

Neptune® S Waste Management System

Instructions For Use

120V Neptune S Rover (US)

REF 0711-001-000

230V Neptune S Rover

REF 0711-002-000XX

100V Neptune S Rover

REF 0711-003-000

120V Neptune S Rover (CA)

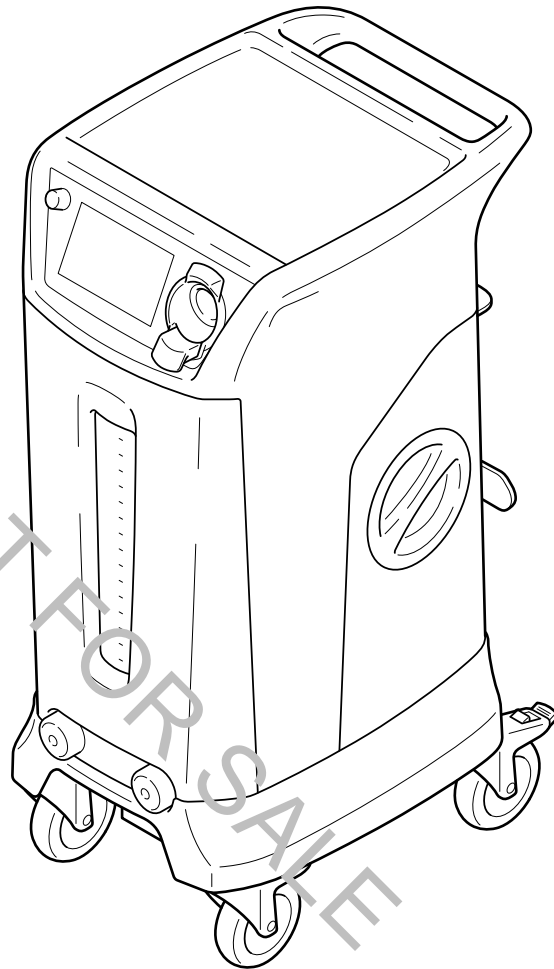
REF 0711-004-000

V2 Specimen Collection Manifold Kit

REF 0750-200-000

V2 4-Port Manifold

REF 0750-200-000



DRAFT NOT FOR SALE

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1. Important Information

1.1. WARNINGS



WARNING

HIGH SUCTION DEVICE

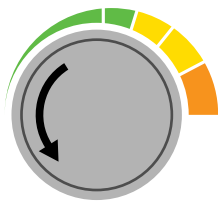


Do not connect directly to chest tubes or other closed wound drains.



Do not connect directly to tracheal tubes.

Failure to comply could result in serious injury or death.



Always use the minimum suction limit required to achieve the desired clinical outcome.

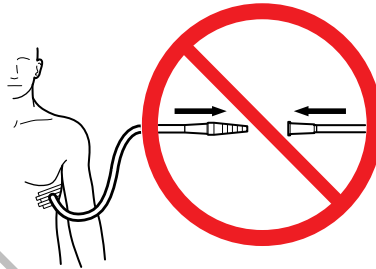
- Only trained and experienced healthcare professionals may use this equipment.
- Do not remove the safety card from the equipment.
- For more information, including safety information or in-service training, contact your Stryker sales representative or call Neptune Customer Service at **1-800-550-7836**.

1.2. Known Use Errors

Known Use Errors

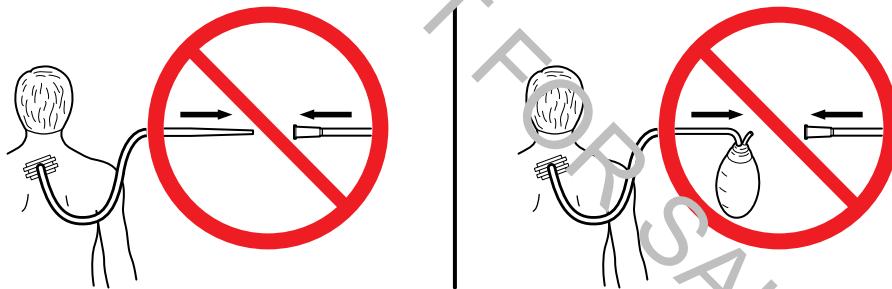
It is important to acknowledge and be aware of potential hazards associated with high suction devices prior to use. This information highlights known use errors that constitute improper and unsafe use of a high suction device, such as the Neptune Rover. Stryker has received incident reports of serious injury and/or death associated with operating high suction devices.

Stryker has received reports that high suction devices have been connected directly to patients' chest tubes, postoperatively, which resulted in deaths.



Do not connect the Neptune Rover directly to a patient's chest tube.

Stryker has received reports that high suction devices have been connected to patients' closed wound drains, postoperatively, which resulted in serious patient injuries.



Do not connect the Neptune Rover to a closed wound drainage system.


For training information, visit www.neptunecustomer care.com.

1.3. Using this Manual


This manual is the most comprehensive source of information for the safe, effective, and compliant use and/or maintenance of your product. This product is intended for use by trained and experienced healthcare professionals only. Read and understand this manual before using the product or any component compatible with the product. Contact Stryker for training as needed.

This manual is a permanent part of the product. Keep this manual for future reference.

The following signal words may be used throughout this manual:

 **WARNING** - Highlights a safety-related issue. Always comply with this information to prevent patient and/or healthcare staff injury.

CAUTION - Highlights a product reliability issue. Always comply with this information to prevent product damage.

 **Note** - Supplements and/or clarifies procedural information.

1.4. Contact Information



Stryker Representative




1-269-323-7700, 1-800-253-3210



inst.stryker.cs@stryker.com





www.stryker.com


 **Note** - The user and/or patient should report any serious product-related incident to both the manufacturer and the Competent Authority of the European Member State where the user and/or patient is established.

1.5. Safety Directives

General Safety


 **WARNING** - Healthcare professionals should be thoroughly familiar with the instructions for use and the operation of this product prior to use.

 **WARNING** - Healthcare professionals should be thoroughly familiar with the performance characteristics, and the indicated, contraindicated, and intended uses of this product. Contact your Stryker sales representative or Stryker Neptune Customer Service for in-service training.

 **WARNING** - The healthcare professional performing any procedure is responsible for determining the appropriateness of this product and the specific technique used for each patient. Stryker, as a manufacturer, does not recommend surgical procedure or technique.

Magnetic Resonance Imaging (MRI) Safety



 **WARNING** - This product is MR unsafe. Do not use the product in an MRI environment. Operating the product outside the specified environmental conditions could result in death or serious injury.

Connection Safety

 **WARNING**

INAPPROPRIATE CONNECTION HAZARDS

- Do not connect directly to chest tubes.
- Do not connect to closed wound drains.
- Do not connect directly to tracheal tubes.
- Not for use as a suction source for: intermittent suction applications, patient positioner devices, and organ stabilizer/positioner devices.

Death or serious injury can result from inappropriate connections.

Suction Safety

 **WARNING**

HIGH SUCTION HAZARD: MAXIMUM = [520 mm-Hg]

- Always use the minimum suction limit range required to achieve the desired clinical outcome.
- Always follow your institution's guidelines for suction limits.
- The effectiveness of aspiration is dependent upon the intensity of the suction applied.
- The suction limit range of the collection canister may be adjusted by using the suction control dial on the main control panel. Interruption and restoration of rover power while suction is ON, whether accidental or intentional, does not reset the suction limit range to zero. See BS EN ISO 10079-1: 2015 + A1: 2019, clause 9.11. Use caution when activating suction with a high suction limit range.

Death or serious injury can result from improper suction levels.

Electrical Safety

WARNING

ELECTROMAGNETIC INTERFERENCE HAZARD

- Use only Stryker-approved electronic components and accessories. Failure to comply may result in increased electromagnetic emissions or decreased electromagnetic immunity of the system.
 - Take special precautions regarding electromagnetic compatibility (EMC) when using this product. Install and/or put this product into service per the EMC information contained in this manual. Portable and mobile radio frequency (RF) equipment can affect the function of this product.
-

WARNING

ELECTRICAL SHOCK HAZARD

- To avoid the risk of electric shock, always connect this product to a hospital-grade, facility power receptacle with protective earth (ground).
- To avoid the risk of electric shock, always disconnect this product from facility power before cleaning.
- Do not touch or make contact with this product and the patient simultaneously.

Failure to comply may cause electrical shock and result in patient or healthcare staff injury.

Environmental Safety

WARNING

FIRE HAZARD

- Do not use this product in areas in which flammable anesthetics or flammable agents are mixed with air, oxygen, or nitrous oxide.

Failure to comply may cause a fire and result in burn injury or property damage.

WARNING

FLUID WASTE LEAKAGE HAZARD

- Always make sure rover power is ON when collecting fluid waste. The rover can only detect a full canister if the rover power is ON. If rover power is OFF, fluid waste leakage can occur.
-

Biological Safety

WARNING

- Always follow the current local regulations and procedures governing biohazard waste to safely handle and dispose of surgical waste.

Failure to comply may cause infection and result in healthcare staff injury.

WARNING

CONTAMINATION HAZARD

- Do not collect fluids from patients being treated with radioisotopes or hazardous chemical agents.
- Always follow the current local recommendations and/or regulations governing environmental protection and the risks associated with recycling or disposing of the product at the end of its useful life.

Failure to comply may cause environmental contamination and result in injury.

WARNING

INFECTION HAZARD

- Always clean and disinfect the rovers as indicated upon initial receipt and before each use.
- Always keep the rover outside the sterile field. The suction tubing with end-effector are used in the sterile field.
- Do not reuse, process, or repackage the non-sterile manifold, a single patient use disposable device.
 - The manifold may not withstand chemical, chemical vapor, or high temperature sterilization processing.
 - Design features may make cleaning difficult.
 - Reuse may create a contamination risk and compromise structural integrity, resulting in operational failure during use.

Failure to comply may lead to infection or cross-infection and result in patient and/or healthcare staff injury.

1.6. Indications For Use

The Neptune S Waste Management System is indicated for use in procedures where collecting and disposing of fluid waste and capturing suctioned tissue specimens is desired. It is intended to be used in operating rooms, pathology, surgical centers, procedure rooms, and for endoscopic procedures, such as colonoscopies, esophagogastroduodenoscopies (EGDs), and bronchoscopies.

1.7. Contraindications

The Neptune S Waste Management System is contraindicated against:

- Connection directly to chest tubes, and
- Connection to closed-wound drainage systems.

Complications particular to the use of this device are: closed wound drainage where vacuum levels below 50 mm-Hg are required; tissue stabilizers where sustained, minimum vacuum level is required; conformal patient positioners where sustained, minimum vacuum level is required; fluid suction power too low during critical part of surgery (inability to achieve hemostasis); and sensitive tissue damage if vacuum power is too high.

1.8. Intended Users

Key clinical users include the surgeon, circulating nurse, scrub tech/nurse, and anesthetist. For gastrointestinal procedures, users include the gastroenterologist, endoscopy technician, and anesthetist.

1.9. Patient Profile

The general patient population is anyone subject to general surgery or diagnostic procedures where the device can be used.

The patient populations at greatest risk are – pediatric/geriatric patients or others with tissue especially sensitive to barotrauma (suction related tissue damage), patients undergoing a procedure where bleeding control could be an issue, and patients at risk for general anesthesia.

2. Product Overview

2.1. System Operation

The Stryker Neptune S Waste Management System consists of the Neptune S Rover (rover), the Neptune 2 Docking Station (docked), and supporting accessories.

The Stryker Neptune S Rover (rover) is a reusable, non-sterile mobile unit that suctions and collects fluid waste during a surgical procedure. Suction is created to facilitate collection via an integrated vacuum pump.

Fluid waste is suctioned from the surgical site through suction tubes connected to the inlet port(s) of a disposable, non-sterile, single patient use manifold installed in the rover. The Neptune S is compatible with various single patient use manifold options, such as the Specimen Collection Manifold and 4-Port Manifold.

The manifold facilitates the collection of surgical tissue and the removal of fluid waste (Figure 1). Once suctioned, the fluid waste is collected in the 8L canister of the rover during a procedure. The rover provides surgical waste management, fluid volume measurement, and a lighted work surface for specimen collection. Fluid volume measurements are shown on the main control panel display and the secondary control panel display.

If the rover display indicates sufficient fluid volume capacity in the canister, the rover may be used for another surgical procedure before waste disposal. Adding fluid from a second procedure on top of the previous procedure is called fluid stacking. See *Glossary* (page 74)

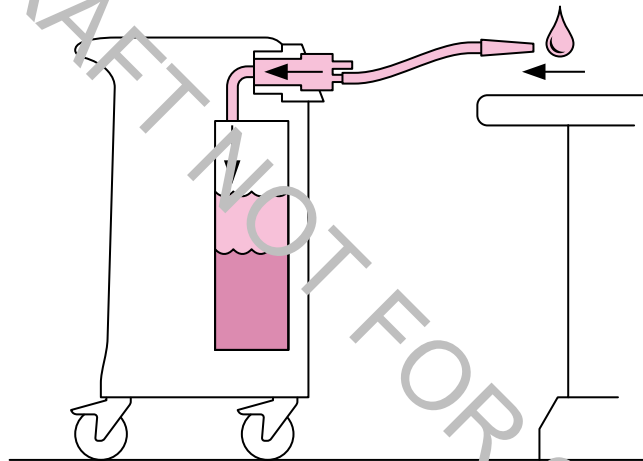


Figure 1 – To Suction and Collect Fluid Waste

After use in a surgical procedure, the rover is relocated and attached to the docker, which is typically installed in a hospital's waste disposal area. Once the rover is attached, the docker empties the rover's canister of fluid waste for subsequent disposal. Cleaning of the interior of the canister takes place immediately after the removal of fluid waste (Figure 2).

The disposal of fluid waste and the cleaning of the rover canister is an automated, closed system process that minimizes exposure to blood borne pathogens.

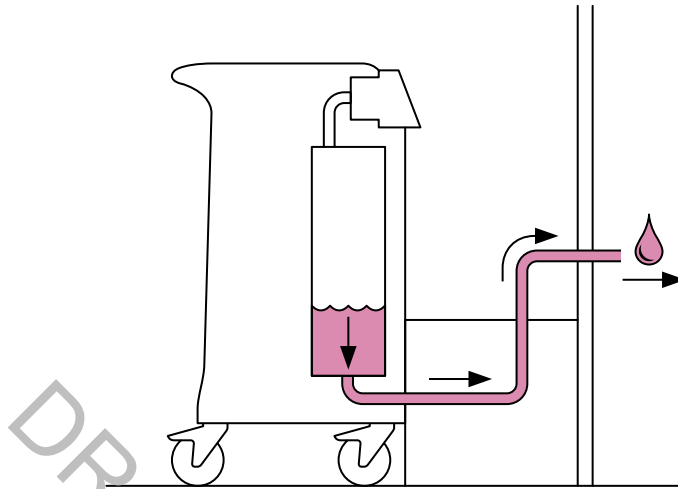


Figure 2 – To Dispose of Fluid Waste

The rover canister is cleaned using Neptune Docking Detergent REF 0700-001-026 and rinsed with high pressure water to remove any residual fluid waste (Figure 3).

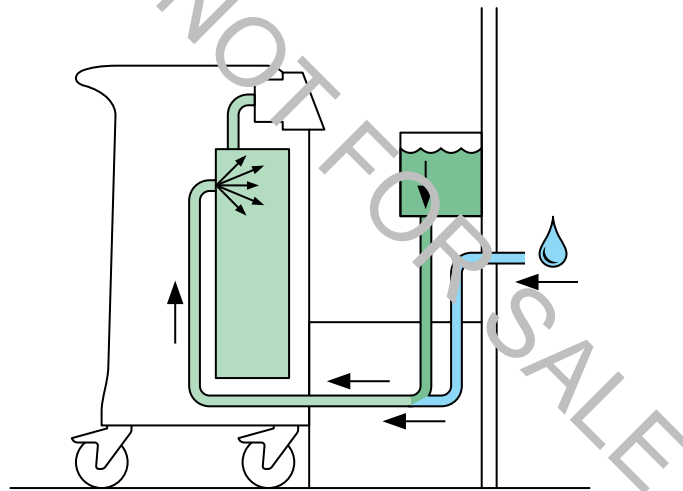


Figure 3 – To Clean the Canister

2.2. System Components and Interface

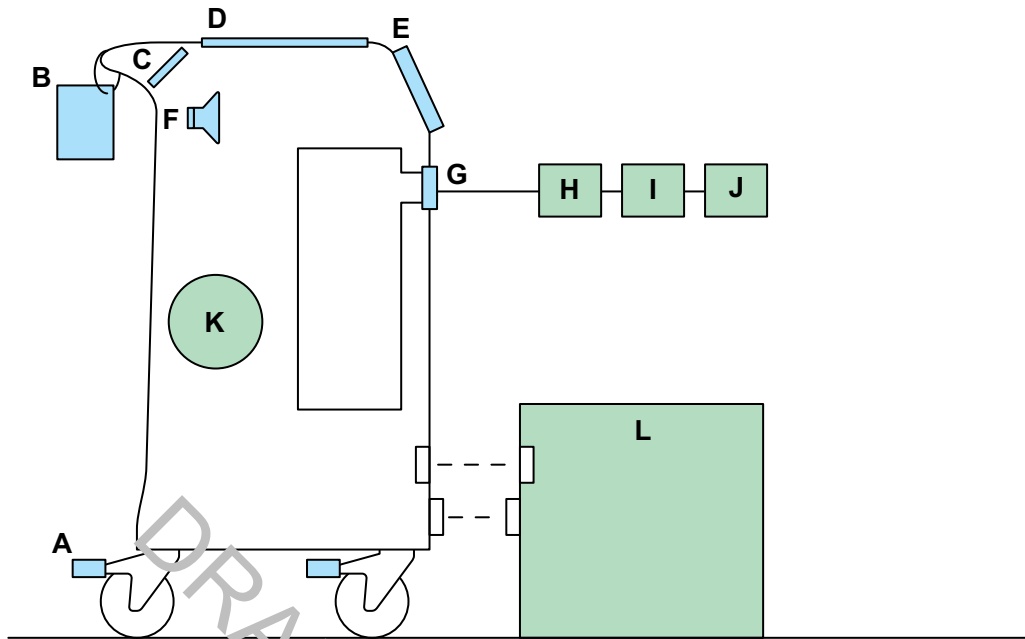


Figure 4 – Components and Interface Diagram

User Interface			
A	Caster Locks — Four locks prevent unintended rover movement.	B	Quick Reference Card (QRC) — Includes safety and troubleshooting information.
C	Secondary Control Panel — Includes buttons and a display.	D	Work Surface — Illuminated work surface facilitates specimen collection.
E	Main Control Panel — Includes a touch-sensitive display and a suction control dial.	F	Speaker — Provides audible feedback and status.
G	Suction Range Indicator — Provides visual feedback and status.		
Required Components			
H)	Manifold — Fluid suction manifold is a single-use, disposable device.	I)	Tubing — Fluid suction tubing is a single-use, disposable device.
J)	Effector — Suction-end effector is a single-use disposable device.	K)	Filter — Fluid suction High Efficiency Particulate Air (HEPA) filter provides air filtration of the air evacuated from the fluid collection canister before the air is vented.
L)	Docker — Neptune 2 Docking Station provides fluid waste transfer to facilitate disposal.		

2.3. For Use With

⚠ WARNING - Use only Stryker-approved equipment, unless otherwise specified.

⚠ WARNING - The manifold is for single patient use only. Do not reuse, reprocess, service, modify, or repackage a single use device.

- The single use device may not withstand chemical, chemical vapor, or high temperature sterilization reprocessing.
 - Design features may make cleaning difficult.
 - Reuse may create a contamination risk and compromise structural integrity, resulting in operational failure during use.
- Failure to comply may lead to infection or cross-infection and result in patient and/or healthcare staff injury.

i Note - Contact Stryker for a complete list of accessories.

Table 1 – Docking Station and Accessories

Rover Model	Description	REF
All rovers	Neptune Docking Detergent (2/pack)	0700-001-026
120V Rover (0711-001-000, 0711-004-000, 0711-005-000)	Neptune 2 Docking Station (120 VAC)	0702-014-000
230V Rover (0711-002-000XX)	Neptune 2 Docking Station (230 VAC)	0702-015-000
100V Rover (0711-003-000)	Neptune 2 Docking Station (100 VAC)	0702-016-000

Table 2 – Fluid Suction Filter, Manifolds, Tubing, and Console Support Bracket

Rover Model	Description	REF
All rovers	Fluid Suction HEPA Filter (1 each)	0702-034-000
	Neptune S Console Bracket ¹	0711-500-000
	V2 Specimen Collection Manifold Kit, includes specimen collection tray	0750-200-000
	V2 Specimen Collection Tray (50 each)	0750-210-000
	V2 4-port Manifold	0750-400-000
	Medical grade fluid suction tubing with 3/8-inch connector	Commercially available

i Note - Neptune S Console Bracket¹ A Stryker SafeAir Combi or Compact Console may be attached to the illuminated work surface of the rover using this bracket. See the instructions for use supplied with the bracket.

i Note - The fluid suction tubing is an applied part. See *Glossary* (page 74) for definition of applied part.

Table 3 – Power Cords¹

Rover Model	Plug Type Description	REF
120V Rover (0711-001-000, 0711-004-000, 0711-005-000)	B (NEMA)	0996-851-511
230V Rover (0711-002-000EI)	I (AS/NZS)	0996-851-517
230V Rover (0711-002-000EG)	G	0996-851-515
230V Rover (0711-002-000EF, 0711-002-000XX ²)	E/F	0996-851-512
230V Rover (0711-002-000DA)	K	0996-851-520
230V Rover (0711-002-000ZH)	I (GB)	0996-851-518
230V Rover (multiple ³)	J	0996-851-519
100V Rover (0711-003-000)	B, JIS	0996-851-513

¹See *Power Cord Specifications* (page 68).

²0711-002-000FR, 0711-002-000ES, 0711-002-000DE, 0711-002-000IT, 0711-002-000PT, 0711-002-000NL, 0711-002-000SV, 0711-002-000FI, 0711-002-000NO, 0711-002-000PL

³Switzerland and Liechtenstein – Rover selected based on language preference. Type J power cord is shipped separately.

2.4. Documentation

⚠ WARNING - See the instructions for use supplied with each system component for important information.

Instructions for Use	REF
Neptune 2 Docking Station (JA)	700000341844
V2 Specimen Collection (SC) Manifold (ML)	700000969865
V2 4-Port Manifold (ML)	700000969868
Neptune 2 Docking Station (EN)	0702-014-700
Neptune 2 Docking Station (FR-CA)	0702-015-712
Neptune 2 Docking Station (ES/DE/FR/IT/NL)	0702-015-717
Neptune 2 Docking Station (ZH/KO)	0702-015-720
Neptune 2 Docking Station (SV/DA/FI/PT/NO)	0702-015-730
Neptune 2 Docking Station (PL/EL)	0702-015-740
Fluid Suction HEPA Filter (ML)	0702-034-700

2.5. Features — Hardware

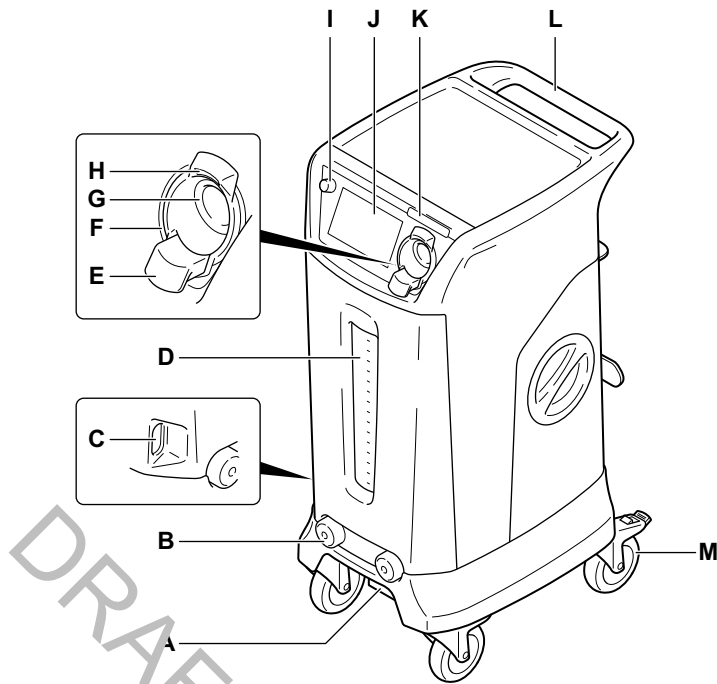
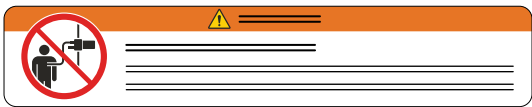


Figure 5 – Rover — Front View

A	Docking Station Interface — Provides a path for fluid waste transfer from the rover to the docker. Provides water and detergent transfer from the docker to the rover.	B	Strike Plates — Facilitates the physical connection to the docker's electromagnets to hold the rover in place.
C	Communication Window — Allows infrared (IR) data transfer between the docker and the rover.	D	Fluid Suction Canister 8L (8-liter) — Allows for the collection and containment (storage) of fluid waste during a surgical procedure. The canister has interior illumination.
E	Eject Button — Facilitates the removal of the manifold.	F	Suction Limit Range Indicator — Ring style indicator provides color-coded information about the suction limit range setting. See Suction Limit Ranges and Colors.
G	Manifold Receptacle — Allows for the installation of a single-use, disposable manifold.	H	Specimen Light — Enables user to view the polyp material or tissue captured within the manifold.
I	Suction Control Dial — Used to select (clockwise to increase, counterclockwise to decrease) the SUCTION LIMIT. Selection determines the maximum suction possible in the canister. Suction will never exceed the selected SUCTION LIMIT.	J	Main Control Panel Display — Provides interface to start and stop suction via a touch-sensitive, color display. Important alert and status information are also provided.
K	HIGH SUCTION DEVICE WARNING Label 	L	Handle — Allows for relocation and positioning of the rover.
M	Casters (four) — Swivel casters provide mobility for the rover to roll across a floor. All casters have locks to prevent unintended movement.		

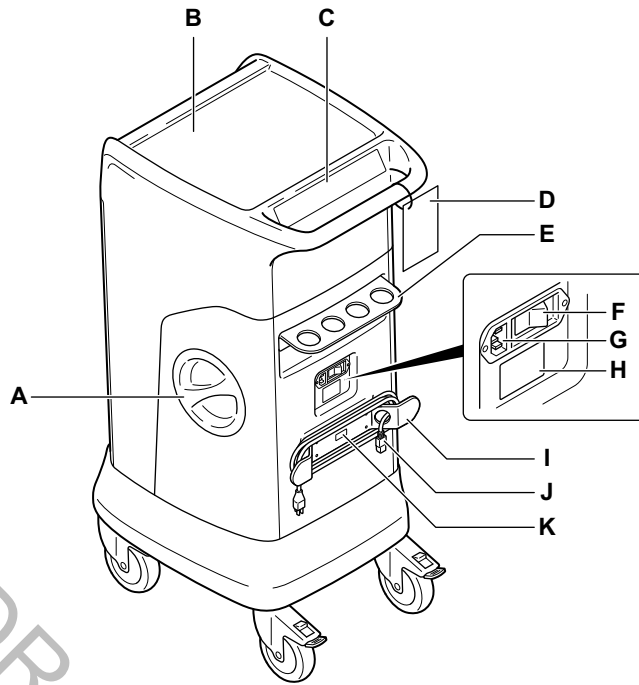


Figure 6 – Rover — Back View

A	Fluid Suction Filter Compartment — Contains a disposable fluid suction HEPA filter (included). See <i>To Inspect the Equipment</i> (page 51).	B Lighted Work Surface — Provides an illuminated work area to aid in specimen collection. Surface may also support a Stryker smoke evacuation systems when using the console support bracket. See <i>For Use With</i> (page 12).
C	Secondary Control Panel — While roving and in use, panel displays procedure fluid volume. While docked, the panel provides buttons to select wash cycle options and displays wash cycle status.	D Quick Reference Card (QRC) — Provides point-of-use access to safety information and troubleshooting. See <i>Components Supplied with the Rover</i>
E	Manifold Holder — Store new, unused single-use, disposable manifolds.	F Power Switch — Used to turn the rover ON and OFF.
G	Power Cord Receptacle — Facilitates connection to facility electrical power.	H Specification Label — Identifies the model and part number information.
I	Power Cord Bracket — Allows for the wrapping and storage of the supplied power cord. See <i>Power Cord Specifications</i> (page 68).	J Power Cord with Retainer — Used to connect the rover to facility electrical power. Locking feature prevents cord disconnection.
K	Serial Number Label — Identifies the serial number information of the rover.	

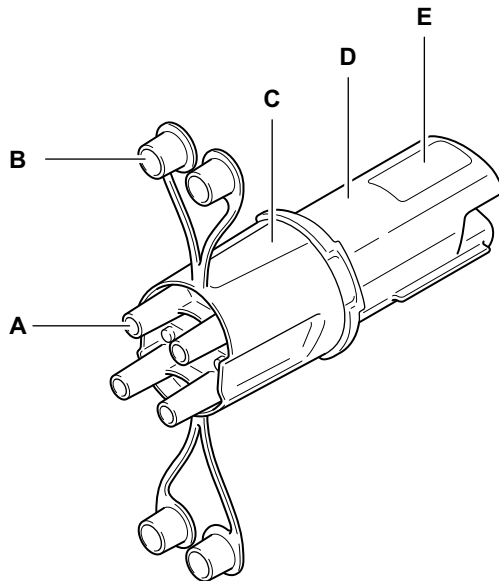


Figure 7 – V2 4-Port Manifold

A	Port (four) —Allows for the connection of multiple lines of suction tubing.	B	Port Cap (four) — Allows for the closure of a manifold port.
C	Front Housing — Provides an interface between the medical-grade tubing and the manifold to facilitate fluid collection.	D	Rear Housing — Provides an interface between the manifold and the rover's 8L canister.
E	RFID Tag — Authenticates the manifold before enabling use. Allows the rover to communicate manifold status (new, used, or expired).		

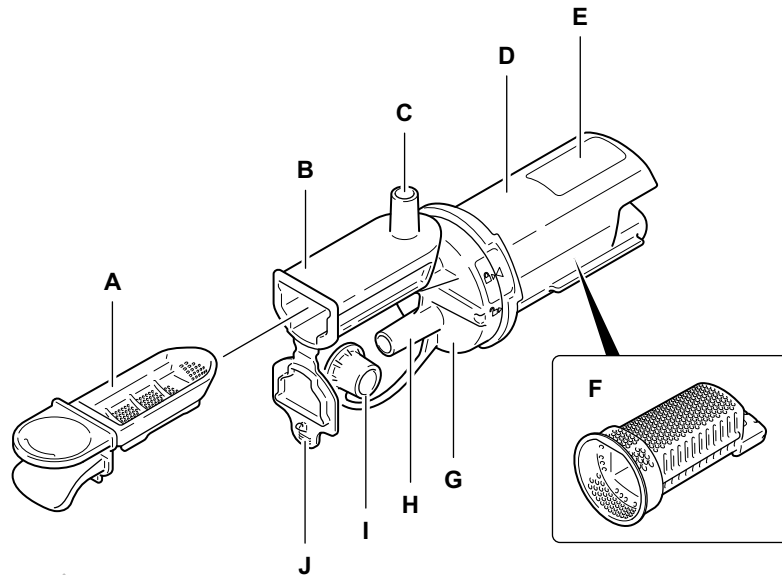


Figure 8 V2 Specimen Collection (SC) Manifold Kit (with Collection Tray)

A	Collection Tray (removable) — Allows for the collection of small tissue specimens in a variety of procedures. Use of the tray allows for continuous suction without removing or reconnecting suction tubing.	B	Collection Tray Port — Allows for the installation of the collection tray.
C	Primary Port — Provides the main interface between the medical-grade tubing and the manifold. Used to facilitate fluid collection. Always attach the suction tube/device to the primary port.	D	Rear Housing — Provides an interface between the manifold and the rover's 8L canister.
E	RFID Tag — Allows for authentication of the manifold before enabling suction use. Allows the rover, via the user interface, to communicate manifold status (new, used, or expired).	F	Secondary Collection Basket — Located in the rear housing, provides a backup collection method for capturing a tissue specimen in case the collection tray is not installed. May also be used as a primary collection method for larger specimens. Both the primary port and the auxiliary secondary port lead to the basket.
G	Front Housing Cap — Provides access to the specimen basket.	H	Auxiliary Secondary Port — Provides a port for secondary suction, if required.
I	Bottom Port Cap — Allows for the closure of the bottom port.	J	Collection Tray Port Door — Allows for the closure of the collection tray port when the collection tray is not installed.

2.6. Features — Software Menu

The main control panel display has a menu structure that provides access to the key control functions (Figure 9).

Note - The SUCTION UNITS control function is for international customers only and will appear disabled for US customers.

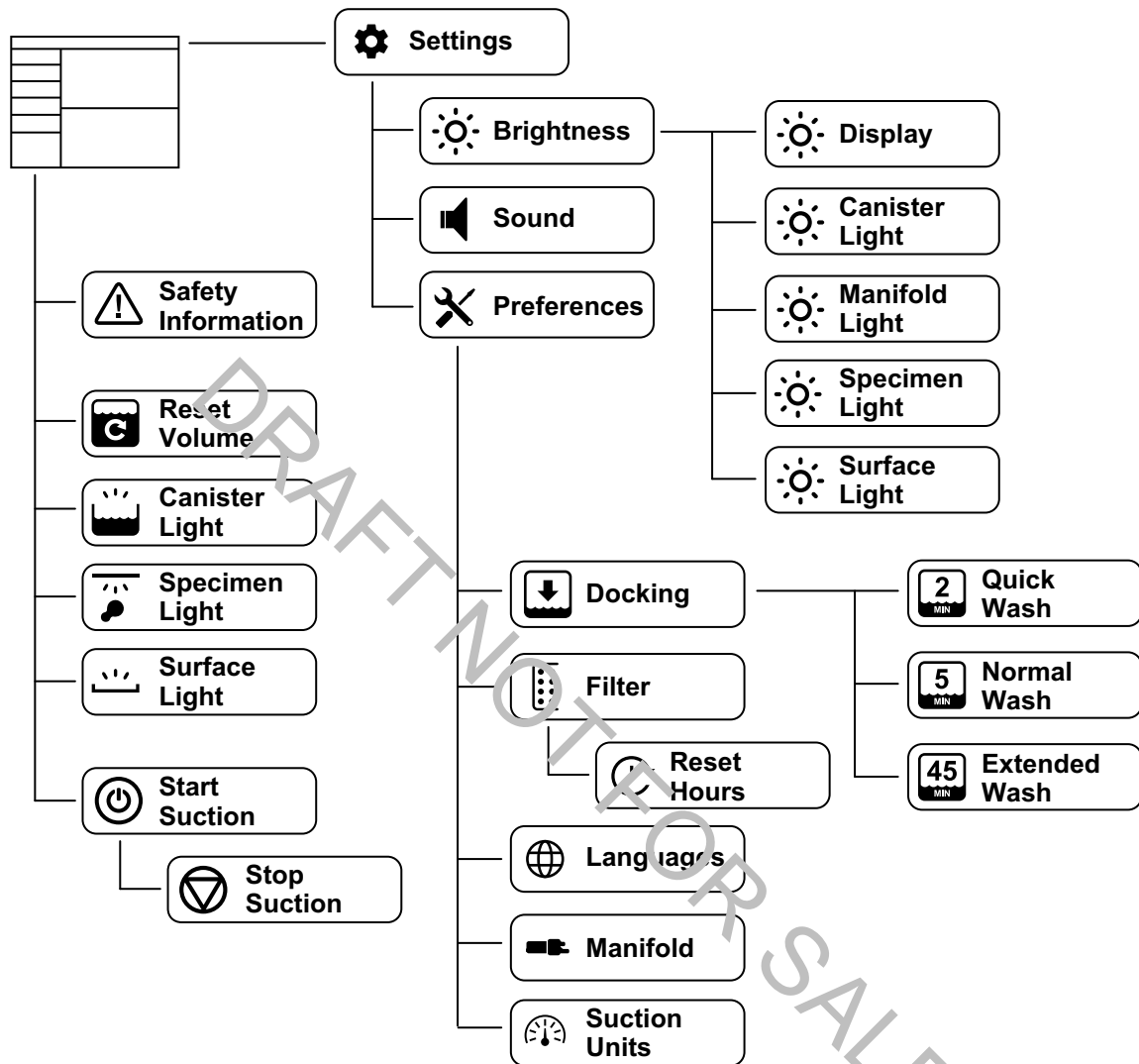


Figure 9 – Rover Menu Structure

2.7. Features — Software Screens

i Note - The software version number appears in the upper right corner of the main control panel display WARNING screen (Figure 10). Make sure the number on the screen matches the software version number on the cover of this instructions for use. If not, contact your Stryker sales representative or call service to obtain the latest instructions for use manual. See *Contact Information* (page 4).

i Note - A passive drain connection warning label instructs users against connecting passive drainage (such as chest tube or closed wound drain tube) to the Neptune S Waste Management System.

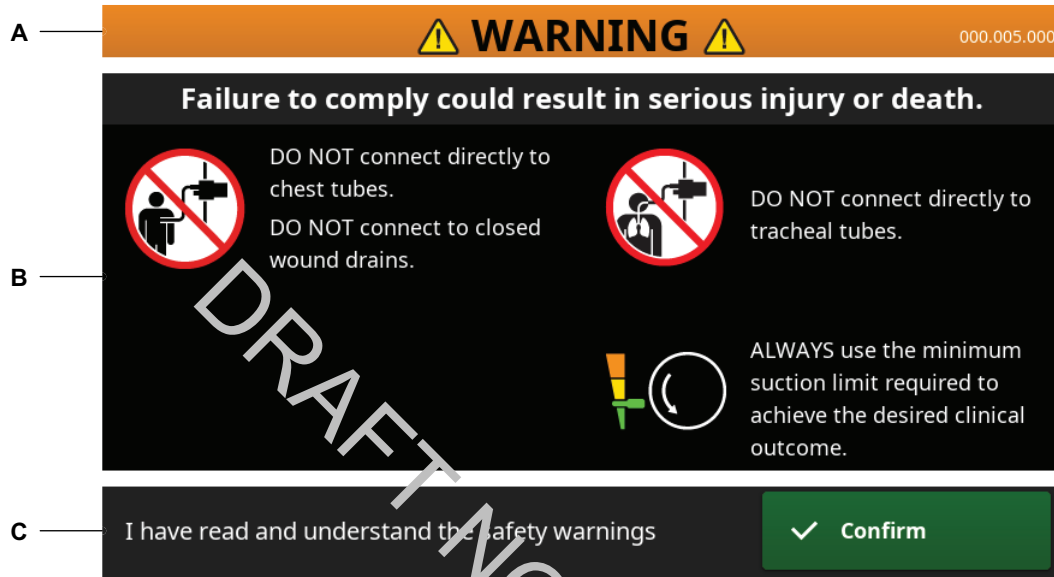


Figure 10 – Safety Information Screen

A	Title Area — Indicates WARNING signal word and rover software revision number.	B	Message Area — Provides important safety information.
C	Response Area — Provides a CONFIRM button to acknowledge the understanding of safety information and allow use of the rover.		

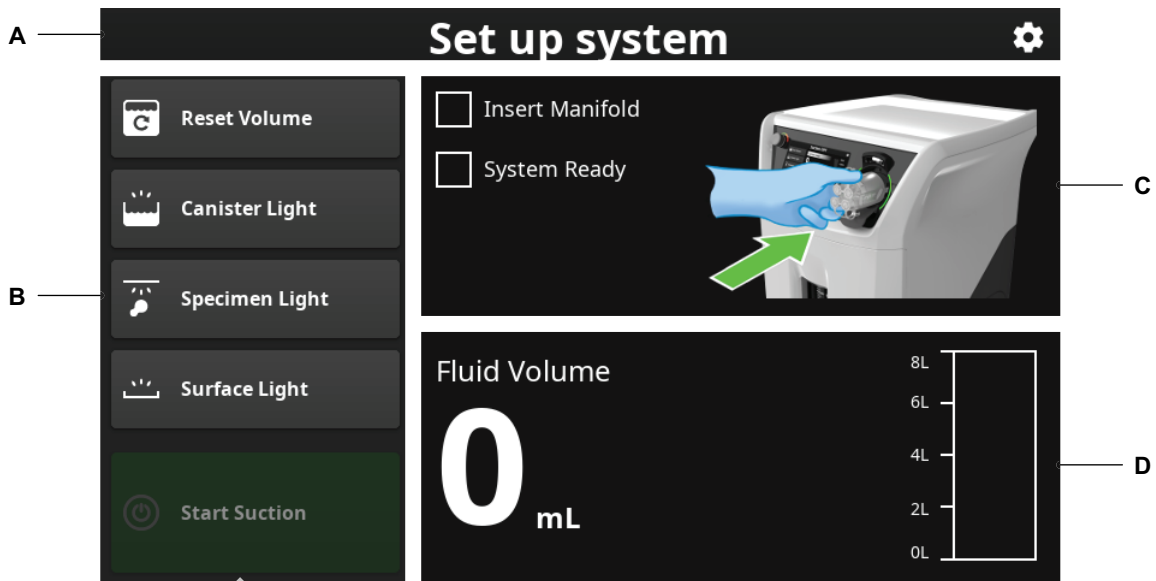


Figure 11 – Set Up System Screen

A	Title Area — Indicates the name of screen and the SETTINGS button. See <i>To Adjust the Settings</i> (page 34).	B	Secondary Operating Area — Provides secondary operating buttons to control functions of the rover.
C	Instruction and Status Indicator Area — Indicates the status of the manifold installed in the receptacle. Status conditions include new or used. See <i>Manifold Symbol Screen Colors</i> .	D	Canister Information Area — Provides fluid volume information via a 8L canister symbol and a fluid volume reading. If the canister volume is reset, the words 'since last reset' will appear. See <i>Fluid Level Gauge/Indicator Colors</i> .

i Note - The rover has a main control panel screen and a secondary control panel display. The main control panel display shows the suction level and fluid volume, and provides controls to start and stop suction, reset the fluid volume, and turn on different lights on the rover.

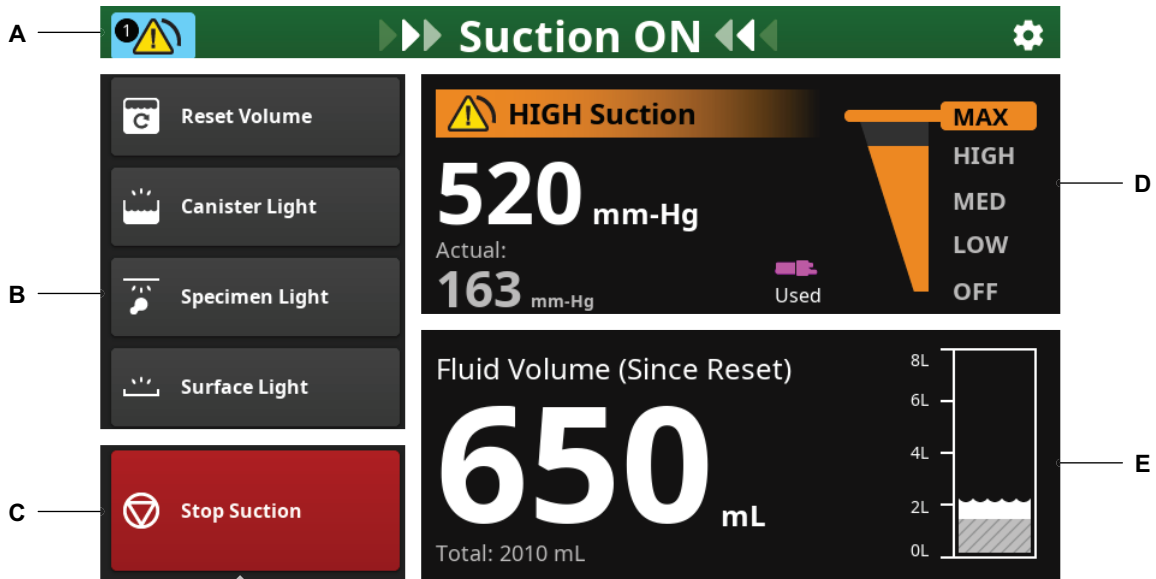


Figure 12 – Main Control Panel Display Screen

A	<p>Title Area — Indicates the name of screen, any notification or error indicators, and the SETTINGS button. See <i>To Adjust the Settings</i> (page 34).</p>	B	<p>Secondary Operating Area — Provides secondary operating buttons to control functions of the rover.</p>
C	<p>Suction Control Area — Provides a START/STOP button to control fluid suction.</p>	D	<p>Fluid Suction Information Area — Indicates the fluid suction status, including SUCTION LIMIT, SUCTION STOPPED or HIGH SUCTION. Indicates the selected suction LIMIT value in mm-Hg. Three suction limit ranges are provided, including LOW, MEDium, and HIGH. See <i>Suction Limit Ranges and Colors</i>. The ACTUAL SUCTION value is displayed and may vary. This value will almost always be lower than the SUCTION LIMIT, but will not exceed the limit. The manifold status (new, used) is also displayed. See <i>Manifold Symbol Screen Colors</i>.</p>
E	<p>Fluid Volume Information Area — Indicates the fluid volume collected in mL, including the total fluid collected and the amount of fluid collected since the last reset. A fluid level gauge provides a visual of the fluid volume captured. See <i>Fluid Level Gauge/Indicator Colors</i>.</p>		

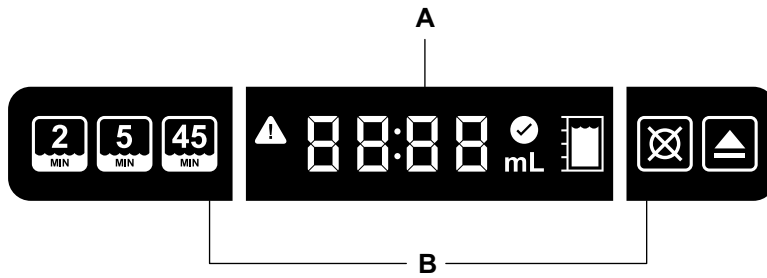


Figure 13 – Secondary Control Panel

<p>A Status Area — Provides fluid volume status during the roving mode, including almost full and full canister messages. During the docked mode, the area provides wash cycle status, including the time remaining for the wash cycle to complete, any potential error messages, and a confirmation of completion.</p>	<p>B Wash Cycle Control Areas — Allows for the manual selection of a wash cycle option. Manual selection will override the default cycle setting. Also provides a button to abort an active wash cycle and an eject button to detach the rover from the docker after a complete wash cycle. For additional wash cycle option information, see <i>To Dock the Rover</i> (page 54).</p>
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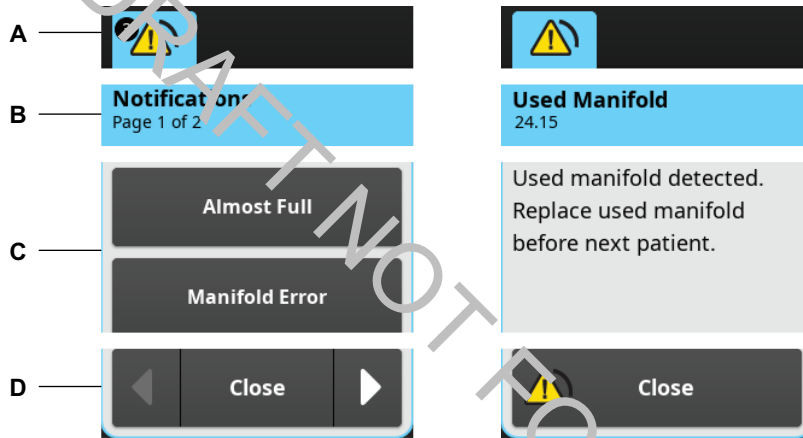


Figure 14 – Notification Dialog Areas

<p>A Notification Message Indicator Area — Indicates the notification status of the rover and the number of messages. Action may be required.</p>	<p>B Title Area — Identifies the message type and the message code. See <i>Troubleshooting Codes</i> (page 62).</p>
<p>C Message/List Area — Provides specific message information. If more than one message appears, a list of message buttons appears. Each button allows access to a specific message.</p>	<p>D Response Area — Provides a CLOSE button to exit a message or drop-down. If more than one message appears, BACK and FORWARD buttons appear to allow scrolling through the message buttons.</p>

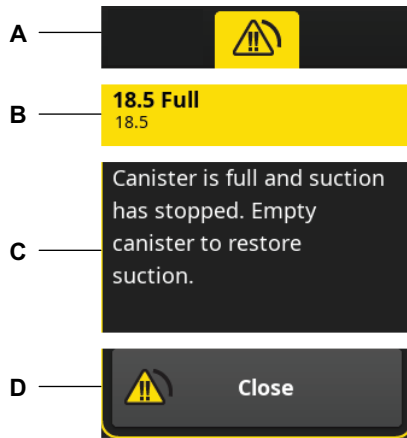


Figure 15 – Error Dialog Areas



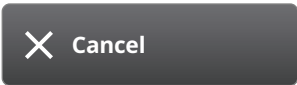




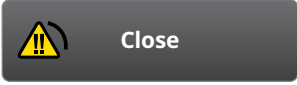



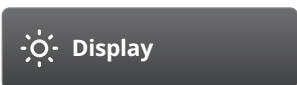
A	Error Message Indicator Area — Indicates the error status of the rover and the number of messages. Action is required.	B	Title Area — Identifies the message type and the message code. See <i>Troubleshooting Codes</i> (page 62).
C	Message/List Area — Provides specific message information. If more than one message appears, a list of message buttons appears. Each button allows access to a specific message.	D	Response Area — Provides a CLOSE button to exit a message or drop-down. If more than one message appears, BACK and FORWARD buttons appear to allow scrolling through the message buttons.








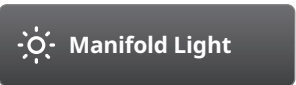




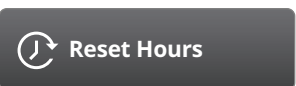
2.8. Definitions

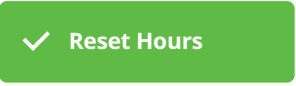



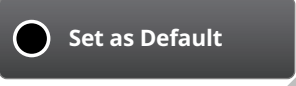








i Note - Additional product and/or labeling symbols are defined in the Symbol Definition Chart supplied with the product.

i Note - See Figure 9 for the location of dialog menus and buttons described in Main Control Panel Display Buttons.

Table 4 – Main Control Panel Display Buttons

BUTTON	NAME	FUNCTION
	BACK	Touch to scroll through error or notification messages.
	BRIGHTNESS (SETTINGS)	From the BRIGHTNESS dialog menu, select one of the brightness adjustment options, including the DISPLAY, CANISTER LIGHT, MANIFOLD LIGHT, (suction range indicator), SPECIMEN LIGHT and SURFACE LIGHT. Brightness may be adjusted (increased or decreased) as required.
	CANCEL	Touch to cancel a dialog selection.
	CANISTER LIGHT (BRIGHTNESS)	From the BRIGHTNESS dialog menu, touch the CANISTER LIGHT button. Touch the UP and DOWN arrows to increase or decrease the brightness of the 8L canister light.
	CANISTER LIGHT (CONTROL)	Touch to turn ON or OFF the light inside the 8L canister.
	CHANGE LANGUAGE CONFIRMATION	Touch to apply the selected language.
	CLOSE	Touch to exit a dialog menu or dialog control.
	CLOSE ERROR MESSAGE	Touch to exit an error message.
	CLOSE NOTIFICATION MESSAGE	Touch to exit a notification message.
	CONFIRM	Touch to acknowledge understanding of important safety information or allow the performance of a critical and/or irreversible action.
	DEFAULT CYCLE (DOCKING)	From the DOCKING dialog menu, touch the toggle button to enable or disable the default cycle to be performed when the rover is connected to the docker. The QUICK WASH option is selected as the DEFAULT CYCLE.
	DISPLAY (BRIGHTNESS)	Touch the SETTINGS button to access the SETTINGS dialog menu. Touch the BRIGHTNESS button to access the BRIGHTNESS dialog menu. Touch the DISPLAY button. Touch the UP and DOWN arrows to increase or decrease the brightness.

BUTTON	NAME	FUNCTION
	DOCKING (PREFERENCES)	From the DOCKING dialog menu, select one of the three available wash cycle options as the default cycle to be performed automatically when the rover is connected to the docker. QUICK WASH is the DEFAULT CYCLE selected.
	DOWN/DECREASE	Touch and hold to scroll down a list of options or decrease a setting value.
	ERROR MESSAGE INDICATOR	Touch to access error message information. A drop-down list of one or more messages will appear. Touch the FORWARD button or the BACK button to scroll through the error messages as required.
	FILTER (PREFERENCES)	Touch to access the FILTER dialog and view the fluid suction HEPA filter status (hours used). Touch the RESET HOURS button after the installation of a new fluid suction HEPA filter to reset the hours used to zero.
	FORWARD	Touch to scroll through error or notification messages.
	KPA (SUCTION UNITS) (international models of the rover only)	From the SUCTION UNITS dialog menu, touch the toggle button to enable or disable the default suction units. Select the millimeters of mercury (mm-Hg) unit or the kilopascal (kPa) unit, as required.
	LANGUAGES (PREFERENCES)	From the PREFERENCES dialog menu, touch the LANGUAGES button. Touch the UP and DOWN arrows to scroll through the available language options. Select the appropriate language, as required. Confirm the selected language. The LANGUAGES dialog menu is disabled if suction is ON.
	MANIFOLD LIGHT (BRIGHTNESS)	From the BRIGHTNESS dialog menu, touch the MANIFOLD LIGHT button. Touch the UP and DOWN arrows to increase or decrease the brightness.
	MANIFOLD (PREFERENCES)	From the PREFERENCES dialog menu, touch the MANIFOLD button to view manifold usage during 30 day and 90 day periods.
	MM-HG (SUCTION UNITS)	From the SUCTION UNITS dialog menu, touch the toggle button to enable or disable the default suction units. Select the millimeters of mercury (mm-Hg) unit or the kilopascal (kPa) unit, as required.
	NOTIFICATION MESSAGE INDICATOR	Touch to access notification message information. A drop-down list of one or more messages will appear. Touch the FORWARD button or the BACK button to scroll through the notification messages as required.
	PREFERENCES (SETTINGS)	From the PREFERENCES button, select the setting option available, including the DOCKING button, the FILTER button, the LANGUAGES button, the MANIFOLD button, or the SUCTION UNITS button.
	RESET HOURS	Touch to reset the hours of use to zero after installing a new fluid suction HEPA filter. ALWAYS reset the hours of use after the installation of a new filter.

BUTTON	NAME	FUNCTION
	RESET HOURS CONFIRMATION	Touch to apply reset selection.
	RESET VOLUME	Touch to access the RESET VOLUME dialog and reset the canister fluid volume value to zero.
	RESET VOLUME CONFIRMATION	Touch to apply reset selection.
	RETURN	Touch to exit a dialog and return to a previous dialog menu.
	SET AS DEFAULT OFF (DOCKING)	From the DOCKING dialog menu, touch the SET AS DEFAULT button to enable or disable the default cycle to be performed when the rover is connected to the docker. The NORMAL WASH cycle or the EXTENDED WASH cycle may be selected as the DEFAULT.
	SETTINGS	Touch to access the SETTINGS dialog menu. Select and adjust the system settings, as required, including BRIGHTNESS, SOUND, AND PREFERENCES. See <i>To Adjust the Settings</i> (page 34).
	SOUND (SETTINGS)	Touch to access the SETTINGS dialog menu. Touch the SOUND button to access the SOUND dialog menu. Touch the UP and DOWN arrows to increase or decrease the volume or loudness of the audible indicator. See Audible Event Indicators.
	SPECIMEN LIGHT (BRIGHTNESS)	From the BRIGHTNESS dialog menu, touch the SPECIMEN LIGHT button. Touch the UP and DOWN arrows to increase or decrease the brightness.
	SPECIMEN LIGHT (CONTROL)	Touch to turn ON or OFF the light that illuminates the contents of the specimen collection manifold.
	START SUCTION	Touch to start fluid suction.
	STOP SUCTION	Touch to stop fluid suction.
	SURFACE LIGHT (BRIGHTNESS)	From the BRIGHTNESS dialog menu, touch the SURFACE LIGHT button. Touch the UP and DOWN arrows to increase or decrease the brightness.
	SURFACE LIGHT (CONTROL)	Touch to turn ON or OFF the light provided for the work surface.



BUTTON	NAME	FUNCTION
	SUCTION UNITS (PREFERENCES) (international models of the rover only)	The SUCTION UNITS button will appear disabled for US customers.
	UP/INCREASE	Touch and hold to scroll up a list of options or increase a setting value.

Table 5 – Secondary Control Panel Buttons






BUTTON	NAME	FUNCTION
	ABORT	Touch to abort a wash or extended wash cycle while the time remaining in the cycle is greater than or equal to three (3) minutes. When selected, a quick drain cycle will occur.
	EXTENDED WASH	Touch to drain the contents of the canister, apply detergent to the interior walls of the canister, and rinse the detergent with water. Intermittent periods of soaking occur during the cycle.
	NORMAL WASH	Touch to drain the contents of the canister, apply detergent to the interior walls of the canister, and rinse the detergent with water. More rinse cycles occur.
	QUICK WASH	Touch to drain the contents of the canister, apply detergent to the interior walls of the canister, and rinse the detergent with water. Fewer rinse cycles occur.
	RELEASE	Touch to disengage and release the rover from the locker after completion of a wash cycle.

Table 6 – Main Control Panel Display Symbols



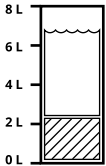

SYMBOL	DEFINITION
	Adjust Brightness (menu dialog)
	Audible Indicator Loudness (menu dialog)
	Fluid Level Gauge with two liter increment marks/values. See Fluid Level Gauge/Indicator Colors.
	Manifold. See Manifold Symbol Screen Colors.

Table 7 – Secondary Control Panel Display Symbols





SYMBOL	DEFINITION
	Almost Full Fluid Level Gauge Indicator
	Full Fluid Level Gauge Indicator
	Wash Cycle Complete
	Wash Cycle Error

Table 8 – Rover Symbols








SYMBOL	DEFINITION
	Off Power Switch
	On Power Switch
	Eject Manifold Button
	Lock Filter Cover
	Unlock Filter Cover
	Align Lock/Unlock
	Align Lock/Unlock

Table 9 – HEPA Filter Symbol

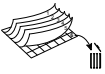
SYMBOL	DEFINITION
	Replace this filter every six (6) months or as indicated by the rover.

Table 10 – Manifold Symbols




SYMBOL	DEFINITION
	Align Lock/Unlock
	Lock
	Unlock

Table 11 – Labeling Symbols



SYMBOL	DEFINITION
	Refer to the Instruction Manual/Booklet (blue); ISO 7010–M002
	General Warning Sign (yellow); ISO 7010–W001

Table 12 – Suction Limit Ranges and Colors






COLOR	SUCTION LIMIT RANGE	VALUE (mm-Hg)	INCREMENT (mm-Hg)
 MAX	MAXimum (orange)	520	Not applicable
 HIGH	HIGH (orange)	120 to 520	20
 MED	MEDium (yellow)	80 to 115	5
 LOW	LOW (green)	50 to 75	5
 OFF	OFF (white)	0	Not applicable

Table 13 – Screen Title Area Colors




COLOR	DEFINITION
	Indicates SET UP SYSTEM or SUCTION OFF (gray)
	Indicates SUCTION ON (green)
	Indicates WARNING (orange)

Table 14 – Button or Option Colors



COLOR	DEFINITION
	Indicates CONFIRM, START SUCTION, or SELECTED (green)
	Indicates STOP SUCTION (red)

Table 15 – Manifold Symbol Screen Colors





COLOR	DEFINITION
	Indicates USED manifold (pink)
	Indicates NEW manifold (white)

Table 16 – Fluid Level Gauge/Indicator Colors

COLOR	DEFINITION
	Indicates canister fluid volume is ALMOST FULL (blue)
	Indicates the previous procedure fluid volume captured after RESET selected (gray crosshatch)

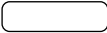

COLOR	DEFINITION
	Indicates the current procedure fluid volume captured after RESET selected (white)
	Indicates canister fluid volume is FULL (yellow)

Table 17 – Message Area Colors



COLOR	DEFINITION
	Indicates NOTIFICATION message (blue)
	Indicates ERROR message (yellow)

Table 18 – Audible Event Indicators

EVENT	INDICATION	TRIGGER
Button Touch	Click tone	Main control panel display and secondary control panel display button actuation
Error	Three slow tones, three times	Any error message
Initial Startup	Chime tone	Startup screen with progress bar
Notification	Two declining tones	Any notification message
Task Complete (confirmation)	Ding tone	Valid manifold installed successfully

Table 19 – Abbreviations and Acronyms

NAME	DEFINITION
AC	Alternating Current
CA	Canadian
DC	Direct Current
HEPA	High Efficiency Particulate Air
IR	Infrared wavelength light
kPA	Kilopascal
L	Liter
MAX	Maximum
MED	Medium
MIN	Minimum or Minutes
mL	Milliliter
ML	Multilanguage
mm-Hg	Millimeter of mercury
OR	Operating Room

3. Getting Started

3.1. To Unpack the Rover

⚠ WARNING - LIFT HAZARD: Always have more than one person unpack and remove this equipment from the shipping pallet. See *Specifications* (page 66) for rover weight. Failure to comply may result in personal injury.

⚠ WARNING - Upon initial receipt and before each use, inspect each component for damage. Do not use the product if damage is apparent.

CAUTION - Always save the original packaging container for reuse. Failure to comply may result in damage during transport to the Stryker customer service center. See *Service* (page 65).

1. Remove the exterior packaging material from the rover. Recycle the material as required.
2. Using at least two people, remove the rover from the shipping pallet.
3. Make sure all of the components are supplied with the rover. Some components may vary based on market requirements. See *Components Supplied with the Rover*
4. Inspect the rover and components for damage. If any of the components are missing or damaged, do not use the equipment. See *Contact Information* (page 4)

Table 20 – Components Supplied with the Rover

Description	Part Number
Symbol Definition Chart	0036-716-000
Neptune S Rover Instructions for Use (IFU)	700000969828
Neptune S Docking Station Instructional Poster	700000995644
Neptune S Quick Reference Card	70000095352
Neptune S Software Disclosure	70000105531
Power Cord ¹	0996-851-010

¹For power cord options that meet country-specific requirements and are acceptable for use with the rover, see *Power Cord Specifications* (page 68) (country-specific).

3.2. To Add Canister Prefill Fluid

Before the rover may be tested and placed into use, initial docking is required. Initial docking will add prefill fluid to the canister. See *To Dock the Rover* (page 54). Failure to comply will result in prefill errors and prevent the rover from operating properly. See *Glossary* (page 74) for definition of prefill fluid.

3.3. To Test the Rover

3.3.1. To Connect Power

i Note - Before first use, initial docking is required. Initial docking will add prefill fluid to the canister. See *To Dock the Rover* (page 54). Failure to comply will result in prefill errors and prevent the rover from operating properly. See *Glossary* (page 74) for definition of prefill fluid.

1. Connect the rover to facility electrical power using the supplied power cord. Insert the plug of the power cord through the strain relief hole before connecting the power cord to the rover (Figure 16). The power cord plug has a latched release button to prevent unintended removal from the rover power receptacle.

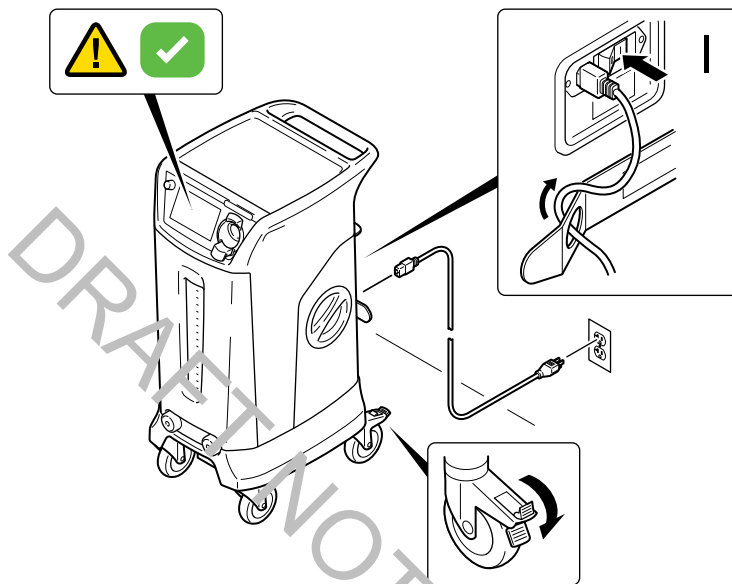


Figure 16 – To Connect Power

2. Push the power switch to the ON position.
3. To ensure safe use of the rover, read the safety warnings on the screen. Touch the CONFIRM button to acknowledge understanding.

3.3.2. To Test Suction

[i] Note - A SET UP SYSTEM screen will appear () after confirmation of the safety information. A valid manifold must be inserted into the manifold receptacle to enable suction control.

1. Obtain a new manifold and remove the manifold from its packaging.
2. Insert the new (valid) manifold into the manifold receptacle. Confirm on screen that the manifold is new and unused.

[i] Note - If the manifold is valid and inserted correctly, a SYSTEM READY indication will occur, a manifold indicator will illuminate white (NEW) or pink (USED), and suction control will be enabled (START SUCTION button enabled). See *Glossary* (page 74) for the definitions of a new, valid, used, expired, and invalid manifold.

3. Make sure all the inlet ports of the manifold are closed.
4. Touch the START SUCTION button (Figure 17).

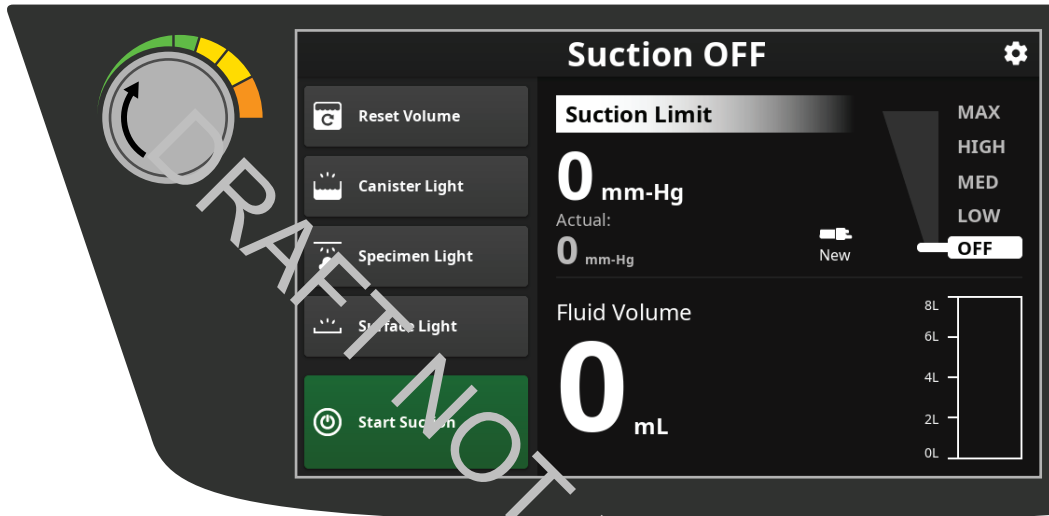


Figure 17 – To Start and Adjust Suction

5. Adjust the manual suction control dial to the maximum suction level.
6. Verify the actual suction value changes as indicated on the main control panel display and reaches a suction level of at least 494 mm-Hg. If not, see *Troubleshooting* (page 58).
7. Discard the manifold used for testing purposes.

3.4. To Adjust the Settings

i Note - Make sure the rover has been initially prefilled, tested, and powered up.

i Note - See Figure 9.

1. From the main control panel display, touch the SETTINGS button. The SETTINGS dialog menu will appear (Figure 18).

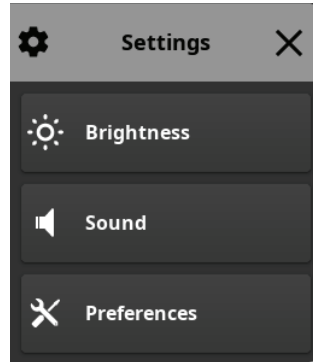


Figure 18 – Settings Menu Dialog

2. From the SETTINGS dialog menu, touch the desired SETTINGS button, which includes BRIGHTNESS, SOUND, or PREFERENCES. PREFERENCES include DOCKING, FILTER, LANGUAGES, MANIFOLD, and SUCTION UNITS.

Table 21 – Brightness Options

ILLUMINATION	OPTIONS
Display Screen	Increase/Decrease
Canister Light	
Manifold Light	
Specimen Light	
Surface Light	

Table 22 – Sound Options

LOUDNESS	OPTIONS
Audible Indicator	Increase/Decrease

PREFERENCES Options

Table 23 – Docking Options

DOCKING	OPTIONS
Quick Wash (two minutes)	Default Cycle
Normal Wash (five minutes)	Set as Default
Extended Wash (forty five minutes)	Set as Default

Table 24 – Filter Options

FILTER	OPTIONS
500 Hours	Reset Hours

Table 25 – Language Options

LANGUAGES	OPTIONS
Chinese (ZH)	中文
Danish (DA)	Dansk
Dutch (NL)	Nederlands
English (EN)	English (Default)
Finnish (FI)	Suomi
French (FR)	Français
German (DE)	Deutsch
Italian (IT)	Italiano
Japanese (JA)	日本語
Korean (KO)	한국어
Norwegian (NO)	Norsk
Polish (PL)	Polskie
Portuguese (PT)	Português
Spanish (ES)	Español
Swedish (SV)	Svenska

Table 26 – Suction Unit Options

SUCTION UNITS	OPTIONS
Millimeters of Mercury (United States)	mm-Hg
Kilopascal (International)	kPA

- From the selected SETTINGS dialog menu, touch the desired setting option. Make the appropriate adjustment or selection as required.
- Touch the CLOSE button or CONFIRM button to accept the adjustment or selection and exit. Touch the BACK button to cancel any adjustment or selection and exit.
- After adjusting and/or selecting options, push power switch to OFF, disconnect the rover from facility power, and wrap the power cord around the power cord bracket. The rover is now ready for use.

4. Using Your Product

4.1. To Setup the Rover

4.1.1. To Connect Power

⚠ WARNING - Do not use the rover until it is tested properly to ensure functionality. See *To Test the Rover* (page 32).

⚠ WARNING - Do not cover the main control panel display with drapes or other objects. Always make sure the display can be clearly seen.

⚠ WARNING - Do not place the rover within the sterile field. Failure to comply may cause infection and result in patient or healthcare staff injury.

CAUTION - Always use the correct power cord configuration. Configurations will vary based on local requirements. See *For Use With* (page 12). See *Power Cord Specifications* (page 68).

i Note - Do not use the rover until the dock is installed and tested properly to ensure functionality. See *Documentation* (page 13) and the instructions for use supplied with the dock.

i Note - The volume of the initial prefill fluid in the canister is accounted for in the fluid level value indicated on the main control panel display. Foam does not affect this fluid level value. See *Specifications* (page 66).

1. Position the rover on a flat surface and in a convenient location in the procedure room.
2. Lock the rover's casters to prevent unintended rover movement (Figure 19).

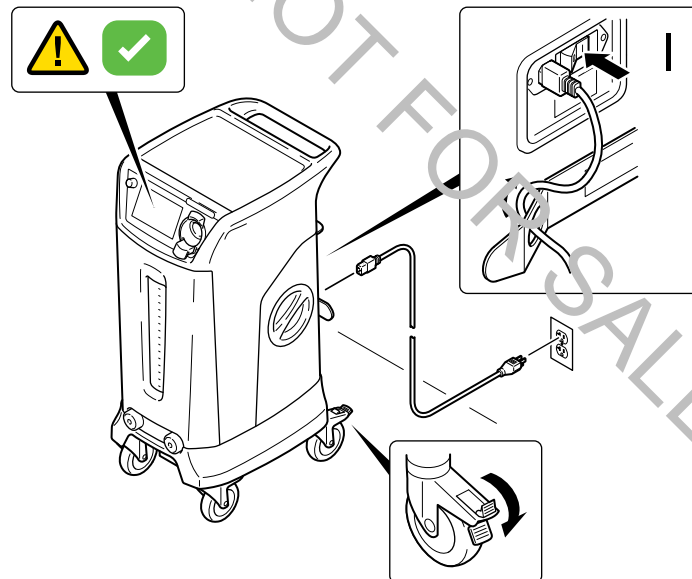


Figure 19 – To Prepare the Rover

3. Orient the rover for optimal viewing of the main control panel display. Make sure the liquid level and canister contents may be clearly seen. Turn on the canister light at any time to view the contents of the canister.
4. Connect the rover to a hospital-grade electrical wall outlet using the supplied power cord.
5. Push the power switch to the ON position.
6. Read and acknowledge the warning messages on the main control panel display. Touch the ACKNOWLEDGE button to confirm understanding and access the on-screen controls. A SET UP SYSTEM screen will appear.

7. See *To Install Disposable Components* (page 37).

4.2. To Install Disposable Components

⚠ WARNING - The manifold is for single patient use only. Do not reuse, process, service, modify, or repackage a single use device.

- The single-use device may not withstand chemical, chemical vapor, or high temperature sterilization processing.
 - Design features may make cleaning difficult.
 - Reuse may create a contamination risk and compromise structural integrity, resulting in operational failure during use.
- Failure to comply may lead to infection or cross-infection and result in patient and/or healthcare staff injury.
-

⚠ WARNING - Before use, inspect each disposable component for damage. Do not use any equipment if damage is apparent.

⚠ WARNING - Do not use a manifold that has been dropped or mishandled. Failure to comply may cause leakage and result in patient and/or healthcare staff injury.



Figure 20 – Do Not Drop the Manifold

⚠ WARNING - Do not remove the suction tubing from the manifold ports during use and at shutdown. Always leave the suction tubing attached to the manifold ports after installation.

⚠ WARNING - Do not use a Y-connector to add more than one suction line to each port. Failure to comply may cause cross-contamination and result in patient injury.

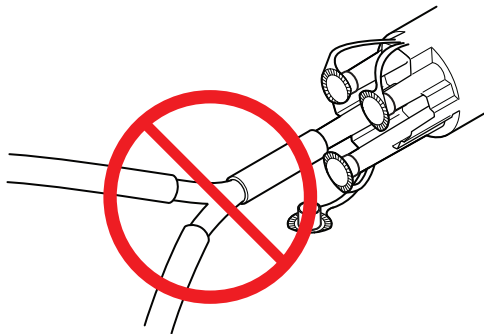


Figure 21 – Do Not Use a Y-connector

i Note - If the collection of small specimens is required during the procedure, select a specimen collection manifold with a collection tray. Obtain additional specimen collection trays for use, if necessary. See *For Use With* (page 12).

i Note - If specimen collection is not required during the procedure, select the disposable 4-port manifold.

1. Select the appropriate manifold for the procedure. See *For Use With* (page 12).

⚠ WARNING - Always install a new, non-sterile, single patient use manifold before each procedure.

2. Align the manifold tabs and insert the manifold into the manifold receptacle. Push the manifold straight into the receptacle until a click is heard (Figure 22). Confirm the new manifold symbol (white) appears on the main control panel display and a confirmation sound occurs.

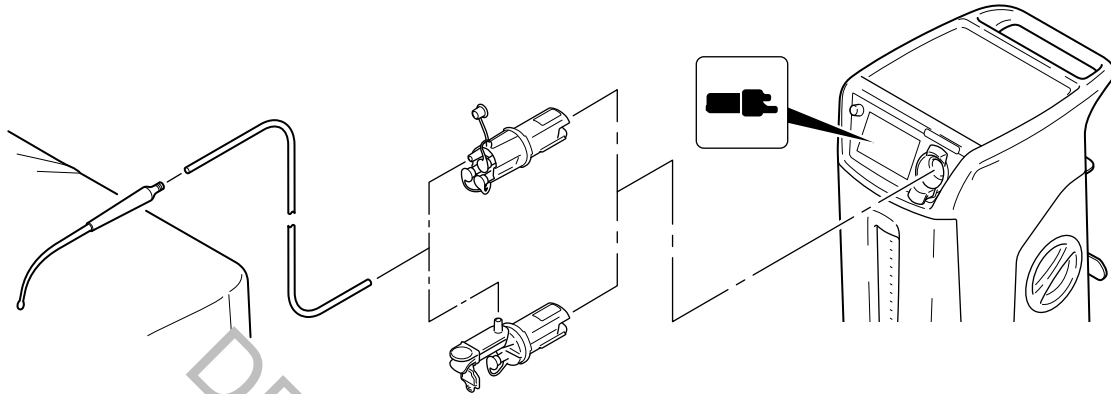


Figure 22 – To Install a Manifold

i Note - If a used manifold is installed, a used manifold symbol (pink) appears and a notification sound occurs.

⚠ WARNING - Always install new, sterile, single use suction tubing to the manifold port(s) before each procedure.

3. Obtain new sterile suction tubing. See *For Use With* (page 12).

4. Connect the suction tubing to the appropriate manifold port(s).

i Note - Always close unused manifold ports during use, and remove or clamp unused tubing to maintain optimal suction levels. Failure to close all the unused manifold ports will decrease the vacuum level efficiency.

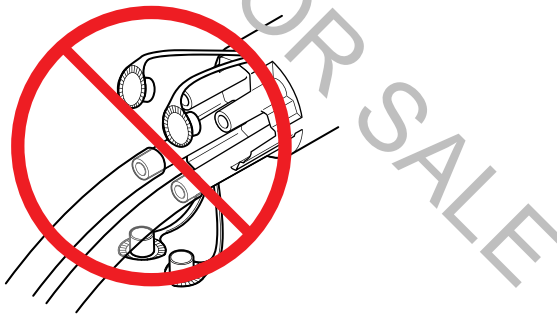


Figure 23 – Always Close Unused Manifold Ports

i Note - If using a specimen collection manifold, always connect the suction tubing to the top primary manifold port. The bottom auxiliary port is used for secondary suction only. Make sure the auxiliary port is closed when not in use.

i Note - If using a 4-port manifold, connect the suction tubing to any available manifold port. Make sure any unused port(s) are closed to prevent loss of suction.

i Note - If using an endoscope, connect the other end of the suction tubing to the suction connector on the endoscope connector.

i Note - If using a suction end effector, connect the other end of the suction tubing to the fluid suction accessory.

i Note - If the rover display indicates sufficient fluid volume capacity in the canister, the rover may be used for another surgical procedure before waste disposal. Adding fluid from a second procedure on top of the previous procedure is called fluid stacking.

i Note - Before each procedure, touch the RESET VOLUME button to reset the procedure fluid volume readout. After the fluid volume is reset, the rover will display the amount of fluid, if any, the rover has collected since the last procedure.

5. If the procedure fluid volume measurement reads anything other than zero milliliters, touch the RESET VOLUME button to reset the fluid volume value to zero, then select the confirm button (Figure 24).

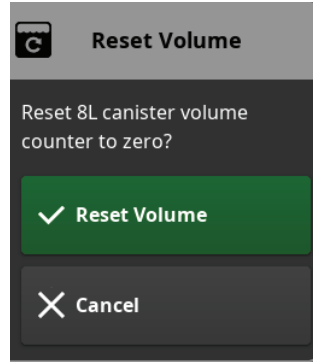


Figure 24 – To Reset Fluid Volume Value

6. See *To Operate the Rover* (page 40).

4.3. To Operate the Rover

WARNING

HIGH SUCTION HAZARD [MAX = 520 mm-Hg]

- The effectiveness of aspiration is dependent upon the intensity of the suction applied.
- Always use the minimum suction limit range required to achieve the desired clinical outcome.
- Always follow your local healthcare guidelines for suction limits.
- The suction limit range of the collection canister may be adjusted by using the manual suction control dial on the main control panel. Interruption and restoration of rover power while suction is ON, whether accidental or intentional, does not reset the suction limit range to zero. See BS EN ISO 10079-1: 2015 + A1: 2019, clause 9.11. Use caution when activating suction with a high suction limit range.

Death or serious injury can result from the improper application of suction levels.

WARNING

INAPPROPRIATE CONNECTION HAZARD

- Do not connect directly to chest tubes.
- Do not connect to closed wound drains.
- Do not connect directly to tracheal tubes
- Not for use as a suction source for: Intermittent suction applications, Patient positioner devices, and Organ stabilizer/positioner devices.

Death or serious injury can result from inappropriate connections.

 **WARNING** - Always operate the product within the specified environmental condition values.

4.3.1. To Manage Fluid Suction


WARNING

FLUID WASTE LEAKAGE HAZARD

- Always make sure rover power is ON when collecting fluid waste. The rover can only detect a full canister if the rover power is ON. If rover power is OFF, fluid waste leakage can occur.
-

 **WARNING** - The collection canister scale and main control panel display are not diagnostic tools. Do not use the scale or the display to determine the amount of fluid lost from or retained by the patient.

 **Note** - Make sure the rover has been properly prepared for operation. See *To Setup the Rover* (page 36).

 **Note** - The rover provides an adjustable suction limit of 50 to 520 mm-Hg measured with all manifold inlet ports closed.

 **Note** - To reset the fluid level value to zero, touch the RESET VOLUME button on the main control panel display. The canister fluid level value will reset to a zero value.

i Note - See High Suction Visual and Audible Indicators for important condition, indication, and action information.

Table 27 – High Suction Visual and Audible Indicators

CONDITION	INDICATION	ACTION
HIGH suction limit RANGE – The suction limit range selected is equal to or greater than 120 mm-Hg.	Two declining tones; orange HIGH suction banner appears on the main control panel display; suction range indicator illuminates orange.	Determine whether a high suction range is desired.

1. While viewing the main control panel display, turn the suction control dial to the level of suction required (Figure 25).
2. Touch the START SUCTION button to start fluid suction.

i Note - After suction has started, the STOP SUCTION button may be touched to stop fluid suction.

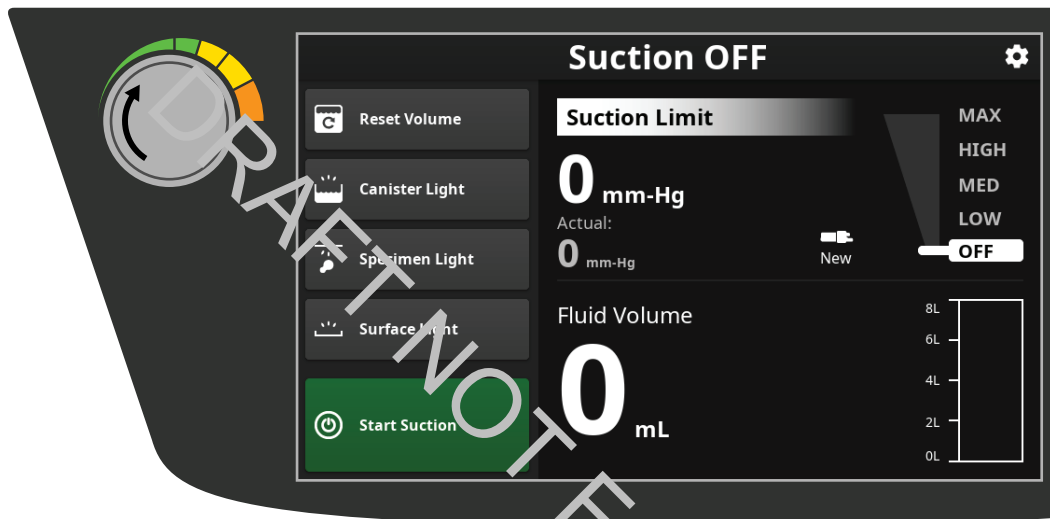


Figure 25 – To Start and Adjust Suction

WARNING - Always use the minimum suction limit required to achieve the desired clinical outcome.

3. Turn the suction control dial to adjust the suction limit during the procedure as required.
4. Adjust the location of the suction end effector at the surgical site as required.
5. Suction the fluid from the surgical site at various suction limit values or intervals as required.
6. If the specimen collection manifold is install for use during the surgical procedure, see *To Collect a Specimen* (page 43).

4.3.2. To Manage Fluid Canister Volume

1. Monitor the volume of fluid captured in the rover canister. See Fluid Volume Conditions and Indicators.

Table 28 – Fluid Volume Conditions and Indicators

CONDITION	INDICATION	ACTION
CANISTER ALMOST FULL – The fluid volume level in the canister is approaching maximum capacity. Fluid suction will soon stop in the full canister.	Two declining tones occur; a notification message appears on the main control panel display and an almost full fluid level gauge indicator appears on the secondary control panel display (Figure 26).	Prepare to switch to an alternate suction source.
CANISTER FULL – The fluid volume level is at maximum capacity. Fluid suction has stopped in the full canister.	Three slow tones occur continuously; an error message and SUCTION STOPPED banner appear on the main control panel display. A general warning sign and full fluid level gauge indicator appear on the secondary control panel display (Figure 27).	Prepare to switch to an alternate suction source. Dock the rover to dispose of waste. See <i>To Dock the Rover</i> (page 54).

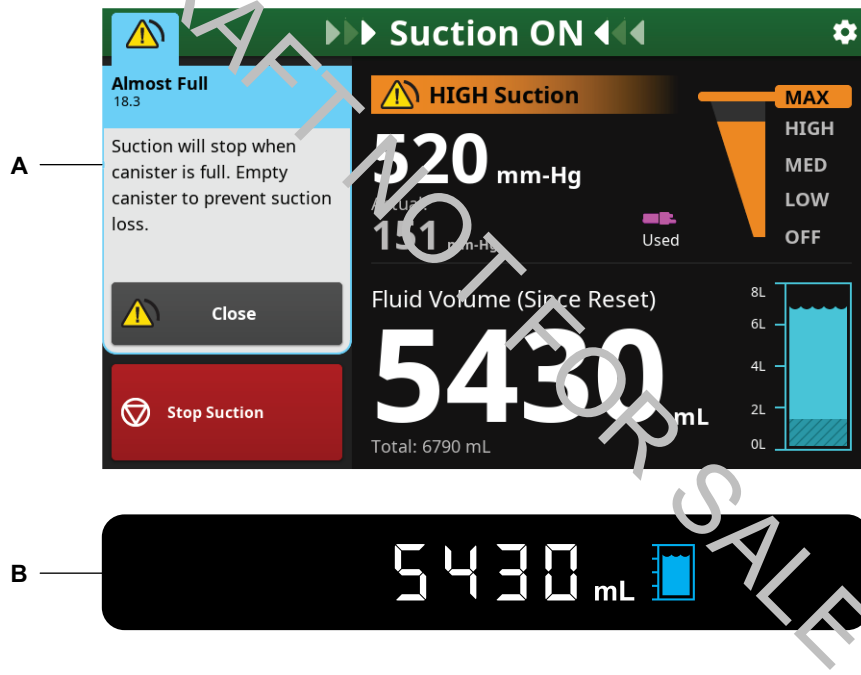


Figure 26 – Almost Full Canister Display Indications

A	Main Control Panel Display	B	Secondary Control Panel Display (located on rover's back side)
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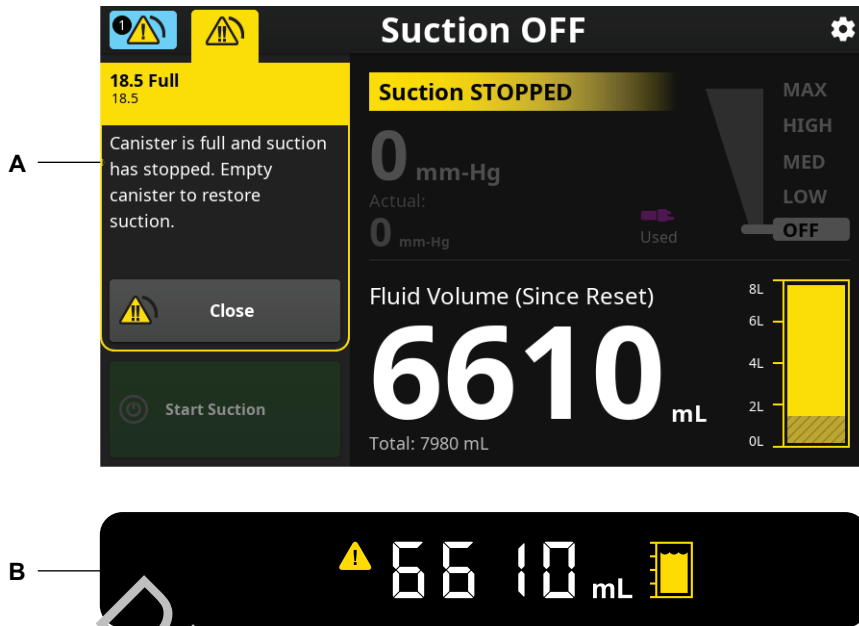


Figure 27 – Full Canister Display Indications

A	Main Control Panel Display	B	Secondary Control Panel Display
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- If the 8-liter canister is full, shut down the rover. See *To Shut Down the Rover* (page 47). Dock the rover to empty the full canister. See *To Dock the Rover* (page 54).

4.4. To Collect a Specimen

4.4.1. To Use the Specimen Collection Tray

Note - Make sure the specimen collection manifold is installed in the rover and connected properly. See *To Install Disposable Components* (page 37).

Note - If using a specimen collection manifold, make sure the suction tubing is connected to the top primary manifold port. The bottom auxiliary port is used for secondary suction only. Make sure the auxiliary port is closed when not in use.

- To illuminate the specimen collection tray where the specimen will be collected, touch the SPECIMEN LIGHT button on the main control panel display.(Figure 28).

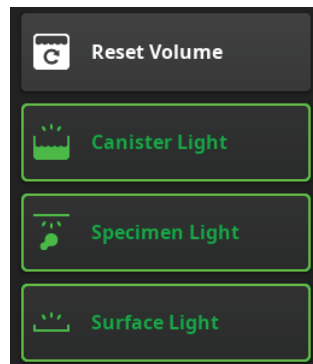


Figure 28 – Turn on Lights

- To illuminate the work surface where the specimen will be transferred, touch the SURFACE LIGHT button on the main control panel display.

3. Remove a small specimen collection tray from its packaging.
4. Open the collection tray port door of the specimen collection manifold.
5. Insert the collection tray into the specimen collection manifold.
6. Suction fluid waste and specimen (polyp) material from the surgical site as required.
7. Examine the contents of the illuminated specimen collection manifold tray.

i Note - Collected specimens can be observed by looking through the top viewing window on the specimen collection manifold.

8. After a specimen is collected and transfer of the specimen is appropriate, remove the collection tray from the manifold by pinching the tabs of the tray together and pulling the collection tray away from the manifold (Figure 29).

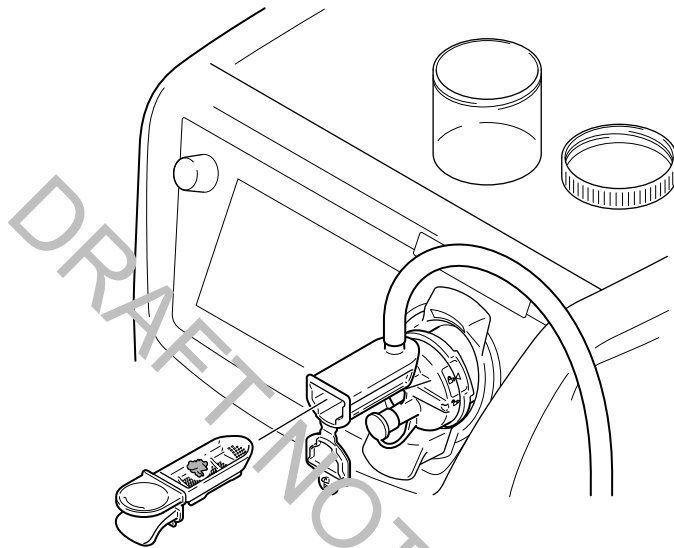


Figure 29 – Remove Specimen Collection Tray

i Note - To maintain suction after removing the collection tray, insert another collection tray into the specimen collection manifold immediately or close the collection tray port door of the specimen collection manifold. Suction does not need to be turned off when inserting or removing a specimen collection tray.

9. Transfer the specimen into the appropriate container using the illuminated work surface on top of the rover.

i Note - The specimen collection tray may again be installed in the specimen collection manifold during the same procedure. Close the collection tray port using the cap if the specimen collection tray is not used.

10. After the procedure, perform *To Shut Down the Rover* (page 47).

4.4.2. To Use the Secondary Specimen Collection Basket

i Note - The specimen collection manifold contains a secondary specimen collection basket as a back-up method to collect specimens in the event that a specimen collection tray was not inserted in the manifold while suctioning the specimen material.

i Note - The secondary specimen collection basket is not intended to be used as a primary means of specimen collection.

1. To access the secondary specimen collection basket in the manifold, touch the STOP SUCTION button on the main control panel display to stop fluid suction (Figure 30). Disconnect the suction tubing from the manifold port.



Figure 30 – Stop the Suction

2. Push the EJECT button to release the specimen collection manifold from the rover receptacle (Figure 31).

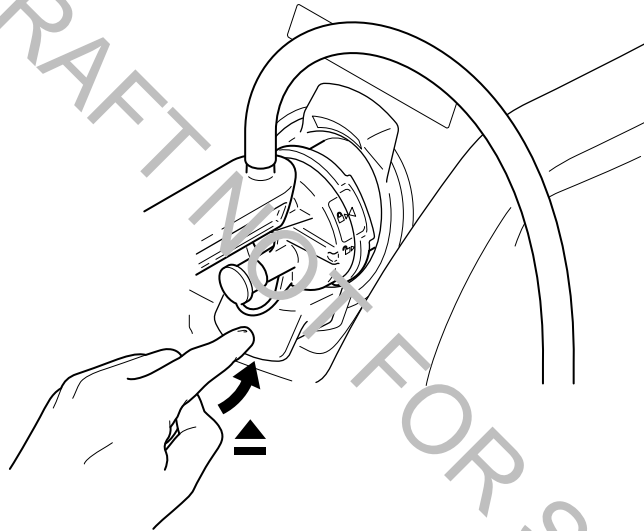


Figure 31 – Eject the Manifold

3. Remove the manifold from the rover. (Figure 32)

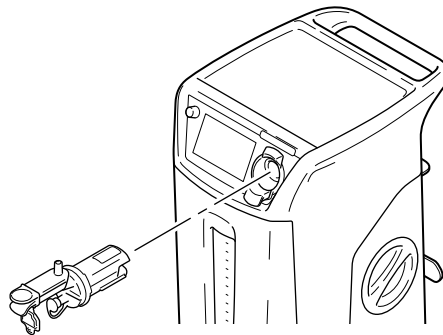


Figure 32 – Remove the Manifold

⚠ WARNING - To avoid exposure to potentially infectious fluid, make sure the manifold is held in a vertical position when removing the front housing cap to gain access to the secondary collection basket.

4. Holding the manifold in a vertical orientation, twist the front housing cap of the manifold counterclockwise to open the manifold and access the secondary collection basket (Figure 33).

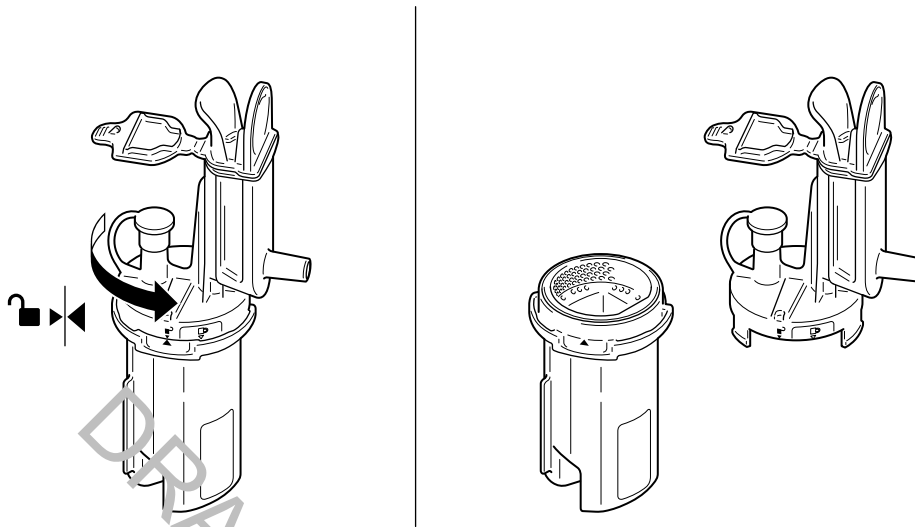


Figure 33 – Access Secondary Collection Basket

5. Transfer the specimen from the secondary collection basket inside the manifold into an appropriate container located on the work surface of the rover.

i Note - If suction is required immediately, a new manifold may be installed into the rover directly after removing the first manifold.

i Note - If suction is not required immediately, the manifold may be reassembled and inserted into the rover after transferring the specimen.

6. To reassemble the manifold, align the tabs and keyed slots of the two halves of the manifold and then twist clockwise until the two halves are locked in place (Figure 34).

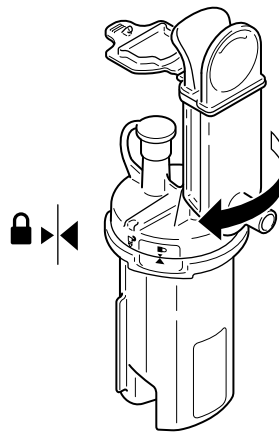


Figure 34 – Reassemble the Manifold

7. Follow the proper procedures to insert the specimen collection manifold into the rover, connect the suction tubing to the manifold port, and select a suction limit before resuming suction.

4.5. To Shut Down the Rover

4.5.1. To Remove Disposable Components

⚠ WARNING

- Always follow local regulations regarding proper handling and disposal of biohazard waste.

Failure to comply may cause infection and result in healthcare staff injury.

i Note - Although the disposable, single-use manifold(s), suction tubing, and suction accessories must be replaced between patients, it may not be necessary to empty the rover collection canister.

i Note - If sufficient fluid volume capacity exists in the canister, the rover may be used for additional surgical procedures.

1. With suction active, gather the suction tubing toward the manifold port to purge the tubing of fluid waste. Do not remove any attached suction tubing from the manifold.
2. Touch the STOP SUCTION button on the main control panel display to stop fluid suction (Figure 35).



Figure 35 – Stop the Suction

3. Push the EJECT button to remove the manifold from the receptacle (Figure 36). Maintain the manifold in a horizontal orientation.

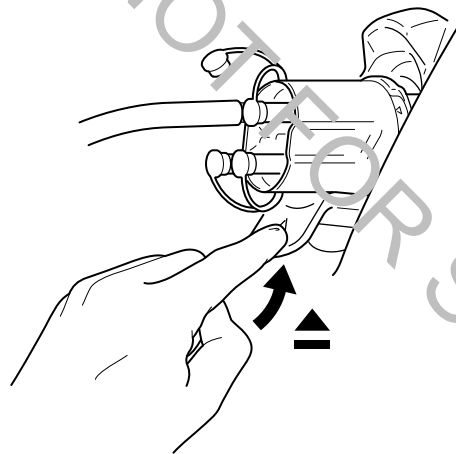


Figure 36 – Remove the Manifold

4. Pull the manifold with the attached suction tubing out of the receptacle to fully remove the manifold from the rover. (Figure 37).

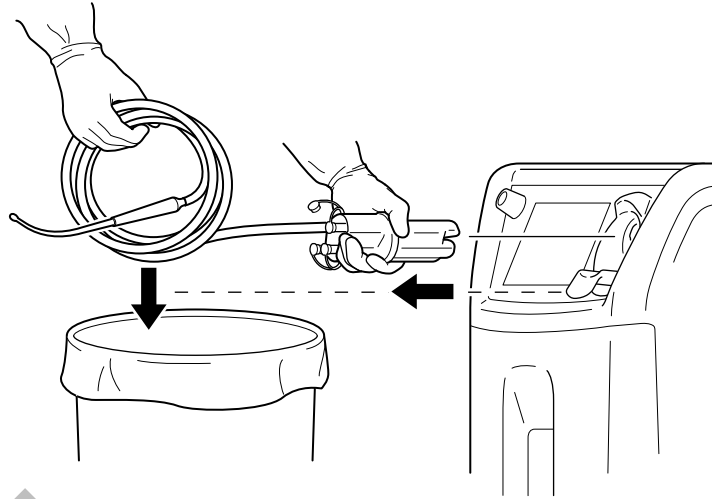


Figure 37 – Gather the Suction Components

5. Maintaining the manifold in a horizontal orientation, properly dispose of the used manifold and attached suction tubing.

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4.5.2. To Remove Power and Relocate the Rover

i Note - Always use the rover handle when repositioning or relocating the rover.

i Note - If the rover is full or the rover will not be used for two hours, dock the rover to dispose of the collected fluid waste in the canister.

i Note - The rover is not required to be connected to facility power when not in use.

1. Push the power switch to the OFF position (Figure 38).
2. Disconnect the power cord from facility electrical power. Wrap the power cord around the cord bracket.
3. Unlock the casters of the rover. Make sure all four casters are unlocked.

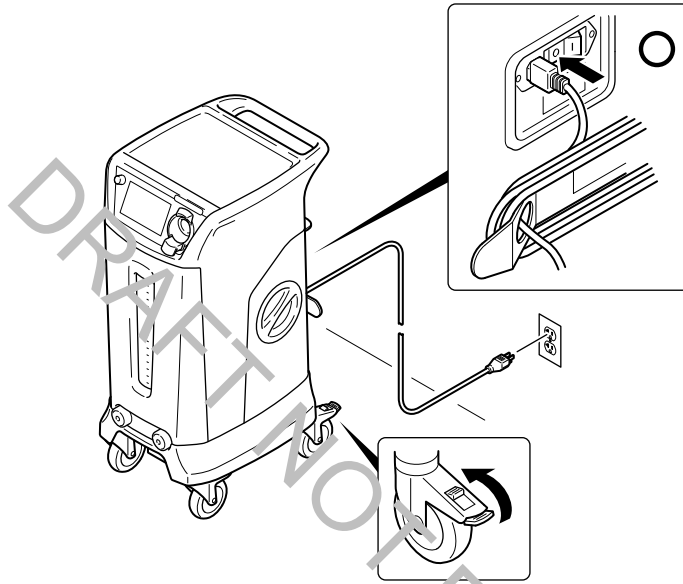


Figure 38 – Remove the Power

4. If the canister is full or the rover contains fluid waste and will not be used within two hours, relocate the rover to the docker using the rover handle. See *To Dock the Rover* (page 54).
5. If the canister is not full and the rover will be used within two hours, relocate the rover to the desired location using the rover handle. See *To Setup the Rover* (page 36).
6. Clean and disinfect the rover after every surgical procedure. See *To Clean and Disinfect the Rover* (page 50).

5. After Use

5.1. To Clean and Disinfect the Rover

⚠ WARNING - Always clean and disinfect the rover upon initial receipt and before each use. Failure to comply may cause infection and result in patient or healthcare staff injury.

CAUTION - Do not immerse any system component in liquid. Do not allow liquids or moisture to enter any electrical connection.

CAUTION - Do not sterilize any system component.

CAUTION - Do not use solvents, lubricants, or other chemicals, including glutaraldehyde or similar chemical cleaners, unless otherwise specified. See *Glossary* (page 74).

CAUTION - Do not use unapproved disinfectants. Failure to comply may cause system damage.

Recommended Equipment and Materials

- PPE as recommended by the disinfectant supplier
- Soft, lint-free cloth
- United States Environmental Protection Agency (US EPA) registered disinfectant with a claim for activity against Hepatitis B. The following disinfectants have been validated for use on the exterior surfaces of the Stryker Neptune 3 Waste Management System: Sodium Hypochlorite Based - Clorox® Clean-Up® Disinfectant Cleaner with Bleach (EPA Reg. #67619-17), Quaternary Ammonium Based - CaviCide® (EPA Reg. #46781-6)

5.1.1. To Wipe Down the Rover

1. Wipe all external surfaces of the rover with a soft, lint-free cloth moistened with a non-abrasive, hospital disinfectant prepared to the manufacturer's instructions. Pay particular attention to highlighted critical areas such as the work surface, handle, main control panel, communication window, and man fold receptacles (Figure 39).

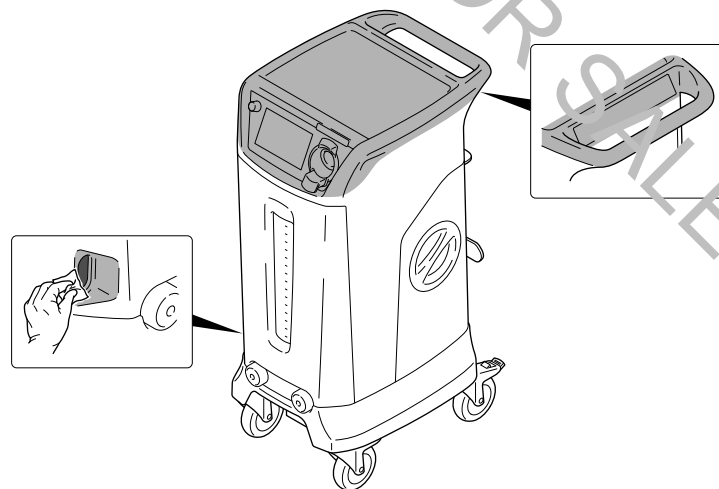


Figure 39 – Wipe Down the Rover

2. Upon the removal of visible, gross soil, use a clean cloth moistened with disinfectant and wipe all surfaces. Surfaces must remain visibly wet at room temperature for at least the minimum time specified in the instructions for use supplied by disinfectant manufacturer.
3. Remove any excess disinfectant solution using a soft, lint-free cloth moistened with water if required by the instructions supplied by the disinfectant manufacturer.

4. Inspect the rover. See *To Inspect the Equipment* (page 51).
5. Refill the manifold holder with new, unused manifolds, as required. See *For Use With* (page 12) for ordering information.
6. If the rover will be used again, use the rover handle to push and relocate the rover. See *To Setup the Rover* (page 36). If the rover will no longer be used, use the rover handle to push and relocate the rover to a storage area. See *Storage and Handling* (page 58).

5.2. To Inspect the Equipment

i Note - Only biomedical equipment technicians trained and experienced in the maintenance of this reusable medical device should inspect and maintain this equipment.

⚠ WARNING - Upon initial receipt and before each use, inspect each component for damage. Do not use the product if damage is apparent.

⚠ WARNING - Always comply with the inspection interval to ensure the safe and effective use of the equipment.

⚠ WARNING - Do not disassemble, modify, or repair this product without the authorization of the manufacturer. Contact Stryker for service.

i Note - For service, contact your Stryker sales representative or call service. See *Contact Information* (page 4). Outside the US, contact your nearest Stryker subsidiary.

i Note - Maintenance documentation for this equipment is available upon request to Stryker-authorized service personnel only.

i Note - Routine and careful inspection of the equipment is the best method for determining the service life of the equipment. See *Inspection Criteria and Actions*.

Table 29 – Inspection Criteria and Actions

Interval	Criteria	Action
Before initial use	Inspect the equipment for damage or missing components.	If damage is apparent, replace the equipment. See <i>For Use With</i> (page 12) section.
	Make sure the rover and docker operate properly.	See <i>To Dock the Rover</i> (page 54) and <i>To Test the Rover</i> (page 32).
Before each use and after each cleaning and disinfection.	Inspect the equipment for damage or missing components.	If damage is apparent, replace the equipment. See <i>For Use With</i> (page 12).
	Inspect the equipment for corrosion, discoloration, pitting, cracked materials, or unacceptable deterioration on any external surfaces, including labels and product markings.	
	Inspect the canister exterior, smoke evacuator filter cover, and infrared communication window for cracks or damage.	
	Inspect the caster and make sure the locks function properly.	
	Inspect the power cord for cuts and the power cord plug for bent pins.	

Interval	Criteria	Action
	Inspect the power cord receptacle for bent pins or bent contacts.	
	Inspect the infrared communication window for any dirt or debris.	Thoroughly remove any dirt or debris on the infrared communication window. See <i>To Clean and Disinfect the Rover</i> (page 50).
Six months	Inspect the replacement date on the label of the fluid suction HEPA filter. The fluid suction filter life is 500 hours.	Replace the fluid suction HEPA filter every six months or as indicated on the main control panel display. See <i>For Use With</i> (page 12) and <i>To Replace the HEPA Filter</i> (page 52).

i **Note** - If any component must be discarded, see *Disposal/Recycle* (page 65).

5.3. To Replace the HEPA Filter

Failure to comply may cause infection and result in healthcare staff injury.

⚠ WARNING - Do not touch the filter media. The media filters the air evacuated from fluid collection canister of the rover before the air is vented. Failure to comply may cause media damage and result in patient and/or healthcare staff injury.



Figure 40 – Prevent Damage to Filter Media

5.3.1. To Install the Fluid Suction HEPA Filter

[i] Note - Replace the filter REF 0702-034-000 every six months or as indicated on the control panel display of the rover. Failure to comply will result in the reduction of fluid suction or an increase in odor.

[i] Note - The filter life is 500 hours. The rover calculates filter usage time automatically. Always reset the filter timer after the filter is replaced.

1. Make sure the rover power switch is OFF.
2. Turn the filter cover counterclockwise and align the arrow to unlock the filter cover. Remove the filter cover (Figure 41).

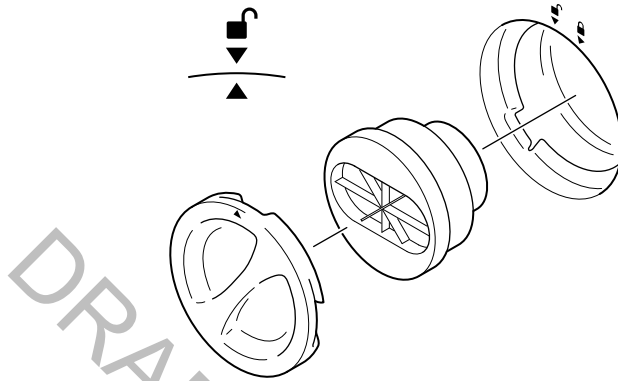


Figure 41 - Remove and Replace the Filter

3. Remove and properly dispose of the used HEPA filter.
4. Obtain a new HEPA filter. See *For Use With* (page 12).
5. Mark the replacement date on the label of the new HEPA filter.
6. Install the new HEPA filter into the filter compartment.
7. Install the filter cover over the filter compartment; turn the filter cover clockwise to align the arrow in the lock position.

5.3.2. To Verify Proper Filter Installation

1. Connect the rover power cord to facility power.
2. Press the rover power switch to the ON position.
3. Read the safety information on the control panel display. Based on the configuration of the rover, select OK or CONFIRM on the control panel.
4. Insert a manifold into the manifold receptacle.
5. Turn on suction and adjust the canister to the maximum suction level. Make sure the maximum suction level is obtained.

[i] Note - If the maximum suction level is NOT reached, reposition the filter. If the suction level is still NOT reached, contact service.

5.3.3. To Reset the Filter Timer

1. Access the SETTINGS menu. Select the PREFERENCES dialog and the FILTER button (Figure 9).
2. Touch the FILTER button to access the FILTER dialog and RESET HOURS button. Touch the button to reset the hours to zero; close the dialog.

5.4. To Dock the Rover

⚠ WARNING - PINCH POINT HAZARD — Always keep hands out and away from the mating surfaces of the rover and docker during the docking procedure.

i Note - If the rover is full or the rover will not be used for two hours, dock the rover to dispose of the collected fluid waste in the canister.

i Note - Use the docker to empty the rover canister of fluid waste and perform a wash cycle. Prefill fluid will remain inside the canister after the wash cycle is complete. Prefill contains a specified amount of detergent for initiating the breakdown of fluid waste collected during rover use. After completing the wash cycle, the rover is ready for use or storage.

i Note - Before docking the rover, always allow the docker to initiate for at least 60 seconds after applying power to the docker.

i Note - The docker provides power to the rover during the docking process.

i Note - For optimal cleaning of the rover canister, use a water temperature of 37.8 to 43.3 °C [100 to 110 °F].

i Note - Do not lock the rover casters while the rover is connected to the docker.

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5.4.1. To Prepare the Docker

1. Make sure the docker power switch is in the ON position and illuminated (Figure 42).
2. Make sure the bottle of Neptune Docking Detergent REF 0700-001-026 is connected to the docker.

i Note - The end of the inlet tube must be located at the bottom of the detergent bottle. See the instructions for use supplied with the detergent bottle.

3. Make sure the bottle contains enough detergent to perform a wash cycle. See *For Use With* (page 12) section.

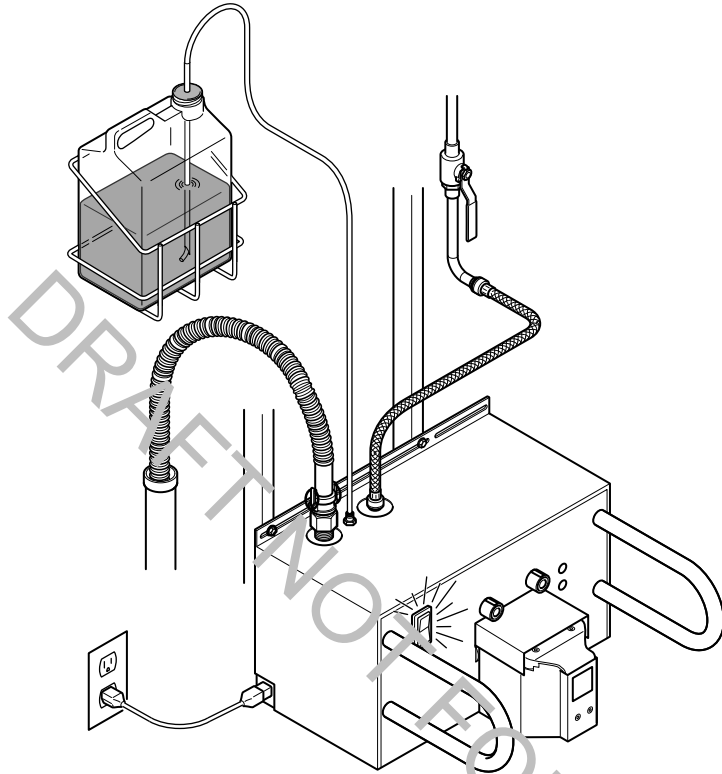


Figure 42 – Prepare the Docker

5.4.2. To Perform Wash Cycle

1. Push the rover toward the docker and between the docker guides until the rover and docker engage automatically (Figure 43). Make sure the strike plates of the rover engage with the electromagnets of the docker. Do not lock the casters.

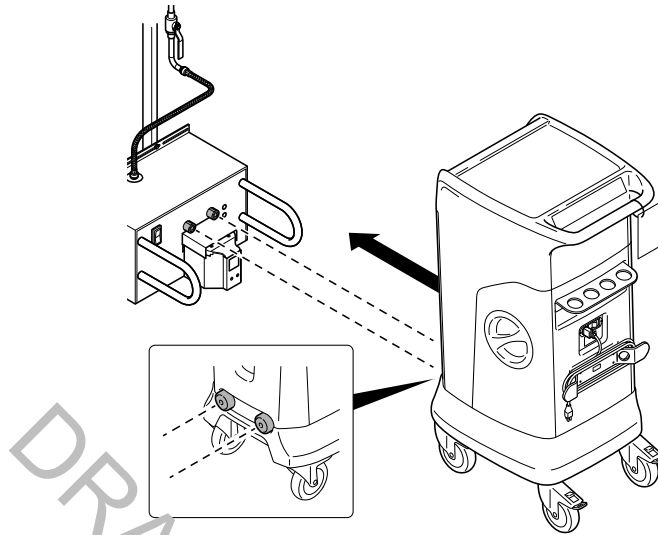





Figure 43 – Dock the Rover

2. Press one of three timed wash cycle buttons from the secondary control panel display (Figure 44). See Wash Cycle Options.



Figure 44 – Secondary Control Panel – Initial Docking

Table 30 – Wash Cycle Options

BUTTON	CYCLES	DESCRIPTION	TIME (APPROXIMATE)
	Quick Wash	Cycle drains the contents of the canister, applies detergent to the interior walls of the canister, and rinses the detergent with water. Fewer rinse cycles occur. Used to get the rover back into service as quickly as possible.	2 minutes
	Normal Wash (default)	Cycle drains the contents of the canister, applies detergent to the interior walls of the canister, and rinses the detergent with water. More rinse cycles occur. Used for normal everyday cleaning needs.	5 minutes
	Extended Wash	Cycle drains the contents of the canister, applies detergent to the interior walls of the canister, and rinses the detergent with water. Intermittent periods of soaking occur during the cycle. Used when the canister is especially soiled.	45 minutes

3. If no option is selected, the default wash cycle will run (Figure 45).

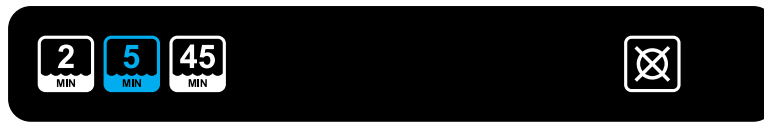


Figure 45 – Secondary Control Panel — Wash Cycle Begins

4. During the wash cycle, the selected wash cycle counts down. The remaining time is shown on the display (Figure 46).

i Note - An Abort button may be selected to cancel a wash cycle if the cycle has not yet begun. If a 5 minute or 45 minute wash cycle has already begun, selecting the Abort button will divert the wash cycle to the shortest 2 minute wash cycle.

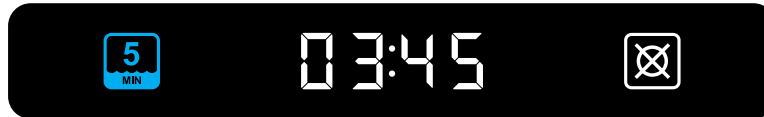


Figure 46 – Secondary Control Panel Display — Wash Cycle Count Down

5. When the wash cycle is complete, press the Release button to disengage the rover from the dock (Figure 47).

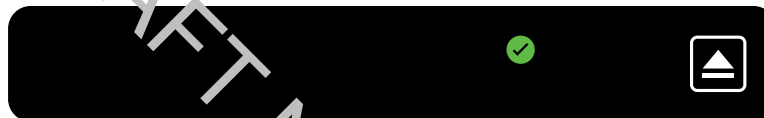


Figure 47 – Secondary Control Panel Display — Wash Cycle Complete

i Note - The green checkmark symbol indicates the wash cycle is complete. A yellow triangle symbol indicates a wash cycle error.

6. Pull the rover away from the dock.
7. Visually inspect the canister for any remaining soil. If soil remains, an Extended Wash cycle is available to provide a more thorough cleaning of the canister.

6. References

6.1. Storage and Handling

CAUTION - Always store and transport the equipment within the specified environmental condition values throughout its useful life. See *Specifications* (page 66).

CAUTION - Always call service before transporting or storing this equipment in freezing conditions. See *Contact Information* (page 4). Failure to comply will cause the expansion of frozen internal fluid to damage the equipment.

i Note - The rover does not have to be connected to facility power when not in use.

6.2. Troubleshooting

⚠ WARNING - Do not disassemble, modify, or repair this product without the authorization of the manufacturer. Contact Stryker for service.

i Note - For service, contact your Stryker sales representative or call service. See *Contact Information* (page 4). Outside the US, contact your nearest Stryker subsidiary.

Table 31 – Rover Operation

OBSERVATION	CORRECTIVE ACTION
The rover does not power up and the power switch is in the ON position.	Power cord is not connected or is not connected securely. Connect the supplied power cord or make sure the power cord is connected securely. See .
	Facility power is not available or off. Make sure facility power is provided to the hospital-grade power receptacle.
The rover does not recognize a manifold.	Manifold is altered or damaged. Replace the manifold. See <i>For Use With</i> (page 12). See <i>To Install Disposable Components</i> (page 37).
No vacuum pump action after the START SUCTION button is touched.	Canister is full and an error occurs. Dock the rover. See <i>To Dock the Rover</i> (page 54).
	The rover is damaged. Remove the rover from use. Contact service. See <i>Contact Information</i> (page 4).
The rover's fluid suction is weak or insufficient.	Manifold is not installed correctly. Make sure the manifold is seated and locked in place. See <i>To Install Disposable Components</i> (page 37).
	Unused manifold ports are open. Close all unused inlet ports of the manifold installed in the canister.
	Suction tubing connection is not secure. Make sure all suction tubing connections are secure.
	Unused suction tubing is not clamped. Clamp any suction tubing not in use.
	Suction tubing is blocked or damaged. Clear or replace any suction tubing in use.
	Suction accessory is blocked or damaged. Clear or replace the suction accessory.

OBSERVATION	CORRECTIVE ACTION
	Suction tubing is too long or has a narrow diameter. Use shorter length or larger diameter suction tubing. See <i>For Use With</i> (page 12).
	Manifold is clogged or damaged. Replace the manifold. See <i>For Use With</i> (page 12).
	The suction control dial is adjusted too low. Turn the suction control dial to adjust the suction limit to the proper level. See <i>To Operate the Rover</i> (page 40).
	The fluid suction filter requires replacement. Replace the fluid suction filter. See <i>For Use With</i> (page 12). See <i>To Replace the HEPA Filter</i> (page 52).
	The rover is damaged. Remove the rover from use. Contact Stryker Neptune Customer Service. See <i>Contact Information</i> (page 4).
The rover's suction capability is lost.	An error (medium priority alert) has occurred. See <i>Troubleshooting Codes</i> (page 62).
	The rover is damaged. Remove the rover from use. Contact Stryker Neptune Customer Service. See <i>Contact Information</i> (page 4).
A filter notification message appears on the main control panel display.	The fluid suction filter has exceeded its useful life. Replace the HEPA fluid suction filter. See <i>For Use With</i> (page 12). See <i>To Replace the HEPA Filter</i> (page 52).
The rover is releasing a strong odor.	The fluid suction filter has exceeded its useful life. Replace the fluid suction HEPA filter. See <i>For Use With</i> (page 12). See <i>To Replace the HEPA Filter</i> (page 52).
	The dockler does not dispense detergent during the cleaning cycle. See <i>Docking Station Operation and Troubleshooting Codes</i> (page 62).
	The canister require special additional cleaning. Remove the rover from use. Contact service. See <i>Contact Information</i> (page 4).
Sporadic electrical interference is experienced.	Electrical noise is present. Turn off all the electrical equipment not in use in the room.
	Relocate the electrical equipment to maximize the distance between the equipment. Increase spatial distance.
	Connect the electrical equipment into different hospital-grade facility power receptacles with protective earth (ground).

i Note - See the Neptune 2 Docking Station Instructions For Use REF 0702-014-700 and the Neptune S Docking Station Instructional Poster REF 700000995644 for additional troubleshooting information.

Table 32 – Docking Station Operation

OBSERVATION	CORRECTIVE ACTION
<p>The rover will not dock or an error has occurred during docking.</p>	<p>The docker power cord is not connected or is loosely connected. Make sure the docker power cord is connected securely. See <i>To Dock the Rover</i> (page 54).</p>
	<p>The docker power switch is in the OFF position. Make sure the power switch is in the ON position and illuminated.</p>
	<p>If power switch is OFF, push the power switch to the ON position. Wait 60 seconds. Dock the rover.</p>
	<p>The docker power switch is in the ON position, but not illuminated. Make sure facility power is provided to the hospital-grade power receptacle. If facility power is OFF, apply facility power to the docker. Wait 60 seconds. Dock the rover.</p>
	<p>The rover is not completely connected to the docker. Push the rover forward enough to complete a docker-rover interface connection. See <i>To Dock the Rover</i> (page 54).</p>
	<p>Communication between the rover and docker is interrupted because the infrared communication window is either dirty or obstructed. Remove the dirt or debris from the rover's infrared communication window. See <i>To Clean and Disinfect the Rover</i> (page 50). Dock the rover.</p>
	<p>Remove any obstruction from the docker's infrared communication windows. Make sure there are no tubes, hoses, or towels covering the docker's infrared communication windows. Dock the rover. See <i>To Dock the Rover</i> (page 54).</p>
	<p>The docker is not receiving facility water. Make sure the water inlet hose is connected correctly and the facility water supply valve is open. Dock the rover.</p>
	<p>The docker requires a power reset. Remove power, then apply power to the docker. Wait 60 seconds. Dock the rover.</p>
<p>If the problem persists, the docker may be damaged. Contact Stryker Neptune Customer Service. See <i>Contact Information</i> (page 4).</p>	
<p>Prefill fluid remains inside the rover canister after a cycle is complete.</p>	<p>The presence of prefill is normal. This water and detergent solution (prefill) initiates the breakdown of fluid waste collected during the rover's next use. No action is required.</p>
<p>The docker does not dispense detergent during the cleaning cycle.</p>	<p>The bottle of detergent is empty. Replace the bottle of detergent. See <i>For Use With</i> (page 12).</p>
	<p>The end of the detergent inlet tube is not immersed in the detergent. Make sure the detergent inlet tube is routed through the tube stiffener and the end of the tube reaches the bottom of the detergent bottle.</p>
	<p>The detergent inlet tube is not connected securely to the detergent inlet port of the docker. Securely connect the detergent inlet tube to the detergent inlet port of the docker.</p>

OBSERVATION	CORRECTIVE ACTION
	If the problem persists, the docker may be damaged. Contact Stryker Neptune Customer Service. See <i>Contact Information</i> (page 4).
The rover canister is not clean after a cleaning cycle.	<p>The water temperature supplied to the docker is not adjusted for optimal cleaning. For optimal cleaning of the canisters, use a water temperature of 37.8 to 43.3 °C [100 to 110 °F]. See the instructions for use supplied with the docker.</p> <p>The bottle of detergent is empty. Replace the bottle of the detergent. See <i>For Use With</i> (page 12) and the instructions for use supplied with the detergent.</p>
An error occurs while the rover is docked and the rover cannot be removed from the docker.	<p>The fluid connectors prevent the removal of the rover from the docker. Remove power from the docker; apply power to the docker. Wait 20 seconds.</p> <p>Remove the rover from the docker. Cycle docker power. Wait 60 seconds; try docking the rover again.</p> <p>If the problem persists, the fluid connectors may be damaged. Contact Stryker Neptune Customer Service. See <i>Contact Information</i> (page 4).</p>
The rover cannot be removed from docker.	<p>The two rear casters are locked. Make sure the two rear casters are unlocked. Do not lock the casters when the rover is docked. Pull the rover away from the docker.</p> <p>The operator failed to acknowledge the docking cycle is complete. From the secondary control panel display, touch the ESCAPE button to disconnect the rover from the docker.</p>

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6.3. Troubleshooting Codes

i Note - A low priority (notification) or medium priority (error) alert message may appear on the main control panel display. Touch the indicator area to access the drop-down list and/or message. See Error Codes and Actions.

i Note - For service, contact your Stryker sales representative or call service. See *Contact Information* (page 4). Outside the US, contact your nearest Stryker subsidiary.

Table 33 – Error Codes and Actions

CODE	MESSAGE	PRIORITY	ACTION
0.X	System Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
1.1	Memory Error	Notification (low)	Setting options, including brightness, loudness, and the default docking cycle require resetting. See <i>To Adjust the Settings</i> (page 34).
1.2			Collected data erased. This includes manifolds used, filter hours, and last docking cycle.
1.X	Memory Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
2.2	IPC Failure	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
3.0	Docker COM Error		Remove the rover from the docker. Cycle docker power. Wait 60 seconds; try docking the rover again.
3.1	Coupling Error	Error (medium)	Remove the rover from the docker. Cycle docker power. Wait 60 seconds; try docking the rover again.
3.2			Call service. See <i>Contact Information</i> (page 4).
3.3	Offload Error	Error (medium)	Remove the manifold from the canister; dock the rover again.
3.4			Call service. See <i>Contact Information</i> (page 4).
3.5	Prefill Error	Error (medium)	Make sure facility water is supplied to the docker; dock the rover again.
3.6			
3.7	Coupling Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
3.9			

CODE	MESSAGE	PRIORITY	ACTION
3.12	Dock Incomplete	Notification (low)	Remove the rover from the docker. Cycle docker power. Wait 60 seconds; try docking the rover again.
3.13	Docker Not Ready	Error (medium)	Remove the rover from the docker. Cycle docker power. Wait 60 seconds; try docking the rover again.
3.15	Need To Dock	Notification (low)	Dock the rover; the used rover has not been docked in 48 hours.
4.1	Vacuum Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
4.3	Empty Canister Error	Notification (low)	Dock the rover to remove clog from canister. See <i>To Dock the Rover</i> (page 54).
4.4	Prefill Error	Error (medium)	Dock the rover to fill prefill tank. See <i>To Add Canister Prefill Fluid</i> (page 31).
5.0	Filter Expired	Notification (low)	Replace fluid suction HEPA filter; reset filter life counter. See <i>To Replace the HEPA Filter</i> (page 52).
6.X	Empty Tank Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
7.X	Level Sensor Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
7.7	Prefill Error	Error (medium)	Make sure facility water is supplied to the docker; dock the rover again.
7.8			
8.X	Level Sensor Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
12.X	Level Sensor Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
13.X	Vacuum Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
13.6	Canister Pressure	Notification (low)	Turn on suction to reduce the positive pressure in the canister. If this notification persists, call service.
14.X	Vacuum Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
18.3	Almost Full	Notification (low)	Prepare to use an alternate source of suction, or empty the canister of fluid waste to prevent the loss of suction.

CODE	MESSAGE	PRIORITY	ACTION
18.5	Full	Error (medium)	Use an alternate source of suction, or empty the canister to restore lost suction to the canister.
20.1	Audio Failure	Error (medium)	Cycle power to the rover. Push the power switch to the OFF position; then push the switch to the ON position. If this error persists, call service.
21.0	Dial Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
22.0	Manifold Error	Error (medium)	Call service. See <i>Contact Information</i> (page 4).
22.1			
22.2			
24.11	Manifold Error	Notification (low)	Install new manifold. See <i>To Replace the HEPA Filter</i> (page 52).
24.13	Expired Manifold	Notification (low)	Install new manifold.
24.15	Used Manifold	Notification (low)	Install new manifold before performing the next surgical procedure.

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6.4. Service

⚠ WARNING - Do not disassemble, modify, or repair this product without the authorization of the manufacturer. Contact Stryker for service.

⚠ WARNING - ALWAYS reprocess (clean, disinfect, sterilize if required) all potentially contaminated equipment BEFORE returning to Stryker. Stryker will not accept or process any potentially contaminated equipment.

i Note - Maintenance documentation for this product is available upon request to Stryker-authorized service personnel only.

i Note - For service information, contact your Stryker sales representative or call Stryker customer service. See *Contact Information* (page 4) section. Outside the US, contact your nearest Stryker subsidiary.

1. Contact your local Stryker service center to obtain a repair purchase order BEFORE sending a product return directly to the center.
2. To expedite your processing, ALWAYS include the following information with your product return:
 - Contact name
 - Contact address
 - Contact phone number
 - Repair purchase order number
 - Part number(s)
 - Serial number(s)
 - Detailed reason for return

6.5. Disposal/Recycle







In accordance with European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE) as amended product should be collected separately for recycling. Do not dispose of as unsorted municipal waste. Contact local distributor for disposal information. Ensure infected equipment is decontaminated prior to recycling.



Collect batteries separately for recycling per European Community Batteries Directive.

6.6. Specifications





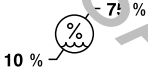
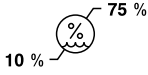
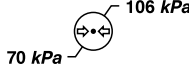
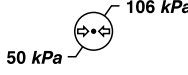
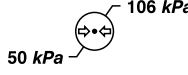
Model:	Neptune S Rover (REF 0711-001-000)	
Power Requirements:	120 V  (alternating current AC), 60 Hertz (Hz), X.0 Amps (A), single phase; X0 V  (direct current DC), X A during docking procedure; rover receives power from docker REF 0702-014-000	
Dimensions:	XX mm [X.X inch] height, XX mm [X.X inch] width, XXX mm [X.X inch] length	
Mass:	85 kg [187 lb.] — collection canister full; 106 kg [233 lb] — fully loaded, includes maximum supported load of 21 kg [46 lb] on the work surface i Note - A Stryker SafeAir Combi or Compact Console may be attached to the work surface of the rover using the Neptune S Console Bracket. See <i>For Use With</i> (page 12).	
Material:	REACH, RoHS materials? Reticulated foam that prevents frothing: PVC Coated Polyester 10 PPI.	
Mode of Operation:	Continuous	
Sound Pressure:	Medium Priority Alert, X - X dB (not adjustable, see IEC 60601-1-8: 200X (Second Edition) + AM1:20XX)	
Adjustable Suction Limit:	50 to 520 mm-Hg; measured with all ports closed i Note - Suction limits remain adjustable in increments of 5 mm-Hg for settings between 50 to 120mm-Hg. Suction limits increment at 20 mm-Hg for settings over 120 mm-Hg.	
Vacuum Measurement Accuracy:	± 5% of full scale (± 26 mm-Hg, ± 3.47 kPa) include kPa accuracy?	
Suction Limit Accuracy:	< 26 mm-Hg (3.47 kPa) or 10% of setting	
Volume:	8-liter capacity (8-liter canister) i Note - The canister has increment marks of 10 mL.	
Volume Overfill Protection:	Software and Mechanical Float? Do we need more detail here?	
Volume Measurement Accuracy:	8-liter canister, ± 120 mL	i Note - Volume measurement accuracy specified does not account for fluid evaporation or an inclined plane of operation that exceeds the specified range.
Inclined Plane of Operation:	± 2.5 degrees	
Equipment Type:		Type CF Applied Part
Equipment Classification:	Class I Medical Electrical (ME) Equipment	
Ingress Protection (IP):	IPX0	

LED Classification - IR Communication Window:	<p>⚠ WARNING - INVISIBLE LED RADIATION: DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS CLASS 1M LED PRODUCT — Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye injury hazard.</p> <p>warning may change - based on a IEC 60825-1 standard product safety is not going to use anymore; new standard IEC 62471 requirement</p>	
Ground Type:		Protective Earth (ground); when connected to facility power

Model:	Neptune S V2 Specimen Collection Manifold Kit (REF 0750-200-000)
Dimensions:	XX mm [X.X inch] height, XX mm [X.X inch] width, XXX mm [X.X inch] length
Mass:	XX kg [XX lb.]
Material:	

Model:	Neptune S V2 4-Port Manifold (REF 0750-400-000)
Dimensions:	XX mm [X.X inch] height, XX mm [X.X inch] width, XXX mm [X.X inch] length
Mass:	XX kg [XX lb.]
Material:	

Table 34 – Environmental Conditions and Limitations

Environmental Limitations	Operation and Maintenance	Storage and Transportation (before initial use)	Storage and Transportation (after initial use)
Temperature:			
Relative Humidity:	 <p>10% ????</p>		
Atmospheric Pressure:			

6.7. Power Cord Specifications

i Note - The general power cord specifications indicate power cord requirements only, not device requirements.

Table 35 – General Power Cord Specifications

Model:	120 VAC Neptune S Rover	230 VAC Neptune S Rover	100 VAC Neptune S Rover
REF:	0711-001-000, 0711-004-000	0711-002-000XX	0711-003-000
Ratings:			
Current:	15 A	10 A [minimum]	16 A
Voltage (nominal):	125 VAC	250 VAC	110 VAC minimum
Frequency:	60 Hz	50 Hz	50/60 Hz
Temperature:	105°C minimum		
Conductor Size:	14 AWG	1.5 mm ²	2 mm ²
Connector Type:	IEC 60320 C13		
Cord Lengths:	5.5 m		
Cord Type:	SJT, H05VV-F, HVCTF, RVV or equivalent (unshielded)		
Dielectric Withstand:	1500 VAC for 60 seconds between line and protective earth and between neutral and protective earth		

Table 36 – Country-specific Power Cord Specifications

Plug Type ¹	Cord Shielding	Cord Length	Locking Mechanism	Part Number	National Standard ²
B ³	Shielded	3.7 m 5.5 m?	NO YES?	0996-851-010	UL or CSA
E/F	Unshielded	3.0 m 5.5 m?	YES	0996-851-025	CEE 7/7
G	Unshielded	3.0 m 5.5 m?	YES	0996-851-027	BS 1363
L	Unshielded	2.5 m 5.5 m?	NO YES?	0996-851-032	CEI 23-50

¹The facility power (mains) plug shall have a ground/earthing pin.

²The power cord shall meet the cited national standard.

³The Canadian and United States (US) power supply cord shall have a tag or label in English and French indicating that "GROUNDING RELIABILITY CAN ONLY BE ACHIEVED WHEN EQUIPMENT IS CONNECTED TO AN EQUIVALENT RECEPTACLE MARKED 'HOSPITAL ONLY' OR 'HOSPITAL GRADE' " or equivalent wording.



Agency Approval: c

us CSA Certified for Canada and US or



UL Recognized for Canada and US

6.8. Electromagnetic Compatibility

product safety to verify accuracy of this information


Guidance and manufacturer's declaration - electromagnetic emissions		
The Neptune S Rover is intended for use in the electromagnetic environment specified below. The customer or the user of the Neptune S Rover should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	Neptune S Rover uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	Neptune S Rover is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded: ⚠ WARNING - This equipment/system is intended for use by healthcare professionals only. This equipment/system may cause radio interference or may disrupt the operation of nearby equipment. Mitigation measures may be necessary, such as reorienting or relocating the Neptune S Rover or shielding the location.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration - electromagnetic immunity			
This Neptune S Rover is intended for use in the electromagnetic environment specified below. The customer or the user of the Neptune S Rover should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 20% ??.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV at 100 kHz repetition frequency for power supply lines ± 1 kV at 100 kHz repetition frequency for input/output lines	± 2 kV at 100 kHz repetition frequency for power supply lines ± 1 kV at 100 kHz repetition frequency for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 0.5 kV, ± 1 kV line(s) to line(s) ± 0.5 kV, ± 1 kV, ± 2 kV line(s) to earth	± 0.5 kV, ± 1 kV line(s) to line(s) ± 0.5 kV, ± 1 kV, ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.

Guidance and manufacturer's declaration - electromagnetic immunity			
Voltage dips, short interruptions, and voltage variations on power supply input lines IEC 61000-4-11	$<5\% U_T$ ($>95\%$ dip in U_T) for 0.5 cycle $40\% U_T$ (60% dip in U_T) for 5 cycles $0\% U_T$ (100% dip in U_T) for 0.5 cycle at 0° , 45° , 90° , 135° , 180° , 225° , 270° , and 315° $0\% U_T$ ($>100\%$ dip in U_T) for 1 cycle at 0° $70\% U_T$ (30% dip in U_T) for 25 and 30 cycles at 0° $<5\% U_T$ ($>95\%$ dip in U_T) for 5 seconds $0\% U_T$ (100% dip in U_T) for 250/300 cycles	$<5\% U_T$ ($>95\%$ dip in U_T) for 0.5 cycle $40\% U_T$ (60% dip in U_T) for 5 cycles $0\% U_T$ (100% dip in U_T) for 0.5 cycle at 0° , 45° , 90° , 135° , 180° , 225° , 270° , and 315° $0\% U_T$ ($>100\%$ dip in U_T) for 1 cycle at 0° $70\% U_T$ (30% dip in U_T) for 25 and 30 cycles at 0° $<5\% U_T$ ($>95\%$ dip in U_T) for 5 seconds $0\% U_T$ (100% dip in U_T) for 250/300 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Neptune S Rover requires continued operation during power mains interruptions, it is recommended that the Neptune S Rover be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m , 30 A/m at 50 and 60 Hz	3 A/m , 30 A/m at 50 and 60 Hz	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
i Note - U_T is the AC mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration - electromagnetic immunity			
The Neptune S Rover is intended for use in the electromagnetic environment specified below. The customer or the user of this Neptune S Rover should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance

Guidance and manufacturer's declaration - electromagnetic immunity

<p>Conducted RF IEC 61000-4-6</p>	<p>3 V 0.15 MHz – 80 MHz 6 V in ISM bands between 0.15 MHz and 80 MHz 80% AM at 1 kHz</p>	<p>3 V</p>	<p>⚠ WARNING - Portable RF equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Neptune S Rover, including cables specified by the manufacturer. Otherwise, degradation of the performance of this Neptune S Rover could result.</p> <hr/> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a, should be less than the compliance level in each frequency range ^b.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p>  <p>(non-ionizing electromagnetic radiation)</p>
<p>Radiated RF IEC 61000-4-3</p>	<p>^b 3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz 27 V/m 385 MHz, pulse modulation 18 Hz, Maximum power = 1.8 W 28 V/m 450 MHz, FM ± 5 kHz deviation, 1 kHz sine, Maximum power = 2 W 9 V/m 710, 745, 780, 5240, 5500, 5785 MHz, pulse modulation 217 Hz, Maximum power = 0.2 W 28 V/m 810, 870, 930 MHz, pulse modulation 18 Hz, Maximum power = 2 W 28 V/m 1720, 1845, 1970, 2450 MHz, pulse modulation 217 Hz, Maximum power = 2 W</p>	<p>^b 3 V/m 80 MHz to 2.7 GHz 80% AM at 1 kHz 27 V/m 385 MHz, pulse modulation 18 Hz, Maximum power = 1.8 W 28 V/m 450 MHz, FM ± 5 kHz deviation, 1 kHz sine, Maximum power = 2 W 9 V/m 710, 745, 780, 5240, 5500, 5785 MHz, pulse modulation 217 Hz, Maximum power = 0.2 W 28 V/m 810, 870, 930 MHz, pulse modulation 18 Hz, Maximum power = 2 W 28 V/m 1720, 1845, 1970, 2450 MHz, pulse modulation 217 Hz, Maximum power = 2 W</p>	

i Note

- At 80 MHz and 800 MHz, the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

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

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

6.9. Federal Communications Commission (FCC) and Industry Canada (IC) Compliance

i Note - Changes or modifications not expressly approved by Stryker could void the user's authority to operate the equipment.

6.9.1. Manifold Authentication

FCC Identification (ID) — FCC ID: Q9R-492866 This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IC Identification (ID) — IC ID: 4919A-492866

i Note - To ensure compliance with FCC and Innovation, Science and Economic Development Canada (ISED) Radio Frequency (RF) exposure requirements this device must be installed to provide a minimum of 20 cm between the device and people. Pour garantir la conformité aux exigences d'exposition RF de la FCC et d'ISED Canada, cet appareil doit être installé de manière à laisser un minimum de 20 cm entre l'appareil et les personnes.

i Note - This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device. L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) L'appareil ne doit pas produire de brouillage; (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6.9.2. Docking Interface

FCC Compliance — This device complies with FCC 47 CFR Part 13 Inductive Coupling for power transfer for a cleaning cycle between the rover and docker.

6.10. Glossary

Alert Condition– a potential or actual hazardous situation exists for which user AWARENESS or RESPONSE is required.

Applied Part– a component of an electrical medical device that comes into physical contact with the patient during normal use to perform its function. The fluid suction tubing is an applied part.

BS EN ISO 10079-1: 2009, clause 9.4– the requirements in IEC 60601-1:1988, clause 16 apply; also the housing shall be constructed of fire-retarding material which withstands the needle-flame test specified in IEC 60695 2-2 when the flame is applied to any point on the inside or outside surface of the housing for 20 seconds.

BS EN ISO 10079-1: 2015 + A1: 2019, clause 9.11– interruption and restoration of the power supply to the suction equipment shall not cause any hazard, and the vacuum and flow rate shall not vary by more than 10% from the set value.

Docker-Rover Interface– includes four elements: (1) docker electromagnets attract and hold the rover strike plates to facilitate physical connection, (2) the docker power coupler provides electrical energy to the rover during docking, (3) rover and docker fluid couplings provide pathways for fluid waste outflow and clean water inflow to the rover canisters, and (4) infrared communication is used to exchange information between the docker and rover.

Error– indicates a medium priority alert condition, including a software or hardware fault, or an unexpected operating condition.

Expired Manifold– indicates 36 hours have elapsed since the new manifold was first exposed to suction.

Fluid Level Sensor– a sensor located in the collection canister that determines the current fluid volume level. The presence of prefill fluid ensures the sensor is always floating.

Fluid Stacking– if the rover has sufficient fluid volume capacity in the collection canister, it may be used for more than one surgical procedure; fluid waste is 'stacked' between procedures.

Invalid Manifold– a manifold that may have been altered, damaged, or previously exposed to suction and has since expired.

Low Priority Alert– indicates user AWARENESS is required [product safety has indicated future action may be needed to address alerts.]

Medium Priority Alert– indicates PROMPT user RESPONSE is required.

New Manifold– a valid manifold; suction has never been applied to the manifold.

Notification– indicates a low priority alert condition that will not prevent use of the rover. The rover will remain fully functional after experiencing a notification.

Off Loading– the contents of the rover canister is emptied into a facility waste disposal drain during docking.

Prefill Fluid– the rover canister is prefilled with a water and detergent solution after each docking cycle; the solution initiates the breakdown of fluid waste collected during use.

Prefilling– adding prefill fluid to the rover canister.

Used Manifold– a valid manifold exposed to suction, but not yet expired.

Glutaraldehyde– a toxic chemical used to clean and disinfect.

Valid Manifold– a NEW or USED manifold (but not yet expired).

Infrared Communication– an information exchange method using a receiver, a transmitter, and invisible infrared energy.

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