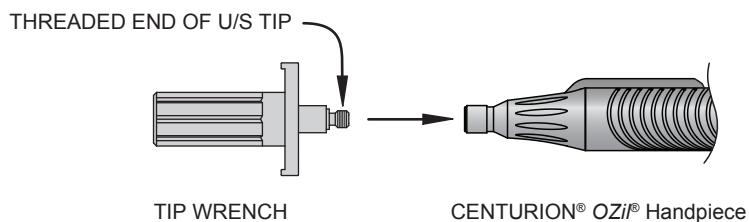


Figure 3-1 U/S Tip/Wrench Assembly

Handpiece Tips	Infusion Sleeve Size and Type	Sleeve Color	Recommended Incision Size
0.9 mm MicroTip and 0.9 mm ABS® MicroTip 0.9 mm Tapered ABS® MicroTip 0.9 mm Flared ABS® MicroTip 0.9 mm Mini-Flared ABS® Tip 0.9 mm ABS® Mini Tip 0.9 mm ABS® INTREPID® Balanced Tip 0.9 mm ALCON® UltraChopper® Tip Standard I/A, Silicone I/A, INTREPID® I/A Tip	0.9 mm High Infusion Sleeve	Light Purple	3.2 mm
	0.9 mm Micro Sleeve	Dark Purple	2.75 mm
0.9 mm Flared ABS® MicroTip 0.9 mm Mini-Flared ABS® Tip 0.9 mm ABS® Mini Tip 0.9 mm ABS® INTREPID® Balanced Tip 0.9 mm ALCON® UltraChopper® Tip Silicone I/A, INTREPID® I/A Tip	0.9 mm Ultra Sleeve	Red	2.2 mm
	0.9 mm Nano Sleeve	Orange	1.8 mm
0.7 mm ABS® Mini Tip 0.7 mm ABS® INTREPID® Balanced Tip	0.7 mm Ultra Sleeve	Yellow	2.2 mm
	0.7 mm Nano Sleeve	Gray	1.8 mm

Table 3-1 Table of Phaco Handpiece Tips and Corresponding Infusion Sleeves.

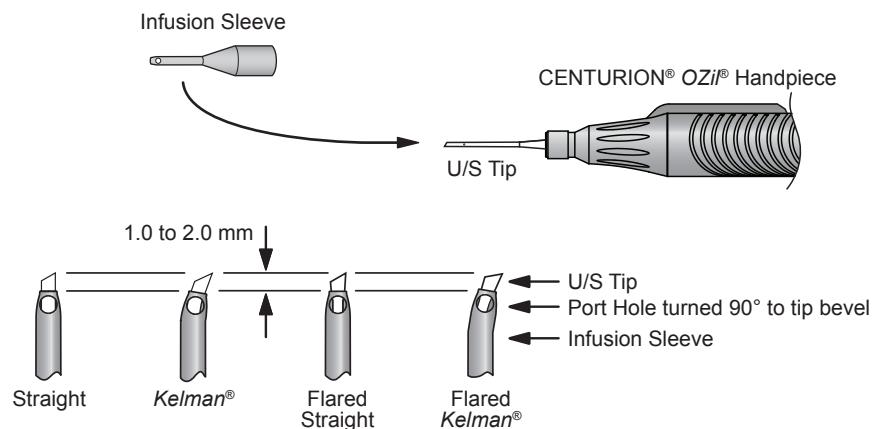


Figure 3-2 Phaco Handpiece Tip/Infusion Sleeve Preparation

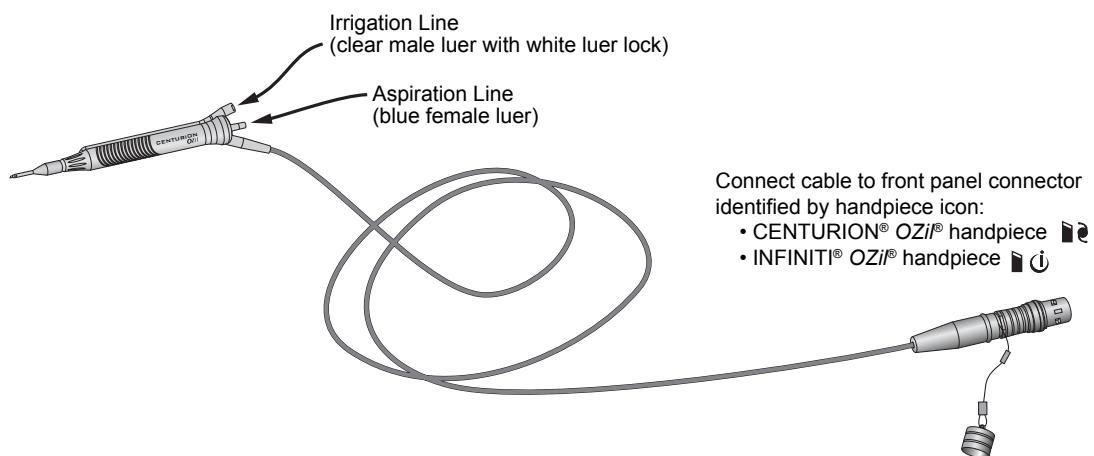


Figure 3-3 Connect Phaco Handpiece to FMS Tubing and Centurion[®] System Connector Panel (CENTURION[®] OZi[®] handpiece shown).

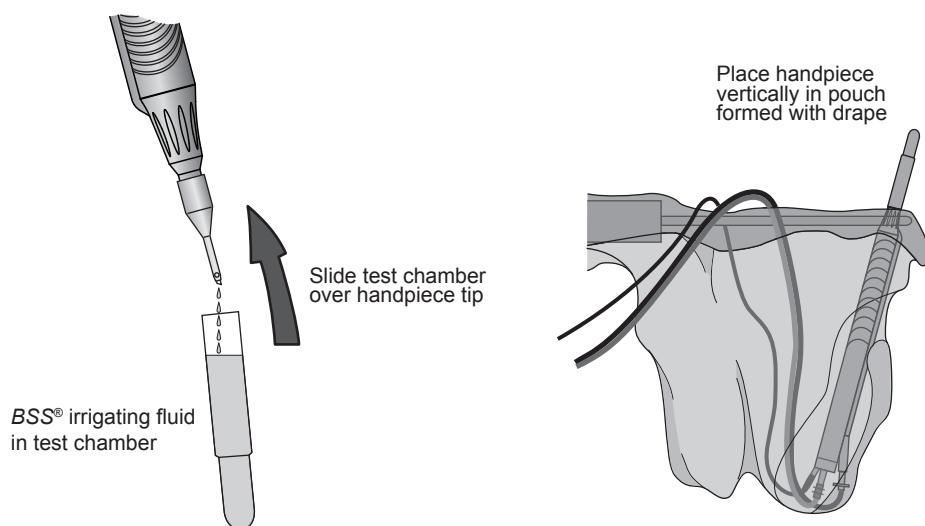


Figure 3-4 Preparing Test Chamber and Placing Handpiece in Pouch.

11. Remove protective cap from handpiece cable connector by retracting its sheath and releasing cap. Line up red dot on handpiece cable connector with red dot on front panel connector and plug cable into console (see Figures 2-2 & 3-3). If CENTURION® OZil® handpiece, plug into one of the top two connectors. If INFINITI® OZil® handpiece, plug into bottom connector.
- Scrub Nurse
12. From FMS, connect the female luer on aspiration line to male aspiration port on handpiece. Connect male luer on irrigation line to female irrigation port on handpiece. If *Centurion*® handpiece, turn the white luer lock clockwise to lock irrigation fitting to handpiece (see Figure 3-3).
- Scrub Nurse
13. Hold handpiece with tip pointed down into test chamber (see Figure 3-4) and activate Fill on the setup screen. While observing stream of fluid from irrigation and aspiration ports, fill test chamber completely and slide it over end of handpiece. Ensure no air bubbles are present in test chamber. Press handpiece into instrument tray pouch with tip pointed up, and secure irrigation/aspiration lines to clips on top of tray. Ensure tubing is not kinked.
- Scrub Nurse

WARNINGS!

If stream of fluid is weak or absent while filling test chamber, good fluidics response will be jeopardized. Good clinical practice dictates the testing for adequate irrigation and aspiration flow prior to entering the eye.

Ensure that the tubings are not occluded during any phase of operation.

When using a bimanual procedure, ensure the irrigation handpiece and settings have sufficient flow characteristics. Use of irrigation handpieces or settings with insufficient flow characteristics may result in a fluidic imbalance and may cause a shallowing or collapsing of the anterior chamber.

If an INFINITI® OZil® handpiece is connected to the bottom connector, and Ultrachop step is added to surgery steps, press the Swap Phaco / UltraChop button and repeat steps 12 and 13.

14. Activate Test Handpiece on the setup screen. The test consists of a handpiece tuning exercise and fluidic flow check. If handpiece fails tuning or flow test, an advisory is displayed. The handpiece tuning process can be aborted at any time by pressing cancel (X).
- Scrub Nurse

WARNINGS!

If the handpiece test chamber is collapsed after tuning, there is a potential of low irrigation flow through the handpiece and may result in a fluidic imbalance. This, in turn, may cause a shallowing or collapsing of the anterior chamber.

Good clinical practice dictates testing for adequate irrigation, aspiration flow, reflux, and operation as applicable for each handpiece prior to entering eye.

15. After successfully testing handpiece you must adjust and verify the Patient Eye Level (PEL) until the console PEL light aligns with the patient's eye level (see Figure 3-5). If enabled, a PEL verification step is provided in the setup screen. When alignment is complete, press the green check mark to enter the Surgery Screen for the first step of the procedure.

PRECAUTION: After a successful tuning of the handpiece, and if PEL verification is disabled, the first step of the lens removal procedure is entered without verifying PEL.

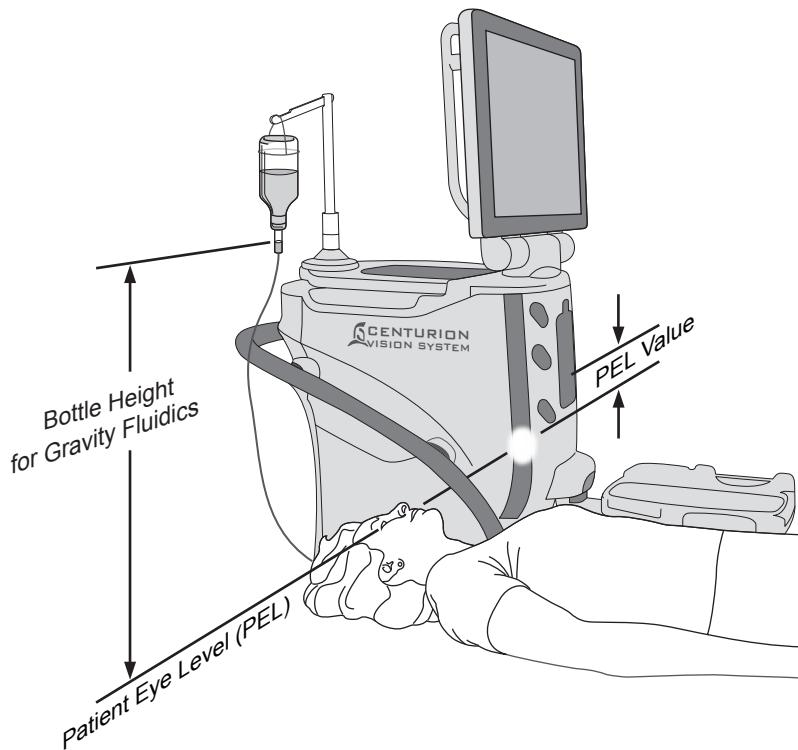


Figure 3-5 Setting Patient Eye Level (PEL).

IRRIGATION/ASPIRATION HANDPIECE SETUP

1. If using *Ultraflow™ II I/A* handpiece with threaded tip adapter, follow the directions in this step.

Thread I/A tip onto I/A handpiece. Tighten firmly using the I/A tip wrench. Remove I/A tip wrench and retain for future tip removal.

Scrub Nurse
or
Sterilization
Technician

CAUTION

Use of a tool other than Alcon tip wrench may cause damage to the I/A tip and handpiece.

2. Thread infusion sleeve over the I/A tip until sleeve clears end of I/A tip by 1-2 mm (see Figure 3-6). Avoid twisting of the Sleeve. Orient port holes as shown and ensure that aspiration holes are not obstructed.

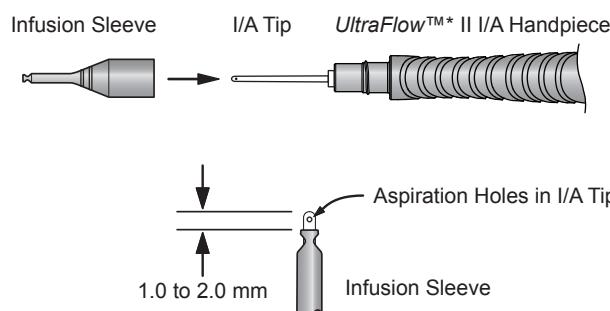


Figure 3-6 I/A Handpiece Tip/Infusion Sleeve Preparation.

3. Remove aspiration and irrigation lines from the phaco handpiece and connect to the I/A handpiece. For I/A handpieces equipped with a locking irrigation luer, turn the white luer lock clockwise to lock irrigation line to handpiece.
4. In Surgery screen, and with handpiece level with instrument tray, depress footswitch to position 1 to stream irrigation fluid from the irrigation port. Activate the reflux function to stream fluid from the I/A tip's aspiration port. Observe the stream of irrigating fluid from the irrigation and aspiration ports. Ensure no air bubbles remain in irrigation or aspiration pathways before continuing procedure.

Scrub Nurse

Scrub Nurse

Surgeon
or
Scrub Nurse

WARNING!

If stream of fluid is weak or absent, good fluidics response will be jeopardized. Good clinical practice dictates the testing for adequate irrigation and aspiration flow prior to entering the eye.

INTREPID® AUTOSERT® IOL INJECTOR SETUP

1. If *AutoSert®* injector step is not already shown at bottom of Surgery screen for this doctor, add it to the steps using the *Custom/Procedure Builder/New Step* window. The *AutoSert®* injector step is typically positioned before the last Irr/Asp step. Circulating Nurse
or
Scrub Nurse
2. Plug INTREPID® *AutoSert®* IOL Injector Handpiece cable into one of the top two handpiece connectors on the front connector panel. (Usually it is the second of the two as the first is used by the phaco handpiece.) Scrub Nurse
3. Enter the *AutoSert®* injector step (or Irr/Asp step with *AutoSert®* setup in its Surgery Controls area). Scrub Nurse

Select a Cartridge

Prior to loading plunger and preloading IOL, the user must select the cartridge type which is to be inserted (D/C or INTREPID® cartridge). With no cartridge selected, the cartridge type button is labeled "None."

4. Press the green cartridge type button to make a selection (INTREPID® cartridge selection may not be available in all markets). Contact your Alcon representative for the latest qualified lens/cartridge. Scrub Nurse

Remove a Plunger

It may be necessary to remove one type of plunger and replace it with another type in the sterile field to accommodate either the D/C cartridge or INTREPID® cartridge.

5. With plunger fully retracted, remove cartridge from IOL injector handpiece.
6. Detach nosecone from IOL injector handpiece by rotating the nosecone counter-clock-wise, then carefully sliding it away from the IOL injector handpiece so it does not deflect the plunger. Scrub Nurse
7. With nosecone removed (see Figure 3-7), remove the plunger by grasping it where indicated and pulling it away from IOL injector handpiece. Scrub Nurse
8. Re-attach nosecone onto IOL injector handpiece. Scrub Nurse

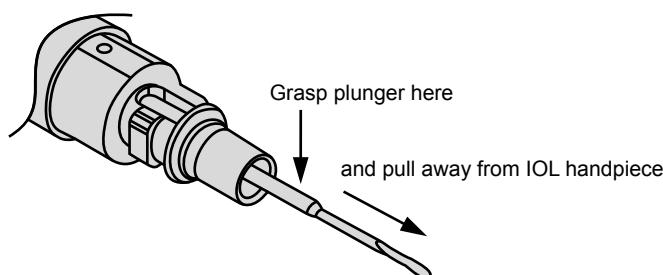


Figure 3-7 Removing Plunger from INTREPID® *AutoSert®* IOL Injector.

Load a Plunger

If a plunger needs to be installed, perform this procedure when an I/A step or *AutoSert*[®] injector step is entered. The IOL injector handpiece can be prepared with two types of plungers: the reusable metal plunger or the single-use soft tip plunger. The reusable metal plunger is designed for use with Monarch C and D cartridges. The single-use soft tip plunger is designed for use with the INTREPID[®] cartridge.

- | | | |
|-----|--|-------------|
| 9. | Slide sterile plunger into sterile wrench, then connect plunger/wrench onto nosecone of sterile IOL injector handpiece. Press Load Plunger button (See <i>Alcon</i> [®] INTREPID [®] <i>AutoSert</i> [®] IOL Injector Handpiece DFU). | Scrub Nurse |
| 10. | After plunger is loaded onto nosecone of sterile IOL injector handpiece, remove wrench. The IOL injector handpiece is ready for the IOL cartridge. | Scrub Nurse |

Preload an IOL

Prior to entering the eye, the plunger must be moved forward to the preload lens position.

- | | | |
|-----|---|-------------|
| 11. | Load IOL into cartridge, then insert loaded IOL cartridge onto tip of IOL injector handpiece (See <i>Alcon</i> [®] INTREPID [®] <i>AutoSert</i> [®] IOL Injector Handpiece DFU). | Scrub Nurse |
| 12. | Press Preload IOL button. The <i>AutoSert</i> [®] handpiece is ready for use when the preload sequence is complete. | Scrub Nurse |

Make Final Adjustments

- | | | |
|-----|---|--|
| 13. | In the <i>AutoSert</i> [®] injector step, and prior to inserting the lens into the patient's eye, set the doctor's preferred Initial Rate (mm/s), Pause (s), and Final Rate (mm/s) settings. The Final Rate can be set for fixed or linear delivery. | Circulating Nurse
or
Scrub Nurse |
|-----|---|--|

PRECAUTION: The default values for the Initial Rate and Pause ensure proper IOL injection over a worst case range of IOL size and ambient temperature conditions. Please refer to the INTREPID[®] *AutoSert*[®] IOL Injector DFU and consult with your Alcon representative for additional guidance in adjusting these parameters.

Cautions and Warnings for *AutoSert*[®] IOL injector on next page

CAUTIONS

- Do not ultrasonically clean the *AutoSert*[®] IOL Injector connector. Ultrasonic cleaning will cause irreparable damage.
- Use care when handling *AutoSert*[®] IOL Injector, particularly when cleaning. Always clean handpiece over a surface cushioned with a pad or rubber mat.
- Be sure handpiece cable connector is dry before connecting it to the console.
- Do not disconnect cable connector from *Centurion*[®] system console until the IOL Injector plunger is fully retracted.
- Do not immerse the *AutoSert*[®] IOL Injector in any fluid when the plunger is not retracted.
- As part of a properly maintained surgical environment, it is recommended that a backup IOL injector be made available in the event the *AutoSert*[®] IOL injector handpiece does not perform as expected.

WARNINGS!

- The **INTREPID[®] AutoSert[®] IOL Injector** is non-sterile and must be cleaned and sterilized prior to, and immediately after, each use.
- Never immerse the IOL injector in liquid after autoclaving; allow it to air cool for at least 15 minutes. Quenching could result in a potentially hazardous condition for the patient.
- The **AutoSert[®] IOL Injector delivery system** is for the implantation of Alcon qualified **AcrySof[®]** foldable IOLs. Unqualified lenses shall not be used with the system. See **INTREPID[®] AutoSert[®] IOL Injector DFU** or **AcrySof[®] IOL DFU**, or contact your Alcon representative, for qualified lens/cartridge combinations.
- The cartridge/IOL combination listed in the DFU, along with Alcon settings, has been validated per section 5 of BS EN ISO 11979-3:2006. Appropriate use of injector handpiece settings is important for successful IOL implantation. Inappropriate use of settings may lead to a potentially hazardous condition for the patient.
- Fully retract plunger before detaching nosecone from *AutoSert*[®] IOL Injector; otherwise, this could expose non-sterile portion of shaft and result in a potentially hazardous condition for the patient.
- For the intended IOL to be implanted, the proper Cartridge profile must be selected from the driving console, and the proper plunger must be attached to the *AutoSert*[®] IOL Injector. Failure to do so can result in a potentially hazardous condition for patient.
- The metal reusable plunger must be sterilized after each use. The reusable plunger is to be installed onto the handpiece or into the wrench prior to sterilization.

CENTURION® ULTRAVIT® PROBE SETUP (using Vitrectomy Setup dialog)

When the Anterior Vitrectomy step is entered, the Vitrectomy Setup dialog appears (see Figure 3-8) unless turned Off in the Doctor Settings screen. This setup screen assists the user through the proper set up and test of the selected probe.

If the Vitrectomy Setup dialog is turned Off, you can either turn the Vitrectomy Setup dialog On (Custom/Doctor Settings/General), or proceed three more pages to **CENTURION® ULTRAVIT® PROBE SETUP (without using Vitrectomy Setup dialog)**.

1. Peel lid and aseptically transfer contents of pack to sterile field. Circulating Nurse
2. Press the *Ant Vit* step button; the Vitrectomy Setup dialog appears. Scrub Nurse
3. **Connect to console Vit port** - Connect black and gray pneumatic tubing connectors from the *Centurion® UltraVit® Probe* to left and right Vit ports, respectively, on the front panel of the *Centurion® Vision System* (see Figures 2-2 & 3-8 & 3-9). Turn tubing connectors clockwise until they click securely in place. Scrub Nurse



Figure 3-8 Vitrectomy Setup Dialog - After performing a Vitrectomy Setup step, pressing the *Next* button brings up the dialog for the next setup step. In step 6, the *Fill* button allows the user to prime the probe and to fill a test vessel for proper testing of the probe. Pressing the *Test* button initiates an automated test sequence which verifies secure pneumatic connections, then applies pneumatic activation at a reduced cut rate for visual verification of probe actuation.

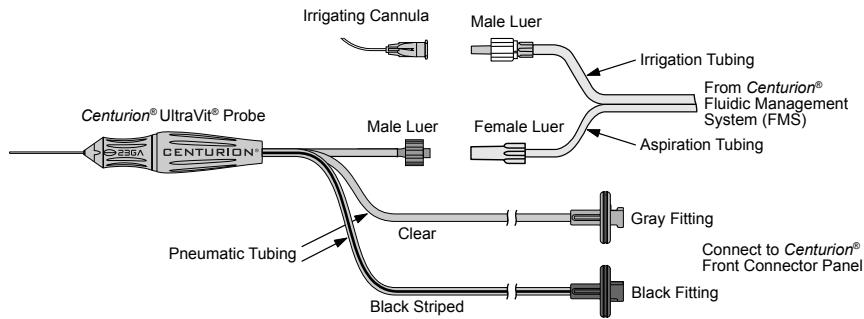


Figure 3-9 Preparation of Centurion® UltraVit® Probe and Irrigating Cannula with Irrigation/aspiration and pneumatic tubings.

4. **Connect aspiration tubing** - Disconnect FMS irrigation and aspiration tubing connectors from phaco handpiece. Connect FMS blue aspiration tubing connector to probe's blue aspiration tubing connector (see Figure 3-9). Press *Next* button. Scrub Nurse
5. **Connect irrigating cannula** - Connect FMS white irrigation tubing connector to irrigating cannula (see Figure 3-9). Press *Next* button. Scrub Nurse
6. **Press Fill then press Test** - Priming of the vitrectomy probe is required prior to use. With tip of probe and irrigating cannula in a cup of sterile fluid, press the *Fill* button. Ensure all air bubbles have been removed from all tubing connected to the probe prior to use. Scrub Nurse
- Verify probe actuation** - While observing cutting port of probe, held under surface of sterile fluid, press the *Test* button. The system initiates an automated test sequence confirming secure connections and facilitates visualization of probe cutter by applying a brief period of reduced cut rate. The cutter should fully open and close when actuated. Scrub Nurse
7. The Anterior Vit surgery screen appears on the front display panel. Switching between five different vitrectomy types is done by pressing the *Mode* button (Anterior Vit) at top center of surgery screen. The vitrectomy probe is ready for surgery. Scrub Nurse

Cautions and Warnings for Centurion® UltraVit® Probe are on next page

CAUTION

Vitrectomy cutting performance may vary at high altitudes. Consult Alcon Technical Service for additional information.

CENTURION[®] ULTRAVIT[®] PROBE WARNINGS!

The vitrectomy probe, a guillotine vitreous cutter, is intended for single use only.

Do not test or operate vitrectomy probe unless tip of probe is immersed in BSS[®] sterile irrigating solution or distilled water or is in surgical use. Irreparable damage to the probe and tip can result if run dry.

Connect pneumatic tubing connectors from vitrectomy probe to console prior to initiating prime of probe. Initiating prime of the vitrectomy probe, or running the vitrectomy system, with one or both pneumatic connectors disconnected may cause the flow of non-sterile air over the sterile field for a brief moment.

After filling and testing, and before surgical use, verify that the probe is properly actuating and aspirating. This may require lowering cut rate to achieve good visualization. The port should always remain in open position in footpedal position 1. If cutting port is partially closed while in position 1, replace the probe. Prior to entry into the eye, and with tip of probe in sterile irrigating solution, the surgeon should step on the footpedal for visual verification that the probe is cutting:

- If the cutter is observed to not fully close, or does not move when the probe is actuated, replace the probe.
- If cutting port is partially closed while idle, replace the probe.
- If air bubbles are observed in the aspiration line or exiting the probe tip during priming, replace the probe.
- If a reduction of cutting capability or vacuum is observed during the surgical procedure, stop immediately and replace the probe.

CENTURION® ULTRAVIT® PROBE SETUP (without using Vitrectomy Setup dialog)

1. Peel lid and aseptically transfer contents to sterile field. Circulating Nurse
2. Press the *Ant Vit* step button; the Anterior Vit surgery screen appears. If it is desired to have a Vit step as a part of the procedure, then it must be added in the Procedure Builder. Scrub Nurse
3. Connect black and gray pneumatic tubing connectors from the CENTURION® UltraVit® Probe to left and right Vit ports, respectively, on the front panel of the *Centurion®* Vision System (see Figures 2-2 & 3-10). Turn tubing connectors clockwise until they click securely in place. Scrub Nurse
4. Disconnect FMS irrigation and aspiration tubing connectors from phaco handpiece. Connect FMS female luer aspiration connector to aspiration line of vitrectomy probe. Connect FMS male luer irrigation connector to irrigating cannula (see Figure 3-10). Scrub Nurse

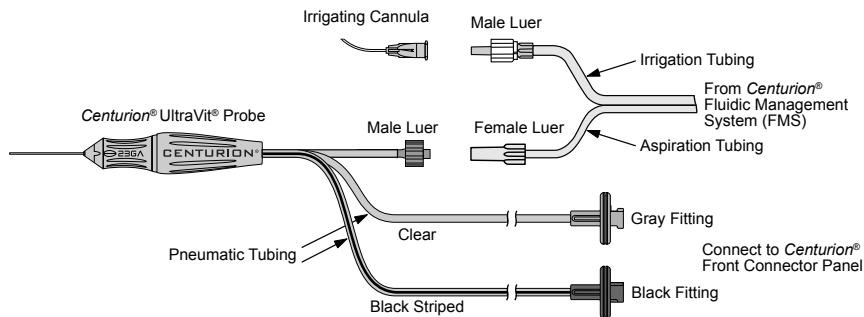


Figure 3-10 Preparation of Centurion® UltraVit® Probe and Irrigating Cannula with Irrigation/aspiration and pneumatic tubings.

5. Priming of the vitrectomy probe is required prior to use, and can be performed using one of two methods. With tip of probe and irrigating cannula in a cup of sterile fluid:
 - Independently use irrigation by depressing the footpedal to position 1 to remove air bubbles from the probe's irrigation line, and then use reflux to remove air bubbles from the probe's aspiration tubing.
 - Use the Fill command, if enabled in the Procedure Builder and placed before the Vit step, to simultaneously remove air bubbles from the irrigation and aspiration lines. When completed, the system will proceed to the selected Vit step.
 Ensure all air bubbles have been removed from all tubing connected to the probe prior to use. Scrub Nurse
6. Testing of the vitrectomy probe should be performed prior to use. With tip of probe and irrigating cannula in a cup of sterile fluid, depress footpedal to the cut position and observe probe's cutting port (to facilitate visualization, reduce cut rate). The cutter should fully open and close when actuated, and remain open when footpedal is released to position 0. Scrub Nurse

Cautions and Warnings for *Centurion®* UltraVit® Probe are on prior page

COAGULATION HANDPIECE SETUP

1. Using aseptic techniques, plug new or sterilized handpiece cable connectors into *Centurion*® Vision System front connector panel. Scrub Nurse
2. Plug connector into new or sterilized coagulation handpiece. Scrub Nurse
3. Coagulation handpiece is ready.

INTREPID® CAPSULOTOMY DEVICE SETUP

1. If the Capsulotomy step is not already shown at bottom of Surgery screen for this doctor, it can be added using the Custom/Procedure Builder/New Step window. Circulating Nurse
or
Scrub Nurse
2. Carefully remove INTREPID® Capsulotomy Device from plastic tray by gently bending tray and exposing the top half of device. Scrub Nurse

CAUTION

Care should be taken as to not damage the distal end of the device.

3. Unwind cable and plug INTREPID® Capsulotomy Device into its designated connector on the front connector panel. Scrub Nurse
4. Press the Test ICD button at bottom of Setup Screen. Scrub Nurse
5. Device must be enabled by pressing the Enable button at bottom of Setup Screen, or by pressing the Reflux footswitch button. Scrub Nurse
or
Surgeon

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SECTION FOUR CARE AND MAINTENANCE

INTRODUCTION

This section of the manual is designed to inform the operator of basic care and maintenance of the instrument. If a problem occurs on the instrument, contact Alcon Technical Support or your local Alcon representative and give details of the breakdown circumstances and effects. If there is an Event message, write down the number and message exactly as it appears on the screen. From these elements, a specialized technician will evaluate the problem and determine the maintenance requirements.

For optimum performance, it is the user's responsibility to schedule preventive maintenance service on the system and its accessories at least one time each year. Alcon's Field Service Engineers are trained and equipped to provide the highest quality of workmanship.

CAUTION

There are no operator replaceable parts other than the fuse. Contact Alcon Technical Services for all servicing issues.

WARNING!

The Centurion[®] Vision System battery can only be serviced by a factory-trained Alcon service engineer. Access by untrained personnel can lead to injury.

UPON COMPLETION OF THE DAY'S SURGERY SCHEDULE

STEP ONE: Clean handpieces, cables, forceps, etc., as instructed in DFU's supplied with each accessory.

WARNING!

If in the medical opinion of the physician a patient with a prion related disease undergoes a high risk procedure, the instrument should be destroyed or be processed according to local requirements.

STEP TWO: Remove bag of *BSS*® irrigating fluid from *Active Fluidics*™ bag bay, or remove irrigation container from IV pole hanger, and set aside. Remove spike from *BSS*® irrigating fluid and discard tubing.

STEP THREE: Eject FMS and discard.

STEP FOUR: Slide door shut over *Active Fluidics*™ bag bay, or flip IV pole hanger to its storage position.

STEP FIVE: Select Custom/Shutdown from the Surgery Screen. Select OK. If used, IV pole will go down to storage position before unit shuts off.

or

Press Standby power switch located at top of right side panel to remove operating power from the system. If used, IV pole will go down to storage position before unit shuts off.

WARNING!

If used, keep clear of the IV pole when it is in motion to prevent skin, hair, and/or clothing from being trapped in the IV pole mechanism.

STEP SIX: Turn the primary AC power switch OFF. It is located at the bottom of the rear panel.

STEP SEVEN: Disconnect the power cable from the wall receptacle and wind the cable around the cord wrap.

STEP EIGHT: Inspect, and if required, clean footswitch bottom cover and under footpedal with water, alcohol, or mild soap and water. Remove any debris (see Figure 4-1).

CAUTION

Debris, including fluid residue, stuck on footswitch bottom or under rear section of treadle may cause temporary malfunction of the footswitch.

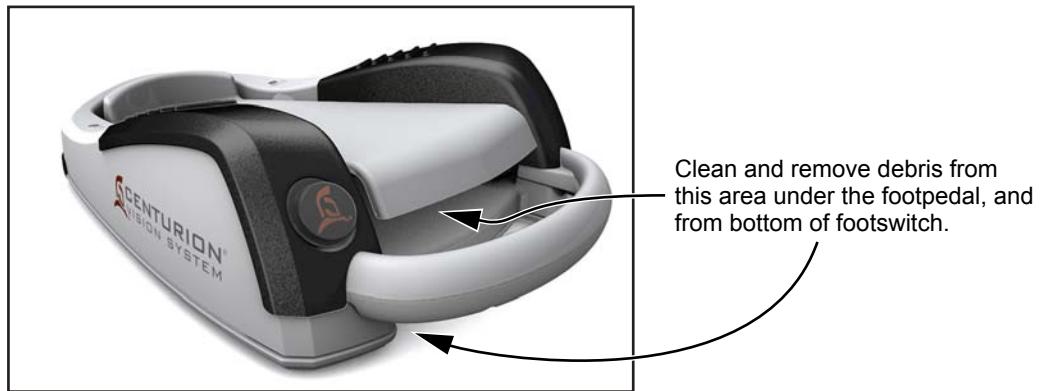


Figure 4-1 Footswitch Cleaning - Clean under footpedal and footswitch to remove debris that can interfere with its operation.

STEP NINE: If required, the console panels, the footswitch, and the remote control may be wiped with alcohol, mild soap and water, or any germicidal solution that is compatible with the plastic parts.

CAUTIONS

- **Do not clean console or accessories using solvents, abrasives, or any cleaner that is not compatible with plastic parts made of LEXAN EXL9112. Damage may result.**
- **Avoid spilling BSS® solution, or moisture of any kind, around the electrical handpiece connectors.**
- **Do not spray any liquid (i.e. cleaning solution or water) upward into the console vents.**

STEP TEN: Hang the footswitch on the footswitch hanger/charging station at the bottom of the rear panel.

CARE AND CLEANING

The following tips are recommended for proper care of the *Centurion®* Vision System:

- The console panels, the footswitch, and the remote control may be wiped with alcohol, mild soap and water, or any germicidal solution that is compatible with the plastic parts; instructions begin on the prior page.
- The touch screen may be cleaned with a soft, non-abrasive cloth towel and a mild commercially-available window cleaner. Apply the cleaner to the towel rather than the touch screen.
- Follow cleaning and maintenance schedules outlined in this section of the manual.
- Periodically check chassis appearance.
- Pay attention to correct operation of controls, connectors, and indicators.
- Damaged hardware must be replaced to ensure safe operation. Call Alcon Technical Services for assistance.

WARNING!

A qualified technician must perform a visual inspection of the following components every twelve months:

- Warning Labels (see section one of this manual)
- Power Cord
- Fuses

In case of a deficiency, do not use the system; call Alcon Technical Services.

A qualified technician must check ground continuity and leakage current every twelve months to ensure they are within the limits of the applicable standards (for example: EN60601-1/IEC60601-1). Values must be recorded, and if they are above the limits of the applicable standards, or 50% above initial measurement, do not use the system; call Alcon Technical Services.

STERILIZATION INSTRUCTIONS

The sterilization settings provided in Table 4-1 have been validated by Alcon Laboratories, Inc. as being CAPABLE of sterilizing the instruments for re-use. It remains the responsibility of the processor to ensure that the processing as actually performed using equipment, materials, and personnel in the facility achieve the desired result. This requires verification and routine monitoring of the process. Likewise, any deviation by the processor from the instructions provided with the instrument's DFU should be properly evaluated for effectiveness and potential adverse consequences. Please refer to nationally recognized standards, or to your facility's standard procedures.

STERILIZER TYPE	SAMPLE CONFIGURATION	TEMPERATURE	MINIMUM EXPOSURE TIME (MINUTES)	MINIMUM DRYING TIME (MINUTES)
Gravity Displacement	Wrapped	132 °C (270 °F)	15	15
Gravity Displacement	Unwrapped	132 °C (270 °F)	10	N/A
Pre-vacuum	Wrapped	135 °C (275 °F)	3	16
Pre-vacuum	Unwrapped	132 °C (270 °F)	4	N/A

Table 4-1 Sterilization Temperature and Time Settings.

FUSE REPLACEMENT

1. Turn the primary AC power switch OFF. It is located at the bottom of the rear panel on the power module. Unplug power cord from power module.
2. Insert a flat surfaced instrument along the left side of the power module fuse door. Pressing the flat instrument to the right against the fuse door, pull out to release door.

CAUTION

The fuse door must be pressed gently to ensure it does not break.

3. With fuse door open, grasp the fuse holder and pull it out from the power module.
4. Gently remove and replace fuses. Contact Alcon Technical Services for the correct rating and size.
5. Reinsert fuse holder into power module and shut the fuse door.
6. Plug power cord into power source.

PACKING THE CENTURION[®] SYSTEM FOR TRANSIT

To avoid damage during transport, careful preparation of the instrument is required prior to placing it in a vehicle. The display screen and instrument tray must be properly secured using straps and cushion material. The figure below is an example of a proper way to secure the display screen and instrument tray (materials from the original shipping container are used in this example).

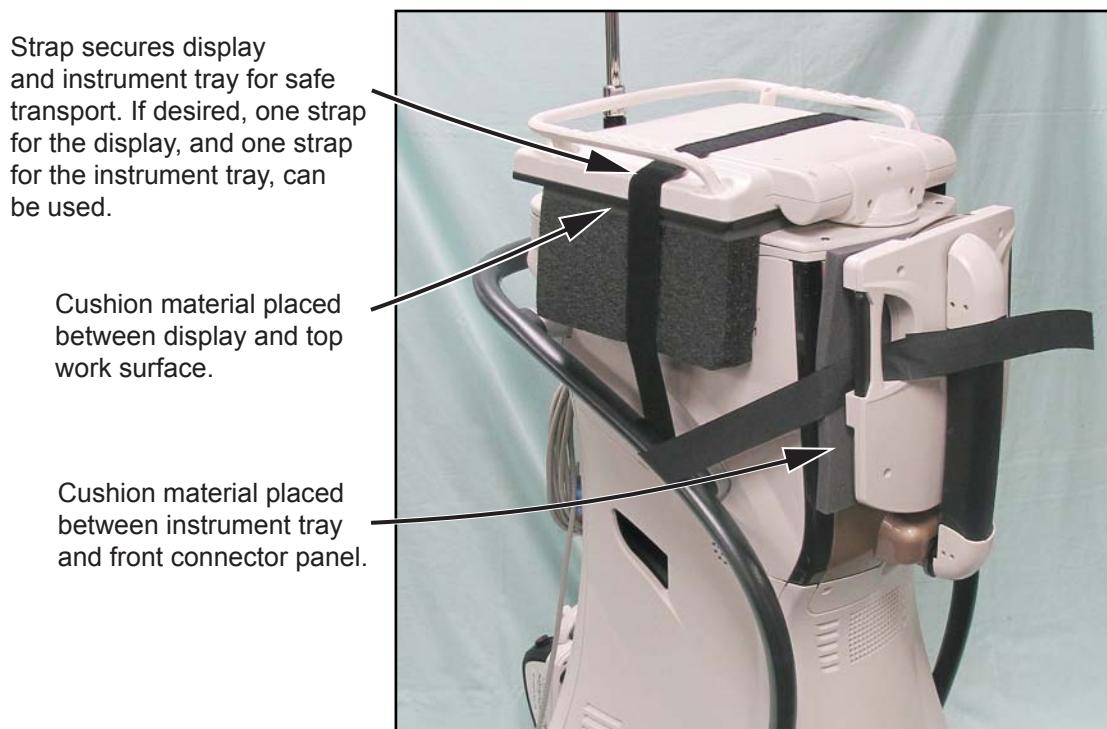


Figure 4-2 PACKING SYSTEM FOR TRANSIT - This diagram is an example of a proper way to secure the display screen and instrument tray prior to transportation.

SETTING UP THE RECONSTITUTION RACK

The reconstitution rack is used to hold up to six fluid bags for the *Active Fluidics™* system, making it convenient for the surgery team to prepare the system for each surgery. The rack comes in a box that must be opened and set up as instructed below.

STEP ONE: Remove reconstitution rack from shipping box. Discard all shipping materials (see Figures 4-3A & 4-3B).

STEP TWO: Unfold rack into its standup position and place it on a flat, firm surface (see Figure 4-3C).

STEP THREE: Hang fluidics bags from plastic tray as shown (see Figure 4-3D).

STEP FOUR: Upon completion of the day's surgery schedule, remove any unused fluidics bags and store the rack in a safe, clean place.

CAUTION

Prior to using the rack for the first time, clean it in a hot dishwasher. Clean with an approved disinfecting solution after usage per facility protocol instructions. Do not attempt to clean this rack in an autoclave.

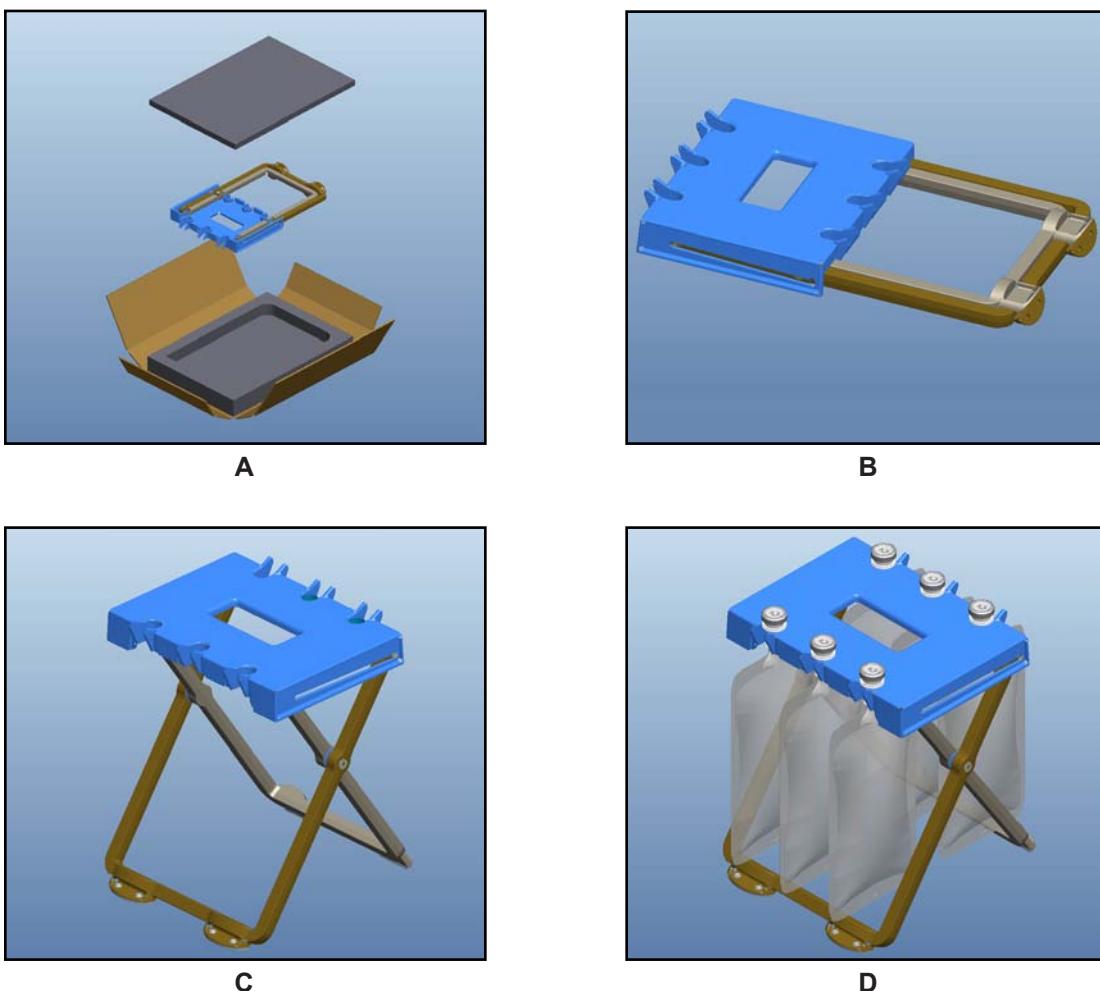


Figure 4-3 Setting Up the Reconstitution Rack

SECTION FIVE TROUBLESHOOTING

INTRODUCTION

Table 5-1 is a general troubleshooting guide that addresses observations/symptoms and what the operator can do to try and solve the observed event. Figure 5-4 and Table 5-2 are presented as aids to rapid location of failed or malfunctioning parts or components in the *Centurion®* Vision System. In all cases, should the corrective actions not provide the desired result, call Alcon Technical Services.

For Technical Service contact information open the Custom/About dialog in the *Centurion®* Vision System.

System Messages

The system communicates through the display of system messages—Advisories, Warnings, and Faults—based on the severity of the event. Listed below are examples of each.

Advisories

An Advisory is a message to the user (see Figure 5-1). The Advisory may require user intervention, or it may be for information purposes only. When an advisory condition is detected, the following occurs:

- A tone is generated.
- A dialog is displayed indicating the Advisory.

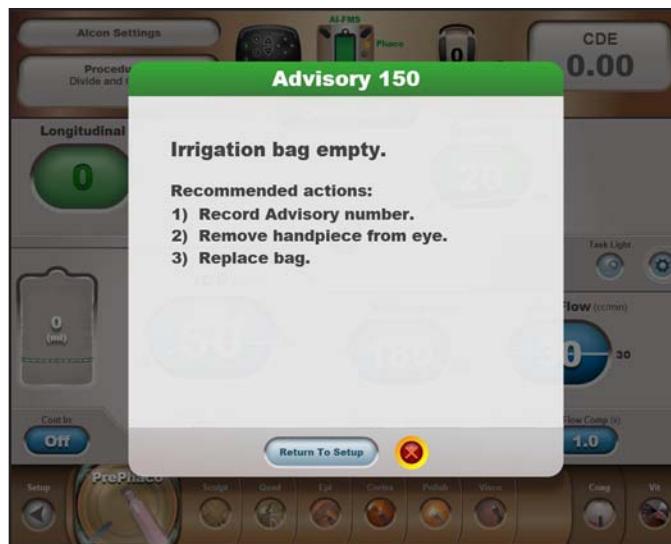


Figure 5-1 ADVISORIES SCREEN - This is a typical example of an Advisories dialog.

Warnings

Warnings are generated to indicate a non-system fault (see Figure 5-2) that is isolated and does not affect the whole system. When a Warning is detected, the following occurs:

- A tone is generated.
- A dialog is displayed indicating the Warning.
- Affected mechanisms are placed in a safe state—the function of the affected mechanism is not available.
- If desired, continue with limited functionality.

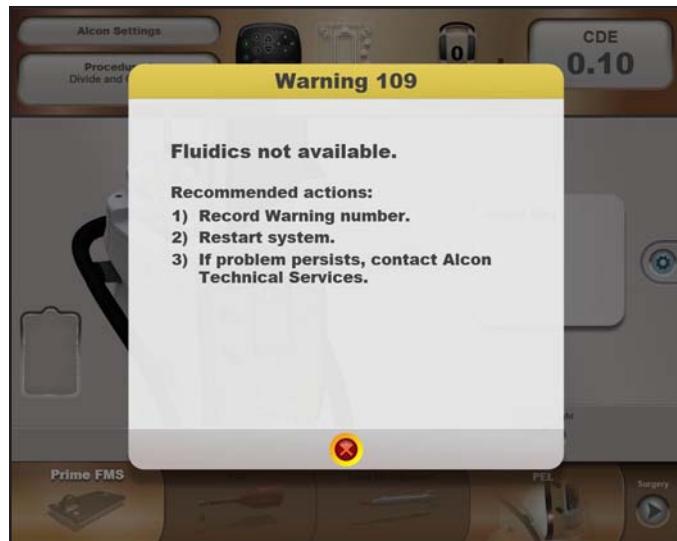


Figure 5-2 WARNINGS SCREEN - This is a typical example of a Warnings dialog.

System Faults

System Faults are the result of an exceptional condition resulting from an event or a hardware issue that renders the software unable to carry out a requested service, or one that results in unacceptable risk (see Figure 5-3). When a System Fault is detected, the following occurs:

- A tone is generated.
- All mechanisms are disabled.
- A dialog is displayed indicating the fault. If the System Fault occurs during system initialization, shutdown, or when the touchscreen graphics software is unavailable, the fault dialog will be displayed in English.
- All requests for functions are ignored, including key activations.

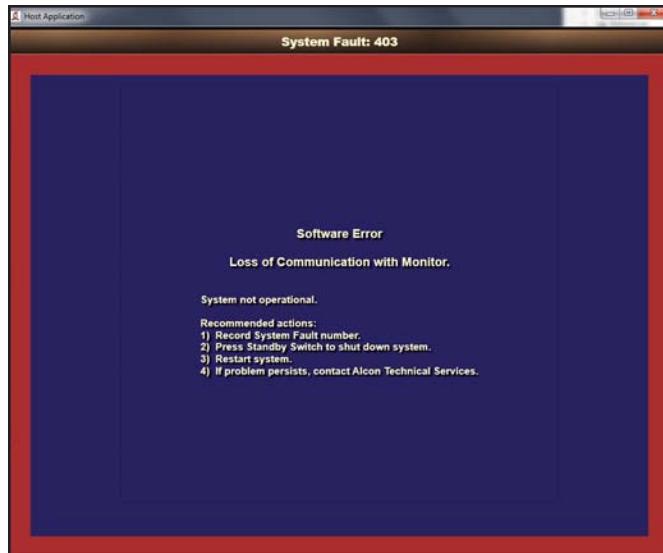


Figure 5-3 FAULTS SCREEN - This is a typical example of a System Fault dialog.

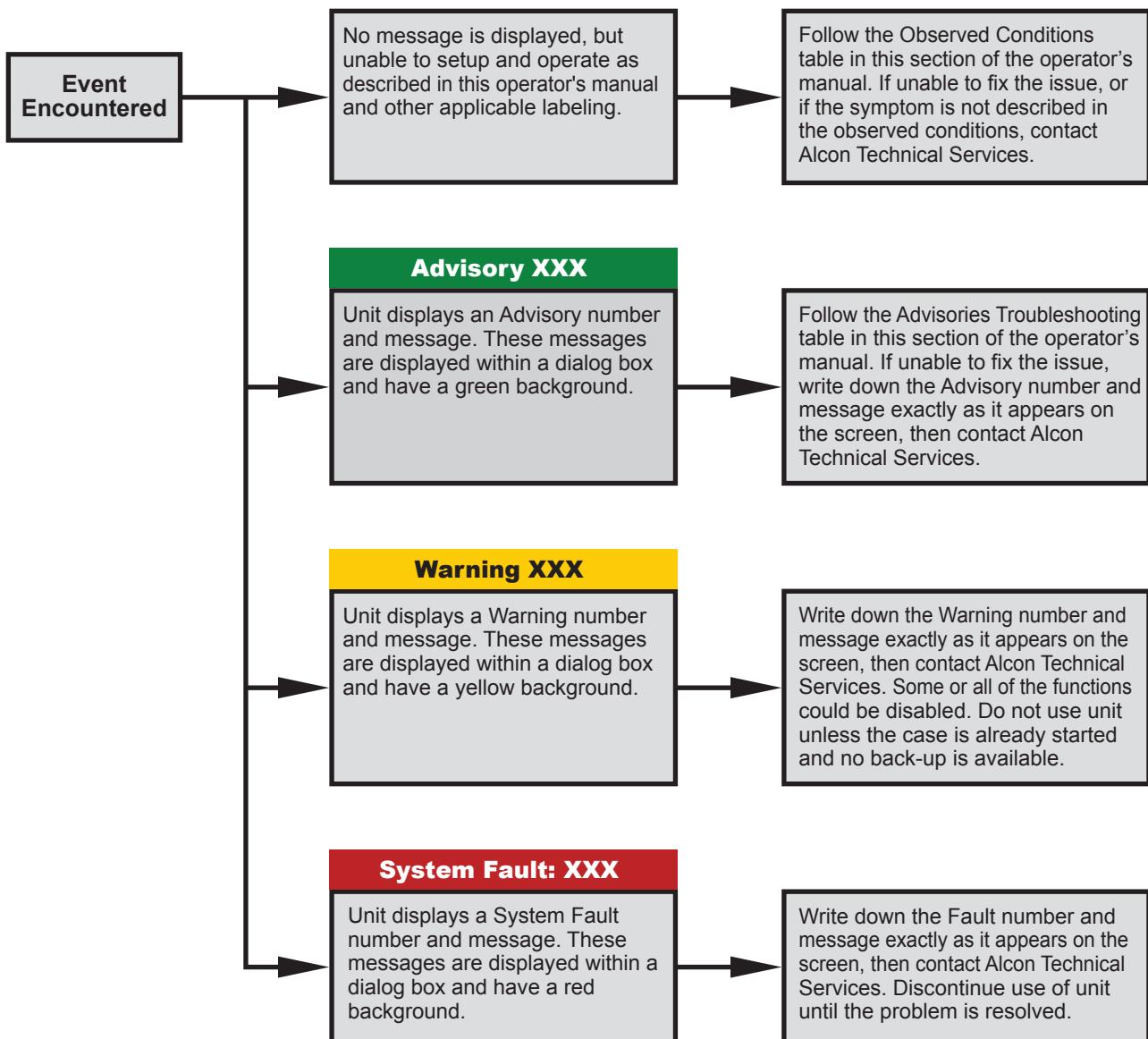


Figure 5-4 TROUBLESHOOTING GUIDE - When an Event is encountered, refer to this chart first.

OBSERVED CONDITIONS

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
System does not power-up.	1. Main power switch in OFF position. 2. Blown power fuse.	1. Turn main power switch near power cord to ON position. 2. Replace power fuse near power cord.
Gravity Fluidics - Test chamber does not fill. There is insufficient irrigation.	1. Restriction to irrigation inflow. 2. Bottle too low or handpiece too high. 3. Drip chamber not adequately filled with fluid. 4. Clogged handpiece or tips. 5. Faulty FMS.	1. Check for kinks in irrigation line or twisted infusion sleeve. 2. Put bottle at 78 cm and put handpiece at patient eye level. 3. Squeeze drip chamber until 2/3 to 3/4 full. 4. Check handpiece and tips. 5. Replace FMS.
Active Fluidics™ System - Test chamber does not fill. There is insufficient irrigation.	1. Restriction to irrigation inflow. 2. Clogged handpiece or tips. 3. FMS.	1. Check for kinks in irrigation line or twisted infusion sleeve. 2. Check handpiece and tips. 3. Replace FMS.
Gravity Fluidics - Vacuum check failure.	1. Improper FMS insertion. 2. IRR and ASP fittings are not connected together securely. 3. Drip chamber not 2/3 to 3/4 full. 4. Test chamber not on handpiece, or not secured tightly onto handpiece. 5. Priming with HP attached. 6. Cracked blue luer fitting. 7. Faulty FMS.	1. Reinsert FMS. 2. Ensure both fittings are tightly connected together. 3. Flush irrigation line and fill drip chamber halfway using Fill button in Setup mode. Reprime. 4. Secure test chamber tightly onto handpiece. 5. Remove HP, then connect blue and white luer fittings together. 6. Check fitting and replace FMS as necessary. 7. Replace FMS.
Active Fluidics™ System - Vacuum check failure.	1. Improper FMS insertion. 2. IRR and ASP fittings are not connected together securely. 3. Test chamber not on handpiece, or not secured tightly onto handpiece. 4. Priming with HP attached. 5. Cracked blue luer fitting. 6. Faulty FMS.	1. Reinsert FMS. 2. Ensure both fittings are tightly connected together. 3. Secure test chamber tightly onto handpiece. 4. Remove HP, then connect blue and white luer fittings together. 5. Check fitting and replace FMS as necessary. 6. Replace FMS.

Table 5-1 OBSERVED CONDITIONS - Listed in this table are observed conditions that may be presented to the user. The observed Symptom is followed by the Probable Cause and its Corrective Action.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Gravity Fluidics - Vent test failure or vacuum and vent check failure.	1. Restriction in irrigation or aspiration lines. 2. Machine insufficiently primed. 3. Faulty FMS.	1. Check kinked irrigation or aspiration lines or twisted tip cap sleeve. 2. Press Test to reprime. 3. Reinsert FMS. Replace FMS if problem persists.
Active Fluidics™ System - Vent test failure or vacuum and vent check failure.	1. Restriction in irrigation or aspiration lines. 2. Machine insufficiently primed. 3. Faulty FMS.	1. Check kinked irrigation or aspiration lines or twisted tip cap sleeve. 2. Press Test to reprime. 3. Reinsert FMS. Replace FMS if problem persists.
Prime Complete / Test Handpiece Failed.	1. Faulty tip. 2. Faulty handpiece connector. 3. Bad connector port. 4. Faulty handpiece. 5. Other.	1. Remove tip and replace if faulty. Retighten. Retest. 2. Unplug, reinsert into port, retest. 3. Connect handpiece to other port and retune. 4. Replace handpiece. Retest. 5. Record the failed code number and contact Alcon Technical Services Department.
Test Handpiece Failed: Loose Tip.	1. Loose tip. 2. Bad tip. 3. Bad connector port.	1. Tighten tip and retune. 2. Replace tip and retune. 3. Connect handpiece to other port and retune.
Test Handpiece Failed: Tuning in Air.	Attempted to tune tips in presence of air.	Fill test chamber completely. Retune.
Gravity Fluidics - Test chamber collapses after tuning completed—does not refill.	1. Clogged handpiece or tips. 2. Restriction to irrigation flow. 3. Wrong sleeve on tip.	1. Check handpiece and tips irrigation flow. 2. Check for kinks in irrigation line or twisted infusion sleeve. 3. Check for proper sleeve and tip size.
Active Fluidics™ System - Test chamber collapses after tuning completed—does not refill.	1. Clogged handpiece or tips. 2. Restriction to irrigation flow. 3. Wrong sleeve on tip.	1. Check handpiece and tips irrigation flow. 2. Check for kinks in irrigation line or twisted infusion sleeve. 3. Check for proper sleeve and tip size.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
No tune or loss of phaco power.	1. Handpiece tuned while hot. 2. Loose tip. 3. Handpiece connector not seated correctly. 4. Bad connector port. 5. Faulty handpiece.	1. Retune. 2. Retighten and retune. 3. Disconnect and reinsert handpiece connector. 4. Connect handpiece to other port and retune. 5. Try alternate handpiece.
Gravity Fluidics - Air in irrigation line causing bubbles.	1. Drip chamber not sufficiently full. 2. Air in line or handpiece. 3. Loose irrigation luer fitting. 4. Improper priming. 5. Bad handpiece.	1. Fill drip chamber 2/3 to 3/4 full. Flush irrigation line in Free Flow or footpedal position 1. 2. Tap handpiece 2-3X during flow test. 3. Check irrigation line and reseat. 4. Reprime per setup procedure. 5. Replace handpiece.
Active Fluidics™ System - Air in irrigation line causing bubbles.	1. Air in line or handpiece. 2. Loose irrigation luer fitting. 3. Improper priming. 4. Bad handpiece.	1. Tap handpiece 2-3X during flow test. 2. Check irrigation line and reseat. 3. Reprime per setup procedure. 4. Replace handpiece.
Irrigation does not stop.	System in Continuous Irrigation mode.	Turn Continuous Irrigation off.
Low irrigation flow.	Irrigation sleeve too distal.	Move sleeve so holes are proximal to tip flare.
Backflow regurgitation.	Machine insufficiently primed.	Reprime.
Insufficient aspiration.	1. Loose blue luer fittings. 2. Damaged O-ring (<i>Ultraflow</i> ® I/A handpiece only). 3. Clogged tip. 4. Kinked or damaged tubing. 5. Cracked blue luer fitting.	1. Reconnect securely. 2. Inspect O-ring and replace, as necessary. 3. • Flush tip with sterile water or <i>BSS</i> ® sterile irrigating solution. Retest. • Replace tip. Retest. 4. Check tubing and/or replace FMS. 5. Check fitting and/or replace FMS.
<i>Ultraflow</i> ™* I/A handpiece leaking at tip and handpiece connection.	1. Loose tip. 2. Damaged O-ring. 3. Leak in tubing.	1. Retighten tip. 2. Retest. Inspect O-rings and replace, as necessary. To replace: • Using the special O-ring tool, remove damaged O-ring. • Roll new O-ring off tool and roll it into place on tip. 3. Replace tubing.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
"Calibration failed. Vitrectomy cut rate will be limited to 800 cpm" Advisory is displayed at power up.	Internal pneumatics valve calibration has failed.	Continue vitrectomy procedure with limited cut rate and contact Alcon Technical Services Department.
Ineffective or poor Vit cutting.	1. Port not closing fully as the inner cutter moves. 2. Kinked, damaged or loose actuation tubing. 3. Faulty probe (activated in air instead of fluid).	1. Reduce cutting speed until port closes completely. 2. Check for damaged or kinked tubing; straighten if necessary. Tighten any loose luer fittings. Replace probe if visual inspection shows any damaged components. 3. Replace probe.
Ant Vit probe does not work at all (no movement).	1. An actuation line filling with BSS® fluid due to improper setup. 2. Faulty probe.	1. Check for correct tubing connections, then replace probe. 2. Replace probe.
Gravity Fluidics - IV pole does not retract completely upon shutdown.	System error.	Turn system on, wait until system powers up, then turn system off using Standby power switch located on upper rear panel.
Remote control does not work.	1. Remote control and system set on different channels. 2. Batteries discharged.	1. Verify system channel selection and remote channel select are set to same channel (A, B, C, D, E, or F). 2. Replace batteries in remote control.
Cabled Footswitch - Footpedal not responding properly.	1. Footpedal was pressed when system was powered up, or footpedal was pressed while plugging in footswitch. 2. Footswitch connector not seated properly. 3. Debris or BSS® solution residue under rear section of treadle. 4. Console malfunction. 5. Faulty footswitch.	1. Release footpedal and power off system. Make sure footswitch is properly connected to system, and turn power back on, with footpedal in full up position. 2. Disconnect and reconnect footswitch cable connector. 3. Clean and remove debris. 4. Disconnect and reconnect footswitch cable connector. 5. Replace footswitch.
Wireless Footswitch - Footpedal not responding properly.	1. Footpedal was pressed down when system was powered up 2. Debris or BSS® solution residue under rear section of treadle. 3. Wireless communications not working properly. 4. Faulty footswitch.	1. Release footpedal and power off system. Turn power back on, with footpedal in full up position. 2. Clean and remove debris. 3. Connect footswitch to console with cable. 4. Replace footswitch.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Cabled Footswitch - "Please Install Footswitch" Advisory is displayed.	1. Improperly connected or disconnected footswitch. 2. Footswitch connector not seated properly. 3. Faulty footswitch.	1. Verify proper insertion of footswitch cable connector (while footpedal/treadle is in full up position). 2. Disconnect and reconnect footswitch cable connector. 3. Replace footswitch.
Wireless Footswitch - "Please Install Footswitch" Advisory is displayed.	1. Footswitch has not been "paired" with the console.	1. Hang footswitch onto footswitch hooks on the rear of the unit for greater than 5 seconds then remove.
System Fault occurs; entire system inoperative, red screen with stop sign is displayed.	System Fault has several possible causes.	Carefully record all text appearing in Fault screen, on display. Press and hold Standby switch for a few seconds to turn system off, wait until screen goes dark, then turn system back on to see whether fault clears. Contact Technical Services.
"Doctor data invalid, U/S Occlusion, Dr. XXXX" Advisory is displayed.	User restores, or selects Doctor Name that contains U/S Occlusion settings which are no longer available.	Save data. U/S Occlusion settings will be removed.

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
	<u>100 - Fluidics Mechanism</u>		
101-149	Warning xxx Fluidics not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	157	Advisory xxx Active Fluidics is not available. Recommended actions: 1) Remove FMS. 2) Use Gravity Fluidics. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
150	Advisory xxx Irrigation bag empty. Recommended actions: 1) Release footswitch treadle. 2) Remove handpiece from eye. 3) Replace bag.	158	Advisory xxx Aspiration, phaco power, and vitrectomy cutting are unavailable. Recommended actions: 1) Check for irrigation path obstructions. 2) Replace FMS. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
151	Advisory xxx Irrigation bag empty. Recommended actions: 1) Replace bag.	159	Advisory xxx Irrigation is unavailable. Recommended actions: 1) Replace FMS.
153	Advisory xxx Bag bay door open. Recommended actions: 1) Close door. 2) Proceed with surgery. Alternate actions: 1) Remove handpiece from eye. 2) Press 'Return to Setup Screen'.	160	Advisory xxx FMS calibration failed. Recommended actions: 1) Reinsert FMS. 2) If condition persists, replace FMS.
154	Advisory xxx Bag bay door was opened. Recommended actions: 1) Close bag door. 2) Repeat operation.	161-167	Advisory xxx Vacuum check failed. Recommended actions: 1) Check luer fittings and reprime. 2) If condition persists, reinsert or replace FMS. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
155	Advisory xxx Irrigation bag is almost empty. Recommended actions: 1) Replace bag.	168	Advisory xxx Flow obstruction. Recommended actions: 1) Check handpiece free flow. 2) If condition persists, replace phaco tip or sleeve. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
156	Advisory xxx Active Fluidics is not available. Recommended actions: 1) Remove FMS. 2) Use Gravity Fluidics. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.		

Table 5-2 EVENT CODES - Listed in this table are messages shown on the Centurion® Vision System display panel when the system detects an event. The Event codes are separated between **Advisories, Warnings, and Faults**.

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
169	<p>Advisory xxx Irrigation pressure is low. Recommended actions: 1) Check bottle fluid level. Alternate actions: 1) Check for kinked lines or loose fittings.</p>	191	<p>Advisory xxx Active Fluidics is not available. Recommended actions: 1) Remove FMS. 2) Use Gravity Fluidics. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
170	<p>Advisory xxx Reflux terminated. Reflux fluid volume depleted. Reflux will be unavailable until fluid is aspirated. Recommended actions: 1) Aspirate fluid.</p>	201-249	<p><u>200 - Ultrasonics Mechanism</u></p> <p>Warning xxx Ultrasound not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
171	<p>Advisory xxx Drain bag is full. Recommended actions: 1) Replace FMS.</p>	250	<p>Advisory xxx Testing in air. Recommended actions: 1) Fill test chamber completely. 2) Re-test handpiece. Alternate actions: 1) Connect handpiece to other port and re-test. 2) If condition persists, replace handpiece. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
179	<p>Advisory xxx FMS barcode invalid. Recommended actions: 1) Reinsert FMS 2) If condition persists, replace FMS.</p>	254-255	<p>Advisory xxx Loose tip. Recommended actions: 1) Tighten or replace tip. 2) Re-test handpiece. Alternate actions: 1) Connect handpiece to other port. 2) Re-test handpiece. 3) If condition persists, replace handpiece.</p>
180	<p>Advisory xxx Invalid FMS ID. Recommended actions: 1) Reinsert FMS. 2) If condition persists, replace FMS.</p>	256-266	<p>Advisory xxx Handpiece test failed. Recommended actions: 1) Remove and reconnect handpiece. 2) If condition persists, try other port. 3) If condition persists, replace handpiece. 4) If condition persists and in surgery, stabilize the eye then restart system. 5) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
181	<p>Advisory xxx FMS calibration failed. Recommended actions: 1) Reinsert FMS. 2) If condition persists, replace FMS. 3) If condition persists, restart system. 4) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	268	<p>Advisory xxx Handpiece test failed. Recommended actions: 1) Press 'Return to Setup Screen'. 2) Re-test handpiece.</p>
182	<p>Advisory xxx FMS calibration failed. Recommended actions: 1) Reinsert FMS. 2) If condition persists, replace FMS. 3) If condition persists, restart system. 4) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>		
190	<p>Advisory xxx Active Fluidics is not available. Recommended actions: 1) Remove FMS. 2) Use Gravity Fluidics. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>		

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
269	Advisory xxx Handpiece test failed. Recommended actions: 1) Re-test handpiece.	290	Advisory xxx Ultrasound error. Recommended actions: 1) Release footswitch treadle and retry. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
270-273	Advisory xxx Handpiece fault detected. Recommended actions: 1) Connect handpiece to other port. 2) Re-test handpiece. 3) If condition persists, replace handpiece. 4) If condition persists and in surgery, stabilize the eye then restart system. 5) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	291	Advisory xxx Ultrasound error. Recommended actions: 1) Release footswitch treadle, wait 10 seconds, then retry. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
274	Advisory xxx Ultrasound error. Recommended actions: 1) Release footswitch treadle and retry. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	293	Advisory xxx Ultrasound error. Recommended actions: 1) Release footswitch treadle and retry. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
277	Advisory xxx Handpiece disconnected while applying U/S power. Recommended actions: 1) Release footswitch treadle. 2) Insert and test handpiece.	301-349	<u>300 - Footswitch Mechanism</u> Warning xxx Surgical functionality not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
278	Advisory xxx Handpiece fault detected. Recommended actions: 1) Connect handpiece to other port. 2) Re-test handpiece. 3) If condition persists, replace handpiece. 4) If condition persists and in surgery, stabilize the eye then restart system. 5) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	350	Advisory xxx Footswitch failure detected. Recommended actions: 1) Inspect footswitch, clean under rear section of treadle and remove debris if present. (Reference Maintenance section of Operator's Manual.) 2) Inspect and reconnect footswitch connector. 3) Ensure treadle is not depressed then reset footswitch. 4) If condition persists, replace footswitch. 5) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.
279-280	Advisory xxx Unknown handpiece detected. Recommended actions: 1) Remove and inspect cable connector for debris. 2) Verify handpiece compatibility. 3) If condition persists, connect to other port. 4) If condition persists, replace handpiece. 5) If condition persists and in surgery, stabilize the eye then restart system. 6) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.		

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
351	Advisory xxx Footswitch failure detected. Recommended actions: 1) Inspect and reset footswitch. 2) If condition persists, replace footswitch. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	363	Advisory xxx Footswitch communication lost. Recommended actions: 1) Release footswitch treadle. 2) If footswitch is wireless, move footswitch and console closer, or eliminate obstruction. 3) If footswitch is cabled, replace cable. 4) If condition persists, replace footswitch.
352	Advisory xxx Footswitch failure. Recommended actions: 1) Inspect and reconnect footswitch connector. 2) If condition persists, replace footswitch. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	364-365	Advisory xxx Footswitch failure detected. Recommended actions: 1) Release footswitch treadle. 2) If condition persists, replace footswitch.
358-359	Advisory xxx Footswitch charging while cradled is unavailable. Recommended actions: 1) Cable the footswitch if charging is desired. 2) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	366	Advisory xxx Footswitch detent failure detected. Detent vibration will not be provided. Recommended actions: 1) Release footswitch treadle. 2) Proceed with surgery. 3) If condition persists after restart, replace footswitch.
360	Advisory xxx Footswitch battery is low. Recommended actions: 1) Cradle the footswitch after surgical cases have been completed. 2) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	367-368	Advisory xxx Footswitch failure detected. Recommended actions: 1) Release footswitch treadle. 2) If condition persists, replace footswitch.
361	Advisory xxx Footswitch battery is critically low. Footswitch functionality may be lost unexpectedly. Recommended actions: 1) Connect footswitch cable to console. 2) Cradle the footswitch after surgical cases have been completed. 3) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	369	Advisory xxx Footswitch wireless operation unavailable. Recommended actions: 1) Do not disconnect footswitch cable. 2) If condition persists, replace footswitch.
362	Advisory xxx Footswitch version not supported. Recommended actions: 1) Replace footswitch. 2) If condition persists, note Advisory and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.	370	Advisory xxx Footswitch failure detected. Recommended actions: 1) Release footswitch treadle. 2) If condition persists, replace footswitch.
		371	Advisory xxx Footswitch failure detected. Recommended actions: 1) Release footswitch treadle. 2) If condition persists, replace footswitch.
		372-376	Advisory xxx Footswitch failure detected. Recommended actions: 1) Release footswitch treadle and buttons. 2) Place footswitch in horizontal position. 3) If condition persists, replace footswitch.
		377-380	Advisory xxx Footswitch failure detected. Recommended actions: 1) Release footswitch treadle. 2) If condition persists, replace footswitch.
		381-382	Advisory xxx Footswitch failure detected. Recommended actions: 1) Connect footswitch cable to console. 2) If condition persists, replace footswitch.

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
383	<p>Advisory xxx Footswitch pairing failed. Wireless operation unavailable. Recommended actions: 1) Remove and re-cradle the footswitch for at least 5 seconds. Alternate actions: 1) Connect footswitch cable to console. 2) If condition persists, replace footswitch.</p>	451	<p>Advisory xxx Cannot recognize footswitch. Recommended actions: 1) Check footswitch connection and reset footswitch. 2) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
387-388	<p>Advisory xxx Footswitch wireless operation unavailable. Recommended actions: 1) If in surgery, do not disconnect footswitch cable. 2) Between surgical cases, disconnect and reconnect footswitch cable. 3) If condition persists, replace footswitch.</p>	452	<p>Advisory xxx The IOP setting cannot be achieved due to the current PEL setting. The IOP setting will be adjusted to the closest valid setting. Recommended actions: 1) Note current IOP and PEL settings. 2) Update settings as necessary or proceed with current settings.</p>
400-420	<p><u>400 - Host</u></p> <p>Fault xxx System not operational. Recommended actions: 1) Press Standby Switch to shut down system. 2) Restart system. 3) If condition persists, note Fault number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	453	<p>Advisory xxx The Irrigation Pressure setting cannot be achieved due to the current PEL setting. The Irrigation Pressure setting will be adjusted to the closest valid setting. Recommended actions: 1) Note current Irrigation Pressure and PEL settings. 2) Update settings as necessary or proceed with current settings.</p>
431	<p>Warning xxx AC power lost. Continuing on battery power. Surgical functionality is not available. Recommended actions: 1) Restore AC power as soon as possible to reactivate surgical functionality.</p>	460	<p>Advisory xxx Footswitch not detected. Recommended actions: 1) Install footswitch.</p>
432	<p>Warning xxx Backup power depleted. System will shut down. Recommended actions: 1) If in surgery, stabilize the eye then restore AC power and restart system.</p>	463	<p>Advisory xxx The language translation is invalid. Recommended actions: 1) Proceed with surgical cases. 2) Note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
433	<p>Warning xxx Backup power unavailable. System will shut down. Recommended actions: 1) If in surgery, stabilize the eye then restore AC power and restart system.</p>	464	<p>Advisory xxx The selected language translation is invalid. English will be used by default. Recommended actions: 1) Proceed with surgical cases. 2) Note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
450	<p>Advisory xxx Footswitch is depressed. Recommended actions: 1) Release footswitch treadle before pressing Prime FMS, Fill, or Test Handpiece. 2) If condition persists, clear obstruction preventing footswitch release.</p>	465	<p>Advisory xxx The test sequence was interrupted by removal of the handpiece. Recommended actions: 1) Install handpiece and re-test.</p>
		466	<p>Advisory xxx A third handpiece has been inserted. This handpiece has been disabled. Recommended actions: 1) Remove any handpiece.</p>

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
468	<p>Advisory xxx Doctor file unavailable. Recommended actions: 1) Restore doctor file from backup media. 2) If condition persists, note Advisory number and contact Alcon Technical Services. Alternate actions: 1) Select Alcon Settings doctor file. See the About Dialog for Alcon Technical Services contact information.</p>	486	<p>Advisory xxx The AutoSert setup operation was canceled due to a step change. Recommended actions: 1) Select an I/A or AutoSert step. 2) Continue AutoSert handpiece setup.</p>
469	<p>Advisory xxx Doctor file corrupted. Recommended actions: 1) Restore doctor file from backup media. 2) If condition persists, note Advisory number and contact Alcon Technical Services. Alternate actions: 1) Select Alcon Settings doctor file. See the About Dialog for Alcon Technical Services contact information.</p>	491	<p>Advisory xxx Wi-Fi network initialization failed. Wireless Video Overlay is not available. Recommended actions: 1) You may proceed with surgical cases. 2) Optionally, you may restart the system to correct the condition. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
470	<p>Advisory xxx Doctor file invalid. Recommended actions: 1) Restore doctor file from backup media. 2) If condition persists, note Advisory number and contact Alcon Technical Services. Alternate actions: 1) Select Alcon Settings doctor file. See the About Dialog for Alcon Technical Services contact information.</p>	501-549	<p><u>500 - Vit Mechanism</u> Warning xxx Vitrectomy not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
473	<p>Advisory xxx System service needed. Recommended actions: 1) Note Advisory number. 2) Proceed with surgical cases. 3) Contact Alcon Technical Services for system service. See the About Dialog for Alcon Technical Services contact information.</p>	550	<p>Advisory xxx Vitrectomy high-speed cutting is compromised. Recommended actions: 1) Proceed with lower cut rate 2000 cpm or below, or replace vitrector. 2) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
475	<p>Advisory xxx CPU Battery should be replaced. System clock may be incorrect. Recommended actions: 1) Note Advisory number. 2) Update date and time. 3) Proceed with surgical cases. 4) Contact Alcon Technical Services to replace battery. See the About Dialog for Alcon Technical Services contact information.</p>	551	<p>Advisory xxx Vitrectomy cutting is disabled. Recommended actions: 1) Check vitrector connection. 2) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
477	<p>Advisory xxx System security has been compromised. Recommended actions: 1) Note Advisory number. 2) Contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	552	<p>Advisory xxx Vitrectomy cutting is unavailable. Recommended actions: 1) Release footswitch treadle. 2) Check vitrector connection. 3) If condition persists and in surgery, stabilize the eye then restart system. 4) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
	<u>600 - Coag Mechanism</u>		
601-649	<p>Warning xxx Coagulation is not available. Recommended actions:</p> <ol style="list-style-type: none"> 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>	860	<p>Advisory xxx Two AutoSert Handpieces detected. Recommended actions:</p> <ol style="list-style-type: none"> 1) Remove one AutoSert Handpiece and proceed.
650	<p>Advisory xxx Coagulation is not available. Recommended actions:</p> <ol style="list-style-type: none"> 1) If condition persists and in surgery, stabilize the eye then restart system. 2) If condition persists, note Advisory number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>	888	<p>Advisory xxx AutoSert error occurred. Recommended actions:</p> <ol style="list-style-type: none"> 1) Retry AutoSert operation. 2) If condition persists, replace AutoSert Handpiece. 3) If condition persists and in surgery, stabilize the eye then restart system. 4) If condition persists after restart, note Advisory number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>
701-749	<p>Warning xxx IV Pole not available. Recommended actions:</p> <ol style="list-style-type: none"> 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>	889	<p>Advisory xxx Handpiece fault detected. Recommended actions:</p> <ol style="list-style-type: none"> 1) Replace AutoSert handpiece. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>
750	<p>Advisory xxx IV Pole jammed. Pole may not have achieved desired height. Recommended actions:</p> <ol style="list-style-type: none"> 1) Check for external obstacles. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists, note advisory number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>	890	<p>Advisory xxx AutoSert error occurred. Recommended actions:</p> <ol style="list-style-type: none"> 1) Release footswitch treadle and retry. 2) If condition persists, replace AutoSert handpiece. 3) If condition persists and in surgery, stabilize the eye then restart system. 4) If condition persists after restart, note Advisory number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>
801-849	<p>Warning xxx AutoSert not available. Recommended actions:</p> <ol style="list-style-type: none"> 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>	891	<p>Advisory xxx AutoSert handpiece impeded. Recommended actions:</p> <ol style="list-style-type: none"> 1) Release footswitch treadle and retry. 2) If condition persists, replace AutoSert handpiece. 3) If condition persists and in surgery, stabilize the eye then restart system. 4) If condition persists after restart, note Advisory number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
892	<p>Advisory xxx Handpiece fault detected. Recommended actions: 1) Reinsert handpiece cable connector. 2) If condition persists, replace AutoSort Handpiece. 3) If condition persists and in surgery, stabilize the eye then restart system. 4) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	901-949	<p><u>900 - Pump Mechanism</u> Warning xxx Vitrectomy not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
893	<p>Advisory xxx AutoSort handpiece calibration failed. Recommended actions: 1) Replace AutoSort Handpiece. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	950	<p>Advisory xxx Pump leak detected. Vitrectomy cutting may be unavailable. Recommended actions: 1) Verify if vitrectomy cutter is disabled. 2) If condition persists, note advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
894	<p>Advisory xxx Handpiece must be in fully retracted position prior to autoclave. Recommended actions: 1) Reinsert AutoSort Handpiece.</p>	1001-1049	<p>Warning xxx Capsulotomy is not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
895	<p>Advisory xxx Handpiece fault detected. Recommended actions: 1) Replace AutoSort Handpiece. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	1050	<p>Advisory xxx Footswitch is depressed. Recommended actions: 1) Release footswitch treadle before enabling Capsulotomy.</p>
897	<p>Advisory xxx Handpiece fault detected. Recommended actions: 1) Replace AutoSort Handpiece. 2) If condition persists and in surgery, stabilize the eye then restart system. 3) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	1061	<p>Advisory xxx ICD test failed. Recommended actions: 1) Re-test ICD.</p>
		1062-1064	<p>Advisory xxx ICD test failed. Recommended actions: 1) Remove and reconnect ICD, then re-test ICD. 2) If condition persists, replace ICD. 3) If condition persists and in surgery, stabilize the eye then restart system. 4) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>

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EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
1065	<p>Advisory xxx ICD test failed. Recommended actions: 1) Press 'Return to Setup Screen'. 2) Re-test ICD.</p>	1153-1156	<p>Advisory xxx Backup power unavailable. System will shut down immediately if AC Power is lost. Recommended actions: 1) You may proceed with surgery. 2) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
1072-1076	<p>Advisory xxx ICD failed. Recommended actions: 1) Press 'Return to Setup Screen'. 2) Remove and reconnect ICD, then re-test ICD. 3) If condition persists, replace ICD. 4) If condition persists and in surgery, stabilize the eye then restart system. 5) If condition persists after restart, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	1201-1249	<p>1200 - Wireless Mechanism Warning xxx Wireless features not available. 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
1099	<p>Capsulotomy is not supported. Recommended actions: 1) Select a different procedure or remove the Capsulotomy step.</p>	1250	<p>Advisory xxx Wireless channel is already in use by another Centurion console. Recommended actions: 1) Open the System Settings dialog and change the Wireless Channel.</p>
1101-1149	<p>1100 - Power Control Mechanism Warning xxx Mechanism power control error. Recommended actions: 1) If in surgery, stabilize the eye. 2) Press Standby Switch for 5 seconds to shutdown system. 3) Restart system. 4) If condition persists, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	1301-1349	<p>1300 - Tone Mechanism Warning xxx Fluidics and Coagulation not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
1150	<p>Advisory xxx Backup power service needed. System will shut down immediately if AC Power is lost. Recommended actions: 1) You may proceed with surgery. 2) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>	1401-1449	<p>1400 - Operator Control Mechanism Warning xxx Fluidics not available. Recommended actions: 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>
1151	<p>Advisory xxx Backup power temporarily unavailable. Battery is recharging. System will shut down immediately if AC Power is lost. Recommended actions: 1) You may proceed with surgery. 2) If condition persists, note Advisory number and contact Alcon Technical Services. See the About Dialog for Alcon Technical Services contact information.</p>		

ADVISORIES

EVENT CODE	MESSAGE DISPLAYED	EVENT CODE	MESSAGE DISPLAYED
	<u>2000 - IA Subsystem</u>		
2000-2006	<p>Warning xxx Fluidics, Vitrectomy, and Coagulation not available.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>	2215	<p>Warning xxx Footswitch, IV Pole, Pump, Audio, and Operator Control not available.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1) Restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>
2015	<p>Warning xxx Fluidics, Vitrectomy, and Coagulation not available.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1) Restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>		
	<u>2100 - Generator Subsystem</u>		
2100-2106	<p>Ultrasonics, Capsulotomy, and AutoSert not available.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>		
2115	<p>Warning xxx Ultrasonics, Capsulotomy, and AutoSert not available.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1) Restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>		
	<u>2200 - Multifunction Subsystem</u>		
2200-2206	<p>Warning xxx Footswitch, IV Pole, Pump, Audio, and Operator Control not available.</p> <p>Recommended actions:</p> <ol style="list-style-type: none"> 1) If in surgery, stabilize the eye then restart system. 2) If condition persists after restart, note Warning number and contact Alcon Technical Services. <p>See the About Dialog for Alcon Technical Services contact information.</p>		

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SECTION SIX ACCESSORIES AND PARTS

In this section of the *Centurion®* Operator's Manual is a list of accessories, replacement items, and parts approved by Alcon. **Use of non-approved accessories cannot be permitted.**

Please contact the Alcon Sales Department for in-service information prior to initial use of handpieces, accessories, or packs.

For additional information, please contact the Alcon Sales Department.

Phone:
(800) 862-5266 or
(817) 293-0450
Ask for Customer Service

Write:
Alcon, Inc.
6201 South Freeway
Fort Worth, TX. 76134-2099

INTERNATIONAL: Please contact your local Alcon Sales Office.

DESCRIPTION	CATALOG NUMBER
<u>Accessories</u>	
CENTURION® <i>OZil</i> ® Handpiece8065751761
<i>OZil</i> ® Torsional Handpiece8065750469
<i>AutoSert</i> ® INTREPID® IOL Injector (with plunger and wrench)8065751755
Plunger, IOL Injector8065751776
Wrench, IOL Injector8065751775
Remote Control8065751774
Footswitch, <i>Centurion</i> ®8065751762
Footswitch, <i>Centurion</i> ® Wired8065752572
Footswitch, <i>Constellation</i> ®8065750977
Operator's Manual8065751772
Dust Cover8065751773
<i>Centurion</i> ® Media Stick8065751771
<i>Centurion</i> ® Tray Arm Cover8065752229
Reconstitution Rack8065752527
<u>CENTURION® FMS Packs for Active Fluidics™ Technology, 0.9 mm</u>	
Active FMS Pack, Basic8065752180
Active FMS Pack, 0.9 mm Tipless8065752181
Active FMS Pack, 0.9 mm INTREPID® Ultra Tipless8065752182
Active FMS Pack, 0.9 mm INTREPID® Nano Tipless8065752183
Active FMS Pack, 0.9 mm ABS® 30° <i>Kelman</i> ®8065752184
Active FMS Pack, 0.9 mm ABS® 45° <i>Kelman</i> ®8065752185
Active FMS Pack, 0.9 mm Tapered ABS® 30° <i>Kelman</i> ®8065752186
Active FMS Pack, 0.9 mm Tapered ABS® 45° <i>Kelman</i> ®8065752187
Active FMS Pack, 0.9 mm Mini-Flared ABS® 30° <i>Kelman</i> ®8065752188
Active FMS Pack, 0.9 mm Mini-Flared ABS® 45° <i>Kelman</i> ®8065752189
Active FMS Pack, 0.9 mm Mini-Flared ABS® 30° <i>OZil</i> ®8065752190
Active FMS Pack, 0.9 mm Mini-Flared ABS® 45° <i>OZil</i> ®8065752191
Active FMS Pack, 0.9 mm INTREPID® Ultra, Mini-Flared ABS® 30° <i>Kelman</i> ®8065752192
Active FMS Pack, 0.9 mm INTREPID® Ultra, Mini-Flared ABS® 45° <i>Kelman</i> ®8065752193
Active FMS Pack, 0.9 mm INTREPID® Ultra, Mini-Flared ABS® 30° <i>OZil</i> ®8065752194
Active FMS Pack, 0.9 mm INTREPID® Ultra, Mini-Flared ABS® 45° <i>OZil</i> ®8065752195
Active FMS Pack, 0.9 mm INTREPID® Nano, Mini-Flared ABS® 30° <i>Kelman</i> ®8065752196
Active FMS Pack, 0.9 mm INTREPID® Nano, Mini-Flared ABS® 45° <i>Kelman</i> ®8065752197
Active FMS Pack, 0.9 mm INTREPID® Nano, Mini-Flared ABS® 30° <i>OZil</i> ®8065752198
Active FMS Pack, 0.9 mm INTREPID® Nano, Mini-Flared ABS® 45° <i>OZil</i> ®8065752199
Active FMS Pack, 0.9 mm INTREPID® Ultra, ABS® INTREPID® Balanced 30°8065752200
Active FMS Pack, 0.9 mm INTREPID® Ultra, ABS® INTREPID® Balanced 45°8065752201
Active FMS Pack, 0.9 mm INTREPID® Nano, ABS® INTREPID® Balanced 30°8065752202
Active FMS Pack, 0.9 mm INTREPID® Nano, ABS® INTREPID® Balanced 45°8065752203
Active FMS Pack, 0.9 mm INTREPID® Ultra, ABS® Mini 30° <i>Kelman</i> ®8065752244
Active FMS Pack, 0.9 mm INTREPID® Ultra, ABS® Mini 45° <i>Kelman</i> ®8065752245
Active FMS Pack, 0.9 mm INTREPID® Nano, ABS® Mini 30° <i>Kelman</i> ®8065752246
Active FMS Pack, 0.9 mm INTREPID® Nano, ABS® Mini 45° <i>Kelman</i> ®8065752247

DESCRIPTION	CATALOG NUMBER
<u>CENTURION® FMS Packs for Active Fluidics™ Technology, 0.7 mm</u>	
Active FMS Pack, Basic8065752180
Active FMS Pack, 0.7 mm INTREPID® Ultra Tipless8065752479
Active FMS Pack, 0.7 mm INTREPID® Ultra, ABS® Mini 30° Kelman®8065752480
Active FMS Pack, 0.7 mm INTREPID® Ultra, ABS® Mini 45° Kelman®8065752481
Active FMS Pack, 0.7 mm INTREPID® Ultra, ABS® Mini 30° OZil®8065752482
Active FMS Pack, 0.7 mm INTREPID® Ultra, ABS® Mini 45° OZil®8065752483
Active FMS Pack, 0.7 mm INTREPID® Ultra, ABS® Mini 30° Reverse OZil®8065752484
Active FMS Pack, 0.7 mm INTREPID® Ultra, ABS® INTREPID® Balanced 30°8065752485
Active FMS Pack, 0.7 mm INTREPID® Ultra, ABS® INTREPID® Balanced 45°8065752486
Active FMS Pack, 0.7 mm INTREPID® Nano Tipless8065752487
Active FMS Pack, 0.7 mm INTREPID® Nano, 30° Kelman® ABS® Mini8065752488
Active FMS Pack, 0.7 mm INTREPID® Nano, 45° Kelman® ABS® Mini8065752489
Active FMS Pack, 0.7 mm INTREPID® Nano, 30° OZil® ABS® Mini8065752490
Active FMS Pack, 0.7 mm INTREPID® Nano, 45° OZil® ABS® Mini8065752491
Active FMS Pack, 0.7 mm INTREPID® Nano, 30° Reverse OZil® ABS® Mini8065752492
Active FMS Pack, 0.7 mm INTREPID® Nano, ABS® INTREPID® Balanced 30°8065752493
Active FMS Pack, 0.7 mm INTREPID® Nano, ABS® INTREPID® Balanced 45°8065752494
<u>CENTURION® FMS Packs for Gravity Fluidics</u>	
Gravity FMS Pack, Basic8065752212
Gravity FMS Pack, 0.9 mm Tipless8065752213
Gravity FMS Pack, 0.9 mm INTREPID® Ultra Tipless8065752214
Gravity FMS Pack, 0.9 mm INTREPID® Nano Tipless8065752215
Gravity FMS Pack, 0.9 mm INTREPID® Ultra, ABS® INTREPID® Balanced 30°8065752216
Gravity FMS Pack, 0.9 mm INTREPID® Ultra, ABS® INTREPID® Balanced 45°8065752217
<u>BSS® Irrigating Solution</u>	
(Catalog numbers provided for U.S. customers. International customers should contact their local distributor for order information.)	
BSS® Sterile Irrigating Solution, 500 ml Bag0007950185
BSS® Sterile Irrigating Solution, 500 ml Bottle0065079550
BSS® Sterile Irrigating Solution, 250 ml Bottle0065079525
BSS PLUS® Sterile Intraocular Irrigating Solution, 500 ml Bottle0065080050
BSS PLUS® Sterile Intraocular Irrigating Solution, 250 ml Bottle0065080025
BSS PLUS® Sterile Intraocular Irrigating Solution, 500 ml Bag0008000086
<u>Phaco Tips</u>	
ALCON® UltraChopper® Tip8065751789
30° Round, 0.9 mm ABS®8065790020
45° Round, 0.9 mm ABS®8065790021
30° Kelman®, 0.9 mm ABS®8065790022
45° Kelman®, 0.9 mm ABS®8065790023
30° Round, 0.9 mm MicroTip Flared ABS®8065740837

DESCRIPTION	CATALOG NUMBER
45° Round, 0.9 mm MicroTip Flared ABS®8065740838
30° Kelman®, 0.9 mm MicroTip Flared ABS®8065740839
45° Kelman®, 0.9 mm MicroTip Flared ABS®8065740840
30° Round, 0.9 mm Tapered ABS®8065750261
45° Round, 0.9 mm Tapered ABS®8065750262
30° Kelman®, 0.9 mm Tapered ABS®8065750263
45° Kelman®, 0.9 mm Tapered ABS®8065750264
30° Kelman®, 0.9 mm Mini Flared ABS®8065750852
45° Kelman®, 0.9 mm Mini Flared ABS®8065750853
30° OZil® 12, 0.9 mm Mini Flared ABS®8065751176
45° OZil® 12, 0.9 mm Mini Flared ABS®8065751177
30° Reverse OZil® 12, 0.9 mm Mini Flared ABS®8065751178
30° Kelman®, 0.9 mm Mini ABS®8065752065
45° Kelman®, 0.9 mm Mini ABS®8065752066

Irrigation/Aspiration Accessories

INTREPID® Bimanual Polymer I/A Set8065751922
INTREPID® Coaxial Polymer I/A Handpiece – Flared Tip, Straight8065751919
INTREPID® Coaxial Polymer I/A Handpiece – Flared Tip, Angled8065751920
INTREPID® Coaxial Polymer I/A Handpiece – Flared Tip, Curved8065751921
INTREPID® Coaxial Polymer I/A Handpiece – Tapered Tip, Straight8065752144
INTREPID® Coaxial Polymer I/A Handpiece – Tapered Tip, Angled8065752145
INTREPID® Coaxial Polymer I/A Handpiece – Tapered Tip, Curved8065752146
INTREPID® Polymer I/A Tip, Straight8065751510
INTREPID® Polymer I/A Tip, Angled8065751511
INTREPID® Polymer I/A Tip, Curved8065751512
I/A Tip 0.3 mm Small Bore	356-1007
I/A Tip 0.3 mm Bent	356-1010
Ultraflow™ * II Handpiece8065751795
Ultraflow™ * Tip Protector, Standalone8065817002
I/A Tip .033 OD, .3 mm, INTREPID®8065751012
I/A Tip .033 OD, .3 mm Bent, INTREPID®8065751013
Silicone I/A Tip, Bent8065740969
Silicone I/A Tip, Straight8065740970

Bipolar Accessories

Brush (20 Ga)	8065804201
Brush (18 Ga)	8065804001
Brush (23 Ga)	8065807901
Straight Iris Forceps Without Cable	8065129501
Coaptation Forceps Without Cable	8065129301
Curved Iris Bipolar Forceps	8065129101
4" Straight Forceps	8065127501
3-1/2" Curved Iris	8065128001
4-1/4" Coaptation, Extra Fine	8065128201
Kirwan Surgical Products (cables)	
12 ft (3.6m) Silicone (Reuse)	10-6000V
12 ft (3.6m) Thermoplastic Rubber (Reuse)	10-5000V
28.6 mm Disposable Bipolar Cable, 12ft (3.6m, SU)	10-4000V
28.6 mm Disposable Bipolar Cable, 12ft (3.6m, SU)	10-4001V
Braun (cables)	
Aesculap.	GK291 SU
Aesculap.	GK331

Anterior Vitrectomy

23 Ga CENTURION [®] <i>UltraVit</i> [®] Anterior Vitrectomy Probe8065752134
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