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TEXT FOR **CONSTELLATION™ SERVICE MANUAL**

NOTES:

1. Inspect per Generic QIP Manual.

1

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Service Manual

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Constellation™ Vision System Service Manual
906-2120-001

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Important Notice

Equipment improvement is an ongoing process and, as such, changes may be made to the equipment after this manual is printed. Accordingly, Alcon makes no warranties, expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that if this manual is used to perform service on the equipment by other than trained personnel, the user assumes all risks in the use of this manual.

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SECTION ONE - GENERAL INFORMATION

About This Manual

The scope of this manual includes information for all systems currently in the field. The following references are used throughout the manual to specify which version of the system the information is related to (if no version is specified, then the information relates to all systems):

- CA1 for software version 2.01.10
- CR2 for software version 2.02.60
- CR3 for software version 3.00.61
- CR4 for software version 4.00.xx + 4.01.xx
- CR5 for software version 5.xx.xx
- CR5.40 for software version 5.40.xx

This manual is divided into six sections as follows:

Section One - General Information

This section provides general information about the system and using this manual service it.

Section Two - Theory of Operation

Section two provides detailed descriptions of how the *Constellation™* Vision System operates at the system level.

Section Three - Parts Location

Section three contains parts location diagrams.

Section Four - Maintenance and Troubleshooting

Section four contains system maintenance procedures and troubleshooting information.

Section Five - Schematics

Section five contains system interconnect diagrams.

Section Six - Parts List

Section six contains parts lists for the tabletop, base, and tray arm.

Safety Precautions

Pay close attention to warnings and cautions in this manual. Warnings are written to protect individuals from bodily injury. Cautions are written to protect the instrument from damage.

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 accordingly. This is in accordance with OSHA guidelines.

Although this manual provides the necessary information for maintaining optimum performance of the *Constellation™* Vision System, it does not contain all of the operating procedures or functional descriptions contained in the operator's manual. In addition, the warnings and cautions in the operator's manual also apply for this service manual.

Reference Documents

- 8065752913 - Operator's manual: CR4
- 8065753060 - Operator's manual: CR5 and CR5.40

System Configurations

The *Constellation™* Vision System is designed in a modular approach that allows the system to be highly configurable. The system is designed around the tabletop where the accessories listed below can be added for expanded functionality.

- Tabletop
- Base
- Laser Module
- Auxiliary Illuminator
- Tray Arm Assembly (includes ballast and support column)

The tabletop can operate as a standalone unit and is the primary user interface that operates and controls the add-on accessories. All add-on accessories attach to the base. Therefore, the base must be installed prior to expanding the configuration. The following tables show the possible configurations for the *Constellation™* Vision System.

- Table 1-1 CR4 Catalog Configurations
- Table 1-2 CR5 Catalog Configurations
- Table 1-3 Japan Catalog Configurations
- Table 1-4 China Catalog Configurations

Part numbers and ordering information are located in Section Six of this manual.



FIGURE 1-1 THE CONSTELLATION™ VISION SYSTEM

Table 1-1 CR4 Catalog Configurations

Description	Top Level Catalog Number	Table Top (8065751150)	Base (8065751451)	Aux Illuminator (8065751452)	Laser (8065751450)	Tray Arm Assembly (8065751539)	Tray Arm Column (8065751541)	Ballast (8065751540)
Table Top	8065751150	X						
<i>Constellation™ B</i>	8065751552	X	X					
<i>Constellation™ X</i>	8065751553	X	X	X				
<i>Constellation™ L</i>	8065751554	X	X		X			
<i>Constellation™ LX</i>	8065751551	X	X	X	X			
<i>Constellation™ T</i>	8065751558	X	X			X	X	X
<i>Constellation™ LT</i>	8065751549	X	X		X	X	X	X
<i>Constellation™ XT</i>	8065751548	X	X	X		X	X	X
<i>Constellation™ LXT</i>	8065751550	X	X	X	X	X	X	X

Table 1-2 CR5 Catalog Configurations

Description	Top Level Catalog Number	Table Top (8065753041)	Base (8065751451)	Aux Illuminator (8065751452)	Laser (8065751450)	Tray Arm Assembly (8065751539)	Tray Arm Column (8065751541)	Ballast (8065751540)
Table Top	8065753041	X						
<i>Constellation™ B</i>	8065753044	X	X					
<i>Constellation™ X</i>	8065753046	X	X	X				
<i>Constellation™ L</i>	8065753047	X	X		X			
<i>Constellation™ LX</i>	8065753045	X	X	X	X			
<i>Constellation™ T</i>	8065753043	X	X			X	X	X
<i>Constellation™ LT</i>	8065753042	X	X		X	X	X	X
<i>Constellation™ XT</i>	8065753049	X	X	X		X	X	X
<i>Constellation™ LXT</i>	8065753048	X	X	X	X	X	X	X

Table 1-3 Japan Catalog Configurations

Description	Top Level Catalog Number	Table Top (8065751817)	Base (8065751451)	Aux Illuminator (8065751452)	Laser (8065751450)	Tray Arm Assembly (8065751539)	Tray Arm Column (8065751541)	Ballast (8065751540)
Table Top	8065751817	X						
Constellation™ T	8065752044	X	X			X	X	X
Constellation™ LT	8065752042	X	X		X	X	X	X
Constellation™ XT	8065752041	X	X	X		X	X	X
Constellation™ LXT	8065752043	X	X	X	X	X	X	X

Table 1-4 China Catalog Configurations

Description	Top Level Catalog Number	Table Top (8065751536)	Base (8065751451)	Aux Illuminator (8065751452)	Laser (8065751450)	Tray Arm Assembly (8065751539)	Tray Arm Column (8065751541)	Ballast (8065751540)
Table Top	8065751536	X						
Constellation™ B	8065751597	X	X					
Constellation™ L	8065751594	X	X		X			
Constellation™ XT	8065751598	X	X	X		X	X	X
Constellation™ LXT	8065751601	X	X	X	X	X	X	X

Terms and Abbreviations

Term or Abbreviation	Description
AGF	Auto-Gas Filling
BSS PLUS™ Intraocular Irrigating Solution	Sterile intraocular irrigating solution enriched with bicarbonate, dextrose, and glutathione.
cc/min	A unit of flow.
CE	A mandatory conformity mark on many products placed on the single market in the European Economic Area (EEA)
cpm	Cuts Per Minute
Diathermy	The production of heat in body tissues by electric current for therapeutic purposes.
Extrusion	A mode where vacuum is available to remove fluid/matter.
Frag	Fragmentation
GA	Gauge
I/A	Irrigation/Aspiration
I/O	Input/Output
IV	Intravenous
LCD	Liquid Crystal Display
mmHg	Millimeter of Mercury. A unit of vacuum and pressure.

Term or Abbreviation	Description
Monolith	System configuration in which the <i>Constellation</i> ™ tabletop and base are paired together.
N/A	Not Applicable
PIN	Personal Identification Number
psi	Pounds per Square Inch. A unit of pressure.
pps	Pulses Per Second
RS-232	A standard for serial binary data signals commonly used in computer serial ports.
slpm	Standard Liters Per Minute
TUV	Technical Inspection Association
Type BF	A classification for devices that have conductive contact with the patient, or have applied parts that are fixed in medium or long term contact with the patient
U/S	Ultrasonic
USB	Universal Serial Bus
VFC	Viscous Fluid Control
VGA	Video Graphics Array
Vit	Vitrectomy. Extraction of the vitreous from the vitreous cavity.

Icon Definitions

	AutoSert™ Surgical Step		Expand Window		Alternating Current		Dr. Filter
	Extrusion Surgical Step		Help Video		AutoSert™ IOL Injector		Eject
	Forceps Surgical Step		Modify		CE mark to RED Directive		Equipotentiality
	Fragmentation Surgical Step		Power		CE mark to MD directive		Follow Instructions for Use (white figure with blue background)
	Irrigation/Aspiration Surgical Step		Save		OSHA recognized NRTL, TÜV SÜD America mark, providing electrical safety certification to North American requirements for medical devices.		Footswitch
	Laser Surgical Step		AC In		Coagulation Connector		Forceps
	Phaco Surgical Step		AC Out		Connection Indicator		Hot
	Scissors Surgical Step		Aiming Beam		Dangerous Voltage		Caution: Consult accompanying documents
	Viscous Fluid Control (VFC) Surgical Step		Air Pressure Input		Dangerous Voltage (black symbol with yellow background)		General Warning (black symbol with yellow background)
	Vitrectomy Surgical Step		Auto Gas Filling (AGF)		Illuminator		

	Intelligent Phaco		Date of Manufacture		Remote Door Lamp Laser Status		USB Connector
	I/O Data		Multi-Function Port		Remote Interlock		Use appropriate take-back system
	Key Switch		Network Connection		Scissors Connector		Video Recorder Control
	Laser Connection		Non-ionizing Radiation		Serial In/Out		Viscous Fluid Control Connector
	Laser Emergency Stop Switch		Off		Standby State		Display HDMI Out
	Laser Port 1		On		System Fault		Video In
	Tethered Laser		Displays the Help selections		System Information		Video Out
	Magnetic Resonance Unsafe		Ready		Type BF Applied Part		Vitreous Cutter Connection
	Manufacturer		Regulatory Compliance Mark Australia		U/S Handpiece Connector		

Specifications

Tabletop	
Dimensions (length x width x height):	51 cm (20 in) x 48 cm (19 in) x 61 cm (24 in)
Weight:	61 kg (135 lb)
Base	
Dimensions:	74 cm (29 in) x 74 cm (29 in) x 97 cm (38 in)
Weight:	<ul style="list-style-type: none"> • Base (no add-ons): 52.12 kg (115 lb) • Base w/Illuminator: 58 kg (128 lb) • Base w/Illuminator & Laser: 64.5 kg (142.2 lb)
NOTE: Note: If a base other than the optional Alcon base is used, it must be able to hold up to 250 pounds.	
Tray Arm	
Dimensions:	<ul style="list-style-type: none"> • Tray: 56 cm (22 in) x 36 cm (14 in) • Arm Fully Extended: 127 cm (50 in) • Support Column: 110 cm (43 in) x 13 cm (5 in) x 15 cm (6 in)
Weight:	<ul style="list-style-type: none"> • Tray and Arm: 11.7 kg (25.8 lb) • Support Column: 5.5 kg (12.3 lb)
Safe Working Loads	
Instrument Tray:	9.0 kg (19.8 lb)
Footswitch Storage Hook:	6.0 kg (13.2 lb)
IV Bottle Hanger:	2.0 kg (4.4 lb)
Accessory Drawer:	1.5 kg (3.3 lb)
Ballast	
Dimensions:	35 cm (14 in) x 35 cm (14 in) x 5 cm (2 in)
Weight:	25.5 kg (56.2 lb)

Environmental Limitations		
	Operating	Non-Operating
Altitude:	-125 to 2000 m (-410 to 6562 feet)	-125 to 3000 m (-410 to 9843 feet)
Temperature:	10° C to 35° C (50° F to 95° F)	-10 to 55°C (14° F to 131° F)
Relative Humidity:	10% to 95% without condensation	10% to 95% without condensation
IP Code	Console: IPX0 Footswitch: IPX8	
Electrical requirements	The console accepts the following ranges or input commercial power voltages and frequencies and meets the leakage currents specified in IEC 60601-1. Protection against electrical shock is Class I. 100-120 Vac 220-240 Vac	50/60 Hz 50/60 Hz 12 A max. 6 A max.
Footswitch		
Dimensions (length x width x height):	43.2 cm (17 in) x 26 cm (10.25 in) x 14 cm (5.5 in)	
Weight:	5.4 kg (12 pounds)	
Environmental:	The footswitch construction is water tight in compliance with IEC 60601-1 and IEC 60601-2-2.	
Electrical:	The footswitch is connected to the console via electrical cable. All power and communications enter/exit the footswitch from this cable.	

Performance Specifications	
PRESSURIZED INFUSION/IRRIGATION at SEA LEVEL:	
Range:	0 to 120 mmHg ¹
Accuracy:	±(2% of setpoint +5 mmHg)
Flow Rate:	0 - 20 cc/min. for infusion (20 Ga) 0 - 60 cc/min. for irrigation
Setpoint Transient Response Time:	500 ms maximum
1 Liquid, measured at the infusion or irrigation cassette outlet, at sea level.	
IOP Controlled Infusion	
Setpoint Range:	0-120 mmHg
Repeatability ² :	± 2 mmHg ³
Setpoint Response Time:	<500 ms (20 Ga)
Transient Disturbance Response Time:	<2000 ms ⁴
Flow Range:	0-20 cc/min
2 BSS™ Irrigating Solution Dual chamber mode.	
3 BSS™ Irrigating Solution medium, 20 gauge high flow Cannula, steady state condition at rated flow range	
4 Transient condition from no flow state to 10 cc/min	
Aspiration/Suction at Sea Level	
Standard & Reduced Pressure Range:	0-650 mmHg Vacuum
Minimal Pressure Range:	0-600 mmHg Vacuum
Pressure Accuracy:	±(2% of Setpoint +5 mmHg)
Flow Range: Posterior Modalities: Anterior Modalities:	0-20 cc/min 0-60 cc/min
Transient Response Time (Standard Pressure Range):	From 0 to -400 mmHg @0 cc/min 10-90% Rise Time:300 msec max 90-10% Fall Time: 300 msec max

Vacuum at Sea Level	
Vitrectomy:	0 to 650 mmHg
Fragmentation:	0 to 650 mmHg
Extrusion:	0 to 650 mmHg
Extraction:	0 to 650 mmHg
Irrigation/Aspiration:	0 to 650 mmHg
Phacoemulsification:	0 to 650 mmHg
Low Pressure Air Source (LPAS) at Sea Level	
Pressure Range:	0 – 120 mmHg (<i>air, measured at cassette connection, at sea level</i>)
Pressure Accuracy:	±(2% of Setpoint +5 mmHg)
Flow Rate:	1.2 slpm minimum at 120 mmHg
Vitrectomy	
Submodes:	3D, Momentary, PropVac, VitWet
<u>Cut Rate (probes)</u>	
<i>HyperVit™ 20000:</i>	2 to 20000 cpm
<i>UltraVit™ 10000:</i>	1 to 10000 cpm
<i>UltraVit™ 7500:</i>	1 to 7500 cpm
<i>UltraVit™ 5000:</i>	1 to 5000 cpm
<i>UltraVit™ 2500:</i>	1 to 2500 cpm
Diathermy	
Frequency:	1.5 Mhz ± 10%
Waveshape:	Sinusoidal
Output power:	10 Watts ±20% at 100% setting with 75 ±10% ohm non-inductive load
Output voltage:	163 Vpp maximum at 100% setting without load
Power range:	0 - 100% of maximum output power
Diathermy Accessories (Rated Voltage)	
Single Use Bipolar Cables:	846 Vpp
Reusable Bipolar Cables:	1200 Vpp
All Brushes:	1410 Vpp
All Forceps:	1110 Vpp

Illumination	
Light Output through 20GA Fiber Probe:	<ul style="list-style-type: none"> • 0-200 hrs: 16 ± 6 lumens at 115% set point ¹ • 201-400 hrs: 16 ± 6 lumens at 115% set point ¹
Light Output through 23GA Fiber Probe:	<ul style="list-style-type: none"> • 0-200 hrs: 23 ± 13 lumens at 115% set point ¹ • 201-400 hrs: 23 ± 13 lumens at 115% set point ¹
Light Output through 25GA Fiber Probe:	<ul style="list-style-type: none"> • 0-200 hrs: 23 ± 13 lumens at 115% set point ¹ • 201-400 hrs: 23 ± 13 lumens at 115% set point ¹
¹ Based on a representative nominal UFR fiber.	
Fragmentation	
Submodes: Tip Stroke at 100%: Tip Velocity (<i>Stroke x Frequency x n</i>) Resonant Frequency: Pulse Rate Range:	Linear, Fixed, Momentary 3.1 ± 0.5 mils at 100% power 10.8 m/s 43.5 ± 3.0 KHz 0 - 100 pps
Scissors	
Submodes: Proportional Pressure: Multi Cut Rate:	Proportional, Multi-Cut 0-50 psi at sea level single cut to 450 cpm
Proportional and Continuous Reflux at Sea Level	
Pressure Range: Pressure Accuracy:	0 to 120 mmHg ±(2% of Setpoint +5 mmHg)
Micro Reflux	
Pressure Range: Volume:	70 ± 30 mmHg ² 15 ± 10 µL
2 measured with unoccluded 20 Ga <i>UltraVit™</i> probe and aspiration tubing, 50% setting.	
Viscous Fluid Control	
Submodes:	Inject, Extract
Injection Pressure:	0 to 551.6 KPascal at Standard Source Pressure (0 to 80 psi) 0 to 482.7 KPascal at Reduced Source Pressure (0 to 70 psi)
Extract Vacuum at Sea Level:	0 to 650 mmHg

Auto-Gas Filling	
Maximum Gas Pressure:	10 psig
Fill Purity:	See gas concentration chart in Section Two.
Auto-Stop/Cock	
Response Time: Pressure (Liquid): Rated Flow (Liquid): Pressure (LPAS): Flow (LPAS):	<0.5 seconds 0-120 mmHg 20 cc/min 0-120 mmHg 1.2 slpm
Phacoemulsification	
Submodes: Tip Stroke @ 100%: Tip Velocity (<i>Stroke x Frequency x n</i>) Frequency: Pulse Rate Range: Burst Length: Burst Pulse durations:	Burst, Pulsed, Continuous 3.5 ± 0.5 mils 12.1 m/s 30 - 46.5 KHz 0-100 pulses per second 2.5 sec – user adjustable 5 ms to 500 ms
OZi™	
Frequency: Pulse Rate Range: Burst Pulse Durations:	30 - 46.5 KHz 0-100 pps 5 ms to 500 ms
Anterior Vitrectomy	
Submodes: Cut Rate:	Wet, Dry 100 to probe maximum
Laser (optional)	
<i>Treatment beam</i> Class: Power: Wavelength:	4 30 mW to 2 W (maximum) 532 nm
<i>Aiming beam</i> : Class: Power: Wavelength:	2 less than 1 mW 635 nm ± 5 nm
INTREPID™ AutoSert™ IOL Injector	
Max Speed:	4.4 mm/s

Doctor Memories	
Storage Capacity:	No hard limit; advisory displayed when less than 15% of disk space is available.
Timer	
Range:	0 to 99:99:99
Resolution:	1 s
Remote Control	
Method:	Infrared
Channels:	4



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Refer to the Product Lifecycle Management system for the latest revision.

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SECTION TWO - THEORY OF OPERATION

The *Constellation™* Vision System can be used as a standalone tabletop system, or as a single monolith system when combined with the *Constellation™* base.

The Console and Base are fastened together mechanically and electrically to create the monolith assembly. The Console and Base are connected together electrically (power, communication, power supply) with cables between each component's rear panel connectors, completing the monolith assembly. Optional modules are connected through the appropriate connector on either the Console or Base.

The following description is a general overview of all the modules that make up the *Constellation™* Vision System.

Console Power Module

The console power module distributes power through a single 24 VDC power bus. The power system as a whole is comprised of five major functional blocks:

- AC input
- Power conversion
- Power distribution
- Host battery backup including charger
- Dedicated host DC power converter module

The five blocks work together to convert a universal 90-264 VAC 50/60 Hz input into a 24 VDC regulated power bus that meets the system's total power requirements.

Host Module

212-1010-XXX - The Host module provides the computing platform for the host software and Graphical User Interface (GUI). It communicates system level controls to subsystems via the Supervisor module. The Host module is composed of the Flex-ATX motherboard assembly, Video Overlay PCI card, Wi-Fi PCBA - PCI card, two SATA hard disk drives, one DVD writeable drive, Host DC-DC Converter PCBA, Host Display Connector PCBA, Host Expansion Panel (containing the Upper and Lower Expansion PCBAs), and all required interface cables.

NOTE: There is an optional upgrade available to add USB WiFi and Video Overlay to the 212-1010-XXX Host Module.

212-3408-XXX - The Host module provides the computing platform for the host software and Graphical User Interface (GUI). It communicates system-level controls to subsystems via the Supervisor module. The Host module is composed of the Flex-ATX motherboard assembly, HD Video Overlay PCI card, two SATA hard disk drives, one DVD writeable drive, Host DC-DC Converter PCBA, Host Display Connector PCBA, Host Expansion Panel (containing the Upper and Lower Expansion PCBAs), and all required interface cables.

212-3861-XXX - The Host module provides the computing platform for the host software and Graphical User Interface (GUI). It communicates system level controls to subsystems via the Supervisor module. The Host module is composed of the Flex-ATX motherboard assembly, one SATA solid state disk drive, one DVD writeable drive, Host DC-DC Converter PCBA, Host Display Connector PCBA, Host Expansion Panel (containing the Upper and Lower Expansion PCBAs), and all required interface cables.

The PC motherboard receives all necessary DC power (ATX Power Supply) from the Host DC-DC Converter board. The DC power for the hard disk and DVD drives are also supplied by the same board. The PCI card receives power directly through its PCI slot connector.

The Expansion panel serves as a main user interface for external device connection from the rear side of CVS console. It has two rows of interface connectors for each system configuration as listed in the following table.

Table 2-1 Expansion Panel Connectors

212-1010-XXX	212-3408-XXX	212-3861-XXX
S-Video Out	USB (WiFi)	USB (WiFi)
Comp Video Out	HDMI In/Out	S-Video In (Overlay)
S-Video In	S-Video In	HDMI In (Overlay)
Comp Video In	VGA Out	HDMI Out (Overlay)
VGA Out	Barcode Reader	HDMI Out (External)
Barcode Reader	Ethernet + Reset (Laser)	Barcode Reader
Ethernet+ Reset (Laser)	USB (Service)	Ethernet + Reset (Laser)
USB	Video Rec. Cont.	USB (Service)
Video Rec. Cont.	Ethernet (Service)	Video Rec. Cont.
Ethernet (Service)	MP3 Input	Ethernet (Service)
MP3 Input		MP3 In

Display Module

The display module is the main user interface. The display module contains the LCD (display), and the touch screen which is the primary user input device. The display module's major components are the display assembly and pivot mechanism.

Supervisor Module

The supervisor module controls, arbitrates, and coordinates communications with all of the system's modules via an Ethernet backbone and individual reset lines. The supervisor module provides:

- The means to receive input from the attached footswitch.
- Communication with the power system to control the power up sequence.
- The means to directly control the illuminator module via an electrical interface.

Illuminator Module

The illuminator module is a bright light source which couples to an endo-illuminator probe to illuminate tissues in the eye. The illuminator module is equipped with fixed UV and IR filters to remove unwanted ultraviolet and infrared light energy. The module is controlled by the supervisor module.

Fluidics Module

The fluidics module is comprised of two major functional blocks: the individual fluidics cassette and the receiver mechanism. The receiver mechanism consists of the following:

- Cassette Clamp Mechanism – Provides mechanism for securing the fluidics cassette to the console's internal fluidics system.

- Cassette Valve Pincher Actuators – Provides actuation to control fluid inputs/outputs.
- Module Controller – Provides control and communication of various module functions.
- Non-Invasive Flow Sensor – Senses flow.
- Infusion and Aspiration Level Sensors – Used to determine cassette fluid levels.
- Cassette Detection Sensors – Used to detect the presence of a cassette.
- Cassette ID Sensors - Used to identify various cassette types.
- Drain Pump – Used to transfer fluid from cassette to drain bag.
- LPAS Pump – Generates pressure for infusion.
- Infusion Subsystem – Controls and provides pressure necessary to maintain infusion.
- Irrigation Subsystem – Controls irrigation levels.
- Aspiration Subsystem – Controls vacuum.
- These 12 elements, plus the fluidics cassette, work together to provide the necessary infusion, irrigation, aspiration, and LPAS functionality required by the *Constellation™* system.

Pneumatics Module

The pneumatics module comprises of the following elements:

- Pneumatic Distribution - Distributes clean filtered supply of pneumatic source pressure to the pneumatics and fluidics modules. It also provides the point of connection for the console to the hospital supply pressure.
- Vit Probes Pressure Drive Ports - Provide pulsed pressure at a predetermined rate, duty-cycle, and pressure to drive pneumatic vitrectomy probes.
- Pneumatic Instruments Drive Ports - Provide either proportional pressure or pulsed pressure at a predetermined rate, duty-cycle, and pressure to drive pneumatic instruments such as forceps and scissors.
- Viscous Fluid Control Port - The VFC drive provides proportional pressure or vacuum to drive the VFC plunger to inject or extract viscous fluids.
- Auto-Gas Filling (AGF) Port - The auto-gas filling port provides the automatic function of filling the gas consumable with a gas tamponade.

U/S Diathermy Module

The U/S diathermy module provides the following functionality:

- Phaco and Frag Connectors - Provide the electric signals to drive the Phaco and Frag handpieces.
- Diathermy Connectors - Provide the electric signals to drive the diathermy and coagulation accessories.
- Autosert™ Connector - Provide the electric signals to drive the Autosert accessory.

Remote Control

The remote control provides a navigational interface remotely through the IR receiver.

Base Assembly (optional)

The base assembly provides the mounting platform for the table top console. The base assembly contains the following modules/functionalities:

- Base Ethernet Switch - Provided as an extension to the supervisor, and distributes Ethernet and reset lines to the modules in the base assembly.
- Base Power Module - The base power module distributes power through a single 24 VDC power bus.

Tray Arm (optional)

The tray arm can be mounted on either the left or right side of the base. It provides a movable work surface for set-up and use during surgery.

Laser Module (optional)

The laser module converts 24 VDC input power into laser light at the output port where it is coupled to a fiber-optic handpiece cable. The laser rear interface provides the primary external interface to the laser module. It includes the room interlock, two Dr. filters, a laser footswitch connector, and room light connectors.

Auxiliary Illuminator Module (optional)

The auxiliary illuminator is a xenon light source which couples to an endo-illuminator probe to facilitate visualization of eye tissues. The auxiliary illuminator is equipped with fixed UV and IR filters to remove unwanted ultraviolet and infrared light energy.

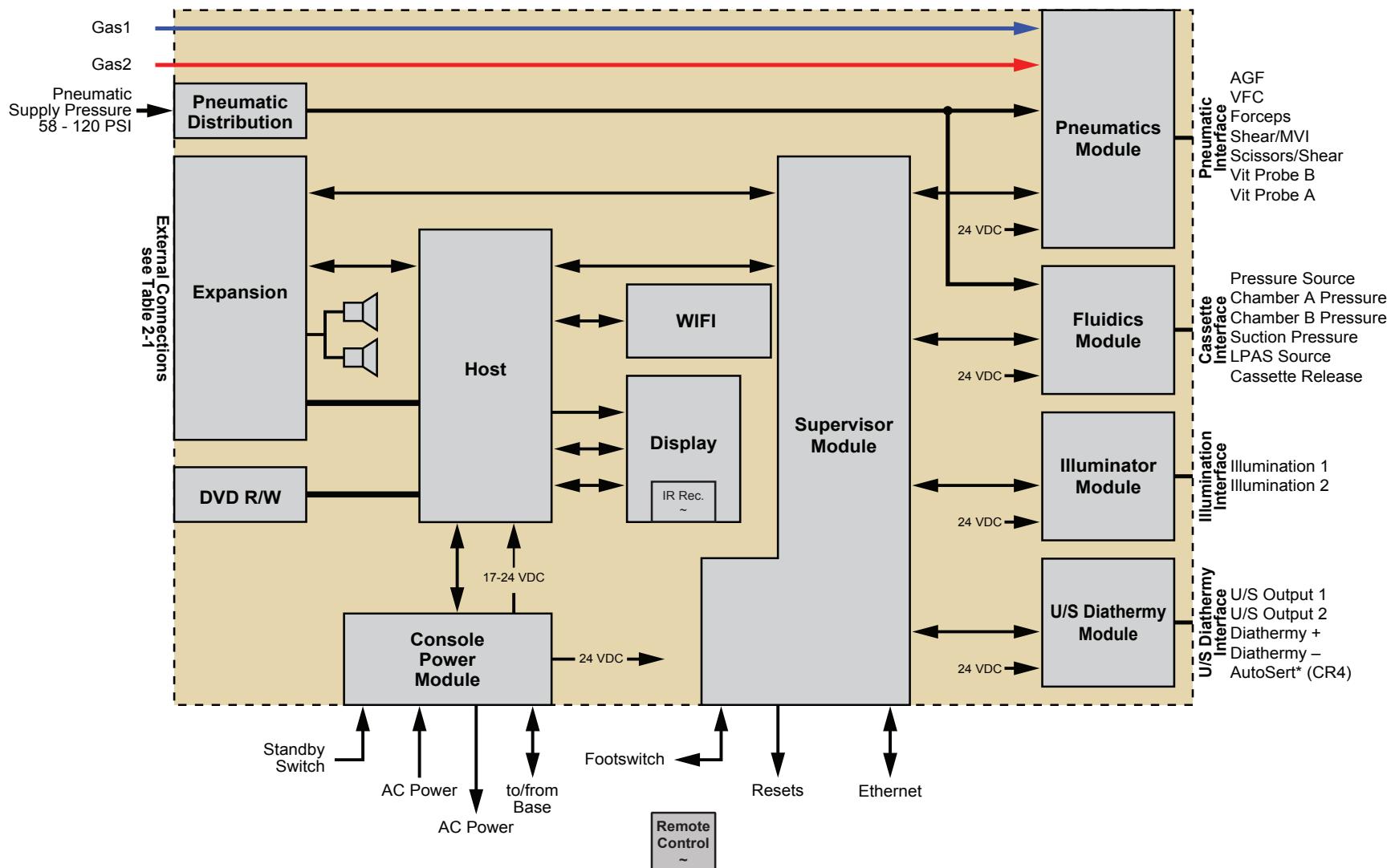


FIGURE 2- 1 TABLETOP CONSOLE BLOCK DIAGRAM

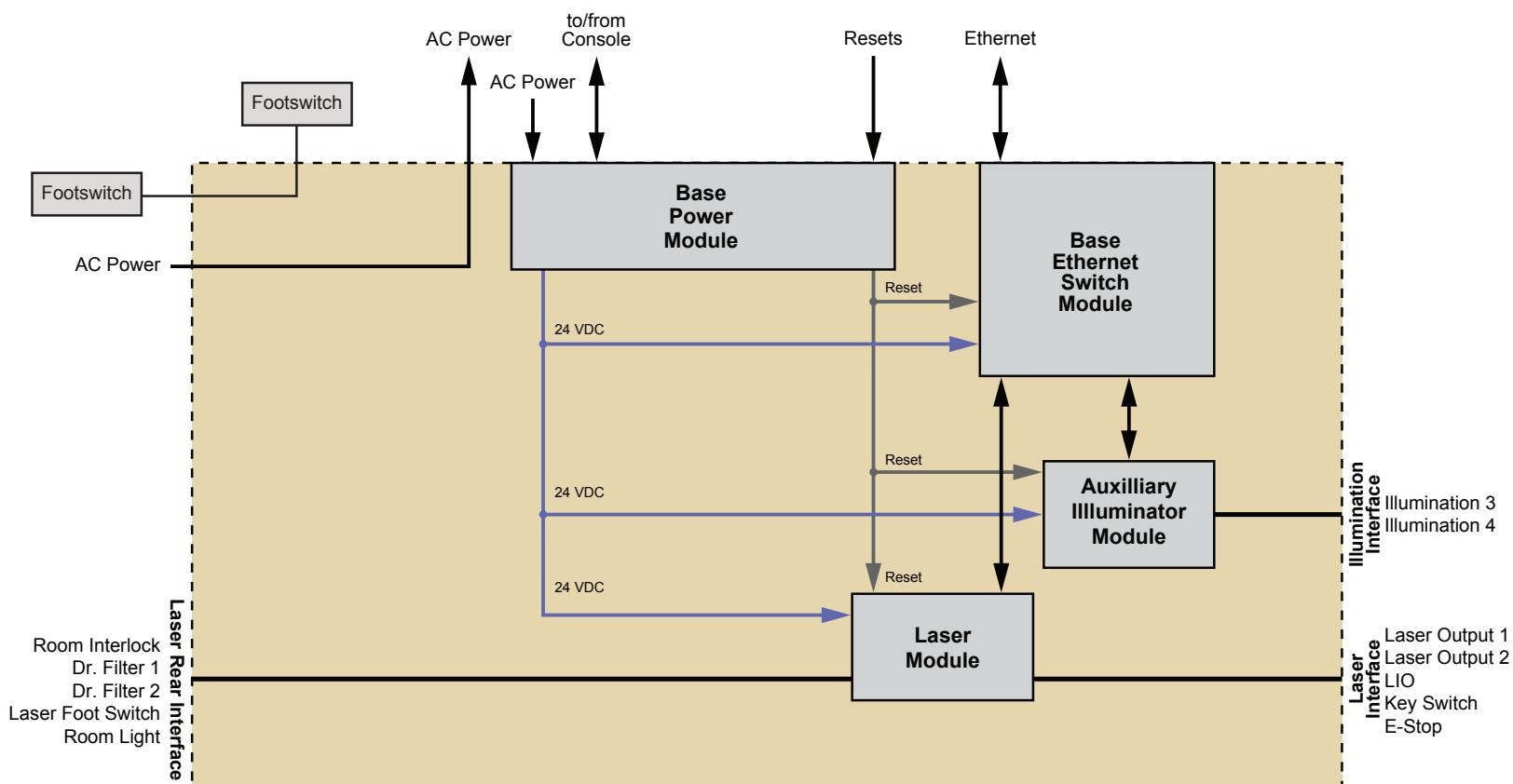


FIGURE 2- 2 BASE CONSOLE Block Diagram



REFERENCE COPY ONLY – DO NOT DISTRIBUTE
Refer to the Product Lifecycle Management system for the latest revision.

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SECTION THREE - CONSOLE PARTS LOCATION

This section contains a description of the *Constellation™* console external parts location. If you have questions or require service, please contact your local service representative or the Technical Services department at:

Alcon Laboratories
 15800 Alton Parkway
 Irvine, CA 92618
 (949) 753-1393 or (800) 832-7827

If you are located outside the United States, please contact your local authorized Alcon distributor.

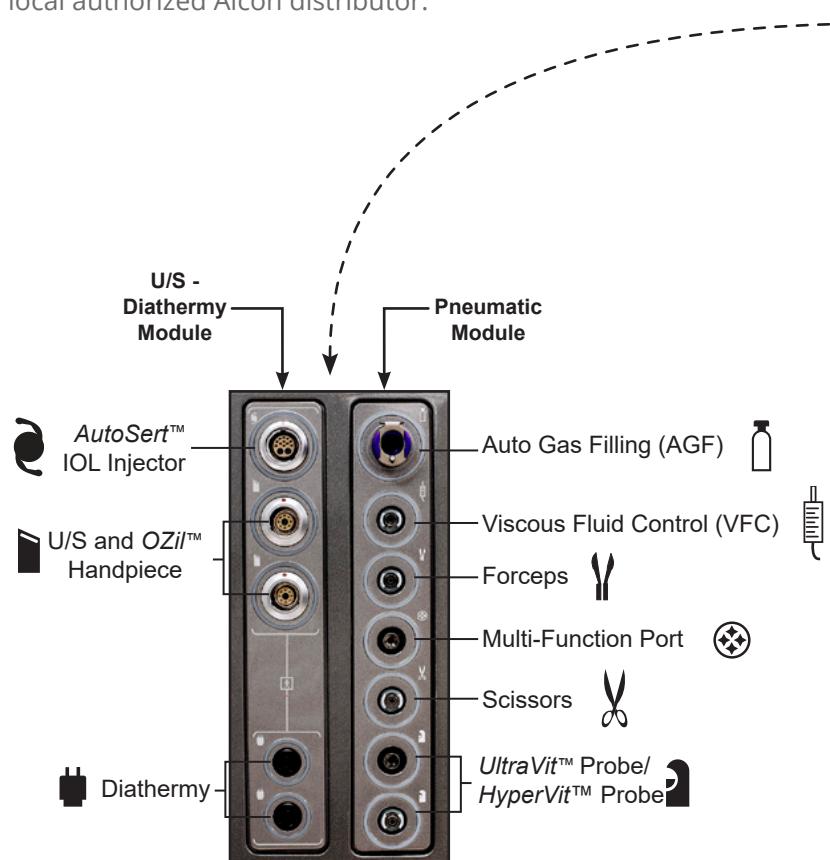


FIGURE 3- 1 PARTS LOCATION - SYSTEM FRONT VIEW



DETAIL A

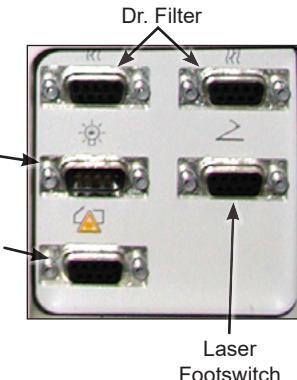
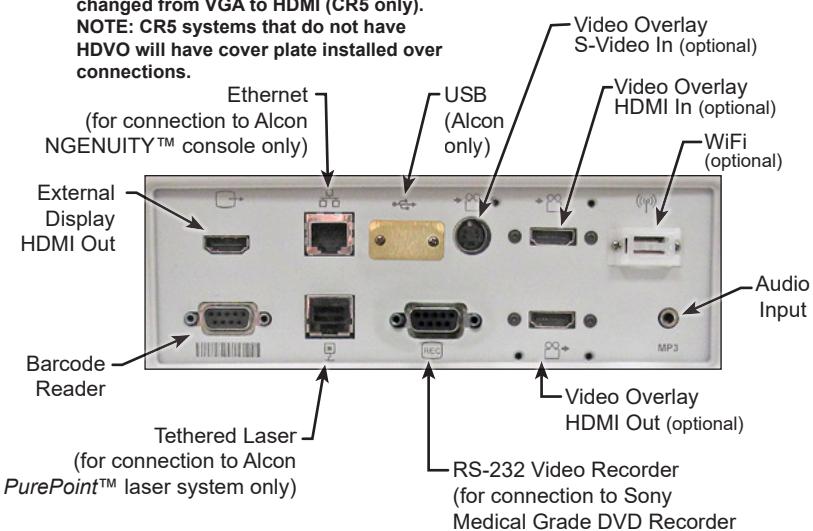


FIGURE 3- 2 PARTS LOCATION - SYSTEM REAR VIEW

DETAIL B-1:

Host Module 212-3861-XXX - HDVO is optional and external display was changed from VGA to HDMI (CR5 only).
 NOTE: CR5 systems that do not have HDVO will have cover plate installed over connections.

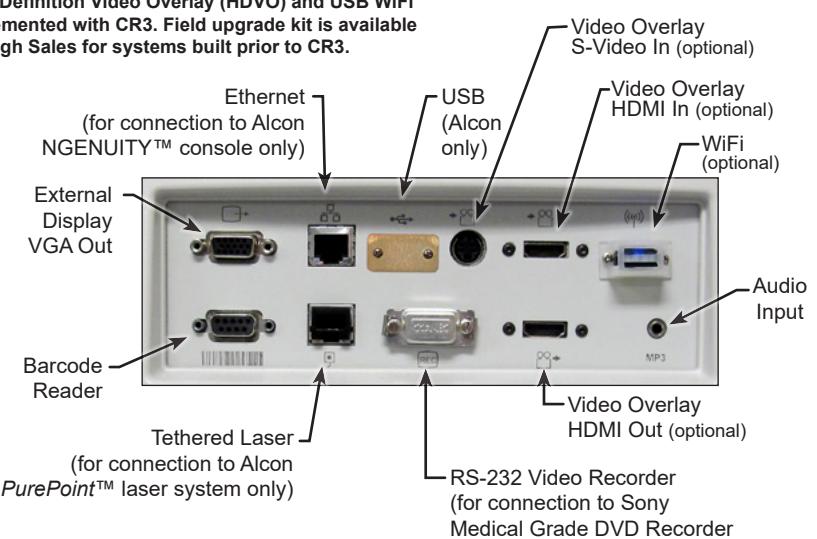


DETAIL B - External Connector Panel

(System will use one of the three connector panels shown below)

DETAIL B-2:

High Definition Video Overlay (HDVO) and USB WiFi implemented with CR3. Field upgrade kit is available through Sales for systems built prior to CR3.



DETAIL B-3:

Standard Definition Videoviewer - Built in systems prior to CR3. Optional upgrade is available for HDVO and USB WiFi.

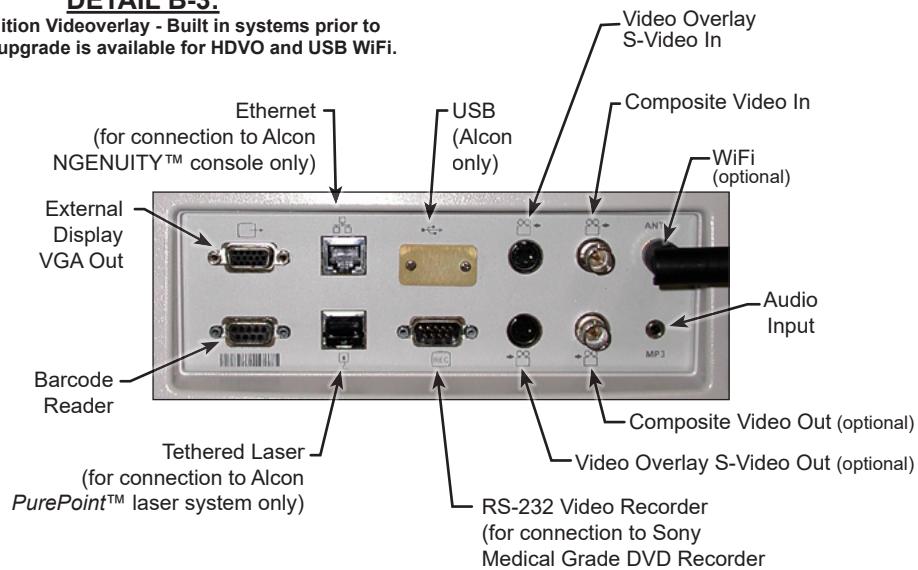


FIGURE 3- 3 PARTS LOCATION - SYSTEM REAR VIEW



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SECTION FOUR - MAINTENANCE AND TROUBLESHOOTING

The following maintenance and troubleshooting procedures are contained in this section:

Tabletop Console Maintenance Procedures.....	4.2
Connecting the System to a Facility Pressure Source	4.2
Remote Control Battery Replacement.....	4.3
Table Top Console Air Filters – Removing and Cleaning.....	4.4
Software Maintenance Procedures.....	4.5
Transferring the Event Log	4.5
System Messages.....	4.6
Common Sub-Module Kernel Codes	4.9
Host Module Messages	4.12

Tabletop Console Maintenance Procedures

Connecting the System to a Facility Pressure Source

The pressure hose is shipped in a configuration that is compatible with some facility air pressure source fittings. The shipped configuration is shown in *Figure 4-1*.

CAUTION

To ensure proper function of the system, all pressure source fittings and hoses used must have a minimum of 1/4 inch inside diameter like the Alcon supplied fittings and hose.

If smaller ID fittings are used in conjunction with the inlet hose fittings, system performance may be affected at "Minimal Inlet Pressure" (58.8 to 72.5 psig).

NOTE: Use thread sealant when connecting fittings.

1. Determine if facility air pressure source are compatible with the provided hose configuration.
2. Connect hose to the facility air pressure source.
3. Connect the quick disconnect fitting to the table top console rear panel.

NOTE: A right angle fitting is included with the hose assembly and may be used to replace the fitting on the console rear panel if desired. In this configuration, remove the quick disconnect fitting from the hose then thread the hose onto the right angle fitting on the rear panel (no quick disconnect).

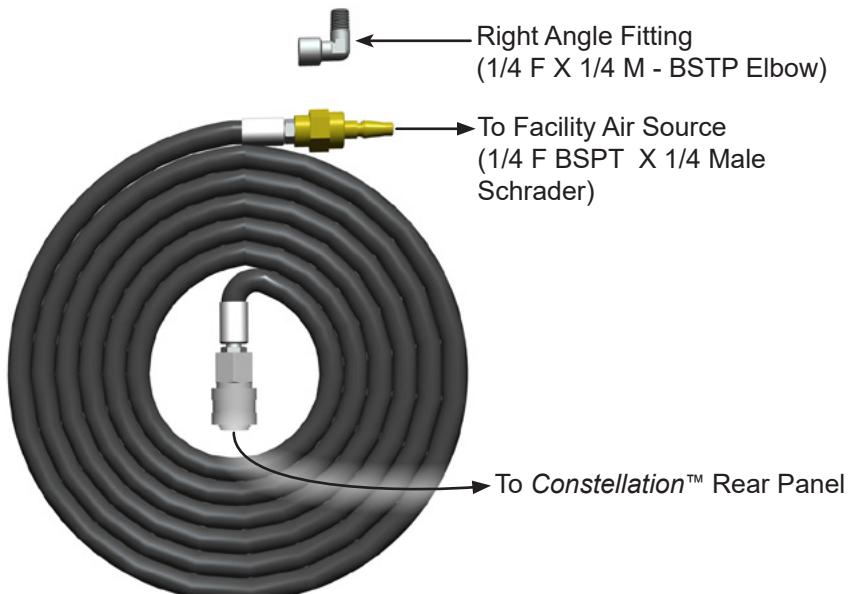


FIGURE 4-1 PRESSURE HOSE CONFIGURATION FOR FACILITY WITH AN AIR PRESSURE SOURCE

Remote Control Battery Replacement

1. Remove two screws from bottom of remote.
2. Wiggle two halves of remote to access inside.
3. Remove spent batteries and replace with new AAA batteries. Orient batteries as diagramed in base. Spin batteries in base to ensure good electric connection.
4. Grasp two halves of remote and tip edges together as shown (see *Figure 4-2*). The two tabs inside bottom edge of remote must match up with two notches in other half of remote.
5. Gently place two halves together.

NOTE: Observe rubber buttons shown in *Figure 4-3* while putting two halves together. The rubber buttons must slide into slots in other half of remote without binding.

6. Secure two halves of remote together with two captive screws.
7. Squeeze rubber buttons on side of remote. If batteries are installed correctly, backlights will illuminate on face of remote, then turn off after a few seconds.

NOTE: If backlights do not turn off, rubber buttons are not properly inserted into slots, so you must repeat procedure.

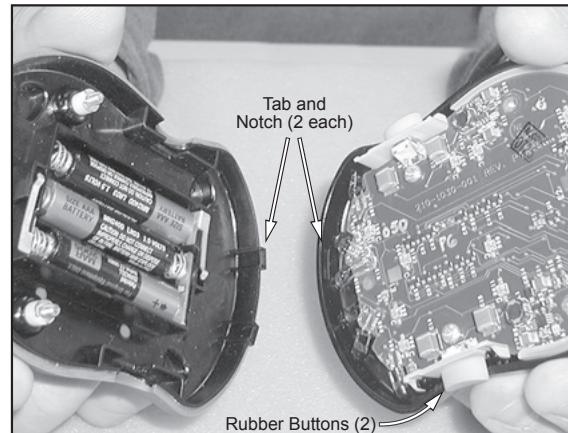


FIGURE 4-2 TWO HALVES OF REMOTE CONTROL

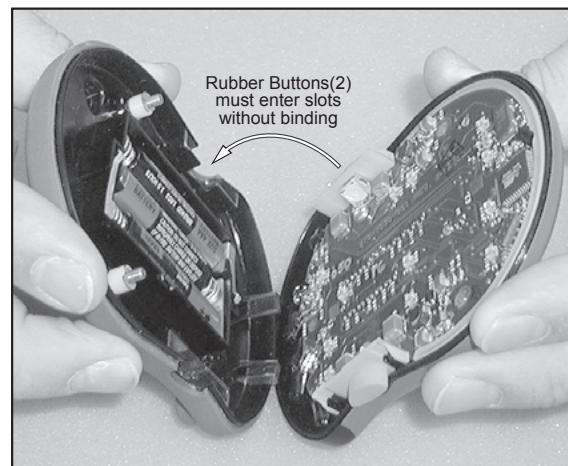


FIGURE 4-3 PROPER ORIENTATION OF TWO HALVES OF REMOTE CONTROL

Table Top Console Air Filters – Removing and Cleaning

1. Press the center of the filter faceplate to release from console.



Console Air Filter #1



Console Air Filter #2

Notch in filter frame that fits on
standoff in console.

2. Grasp the edge of Filter #2 and pull from console.
3. Notice how the filter is fitted to standoff on console for replacement (see the preceding figures).
4. Remove the filters from the frame assembly, clean in soapy water, then shake dry.
5. Reinstall the air filters.

FIGURE 4-4 CONSOLE AIR FILTER LOCATIONS

NOTE: Filter #2 is located on the left side of the console in the open area left by filter #1.

Software Maintenance Procedures

Transferring the Event Log

The Technician's Log compresses the information so it can be emailed. The selection that leads to the Technician's Log is **Options>View/Copy/Delete**. The steps to retrieve the Event Log from the system and save it in your computer are as follows.

Steps to Retrieve Event Log from *Constellation™* System:

1. Insert SD card. Card must be 2GB or below.
2. Select **Options>View/Copy/Delete**.
3. In the Source pane select **System>Technician's log**.
4. In Destination Pane, select SD-Card.
5. Press center arrow to queue data.
6. When Technician's log Copy no longer displays, press **Write** (in lower right box). When complete, the message **The data was successfully written** appears.
7. Press **OK**. The Technician's log is save to the SD-Card.

Steps to Retrieve Log File from SD-Card:

1. Insert the SD-card into computer card reader. When viewed on the computer, the log file name includes the system serial number and **ConstellationLog.AlconLogBatch** file.
2. Copy the file from the SD-Card and attach to an email.

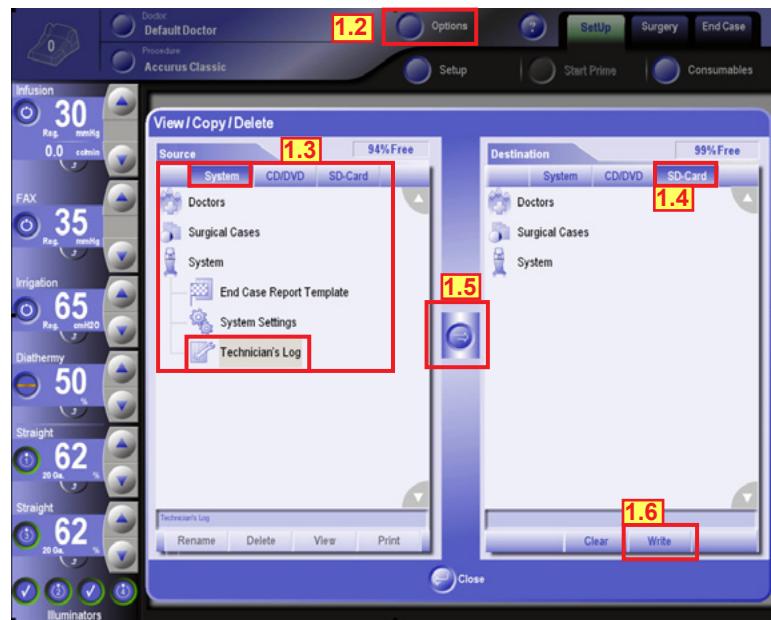


FIGURE 4-5 TRANSFERRING THE EVENT LOG

System Messages

The system communicates information to the user through the display of system messages that are described to the user as faults, errors, advisories or system information. These terms are used to classify the level of response required to ensure fail-safe operation of the system. The presentation of a system message alone does not indicate that a malfunction has occurred. System messages typically occur when the system detects a condition that is not met but is required for the system to continue. System messages and associated actions are intended functions presented as a precursor to mitigate an unanticipated condition.

System messages are priority based, with fault messages being the highest priority, followed by error messages, advisory messages, and information messages. Each type of message is color coded as follows:

- Fault:
 - Recoverable Fault - Red stop sign with blue background
 - Unrecoverable Fault - Red stop sign with black background
- Error - Yellow
- Advisory - Green
- Information - Blue

Each message also has a number associated with it that indicates the submodule that prompted the message. The number range for each submodule in the system is assigned as follows:

- Host Submodule - 1000 to 1999
- Supervisor Submodule - 2000 to 2999
- Fluidics Submodule - 3000 to 3999
- US/Diathermy Submodule - 4000 to 4999
- Table Top Illuminator Submodule - 5000 to 5999
- Pneumatics Submodule - 6000 to 6999
- Auxiliary Illuminator Submodule - 7000 to 7999
- Laser Submodule - 8000 to 8999

There are common submodule kernel codes that have the same suffix (last 3 digits) across every module and are listed in *Table 4-3*. In the event that the software did not write properly from the Host to the module, the code may go away when the system is rebooted. 1000 series (Host) codes generally are faults that occur upon initialization. Codes that are specific to each module are listed in *Table 4-2* through *Table 4-9*.

System Fault Messages

System Fault messages are displayed full screen and come in two types: Recoverable and Unrecoverable as shown in *Figure 4-6*. The system performs the following actions when a fault condition is detected:

- The applicable System Fault screen is shown with appropriate Fault Number and one or more acknowledgment buttons.
- A fault tone is generated.
- All surgical functions are placed in a safe state.
- All operator input from the touch screen and footswitch is ignored (with the exception of the [Start Recovery], [Quick Start], and [Shutdown] buttons).

The majority of all generated system faults are recoverable and the displayed fault message includes the following recovery instructions.

1. Stabilize eye. Leave infusion cannula in, remove other instruments (i.e. vit probe/illuminator) and plug trocar cannulas/sclerotomies.
2. Press the "Start Recovery" button.
3. Wait for recovery to complete and continue the case.

After the system recovers from a fault, the system state is restored to the state when the fault occurred.

Recoverable System Fault Display Screen



Unrecoverable System Fault Display Screen



FIGURE 4-6 SYSTEM FAULT DISPLAY SCREEN EXAMPLES

System Error Messages

System error messages are displayed in a popup window as shown in the following figure. These messages are displayed when the system detects a condition that is not met and requires partial elements of the system to shutdown in a safe state. The partial shutdown cannot be reversed until the next power cycle. The system performs the following actions when an error is detected.



FIGURE 4-7 SYSTEM ERROR POPUP WINDOW

The System Error dialog is shown with the appropriate error number, description, and buttons. The upper right corner shows the name of the submodule generating the error and an error tone is generated.

All surgical functions associated with the error become unavailable. These functions are also put into a safe state and are grayed out on the touch screen.

The System Error dialog is removed when the operator presses either Recover or Cancel. If the Cancel button is pressed, no attempt is made to recover, and the related surgical function is unavailable and its buttons grayed-out. In this case, pressing a grayed-out (unavailable) surgical function, the System Error dialog is displayed again with the same error number.

If the Recover button is pressed, an Error Recovery popup is displayed as shown in the preceding figure. This popup contains instructions on how to step through the recovery process. Upon pressing the Start Recovery button, the recovery sequence is initiated and an attempt is made to recover (reset and restart) the failed module. After recovery is complete, the system displays a message indicating whether or not the recovery was successful.

Pressing the Cancel button in the Error Recovery popup, removes the popup and continues system operation without attempting to recover the failed module.

System Advisory Messages

System advisory messages are displayed in a popup window as shown in the following figure. Advisory messages are displayed when the system detects that a minor condition is not being met, typically a situation that can be corrected by the user. When an advisory condition is detected, the system performs the following actions.

The System Advisory popup is shown with an appropriate advisory number, description, and one or more acknowledgment buttons. The upper right corner also shows the name of the submodule generating the advisory and an advisory tone is generated.

The System Advisory popup is removed when the operator presses a button to acknowledge the advisory or the condition causing the advisory no longer exists. Certain advisory messages that only present a single user response button may also be configured to automatically fade away.

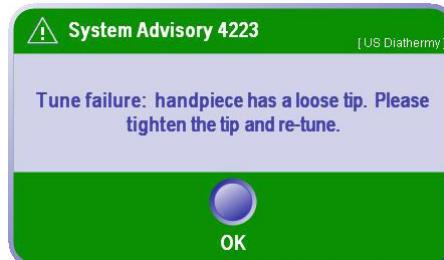


FIGURE 4-8 SYSTEM ADVISORY POPUP WINDOW

System Information Messages

Information messages are displayed in a popup window as shown in the following figure. Information messages are displayed to advise the user of the current system state based upon current user interaction. When an information condition is detected the following actions occur:

A System Information dialog is displayed with appropriate information number, description, and one or more acknowledgment buttons. The upper right corner also shows the name of the submodule generating the informational discrepancy. An information tone is generated.

The System Information dialog is removed when the operator presses a button to acknowledge the informational discrepancy or the condition causing the informational discrepancy no longer exists. Certain informational messages that only present a single user response button may also be configured to automatically fade away.

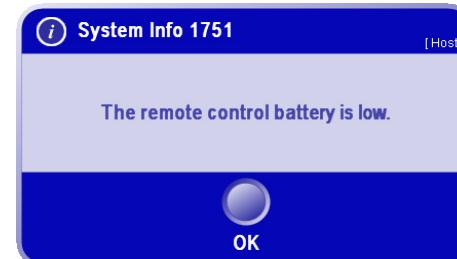


FIGURE 4-9 SYSTEM INFORMATION POPUP WINDOW

Common Sub-Module Kernel Codes

Table 4-1 Common Sub-Module Kernel Codes – X000 to X099

PREFIX DEFINITIONS: Supervisor - X = 2; Fluidics - X = 3; US/Diathermy - X = 4; TT Illuminator - X = 5; Pneumatics - X = 6; Aux Illuminator - X = 7; Laser - X = 8;

Warning Code	Classification	Displayed Text	Description/Possible Causes
X001	Error	Sub module system software error detected.	OSE_ERROR_CODE Internal OSE RTOS error.
X005	Error	Sub module failure (+5V).	KRNL_5_VOLTS_IS_BAD Kernel +5 Voltage is bad.
X006	Error	Sub module failure (+3.3V).	KRNL_3_3_VOLTS_IS_BAD Kernel +3.3 Voltage is bad
X007	Error	Sub module failure (ADC reference).	KRNL_ADC_REF_IS_BAD Kernel Voltage Reference is bad
X008	Error	Sub module application failed to load.	KRNL_PRG_LOAD_FAILED The kernel failed loading a load module component. Attempted to load application code from Host and it failed.
X009	Error	Sub module application failed to start.	KRNL_PRG_START_FAILED The kernel failed starting a load module component. Software has downloaded, but module failed to run
X013	Error	Sub module software failure (watchdog timeout).	KRNL_WD_TIME_OUT Watchdog had a task timeout.
X015	Error	Sub module failure (voltage checker).	KRNL_VOLTAGE_CHECKER_UNDERRUN Kernel Voltage checker ADC underrun.
X017	Error	Sub module failure (+24V).	KRNL_24_VOLTS_IS_BAD Kernel +24 Voltage is bad.
X018	Error	Sub module failure (+1.5V).	KRNL_1_5_VOLTS_IS_BAD Kernel +1.5 Voltage is bad.
X024	Error	Sub module failure (+1.2V).	KRNL_1_2_VOLTS_IS_BAD Kernel +1.2 Voltage is bad.
X025	Error	Sub module failure (reference voltage A).	KRNL_REF_A_IS_BAD Kernel Voltage Reference A is bad.
X026	Error	Sub module failure (reference voltage B).	KRNL_REF_B_IS_BAD Kernel Voltage Reference B is bad.

Table 4-1 Common Sub-Module Kernel Codes – X000 to X099

PREFIX DEFINITIONS: Supervisor - X = 2; Fluidics - X = 3; US/Diathermy - X = 4; TT Illuminator - X = 5; Pneumatics - X = 6; Aux Illuminator - X = 7; Laser - X = 8;

Warning Code	Classification	Displayed Text	Description/Possible Causes
X027	Error	Sub module failure (reference voltage C).	KRNL_REF_C_IS_BAD Kernel Voltage Reference C is bad.
X028	Error	Sub module failure (+2.5V).	KRNL_2_5_VOLTS_IS_BAD Kernel +2.5 Voltage is bad.
X029	Error	Sub module failure (FPGA).	KRNL_FPGA_NOT_READY The FPGA ready bit is not set.
X030	Error	Sub module failure (communication error).	KRNL_SUPERVISOR_COMM_LOSS The Kernel Status Handler lost communication with the Supervisor module.
X033	Error	Sub module failure (watchdog test).	KRNL_WD_INIT_TEST_FAILED The watchdog startup test failed on power up.
X035	Error	Sub module failure (ECC memory error).	KRNL_RAM_RUNTIME_FAILED Bad SDRAM ECC errors were detected.
X037	Error	Sub module failure (Ethernet receiver).	KRNL_FCC_INTERNAL_RX_ERROR CRC Error on Ethernet communication.
X038	Error	Sub module failure (Ethernet transmitter).	KRNL_FCC_INTERNAL_TX_ERROR CRC Error on Ethernet communication.
X039	Error	Sub module failure (+12V).	KRNL_12V_VOLTAGE_IS_BAD Kernel 12 Voltage is bad error (Pneumatics and Fluidics modules only).
X050	Error	Sub module failure (software).	CMN_SW_ERR - A sub module software error was detected. Similar to 1014 for the Host system. NOTE: Table Top Only will show 2050 not 5050 because Table Top communicates through Supervisor)
X051	Error	Sub module failure (invalid parameter).	CMN_PARAM_ERR - An invalid parameter value was passed to a function.
X053	Error	Sub module failure (ADC timeout).	CMN_ADC_TIMEOUT - Timeout waiting for the ADC done bit to get set.
X054	Error	Sub module failure (DAC timeout).	CMN_DAC_TIMEOUT - Timeout waiting for the DAC busy bit to be cleared.
X055	Error	Sub module failure (critical data invalid).	CMN_CRITICAL_DATA_ERR - Critical data parameter error. The data and the inverted value do not match.
X056	Error	Sub module failure (watchdog non-operational).	CMN_WD_ATTACH_ERR - Received an attach signal indicating that the kernel watchdog process died.

Table 4-1 Common Sub-Module Kernel Codes – X000 to X099

PREFIX DEFINITIONS: Supervisor - X = 2; Fluidics - X = 3; US/Diathermy - X = 4; TT Illuminator - X = 5; Pneumatics - X = 6; Aux Illuminator - X = 7; Laser - X = 8;

Warning Code	Classification	Displayed Text	Description/Possible Causes
X057	Error	Sub module failure (supervisor timeout)	CMN_SUPERVISOR_TIMEOUT_ERR - Supervisor set point message timeout. The supervisor did not send set point messages at the correct rate when a surgical function was active.
X059	Error	Sub module failure (access violation).	CMN_ACCESS_ERR - A process tried to access a resource without sufficient privileges.
X061	Advisory	Sub module failure (unknown message)	CMN_UNKNOWN_SIG_ERR - A signal not recognized by a process was received. The extra parameter contains a pointer to the unknown signal.
X062	Error	Submodule failure (triggered to demonstrate recovery functionality).	Error intentionally generated by the Host to test submodule error recovery functionality. Used for user training purposes.
X099	Error	Sub module failure (no communication with Host)	CMN_SUBSYSTEM_UNAVAILABLE_ERR - The Host did not receive a Sub module information message within approximately 3 1/2 minutes after the splash screen was removed after power up or restart. NOTE: Laser and Auxiliary Illuminators are exempt from this error due to the fact that their power state/ejection state can change at anytime and be reset.

Host Module Messages

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1001	Fault	Fault - 1001 Call Field Service	OseGatewayDownFlt - The OSE Gateway exited unexpectedly. Isolated occurrence - cycle power.
1002	Fault	Fault - 1002 Call Field Service	SupervisorProcessDownFlt - The OSE Gateway has reported that the Supervisor process has gone down. Possible cause: footswitch cable if the message is 1233 - The connected footswitch is not supported is also in the log. Isolated occurrence - cycle power.
1003	Fault	Fault - 1003 Call Field Service	SupervisorCommErrorFlt - Something has failed in the communication between the Host and the Supervisor. Isolated occurrence - cycle power.
1004	Fault	Fault - 1004 Call Field Service	MainApplicationDownFlt - The Main Application exited unexpectedly. Isolated occurrence - cycle power.
1005	Fault	Fault - 1005 Call Field Service	CrcChecksumFailureFlt – The Host Controller checksum validation failed to pass all files under its control. Isolated occurrence - cycle power.
1006	Fault	Fault - 1006 Call Field Service	MainApplicationFailed ToConnectToSupervisorFlt The Host has failed to connect to the Supervisor process. Isolated occurrence - cycle power.
1007	Fault	Fault - 1007 Call Field Service	HostControllerSoftwareErrorFlt - The Host Controller encountered an unexpected error. Isolated occurrence - cycle power.
1009	Fault	Fault - 1009 Call Field Service	PowerModuleCommFailureFlt - The Host Controller could not communicate with the Power Module over the serial link. Isolated occurrence - cycle power.
1010	Fault	Fault - 1010 Call Field Service	VersionCheckFailureFlt- Component or Submodule reported an incorrect software, hardware, firmware or other version. Isolated occurrence - cycle power.
1012	Fault	Fault - 1012 Call Field Service	MissingSupervisorHeartbeatFlt The Host has not received any heartbeats from the Supervisor within the required timeframe. Possible cause: footswitch cable if the message is 1233 - The connected footswitch is not supported is also in the log.
1013	Fault	Fault - 1013 Call Field Service	UiThreadUnresponsiveFlt - The Host has detected that the User Interface thread has not responded within the required timeframe (i.e. the UI is considered locked up). Isolated occurrence - cycle power.
1014	Fault	Fault - 1014 Call Field Service	SoftwareErrorFlt The system has detected a software error. Isolated occurrence - cycle power.
1015	Fault	Fault - 1015 Call Field Service	UnknownSupervisorMsgFlt The Host has received a message from the Supervisor that it doesn't recognize (this is a specific type of software error). Isolated occurrence - cycle power.
1016	Fault	Fault - 1016 Call Field Service	ApplicationFontsFailureFlt The Host application's display fonts can not be loaded.
1017	Fault	Fault - 1017 Call Field Service	AudioPlaybackFlt A failure has occurred during the playback of an audio file. Isolated occurrence - cycle power.
1018	Fault	Fault - 1018 Call Field Service	The Main Application failed to communicate with the Host Controller. Isolated occurrence - cycle power.
1019	Fault	Fault - 1019 Call Field Service	The Host Controller failed to communicate with the Main Application. Isolated occurrence - cycle power.
1020	Fault	Fault - 1020 Call Field Service	The Main Application detected an invalid configuration for the host or submodules. Isolated occurrence - cycle power.

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages

Error Code	Classification	Displayed Text	Description/Possible Causes
1021	Fault	Fault - 1021 Call Field Service	Fault intentionally generated by the Host to test the fault recovery functionality. Used for user training purposes.
1022	Fault	Fault - 1022 Call Field Service	Fault intentionally generated by the Host to demonstrate the system behavior when an unrecoverable fault is triggered. Used for user training purposes.
1107	Error	Unable to load one or more language packs.	InvalidLanguageLoadAttemptErr An error occurred while attempting to load a non-English language.
1108	Error	Incompatible version numbers within the Fluidics submodule. Fluidics functions will be disabled.	IncompatibleVersionFluidicsErr - The Fluidics module was shut down due to an incompatible version. The log file shows exactly what version information was incompatible.
1109	Error	Incompatible version numbers within the Pneumatics submodule. Pneumatics functions will be disabled.	IncompatibleVersionPneumaticsErr The Pneumatics module was shut down due to an incompatible version. The log file shows exactly what version information was incompatible.
1110	Error	Incompatible version numbers within the Ultrasound submodule. Ultrasound and Diathermy functions will be disabled.	IncompatibleVersionUltrasoundErr The Ultrasound module was shut down due to an incompatible version. The log file shows exactly what version information was incompatible.
1111	Error	Incompatible version numbers within the Auxiliary Illuminator submodule. Auxiliary Illuminator functions will be disabled.	IncompatibleVersionAuxIllumErr The Auxiliary Illuminator module was shut down due to an incompatible version. The log file shows exactly what version information was incompatible.
1112	Error	Incompatible version numbers within the Laser submodule. Laser functions will be disabled.	IncompatibleVersionLaserErr The Laser module was shut down due to an incompatible version. The log file shows exactly what version information was incompatible.
1200	Advisory	Function is not allowed when the fluidics subsystem is not functional.	CommandNotAllowedFluidicsNotFunctionalAdv The user tried to select Fluidics function which is only allowed when the fluidics subsystem is functional.
1202	Advisory	Function is not allowed when the Laser is in Ready Mode or firing.	CommandNotAllowedWhenLaserReadyOrFiringAdv The user tried to invoke a command which is not allowed when the laser is in Ready Mode or Firing.
1203	Advisory	Function is not allowed when the footswitch treadle is down or buttons are pressed.	CommandNotAllowedWhenTreadleDownAdv The user tried to invoke a command which is only allowed when the treadle is up and no buttons pressed.
1204	Advisory	Flow mode is not available until the probe or handpiece has been primed.	ExtrFlowModeUnavailProbeHpNotPrimedAdv Flow mode is unavailable because a probe or handpiece hasn't been primed.
1205	Advisory	Flow mode is only available for 20 gauge probes / handpieces.	ExtrFlowModeUnavailProbeHpNot20GaugeAdv Flow mode is unavailable because a non 20 gauge probe or handpiece is used.
1207	Advisory	Please connect a Phaco handpiece.	NoPhacoHpConnectedAdv The user presses the treadle in a Phaco Step when no Phaco handpiece is connected.
1208	Advisory	Please tune the Phaco handpiece.	PhacoHpNotTunedAdv The user presses the treadle in a Phaco Step when the Phaco handpiece isn't tuned.
1209	Advisory	Please connect a Frag handpiece.	NoFragHpConnectedAdv The user presses the treadle in a Frag Step when no Frag handpiece is connected.
1210	Advisory	Please tune the Frag handpiece.	FragHpNotTunedAdv The user presses the treadle in a Phaco Step when the Phaco handpiece isn't tuned.
1211	Advisory	Function is not allowed when the Ultrasound submodule is not functional.	CommandNotAllowedUltrasoundNotFunctionalAdv The user tried to invoke a command which is only allowed when the ultrasound subsystem is functional.
1212	Advisory	Function is not allowed when the cassette is not ready.	CommandNotAllowedCassetteNotReadyAdv The user tried to invoke a command which is only allowed when the cassette is ready.

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1213	Advisory	Infusion must be on to use VFC Extract. Press [Ignore] to allow VFC Extract without infusion for this case.	InfusionNeededInlnVfcExtractAdv The user presses the treadle in a VFC Extract Step when infusion is off.
1214	Advisory	System hasn't detected VFC. If already connected, press "Connected" button.	NoVfcSyringeConnectedAdv The user presses the treadle in a VFC Step when no VFC Syringe is connected.
1215	Advisory	System hasn't detected Forceps. If already connected, press "Connected" button.	NoForcepsConnectedAdv The user presses the treadle in a Forceps Step when no forceps are connected.
1216	Advisory	System hasn't detected Scissors. If already connected, press "Connected" button.	NoScissorsConnectedAdv The user presses the treadle in a Scissors Step when no Scissors are connected.
1217	Advisory	Please connect an AGF syringe.	NoAgfSyringeConnectedAdv - The user presses the "Start" button in the Auto Gas Filling dialog when no AGF syringe has been connected.
1218	Advisory	Forceps not available during AGF: please try again when AGF is complete.	ForcepsNotAvailableDuringAgfAdv The user presses the treadle in a Forceps Step while Auto Gas Filling is in progress.
1219	Advisory	VFC not available during AGF: please try again when AGF is complete.	VfcNotAvailableDuringAgfAdv The user presses the treadle in a VFC Step while Auto Gas Filling is in progress.
1220	Advisory	Ejecting the cassette is not allowed while the footswitch treadle is pressed.	CassetteEjectRejectedTreadleDownAdv The user attempts to eject the cassette while the treadle is down.
1221	Advisory	Ejecting the cassette is not allowed while infusion or FAX is on.	CassetteEjectRejectedInOnAdv The user attempts to eject the cassette while infusion is on.
1222	Advisory	Ejecting the cassette is not allowed while irrigation is on.	CassetteEjectRejectedIrrOnAdv The user attempts to eject the cassette while irrigation is on.
1223	Advisory	Ejecting the cassette is not allowed while priming, tuning, or testing.	CassetteEjectRejectedTestInProgrAdv The user attempts to eject the cassette while tests (priming/tuning/testing) are in progress.
1224	Advisory	Cleaning the cassette is not allowed while infusion, irrigation, or FAX is on.	CassetteCleanNotAllowedWhenInfOrIrrIsOnAdv The user attempts to start Cassette Cleaning when either Infusion, Irrigation or FAX is on.
1225	Advisory	Cleaning the cassette is not allowed without a functional cassette.	CassetteCleanNotAllowedCassetteNotAvailableAdv The user attempts to start Cassette Cleaning when the Cassette isn't available (e.g. not inserted).
1226	Advisory	Priming the cassette is not allowed without a functional cassette.	User attempt to prime the cassette when preconditions aren't met (e.g. no cassette inserted, cassette not tested or didn't pass the test)
1227	Advisory	An error occurred loading the device settings. The system will revert to default values.	LoadDeviceSettingsFailureAdv A database attempt to load the device settings from the file system has failed. Reverting to defaults.
1228	Advisory	Command is not allowed while infusion is on.	CommandNotAllowedInfusionIsOnAdv The user tried to invoke a command which is only allowed when infusion is not on.
1229	Advisory	Command is not allowed while irrigation is on.	CommandNotAllowedIrrigationIsOnAdv The user tried to invoke a command which is only allowed when irrigation is not on.
1230	Advisory	The selected step is not supported with the current cassette type.	IncompatibleOperatingModeAdv The user attempts to select a Step whose mode/submode isn't compatible with the current operating mode.
1231	Advisory	The connected probe is not supported with the current cassette type.	VitProbeNotCompatibleAdv The user connects a probe (with RFID) that's not compatible with the current operating mode (e.g. an Ultra Vit probe when an Anterior cassette is connected or Ultra Vit Anterior probe when a Posterior cassette is connected)

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1232	Advisory	Please connect footswitch.	NoFootswitchAdv The Supervisor has reported that no footswitch is connected.
1233	Advisory	The connected footswitch is not supported.	UnknownFootswitchAdv The Supervisor has detected the connection of an unknown footswitch.
1234	Advisory	Flow limit is currently not available due to flow mode being unavailable.	ExtrVacModeFlowLimitUnavailableAdv Vacuum mode flow limit depends on the availability of flow mode. If flow mode becomes unavailable then the flow limit function can not be performed by the fluidics submodule.
1237	Advisory	IOP Control is currently not available.	IopCompensationUnavailableAdv User attempts to turn IOP Control on when it's not available.
1238	Advisory	An error occurred saving the device settings.	SaveDeviceSettingsFailureAdv User attempt to save device settings fails.
1239	Advisory	Proportional reflux mode is currently not available.	PropRefluxModeUnavailFluidLvlNotInRangeAdv Displayed in one of the following situations: 1.User attempts to toggle into proportional reflux mode when the fluid level in the cassette chamber is out of range or the fluid 2.Fluid level gets out of range while in proportional reflux. 3.Treadle is depressed while in proportional reflux and the fluid level is out of range
1240	Advisory	Extraction flow mode is currently not available.	ExtrFlowModeUnavailFluidLvlNotInRangeAdv The fluid level in the cassette chamber is out of range and the treadle is depressed.
1241	Advisory	Infusion source is getting low: please check the fluid container.	InfContainerNearEmptyAdv The infusion container fluid level is getting low.
1242	Advisory	Command is not allowed due to instrument not being available.	Command is not allowed due to instrument not being available.
1243	Advisory	Infusion / Irrigation source is empty: please press [Change] and replace the fluid container.	InfContainerOnReserveAdv The infusion fluid container is empty but there's still fluid in the cassette chambers.
1244	Advisory	Command is not allowed while priming, tuning, or testing.	CommandNotAllowedWhenTestInProgressAdv The user attempts to do something, e.g. change Steps, that's not allowed when tests are in progress.
1245	Advisory	Please connect handpiece.	NoHpConnectedAdv The user attempts to perform an action, e.g. priming, that requires a handpiece but no handpiece is connected. Note: This is only applicable to handpieces the system can detect connection for (e.g. Phaco)
1247	Advisory	Connected handpiece is not supported with the current cassette type.	HpNotCompatibleWithOperatingModeAdv User connects a handpiece that's not compatible with the current Cassette type. (e.g., a Frag handpiece is connected when an Anterior Cassette is inserted)
1248	Advisory	Is the inserted cassette new?	IsInsertedCassetteNewAdv The user has inserted a Cassette which the system can't determine whether it's new or the same Cassette that was previously ejected.
1249	Advisory	An error occurred parsing the log file.	LogFileParseFailureAdv An error occurred parsing one of more lines of the log file.
1250	Advisory	Multi-Cut is not available when proportional scissors are selected. Press [Multi-Cut] to indicate that multi-cut scissors are currently connected.	ScissorsMultiCutUnavailWhenPropScissSelAdv The user has selected scissors of type Proportional and attempts to select the Multi-Cut submode or attempt to use momentary cutting in Extrusion Mode. The advisory lets the user change both the Scissors type and the Scissors submode.
1251	Advisory	Command is not allowed while the cassette is being cleaned.	The user tried to turn Infusion, Irrigation or FAX on while the cassette is being cleaned.
1252	Advisory	The scanned barcode is not recognized.	UnknownBarcodeScannedAdv The user has scanned an item that the system doesn't recognize.

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages

Error Code	Classification	Displayed Text	Description/Possible Causes
1255	Advisory	Illuminator fiber is not connected.	NoIlluminatorConnectedAdv User has attempted to turn on an illuminator with no illuminator fiber connected. Probe not fully inserted.
1256	Advisory	Proportional reflux mode is not available when the footswitch treadle is depressed.	PropRefluxUnavailableTreadleDownAdv User attempts to enter Proportional Reflux mode when the treadle is down
1257	Advisory	The report's header or footer has too many rows to fit on the page.	ReportExcessiveHeaderFooterSizeAdv The user has added too many rows to a header or footer table being edited in an End Case report. As a result, the table will not be printed out in its entirety on the various pages comprising the report.
1258	Advisory	The report's current table has too many rows to fit on the page.	ReportExcessiveTableSizeAdv The user has added too many rows to the current table being edited in an End Case report. As a result, the table will not be printed out in its entirety on the various pages comprising the report.
1259	Advisory	Command is not allowed while proportional diathermy is active.	CommandNotAllowedInProportionalDiathermyAdv The user attempts to enter proportional reflux while proportional diathermy is active.
1260	Advisory	Command is not allowed while proportional reflux is active.	CommandNotAllowedInProportionalRefluxAdv The user attempts to enter proportional diathermy while proportional reflux is active.
1261	Advisory	Cassette can't be ejected while being cleaned.	CassetteEjectRejectedCassettelsCleaningAdv The user attempts to eject the cassette while it's being cleaned.
1263	Advisory	Port can't be selected: there is no probe connected.	LsrActivePortSelRejectedNoProbeConnAdv The user tries to make a laser port the active port but there's no probe connected to that port.
1264	Advisory	Port can't be selected: the probe type for the port isn't valid.	LsrActivePortSelRejectedNoValidProbeSelAdv The user tries to make a laser port the active port but the currently selected probe type for that port is invalid.
1266	Advisory	A laser probe is not connected to the active port.	LsrNoProbeConnAdv Shown in any of the following situations: ·Laser Step entered and no probe connected to the active port ·Probe removed from active port ·User tries to go to Ready Mode when no probe is connected to the active port.
1267	Advisory	A valid laser probe is not selected for the active port.	LsrNoValidProbeSelAdv Shown in any of the following situations: ·Laser Step entered and no valid probe type selected for the active port ·User tries to go to Ready Mode when no valid probe type is selected for the active port
1268	Advisory	The laser remote interlock is open.	LsrInterlockOpenAdv Shown in any of the following situations: ·Laser Step entered and the Interlock is open ·Interlock opened in a Laser Step ·User tries to go to Ready Mode when the Interlock is open.
1269	Advisory	Laser Dr. Filters are not connected to the console. Are all necessary Dr. Filters properly installed and connected?	LsrDoctorFilterUnverified0ConnAdv Shown in any of the following situations: Laser Step entered and the Dr. Filters haven't been verified for the active port · Endo Probe inserted to the active port while in a Laser Step. User tries to go to Ready Mode when Dr. Filters haven't been verified for the active port.
1270	Advisory	One Laser Dr. Filter is connected to the console. Are all necessary Dr. Filters properly installed and connected?	LsrDoctorFilterUnverified1ConnAdv Same as above
1271	Advisory	Two Laser Dr. Filters are connected to the console. Are all necessary Dr. Filters properly installed and connected?	LsrDoctorFilterUnverified2ConnAdv Same as above

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages

Error Code	Classification	Displayed Text	Description/Possible Causes
1273	Advisory	Laser Dr. Filter 1 is disengaged	LsrDoctorFilter1DisengagedAdv The user has disengaged the (connected) Dr. Filter 1 while in a Laser Step.
1275	Advisory	Laser Dr. Filter 2 is disengaged	LsrDoctorFilter2DisengagedAdv Same as 1273 but for Dr. Filter 2
1276	Advisory	Command is not allowed when Laser is firing.	LsrCommandNotAllowedWhenFiringAdv User has attempted to change one of the laser's settings while the laser is firing.
1277	Advisory	Port can't be selected: it's not functional.	LsrActivePortSelRejectedPortFailureAdv User has attempted to select a laser port that's not functional.
1278	Advisory	Cannot go to Laser Ready Mode while the current screen is being displayed.	LsrReadyModeRejectedScreenActiveAdv User has pressed the Ready button from the footswitch when a "conflicting screen" is active.
1279	Advisory	No laser footswitch is connected.	LsrNoFootswitchConnectedAdv User enters a Laser Step when no laser footswitch is connected or the laser footswitch is disconnected in a Laser Step.
1280	Advisory	Unable to write to the report file.	ReportFileWriteErrorAdv A problem has occurred when trying to write to the specified Report file.
1281	Advisory	Unable to read from the report file.	ReportFileReadErrorAdv A problem has occurred when trying to read from the specified Report file.
1285	Advisory	The report file and its associated CRC value do not match.	ReportFileCrcMismatchErrorAdv The Report file and its associated CRC value do not match.
1288	Advisory	Can't eject the cassette while reflux is active.	CassetteEjectRejectedRefluxInUseAdv The user attempts to eject the cassette while reflux (of any type) is active. For proportional reflux, this advisory is displayed when the user attempts cassette ejection while proportional reflux mode is active with the treadle not depressed. Cassette ejection while the treadle is depressed will generate advisory 1220.
1289	Advisory	Extraction flow mode is not available when FAX is turned on.	ExtrFlowModeUnavailFaxInUseAdv FAX was turned on while in Flow Mode or a Posterior Step with Flow Mode preference was selected when FAX was on.
1290	Advisory	The surgical function is currently unavailable.	SurgicalFunctionProxyUnavailableAdv The user has requested surgical functionality that is currently unavailable. This is a default advisory that is only displayed for cases in which a more meaningful explanation is not available.
1292	Advisory	An error occurred accessing the video recorder. Please verify it is on and connected.	VideoRecorderNotCommunicatingAdv An error occurred accessing the video recorder. Check the connection to the video recorder.
1296	Advisory	The barcode reader failed to initialize.	BarcodeReaderInitFailureAdv The bar code reader failed to initialize during startup.
1297	Advisory	The system is currently low on free disk space. Please backup or remove non-critical files.	LowFreeSpace During startup, free space was detected at less than the desired minimum %.
1298	Advisory	A printer must be configured in System Settings before printing.	PrinterNotConfiguredAdv The user tried to print but has not configured the printer in system settings
1299	Advisory	The current printer configuration could not be saved.	DefaultPrintSettingsErrorAdv An error occurred attempting to save the default printer with the current configuration
1302	Advisory	An unknown error occurred while printing.	PrinterGeneralErrorAdv Generated by any printer error other the errors above.
1303	Advisory	The Illuminators are currently turned off from the footswitch and cannot be turned on or off at this time.	IlluminatorMasterSwitchOffAdv The user has attempted to turn on or off an endo illuminator when the footswitch Momentary Endo Illuminators Off function is active.
1304	Advisory	The Laser is currently unable to deliver the maximum power level of 2 Watts. The maximum Laser power (Watts) currently available is:	LsrMaxPowerAvailableAdv Is generated when the power available from the laser drops below the maximum level (2 Watts).

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1305	Advisory	An error occurred loading a surgeon. The system will revert to default values.	LoadSurgeonFailureAdv A database attempt to load a surgeon from the file system has failed. Reverting to defaults.
1306	Advisory	An error occurred setting the printer port. The system will revert to the previous value.	PrinterPortConfigErrorAdv Attempt to set the printer IP address failed.
1307	Advisory	An error occurred loading a procedure. The system will revert to default values.	LoadProcedureFailureAdv A database attempt to load a procedure from the file system has failed. Reverting to defaults.
1308	Advisory	An error occurred loading the system settings. The system will revert to default values.	LoadSystemSettingsFailureAdv A database attempt to load the system settings from the file system has failed. Reverting to defaults.
1309	Advisory	An error occurred saving a surgeon's settings. Changes will be reverted at the start of the next case.	SaveSurgeonFailureAdv A database attempt to save a surgeon to the file system has failed.
1310	Advisory	An error occurred saving a procedure. Changes will be reverted at the start of the next case.	SaveProcedureFailure A database attempt to save a procedure from the file system has failed. Reverting to defaults.
1311	Advisory	An error occurred saving the system settings. The system will use default values.	SaveSystemSettingsFailureAdv A database attempt to save the system settings from the file system has failed. Reverting to defaults.
1312	Advisory	An error has occurred initializing Video Overlay. Video Overlay functions will be disabled.	VideoOverlayInitializationErrorAdv An error happened during VideoOverlay initialization.
1313	Advisory	An error has occurred in the Video Overlay component. Video Overlay functions will be disabled.	VideoOverlayErrorAdv An error happened during VideoOverlay processing.
1314	Advisory	There was an error saving surgeon data.	VcdSaveSurgeonAdv There was an error saving surgeon data.
1317	Advisory	There was an error renaming the surgeon.	VcdRenameSurgeonAdv There was an error renaming the surgeon.
1318	Advisory	There was an error renaming the procedure.	VcdRenameProcedureAdv There was an error renaming the procedure.
1319	Advisory	There was an error renaming the case data.	VcdRenameCaseAdv There was an error renaming the case data.
1320	Advisory	There was an error deleting the surgeon.	VcdDeleteSurgeonAdv There was an error deleting the surgeon.
1321	Advisory	There was an error deleting the procedure	VcdDeleteProcedureAdv There was an error deleting the procedure
1322	Advisory	There was an error deleting the case data.	VcdDeleteCaseAdv There was an error deleting the case data
1323	Advisory	There was an error loading the surgeon.	VcdLoadSurgeonAdv There was an error loading the surgeon.
1325	Advisory	There was an error loading the case data.	VcdLoadCaseAdv There was an error loading the case data.
1326	Advisory	Unable to load the case report template.	VcdLoadCaseReportTemplateAdv There was an error loading the Case Report Template.
1329	Advisory	Unable to save the technician's log.	VcdSaveTechniciansLogAdv There was an error saving the Technicians Log.
1330	Advisory	Unable to load the video table.	VideoInfoTableReadFailureAdv There was an error loading the Video Table.
1331	Advisory	Unable to play the video.	VideoDfuFailureAdv There was an error loading and/or playing the Video file.
1332	Advisory	Unable to load Help.	HelpFileReadFailureAdv There was an error opening the Help pdf file.
1333	Advisory	Unable to save the case info.	SaveCaseInfoFailureAdv There was an error saving the Case Info file.
1334	Advisory	Unable to update the log file.	LogFileWriteFailureAdv There was an error writing to the Log File.
1335	Advisory	Unable to read the log file.	LogFileReadFailureAdv There was an error reading from the Log File.

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1336	Advisory	Unable to write the incident file.	IncidentFileWriteFailureAdv There was an error writing to the Incident File.
1337	Advisory	Unable to read the incident file.	IncidentFileReadFailureAdv There was an error reading from the Incident File.
1338	Advisory	Unable to write the system metrics file.	SystemMetricFileWriteFailureAdv There was an error writing to the System Metrics File.
1339	Advisory	Unable to read the system metrics file.	SystemMetricFileReadFailureAdv There was an error reading from the System Metrics File.
1340	Advisory	Unable to write to the removable drive.	ErrorAccessingRemovableDriveAdv There was an error while attempting to write to the removable drive.
1341	Advisory	Further increasing the output level in air can damage fiber tips. Would you like to continue?	IllumSafeThreshold1ExceededAdv The user has exceeded Threshold 1 illuminator value by either turning on the illuminator, changing the setpoint while the illuminator is on, or changing Procedures while the illuminator is on.
1342	Advisory	Further increasing the output level will reduce exposure time by 35%. Would you like to continue?	IllumSafeThreshold2ExceededAdv The user has exceeded Threshold 2 illuminator value by either turning on the illuminator, changing the setpoint, or changing Procedures.
1343	Advisory	Further increasing the output level in air can damage fiber tips. Also, further increasing the output level will reduce exposure time by 35%. Would you like to continue?	IllumSafeThreshold1And2ExceededAdv The user has exceeded both Threshold 1 and Threshold 2 illuminator value by either turning on the illuminator, changing the setpoint while the illuminator is on, or changing Procedures while the illuminator is on.
1344	Advisory	Only two illuminators can be turned on simultaneously.	IllumMaxTwolluminatorsTurnedOnAdv User attempts to turn on an illuminator port when two ports are already on. This is not allowed.
1345	Advisory	AGF not allowed while Forceps or VFC is in use.	AgfNotAllowedForcepsOrVfcInUseAdv User attempts to start Auto Gas Filling when either Forceps or VFC is in use (i.e. selected and treadle down).
1346	Advisory	An error occurred trying to access the wireless network.	WirelessNetworkAccessAdv An error occurs when the user attempts to access the wireless network.
1349 (not applicable to CR5 & CR5.40)	Advisory	A RAID hard drive has failed or is missing	RaidDriveFailedOrMissingAdv One Disk in a redundant RAID volume is missing or has failed but the volume is still functional.
1350	Advisory	The probe in the current laser port is not supported.	LsrReadyModeRejectedInvalidProbeTypeAdv The type of probe in the current port is not supported by Constellation™ Vision System EH1 but might be supported by PurePoint™ Laser (slit lamp for example).
1355	Advisory	Command is not allowed when the Pneumatics submodule is not functional.	CommandNotAllowedPneumaticsNotFunctionalAdv The user tried to invoke a command which is only allowed when the Pneumatics subsystem is functional.
1356	Advisory	Command is not allowed when an Anterior Only Cassette is being used.	CommandNotAllowedWithAnteriorOnlyCassetteAdv The user tried to invoke a command which is not allowed with an Anterior Only Cassette.
1357	Advisory	Cannot switch to Infusion: the cassette has not been primed.	CantSwitchToInfusionCassetteNotPrimedAdv The user tried to switch to Infusion when the cassette was not primed.
1358	Advisory	Current probe type is unrecognized. Please select a valid probe type.	IllumTurnOnRejectedUnrecognizedTypeAdv User has attempted to turn on an illuminator when the probe type is "unrecognized"
1359	Advisory	Power module communication error. When powering down the system, you will have to press the "Options/Shutdown" button on the screen.	PowerModuleCommFailureAdv Host controller failed to communicate with power module.

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1361	Advisory	Command is not allowed when Infusion backup pressure is active.	The user tried to invoke a command which is only allowed when Infusion backup pressure is not active.
1362	Advisory	Command is not allowed when the probe type has been identified by RFID.	The user tried to change the type of a laser probe that has been identified by RFID.
1363	Advisory	Command is not allowed when the probe type has been previously identified by the user. Disconnect and then reconnect the probe to change its type.	The user tried to change the type of a laser probe that has been identified by a user selection. Only one selection is allowed after connection.
1365	Advisory	IOP Control is not allowed with an uncalibrated cassette. Please calibrate cassette and retry.	IopNotAllowedWhenCassetteNotCalibratedAdv The user tried to turn on IOP Control with a cassette that has not been calibrated.
1366	Advisory	Command is not allowed when FAX is on and the cassette has not been primed.	The user tried to perform a Test Instrument command when FAX is on and the cassette is not primed.
1367	Advisory	FAX is not allowed when the cassette is being primed.	FaxNotAllowedWhenCassetteIsPrimingAdv The user tried to turn on FAX when the cassette is being primed.
1370	Advisory	Test instrument is not allowed in this mode.	TestInstrumentNotAllowedInThisModeAdv User has attempted to perform a test instrument command in Setup or End Case.
1371	Advisory	Update is only available from End Case.	UpdateOnlyAvailableInEndCaseAdv User has attempted to perform a update command in Setup or Surgery.
1372	Advisory	Cleaning the cassette is not allowed when the inlet pressure is out of range. Please adjust the inlet pressure between 58 psi and 120 psi.	CassetteCleanNotAllowedAirPressureOutOfRange The user attempts to start Cassette Cleaning when the Air source (wall pressure) is either below 58 psi or above 120 psi.
1373	Advisory	The Default Doctor can not be modified.	CommandNotAllowedDefaultDoctorAdv The user attempts to save, modify or add a procedure when the default doctor is selected.
1374	Advisory	The <i>Accurus™</i> Classic procedure can not be modified.	CommandNotAllowedAccurusClassicAdv The user attempts to modify an Accurus Classic procedure.
1375	Advisory	This command is not available in End Case.	CommandNotAllowedInEndCaseAdv The user attempts to change either the doctor or procedure in End Case.
1376	Advisory	This command is not available when the laser is firing.	CommandNotAllowedLaserFiringAdv The user attempt to reset the shot count and energy metrics when the Laser is firing.
1377	Advisory	No changes have been made to the current procedure.	CommandNotAllowedNoProcChanges The user attempts to save a Procedure when no procedure changes have been made.
1378	Advisory	This command is not available when system is in the surgery screen.	CommandNotAllowedInSurgeryMode The command is not available when system is in the Surgery screen.
1379	Advisory	Connected vitreous probe is not valid. The probe will be used as a low-speed probe.	VitProbeInvalidAdv A connected vitreous probe has valid checksum but one or more invalid parameters.
1380	Advisory	The CPU battery is bad. Please contact Field Service.	CPUBatteryBadAdv
1383	Advisory	Command is not allowed when the inlet pressure is out of range. Please adjust the inlet pressure between 58 psi and 120 psi.	CommandNotAllowedAirPressureOutOfRange The user tried to invoke a command when the Air source (wall pressure) is either below 58 psi or above 120 psi.

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1384	Advisory	Ensure proper scissors tip attachment to pneumatic handpiece. Prior to use in the eye, depress foot pedal\button to ensure proper tip function.	TestScissorsTipAttachmentAdv User has chosen to use scissors and is reminded to confirm attachment and functionality before use.
1385	Advisory	Ensure proper forceps tip attachment to pneumatic handpiece. Prior to use in the eye, depress foot pedal to ensure proper tip function.	TestForcepsTipAttachmentAdv User has chosen to use forceps and is reminded to confirm attachment and functionality before use.
1386	Advisory	Fluidics submodule recovery unsuccessful. Fluidics functions will remain disabled.	Fluidics submodule recovery unsuccessful. Fluidics functions will remain disabled.
1387	Advisory	US Diathermy submodule recovery unsuccessful. US Diathermy functions will remain disabled.	US Diathermy submodule recovery unsuccessful. US Diathermy functions will remain disabled.
1388	Advisory	TableTop Illuminator submodule recovery unsuccessful. TableTop Illuminator functions will remain disabled.	Displayed after the Table Top Illuminator submodule has unsuccessfully recovered from an error.
1389	Advisory	Pneumatics submodule recovery unsuccessful. Pneumatics functions will remain disabled.	Displayed after the Pneumatics submodule has unsuccessfully recovered from an error.
1390	Advisory	Auxiliary Illuminator submodule recovery unsuccessful. Auxiliary Illuminator functions will remain disabled.	Displayed after the Auxiliary Illuminator submodule has unsuccessfully recovered from an error.
1391	Advisory	Laser submodule recovery unsuccessful. Laser functions will remain disabled.	LaserSubmoduleErrorRecoveryUnsuccessfulAdv Displayed after the Laser submodule has unsuccessfully recovered from an error.
1392	Advisory	Command not allowed without a calibrated AutoSert™ handpiece.	IolCmdNotAllowedHandpieceNotReadyAdv The user pressed the treadle in an AutoSert™ Step when no AutoSert™ handpiece was connected or the handpiece was connected but not calibrated.
1394	Advisory	The AutoSert™ handpiece is already prepared. The command is not allowed.	IolCmdNotAllowedHandpiecePreparedAdv User pressed the “Load Plunger” or “Preload IOL” button when the AutoSert™ handpiece was “Prepared”
1395	Advisory	The current AutoSert™ operation was cancelled.	IolCmdCancelledEnteringEndCaseAdv User selected End Case state when one of the following AutoSert™ setup commands were in progress: • Load Plunger • Preload IOL
1396	Advisory	Preload IOL command not allowed until the AutoSert™ plunger has been fully retracted.	IolCmdNotAllowedLoadPlungerStartedAdv User pressed the [Preload IOL] button when a Load Plunger command was previously started but not yet completed (and currently paused).
1397	Advisory	Load Plunger command not allowed until the AutoSert™ plunger has been fully retracted.	IolCmdNotAllowedPreloadIolStartedAdv User pressed the [Load Plunger] button when a Preload IOL command was previously started but not yet completed (and currently paused).

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1399	Advisory	Function is not allowed when the IOL Injection submodule is not functional.	CommandNotAllowedIOLInjectionNotFunctionalAdv The user tried to invoke a command which is only allowed when the IOL Injection subsystem is functional.
1401	Advisory	20 cc of undiluted gas has been dispensed. After removing the syringe from the system, adjust the plunger to obtain the desired gas concentration before injection.	AgfUndilutedGasAdv Warns user that there are 20 cc of undiluted gas in the syringe.
1402	Advisory	Fluidics recovery complete. Cassette status not fully restored.	FluidicsSubmoduleRecoveryPartialSuccessAdv The Fluidics submodule recovered, but the system could not fully restore the state due to missing instruments (no valid cassette reported)
1403	Advisory	Table Top Illuminator recovery complete. Illuminator probe status not fully restored.	The Table Top Illuminator load module recovered, but the system could not fully restore the state due to missing instruments (illuminator probe(s) not detected)
1404	Advisory	Pneumatics recovery complete. Vitreous probe status not fully restored.	PneumaticsSubmoduleRecoveryPartialSuccessAdv The Pneumatics submodule recovered, but the system could not fully restore the state due to missing instruments (vitreous probe not detected)
1405	Advisory	Aux Illuminator recovery complete. Illuminator probe status not fully restored.	AuxIllumSubmoduleRecoveryPartialSuccessAdv The Auxiliary Illuminator submodule recovered, but the system could not fully restore the state due to missing instruments (illuminator probe(s) not detected)
1406	Advisory	Laser recovery complete. Laser probe status not fully restored.	LaserSubmoduleRecoveryPartialSuccessAdv The Laser submodule recovered, but the system could not fully restore the state due to missing instruments (laser probe(s) not detected).
1407	Advisory	Fault recovery complete. AutoSert™ Handpiece status not fully restored.	IolFunctionalityNotRestoredAfterFaultRecoveryAdv An IOL handpiece was inserted when a Fault occurred. After recovery the system will not restore the handpiece state and the user is notified via this advisory.
1408	Advisory	Entering Single Cut Mode. Cutting will only occur when the treadle is fully depressed.	EnteringSingleCutModeAdv The user has selected Cut Rate = 1 in Vit Prop Vac mode. When the Cut Rate is set to 1, the system behaves differently and therefore the user is alerted. Note: If a Dual Blade probe is connected Single-Cut mode is entered when the Cut Rate is set to "2" instead of "1"
1409	Advisory	WIFI hardware is currently not available.	WifiHardwareNotAvailableAdv The user has pressed a control related to networking/printing while the WIFI hardware is not available on the system.
1410	Advisory	Lost communication with the NGENUITY™ 3D Visualization System. – Missing communication	MainAppToNGenuityHeartbeatLostAdv A reply to a heartbeat message sent to the NGENUITY™ system was not received within the specified timeout period. <ul style="list-style-type: none">• Communication cable either disconnected or connected to incorrect port.• Verify the connections and configuration are as shown in the NGENUITY™ Operator Manual.
1411	Advisory	Lost communication with the NGENUITY™ 3D Visualization System. – Cable disconnected	MainAppToNGenuityConnLostAdv The network connection to the NGENUITY system has been disconnected. <ul style="list-style-type: none">• Communication cable either disconnected or connected to incorrect port.• Verify the connections and configuration are as shown in the NGENUITY™ Operator Manual.

Table 4-2 Host Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
1412	Advisory	NGENUITY™ functionality will not be available.	NGenuityVersionAdv • The communication protocol implemented by the NGENUITY system is not compatible with the Constellation. • NGENUITY™ software version may not be compatible with the Constellation.
1413	Advisory	Function is not allowed when NGENUITY™ 3D Visualization System communication is lost.	CommandNotAllowedNGenuityNotReadyAdv The user tried to invoke a command which is not allowed when there is no communication with the NGENUITY system • Communication table either disconnected or connected to incorrect port. • Verify the connections and configuration are as shown in the NGENUITY™ Operator Manual.
1751	Information	The remote control battery is low.	RemoteControlBatteryLow User has pressed on a remote control button and the remote's battery is running out of power
1752	Information	Infusion pressure will drop to zero during calibration. Continue?	CalibrationBringsInfusionToZeroInfo User has pressed the "Calibrate" button on the advisory popup brought up when there's been an I/V Pole error. Since I/V Pole calibration will change the current Infusion pressure, the user is warned before calibration is started.
1753	Information	Power recovery in progress. Please wait until surgical functionality becomes available.	PowerRecoveryInProgressInfo AC power has been restored and the recovery process has started.
1761	Information	The NGENUITY™ 3D Visualization system is enabled but not connected.	MainAppToNGenuityCommunicationProblemInfo Displayed once per case upon transition to surgery if NGENUITY™ communication has not been established. • Communication table either disconnected or connected to incorrect port. • Verify the connections and configuration are as shown in the NGENUITY™ Operator Manual.

Table 4-3 Supervisor Module - Faults, Errors, Advisories, and Information Messages

Error Code	Classification	Displayed Text	Description/Possible Causes
2100	Fault	Fault - 2100 Call Field Service	SUP_HOST_HEARTBEAT_TIMEOUT – A two second heart beat reply from the host was missed.
2200	Error	Communications failure with the Fluidics submodule. Fluidics functions will be disabled.	SUP_FLUIDICS_HUNT_FAIL_ERR - The supervisor cannot establish communicate with the Fluidics submodule.
2201	Error	Communications failure with the Fluidics submodule. Fluidics functions will be disabled.	SUP_FLUIDICS_COMM_FAIL_ERR The supervisor lost communicate with the Fluidics submodule
2202	Advisory	Unable to perform this function without a primed cassette.	SUP_CASSETTE_NOT_READY_ADV - This advisory is produced when extraction is attempted without a primed cassette.
2203	Advisory	Unable to aspirate. Please turn on infusion.	SUP_INFUSION_IRRIGATION_OFF_ADV - This advisory is produced when extraction is attempted without infusion on.
2204	Advisory	Unable to aspirate while infusion/irrigation is unavailable.	SUP_INFUSION_UNAVAILABLE_ADV - This advisory is produced when extraction is attempted without infusion being functional.
2205	Advisory	Please wait: draining cassette.	SUP_EXT_CHMBR_OVER_ADV - This advisory is produced when extraction is attempted when the extraction chamber is in a overflow condition.
2206	Advisory	Unable to turn on infusion without a primed cassette.	SUP_INF_CASSETTE_NOT_READY_ADV - This advisory is produced when infusion is attempted with out a primed cassette.
2207	Advisory	Unable to turn on infusion without a calibrated IV pole.	SUP_INF_IV_POLE_NOT_CALIB_ADV - This advisory is produced when infusion is attempted with out a calibrated IV Pole.
2208	Advisory	Unable to turn on infusion without sufficient source pressure.	SUP_INF_NO_AIR_PRESSURE_ADV - This advisory is produced when infusion is attempted with out source air pressure
2209	Advisory	Unable to turn on irrigation without a primed cassette.	SUPIRR_CASSETTE_NOT_READY_ADV - This advisory is produced when irrigation is attempted with out a primed cassette.
2211	Advisory	Unable to turn on irrigation without sufficient source pressure.	SUPIRR_NO_AIR_PRESSURE_ADV - This advisory is produced when irrigation is attempted with out suitable source pressure.
2212	Advisory	Irrigation unavailable: out of fluid. Please change the bottle.	SUPIRR_NO_FLUID_ADV - This advisory is produced when irrigation is attempted with out sufficient irrigation fluid available
2213	Advisory	FAX unavailable. Please insert a cassette.	SUP_FAX_NO_CASSETTE_ADV - This advisory is produced when FAX is attempted with out a cassette inserted.
2214	Error	Extraction setpoint timeout. Infusion/Irrigation and Extraction functions will be disabled.	SUP_EXT_NO_ACTIVE_UPDATE_ERR – This error is produced when the extraction is active and the extraction proxy fails to get a footswitch update within the required timeframe.
2215	Advisory	Micro reflux is currently not available.	SUP_EXT_NO_REFFLUX_FLUID_ADV – This error is produced when the user attempts to activate micro reflux and the fluid level is out of range.
2216	Advisory	Please change the Bottle to regain extraction.	SUP_EXT_NO_INFUSE_FLUID_ADV This error is generated when aspiration is attempted when the infusion in the cassette is empty
2217	Advisory	Extraction is not allowed while in 30 mmHg backup mode.	SUP_EXT_INFUSE_IN_BACKUP_ADV This advisory occurs when Extraction is attempted while in manual backup.
2218	Advisory	Irrigation is not allowed while in 30 mmHg backup mode.	SUPIRR_INFUSE_IN_BACKUP_ADV This advisory occurs when Irrigation is attempted while in manual backup.
2250	Error	Communications failure with the Pneumatics submodule. Pneumatics functions will be disabled.	SUP_PNEUMATICS_HUNT_FAIL_ERR – The supervisor cannot communicate with the Pneumatics submodule.

Table 4-3 Supervisor Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
2251	Error	Communications failure with the Pneumatics submodule. Pneumatics functions will be disabled.	SUP_PNEUMATICS_COMM_FAIL_ERR – This error is produced when the Supervisor losses communication with the pneumatics module
2252	Advisory	Unable to enable function without sufficient source pressure.	SUP_PNEU_NO_AIR_PRESSURE_ADV - This advisory is produced when cutter or utility operation is requested with out sufficient source pressure.
2253	Advisory	Unable to enable function with excessive source pressure.	SUP_PNEU_HIGH_AIR_PRESSURE_ADV - This advisory is produced when cutter or utility operation is requested with source pressure that is too high.
2254	Error	Pneumatics setpoint timeout. Pneumatics functions will be disabled.	SUP_PNEU_NO_ACTIVE_UPDATE_ERR - This error is produced when the pneumatics is active and the pneumatics proxy fails to get a footswitch update within the required timeframe.
2300	Error	Communications failure with the Ultrasound submodule. Ultrasound functions will be disabled.	SUP_ULTRASOUND_HUNT_FAIL_ERR – The supervisor cannot communicate with the Ultrasound submodule.
2301	Error	Communications failure with the Ultrasound submodule. Ultrasound functions will be disabled.	SUP_ULTRASOUND_COMM_FAIL_ERR - The supervisor lost communication with the Ultrasound submodule
2302	Error	US setpoint timeout. US, IOL injector and Diathermy functions will be disabled.	SUP_US_NO_ACTIVE_UPDATE_ERR - This error is produced when the US is active and the US proxy fails to get a footswitch update within required timeframe.
2350	Error	Communications failure with the Laser submodule. Laser functions will be disabled.	SUP_LASER_HUNT_FAIL_ERR - The supervisor cannot communicate with the Laser submodule.
2351	Advisory	Communications failure with the Laser submodule. Laser functions will be disabled.	SUP_LASER_COMM_FAIL_ADV - The supervisor lost communication with the Laser submodule. This message normally displays whenever the key is turned off.
2400	Advisory	Please insert the Table Top Illuminator drawer.	SUP_ILLUM_DRAWER_OUT_ADV – Supervisor detected a non –zero setpoint with the Table Top Illuminator drawer out
2401	Advisory	The lamp in the Table Top Illuminator needs to be replaced. Please contact Field Service.	SUP_TT_ILLUM_LAMP_BAD_ADV - Supervisor detected a non-zero setpoint with the Table Top Illuminator Lamp bad.
2500	Advisory	Communications failure with the Power Control submodule. Please contact Field Service.	SUP_POWER_MONITOR_COMM_FAIL_ERR – Supervisor detected a serial I/O error when trying to talk to the Power Module
2550	Error	Footswitch error. Footswitch treadle functions will be disabled.	SUP_FOOTSWITCH_ERR – The footswitch has an error.
2700	Error	Communications failure with the Auxiliary Illuminator submodule. Auxiliary Illuminator functions will be disabled.	SUP_AUX_ILLUMINATOR_HUNT_FAIL_ERR – The supervisor cannot communicate with the Auxiliary Illuminator submodule.
2701	Advisory	Communications failure with the Auxiliary Illuminator submodule. Auxiliary Illuminator functions will be disabled.	SUP_AUX_ILLUM_COMM_FAIL_ADV - The supervisor lost communication with the Auxiliary Illuminator submodule
2702	Advisory	The lamp in the Auxiliary Illuminator needs to be replaced. Please contact Field Service.	SUP_AUX_ILLUM_LAMP_BAD_ADV - Supervisor detected a non-zero setpoint with the Auxiliary Illuminator Lamp bad.
2750	Fault	Fault - 2750 Call Field Service	SUP_RESET_FAIL_ERR – The Supervisor could not assert reset control over all submodules. A module that was supposed to be reset responded with its module information.
2751	Fault	Fault - 2751 Call Field Service	SUP_SLOT_ID_ERR – The Supervisor got duplicate slot ID for the submodules.

Table 4-4 Fluidics Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
3100	Advisory	Could not calibrate the fluid level sensors. Please eject and reinsert, or replace the cassette.	FLD_CMN_LEVEL_SENSOR_CAL_ERR - Level Sensor calibration failed. Possible reasons: 1) the calibration done status bit was not set by the FPGA within the specified timeout limit or 2) the calculated required max/min pixel gain was outside the valid range or 3) the brightness level of the level sensor LEDs could not be adjusted.
3200	Error	Cassette latch error. Infusion/irrigation and extraction functions will be disabled.	CASSETTE_LATCH_ERR - Cassette latch hardware feedback signals indicate a hardware problem.
3201	Advisory	Invalid cassette ID detected. Please eject and insert a valid cassette.	CASSETTE_ID_INVALID_ERR - An invalid cassette id was read by the cassette id sensors.
3202	Advisory	Cassette test failed. Please eject and reinsert, or replace cassette.	CASSETTE_TEST_FAILED_ERR Cassette pressure and/or vacuum tests failed.
3203	Advisory	The cassette was not properly latched into position. Please remove and reinsert the cassette.	CASSETTE_NOT_LATCHED_ADV The cassette latch optical position sensor indicates that the latch did not reach its locked position.
3204	Error	Cassette ID sensor error. Infusion/irrigation and extraction functions will be disabled.	CASSETTE_ID_SENSOR_ERR Cassette ID sensor test failed. The sensor output voltage is not within the expected range.
3205	Advisory	The Fluidics module fan is not working.	FLD_MODULE_FAN_TAC_ADV The Fluidics module fan tachometer indicates that the Fluidics module fan is not operating.
3207	Information	Cassette cannot be loaded. Please adjust the inlet pressure between 58 psi and 120 psi.	CASS_NO_AIR_PRSR_INFO A cassette was inserted in the receiver mechanism while the wall pressure is outside its valid operating range.
3300	Advisory	Draining cassette. Please wait.	EXT_CHAMBER_OVERFLOW_ADV The cassette aspiration chamber is full of fluid. The cassette is not draining to the drain bag.
3302	Advisory	Fault - 3302 Call Field Service	EXT_NOT_IN_OP_RANGE_ADV Not enough or too much fluid in the aspiration chamber to allow aspiration flow mode and reflux. NOTE: This advisory is never explicitly displayed. Instead advisory 1239 or 1240 might be displayed if appropriate. See 1239 and 1240 for details.
3304	Advisory	Leak test failure. Please confirm the irrigation tubing, aspiration tubing, and the test chamber are properly connected to the handpiece.	EXT_HP_TUBING_LEAK_ADV A leak in the aspiration or irrigation tubing was detected during flow check of a handpiece.
3305	Advisory	Priming of the aspiration probe was unsuccessful. Please attempt to re-prime the probe.	EXT_PROBE_PRIME_FAILED_ADV Probe prime was unsuccessful. The required volume of fluid was not transferred through the aspiration tubing set within the specified timeout period.
3306	Advisory	Priming of the aspiration handpiece was unsuccessful. Please attempt to re-prime the handpiece.	EXT_HP_PRIME_FAILED_ADV Handpiece prime was unsuccessful. The required volume of fluid was not transferred through the aspiration tubing set within the specified timeout period.
3307	Error	Aspiration level sensor problem detected. Infusion/irrigation and extraction functions will be disabled.	EXT_LVL_STATUS_ERR The level sensor status signals indicate a level sensor hardware problem.
3308	Advisory	Flow check failure: measured flow restriction is too high. Extraction and Ultrasound functions in Phaco/Frag will be disabled.	EXT_FLOW_CHECK_FAILED_ADV The handpiece failed the flowcheck. Too high vacuum level was required to achieve the reference flow level.
3309	Advisory	Flow check failure: aspiration chamber could not be filled with fluid. Extraction and Ultrasound functions in Phaco/Frag will be disabled.	EXT_FILL_TIMEOUT_ADV The handpiece failed the flowcheck. Too high vacuum level was required to achieve the reference flow level.

Table 4-4 Fluidics Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
3325	Advisory	Drain bag is almost full. Please replace bag and press [Done].	EXT_BAG_NEAR_FULL_ADV ~400 cc of fluid has been pumped into the drain bag.
3326	Advisory	Drain bag is full. Please replace bag and press [Done].	EXT_BAG_FULL_ADV - ~450 cc of fluid has been pumped into the drain bag.
3327	Advisory	Drain bag is critically full. Please replace bag and press [Done].	EXT_BAG_CRITICALLY_FULL_ADV ~500 cc of fluid has been pumped into the drain bag.
3329	Error	Drain pump problem detected. Infusion/irrigation and extraction functions will be disabled.	EXT_PUMP_ROTATION_ERR The commanded pump rate does not correspond to the actual pump rate measured by the optical encoder.
3330	Advisory	The drain pump fan is not working.	EXT_PUMP_FAN_STATUS_ERR The drain pump fan tachometer indicates that the drain pump fan is not operating.
3331	Advisory	Could not drain the aspiration chamber. Please remove and insert a new cassette.	EXT_CHAMBER_DRAIN_TIMEOUT_ADV The aspiration chamber could not be drained within the specified timeout period.
3350	Error	Extraction pressure transducer offset error. Infusion/irrigation and extraction functions will be disabled.	EXT_PT_OFFSETS_ERR Extraction pressure transducer 0 offset out of range.
3351	Error	Extraction pressure transducer discrepancy error. Infusion/irrigation and extraction functions will be disabled.	EXT_PT_DISCR_ERR - A discrepancy between the primary and redundant extraction pressure transducers was detected.
3352	Error	Extraction isolation valve error. Infusion/irrigation and extraction functions will be disabled.	EXT_ISO_VLV_ERR Extraction isolation valve hardware error.
3353	Error	Reflux valve error. Infusion/irrigation and extraction functions will be disabled.	EXT_REFFLUX_VLV_ERR Extraction reflux valve hardware error.
3354	Error	Extraction output valve (S1) error. Infusion/irrigation and extraction functions will be disabled.	EXT_OUTPUT_VLV_ERR Extraction output pincher valve (S1) error
3355	Error	Extraction output valve (S11) error. Infusion/irrigation and extraction functions will be disabled.	EXT_PORT1_VLV_ERR Extraction output port 1 pincher valve error.
3356	Error	Extraction output valve (S22) error. Infusion/irrigation and extraction functions will be disabled.	EXT_PORT2_VLV_ERR Extraction output port 2 pincher valve error.
3357	Error	Extraction cross-connection valve (SC) error. Infusion/irrigation and extraction functions will be disabled.	EXT_CROSS_NO_VLV_ERR Extraction "normally open" cross-connection valve error.
3358	Error	Extraction cross-connection valve (SC2) error. Infusion/irrigation and extraction functions will be disabled.	EXT_CROSS_NC_VLV_ERR Extraction "normally closed" cross-connection valve error.
3359	Advisory	Suction pressure surges detected. Vacuum will be disabled. Please release the footswitch treadle to reset.	EXT_PRSR_OSCILLATION_ADV Extraction pressure oscillations detected. Bubbles are in the tubing. Check the cassette connections and/or reprime.
3360	Advisory	Suction flow surges detected. Flow will be disabled. Please release the footswitch treadle to reset.	EXT_FLOW_OSCILLATION_ADV Extraction flow oscillations detected. Bubbles are in the tubing. Check the cassette connections and/or reprime.



Table 4-4 Fluidics Module - Faults, Errors, Advisories, and Information Messages

Error Code	Classification	Displayed Text	Description/Possible Causes
3361	Advisory	Suction pressure is too high. Vacuum will be disabled. Please release the footswitch treadle to reset.	EXT_PRSR_OVERSHOOT_ADV Extraction pressure overshoot detected. Bubbles are in the tubing. Check the cassette connections and/or reprime.
3362	Advisory	Aspiration flow too high. Flow will be disabled. Please release the footswitch treadle to reset.	EXT_FLOW_OVERSHOOT_ADV Extraction flow overshoot detected. Bubbles are in the tubing. Check the cassette connections and/or reprime.
3363	Error	Extraction pressure transducer reference voltage out of range. Infusion/irrigation and extraction functions will be disabled.	EXT_TRANSDUCER_REFERENCE_ERR Extraction transducer reference voltage error.
3364	Advisory	Aspiration manifold input pressure is too high.	EXT_75_PSI_REGULATOR_ADV Extraction 75 psi pressure regulator advisory. The aspiration manifold 75 psi regulator is out of regulation. A pressure higher than 220 mmHg was measured during the regulator pressure test which is part of the cassette test.
3400	Error	Infusion source container pressure transducer offset error. Infusion/irrigation and extraction functions will be disabled.	PRSR_SRC_PT_OFFSET_ERR Infusion source container pressure transducer 0 offset out of range.
3401	Error	Infusion source container isolation valve error. Infusion/irrigation and extraction functions will be disabled.	PRSR_SRC_ISO_VLV_ERR Infusion source container isolation valve error.
3402	Error	Infusion source container transducer discrepancy error. Infusion/irrigation and extraction functions will be disabled.	PRSR_SRC_PT_DISCREPANCY_ERR A discrepancy between the source container and LPAS pressure transducers was detected.
3403	Error	Infusion source container pressure too high. Infusion/irrigation and extraction functions will be disabled.	PRSR_SRC_HI_ERR Infusion source container pressure too high.
3420	Error	Infusion pressure transducer offset error. Infusion/irrigation and extraction functions will be disabled.	INF_PT_OFFSET_ERR Infusion pressure transducer 0 offset out of range
3421	Error	Infusion pressure transducer discrepancy error. Infusion/irrigation and extraction functions will be disabled.	INF_PT_DISCREPANCY_ERR A discrepancy between the primary and redundant infusion pressure transducers was detected.
3422	Error	Infusion isolation valve error. Infusion/irrigation and extraction functions will be disabled.	INF_ISO_VLV_ERR Infusion isolation valve error.
3423	Error	Infusion FAX valve error. Infusion/irrigation and extraction functions will be disabled.	INF_FAX_VLV_ERR Infusion FAX valve error.
3424	Error	Infusion input valve error. Infusion/irrigation and extraction functions will be disabled.	INF_INPUT_VLV_ERR Infusion chamber input pincher valve error.
3425	Error	Infusion output valve error. Infusion/irrigation and extraction functions will be disabled.	INF_OUTPUT_VLV_ERR Infusion chamber output pincher valve error.
3426	Error	Irrigation output valve error. Infusion/irrigation and extraction functions will be disabled.	IRR_OUTPUT_VLV_ERR Irrigation output pincher valve error.
3427	Error	Infusion pressure surges detected. Infusion/irrigation and extraction functions will be disabled.	INF_OSCILLATION_ERR Infusion pressure oscillations detected.
3428	Error	Infusion pressure too high. Infusion/irrigation and extraction functions will be disabled.	INF_HI_PRSR_ERR Infusion high pressure detected.

Table 4-4 Fluidics Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
3429	Advisory	Low infusion pressure detected. Please check infusion connections. Select 30 mmHg liquid backup pressure, or ignore low pressure condition.	INF_LO_PRSR_ADV Infusion pressure too low.
3431	Advisory	Low irrigation pressure detected. Please check irrigation connections.	IRR_LO_PRSR_ADV Irrigation pressure too low.
3433	Error	Infusion chamber isolation valve error. Infusion/irrigation and extraction functions will be disabled.	INF_ISO_VLV_STUCK_CLOSED_ERR Infusion chamber isolation valve detected to be stuck closed during power up diagnostics.
3434	Advisory	Infusion chamber overflow error. Control of infusion pressure has possibly been lost. The current pressure, in mmHg, could be as high as:	INF_CHAMBER_OVERFLOW_ADV Infusion chamber overflow error. The fluid level in the infusion chamber reached above the overflow level.
3436	Error	FAX valve error. Infusion/irrigation and extraction functions will be disabled.	INF_FAX_VLV_STUCK_CLOSED_ERR FAX valve detected to be stuck closed during power up diagnostics.
3437	Error	Infusion level sensor error. Infusion/irrigation and extraction functions will be disabled.	INF_LVL_STATUS_ERR The level sensor status signals indicate a level sensor hardware problem.
3438	Advisory	No more infusion fluid available. Press [Change] to change the fluid container.	INF_FLUID_OUT_ADV The infusion chamber in the cassette is empty.
3440	Advisory	No more irrigation fluid available. Press [Change] to change the fluid container..	IRR_FLUID_OUT_ADV The irrigation chamber in the cassette is empty.
3442	Advisory	Irrigation chamber overflow detected. Control of irrigation pressure has possibly been lost. The current pressure, in mmHg, could be as high as:	IRR_CHAMBER_OVERFLOW_ADV Irrigation chamber overflow error. The fluid level in the irrigation chamber reached above the overflow level.
3444	Advisory	Low infusion pressure. Please check connections. Select 30 mmHg air backup, or ignore low pressure condition. Backup mode will not allow extraction.	INF_FAX_MS_LO_PRSR_ADV Infusion pressure too low while in FAX with a Manual Stopcock cassette.
3460	Error	Infusion backup valve error. Infusion/irrigation, extraction, and Ultrasound functions will be disabled.	INF_BACKUP_VLV_ERR Infusion backup valve error.
3461	Error	Infusion LPAS pump error detected. Infusion/irrigation, extraction, and Ultrasound functions will be disabled.	INF_LPAS_TAC_ERR The infusion LPAS pump tachometer indicate that the LPAS pump is not operating correctly.
3462	Advisory	Infusion flow sensor communication error. IOP Control functions will be disabled.	INF_FLOW_SENSOR_COM_ERR Infusion flow sensor communication error.
3464	Advisory	Infusion flow data invalid: IOP Control functions will be disabled. Check infusion tubing for air bubbles.	INF_FLOW_DATA_INVALID_ADV Infusion flow sensor readings are not valid.
3466	Advisory	Infusion flow sensor accuracy error. IOP Control functions will be disabled.	INF_FLOW_ACCURACY_ADV Infusion flow sensor accuracy error. Flow sensor and chamber fluid volume measurements are out of range of each other. Detected during flow sensor calibration.
3467	Advisory	Infusion flow sensor signal amplitude is low. IOP Control functions will be disabled. Please eject and reinsert the cassette.	INF_FLOW_SIGNAL_AMPLITUDE_ADV Infusion flow sensor signal amplitude error. Detected during flow sensor calibration. Possible causes: The wrong infusion cannula size is selected. Check the cassette.

Table 4-4 Fluidics Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
3469	Advisory	Tubing calibration offset error. IOP Control functions will be disabled. Please position the infusion cannula at the height of the center of the cassette and re-prime.	INF_TUBING_CAL_OFFSET_ADV Infusion tubing calibration 0 offset advisory. The infusion cannula was not positioned within the correct vertical range of the cassette during calibration. Check the cassette.
3470	Advisory	Calibration verification error: calculated pressures are not within the expected range. IOP Control functions will be disabled. Please re-prime.	INF_TUBING_CAL_CHECK_PT_ADV Infusion tubing calibration check point advisory. The pressure drop calculated using the acquired calibration profile was not within the expected range. Check the cassette.
3471	Advisory	Noisy calibration flow readings. IOP Control functions will be disabled. Please re-prime.	INF_TUBING_CAL_STDDEV_ADV Infusion tubing calibration standard deviation advisory. The standard deviation between the acquired flow measurements and the calculated calibration profile was larger than the specified max limit. The wrong infusion cannula size is selected. Check the cassette.
3472	Advisory	Infusion chamber leak detected. Please eject and replace the cassette.	INF_CHAMBER_LEAK_ADV – A leak in the infusion chambers was detected during priming. Check the cassette.
3473	Error	Infusion pressure transducer reference voltage out of range. Infusion/irrigation and extraction functions will be disabled.	INF_TRANSDUCER_REFERENCE_ERR Infusion transducer reference voltage error.
3474	Error	Infusion NIFS valve error detected. Infusion/irrigation and extraction functions will be disabled.	INF_NIFS_VLV_ERR Infusion NIFS valve error.
3475	Advisory	Infusion prime failed.	INF_PRIME_FAILED_ADV Infusion prime failed. Possible causes: <ul style="list-style-type: none">• Infusion line clamped• Cassette drip-chamber check valve stuck• Cassette• Cassette connectors
3476	Advisory	The infusion chambers did not fill with fluid. Please check the infusion bottle and connections or press [Change] to replace the infusion bottle.	INF_CHAMBER_FILL_TIMEOUT_ADV Infusion chamber did not fill within the specified timeout period. Source container is out of fluid.
3477	Error	Infusion LPAS pressure transducer offset error. Infusion/irrigation and extraction functions will be disabled.	INF_LPAS_PT_OFFSET_ERR Infusion LPAS pressure transducer 0 offset out of range.
3478	Error	Infusion LPAS pressure error. Infusion/irrigation and extraction functions will be disabled.	INF_LPAS_PRSR_ERR Infusion LPAS source pressure too high.
3479	Advisory	Infusion LPAS pressure is low. Infusion pressure loss is possible.	INF_LPAS_PRSR_LOW_ADV Infusion LPAS pump output pressure is low.
3481	Advisory	Infusion flow sensor is disconnected. IOP Control functions will be disabled.	INF_FLOW_SENSOR_DISCONNECT_ADV Infusion flow sensor is disconnected or the sensor connection has failed.
3482	Advisory	Auto infusion valve failed to open during prime. Please replace infusion tubing and attempt to re-prime.	The AIV valve flow check performed as part of the cassette prime sequence failed.

Table 4-5 U/S-Diathermy Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
4100	Error	U/S voltage failure (+5 analog). Ultrasound and Diathermy functions will be disabled.	US_5_VOLT_ANALOG_ERR - US Kernel Analog 5 volt feedback is bad. US Submodule is non-functional.
4101	Error	U/S voltage failure (+2.5). Ultrasound and Diathermy functions will be disabled.	US_PLUS_2_5_VOLT_ERR - US Kernel +2.5 volt feedback is bad. US submodule is non-functional.
4102	Error	U/S voltage failure (-2.5). Ultrasound and Diathermy functions will be disabled.	US_MINUS_2_5_VOLT_ERR US Kernel -2.5 volt feedback is bad. US submodule is non-functional.
4103	Error	U/S voltage failure (+8.5). Ultrasound and Diathermy functions will be disabled.	US_8_5_VOLT_POWER_ERR US Kernel 2.5 volt feedback is bad. US submodule is non-functional.
4111	Error	US failure: SPI driver write timeout. Ultrasound and Diathermy functions will be disabled.	SPI_WRITE_TIMEOUT_ERR SPI driver timed out waiting for a write to complete. US submodule is non-functional.
4200	Advisory	Handpiece EEPROM CRC is invalid. Please replace the handpiece.	US_HP_BAD_CRC_ADV The handpiece EEPROM CRC is invalid. Handpiece needs to be replaced.
4201	Advisory	Only one US handpiece may be connected at a time. Please remove one of the handpieces.	US_HP_MULTIPLE_ADV Two US handpieces are connected. One of the handpieces must be removed before the other handpiece can be used.
4202	Advisory	Handpiece current is too low. Please replace handpiece and re-tune.	US_HP_CURRENT_ERR U/S handpiece current is too low. A short circuit in the handpiece can cause this.
4203	Advisory	Handpiece voltage is too low. Please replace handpiece and re-tune.	US_HP_VOLTAGE_ERR U/S handpiece voltage is too low. An open circuit in the handpiece can cause this.
4204	Advisory	Handpiece power is too high. Please replace handpiece and re-tune.	US_HP_EXCESSIVE_POWER_ERR U/S handpiece power output is too high.
4206	Advisory	Handpiece power DC2DC output was out of range. Please release the footswitch treadle to reset. If problem persists, please contact Field Services.	US_HP_DC2DC_ERR While powering the handpiece, the DC2DC voltage for handpiece power is out of range.
4207	Advisory	Handpiece was removed while powered. Please reconnect handpiece and re-tune.	US_HP_REMOVED_WHILE_POWERED_ADV User has disconnected the handpiece while it's being powered.
4208	Advisory	Data in handpiece EEPROM is out of range. Please replace the handpiece.	US_HP_OUT_OF_RANGE_DATA_ADV Data contained in the handpiece is out of range.
4209	Advisory	Unknown US handpiece connected. Please connect a known handpiece.	US_HP_UNKNOWN_HANDPIECE_ADV The system has detected that a US handpiece was connected but it cannot determine its type.
4210	Advisory	Unsupported US handpiece connected. Please connect a supported handpiece.	US_HP_UNSUPPORTED_HANDPIECE_ADV The system has detected the connection of a recognized US handpiece but that handpiece is not supported by this system. Handpiece is not tuned.
4220	Advisory	Tune failure – attempted while handpiece was in air. Please re-tune the handpiece.	US_TUNE_IN_AIR_ADV The handpiece was tuned while in air. Handpiece is not tuned.
4221	Advisory	Tune failure: handpiece was removed before tuning. Please connect a handpiece and re-tune.	US_TUNE_NO_HANDPIECE_ADV A handpiece tune was requested but no handpiece is connected.
4222	Advisory	Tune failure: handpiece is an unknown type. Please connect a known handpiece and re-tune.	US_TUNE_UNKNOWN_HP_ADV A handpiece tune was requested but an unknown type of handpiece is connected.
4223	Advisory	Tune failure: handpiece has a loose tip. Please tighten the tip and re-tune.	US_TUNE_LOOSE_TIP_ADV The handpiece tip was loose when tuned. Handpiece is not tuned.



Table 4-5 U/S-Diathermy Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
4224	Advisory	Tune failure: handpiece current is low. Please replace handpiece and re-tune.	US_TUNE_HP_CURRENT_ADV The handpiece current was too low (open circuit). Handpiece is not tuned.
4225	Advisory	Tune failure: handpiece voltage is low. Please replace handpiece and re-tune.	US_TUNE_HP_VOLTAGE_ADV The handpiece voltage was too low when tuned (short circuit). Handpiece is not tuned.
4226	Advisory	Tune failure: handpiece frequency order error. Please re-tune.	US_TUNE_FREQ_ORDER_ADV The series (low impedance) and parallel (high impedance) frequencies were out of order when the handpiece was tuned.
4228	Advisory	Tune failure: handpiece series frequency margin error. Please re-tune.	US_TUNE_FS_MARGIN_ERR The series tune frequency was too close to the tune start frequency while tuning the handpiece. The handpiece is not tuned.
4229	Advisory	Tune failure: handpiece parallel frequency margin error. Please re-tune.	US_TUNE_FP_MARGIN_ERR The parallel tune frequency was too close to the tune end frequency while tuning the handpiece. The handpiece is not tuned.
4231	Advisory	Tune failure: handpiece frequency bandwidth too low. Please re-tune.	US_TUNE_BW_LOW_ERR The difference between the series and parallel tune frequencies was too small while tuning the handpiece. The handpiece is not tuned.
4232	Advisory	Tune failure: handpiece frequency bandwidth too high. Please re-tune	US_TUNE_BW_HIGH_ERR The difference between the series and parallel tune frequencies was too large while tuning the handpiece. The handpiece is not tuned.
4234	Advisory	Tune failure: handpiece DC2DC output out of range. Please re-tune. If problem persists, please contact Field Service.	US_TUNE_DC2DC_ERR The DC2DC voltage was out of range while tuning the handpiece. The handpiece is not tuned.
4235	Advisory	Tune failure: handpiece removed while tuning. Please connect handpiece and re-tune.	US_TUNE_HP_REMOVED_ADV The handpiece was removed while tuning. The handpiece is not tuned.
4240	Advisory	The requested Frag continuous power is too high. The Power level will be limited.	US_FRAG_POWER_TOO_HIGH_ADV A request for more than 60% frag power was made while not in a pulsed mode. The power will be limited to 60%.
4400	Advisory	AutoSert™ handpiece EEPROM CRC is invalid. Please replace the handpiece.	IOL_BAD_CRC_ADV The AutoSert™ handpiece EEPROM CRC is invalid. Handpiece needs to be replaced.
4401	Advisory	AutoSert™ handpiece impeded. Retry handpiece operation. If problem persists, please contact Field Service.	IOL_MOTOR_NOT_MOVING_ADV The AutoSert™ handpiece motor is not moving – a move check timeout has occurred.
4402	Advisory	AutoSert™ handpiece speed out of range. Retry handpiece operation. If problem persists, please contact Field Service.	IOL_SPEED_OUT_OF_RANGE_ADV The AutoSert™ handpiece motor speed is out of range.
4403	Advisory	AutoSert™ handpiece travel out of range. Reinsert/replace handpiece. If problem persists, please contact Field Service.	IOL_TRAVEL_OUT_OF_RANGE_ADV The AutoSert™ handpiece motor travel is out of range.
4404	Advisory	AutoSert™ handpiece calibration failed. Reinsert/replace handpiece. If problem persists, please contact Field Service.	IOL_CALIBRATION_FAILED_ADV Calibration of the AutoSert™ handpiece failed. Possible causes: <ol style="list-style-type: none">1. The calibration did not complete before the 1 minute calibration timeout2. The calculated handpiece speed is out of range3. The handpiece travel is out of range4. The handpiece motor is not moving

Table 4-5 U/S-Diathermy Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
4405	Advisory	<i>AutoSert™</i> handpiece must be in fully retracted position prior to autoclave. Reinsert handpiece to correct.	IOL_HP_IMPROPER_DISCONNECT_ADV The <i>AutoSert™</i> handpiece was disconnected improperly with the plunger not in the retracted position.
4406	Advisory	<i>AutoSert™</i> handpiece data corrupted. Replace handpiece. If problem persists, please contact Field Service.	IOL_CORRUPT_HP_DATA_ADV The <i>AutoSert™</i> handpiece EEPROM contains corrupted data. Handpiece needs to be replaced.
4407	Advisory	Unknown <i>AutoSert™</i> handpiece connected. Please connect a known handpiece.	IOL_UNKNOWN_HP_ADV The system has detected that an <i>AutoSert™</i> handpiece was connected but it cannot determine its type.
4408	Advisory	Unexpected <i>AutoSert™</i> handpiece movement detected. Replace handpiece. If problem persists, please contact Field Service.	IOL_UNEXPECTED_MOTOR_MOVE_ADV Unexpected <i>AutoSert™</i> handpiece movement/feedback was detected. Handpiece needs to be replaced.
4409	Advisory	<i>AutoSert™</i> handpiece motor over current detected. Retry handpiece operation. If problem persists, replace handpiece and/or contact Field Service.	IOL_MOTOR_OVERCURRENT_ADV <i>AutoSert™</i> handpiece motor over current condition has been detected.
4410	Advisory	Preloading of IOL using the treadle is not allowed until the <i>AutoSert™</i> plunger has been fully retracted.	IOL_TRDLE_NOT_ALLOW_LPSTART_ADV User pressed the treadle to perform IOL Preloading when a Load Plunger command was previously started but not yet completed (and currently paused).
4411	Error	Submodule Failure (1.8 volt). <i>AutoSert™</i> functions will be disabled.	IOL_1_8_VOLTS_IS_BAD_ERR IOL Injector CPLD +1.8 Voltage is bad.
4250	Error	Ultrasound failure: ADC calibration. Ultrasound functions will be disabled.	US_ADC_CALIBRATE_ERR The ADC feedback reading with power off for DC2DC voltage, handpiece voltage, or handpiece current was too high.
4300	Error	Diathermy failure: DC2DC output was out of range. Diathermy functions will be disabled.	DIA_AMPLIFIER_ERR While powering the handpiece, the DC2DC voltage for handpiece power is out of range.
4301	Advisory	Diathermy power is too high. Please release the footswitch treadle / button and try again.	DIA_EXCESSIVE_POWER_ADV Too much power was being delivered to the diathermy handpiece. Diathermy power is turned off. The operator must release the treadle/switch and the depress the treadle/switch to re-activate power.



Table 4-6 Table Top Illuminator Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
5100	Error	Ballast failure (voltage). Illuminator functions will be disabled.	ILM_VOLTAGE_SENSOR_ERR - Ballast transducer has reading that is out of specified safety range.
5101	Error	Ballast failure (current). Illuminator functions will be disabled.	ILM_CURRENT_SENSOR_ERR – Ballast transducer has reading that is out of specified safety range.
5102	Advisory	Lamp calibration data is corrupted: lamp needs to be calibrated. Please contact Field Service.	ILM_CALIBRATION_DATA_ADV – The calibration data saved in the flash contains incorrect CRC checksum.
5103	Advisory	Failure to turn lamp on: lamp needs to be replaced. Please contact Field Service.	ILM_LAMP_SOURCE_FAULT_ADV – Lamp status reported by hardware is not the same as software status.
5104	Advisory	The lamp has exceeded its rated life: lamp needs to be replaced. Please contact Field Service.	ILM_LAMP_REPLACEMENT_ADV – The lamp has exceeded its rated life. The new lamp is expected.
5105	Advisory	The lamp has exceeded its rated maximum life: lamp needs to be replaced. Please contact Field Service.	ILM_LAMP_INTENSITY_LOW_ADV – The lamp has exceeded its rated safe life. The new lamp should be installed immediately.
5107	Advisory	The Table-Top Illuminator drawer is ejected. Please close the drawer to continue.	ILM_MODULE_DRAWER_OUT_ADV – The module has been pulled out of drawer.
5109	Information	The calibration data for the Illuminator has changed: due to recalibration or replacement with a new unit.	ILM_MODULE_REPLACED_INFO – The calibration data is changed..
5113	Advisory	Metrics data is corrupted; Lamp hour is invalid. Please contact Field Service.	ILM_METRICS_CORRUPT_ADV – The metrics data for lamp hours is invalid. Either the Flash is corrupted or the checksum is incorrect.
5200	Advisory	Illuminator optics temperature is high. The lamp will be turned off if the temperature continues to rise.	ILM_OPTICS_TEMP_HIGH_ADV – Optics temperature is too high. Lamp is going to be shut down if temperature continues to rise. Possible cause: dirty tabletop air filter.
5201	Error	Illuminator optics temperature has exceeded its limit. Illuminator functions will be disabled.	ILM_OPTICS_TEMP_DOWN_ERR – Illuminator is shut down because Optics temperature is too high. Possible cause: dirty tabletop air filter.
5202	Advisory	Illuminator optics fan is at full speed. Optics unit may be overheating.	ILM_OPTICS_FAN_ALARM_ADV – Warning that the Optics fan is full on. Possible cause: dirty tabletop air filter.
5203	Error	Illuminator optics thermo-cut-off has been triggered. Illuminator functions will be disabled.	ILM_OPTICS_OVER_TEMP_ERR – Lamp is turned off because thermo cut-off. Possible cause: dirty tabletop air filter.
5204	Advisory	Communication failure with the Illuminator optics fan. The fan may not work properly.	ILM_OPTICS_FAN_COMMs_ADV – Communication Error with optics fan.
5300	Advisory	Illuminator ballast temperature is high. The lamp will be turned off if the temperature continues to rise.	ILM_BALAST_TEMP_HIGH_ADV – Ballast temperature is too high. Lamp is going to be shut down if temperature continues to rise. Possible cause: dirty tabletop air filter.
5301	Error	Illuminator ballast temperature has exceeded its limit. Illuminator functions will be disabled.	ILM_BALAST_TEMP_DOWN_ERR – Illuminator is shut down because Ballast temperature is too high. Possible cause: dirty tabletop air filter.
5302	Advisory	Illuminator ballast fan is at full speed. Ballast unit may be overheating.	ILM_BALAST_FAN_ALARM_ADV – Warning that the Ballast fan is full on. Possible cause: dirty tabletop air filter.
5303	Error	Illuminator ballast thermo-cut-off has been triggered. Illuminator functions will be disabled.	ILM_BALAST_OVER_TEMP_ERR – Lamp is turned off because thermo cut-off. Possible cause: Dirty tabletop air filter.

Table 4-6 Table Top Illuminator Module - Faults, Errors, Advisories, and Information Messages			
Error Code	Classification	Displayed Text	Description/Possible Causes
5304	Advisory	Communication failure with the Illuminator ballast fan. The fan may not work properly.	ILM_BALLAST_FAN_COMMS_ADV – Communication Error with ballast fan.
5400	Error	Lamp louver failure: unable to move to home position. Left port will be disabled.	ILM_STEP_MOTOR1_HOME_ERR – Step motor at port 1 failed to move to home position.
5401	Error	Lamp louver failure: unable to move to home position. Right port will be disabled.	ILM_STEP_MOTOR2_HOME_ERR – Step motor at port 2 failed to move to home position.
5402	Error	Lamp louver failure: unable to move to specified position. Left port will be disabled.	ILM_STEP_MOTOR1_MOVE_ERR – Step motor at port 1 failed to move to specified position.
5403	Error	Lamp louver failure: unable to move to specified position. Right port will be disabled.	ILM_STEP_MOTOR2_MOVE_ERR – Step motor at port 2 failed to move to specified position.

Table 4-7 Pneumatic Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Causes
6101	Error	Pressure reading is too high. Cutting and Pneumatics functions will be disabled.	PNU_CMN_PRESSURE_TOO_HIGH_ERR – Pneumatics pressure is too high.
6103	Error	Pneumatics pressure transducers reference voltage is unacceptable. Pneumatics functions are disabled.	PNU_CMN_ADC_2048_ERR – Pneumatics ADC 2048 mv. Reference voltage is beyond acceptable range.
6104	Error	Pneumatics Air Distribution transducers offset voltage is unacceptable. Pneumatics functions are disabled.	PNU_CMN_AIR_ADC_OFFSET_ERR – Pneumatics Air Distribution PCB reference offset voltage is beyond acceptable range.
6105	Error	Pneumatics Main Manifold transducers offset voltage is unacceptable. Pneumatics functions are disabled.	PNU_CMN_MAIN_ADC_OFFSET_ERR – Pneumatics Main Manifold PCB reference offset voltage is beyond acceptable range.
6201	Error	Air Pressure valves have high transition faults. Cutting and Pneumatics functions will be disabled.	PNU_AIR_VALVE_FAULT_HI_ERR - AirPressure valves have high level faults (fail to open).
6202	Error	Air Pressure valves have low transition faults. Cutting and Pneumatics functionals will be disabled.	PNU_AIR_VALVE_FAULT_LO_ERR - AirPressure valves have low level faults (fail to close).
6203	Advisory	Air Pressure inlet filter may be dirty and needs to be replaced. Please contact Field Service.	PNU_AIR_FILTER_DIRTY_ADV - The unusual high pressure drop cross the Air Filter. This is caused by either the Air Filter is too dirty and need to be replaced or the system may be leaking air.
6204	Advisory	Inlet pressure is too low; adjust to between 90-120 psi. System may have reduced performance between 58-90 psi..	PNU_AIR_LOW_SWITCH_ON_ADV - The Air source (wall pressure) is too low (below 58 psi) to turn on. On startup, Pneumatics turns on the pressure automatically if the pressure is between 58 psi and 120 psi.
6206	Advisory	Inlet pressure is too high; adjust to between 90-120 psi.	PNU_AIR_HIGH_SWITCH_ON_ADV - The Air source (wall pressure) is too high (above 125 psi) to turn on. On startup, Pneumatics turns on the pressure automatically if the pressure is between 58 psi and 120 psi.
6209	Advisory	Inlet pressure is below 90 psi; system may have reduced performance. Adjust to between 90-120 psi.	PNU_AIR_PRESSURE_90PSI_ADV - The Air source pressure is below 90 psi. System performance will be diminished.
6211	Advisory	The source pressure transducer is out of specification. Please contact Field Service.	PNU_AIR_SENSOR_CALIBRATED_ADV - The source pressure transducer is out of specification.
6301	Error	Cutting errors; valves have high transition faults (failed to open). Cutting functions will be disabled.	PNU_CUT_VALVE_FAULT_HI_ERR - Cutters valves have high level faults (fail to open).
6302	Error	Cutting errors; valves have low transition faults (failed to close). Cutting functions will be disabled.	PNU_CUT_VALVE_FAULT_LO_ERR - Cutters valves have low level faults (fail to close).
6303	Error	Cutting error: redundant transducers discrepancy error. Cutting functions will be disabled. Please contact Field Service.	PNU_CUT_REDUNDANT_SENSORS_ERR – Cutters redundant transducers discrepancy error.

Table 4-7 Pneumatic Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Causes
6304	Error	Cutting error: redundant transducers calibration. Cutting functions will be disabled. Please contact Field Service.	PNU_CUT_SENSOR_CALIBRATION_ERR – Cutters redundant transducers calibration error.
6305	Advisory	Cutting pressure is oscillating beyond the specified range. Please release the footswitch treadle to reset.	PNU_CUT_PRESSURE_OSCIL_ADV – Cutters actual pressure is oscillating beyond the specified tolerance.
6306	Advisory	Cutting pressure is surging beyond the specified tolerance. Please release the footswitch treadle to reset.	PNU_CUT_PRESSURE_SURGE_ADV – Cutters actual pressure is surging beyond the specified tolerance.
6307	Advisory	Vitrectomy port transducers are out of tolerance. The Vit Probe is still available. Please contact Field Service.	PNU_CUT_VIT_SENSOR_FAULT_ADV – Vit. port transducers discrepancy error. SmartVit function is disabled.
6308	Advisory	Pneumatics Flash is in need of Service. The Vit Probe is still available. Please contact Field Service.	PNU_CUT_VIT_FLASH_FAULT_ADV – The Pneumatics Flash memory is in need of Service.
6401	Error	Utilities valves have high transition faults (failed to open). Pneumatics functions will be disabled.	PNU_UTL_VALVEFAULT_HI_ERR - Utilities valves have high level faults (fail to open).
6402	Error	Utilities valves have low transition faults (failed to close). Pneumatics functions will be disabled.	PNU_UTL_VALVEFAULT_LO_ERR - Utilities valves have low level faults (fail to close).
6403	Error	Utilities redundant transducers discrepancy error. Pneumatics functions will be disabled. Please contact Field Service.	PNU_UTL_REDUNDANT_SENSORS_ERR – Utilities redundant transducers discrepancy error.
6404	Error	Utilities redundant transducers calibration error. Pneumatics functions will be disabled. Please contact Field Service.	PNU_UTL_SENSOR_CALIBRATION_ERR – Utilities redundant transducers calibration error.
6405	Error	Vacuum redundant transducers discrepancy error. Pneumatics functions will be disabled. Please contact Field Service.	PNU_VAC_REDUNDANT_SENSORS_ERR – Vacuum redundant transducers discrepancy error.
6406	Error	Vacuum redundant transducers calibration error. Pneumatics functions will be disabled. Please contact Field Service.	PNU_VAC_SENSOR_CALIBRATION_ERR – Vacuum redundant transducers calibration error.
6407	Advisory	Pressure is unstable. Release the footswitch treadle or restart AGF.	PNU_UTL_PRESSURE_OSCIL_ADV – Utilities actual pressure is oscillating beyond the specified tolerance.
6408	Advisory	Utilities pressure is surging beyond the specified tolerance. Please release the footswitch treadle to reset.	PNU_UTL_PRESSURE_SURGE_ADV – Utilities actual pressure is surging beyond the specified tolerance.
6501	Error	Auto Gas valves have high transition faults (failed to open). Pneumatics functions will be disabled.	PNU_AGF_VALVEFAULT_HI_ERR - Auto Gas valves have high level faults (fail to open).
6502	Error	Auto Gas valves have low transition faults (failed to close). Pneumatics functions will be disabled.	PNU_AGF_VALVEFAULT_LO_ERR - Auto Gas valves have low level faults (fail to close).

Table 4-7 Pneumatic Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Causes
6503	Error	Auto Gas redundant transducers discrepancy error. Pneumatics functions will be disabled. Please contact Field Service.	PNU_AGF_REDUNDANT_SENSORS_ERR – Auto Gas redundant transducers discrepancy error.
6504	Error	Auto Gas redundant transducers calibration error. Pneumatics functions will be disabled. Please remove AGF syringe if connected.	PNU_AGF_SENSOR_CALIBRATION_ERR – Auto Gas redundant transducers calibration error.
6505	Advisory	C3F8 bottle may be empty and needs to be replaced. Please press [Replaced] to confirm bottle replacement.	PNU_AGF_GAS_1_EMPTY_ADV – Gas 1 bottle may be empty and needs to be filled up. Select the Replaced reset advisory.
6506	Advisory	SF6 bottle may be empty and needs to be replaced. Please press [Replaced] to confirm bottle replacement.	PNU_AGF_GAS_2_EMPTY_ADV – Gas 2 bottle may be empty and needs to be filled up. Select the Replaced reset advisory.
6507	Advisory	Unable to run Auto Gas Filling without sufficient source pressure.	PNU_AGF_NO_AIR_PRESSURE_ADV – There is not enough air pressure to support Auto Gas Filling functions. Check the real panel connection for AGF.

Table 4-8 Auxiliary Illuminator Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Causes
7100	Error	Ballast failure (voltage). Illuminator functions will be disabled.	ILM_VOLTAGE_SENSOR_ERR - Ballast transducer has reading that is out of specified safety range.
7101	Error	Ballast failure (current). Illuminator functions will be disabled.	ILM_CURRENT_SENSOR_ERR – Ballast transducer has reading that is out of specified safety range.
7102	Advisory	Lamp calibration data is corrupted: lamp needs to be calibrated. Please contact Field Service	ILM_CALIBRATION_DATA_ADV – The calibration data saved in the flash contains incorrect CRC checksum.
7103	Advisory	Failure to turn lamp on: lamp needs to be replaced. Please contact Field Service.	ILM_LAMP_SOURCE_FAULT_ADV – Lamp status reported by hardware is not the same as software status.
7104	Advisory	The lamp has exceeded its rated life: lamp needs to be replaced. Please contact Field Service.	ILM_LAMP_REPLACEMENT_ADV – The lamp has exceeded its rated life. The new lamp is expected.
7105	Advisory	The lamp has exceeded its rated maximum life: lamp needs to be replaced. Please contact Field Service.	ILM_LAMP_INTENSITY_LOW_ADV – The lamp has exceeded its rated safe life. The new lamp should be installed immediately.
7113	Advisory	Metrics data is corrupted; Lamp hour is invalid. Please contact Field Service.	ILM_METRICS_CORRUPT_ADV – The metrics data for lamp hours is invalid. Either the Flash is corrupted or the checksum is incorrect.
7200	Advisory	Illuminator optics temperature is high. The lamp will be turned off if the temperature continues to rise.	ILM_OPTICS_TEMP_HIGH_ADV – Optics temperature is too high. Lamp is going to be shut down if temperature continues to rise. Possible cause: dirty base air filter.
7201	Error	Illuminator optics temperature has exceeded its limit. Illuminator functions will be disabled.	ILM_OPTICS_TEMP_DOWN_ERR – Illuminator is shut down because Optics temperature is too high. Possible cause: dirty base air filter.
7202	Advisory	Illuminator optics fan is at full speed. Optics unit may be overheating.	ILM_OPTICS_FAN_ALARM_ADV – Warning that the Optics fan is full on. Possible cause: dirty base air filter.
7203	Error	Illuminator optics thermo-cut-off has been triggered. Illuminator functions will be disabled.	ILM_OPTICS_OVER_TEMP_ERR – Lamp is turned off because thermo cut-off. Possible cause: dirty base air filter.
7204	Advisory	Communication failure with the Illuminator optics fan. The fan may not work properly.	ILM_OPTICS_FAN_COMMS_ADV – Communication Error with optics fan.
7300	Advisory	Illuminator ballast temperature is high. The lamp will be turned off if the temperature continues to rise.	ILM_BALAST_TEMP_HIGH_ADV – Ballast temperature is too high. Lamp is going to be shut down if temperature continues to rise. Possible cause: dirty base air filter.
7301	Error	Illuminator ballast temperature has exceeded its limit. Illuminator functions will be disabled.	ILM_BALAST_TEMP_DOWN_ERR – Illuminator is shut down because Ballast temperature is too high. Possible cause: dirty base air filter.
7302	Advisory	Illuminator ballast fan is at full speed. Ballast unit may be overheating.	ILM_BALAST_FAN_ALARM_ADV – Warning that the Ballast fan is full on. Possible cause: dirty base air filter.
7303	Error	Illuminator ballast thermo-cut-off has been triggered. Illuminator functions will be disabled.	ILM_BALAST_OVER_TEMP_ERR – Lamp is turned off because thermo cut-off. Possible cause: dirty base air filter.
7304	Advisory	Communication failure with the Illuminator ballast fan. The fan may not work properly.	ILM_BALAST_FAN_COMMS_ADV – Communication Error with ballast fan.
7400	Error	Lamp louver failure: unable to move to home position. Left port will be disabled.	ILM_STEP_MOTOR3_HOME_ERR – Step motor at port 3 failed to move to home position.
7401	Error	Lamp louver failure: unable to move to home position. Right port will be disabled.	ILM_STEP_MOTOR4_HOME_ERR – Step motor at port 4 failed to move to home position.

Table 4-8 Auxiliary Illuminator Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Causes
7402	Error	Lamp louver failure: unable to move to specified position. Left port will be disabled.	ILM_STEP_MOTOR3_MOVE_ERR – Step motor at port 3 failed to move to specified position.
7403	Error	Lamp louver failure: unable to move to specified position. Right port will be disabled.	ILM_STEP_MOTOR4_MOVE_ERR – Step motor at port 4 failed to move to specified position.

Table 4-9 Laser Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Casues
8100	Error	Laser controller software error. Laser functions will be disabled.	LSR_SOFTWARE_ERR - bad process communication
8101	Error	Laser controller shutter open for too long error. Laser functions will be disabled.	LSR_SHUTR_OPN_TOO_LONG_ERR - laser beam not properly detected at port
8102	Error	Laser controller shutter unexpected error. Laser functions will be disabled.	LSR_SHUTR_UNEXPECTED_ERR - shutter open or position sense problem (at startup)
8103	Error	Laser controller shutter open between firing error. Laser functions will be disabled.	LSR_SHUTR_OPN_BTWN_FIRING_ERR - shutter closed or position sense problem (at startup)
8104	Error	Laser controller mirror incorrect position error. Laser functions will be disabled.	LSR_MIRROR_INCORRECT_POS_ERR - Sensor reporting both or no Port Mirror position (at startup)
8105	Error	Laser controller mirror position unexpected error. Laser functions will be disabled.	LSR_MIRROR_POS_UNEXPECTED_ERR - Sensor reporting both or no Port Mirror position (at startup)
8106	Error	Laser controller power over the limit error. Laser functions will be disabled.	LSR_PWR_OVER_LIMIT_ERR - laser power measure flucuates >20%
8107	Advisory	Laser controller maximum current exceeded.	LSR_MAX_CURRENT_EXCEEDED_ADV - laser diode current exceeds max limit -
8108	Error	Laser controller port power detection error. Laser functions will be disabled.	LSR_PORT_PWR_DETECTION_ERR - laser power incorrectly detected (during normal run time)
8109	Error	Laser controller power detected at wrong port error. Laser functions will be disabled.	LSR_PWR_AT_WRONG_PORT_ERR - laser detected at wrong port, or not detected at selected port (during normal run time)
8110	Error	Laser controller power reading mismatch error. Laser functions will be disabled.	LSR_PWR_READING_MISMATCH_ERR - pmsons disagree by >20%
8111	Error	Laser controller LBO crystal limit error. Laser functions will be disabled.	LSR_LBO_CRYSTAL_LIMIT_ERR - LBO temp out of limit
8112	Error	Laser controller pump temperature limit error. Laser functions will be disabled.	LSR_PUMP_TEMP_LIMIT_ERR - laser diode temp out of limit
8113	Error	Laser controller power detect digital I/O mismatch error. Laser functions will be disabled.	LSR_PWR_DETECT_DIO_MISMATCH_ERR - laser photo detect digital input problem
8114	Error	Laser controller footswitch digital I/O mismatch error. Laser functions will be disabled.	LSR_FTSW_DIO_MISMATCH_ERR - footswitch digital inputs problem
8115	Error	Laser controller footswitch no NC (normally closed) error. Laser functions will be disabled.	LSR_FTSW_NO_NC_ERR - footswitch inputs show both NO and NC active
8116	Error	Laser controller system data CRC error.	LC_SYSTEM_DATA_CRC_ERR - calculated CRC incorrect (for one of the dat data files)
8117	Advisory	Laser controller internal parameter error.	LSR_INTERNAL_PARAMETER_ADV - Bad parameter call
8118	Error	Laser controller process hunt error. Laser functions will be disabled.	LSR_PROCESS_HUNT_ERR - startup process issue
8119	Error	Laser controller process attach error. Laser functions will be disabled.	LSR_PROCESS_ATTACH_ERR - startup process issue

Table 4-9 Laser Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Casues
8120	Error	Laser controller start up time out error. Laser functions will be disabled.	LSR_START_UP_TIME_OUT_ERR - state machine error
8121	Error	Laser controller JEM CRC error. Laser functions will be disabled.	LSR_JEM_CRC_ERR - crc for JEM incorrect
8122	Error	Laser controller kernel CRC error. Laser functions will be disabled.	LSR_KERNEL_CRC_ERR - crc for Kernel incorrect
8123	Error	Laser controller flash file error. Laser functions will be disabled.	LSR_FLASH_FILE_ERR - crc for Laser App incorrect
8124	Advisory	Laser LBO diode over temperature error.	LSR_PUMP_OVERTEMP_ADV - Advisory Only for temperature setpoints
8125	Advisory	Laser LBO diode under temperature error.	LSR_PUMP_UNDERTEMP_ADV - Advisory Only for temperature setpoints
8126	Advisory	Laser controller crystal over-temperature error.	LSR_CRYSTAL_OVERTEMP_ADV - Advisory Only for temperature setpoints
8127	Advisory	Laser controller crystal under-temperature error.	LSR_CRYSTAL_UNDERTEMP_ADV - Advisory Only for temperature setpoints
8129	Advisory	Laser controller probe connection error.	LSR_PPP_PROBE_CONNECTION_ADV - Probe Detection; mis-match between sensor pairs
8131	Error	Laser controller power monitor POST error. Laser functions will be disabled.	LSR_PMON_POST_FAIL_ERR - pmons fail POST
8132	Error	Laser controller +2.5 volt out-of-range error. Laser functions will be disabled.	LSR_PLUS_2_5_VOLT_ERR - 2.5V on Laser Controller out of range
8134	Error	Laser controller 12 volt power error. Laser functions will be disabled.	LSR_12_VOLT_POWER_ERR - 12V on Power Driver PCB out of range
8135	Error	Laser shutter timer expired error. Laser functions will be disabled.	LSR_SHUTTER_TIMER_OFF_ERR - shutter timer timed out
8138	Error	Laser controller diode thermal electric cooler error. Laser functions will be disabled.	LSR_DIODE_TEC_FAULT_ERR - Main TEC (thermo-electric-cooler) problem
8139	Error	Laser probe port process POST error. Laser functions will be disabled.	LSR_PPP_POST_FAULT_ERR - unable to switch port mirror or detect position
8140	Error	Laser controller startup timeout error (laser engine). Laser functions will be disabled.	LC_LE_STARTUP_TIMEOUT_ERR- state machine error
8141	Error	Laser controller startup timeout error (shutter control process). Laser functions will be disabled.	LC_SCP_STARTUP_TIMEOUT_ERR - state machine error
8142	Error	Laser controller startup timeout error (supervisor process). Laser functions will be disabled.	LC_SUP_STARTUP_TIMEOUT_ERR - state machine error
8143	Error	Laser controller startup timeout error (peripheral management process). Laser functions will be disabled.	LC_PMP_STARTUP_TIMEOUT_ERR - state machine error
8144	Error	Laser controller startup timeout error (probe port process). Laser functions will be disabled.	LC_PPP_STARTUP_TIMEOUT_ERR - state machine error

Table 4-9 Laser Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Casues
8145	Error	Laser controller startup timeout error (laser system controller). Laser functions will be disabled.	LC_LSC_STARTUP_TIMEOUT_ERR -
8147	Error	Laser controller TMP crystal startup timeout error. Laser functions will be disabled.	LC_TMP_CRYSTAL_POST_ERR - LBO temp not stable (on startup)
8148	Error	Laser controller TMP diode startup timeout error. Laser functions will be disabled.	LC_TMP_DIODE_POST_ERR - laser diode temp not stable (on startup)
8149	Error	Laser controller Dr Filter error. Laser functions will be disabled.	LC_DRFILTER_ERR - reads both NC and NO contacts active. Possible cause: Dr filter
8150	Error	Laser controller invalid maximum power error. Laser functions will be disabled.	LC_INVALID_MAX_POWER_ERR- Invalid power request
8153	Error	Laser controller load module CRC error. Laser functions will be disabled.	LC_LOADMODULE_CRC_ERR - Invalid software load
8154	Error	Laser controller module requires calibration. Laser functions will be disabled.	LC_CALIBRATION_REQUIRED_ERR - A valid calibration flag is missing
8155	Error	Laser Hardware and Software version incompatibility error. Laser functions will be disabled.	LC_VERSION_INCOMPATIBLE_ERR - Version Incompatibility
8156	Error	Laser controller power monitor saturation error. Laser functions will be disabled.	LC_PMON_SATURATION_ERR - PMON Voltage problem
8200	Advisory	Laser controller probe removed while firing.	LSR_PRBE_REMOVE_WHEN_FIRING_ADV - Laser controller probe removed while firing.
8202	Advisory	Laser controller Dr. Filter disengaged while firing.	LSR_FLTR_DISENG_WHEN_FIRING_ADV - Laser controller Dr. Filter disengaged while firing.
8203	Advisory	Laser controller Dr. Filter disconnected while firing.	LSR_FLTR_DISCON_WHEN_FIRING_ADV - Laser controller Dr. Filter disconnected while firing.
8204	Advisory	Laser controller interlock opened while firing.	LSR_INTRLK_OPN_WHEN_FIRING_ADV - Laser controller interlock opened while firing.
8205	Advisory	Laser controller footswitch disconnected while firing.	LSR_FTSW_DISCON_WHEN_FIRING_ADV - Laser controller footswitch disconnected while firing.
8207	Advisory	Laser controller port changed in Ready State.	LSR_PORT_CHANGE_IN_RDYSTE_ADV - Laser controller port changed in Ready State.
8208	Advisory	Laser controller Dr. Filter disengaged in Ready State.	LSR_FLTR_DISENG_IN_RDYSTE_ADV - Laser controller Dr. Filter disengaged in Ready State.
8209	Advisory	Laser controller Dr. Filter disconnected in Ready State.	LSR_FLTR_DISCON_IN_RDYSTE_ADV - Laser controller Dr. Filter disconnected in Ready State.
8210	Advisory	Laser controller interlock opened in Ready State.	LSR_INTRLK_OPN_IN_RDYSTE_ADV - Laser controller interlock opened in Ready State.
8211	Advisory	Laser controller footswitch removed in Ready State.	LSR_FTSW_REMOVE_IN_RDYSTE_ADV - Laser controller footswitch removed in Ready State.
8212	Advisory	Laser controller footswitch engaged when Ready requested.	LSR_FTSW_ENGAGE_WHEN_RDYREQ_ADV - Laser controller footswitch engaged when Ready requested.

Table 4-9 Laser Module - Faults, Errors, Advisories, and Information Messages			
ErrorCode	Classification	Displayed Text	Description/Possible Casues
8213	Advisory	Laser controller user data CRC error.	LSR_USER_DATA_CRC_ERROR_ADV - Laser controller user data CRC error.
8214	Advisory	Laser controller Ready State denied: the filter is disengaged.	LcRdyDeniedFilterDisAdv- Laser controller Ready State denied: the filter is disengaged.
8215	Advisory	Laser controller Ready State denied: there is no interlock.	LcRdyDeniedNoInterlockAdv - Laser controller Ready State denied: there is no interlock.
8216	Advisory	Laser controller Ready State denied: there is no valid probe for the active port.	LcRdyDeniedNoPortSelAdv - Laser controller Ready State denied: there is no valid probe for the active port.
8217	Advisory	Laser controller Ready State denied: the footswitch is depressed.	LcRdyDeniedFtswPressAdv - Laser controller Ready State denied: the footswitch is depressed.
8218	Advisory	Are all necessary Dr. Filters properly installed and connected?	LcRdyDeniedFltrVerAdv - User requests going to Ready Mode when the doctor filters haven't been verified.
8219	Advisory	Laser controller Ready State denied: there is no footswitch present.	LC_RDY_DENIED_NO_FTSW_ADV - User presses the Laser Ready button when no footswitch is connected.
8220	Advisory	Laser controller Dr. Filter connected while in Transition, Ready or Firing State.	LC_DRFILTER_CON_TRF_ADV - User connects an engaged Dr. Filter while in Transition / Ready or Firing mode and and Endo probe is connected to the active port.
8221	Advisory	Laser controller detected a port Hardware failure.	LC_PORT_HW_FAILURE_ADV -Laser controller detected a port Hardware failure.
8222	Advisory	Port can't be selected: the probe type for the port isn't valid.	LC_PORT_DENIED_INVLD_PROBE_ADV - The user tries to make a laser port the active port, using one of the Purepoint console port selection buttons, but the currently selected probe type for that port is invalid.

SECTION FIVE - SCHEMATICS

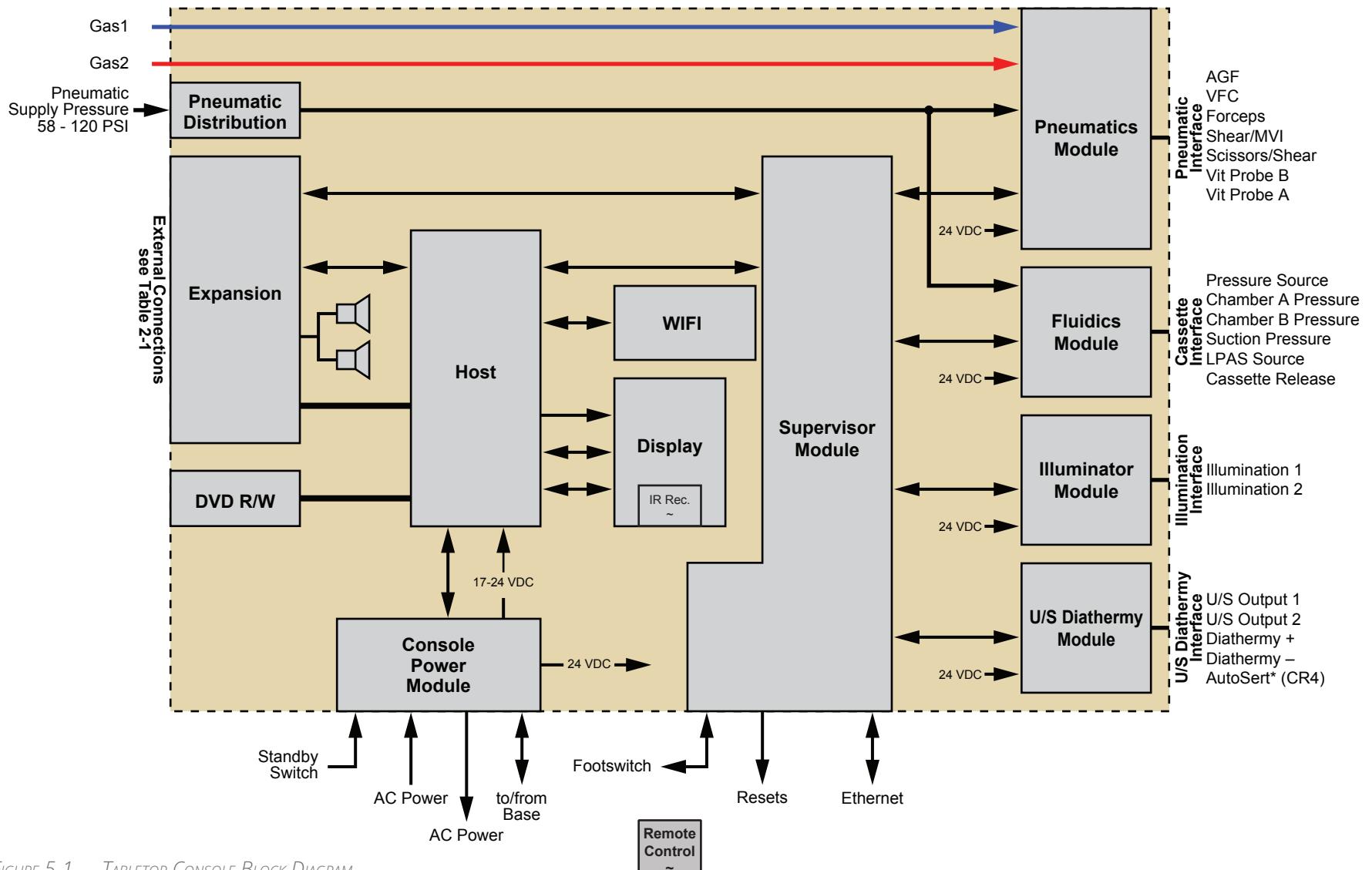


FIGURE 5-1 TABLETOP CONSOLE BLOCK DIAGRAM

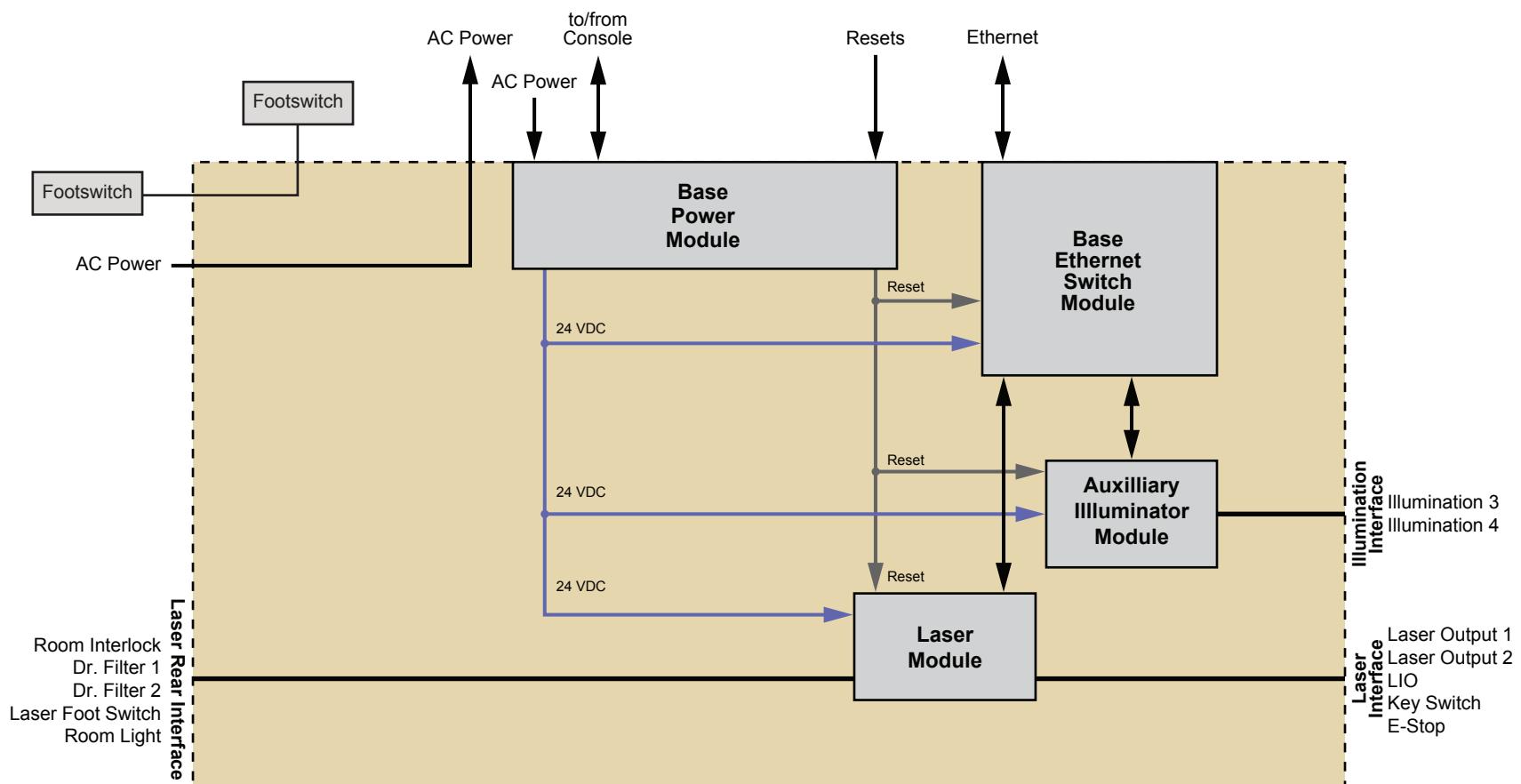


FIGURE 5-2 BASE CONSOLE Block Diagram

SECTION SIX - PARTS LISTS & DRAWINGS

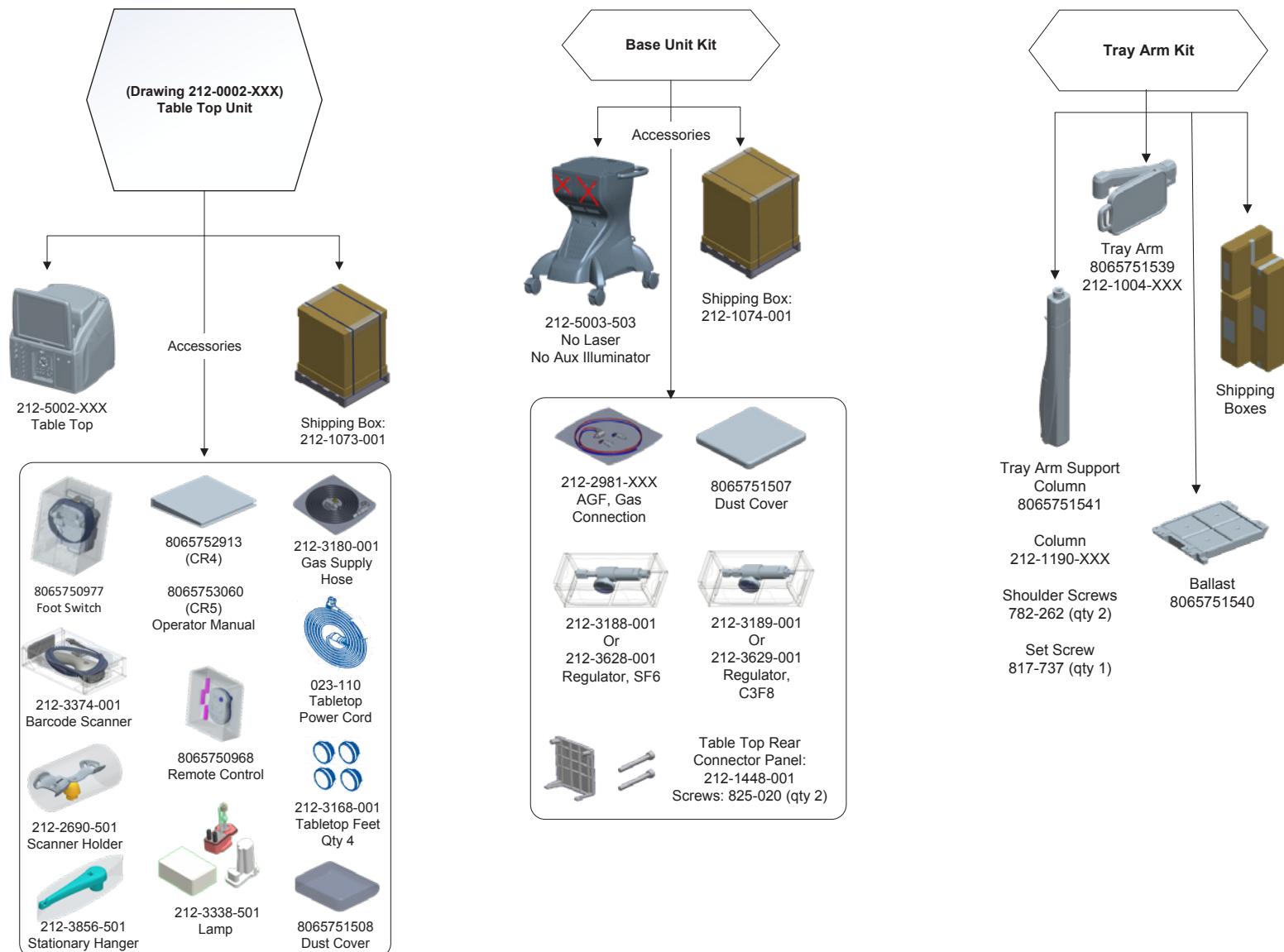


FIGURE 6-1 TABLETOP, BASE, AND TRAY ARM PARTS

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