

IsoAir™  
REF 2940

# stryker®

Service Manual



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




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# Symbols and Definitions

## SYMBOLS

	Warning
	Caution
	Electrical Safety Mark
	Refer to Instruction Manual
	Type B Applied Part; Applied Part is the Mattress
	Safe Working Load (SWL)
	Do Not Iron
	Machine Wash
	Tumble Dry
	Do Not Bleach
	Chlorinated Bleach Allowed (See <b>Page 16</b> )
	Do Not Tumble Dry
	Do Not Dry Clean
	Do Not Wash
	Drip Dry
	Consult Instructions for Use
<b>IP21</b>	Ingress Protection Rating
	Equipment Emits Electromagnetic Energy
	Manufacturer
	Date of Manufacture
	Li Ion Battery
	CE Mark

## Symbols and Definitions

	Double Insulated
	Product Weight
	Power (ON/STANDBY)
	Lock
	Alarm Silence
	Pressure Alarm Indicator
	Alarm Indicator
	Moisture Management (MM)
	Pressure Redistribution (Static) Mode
	Alternating Low Pressure (ALP) Mode
	Increase Pressure
	Decrease Pressure
	Active Sensor Technology (AST)
	MAX Inflate
*	AST Contact Indicator
	Battery Alert
	Choking Hazard
	Do Not Dispose as Unsorted Municipal Waste

# Symbols and Definitions

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## WARNING / CAUTION

The words **WARNING** and **CAUTION** carry special meanings and should be carefully reviewed.

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### **WARNING**

Alerts the reader about a situation which, if not avoided, could result in death or serious injury. It may also describe potential serious adverse reactions and safety hazards.

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### **CAUTION**

Alerts the reader of a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user or patient or damage to the equipment or other property. This includes special care necessary for the safe and effective use of the device and the care necessary to avoid damage to a device that may occur as a result of use or misuse.

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## ACRONYMS

<b>ALP</b>	Alternating Low Pressure
<b>AST</b>	Active Sensor Technology
<b>CPR</b>	Cardio-Pulmonary Resuscitation
<b>HOB</b>	Head of Bed
<b>LCD</b>	Liquid Crystal Display
<b>LED</b>	Light Emitting Diode
<b>MM</b>	Moisture Management (Low Air Loss)
<b>SWL</b>	Safe Working Load = Maximum load that the equipment can support without breaking. <b>NOTE!</b> SWL is not the <u>Therapeutic Weight Range</u> for this product. See Specifications Section on <b>Page 7</b> for the Therapeutic Weight Range.

# Introduction

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This manual is designed to assist with the operation and maintenance of the Stryker IsoAir™ System (“IsoAir™”). Carefully read this entire manual before using or beginning maintenance on the Pump or Support Surface. To ensure safe operation of this equipment, it is recommended that methods and procedures are established for educating and training staff on the safe operation of the Pump and Support Surface.

## INTENDED USE OF THE PRODUCT

The IsoAir™ is a therapeutic support system used to assist in the prevention and treatment of all categories/stages of pressure ulcers (including stages I, II, III, IV, Un-stageable, and Deep Tissue Injury).

This system is intended for use in acute care and long-term care, not including the home environment.

## CONTRAINDICATIONS

The IsoAir™ System is intended for use as prescribed by a licensed physician. The IsoAir™ System is contraindicated for use with certain medical conditions and treatments. Always consult with the patient’s physician before commencing therapy with the IsoAir™ System.

## PRODUCT DESCRIPTION

The IsoAir™ System offers Alternating Low Pressure (ALP) and Moisture Management (MM) on demand. The system consists of a main control unit (Pump), which provides a pressure source for inflating and deflating the air cells in the support surface. The support surface consists of a series of air cells that run laterally across the surface to support the patient, and side bolsters.

The AST feature is an auto-sensing function that is used to provide optimal immersion.

## PRODUCT & THERAPY OVERVIEW

The IsoAir™ helps to prevent and treat pressure ulcers. The air cells in the support surface are positioned every 4 inches (10 cm) from the head to the foot. Two types of therapy are available, Pressure Redistribution and ALP. Pressure Redistribution therapy fills the cells with just enough air to deeply immerse the patient into the surface. This immersion distributes pressure to support the patient as evenly as possible. ALP therapy will alternately inflate and deflate every other cell to relieve pressure and allow blood to flow into the tissue more easily. This function will continue to cycle every 6 minutes.

An additional feature called Moisture Management (MM) is available. MM enhances patient comfort and helps to prevent and treat pressure ulcers by removing moisture through the top cover. Air is pumped into the surface in the seat and torso areas to evaporate the moisture.

The Pump is connected to the air cells through flexible hoses. The Pump monitors and adjusts the air in the air cells automatically. If less air is required then the Pump opens a valve to vent some out. If more air is required then the Pump turns on its air compressor and opens a valve to direct more air into the cell.

There are two ways that the firmness / softness of the surface can be set. Manual mode allows the user to select one of five preset levels. AST mode utilizes sensors in the seat area of the surface. These sensors determine the amount of immersion of the patient. If the mattress is too soft and the patient is immersed too much, the Pump will increase the air pressure in the surface. Conversely, if it is too hard the Pump will decrease the air pressure in the surface.

## ISOAIR™ SYSTEM COMPONENTS



The IsoAir™ System is composed of a Support Surface (Mattress) and a Pump. The Surface has a built in Hose Assembly that connects to the Pump via the CPR Connector.

The Pump is supplied with two power cords, a long cord and a short cord. The long cord is for wall connection and the short cord is for connecting directly to the power socket built into some Stryker bedframes.

The system is accompanied by an Operation/Maintenance Manual.

# Specifications

The table below lists the specifications for the IsoAir™ System

<b>PUMP</b>		
Dimensions	Height: 8.5 in. / 21.6 cm Width: 8 in. / 20.3 cm Depth: 5 in. / 12.7 cm	
Input Voltage AC	Models: <b>12SM-SRLV-BH</b> <b>12SM-SRLVC-BH</b> <b>12SM-SRLVSA-BH</b>	120 Volts +10%/-15%
	Models: <b>12SM-SRHV-x</b>	230 Volts +10%/-15%
Input Frequency	Models: <b>12SM-SRLV-BH</b> <b>12SM-SRLVC-BH</b> <b>12SM-SRLVSA-BH</b>	60 Hz +/- 5%
	Models: <b>12SM-SRHV-x</b>	50 Hz +/- 5%
Current Consumption	Models: <b>12SM-SRLV-BH</b> <b>12SM-SRLVC-BH</b> <b>12SM-SRLVSA-BH</b>	0.4 A
	Models: <b>12SM-SRHV-x</b>	0.2 A
Power Consumption	< 50 Watts	
Circuit Protection	Fuse, 250V, 1.6A, 5 x 20 mm, Fast blow (1500A)	
Protection Against Electrical Shock <sup>1</sup>	Class II Class II Medical Equipment provides electrical safety by the means of insulation without the use of grounding (protective earthing).	
Applied Part	Type B A type B rating indicates that the device may have electrical contact with the patient and the electrical contact may be connected to earth ground.	
Pressure Display Accuracy	±2 mmHg	
Pressure Settings (mmHg)	10 to 30 mmHg in 5 mmHg Increments	
Power Cord	Domestic: 3 ft & 15 ft; 16 AWG Hospital Grade International: 5 m, HO5VV-F	
Air Hose	34 in / 86 cm	
Air Hose Connections	5/16 Inch Flow Quick Coupling	
AST Plug	¼ in / 0.6 cm Phono Jack	
AST Cable	35 in / 89 cm	
Packaging	1 Pump per Box	
Latex Content	User accessible parts (mattress, Pump and accessories) are not made with natural rubber latex.	
Pump Weight	11 lb / 5 kg	
<b>Alarms:</b>		
Maximum Sound Pressure Level	61.2 dB(A)	
<b>Protection Against Harmful Ingress of Liquids:</b>		



# Specifications

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Liquid Ingress Protection	IP21 (with CPR and AST plug attached) 2 Protected against solid objects over 12.5mm e.g. hands, large tools. 1 Protected against vertically falling drops of water or condensation.
<b>Applied Parts:</b>	
Support Surfaces	See Part Number listing in the following <i>Support Surface Specifications Table</i> .
<b>Expected Life:</b>	
IsoAir™ Pump	5 Years

<sup>1</sup> The ground connection of the power cord is used to provide suppression of electronic noise that may interfere with other equipment. It does NOT provide electrical safety protection.

# Specifications

SUPPORT SURFACE		
Support Surface Coverlet Material	Equilibrium 2 by Dartex®	
Support Surface Sizes:		
Model	Dimensions	
<b>45A-SR5-3584</b>	84" x 35" x 7.0"	213,4 cm x 88,9 cm x 17,8 cm
<b>45A-SR5-3280</b>	80" x 32" x 7.0"	203,2 cm x 81,3 cm x 17,8 cm
<b>45A-SR5-3580</b>	80" x 35" x 7.0"	203,2 cm x 88,9 cm x 17,8 cm
<b>45A-SR8-3280</b>	80" x 32" x 7.7"	203,2 cm x 81,3 cm x 19,6 cm
<b>45A-SR8-3580</b>	80" x 35" x 7.7"	203,2 cm x 88,9 cm x 19,6 cm
Maximum Support Surface Weight	28 lb.	12,7 kg
Safe Working Load (SWL)	550 lb.	250 kg
Therapeutic Weight	50 lb. - 350 lb.	22.7 kg - 158.7 kg
Flammability Standards	<i>16 CFR 1632            16 CFR 1633            CAL TB 129            UNI 9175            Boston BFD IX-11            Canada - Method CAN/CGSB-4.2 No. 27.7-2013            BS 597-1, BS 597-2, BS6807 (Crib 5)</i>	
Biocompatibility Standards	<i>ISO 10993-1, ISO 10993-5, ISO 10993-10</i>	

System Operating Conditions:	
Ambient Temperature	5 to 38 °C
Relative Humidity	15 to 93 % Non-Condensing
Atmospheric Pressure	700 to 1060 hPa
System Storage and Shipping Conditions:	
Ambient Temperature	-20 to 60 °C
Relative Humidity	10 to 95 %, Non-Condensing
Atmospheric Pressure (hPa)	500 to 1060 hPa
Product Compliance:	
Medical Equipment	<i>IEC 60601-1 (3rd edition)            AAMI ES60601-1            CAN/CSA C22.2 NO. 60601-1 (3rd Edition)</i>
Collateral Standards	<i>Electromagnetic Compatibility, IEC 60601-1-2            Usability, IEC 60601-1-6            Alarms, IEC 60601-1-8</i>
Expected Life:	
IsoAir™ Support Surface	Coverlet 2 Years Support Surface without Coverlet 5 years

**Stryker reserves the right to change specifications without notice.**

# Contact Information & Serial Number Location

## CONTACT INFORMATION

Contact Stryker Customer Service at **1-800-327-0770** for assistance in setting up, using or maintaining the IsoAir™ System, or if you encounter any unexpected events/operation.

### **Stryker Medical**

3800 E. Centre Avenue  
Portage, MI 49002  
USA

Please have the serial number of your Stryker product available when calling Stryker Customer Service. Include the serial number in all written communication.

## PUMP SERIAL NUMBER LOCATION

The serial number is located on the back of the Pump as shown in the label example below.

### SERIAL NUMBER FORMAT (8 CHARACTERS):

**Serial Number Example:** 14J00234

1	4	J	0	0	2	3	4
Y	Y	M	N	N	N	N	N

**Manufacture Date (YY/M):** 2014 September  
**Sequential Number (N):** 00234



Year Legend (Y)	
2014	14
2015	15
2016	16
2017	17
2018	18

Month Legend (M)	
January	A
February	B
March	C
April	D
May	E
June	F
July	G
August	H
September	J
October	K
November	L
December	M

Sequential # Legend (N)
00001 - 99999


# Contact Information & Serial Number Location

## SUPPORT SURFACE SERIAL NUMBER LOCATION

The serial number is located inside the support surface on the patient right side at the foot end near the corner.

STITCHING TO BE ABOVE THIS LINE

---



**Stryker Medical**  
3800 E. Centre Ave.  
Portage, MI 49002  
USA

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<input type="checkbox"/>	84 in x 35 in (213.4 cm x 88.9 cm)
<input type="checkbox"/>	80 in x 35 in (203.2 cm x 88.9 cm)
<input type="checkbox"/>	80 in x 34 in (203.2 cm x 86.4 cm)
<input type="checkbox"/>	80 in x 32 in (203.2 cm x 81.3 cm)

**REF** 2940

**SN** \_\_\_\_\_









45A-SR\_\_ - \_\_\_\_\_

IP-45-12-EU D



## COVERLET SERIAL NUMBER LOCATION

The serial number is located on the patient right side at the foot end of the coverlet.

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<input type="checkbox"/>	84 in x 35 in (213.4 cm x 88.9 cm)
<input type="checkbox"/>	80 in x 35 in (203.2 cm x 88.9 cm)
<input type="checkbox"/>	80 in x 34 in (203.2 cm x 86.4 cm)
<input type="checkbox"/>	80 in x 32 in (203.2 cm x 81.3 cm)

**REF** 2940

**SN** \_\_\_\_\_

45A-0017-\_\_\_\_\_

IP-45-11

# Summary of Safety Precautions

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Before operating this medical equipment, carefully read and strictly follow the Warnings and Cautions presented in the following sections.

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## General

- Read this manual to understand the operating instructions and safety precautions. Failure to do this could result in patient injury and/or damage to the product.
- To avoid the risk of electric shock inspect the Pump and power cord for damage. If damage is observed, take the Pump out of operation immediately and contact Customer Service. (See **Page 10** for Contact Information).
- Entrapment & Falls: Evaluate patients for the risk of entrapment & falls according to facility protocols. Ensure side rails are fully locked when in the raised position. Failure to do this could result in death or injury.
- The patient should be evaluated for suitability of the device to treat the patient's condition.
- It is the responsibility of the operator to monitor the patient and the patient's skin condition at regular intervals, per medical protocols, to ensure patient safety and proper support surface performance. Consult a physician if irritation or skin breakdown occurs.
- Do not modify or change this device. There are no user-serviceable parts inside the Pump. Service should only be completed by qualified personnel. Failure to do so could result in injury and void warranty.
- Connect only items that have been specified as part of the device, or specified as being compatible with the device.
- Pressure in support surface is under automated control and may adjust without notice. Use care when performing medical procedures on patient.
- Smoking in bed or improper use of radiant heaters may cause a fire. Doing so could result in death or injury.

## Support Surface

- To avoid the risk of patient injury, do not use the support surface on a bed frame of a larger or smaller size. The risk of entrapment can develop when the support surface is placed on bed frames that leave gaps between the support surface and the headboard, footboard, and side rails. The support surface is not to be used when such gaps are present.
  - To avoid risk of severe injury, properly secure support surface to the frame according to the instructions for use.
  - Initiate deflation of the Support Surface before starting CPR. Failure to do so may result in ineffective CPR. Refer to **Operation/Maintenance Manual**.
  - The hose sleeve is a safety feature. Do not operate the equipment without the sleeve in place.
  - Risk of entanglement if hose sleeve is not secured to the back plate of the CPR connector.
  - Risk of asphyxiation due to entanglement with hoses. Ensure hose sleeve is correctly installed.
  - Ensure that all side rails are fully latched when in the raised position. Failure to do so could result in serious injury or death including patient falls.
  - To avoid the risk of patient injury and equipment damage, do not use the support surface handles or straps to lift, or move the support surface with a patient on it.
  - To avoid the risk of patient and operator injury, a minimum of two (2) operators is required when transferring a patient. Operators need to be positioned so that they can control patient positioning.
  - To avoid the risk of patient injury, ensure the opposite side rail is raised when placing a patient on the support surface.
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# Summary of Safety Precautions

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## Pump

- Risk of Electric Shock. Do not open or attempt to repair or service the electronic Pump. Repairs and service should only be done by authorized personnel. If the Pump is not functioning properly, or has been damaged, unplug the Pump and take it out of service immediately and contact Customer Service. (See **Page 10** for contact information).
- Electrical-safety testing of your Pump should be performed at least annually. Failure to do so may result in death or injury. Contact Customer Service, **Page 10**, for service information.
- Medical Electrical Equipment needs special precautions regarding Electro-Magnetic Compatibility (EMC) between devices and needs to be installed and put into service according to the EMC information provided in this manual (See **Page 138**). However, there is no guarantee that interference will not occur in a particular installation. If the pump causes harmful interference to other devices or other equipment causes harmful interference to the pump, which can be determined by turning equipment ON and OFF, the user is encouraged to try to correct the interference by one or more of the following measures:
  1. Reorient or relocate the receiving device.
  2. Increase the separation between the Pump and other equipment.
  3. Connect the equipment into an outlet on a circuit different from that to which other device(s) are connected.

Consult with Stryker Customer Service for assistance.

- The Pump should not be used adjacent to or stacked with other equipment, doing so may cause abnormal operation in either device. If adjacent or stacked use is necessary, the Pump and other equipment should be observed to verify normal operation in the configuration in which it will be used.
- Portable and mobile RF communications equipment, such as wireless home network devices, mobile phones, cordless telephones, their base stations, and walkie-talkies can affect this and other Medical Electrical Equipment. See **Page 138** for guidance.
- The use of accessories and cables other than those specified, with the exception of those sold by the manufacturer as replacement parts, may result in increased emissions and/or decreased immunity of the device.
- The Pump hangers are not intended to be in patient contact. Extended patient contact with the Pump hangers may cause injury.
- Do not use in the presence of flammable anesthetics, nitrous oxide, or oxygen-rich environments. Risk of explosion, burns and asphyxiation can result.
- Exposure of the electronic Pump to any liquid while it is plugged in could result in a severe electrical hazard.
- To avoid risk of injury do not place objects on the surface of the Pump.
- The AST cable **ONLY** connects to the AST-socket. Connecting it anywhere else may result in severe electrical shock.
- If “Key-Click” sound is not heard, **DO NOT** use the Pump.
- Pressure in support surface is under automated control and may adjust without notice. Use care when performing medical procedures on patient.
- The device is not compatible for use in MRI.
- AC mains power must be connected to provide therapy. If power is lost, therapy provided will be discontinued.
- Good filter maintenance is critical in keeping your IsoAir™ Pump in optimal operating condition. Failure to clean the filter may cause damage to the Pump. A damaged Pump may not provide proper support pressures resulting in patient injury.

# Summary of Safety Precautions

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## Electrical Connections & Power Cord

- To isolate the device from the supply mains, remove power cord.
- Plug the power cord into a properly grounded outlet. Failure to do so may cause electronic noise that may interfere with other equipment e.g. ECG, EKG, or EEG.
- Do not use multiple socket outlets or extensions. This may result in an electrical hazard.
- Power cord may cause tripping hazard. Route cord under bed frame.
- Before plugging in the Pump, check the power cord for damage, e.g. cuts, exposed wires, worn insulation, etc. If hazards are present, take the Pump out of operation immediately and contact Customer Service. (See **Page 10** for Contact Information)
- Improper use or handling of the power cord could result in damage. If damage of power cord is present, do not use and call qualified maintenance personnel for replacement (See Parts list on **Page 24**). To avoid risk of electric shock use approved power cords only.
- The power cord to the Pump should be positioned to avoid a tripping and strangulation hazard and/or damage to the cord. Stryker recommends placing the cord under the bed frame and plugging it into an electrical outlet by the head end of the bed, or the integral electric outlet on the bed frame using the shorter cord provided.
- Orient power cord so that it is not difficult to disconnect.
- Risk of asphyxiation due to entanglement with cords. Route cord under bed frame.

## Disinfection

- Disinfect the Pump and Surface between patient installations and when servicing, utilizing standard hospital protocol and disinfectants. Failure to disinfect may risk cross-contamination and infection.
- When disinfecting is required, check disinfectant manufacturer's instructions before use, and use disinfectant and personal protective equipment in accordance with the manufacturer's instructions.
- Do not spray disinfectant directly on the electrical Pump, or immerse the Pump in any type of liquid. This could result in a severe electrical hazard.
- All disinfection should be done using a "hospital-grade" disinfectant.
- DO NOT spray disinfectant directly on the electrical Pump, or immerse the Pump in any type of liquid. This could result in a severe electrical hazard.
- Check patient medical history for allergies to the disinfectants listed on **Page 16**.

# Summary of Safety Precautions

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## General

- Check the system and surrounding area for pests that may damage the system causing harm to the patient.
- Do not return a Pump for any reason without first contacting Customer Service to obtain authorization.
- Do not leave children and pets unattended while the IsoAir™ System is in use. They may damage the system that may cause bodily harm to themselves and/or the patient.
- DO NOT service or perform maintenance while the product is in use. May result in patient injury.

## Support Surface

- Use care when using sharp objects, such as needles, as these can damage the air cells in the support surface.
- Do not use harsh cleansers, solvents, or detergents on the Pump/Surface. Equipment damage could occur.
- To avoid the risk of equipment damage, when cleaning the underside of the support surface, ensure that no liquid is allowed to seep into the zipper area and watershed cover barrier; fluids allowed to come in contact with the zipper may leak into the support surface.
- AST sensor cells (light blue) can be wiped down, but not laundered.
- Cap the air cell connectors before laundering (See **Page 18**. Failure to cap the connectors will lead to liquid ingress inside of the air cell and the risk of damage or mold growth through incomplete drying.
- The Mattress includes straps at the bottom center that are intended for storage use. Do not use these to tie the Mattress to the bedframe. May result in equipment damage.

## Pump

- When hanging the Pump on the foot board, ensure the hangers are seated as they are not spring loaded and may become dislodged if not properly hung.
- The Pump is a precision electronic product. Use care when handling or transporting. Dropping, or other sudden impacts, may result in damage to the Pump.
- After exposure to extreme high or low temperatures, allow the Pump to equilibrate for at least one (1) hour before operating.
- The Pump circulates room air during operation. Exposure to smoke may cause the Pump to fail. Therefore, smoking by patients, or visitors, while using this product should be avoided.
- DO NOT autoclave the Pump OR the Hosing Assembly. May result in equipment damage.
- Unplug the Pump from its source prior to cleaning. Failure to do so may result in an electrical hazard.

## Environmental

- To prevent the materials in this product from contributing to potentially serious health and/or environmental hazards:
  1. Consult your local regulations to safely dispose of electronic equipment, batteries, and/or any biohazardous waste.
  2. Do not dispose of as unsorted municipal waste. See your local distributor for return or collection systems available in your country.



# Cleaning and Disinfection



- Disinfect the Pump and Surface between patient installations and when servicing, utilizing *standard hospital protocol and disinfectants*. *Failure to disinfect may risk cross-contamination and infection.*
  - When disinfecting is required, check disinfectant manufacturer's instructions before use, and use disinfectant and personal protective equipment.
  - Use Personal Protection Equipment in accordance with the manufacturer's instructions to reduce the likelihood of cross-contamination during cleaning.
  - All disinfection should be done using a "hospital-grade" disinfectant.
  - Check patient medical history for allergies to the Suggested Disinfectants listed below
- 1.

## SUGGESTED DISINFECTANTS

- Quaternary Cleaners
- Phenolic Cleaners
- Chlorinated Bleach Solution (5.25% bleach diluted 1 part bleach to 10 parts water)
- 70% Isopropyl Alcohol
- Accelerated Hydrogen Peroxide (AHP)

## CLEANING and DISINFECTION of the PUMP



- DO NOT spray disinfectant directly on the electrical Pump, or immerse the Pump in any type of liquid. This could result in a severe electrical hazard.



- DO NOT autoclave the Pump OR the Hosing Assembly. Equipment damage could occur.
- Unplug Pump from its source prior to cleaning. Failure to do so may result in an electrical hazard.
- Do not use harsh cleansers, solvents, or detergents on the Pump. Equipment damage could occur.

The exterior of the Pump and Hosing Assembly should be wiped down between patients. Always inspect Pump components during Preventive Maintenance (**Page 19**) and replace as necessary.

### When cleaning and disinfecting the Pump, the following procedure is advised:

1. Unplug the power cord prior to cleaning/disinfecting.
2. Dampen a clean cloth with disinfectant according to manufacturer's recommendations.
3. Wipe down the Pump and Hosing Assembly to remove any foreign material/fluid/dirt.
4. Dry completely before using the Pump.

# Cleaning and Disinfection

## CLEANING and DISINFECTION of the SUPPORT SURFACE



- To avoid the risk of equipment damage, do not immerse support surface in cleaning or disinfectant solutions.
- Do not allow liquid to pool on the support surface.
- To avoid the risk of patient injury, coverlet and shell should be inspected for tears, punctures, excessive wear, and misaligned zippers each time the coverlets are cleaned. If a support surface coverlet becomes compromised, the support surface coverlet should be removed from service immediately and replaced to prevent cross-contamination.



- Do not use harsh cleansers, solvents, or detergents on the Surface. Equipment damage could occur.
- To avoid the risk of equipment damage, when cleaning the underside of the support surface, ensure that no liquid is allowed to seep into the zipper area or under the watershed cover; fluids allowed to come in contact with the zipper may leak into the support surface.

2.

The useful life of the support surface components (shell, air cells & coverlet) may be shortened by the number of times it is cleaned/disinfected. The number of cleanings/disinfections is “patient-dependent” and it is the responsibility of the caregiver to ensure the support surface is clean and sanitary for the patient, including determining the frequency of cleaning/disinfection. Generally, the presence of foreign material/fluids/odors would indicate the need to clean/disinfect the surface. Always inspect Surface components during Preventive Maintenance (**Page 19**) and replace as necessary.

3.

### When cleaning and disinfecting the Support Surface, the following procedure is advised:

1. Using a clean, soft, damp cloth, wipe down the support surface with a mild soap and water solution to remove foreign material.
2. Wipe down the support surface with a clean, dry cloth to remove any excess liquid or cleaning agent.
3. Disinfect with a hospital grade disinfectant AFTER cleaning has been completed. Refer to “Suggested Disinfectants” on **Page 16**.

# Cleaning and Disinfection

## CLEANING and DISINFECTION AIR CELLS

All Air Cells (AST and Non-AST) can be wiped down and disinfected. The following procedure is advised:

1. Using a clean, soft, damp cloth, wipe down the air cells with a mild soap and water solution to remove foreign material.
2. Wipe down the air cells with a clean, dry cloth to remove any excess liquid or cleaning agent.
3. Disinfect with a hospital grade disinfectant AFTER cleaning has been completed. Refer to "Suggested Disinfectants" on **Page 16**.

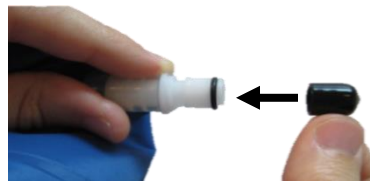


- The AST Sensor Cells (light blue, with attached wires) can be wiped down, **but not laundered**. Equipment damage could occur.

## LAUNDERING of NON-AST AIR CELLS

The Non-AST Air Cells (dark blue without wires) may be laundered. The following procedure is advised:

1. Remove Non-AST air cells to be laundered. See under Air Cell Replacement (**Pages 82 and 116**) for instructions.
2. Cap the air cell connectors with Air Cell Laundry Caps (2940-002-062) as shown.
3. Launder at a maximum water temperature of 60°C using standard hospital grade laundry detergents. **DO NOT ADD CHLORINE BLEACH.**
4. The air cells may be air dried or machine dried at a temperature not to exceed 60°C.



Air Cells may be laundered as many as 25 times over the life of the product.



- Cap the air cell connectors before laundering. Failure to cap the connectors will lead to liquid ingress inside of the air cell and the risk of damage or mold growth through incomplete drying.

## LAUNDERING of the COVERLET

When Laundering the Coverlets, the following procedure is advised:

1. Coverlets can be machine washed at a maximum water temperature of 70°C using standard hospital grade laundry detergents. **DO NOT ADD CHLORINE BLEACH WHEN LAUNDERING.**
2. Coverlets can be air dried or machine dried at temperatures not to exceed 75°C.
- 4.
5. Laundering can be performed up to 130 times over the life of the product.

**NOTE!** If storing the Support Surface and/or Pump between uses, store according to Storage Conditions presented in the table on **Page 7**.

# Preventive Maintenance

## PREVENTIVE MAINTENANCE OF THE SUPPORT SURFACE



- DO NOT service or perform maintenance while the product is in use. May result in patient injury.

At a minimum, check all items listed during annual preventive maintenance for all Stryker Medical products. You may need to perform preventive maintenance checks more frequently based on the level of patient usage and the number of times the Surface is cleaned/disinfected. Service should only be performed by qualified personnel.

Remove product from service before you perform preventive maintenance inspection.

Note: Clean and disinfect the exterior of the support surface before inspection, if applicable.

### CHECKLIST

- \_\_\_\_\_ Inspect coverlet; if tears, rips, holes, cracks, or excessive wear are observed, it is strongly recommended to replace the coverlet
- \_\_\_\_\_ Verify that the coverlet zipper opens and closes properly and has no visible damage.
- \_\_\_\_\_ Unzip coverlet to view the air cells; inspect the air cells and the bolster to ensure that there are no holes, cracks or signs of excessive wear. Replace as required.
- \_\_\_\_\_ Inspect fire barrier for rips, cracks or excessive wear.
- \_\_\_\_\_ Check labels as specified in the **Operation/Maintenance Manual** for legibility, proper adherence, and integrity.
- \_\_\_\_\_ Inspect handles and stitching to ensure that there are no rips or cracks.
- \_\_\_\_\_ Inspect hose sleeve for tears, rips or damage.
- \_\_\_\_\_ Inspect surface straps and ensure that they are intact and are not damaged.
- \_\_\_\_\_ During installation, confirm that straps properly secure the support surface assembly to the bed frame.

### SERIAL NUMBERS

System Component	Serial Number
Support Surface	
Coverlet	

### MAINTENANCE RECORD

Completed By	Date

# Preventive Maintenance

## PREVENTIVE MAINTENANCE OF THE PUMP



Electrical safety testing of the Pump should be performed at least annually. Failure to do so may result in death or injury. Contact Stryker Customer Service for information, see **Page 10**.

Preventive maintenance should be performed annually, at a minimum. A preventive maintenance program should be established for all Stryker Medical equipment. Preventive maintenance may need to be performed more frequently based on the level of usage and the number of times the Pump is cleaned/disinfected. Use this sheet for your records and keep on file.

### CHECKLIST

- \_\_\_\_\_ Verify that there are no cracks, holes or damages on the Pump Housing, or its components (Hoses, Power Cord, and Case)
- \_\_\_\_\_ Verify the hooks used to hang the Pump on the bed frame are intact and not damaged.
- \_\_\_\_\_ Verify the POWER Key is working properly.
- \_\_\_\_\_ While in operation, verify there are no air leaks from the Pump or the attached connectors/hosing.
- \_\_\_\_\_ Check Air Filter (See **Page43**).

### SERIAL NUMBERS

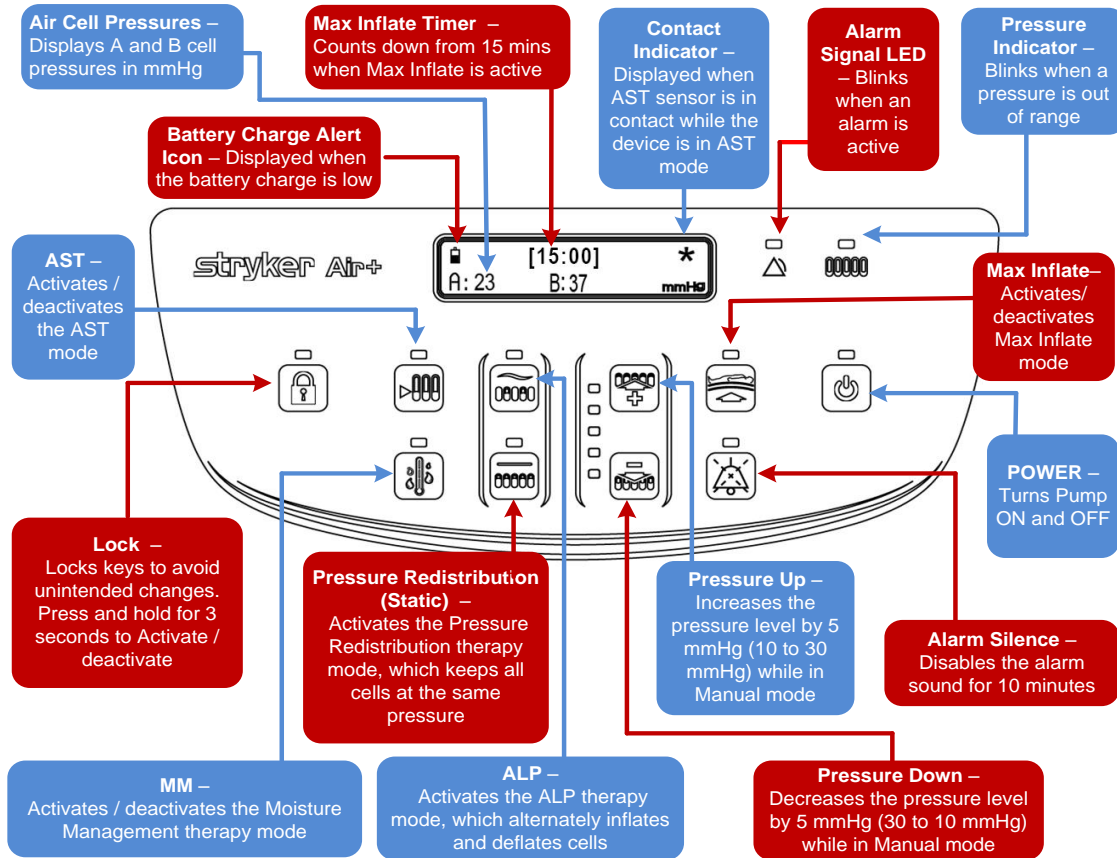
System Component	Serial Number
Air Pump	

### MAINTENANCE RECORD

Completed By	Date



# Pump Quick Reference Guide

## PUMP QUICK REFERENCE GUIDE





# Pump Alarm Troubleshooting Guide

## PUMP ALARM TROUBLESHOOTING GUIDE

1. If the  Alarm LED and the  Power LED are both blinking, this indicates a Power Fail Alarm.

Description	Cause	Recommended Action *
Power Fail	The Pump is not receiving electricity.	<ul style="list-style-type: none"><li>✓ Confirm that the power cord is firmly plugged in</li><li>✓ Confirm that the mains power is on</li></ul>

2. If the  Alarm LED is blinking in combination with other LEDs or the LCD, press and hold the  Alarm Silence button for 3 seconds. The following screen will appear with an Error Code (EC:xx). Have a writing or recording tool available as the error code appears only temporarily.



**Error Code**

## Pump Alarm Troubleshooting Guide

Error Code	Description	Cause	Recommended Action *
02 – 08	Hardware Failure	The Pump has detected an internal hardware fault.	✓ Disconnect and reconnect the power cord
09	Stuck Key	The Pump has detected that a key has been continuously activated for more than 15 seconds	✓ Confirm that no buttons are pressed
10	AST Connection Error	The Pump has detected that either the AST cable is disconnected or there is an electrical failure in the support surface for 1 second	✓ Confirm that the AST plug is completely inserted into the AST socket at the rear of the Pump
11	AST Sensor	Patient contact activates the AST Sensor for more than 15 minutes while operating in AST mode	<ul style="list-style-type: none"> <li>✓ If patient is in Fowler position, reduce HOB angle.</li> <li>✓ Unzip mattress cover and check that AST air cells are correctly positioned, and not rotated or twisted underneath the patient.</li> </ul>
12 13	Pressure Alarm	The system has been turned on for more than 15 minutes AND A high or low pressure condition exists in any support cell for 10 minutes OR a low pressure condition exists in the bolster for 10 minutes	<ul style="list-style-type: none"> <li>✓ Check that the CPR connector is correctly plugged into the Pump.</li> <li>✓ Check for kinks in hoses from the CPR connector to the mattress.</li> <li>✓ Unzip mattress cover. Check air cells, hoses and connections for possible leaks.</li> </ul>
14	MM Low Flow	The internal Pump pressure is greater than 65 mmHg for 5 seconds.	<ul style="list-style-type: none"> <li>✓ Check the CPR hose bundle between the Pump and the mattress is free from pinches</li> <li>✓ Unzip mattress cover. Check for air flow blockage by following the MM hoses inside the mattress.</li> </ul>

\* If condition persists, contact Stryker Customer Service.



## Quick Reference Replacement Parts List

MATTRESS	
Stryker P/N	Name
2940-002-001	Kit, Air Plug 2 pack
2940-002-003	Kit, Bolster Hose 35x84x7
2940-002-004	Kit, Overlay Assembly 32x80x7.7
2940-002-005	Kit, Overlay Assembly 35x80x7.7
2940-002-006	Kit, MM Hose 32x7.7
2940-002-007	Kit, MM Hose 35x7.7
2940-002-008	Kit, Bolster Hose 32x7.7
2940-002-009	Kit, Bolster Hose 35x7.7
2940-002-010	Kit, Manifold 7.7 x 80
2940-002-011	Kit, Bolster Head 7.7
2940-002-012	Kit, Bolster Foot 7.7
2940-002-013	Kit, AST Air Cell Pack 32x7.7
2940-002-014	Kit, AST Air Cell Pack 35x7.7
2940-002-015	Kit, Non-AST Air Cell 32 x 7.7
2940-002-016	Kit, Non-AST Air Cell 35 x 7.7
2940-002-017	Kit, CPR Assembly, Mattress
2940-002-018	Kit, Manifold Hose Assembly
2940-002-019	Kit, Overlay Assembly 32x80x7
2940-002-020	Kit, Overlay Assembly 35x80x7
2940-002-021	Kit, Overlay Assembly 35x84x7
2940-002-022	Kit, MM Hose 32x7 x 80
2940-002-023	Kit, MM Hose 35x7 x 80
2940-002-024	Kit, Manifold 80x7
2940-002-025	Kit, Manifold 84x7.0
2940-002-026	Kit, Bolster Hose 32x80x7
2940-002-027	Kit, Bolster Hose 35x80x7
2940-002-028	Kit, Bolster Head 7"
2940-002-029	Kit, Bolster Foot 7"
2940-002-030	Kit, AST Air Cell Pack 32x7
2940-002-031	Kit, AST Air Cell Pack 35x7
2940-002-032	Kit, Non-AST Air Cell 32 X 7
2940-002-033	Kit, Non-AST Air Cell 35 X 7
2940-002-034	Kit, Top Cover Assembly, 32x80
2940-002-035	Kit, Top Cover Assembly, 35x80
2940-002-036	Kit, Top Cover Assembly, 35x84
2940-002-067	Kit, MM Hose 35x84x 7

## Quick Reference Replacement Parts List

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PUMP	
Stryker P/N	Name
2940-001-101	Power Cord, Type B, 3 ft
2940-001-102	Power Cord, Type B, 15 ft (4.5M)
2940-001-202	Power Cord, Type E/F, 5M
2940-001-204	Power Cord, Type G, 5M
2940-001-206	Power Cord, Type I, 5M
2940-001-208	Power Cord, Type J, 5M
2940-002-037	Kit, Front Case Assembly
2940-002-038	Kit, Pump Battery
2940-002-040	Kit, Touch Panel
2940-002-041	Kit, Bumper 4 pack
2940-002-043	Kit, Power Supply
2940-002-044	Kit, CPR Assembly, Pump
2940-002-045	Kit, Power Inlet
2940-002-046	Kit, Hanger Left & Right
2940-002-047	Kit, Filter Guard
2940-002-049	Kit, Fuse Replacement 10 pk
2940-002-050	Kit, Compressor, 230V
2940-002-053	Kit, Valve Manifold Assembly, Pump
2940-002-055	Kit, Complete Pump Wiring
2940-002-059	Kit, Tubing And Fittings
2940-002-063	Kit, Air Filter 10 pack
2940-002-064	Kit, Speaker Assembly
2940-002-066	Kit, PCB Assembly

## Service Overview

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### **WARNING**

- No user serviceable parts inside the Pump. Service should only be performed by personnel with experience servicing, repairing and maintaining medical devices.

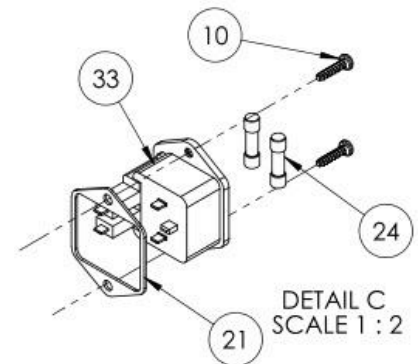
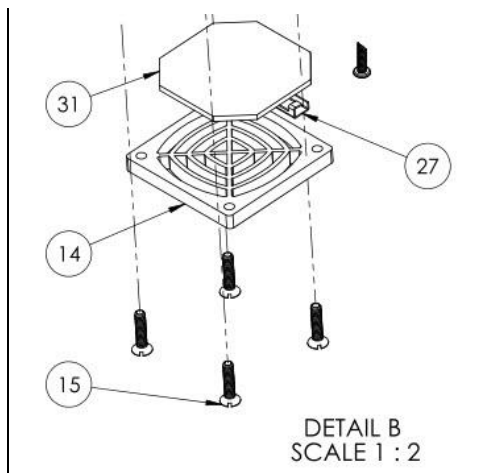
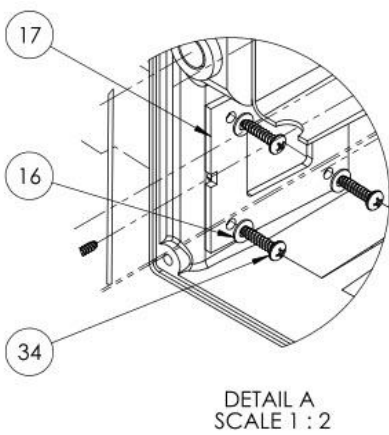
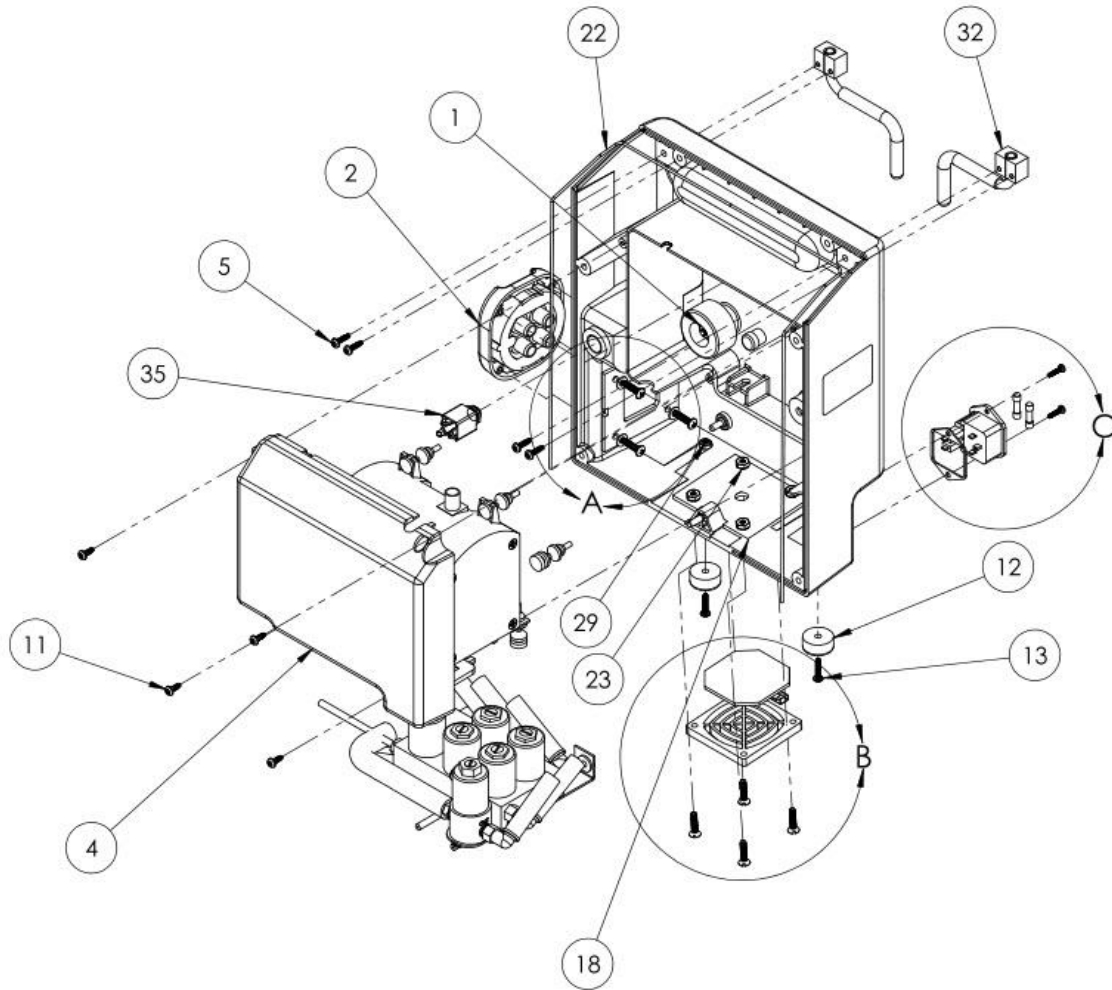
If not already included in this manual, Stryker Medical will make available upon request circuit diagrams, component part lists, descriptions, calibration instructions, or other information that will assist service personnel to repair those parts of the device that are designated as repairable by service personnel.

## Pump Back Case Exploded View

ITEM NO.	DESCRIPTION	QTY.	U/M
1	BACK CASE W/BUMPERS	1	EA
2	CPR SOCKET	1	EA
3	VIBRATION ISOLATION MOUNT	1	EA
4	ENCLOSURE, PUMP COVER	1	EA
5	SCREW, THREADFORMING, TORX, ZINC, #8-20 X 1/2	4	EA
6	PUMP ASSEMBLY, SRHV	1	EA
7	ELBOW FLANGE	1	EA
8	ELBOW, 3/8 X 3/8 BARB, 90 DEG.	1	EA
9	VALVE SHELF ASSEMBLY	1	EA
10	#4x1/2 THREADFORMING SS TORX SCREW	2	EA
11	#6x3/8 THREADFORMING ZINC TORX SCREW	4	EA
12	BUMPER WITH WASHER, #10, 5/8" DIAMETER, 13/32" HEIGHT	2	EA
13	#6x5/8 SS PAN HEAD MACHINE SCREW	2	EA
14	FAN GUARD, 60MM	1	EA
15	PLASTIC SCREW,SLOTTED FLAT HEAD, #8-32X 3/4	4	EA
16	WASHER, #8, SS BLACK OXIDE	4	EA
17	CPR ACOUSTIC COVER	1	EA
18	FILTER ACOUSTIC COVER	1	EA
19	SILICONE TUBING, 5/16 X 1/2	0.56	FT
20	TEE, 3/8" x 3/8" x 3/8", BARB	1	EA
21	GASKET, NEOPRENE, AC INLET WITH FUSE	1	EA
22	O-RING CHORD, SPONGE, NEOPRENE/EPDM, .070" DIAMETER	3.33	FT
23	HEX NUT, #8-32, STAR WASHER, SS	4	EA
24	FUSE, 1.6A, 250V, 5X 20MM, FAST, 1500A	2	EA
25	STRAIGHT FITTING, 3/8	1	EA
26*	ASSY, CABLE, AC, SR	1	EA
27	HINGE, FILTER RETAINER	1	EA
28*	SPIRAL WRAP, 3/8" OD	0.67	FT
29	NUT, #6, STAINLESS STEEL, NYLON INSERT	2	EA
30	TUBING, THERMO-FORMED,J,	1	EA
31	FILTER, WHITE, 2.18 x 2.18	1	EA
32	HANGER ASSEMBLY	2	EA
33	POWER INLET, DUAL FUSED, C14	1	EA
34	SCREW, #8-16x3/4, THREAD-FORMING, ZINC, PHILLIPS	4	EA
35	ASSY,WIRE, PUMP AST,	1	EA

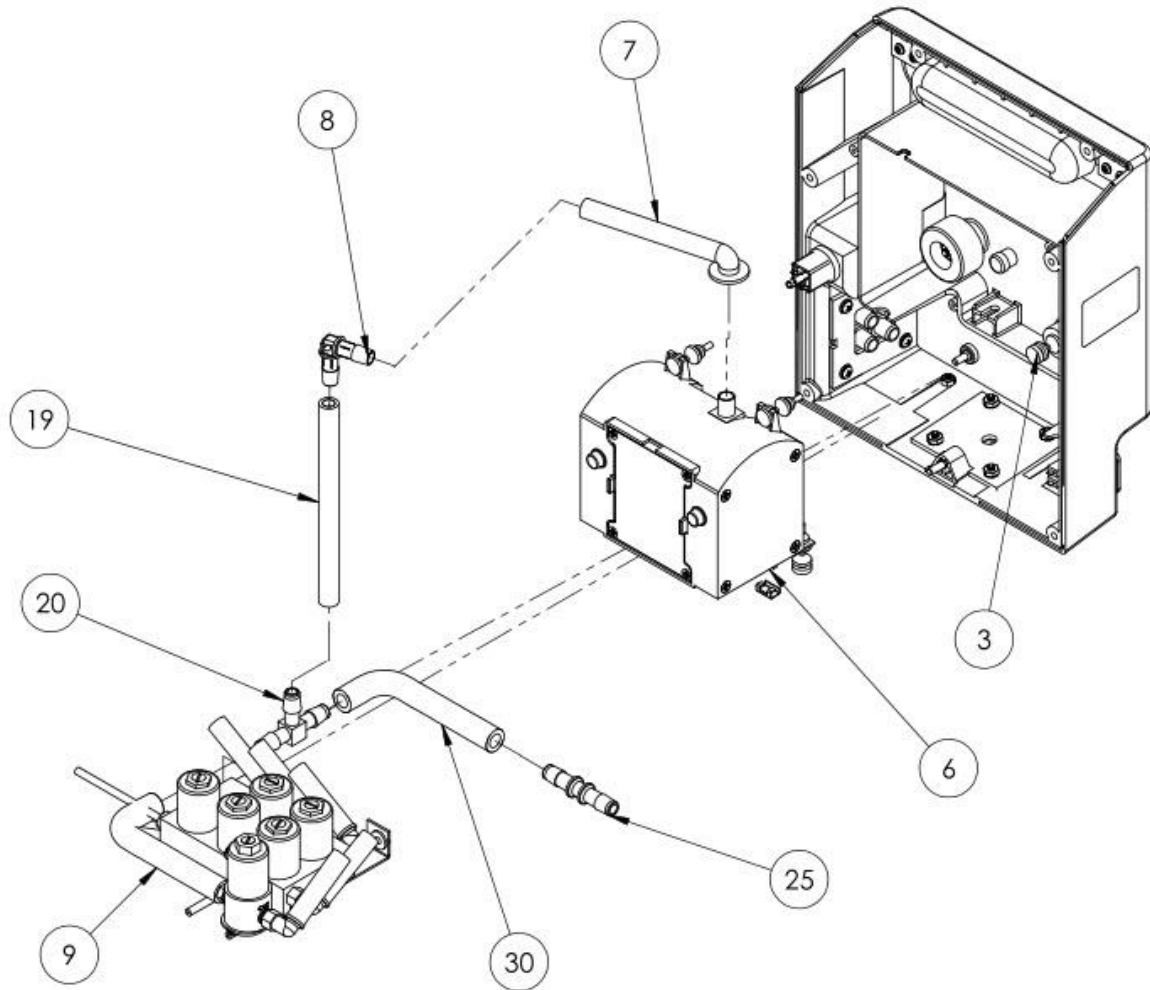
\* Not shown on Exploded View

# Pump Back Case Exploded View



**Diagram 1: Back Case Assembly**

# Pump Back Case Exploded View



**Diagram 2: Compressor and Valve Manifold Assembly**

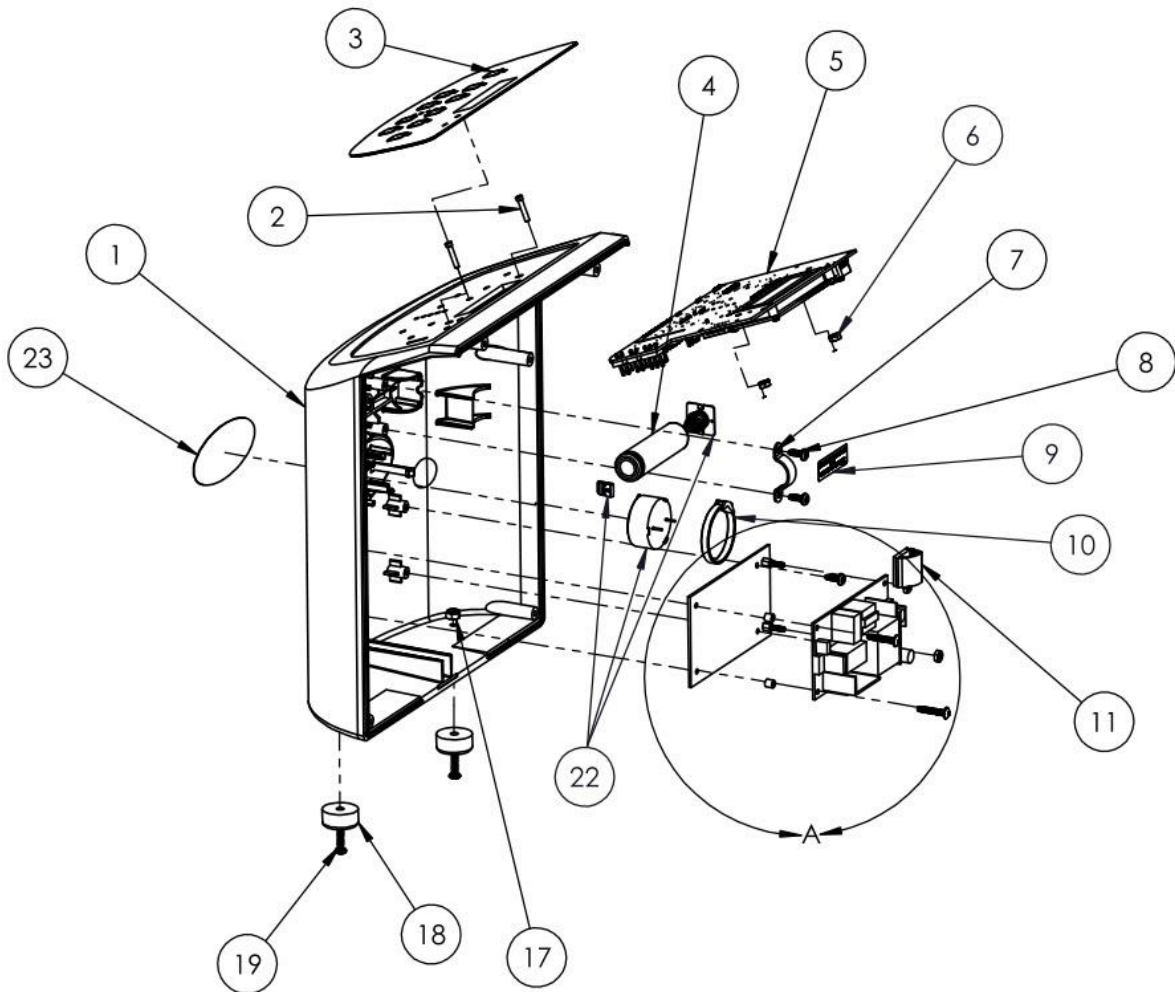
## Pump Front Case Exploded View

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ITEM NO.	DESCRIPTION	QTY.	U/M
1	FRONT ENCLOSURE	1	EA
2	STUD, #4-40 x 5/8, KFH-440-10	2	EA
3	MEMBRANE, TOUCH PANEL,	1	EA
4	BATTERY, 3.6V, LITHIUM ION, RECHARGEABLE	1	EA
5	PCB ASSEMBLY	1	EA
6	NUT,4-40, TOOTH WASHER, SS	2	EA
7	BATTERY CLIP	1	EA
8	#6x3/8 THREAD FORMING ZINC TORX SCREW	4	EA
9	LABEL, BATTERY REPLACEMENT	1	EA
10	TY-WRAP, CLEAR, 6IN	1	EA
11	CLIP, "D" TYPE, 3/4", WITH ADHESIVE	1	EA
12	HN-4-3, HEX NUT, #4-40, SS	2	EA
13	SCREW, #6-19 x 3/4", THREAD FORMING, ZP STEEL, PH, TORX	2	EA
14	POWER SUPPLY, 12V, 25W	1	EA
15	SPACER, #4, 3/16", NYLON	2	EA
16	ASSEMBLY, POWER SUPPLY ADAPTER,	1	EA
17	NUT, #6, STAINLESS STEEL, NYLON INSERT	2	EA
18	BUMPER WITH WASHER, #10, 5/8" DIAMETER, 13/32" HEIGHT	2	EA
19	#6x5/8 SS PAN HEAD MACHINE SCREW	2	EA
20*	ASSEMBLY, WIRE, DC,	1	EA
21*	ASSEMBLY, WIRE, AC TO PS,	1	EA
22	ASSEMBLY, SPEAKER/BATTERY,	1	EA
23	LABEL, STRYKER	1	EA

\* Not shown on Exploded View

# Pump Front Case Exploded View



**Diagram 3: Front Case Assembly**



# Pump Service Procedures

The location of features and connections on the Pump are presented below. Please refer to these during service of the Pump.

**Note:** All work done on the Pump that involves opening the unit should be done on an ESD safe work station with proper grounding for the technician in close contact to the equipment to prevent damage to the ESD sensitive electronics inside the unit.



Figure 4: Pump Front View

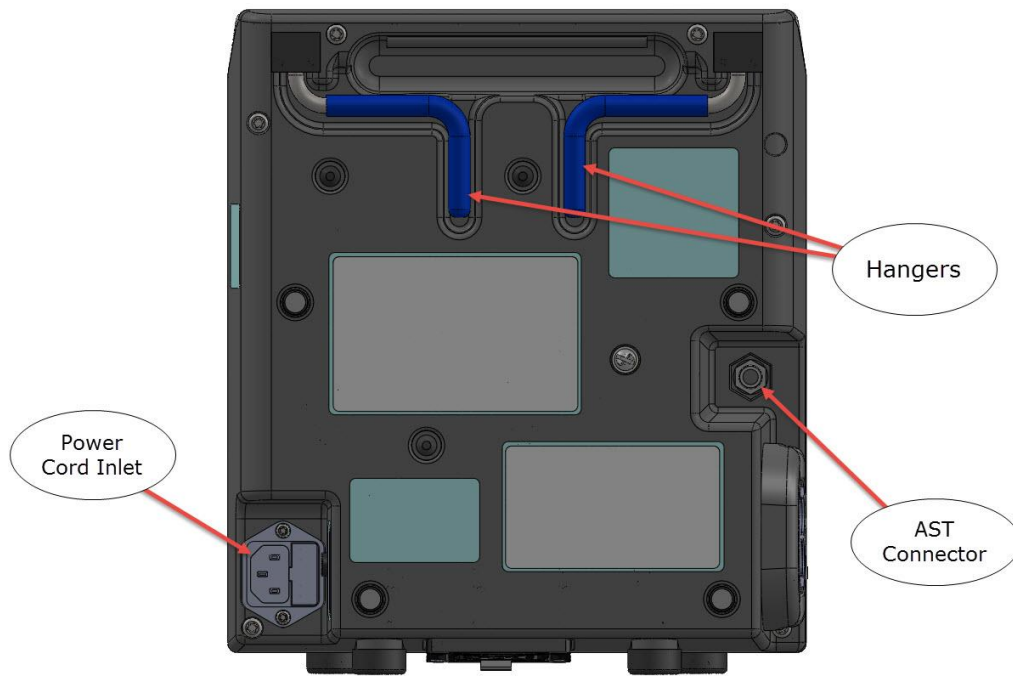


Figure 5: Pump Back View

# Pump Service Procedures

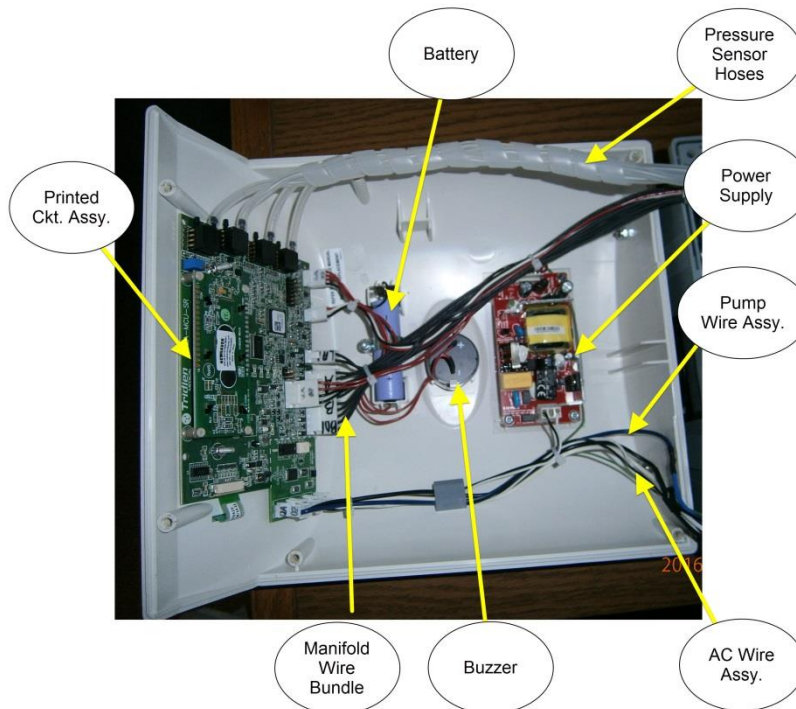


Figure 6: Front Case Inside View

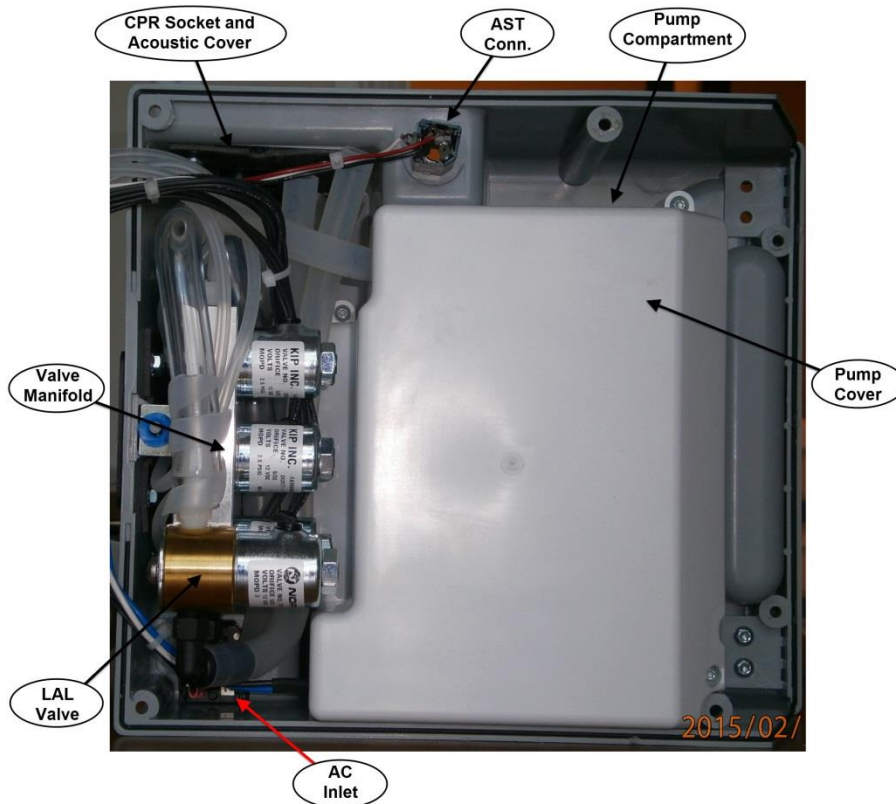


Figure 7: Back Case Inside View

# Pump Service Procedures

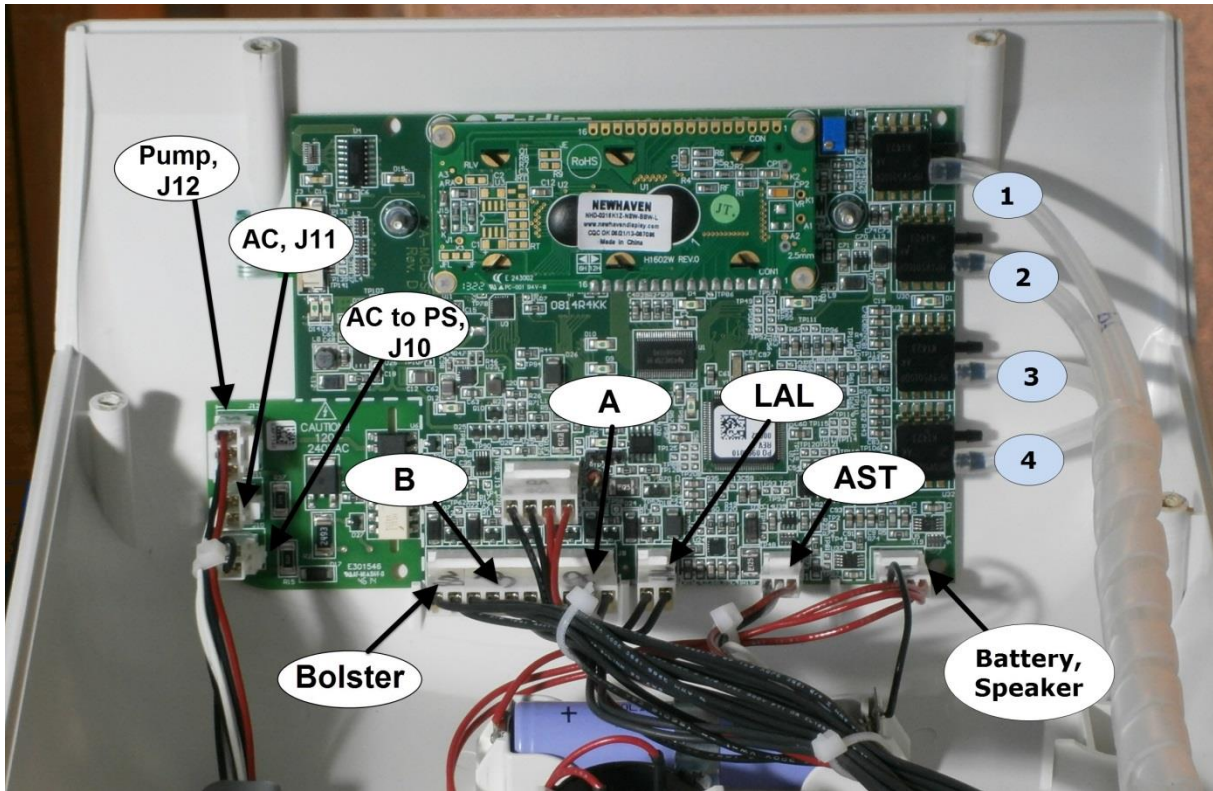


Figure 8: Connector Identification on PCA

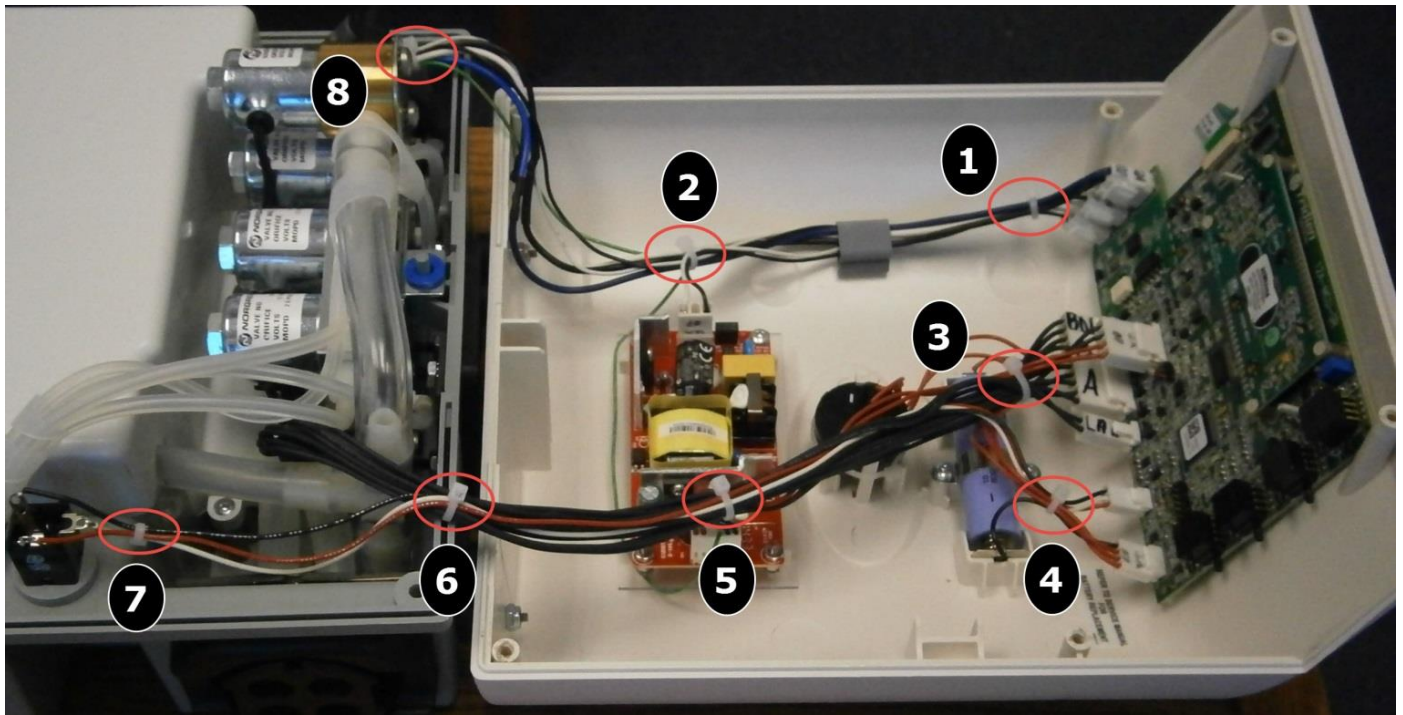


Figure 9: Internal Tie-Wraps

# Pump Service Procedures

## Case Opening

**Note:** This procedure is referenced by some of the following procedures that require access to the pump's internal components.

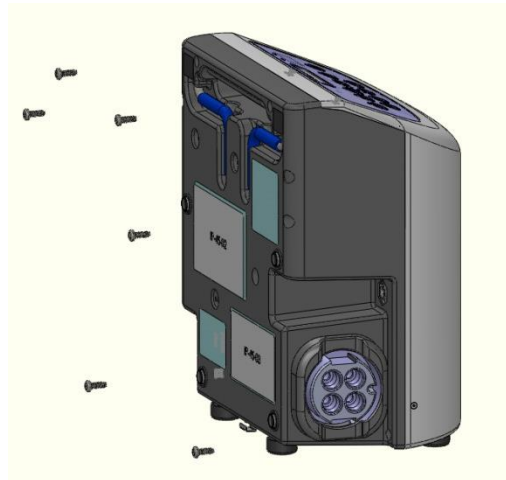
### Tools:

- #T20 Torx Screwdriver
- ESD System (Anti-Static Strap)

### Opening:

**⚠ WARNING: Pump must be unplugged prior to opening the case to avoid an electrocution hazard!**

1. Unplug the power cord from the power inlet and remove the CPR hose plug from the Pump, if attached to a mattress.
2. Set the Pump on a work surface.
3. With the Pump sitting upright and facing away from you, use a #T20 Torx screwdriver to remove the six screws securing the front cover to the back cover. See **Figure 10**.



**Figure 10: Screws on Back Case**

4. Hold the front and back cases together and tip the Pump backwards to remove the screws and set them aside.
5. With the Pump upright and facing sideways, unfold one of the handles with one hand and separate the front case as shown in **Figure 11**.



**Figure 11: Open Case**

# Pump Service Procedures

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6. Once separated, lay the front and back case on the working surface as shown below.



**Figure 12: Pump Opened Laying Flat on Surface**

# Pump Service Procedures

---

## Case Closure

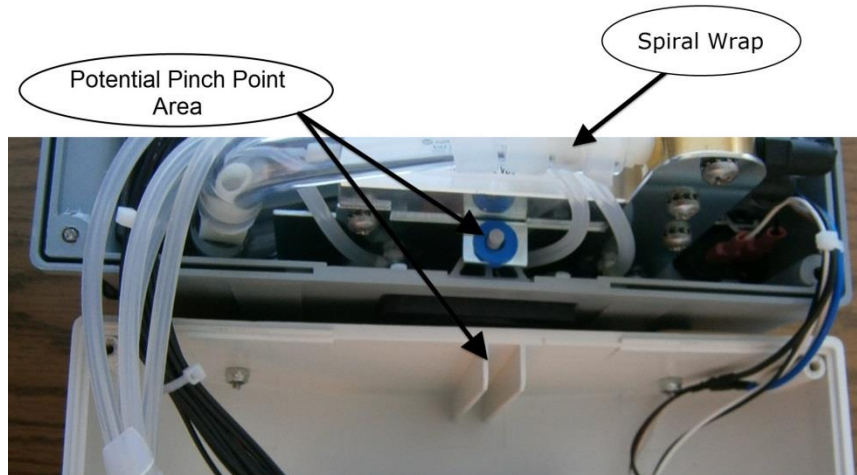
**Note:** This procedure is referenced by some of the following procedures that require access to the pump's internal components.

### Tools:

- Torque Screwdriver with #T20 Torx extender bit (6")

### Closing:

1. Tuck all wires and sensor tubing safely into enclosure; **Ensure that the pinch point shown below does not entrap any wires or tubing.** Use Spiral Wrap to keep small hoses and large thermo-formed hose together, and away from pinch point.



**Figure 13: Potential Pinch Points**

2. Attach Front Case assembly to Back Cover assembly by first lining up the bottoms at an angle, and then bringing the two halves together at the top and snap into place.
3. Starting at the top and working down, secure the six (6) Torx screws with a Torque Screwdriver set to a force of 10 in-lbf.

# Pump Service Procedures

## Valve Manifold - Temporary Removal and Replacement

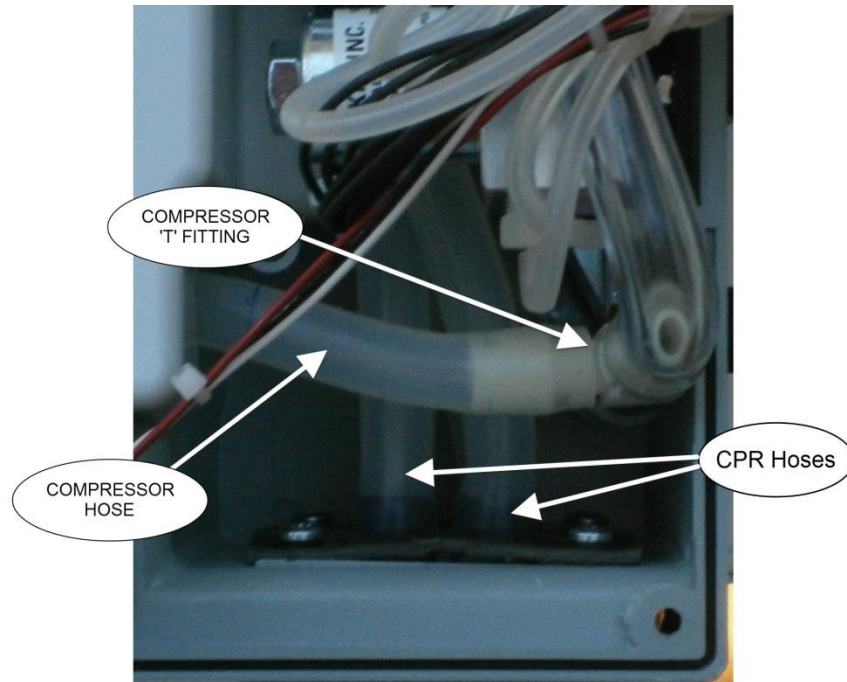
**Note:** This procedure is referenced by some of the following procedures that require access to the pump's internal components that require temporary removal of the valve manifold for access.

### Tools:

- Pliers with protective jaw covers for tubing removal

### Removal:

1. Using Needle Nose pliers remove the 4 hoses from CPR socket. See **Figure 14**.
2. Remove Compressor hose from middle barb of Compressor T-Fitting. See **Figure 14**.



**Figure 14: CPR and Compressor Hoses**

3. Grab the valve manifold as shown in **Figure 15** and lift it up to release it from mounting studs. Move manifold to the side.
4. Keep Pressure Sensor hoses attached unless removal is required by specific Service Procedures.



**Figure 15: Valve Manifold Displacement**

# Pump Service Procedures

## Insertion:

1. Align blue grommet on manifold with mounting studs on the case. Push down to position properly.
2. Connect Zone A, Zone B, Bolster and MM CPR Hoses to the corresponding CPR Socket locations. See **Figure 16** and **Figure 17**.
3. Insert Compressor Hose on middle barb of T-Fitting. See **Figure 14**.

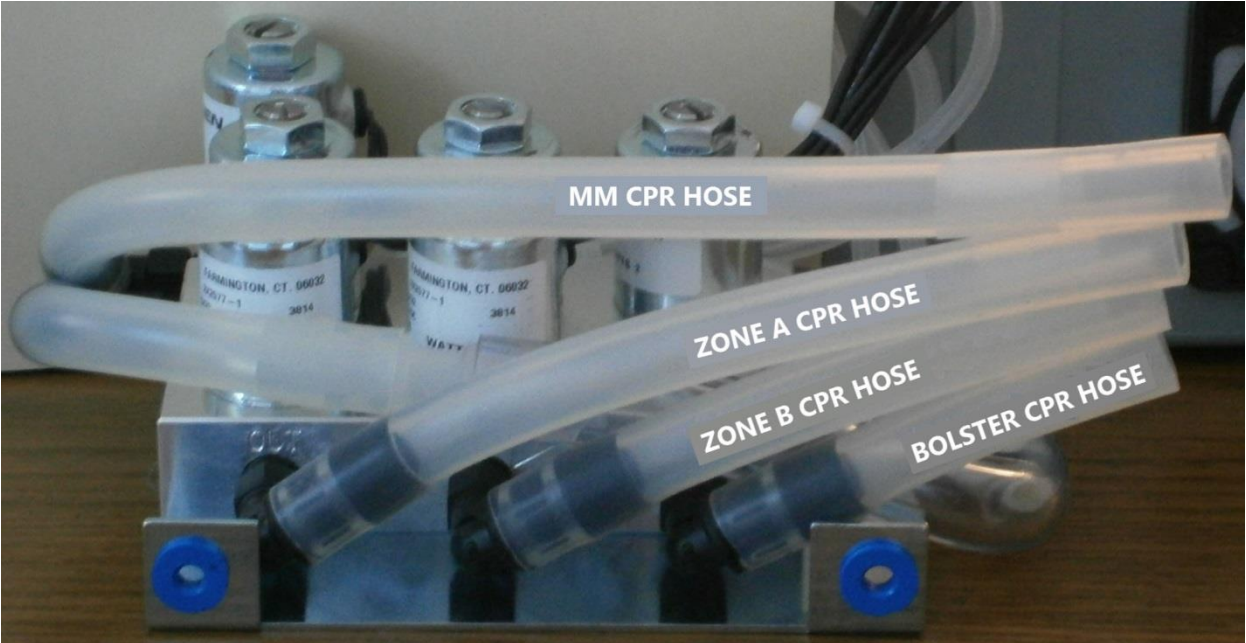


Figure 16: Manifold to CPR Socket Hoses

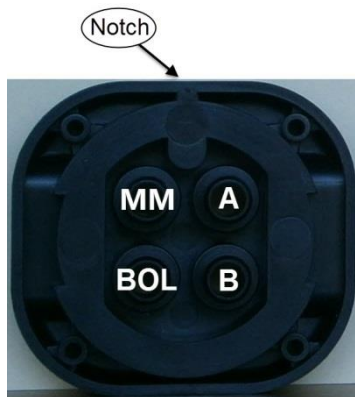


Figure 17: CPR Socket as Seen from the Inside of Pump



# Pump Service Procedures

## Touch Panel Replacement

**Repair Kit:** Kit, Touch Panel (2940-002-040)

**Tools:**

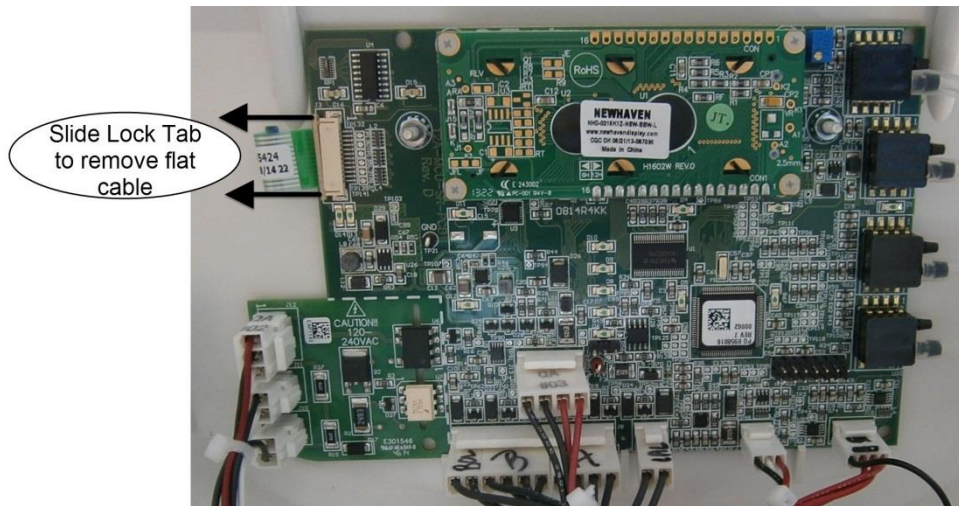
- Small Slotted Screwdriver
- Alcohol or equivalent plastic surface cleaner

**Removal:**

1. **Case Opening**

Refer to **Page 35** for *Case Opening* instructions.

2. Release the Touch Panel Flat Cable by pulling the lock tab in the direction of the arrows, and then pulling the cable out of the Touch Panel Connector, as shown in **Figure 18**.



**Figure 18: Touch Panel Connector**

3. Position the Front Case upright. Use the small slotted screwdriver to lift the Touch Panel from the right side and peel off. See **Figure 19**.



**Figure 19: Touch Panel Removal**

# Pump Service Procedures

---

## Installation:

1. Use alcohol to clean and wipe down the recessed Touch Panel area of the front case.
2. Remove the paper backing from the new Touch Panel and the clear protective window cover.
3. Slide the new Touch Panel Flat Cable through the slot in the front cover; align the Touch Panel with the recessed area on the front cover.
4. Apply the Touch Panel to the recessed area and press down to seal.
5. Lay the Front Case on the working surface. Ensure that flat cable connector lock is released. Insert the Touch Panel Flat Cable in the connector and lock it in place by pushing in the connector lock tab.
6. **Case Closure**  
Refer to **Page 37** for case closure instructions.
7. Refer to **Page 76** for Functional Test procedures.

# Pump Service Procedures

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## Fuse Replacement

**Repair Kit:** Kit, Fuse Replacement 10pk (2940-002-049)

**Tools:**

- Small Slotted Screwdriver

**Removal:**

1. Use small slotted screwdriver to pry open fuse drawer.
2. Remove the 2 fuse(s) and discard.



**Figure 20: Fuse Removal**

**Installation:**

1. Insert 2 new fuse(s).
2. Push down fuse drawer until it snaps securely in place.
3. Power up Pump to confirm fuse operation.

# Pump Service Procedures

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## Air Filter Replacement

**Repair Part:** Air Filter 10pk (2940-002-063)

**Tools:**

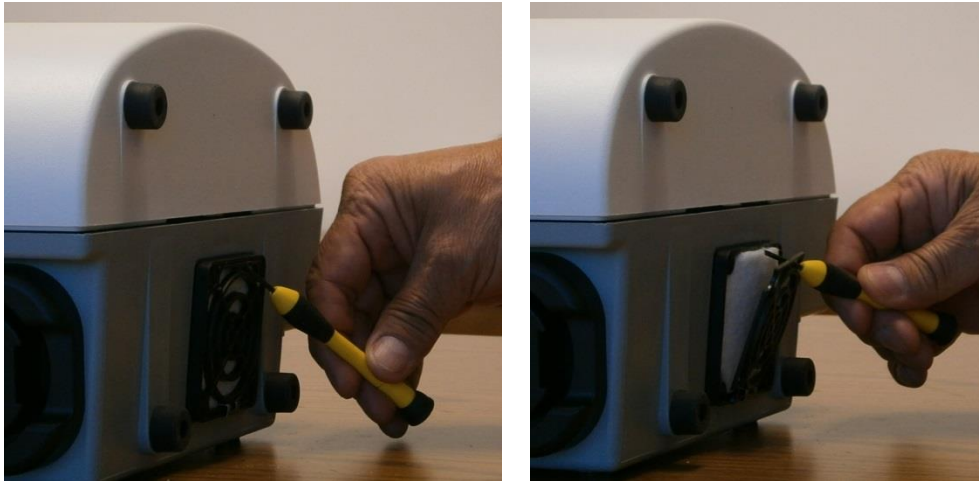
- Small Slotted Screwdriver

**Removal:**

1. Lay Pump on its back with the bottom facing you.
2. Use the slotted screwdriver to pivot out filter guard. See **Figure 21**
3. Remove old filter.

**Installation:**

1. Insert new filter.
2. Snap filter guard in place.



**Figure 21: Air Filter Replacement**

# Pump Service Procedures

## Battery Replacement

**Repair Kit:** Kit, Pump Battery (2940-002-038)

**Tools:**

- Torx Screwdriver #T15

**Removal:**

**⚠ WARNING:** Battery replacement by inadequately trained personnel could result in a hazard, such as excessive temperatures, fire or explosion!

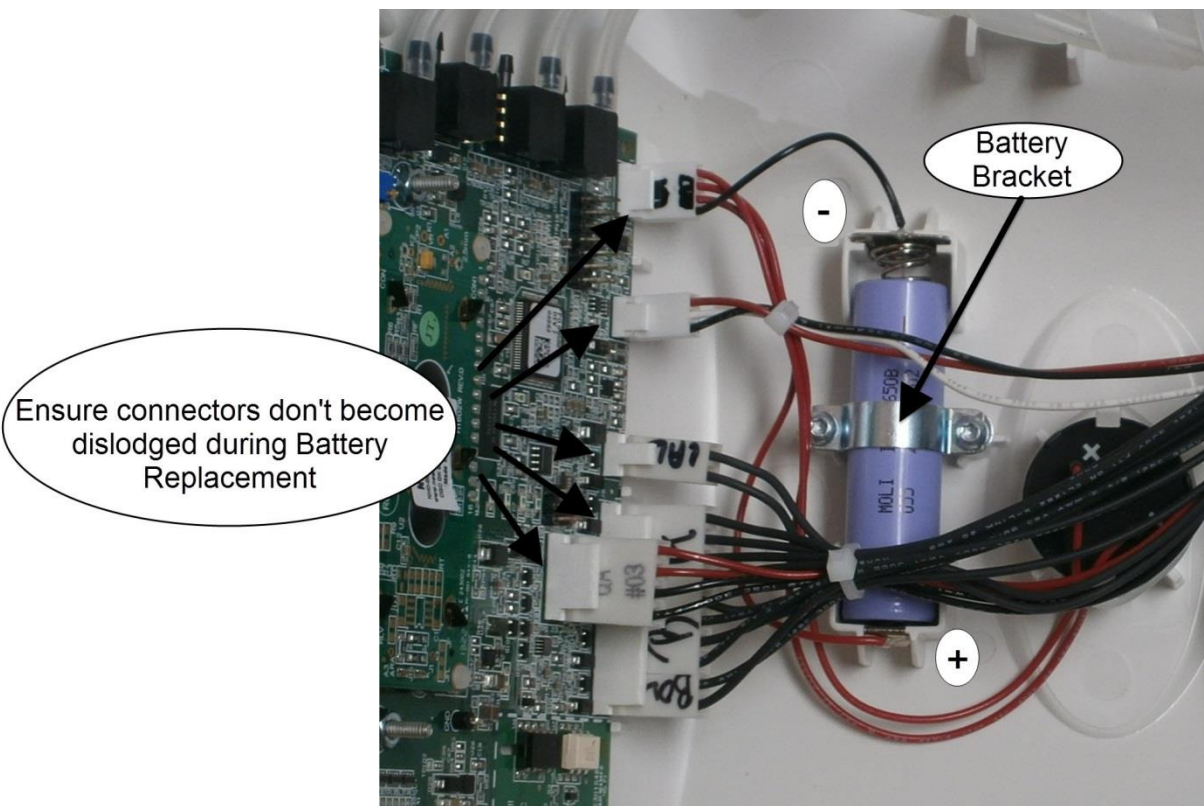
1. **Case Opening**

Refer to **Page 35** for *Case Opening* instructions.

2. Locate battery inside the front case.

3. Use a #T15 Torx screwdriver to remove and discard screws holding battery bracket to front case. See **Figure 22**.

**Note:** *Dispose of Lithium-Ion battery according to local environmental regulations.*



**Figure 22: Battery Location**

# Pump Service Procedures

---

## Installation:

1. Insert new battery. Orient the battery so that the negative side is as shown in **Figure 22**
2. Replace the two screws holding battery bracket. Make sure screws are not over tightened by rotating the battery.
3. Ensure that other connectors did not become loose during battery replacement.
4. **Case Closure:**  
Refer to **Page 37** for case closure instructions.
5. Refer to **Page 76** for Functional Test procedures.

# Pump Service Procedures

## Speaker Replacement

**Repair Kit:** Kit, Speaker Assembly (2940-002-064)

**Tools:**

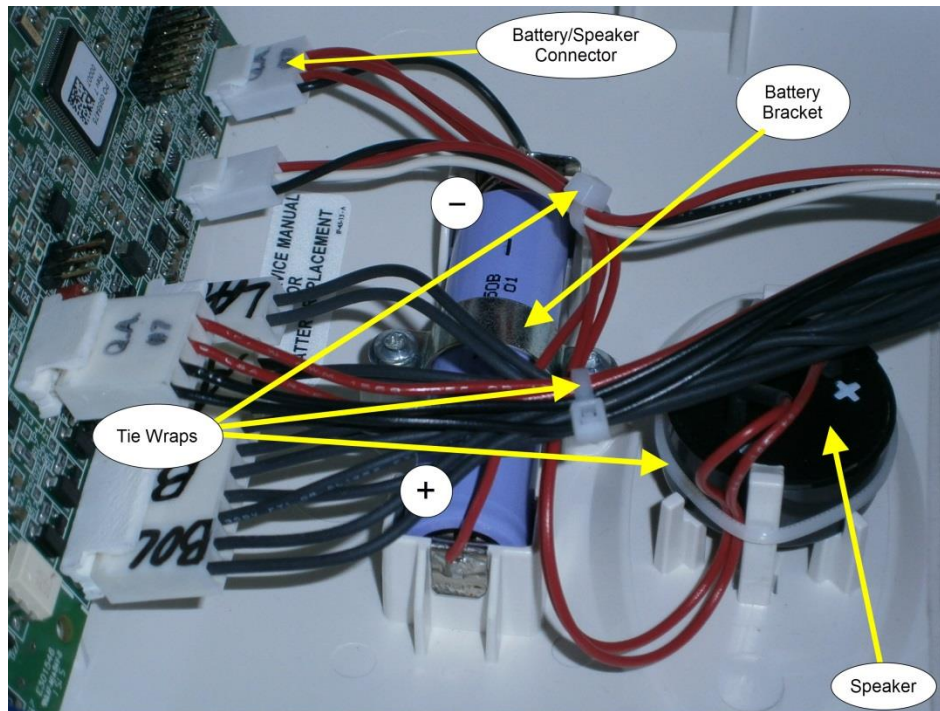
- Torx Screwdriver #T15
- Wire Cutters
- Needle Nose Pliers

**Removal:**

1. **Case Opening**

Refer to **Page 35** for *Case Opening* instructions.

2. Use Wire Cutters to remove the 3 Tie Wraps shown in **Figure 23**.
3. Use a #T15 Torx screwdriver to remove the 2 screws holding battery bracket to front case and remove the battery.



**Figure 23: Speaker Location**

4. Disconnect Battery/Speaker Connector.
5. Use Long Nose Pliers to remove the Positive and Negative clips from the battery plastic cradle.
6. Unclip the speaker from the case and discard speaker/battery harness.

# Pump Service Procedures

---

## Installation:

1. Install the speaker and secure it with a 6" Wire Tie. Route speaker wires as show in **Figure 23**.
2. Insert positive clip (red wire) into plastic. Tap slightly the clip with the handle of a screwdriver to drive it fully into the plastic tab. Do the same with the negative clip (black wire).
3. Insert battery. Orient the battery so that the negative side is as shown in **Figure 23**.
4. Replace the two screws holding battery bracket. Make sure screws are not over tightened by rotating the battery.
5. Insert Battery/Speaker connector. Secure wire bundles with two 4" Tie Wrap as shown in **Figure 23**.
6. Ensure that other connectors did not become loose during speaker replacement.
7. **Case Closure:**  
Refer to **Page 37** for case closure instructions.
8. Refer to **Page 76** for Functional Test procedures.



# Pump Service Procedures

## Power Supply Replacement

**Repair Kit:** Kit, Power Supply (2940-002-043)

**Tools:**

- Torx Screwdriver #T15
- Nut Driver, 1/4"

**Removal:**

1. **Case Opening:**

Refer to **Page 35** for *Case Opening* instructions.

2. Remove AC and +5V connectors. See **Figure 24**.
3. Use a #T15 Torx screwdriver to remove the two Torx screws on the AC side and two nylon spacers on the power supply board underside.
4. Use nut driver to remove two nuts on the +5V connector side.
5. Remove power supply.



**Figure 24: Power Supply**

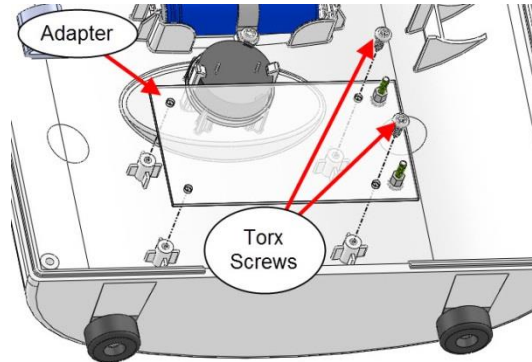
6. Use a #T15 Torx screwdriver to remove the two screws on the polycarbonate adapter, if damaged, discard adapter.

# Pump Service Procedures

---

## Installation:

1. If replacing Power Supply adapter, install new adapter with two Torx Screws, as shown below.



**Figure 25: Power Supply Adapter Installation**

2. Drive two Torx screws halfway into the mounting holes on the AC side of the Power Supply.
3. Insert the two nylon spacers into the two Torx screws at the Power Supply board underside.
4. Align Torx screws with screw posts on one side and mounting holes with machine screws on the +5V connector side.
5. Tighten Torx screws and nuts securely.
6. Reconnect +5V and AC connectors.
7. **Case Closure:**  
Refer to **Page 37** for case closure instructions.  
Refer to **Page 76** for Functional Test procedures.

# Pump Service Procedures

---

## Power Inlet Replacement

**Repair Kit:** Kit, Power Inlet (2940-002-045)

**Tools:**

- Torx Screwdriver #T10
- Needle Nose Pliers

**Removal:**

1. Use a #T10 Torx screwdriver to remove the two screws from the Power Inlet on the back of the Pump case.
2. **Case Opening**  
Refer to **Page 35** for **Case Opening** instructions.
3. Grab the valve manifold as shown in **Figure 26** and pull it up to release it from mounting studs. Move the manifold to the side to expose the back of the Power Inlet.



**Figure 26: Valve Manifold Release**

4. Use long nose pliers to pull out quick-disconnect terminals.
5. Push the Power Inlet down to remove it from the back case.

# Pump Service Procedures

---

## Installation:

1. Insert the rubber gasket around the back of the new Power Inlet as shown below.



**Figure 27: Power Inlet Gasket**

2. Flip the Pump over so that the back case rear faces upward. Fully insert the Power Inlet with gasket into the corresponding opening.
3. Tighten the Power Inlet securely with two Torx screws.
4. Fuses are already installed inside the Power Inlet.
5. Lay Pump on its back. Insert quick-disconnect terminals into power inlet tabs as follows: green wire in the ground tab, white wire in the tab closest to the bottom of the back case and black wire in the remaining tab.
6. Replace manifold by aligning blue grommets on manifold with mounting studs on the case. Push down to seat it properly.
7. **Case Closure:**  
Refer to **Page 37** for case closure instructions.
8. Refer to **Page 76** for Functional Test procedures.

# Pump Service Procedures

## Hanger Replacement

**Repair Kit:** Kit, Hanger Left & Right (2940-002-046)

**Tools:**

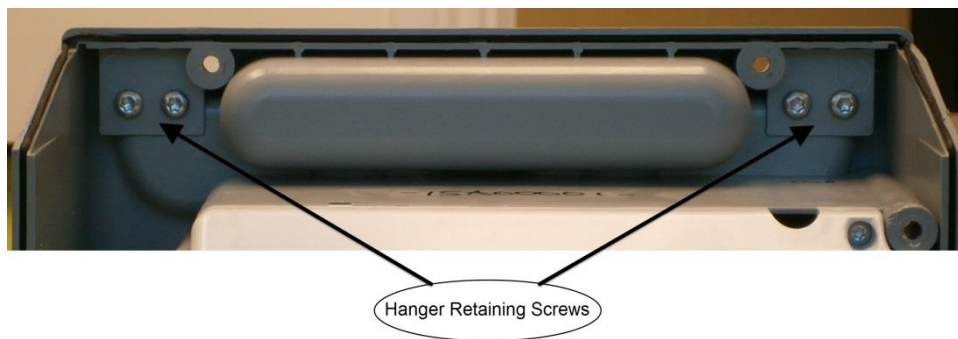
- Torx Screwdriver #T20
- Rubber Hammer

**Removal:**

1. **Case Opening**

Refer to **Page 35** for **Case Opening** instructions.

2. Stand the back case upright with the inside facing you. Locate the Hanger retaining screws. See **Figure 28**.



**Figure 28: Hanger Retaining Screws**

3. Remove two screws per hanger using Torx screwdriver #T20.
4. Turn the back case rear towards you. Swing the hanger open and pull it out with sufficient force to remove hanger assembly.



**Figure 29: Hanger Removal**



**Figure 30: Hanger Out**

**Installation:**

1. Lay back case on the working surface with the rear facing upwards. Align Delrin® block with corresponding opening; tap it with a rubber hammer until it is fully inserted.
2. Tighten the Hanger block from the inside of the back case using two Torx screws.

3. **Case Closure**

Refer to **Page 37** for **Case Closure** instructions.

# Pump Service Procedures

## Compressor Replacement

**Repair Kit:** Kit, 120V Compressor (2940-002-051) OR Kit, 230V Compressor (2940-002-050)

### Tools:

- Torx Screwdriver #T15
- Wire Cutters

### Removal:

#### 1. Case Opening

Refer to **Page 35** for *Case Opening* instructions.

#### 2. Manifold Removal

Refer to **Page 38** for *Valve Manifold - Temporary Removal and Replacement* instructions.

3. Remove and retain the 4 Compressor cover screws using Torx screwdriver #T15. Remove Cover.

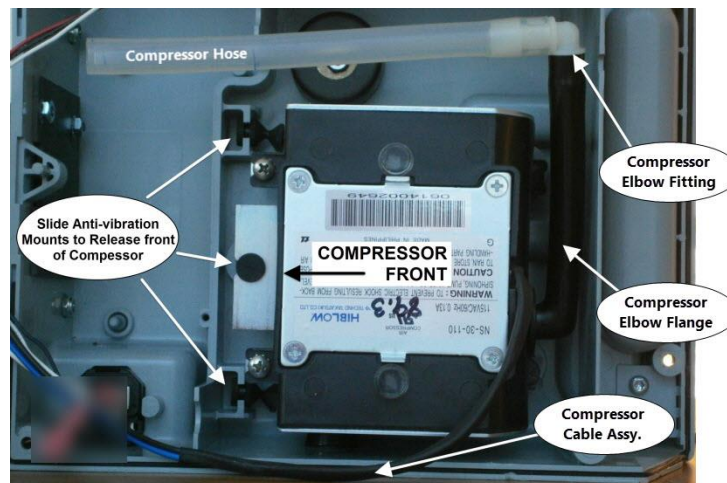
4. Grasp compressor from the bottom and pull away from the plastic case until rubber mounts snap out.

5. Grasp remaining two anti-vibration mounts and pull up to release them from back case mounting holes.

6. Cut all 3 tie-wraps in Compressor cable assembly. See **Figure 35**.

7. Disconnect Compressor cable assembly from the circuit board (J12).

8. Remove Compressor hose from middle barb of the Compressor T-Fitting. See **Figure 34**.



**Figure 31: Compressor Mounted on Back Case**

9. Discard compressor assembly, including anti-vibration mounts.

# Pump Service Procedures

## Installation:

1. Ensure that compressor type is correct for the country where it is used. See table below:

120V Compressor Wire Color	230V Compressor Wire Color
Blue	White
Black	Brown
White	Blue

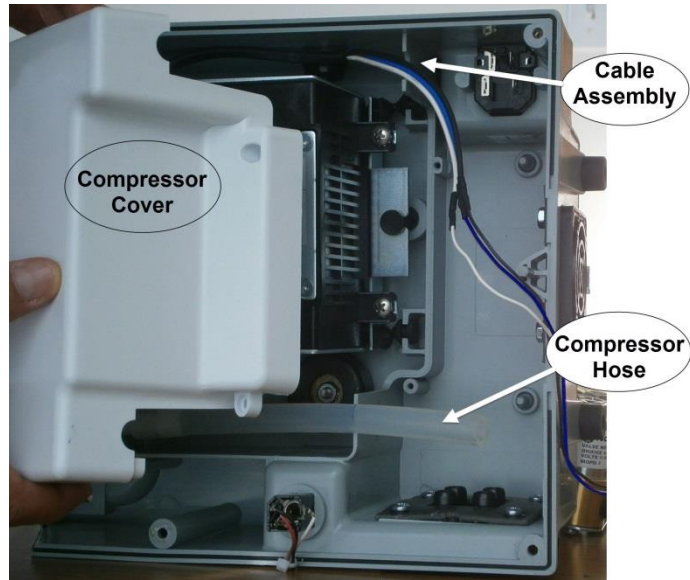
2. Slide mounts on the front of the compressor into their corresponding slots.
3. Insert the two anti-vibration mounts on the mounting holes on the back side of the compressor cavity. Flip the back case. Then, using Needle Nose pliers pull and stretch the tip of the two mounts until they snap securely. See **Figure 32**.



**Figure 32: Locking anti-vibration mounts on the back case**

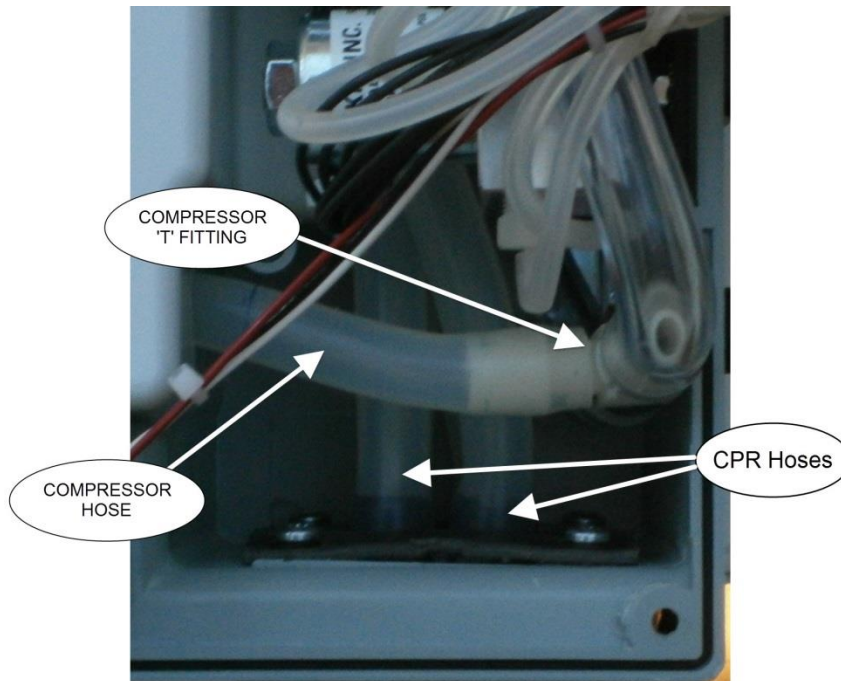
4. Route Compressor hose and Cable Assembly as shown in **Figure 33** then attach the Compressor cover using the 3 retained Torx #T15 screws.

# Pump Service Procedures



**Figure 33: Compressor Cable and Hose Routing**

5. Attach Compressor hose to middle barb of Compressor T-Fitting. See **Figure 34**.



**Figure 34: Compressor T-Fitting**

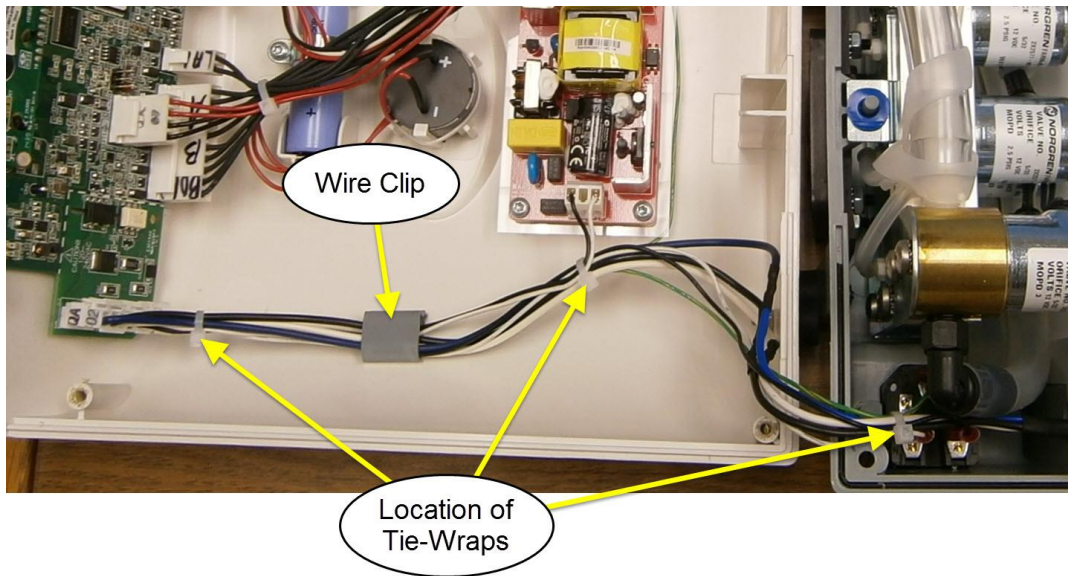
6. Route the compressor cable assembly through gray wire clip in the front case and connect to header J12 on the PCA.
7. Tie the three 4" tie-wrap on the locations shown in **Figure 35**.

**Note:** Tie-wraps must be located at a maximum distance of 1" from the connectors.

**Note:** Adherence to tie-wrap placement distances is critical to electrical safety of the unit.



# Pump Service Procedures



**Figure 35: Compressor Cable Assembly Tie-Wraps**

**8. Manifold Insertion**

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for insertion instructions.

**9. Case Closure**

Refer to **Page 37** for *Case Closure* instructions.

**10. Refer to Page 76** for Functional Test procedures.

# Pump Service Procedures

## CPR Socket Replacement

**Repair Kit:** Kit, CPR Assembly, Pump (2940-002-044)

**Tools:**

- #2 Philips Screwdriver

**Removal:**

1. **Case Opening**

Refer to **Page 35** for *Case Opening* instructions.

2. **Manifold Removal**

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for removal instructions.

3. Remove four screws and washers with a #2 Philips screwdriver.
4. Peel off to remove and discard Acoustic Cover.
5. Push out the CPR socket and discard.



**Figure 36: CPR Socket Removal**

**Installation:**

1. Insert new CPR into back case opening. The case opening is keyed; there is only one way to install it.
2. Peel off the adhesive backing of the double-sided adhesive tape and apply it to the Acoustic Cover.
3. Align and apply Acoustic Cover over the CPR socket.
4. Secure CPR assembly with four Philips screws and washers.
5. **Manifold Insertion**  
Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for insertion instructions.
6. **Case Closure**  
Refer to **Page 37** for *Case Closure* instructions.
7. Refer to **Page 76** for Functional Test procedures.

# Pump Service Procedures

## Bumper Replacement, Back Case

**Repair Kit:** Kit, Bumper 4pk (2940-002-041)

**Tools:**

- #2 Philips Screwdriver
- #6 Wrench

**Removal:**

1. **Case Opening**

Refer to **Page 35** for **Case Opening** instructions.

2. **Manifold Removal**

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for removal instructions.

3. Use screwdriver and wrench to remove and discard screws and nuts holding bumpers.

**Installation:**

1. Insert #6 machine screw into each bumper hole and then into back case mounting holes.

2. Use screwdriver and wrench to fasten screw securely.

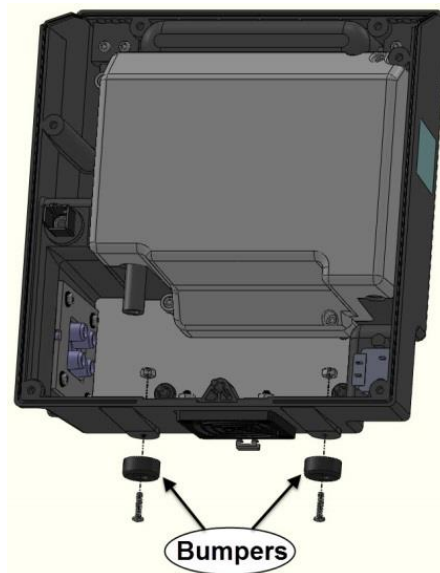
3. Try rotating the bumpers, manually. If they rotate then fasten the screws until bumpers stop rotating.

4. **Manifold Insertion**

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for insertion instructions.

5. **Case Closure**

Refer to **Page 37** for *Case Closure* instructions.



**Figure 37: Back Case Bumpers**

# Pump Service Procedures

## Bumper Replacement, Front Case

**Repair Kit:** Kit, Bumper 4pk (2940-002-041)

**Tools:**

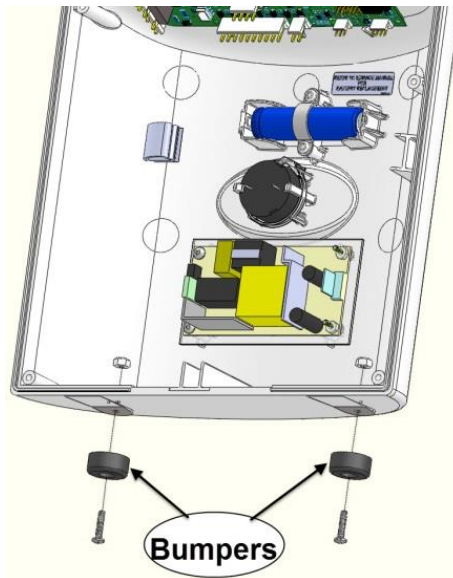
- #2 Philips Screwdriver
- #6 Wrench

**Removal:**

1. **Case Opening**  
Refer to **Page 35** for *Case Opening* instructions.
2. Use screwdriver and wrench to remove screws and nuts holding bumpers.

**Installation:**

1. Insert #6 machine screws into bumper holes and then into back case mounting hole.
2. Use screwdriver and wrench to fasten screw securely.
3. Try rotating the bumpers manually. If they rotate then tighten the nuts until the bumpers stop rotating.
4. **Case Closure**  
Refer to **Page 37** for *Case Closure* instructions.



**Figure 38: Front Case Bumpers**

# Pump Service Procedures

---

## Front Case Assembly Replacement

**Repair Kit:** Kit, Front Case Assembly (2940-002-037)

### Tools:

- Torx Screwdriver #T20
- Black Permanent Marker
- Wire Cutters
- Pliers

### Removal:

1. **Case Opening**

Refer to **Page 35** for *Case Opening* instructions.

2. Label Pressure Sensor hoses 1 through 4 with permanent marker, starting at the top.
3. Remove the 4 Pressure Sensor hoses from the circuit board.
4. Refer to **Figure 9** to identify and clip off tie-wraps ①, ②, ③, ④, ⑤ and ⑥ using wire cutters.
5. Refer to **Figure 8** to identify and remove the Pump, AC and AST connectors by pressing on the locking tab and then pulling off the circuit board headers.
6. Refer to **Figure 8** to identify and remove the Bolster, B, A, and MM (LAL) connectors from the circuit board.
7. Use pliers to remove the green/yellow ground wire terminal from the AC power inlet.
8. Release the Pump/AC wire bundle from gray wire clip. Front Case assembly is now disengaged from Back case.

### Installation:

1. Lay the new Front Case Assembly on a working surface back to back with the Back Case assembly.
2. Refer to **Figure 8** to identify and connect the Pump, AC and AST connectors to the circuit board.
3. Refer to **Figure 8** to identify and connect the Bolster, B, A, MM (LAL) and AST connectors to the circuit board.
4. Refer to **Figure 9** to route Pump, AC and AC to PS wire bundles through gray wire clip.
5. Connect the green/yellow ground wire terminal to the AC power inlet.
6. Refer to **Figure 9** to identify and apply the 6 tie-wraps labeled ①, ②, ③, ④, ⑤ and ⑥.  
**Note:** *tie-wraps have to be located at a maximum distance of 1" from their corresponding terminals.*  
**Note:** *Adherence to tie-wrap placement distances is critical to electrical safety of the unit.*  
**Note:** *Ensure ALL connectors are fully seated after applying tie-wraps.*
7. Connect all Pressure Sensor hoses to corresponding sensors, starting with hose #1 at the top pressure sensor.
8. **Case Closing**  
Refer to **Page 37** for *Case Closing* instructions.
9. Refer to **Page 76** for *Functional Test* procedures.

# Pump Service Procedures

## Valve Manifold Replacement

**Repair Kit:** Kit, Valve Manifold Assembly, Pump (2940-002-053)

### Tools:

- Wire Cutter
- Permanent Black Marker

### Removal:

#### 1. Case Opening

Refer to **Page 35** for *Case Opening* instructions.

2. Remove the 4 Pressure Sensor hoses from the circuit board.

3. Refer to **Figure 9** to identify and clip off the 3 tie-wraps labeled ③, ⑤ and ⑥ using wire cutters.

4. Refer to **Figure 8** to identify and remove the Bolster, B, A, and MM (LAL) connectors.

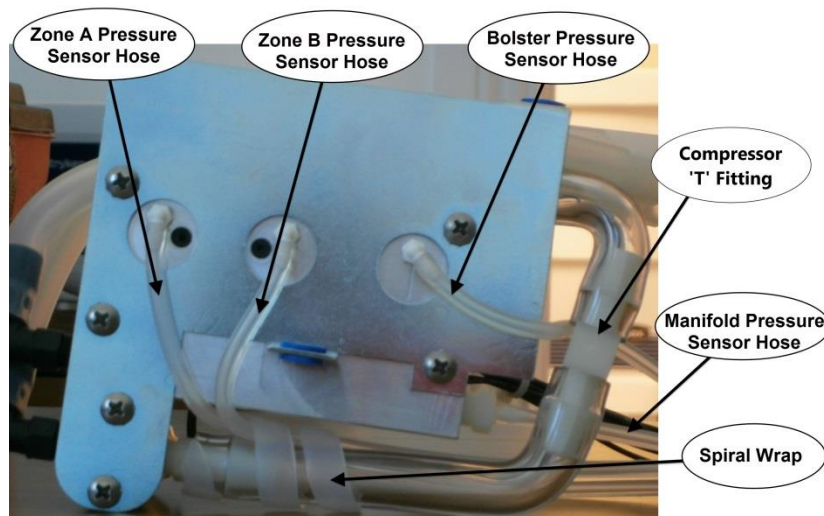
#### 5. Manifold Removal

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for manifold removal instructions.

### Installation:

1. Refer to **Figure 39**, using a permanent marker, label pressure sensor hoses as follows:

Air Zone	Hose Label
Zone A	1
Bolster	2
Zone B	3
Manifold	4



**Figure 39: Pressure Sensor Hoses**

#### 2. Manifold Installation

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for installation instructions.

3. Refer to **Figure 8** to identify and connect the Bolster, B, A, MM (LAL) and AST connectors.

4. Refer to **Figure 9** to identify and apply the 3 tie-wraps labeled ③, ⑤ and ⑥.

# Pump Service Procedures

---

**Note:** *Ensure ALL connectors are fully seated after applying tie-wraps.*

5. Refer to **Figure 8** to identify and connect the Pressure Sensor hoses labeled ①, ②, ③ and ④ to the circuit board.
6. **Case Closing**  
Refer to **Page 37** for *Case Closing* instructions.
7. Refer to **Page 76** for *Functional Test* procedures.

# Pump Service Procedures

## Filter Guard Replacement

**Repair Kit:** Kit, Filter Guard (2940-002-047)

### Tools:

- #2 Flat Screwdriver
- #8 Wrench
- Wire Cutter

### Removal:

#### 1. Case Opening

Refer to **Page 35** for *Case Opening* instructions.

#### 2. Manifold Removal

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for manifold removal instructions.

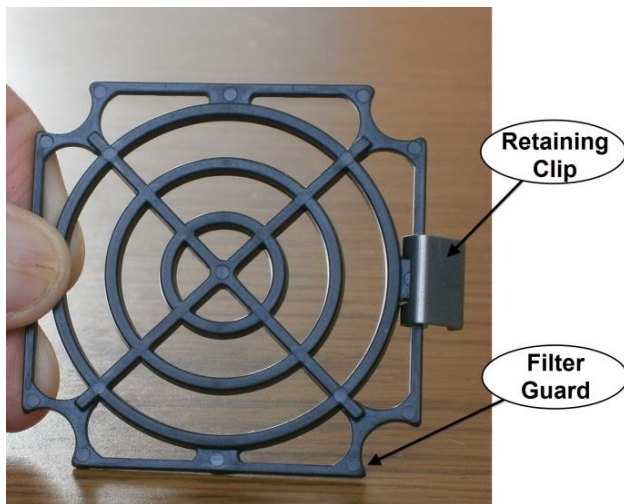
3. Lay the back case on a working surface with the bottom facing you.

4. Remove four black plastic screws, at the bottom while holding locknuts with wrench inside the back case.

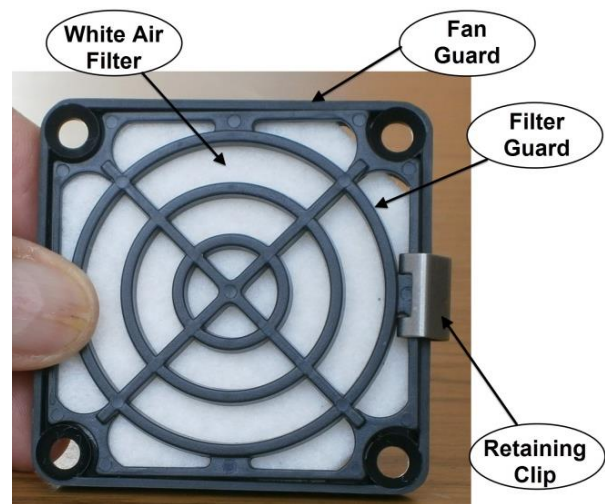
5. Remove Fan Guard and Acoustic Cover. Discard plastic screws.

### Installation:

1. Install Retaining Clip onto Filter Guard (See **Figure 40**)



**Figure 40: Retaining Clip installation onto Filter Guard**



**Figure 41: Retaining Clip Installation onto Fan Guard**

2. Insert white filter media and snap Filter Guard in place. Push Retaining Clip to grab both the Filter Guard and the Fan Guard body (See **Figure 41**).

3. Install Fan Guard assembly with Filter Acoustic Cover using four plastic screws and 4 locknuts.

4. Use wire cutter to cut plastic screws flush with nut.

**Note:** Ensure **Filter Guard** is installed with the flat side against the filter.

**Note:** Ensure **Fan Guard** is installed with Retaining Clip towards the rear of the case.

#### 5. Manifold Installation

Refer to **Page 38** *Valve Manifold - Temporary Removal and Replacement* for manifold installation instructions.



# Pump Service Procedures

---

## 6. Case Closing

Refer to **Page 37** for *Case Closing* instructions.

7. Refer to **Page 76** for *Functional Test* procedures.

# Pump Service Procedures

## AC Wire Assembly Replacement

**Repair Kit:** Kit, Complete Pump Wiring (2940-002-055)

**Tools:**

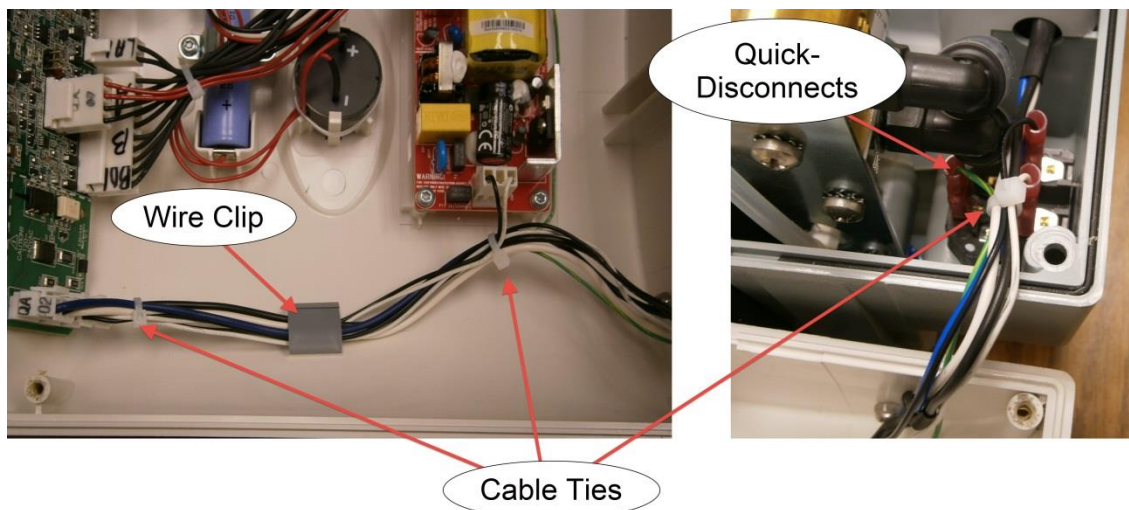
- Needle Nose Pliers
- Wire Cutter

**Removal:**

1. **Case Opening**

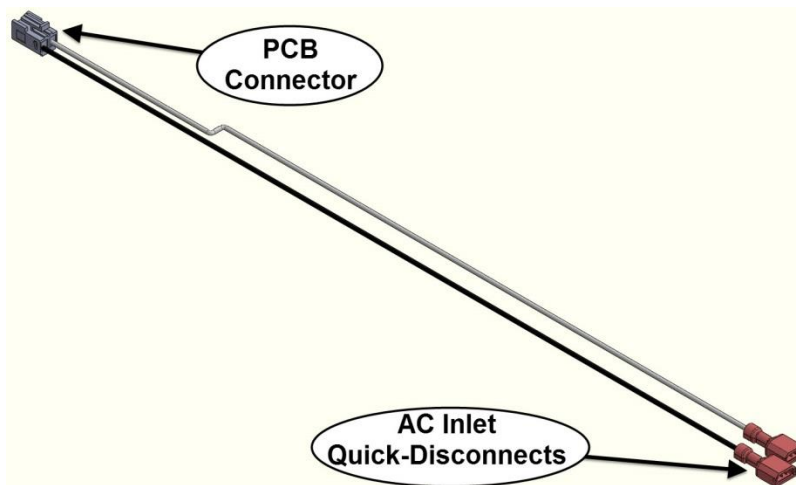
Refer to **Page 35** for *Case Opening* instructions.

2. Remove three tie-wraps shown below.



**Figure 42: AC Wire Assembly Tie-Wraps**

3. Use Needle Nose pliers to pull out both quick-disconnect terminals.



**Figure 43: AC Wire Assembly**

4. Remove PCA connector from position J11.

5. Release the AC Wire Assembly from gray wire clip

# Pump Service Procedures

---

## Installation:

1. Obtain the AC Wire Assembly from the Complete Pump Wiring Kit (2940-002-055). Retain the other kit components for later use.
2. Route the AC Wire Assembly through gray Wire Clip in the front case and connect to header J11 on the circuit board.
3. Insert quick-disconnect terminals to AC Inlet tabs: white wire in the tab closest to the bottom of the back case and black wire in the remaining tab.
4. Apply three tie-wraps to the locations shown in **Figure 42**.

**Note:** *tie-wraps have to be located at a maximum distance of 1 in. from their corresponding terminals. Adherence to tie-wrap placement distances is critical to electrical safety of the unit.*

## 5. Case Closing

Refer to **Page 37** for *Case Closing* instructions.

6. Refer to **Page 76** for *Functional Test* procedures.

# Pump Service Procedures

## DC to PCB Wire Assembly Replacement

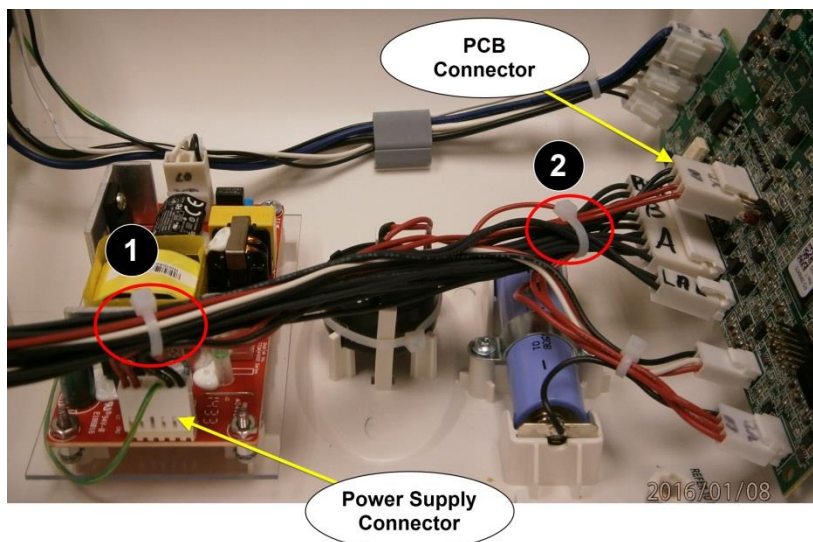
**Repair Kit:** Kit, Complete Pump Wiring (2940-002-055)

**Tools:**

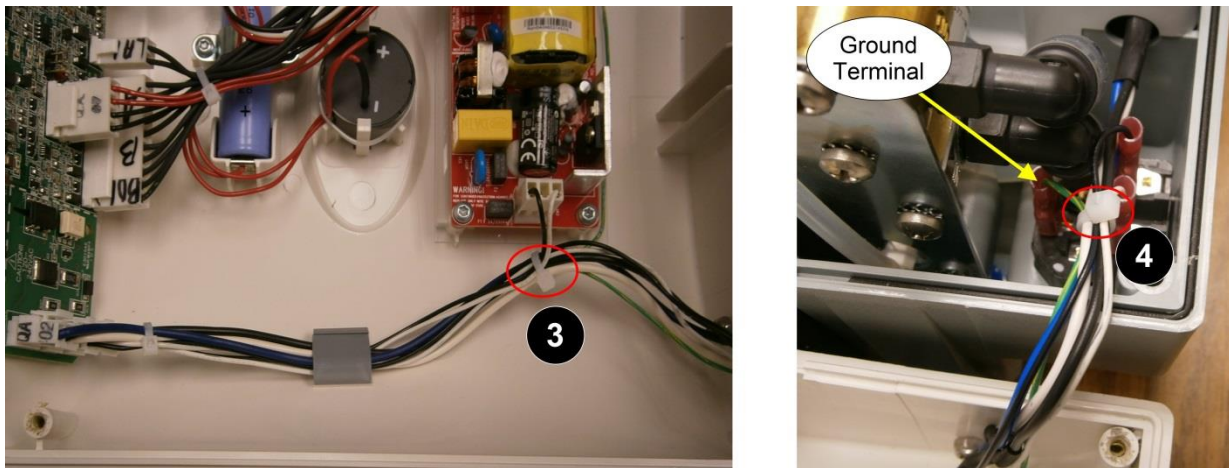
- Wire Cutter
- Needle Nose Pliers

**Removal:**

1. **Case Opening**  
Refer to **Page 35** for *Case Opening* instructions.
2. Refer to **Figure 44** and **Figure 45**. Cut Tie-Wraps ①, ②, ③ and ④.



**Figure 44: DC to PCA Wire Assembly**



**Figure 45: DC to AC Inlet Ground Connection**

3. Use Needle Nose pliers to pull out ground terminal on AC Inlet. See **Figure 45**.
4. Identify PCA and Power Supply connectors in **Figure 44** to unplug cable assembly from the circuit board and the power supply.

# Pump Service Procedures

---

## Installation:

1. Obtain the DC to PCB Wire Assembly from the Complete Pump Wiring Kit (2940-002-055). Retain the other kit components for later use.
2. Observe both ends of the DC to PCA Wire Assembly. Connect the 6-position connector to the power supply. Connect the other end to the circuit board.
3. Refer to **Figure 45** to connect the green/yellow ground wire terminal to the AC power inlet.
4. Refer to **Figure 44** and **Figure 45**. Apply Tie-Wraps ①, ②, ③ and ④.

**Note:** Tie-wraps have to be located at a maximum distance of 1 in. from their corresponding terminals. Adherence to tie-wrap placement distances is critical to electrical safety of the unit.

**Note:** Ensure ALL connectors are fully seated after applying tie-wraps.

## 5. Case Closing

Refer to **Page 37** for *Case Closing* instructions.

6. Refer to **Page 76** for *Functional Test* procedures.

# Pump Service Procedures

## AC to Power Supply Wire Replacement

**Repair Kit:** Kit, Complete Pump Wiring (2940-002-055)

### Tools:

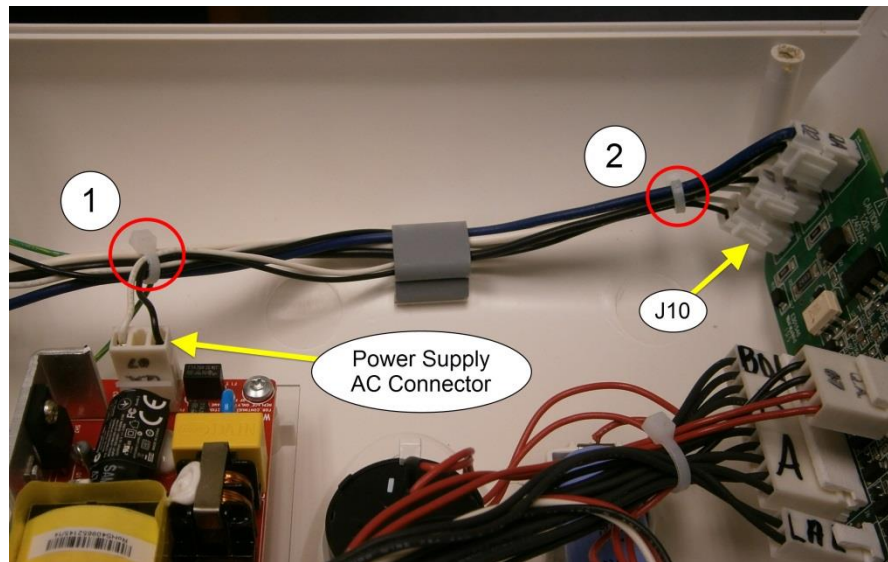
- Wire Cutter

### Removal:

#### 1. Case Opening

Refer to **Page 35** for *Case Opening* instructions.

2. Refer to **Figure 46** to cut Tie-Wraps ① and ②.



**Figure 46: AC to Power Supply Wire Assembly Tie-Wraps**

3. Press on locking tab to unplug connector in position J10 on the circuit board.
4. Unplug Power Supply end of AC to Power Supply Wire Assembly.
5. Release the AC to Power Supply Wire assembly from gray wire clip.

### Installation:

1. Obtain the AC to Power Supply Wire Assembly from the Complete Pump Wiring Kit (2940-002-055). Retain the other kit components for later use.
2. Refer to **Figure 46** to connect the 3-position connector in the Power Supply.
3. Refer to **Figure 46** to connect the 2-position lock connector into position J10 on the circuit board. Ensure that it locks securely in place.
4. Refer to **Figure 46**. Apply Tie- Wraps ① and ②.

**Note:** Tie-wraps must be located at a maximum distance of 1 in. from their corresponding terminals. Adherence to tie-wrap placement distances is critical to electrical safety of the unit.

**Note:** Ensure ALL connectors are fully seated after applying tie-wraps.

#### 5. Case Closing

Refer to **Page 37** for Case Closing instructions.

6. Refer to **Page 76** for *Functional Test* procedures.

# Pump Service Procedures

## AST Wire Assembly Replacement

**Repair Kit:** Kit, Complete Pump Wiring (2940-002-055)

**Tools:**

- Wire Cutters
- Needle Nose Pliers
- Red Insulating Varnish (GLPT)

**Removal:**

1. **Case Opening**

Refer to **Page 35** for *Case Opening* instructions.

2. Refer to **Figure 9** to cut Tie-Wraps④, ⑤, ⑥ and ⑦.
3. Refer to **Figure 8** to identify and remove the AST connector by pressing on the locking tab and then pulling the connector from the circuit board.
4. Stand the back case upright so the inside and outside are easily accessed.
5. Use Needle Nose pliers to grab the AST jack hex nut on the rear of the back case.
6. Use the other hand to rotate the body of the AST connector counter-clockwise until it comes apart. See **Figure 47**.



**Figure 47: AST Connector Removal**

**Installation:**

1. Obtain the AST Wire Assembly from the Complete Pump Wiring Kit (2940-002-055). Retain the other kit components for later use.
2. Insert AST Connector thread into AST mounting hole. Insert a washer in the threaded portion of the AST connector in the rear of the back case.
3. Manually tighten the hex nut until snug.
4. Use Needle Nose pliers to grab the AST connector hex nut on the rear of the back case.
5. Use the other hand to rotate the body of the AST connector clockwise. Manually tighten it securely. See **Figure 47**.
6. Apply a dot of GLPT to the hex nut / thread junction.

# Pump Service Procedures

## Circuit Board Replacement

**Repair Kit:** Kit, PCB Assembly (2940-002-066)

**Tools:**

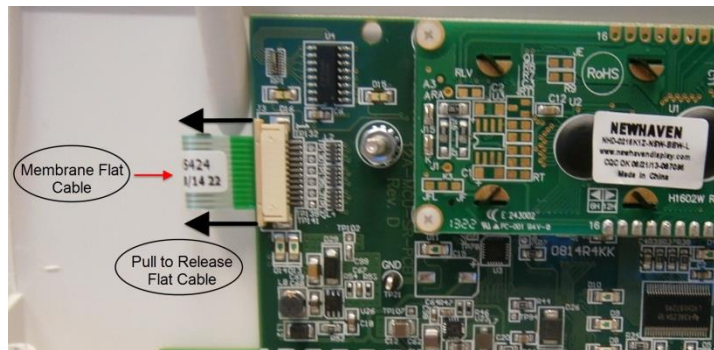
- Nut Driver, 1/4"

**Removal:**

1. **Case Opening**

Refer to **Page 35** for *Case Opening* instructions.

2. Release the Membrane Flat Cable from the circuit board by pulling the lock tab in the direction of the arrow, and then pulling the cable out of the connector, as shown in **Figure 48**.



**Figure 48: Flat Cable Connector**

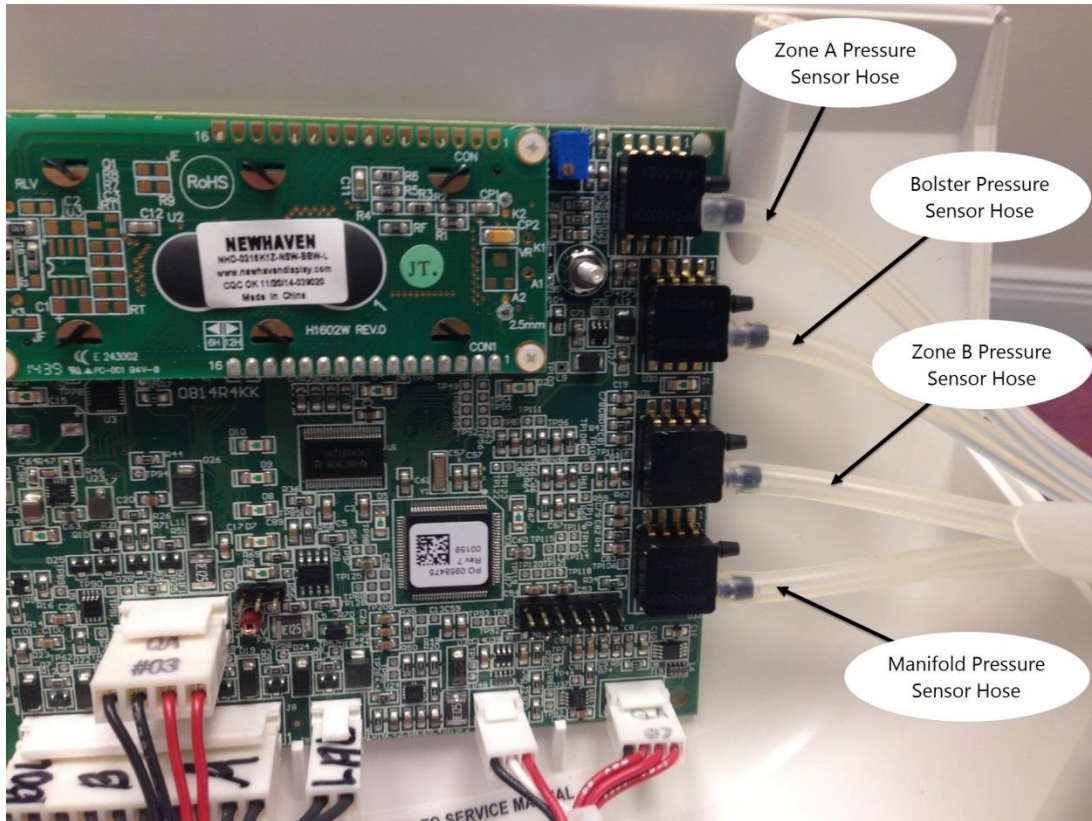
3. Use the nut driver to remove the 2 nuts that secure the circuit board to the front case posts.



# Pump Service Procedures

4. Refer to **Figure 49**, using a permanent marker, label pressure sensor hoses as follows:

Air Zone	Hose Label
Zone A	1
Bolster	2
Zone B	3
Manifold	4



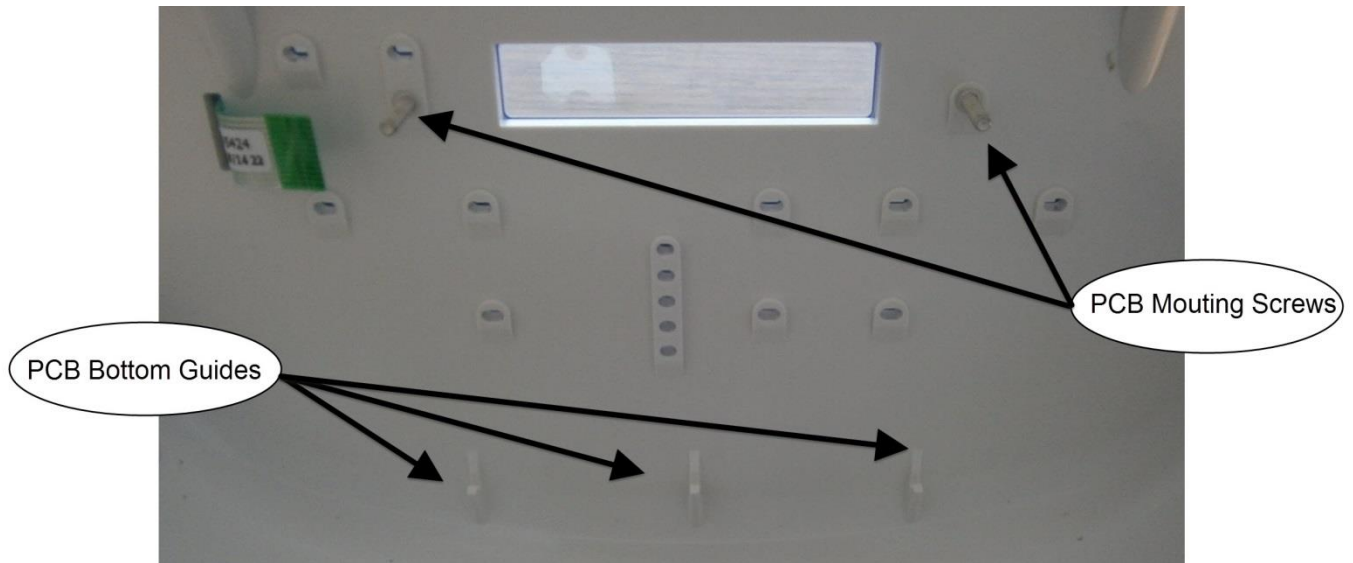
**Figure 49: Pressure Sensor Hoses**

5. Remove the 4 pressure sensor hoses from the circuit board.
6. Remove and discard the circuit board.

# Pump Service Procedures

## Installation:

1. Remove the plastic film from the LCD on the circuit board.
2. Refer to **Figure 50** to Seat the bottom of the circuit board (PCB) into the PCB Bottom Guides and align the mounting holes of the PCB to the PCB Mounting Screws.



**Figure 50: PCB Mounting**

3. Secure the circuit board to the PCB Mounting Screws with two ¼" nuts.
4. Refer to **Figure 48** to insert the Membrane Flat Cable into the circuit board connector J3, and push the locking tab closed.
5. Refer to **Figure 8** to identify and connect the Pressure Sensor hoses labeled ①, ②, ③ and ④ to the circuit board.
6. **Case Closure**  
Refer to **Page 37** for case closure instructions.
7. Refer to **Page 76** for Functional Test procedures.

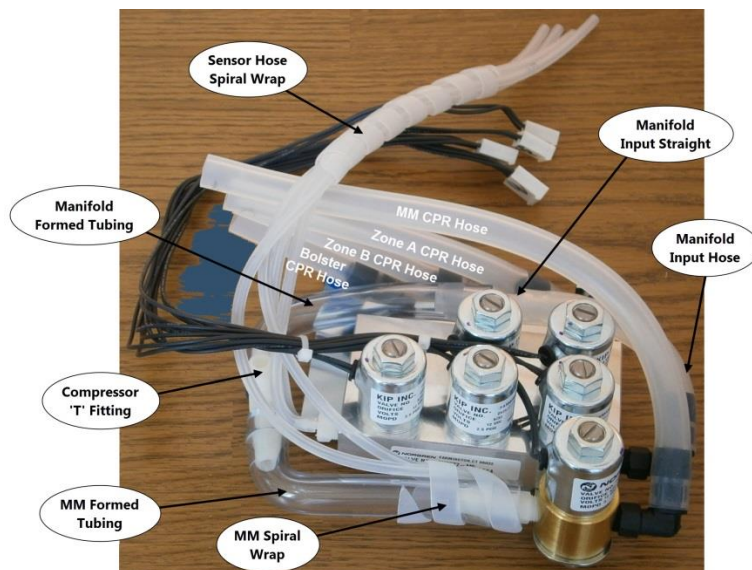
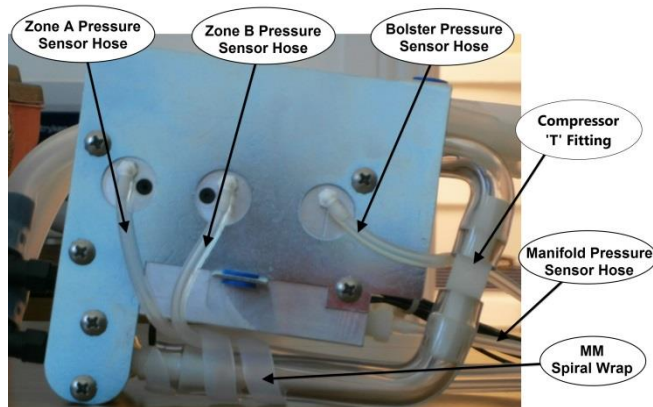
# Pump Service Procedures

## Valve Manifold Tubing and Fittings Replacement

Repair Kit: Kit, Tubing and Fittings (2940-002-059)

Removal and Installation: See Valve Manifold Replacement Procedure on Page 61

Quantity	Name	Description
1	Zone A Pressure Sensor Hose	Silicon Tubing, 1/16" ID x 3/16" OD x 19.5" Length
1	Zone B Pressure Sensor Hose	Silicon Tubing, 1/16" ID x 3/16" OD x 17.5" Length
1	Bolster Pressure Sensor Hose	Silicon Tubing, 1/16" ID x 3/16" OD x 15.5" Length
1	Manifold Pressure Sensor Hose	Silicon Tubing, 1/16" ID x 3/16" OD x 12.5" Length
1	Zone A CPR Hose	Silicon Tubing, 5/16" ID x 1/2" OD x 6.0" Length
1	Zone B CPR Hose	Silicon Tubing, 5/16" ID x 1/2" OD x 4.5" Length
1	Bolster CPR Hose	Silicon Tubing, 5/16" ID x 1/2" OD x 3.0" Length
1	MM CPR Hose	Silicon Tubing, 5/16" ID x 1/2" OD x 10.25" Length
1	Manifold Input Hose	Silicon Tubing, 5/16" ID x 1/2" OD x 4.0" Length
2	MM Formed Tubing	Thermo-Formed Tubing, L-Shaped
	Manifold Formed Tubing	
1	Compressor T-Fitting	TEE, 3/8" x 3/8" x 3/8"
1	Manifold Input Straight Fitting	Straight Fitting, 3/8"
1	MM Spiral Wrap	Spiral Wrap, 3" Length
1	Sensor Hose Spiral Wrap	Spiral Wrap, 8" Length



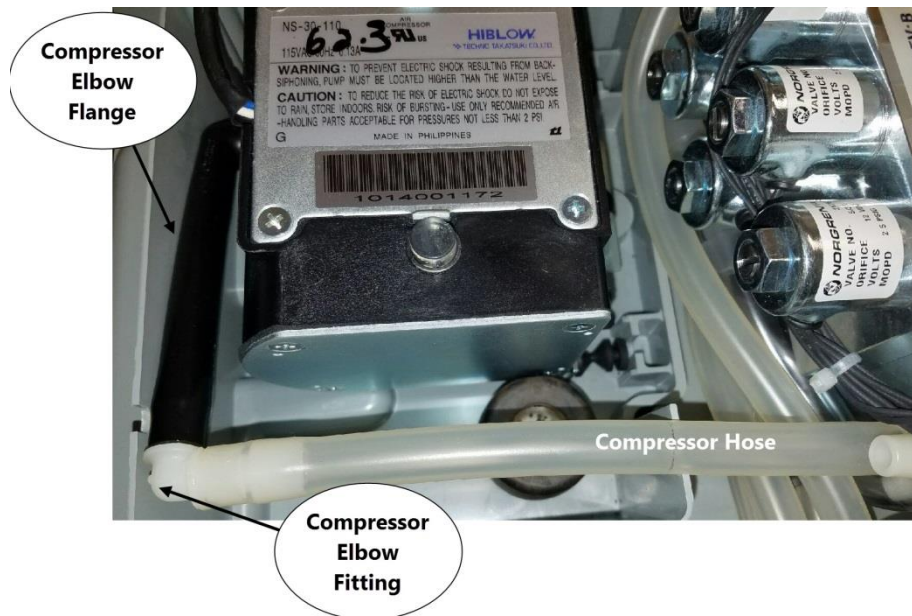
# Pump Service Procedures

## Compressor Tubing and Fittings Replacement

Repair Kit: Kit, Tubing and Fittings (2940-002-059)

Removal and Installation: See Valve Compressor Replacement Procedure on Page 53

Quantity	Name	Description
1	Compressor Hose	Silicon Tubing, 5/16" ID x 1/2" OD x 6.75" Length
1	Compressor Elbow Fitting	Elbow 3/8"
1	Compressor Elbow Flange	Straight Fitting, 3/8"



# Pump Service Procedures

## Pump Functional Tests

Follow final test procedure to verify proper functionality prior to returning the Pump to service.

If any test fails, contact Stryker Customer Service, **See Page 10**

### Equipment List

- Digital Multimeter
- Known Good IsoAir Mattress
- Timer (Stopwatch)

### Test Procedure

#### Functional Ground Test

1. Use a multimeter to measure the resistance between the Power Inlet ground and the AST Jack ground, as shown below.



2. **Acceptance Criteria:** The resistance measured by the multimeter is less than 10.0 ohms.

#### Power up

Apply power to unit.

**Note:** *Make sure to match the applied voltage with Pump voltage ratings, which are printed on the back cover label.*

#### Memory Test

1. If the Pump is in run mode, press the Power button to set the Pump to Standby mode.
2. Press the Lock, Up and Down buttons simultaneously for 3 seconds until the "**F1 SOFTWARE**" screen appears.
3. Press the Up button to enter the "**F2 PRESSURE OFFSET**" screen.
4. **Acceptance Criteria:** The displayed Status is "PASS".
5. Press the Up button to enter the "**F3 PRESSURE GAIN**" screen.
6. **Acceptance Criteria:** The displayed Status is "PASS".
7. Press the Up button to enter the "**F4 MEMORY**" screen.
8. **Acceptance Criteria:** The displayed Status is "PASS".

# Pump Service Procedures

---

## Battery Test

1. Press the Up button to enter the "**F5 CHARGER**" screen.
2. **Acceptance Criteria:** The displayed Status is "Fast-Charging" or "Charged".
3. Press the Up button to enter the "**F6 BATTERY VOLTAGE**" screen.
4. **Acceptance Criteria:** The displayed voltage is  $\geq 3.50$  volts.

## AC Frequency Test

1. Press the Up button to enter the "**F7 AC FREQUENCY**" screen.
2. **Acceptance Criteria Low Voltage:** The displayed frequency is  $60.00 \pm 1.00$  Hz.
3. **Acceptance Criteria High Voltage:** The displayed frequency is  $50.00 \pm 1.00$  Hz.

## Button Test

1. Press the Up button to enter the "**F8 AST RESISTANCE**" screen.
2. Press the Up button twice to enter the "**F9 BUTTON**" screen.
3. Press each button and listen for a "click" sound.
4. **Acceptance Criteria:** The Lock button press produced a click sound.
5. **Acceptance Criteria:** The AST button press produced a click sound.
6. **Acceptance Criteria:** The MM button press produced a click sound.
7. **Acceptance Criteria:** The CLP button press produced a click sound.
8. **Acceptance Criteria:** The Static button press produced a click sound.
9. **Acceptance Criteria:** The Max Inflate button press produced a click sound.
10. **Acceptance Criteria:** The Alarm Silence button press produced a click sound.
11. **Acceptance Criteria:** The Down button press produced a click sound.

## LCD Test

1. Press the Up button twice to enter the "**F9 BUTTON**" screen.
2. Press the Up button to enter the "**F10 LCD BACKLIGHT**" screen.
3. Observe the LCD while pressing, then releasing the Max Inflate button.
4. **Acceptance Criteria:** The LCD Backlight turns off, then back on.
5. Press the Up button to enter the "**F11 LCD PIXELS**" screen.
6. Observe the LCD while pressing the Max Inflate button.
7. **Acceptance Criteria:** All LCD Pixels turns on.

## LED Test

1. Press the Up button to enter the "**F12 LED**" screen.
2. Observe the LEDs while pressing and then releasing the Max Inflate button.
3. **Acceptance Criteria:** All the LEDs turn on, and then back off.

# Pump Service Procedures

---

## Power Fail Alarm Test

1. Press the Power button to reset the Pump.
2. Press the Power button to set the Pump to Run mode.
3. **Acceptance Criteria:** The Power On LED (Green) is on.
4. **Acceptance Criteria:** The Standby LED (White) is off.
5. Unplug the power cord
6. Observe the unit.
7. **Acceptance Criteria:** Both LEDs, Alarm and Power, are blinking
8. **Acceptance Criteria:** The alarm sound is audible and without rattling.

## Power Down Test

1. Insert the power cord
2. Press the Power button to set the Pump to Standby mode
3. **Acceptance Criteria:** The Standby LED (White) is on
4. **Acceptance Criteria:** The Power On LED (Green) is off
5. Unplug the power cord
6. Observe the unit.
7. **Acceptance Criteria:** All LEDs are off.

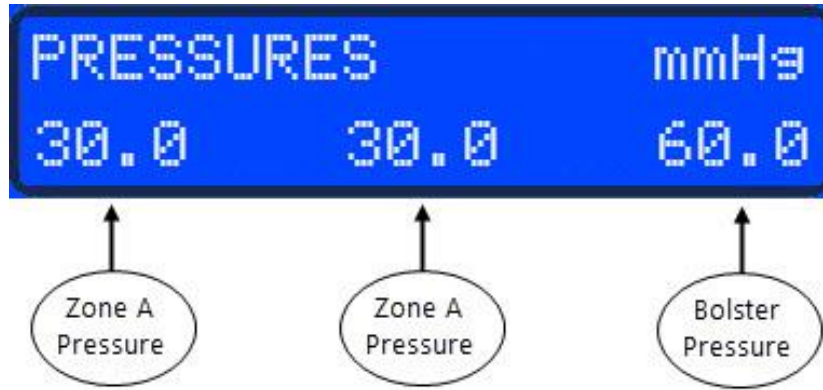
## AST Resistance Test

1. Insert the power cord
2. Attach the Pump to a known good mattress.
3. Press the Power button to set the Pump to Run mode.
4. Set the Pump to AST: Off, MM: Off, Mode: Static, Pressure level: Highest (30 mmHg), Max Inflate: Off.
5. Wait until pressure stabilizes (no inflation or venting for 10 seconds).
6. Press the Power button to put the Pump in Standby mode.
7. Press the Lock, Up and Down buttons simultaneously for 3 seconds until the "**F1 SOFTWARE**" screen appears.
8. Press the Up button 7 times to enter the "**F8 AST RESISTANCE**" screen.
9. **Acceptance Criteria:** The displayed resistance is 3375 to 4125 ohms.

## Pressure Regulation Test

1. Press the Power button to reset the Pump.
2. Press the Alarm Silence button for 3 seconds until the "**PRESSURES mmHg**" screen appears.

# Pump Service Procedures



3. **Acceptance Criteria:** Zone A Pressure is between 28.0 and 32.0.
4. **Acceptance Criteria:** Zone B Pressure is between 28.0 and 32.0.
5. **Acceptance Criteria:** Bolster Pressure is above 58.0.

## Leak Test

1. Start the timer and wait 1 minute.
2. Press the Alarm Silence button for 3 seconds until the “**PRESSURES mmHg**” screen appears
3. Note the initial pressures displayed for Zone A, Zone B and Bolster.
4. Start the timer and wait 2 minutes.
5. Press the Alarm Silence button for 3 seconds until the “**PRESSURES mmHg**” screen appears
6. Note the final pressures displayed for Zone A, Zone B and Bolster.
7. Calculate each of the 3 pressure drops.
8. **Acceptance Criteria:** The pressure drop in each zone should be less than 1.0 mmHg

## MM Flow Test

1. Press the power button to set the Pump to Run mode.
2. Turn on MM.
3. Unzip the mattress coverlet and use a finger to feel the air flow in the holes in the MM hoses.
4. **Acceptance Criteria:** The MM holes have air flow.
5. **Acceptance Criteria:** The Pump does not alarm.

## Electrical Safety Testing

- Electrical safety test unit according to the table below:

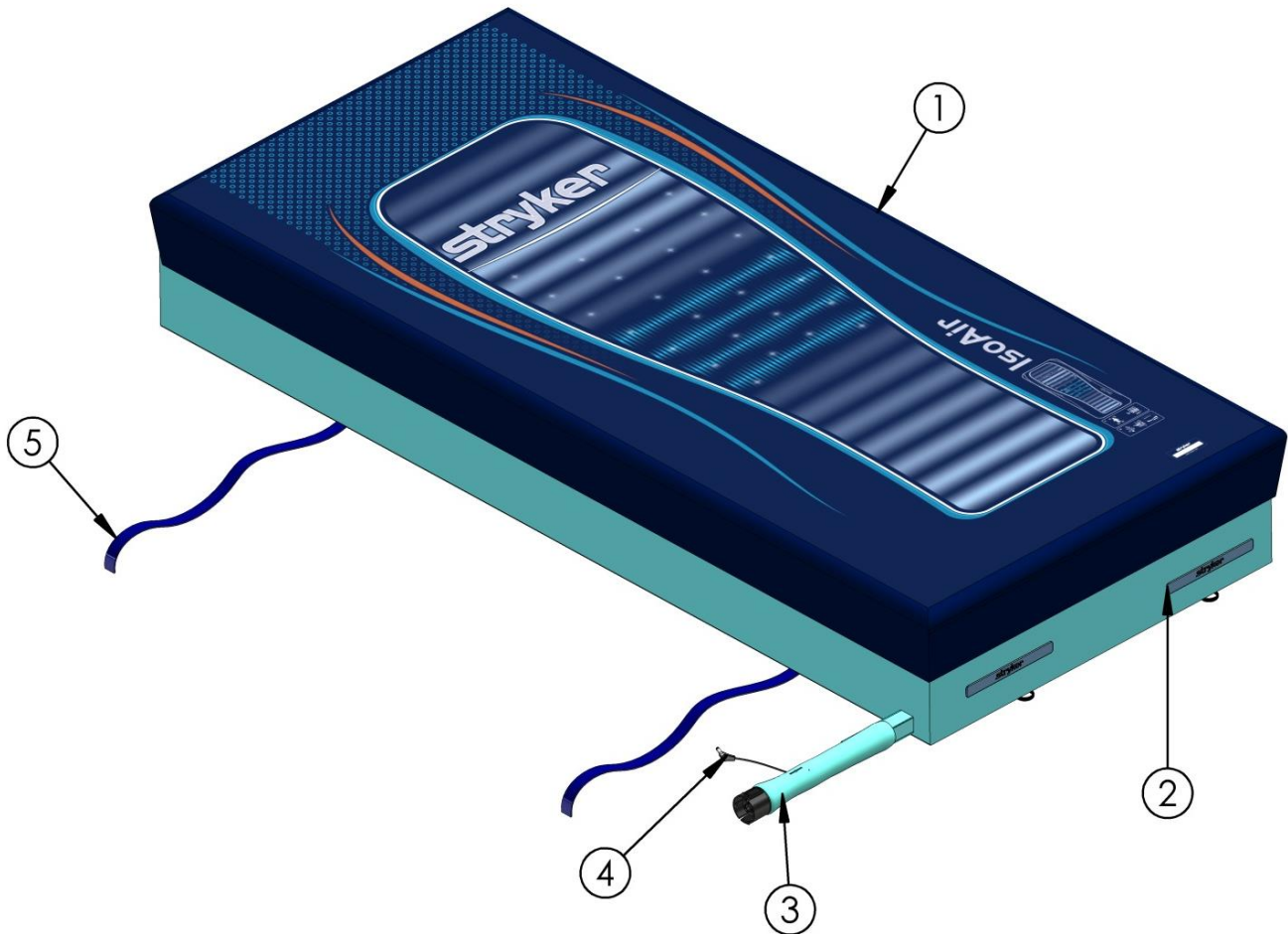
TEST	ACCEPTANCE CRITERIA	
	120 VAC	230 VAC
Leakage Current	$\leq 0.5$ mA	$\leq 0.5$ mA
Insulation Withstand Voltage	$\geq 1.488$ kVAC, $\leq 0.5$ mA, 1 sec	$\geq 1.776$ kVAC, $\leq 0.5$ mA, 1 sec
Functional Current	0.1A - 0.5A	0.1A - 0.5A




# Mattress Service Procedures

**NOTE:** In order to facilitate ease of access to the internal components of the mattress, the coverlet should be fully removed from the mattress prior to removal or installation of replacement kits. This step applies to all kit replacement procedures described hereafter.

## IsoAir 7.7" (19.6 cm) Mattress (Air Only)

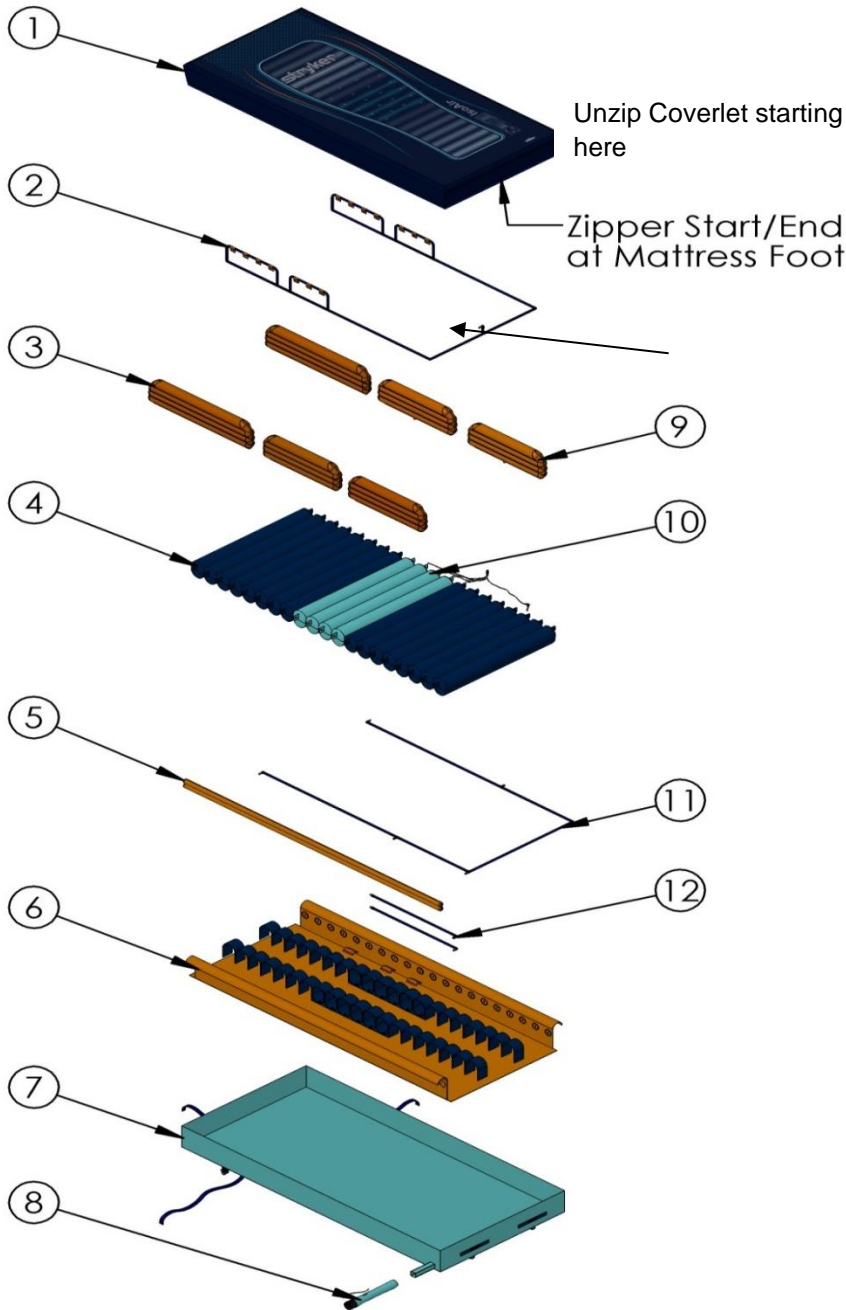


- 1 COVERLET
- 2 STRAP HANDLES (FOOT END SHOWN)
- 3 CPR CONNECTOR
- 4 AST CABLE
- 5 TIE DOWN STRAPS

 The Mattress includes straps at the bottom center (not shown) that are intended for storage use. Do not use these to tie the Mattress to the bedframe. May result in equipment damage.

# Mattress Service Procedures

## IsoAir 7.7" (19.6 cm) Mattress (Air Only) Exploded View



1. COVERLET ASSEMBLY
2. MM HOSE ASSEMBLY
3. HEAD BOLSTER
4. NON-AST AIR CELLS
5. MANIFOLD
6. LOOP ASSEMBLY
7. SHELL ASSEMBLY
8. CPR ASSEMBLY
9. FOOT/CENTER BOLSTER
10. AST AIR CELL PACK
11. BOLSTER HOSE ASSEMBLY
12. MANIFOLD HOSE

# Mattress Service Procedures

## Non AST Air Cells, 7.7” Replacement

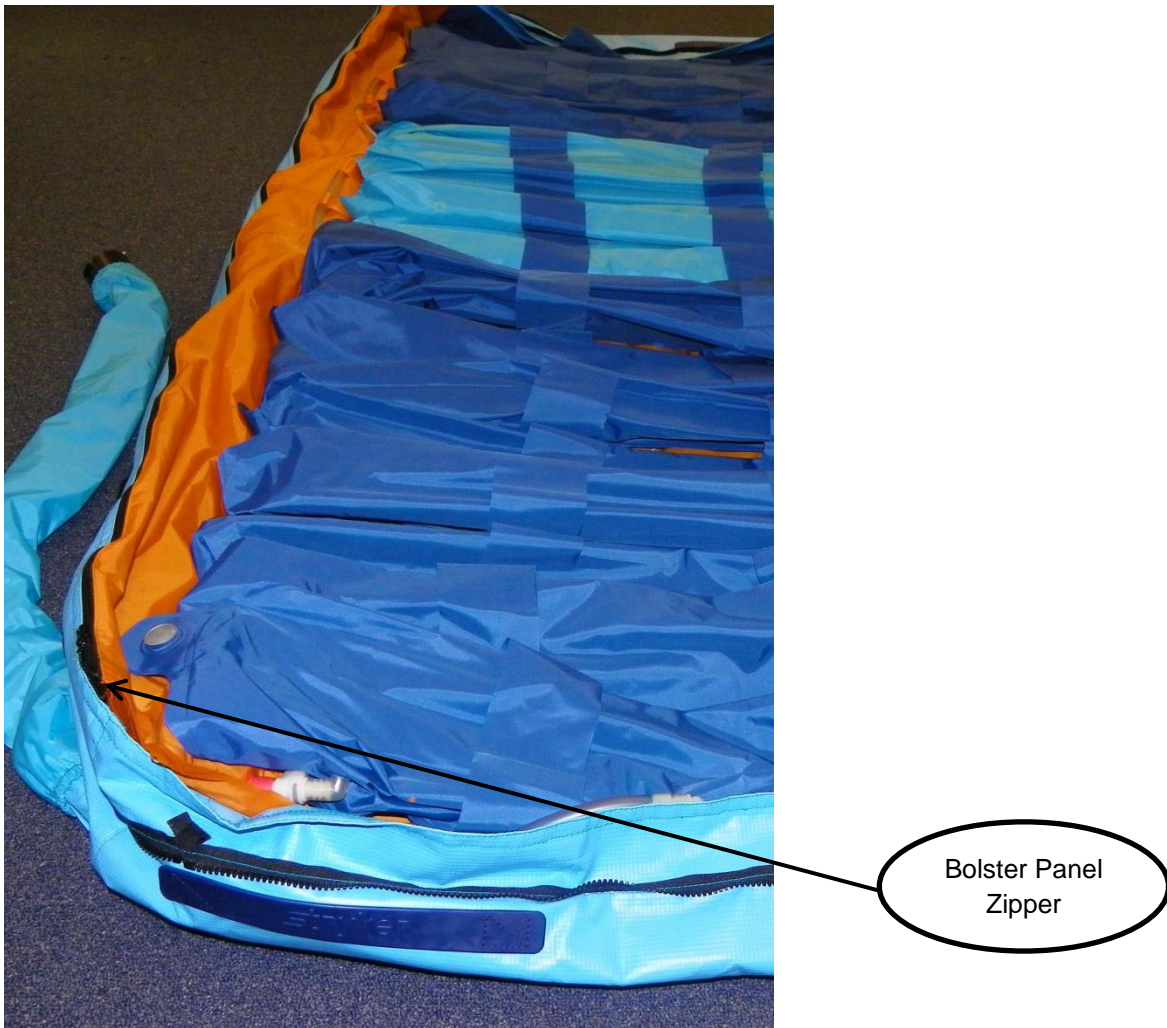
**Repair Kits:** Kit, Non-AST Air Cell 32 X 7.7 (2940-002-015) OR Kit, Non-AST Air Cell 35 X 7.7 (2940-002-016)

**Tools:**

- None

**Removal:**

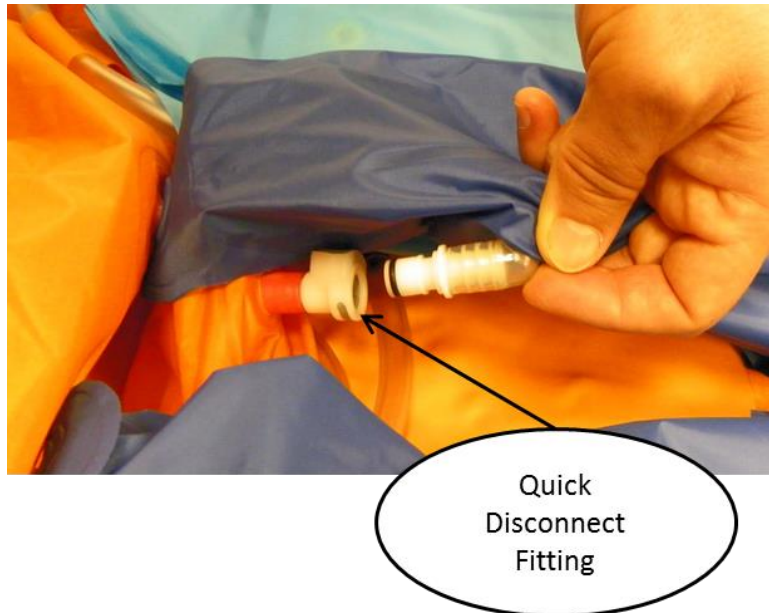
1. Unzip bolster panels to expose bolsters and the underside of the bolster panel.



**Figure 51: Bolster Panel Zippers**

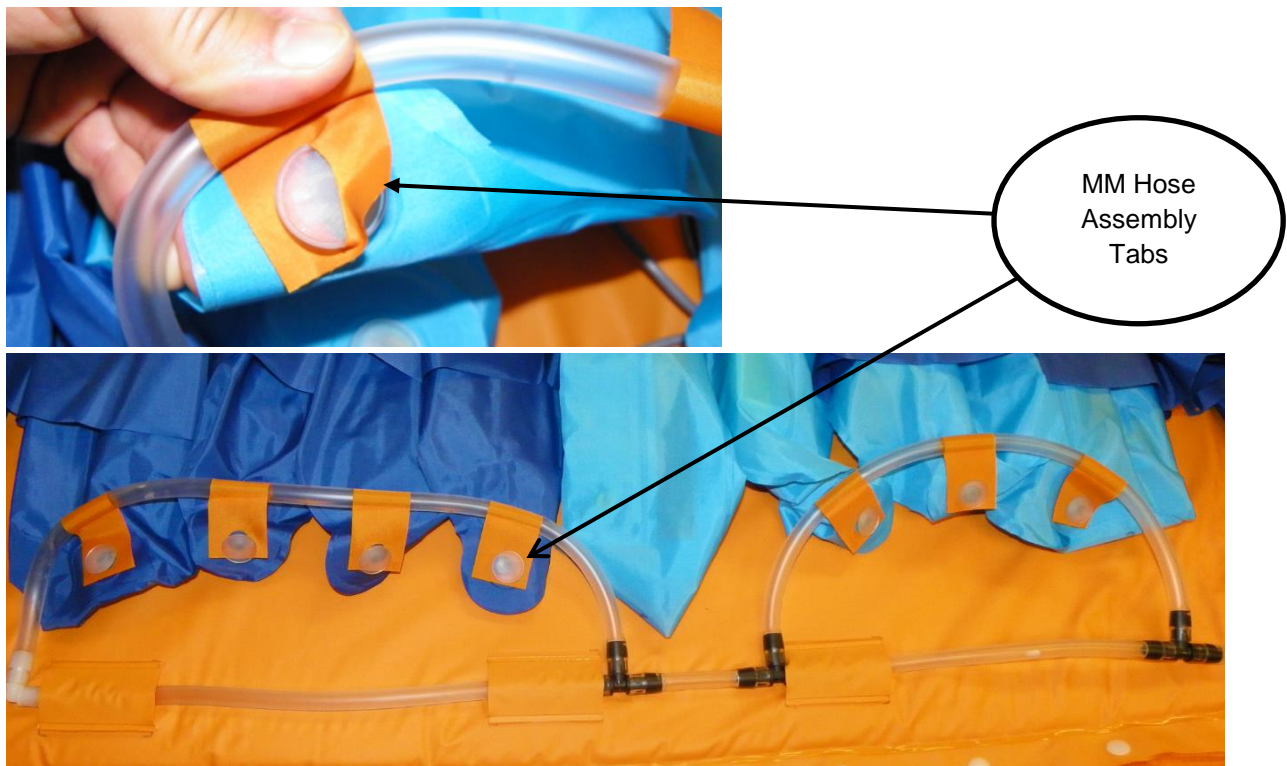
## Mattress Service Procedures

2. Unbutton the air cell from both right and left bolster panels.
3. Disconnect the air cell from the manifold by disengaging the Quick Disconnect Air Fitting.



**Figure 52: Quick Disconnect Fittings**

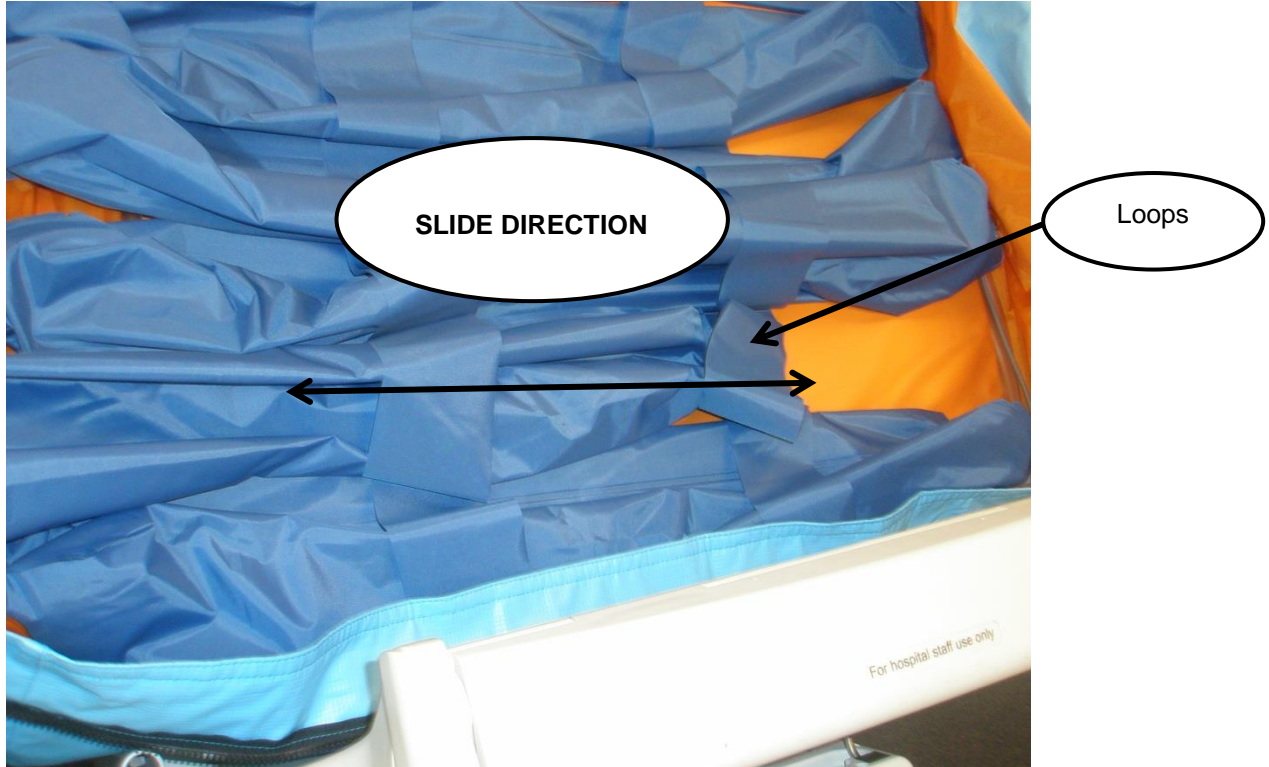
**Note:** Some air cells are connected directly to the MM hose assembly (See **Figure 53**). In these cases, disconnect the air cell buttons from the nylon tabs on the MM hose assembly.



**Figure 53: MM Hose Tabs**

## Mattress Service Procedures

- Slide Non AST air cells to either side for removal out of the overlay loops.



**Figure 54: Non AST Air Cell Removal**

- Discard damaged Non AST Air Cell.

### Installation:

- Obtain Kit, Non-AST Air Cell 32 x 7.7 (2940-002-015) **OR** Kit, Non-AST Air Cell 35 x 7.7 (2940-002-016)
- Insert air cell into the loops.
- Button air cell through the MM Hose Tabs (if applicable).
- Connect to Manifold with Quick Disconnect fitting.
- Button to Side Bolster Panel.
- Zip Bolster panel to shell.

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## AST Air Cell Pack, 7.7” (19.6 cm) Replacement

**Repair Kits:** Kit, AST Air Cell Pack 32 X 7.7 (2940-002-013) OR Kit, AST Air Cell Pack 35 X 7.7 (2940-002-014)

**Tools:**

- None

**Removal:**

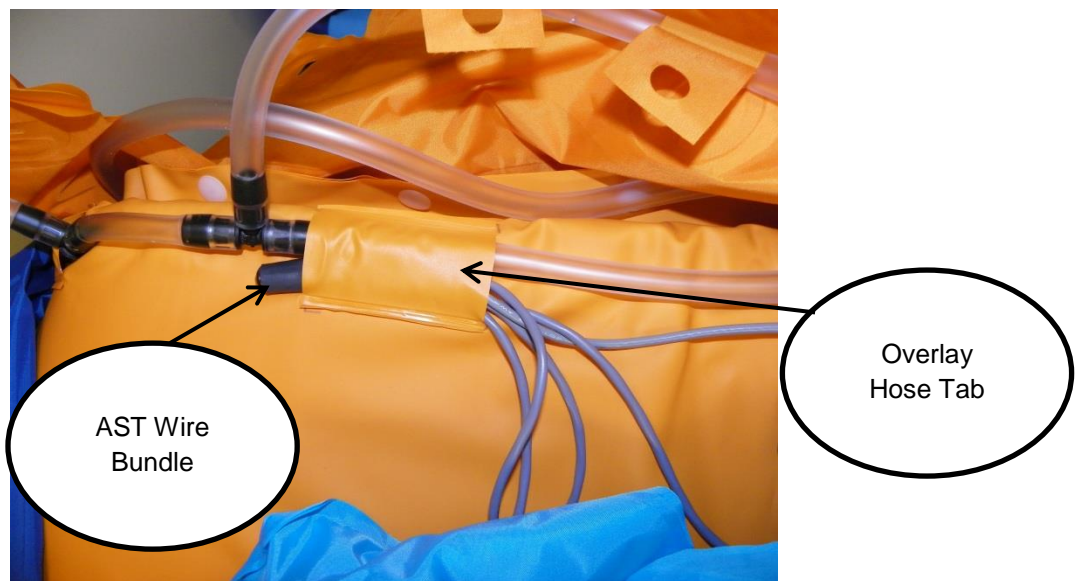
1. Unzip bolster panels to expose bolsters and the underside of the bolster panel. (See Figure 51).
2. Unbutton the AST air cells from both right and left bolster panels. (See Figure 55).



**Figure 55: Unbutton Air Cells from Bolster Panels**

**Note:** Some air cells are connected directly to the MM hose assembly (See Figure 53).  
In these cases, disconnect the air cell buttons from the nylon tabs on the MM hose assembly.

3. Disconnect the AST air cell from the manifold by disengaging the Quick Disconnect Air Fittings. (See Figure 52)
4. Remove the AST wire bundle from the Overlay Hose Tab. (See Figure 56).



**Figure 56: AST Wire Bundle**

## Mattress Service Procedures

5. Slide AST air cell pack through loop away from manifold toward the wire side of the air cells. (See Figure 57)

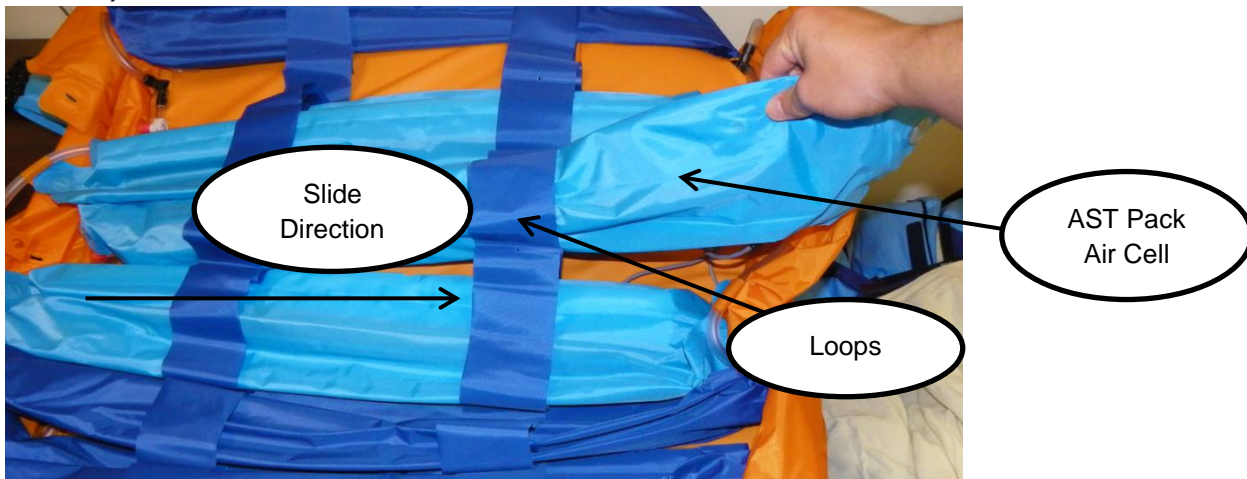


Figure 57: AST Air Cell Removal

6. Remove and retain the spiral wrap along the length of the AST wire. (See Figure 58)

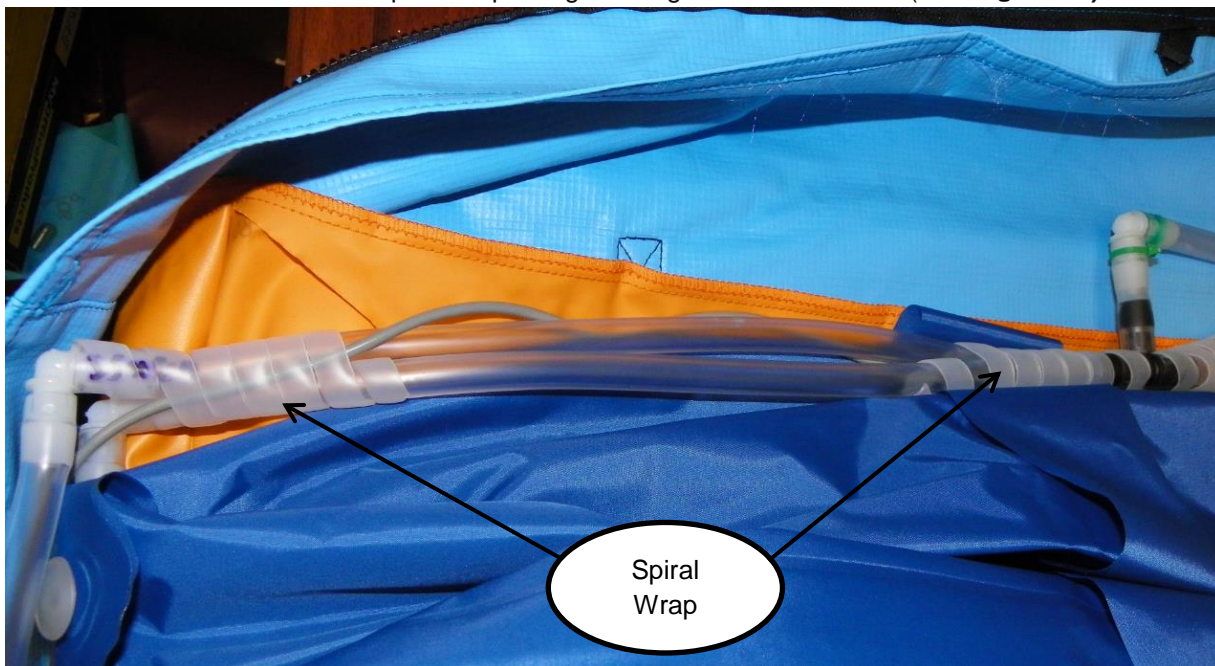
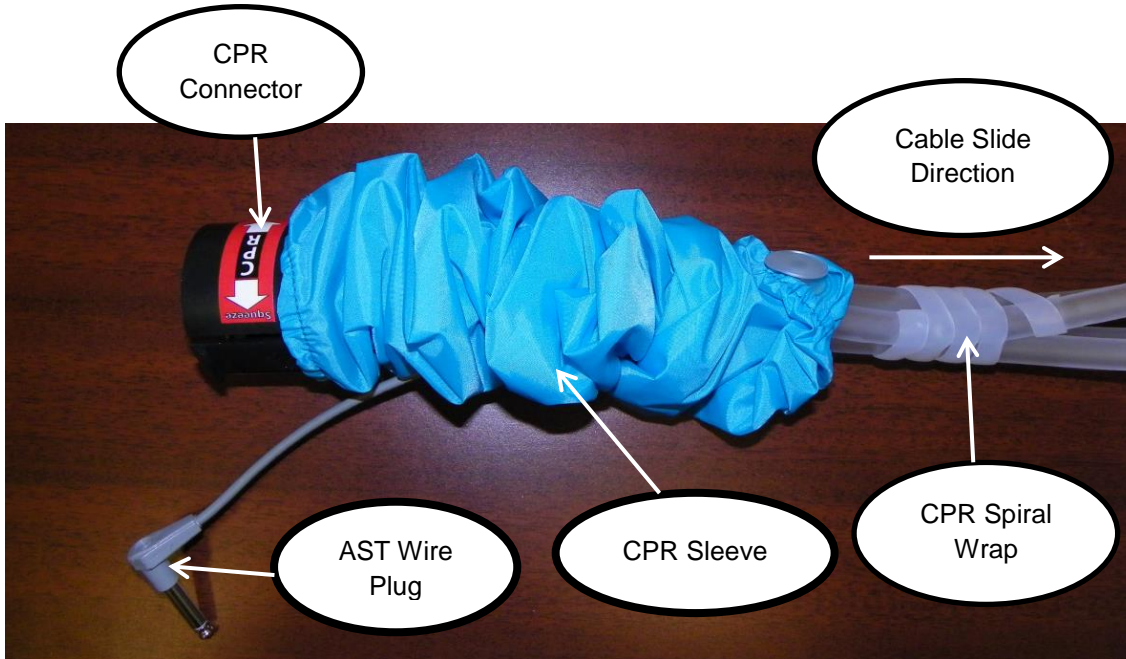


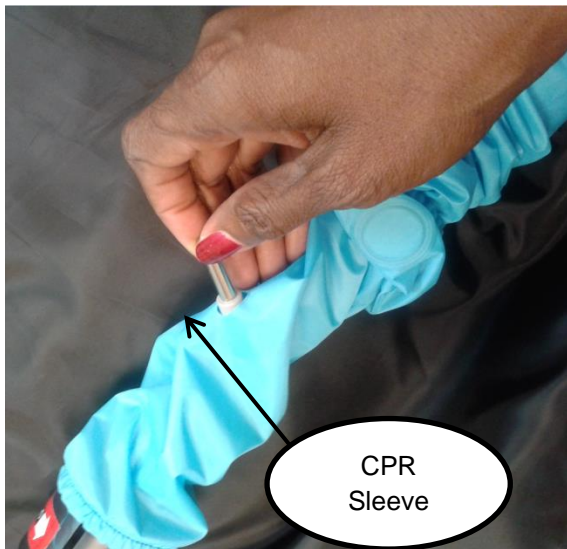
Figure 58: Spiral Wrap

# Mattress Service Procedures



**Figure 59: CPR Cord Spiral Wrap**

7. With the CPR sleeve gathered towards the CPR connector remove spiral wrap and carefully pull the AST Wire Plug underneath it. Push AST Wire Plug through the CPR Sleeve slot opening and pull wire until the plug clears the sleeve. At this point, the entire AST pack assembly is free from the mattress.



**Figure 60: Removing AST Wire Plug from CPR Sleeve**

8. Discard damaged AST air cell Pack.



# Mattress Service Procedures

## Installation:

1. Obtain the replacement AST air cell kit.
2. Slide all four air cells into the loops with Quick Disconnect side towards manifold. (See Figure 57)
3. Connect the AST air cells to the manifold by engaging the Quick Disconnect Air Fittings. (See Figure 52)
4. Button the AST air cells to both right and left bolster panels. (See Figure 55).
5. Insert the AST wire bundle into the Overlay Hose Tab. (See Figure 56).
6. Guide the AST wire along the (patient) left side and foot of the mattress and secure to the MM hoses with spiral wrap at the 3 locations at the foot of the mattress. (See Figure 71, Figure 72 and Figure 73)
7. Insert AST plug through the square cut out in the shell at the right foot side of the mattress.
8. Run the plug underneath the CPR sleeve and through the slit in the sleeve.
9. Secure the AST wire with spiral wrap (See Figure 61).

**IMPORTANT:** Ensure only 9-10 inches of AST cable is exposed when the installation is complete. This length can be controlled by the use of the spiral wrap throughout the length of the AST plug cable. Spiral wrap segments are used to lock the AST cable to the adjacent clear tubes. **Failure to follow these instructions may result in risk of strangulation.**

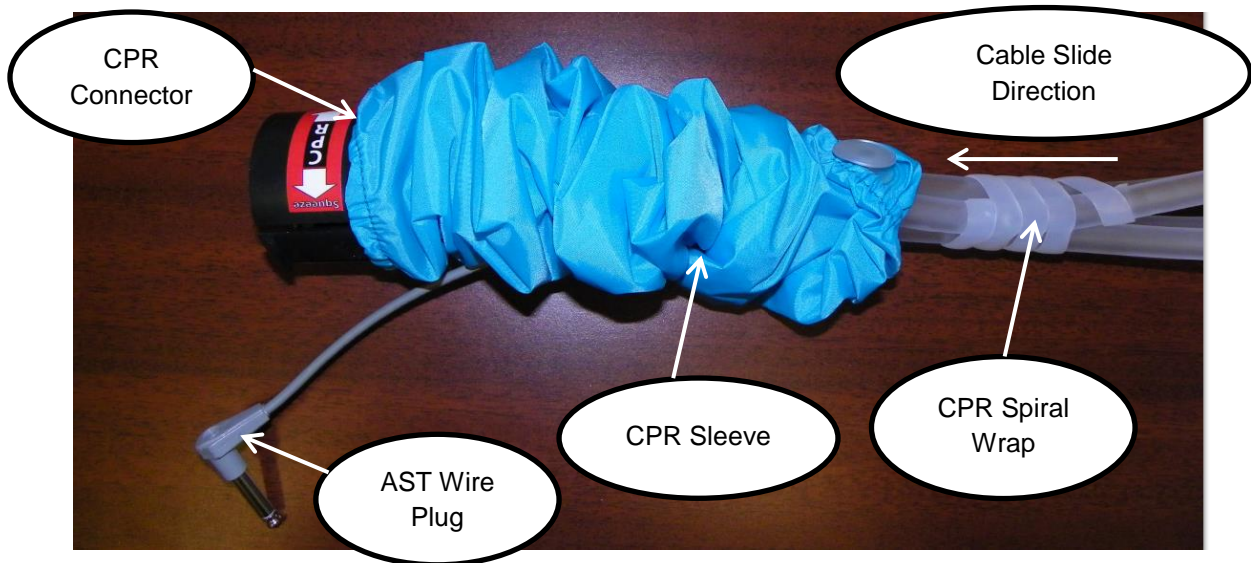


Figure 61: CPR Connector



Figure 62: Exposed AST Wire

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## Overlay Assembly, 7.7” Replacement

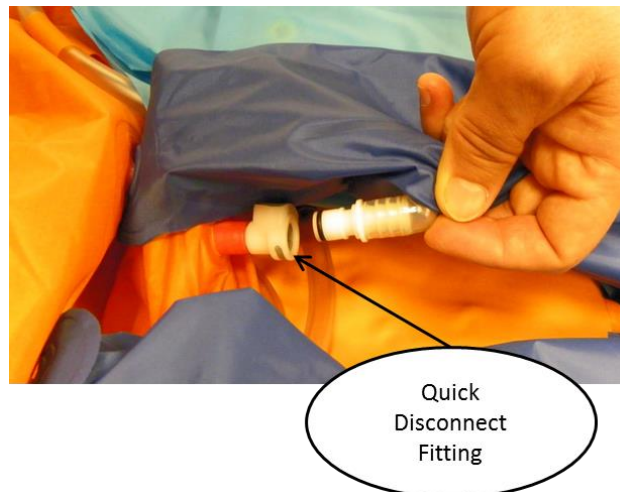
**Repair Kits:** Kit, Overlay Assy 32x80x7.7 (2940-002-004) OR Kit, Overlay Assy 35x80x7.7 (2940-002-005)

### Tools:

- Pliers with protective jaw covers
- Liquid soap

### Removal:

1. Unzip bolster panels to expose bolsters and the underside of the bolster panel. (See **Figure 51**).
2. Unbutton all air cells from both right and left bolster panels. (See **Figure 55**).
3. Unbutton all the air cells that are attached to the nylon tabs on the MM hose assembly. (See **Figure 53**).
4. Disconnect all air cells from the manifold by disengaging the Quick Disconnect Air Fittings.



**Figure 63: Separate Quick Disconnect Fittings**



**Figure 64: Disconnected Air Cells**

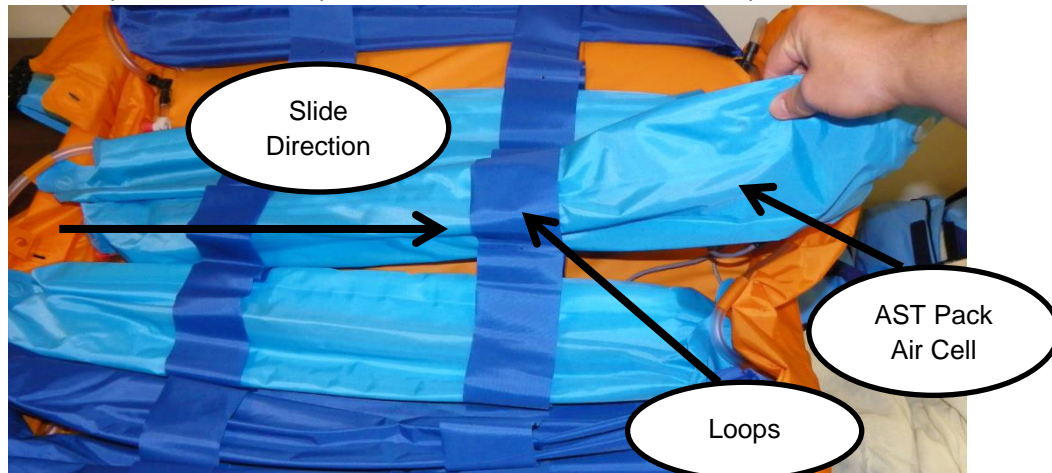
# Mattress Service Procedures

5. Remove the manifold.



**Figure 65: Disconnected Manifold**

6. Slide air cells out of the loops. Non-AST air cells can be pulled out of the loops in either direction.
7. Slide AST air cell pack towards the patient left side of the mattress to separate the air cells from the loops.

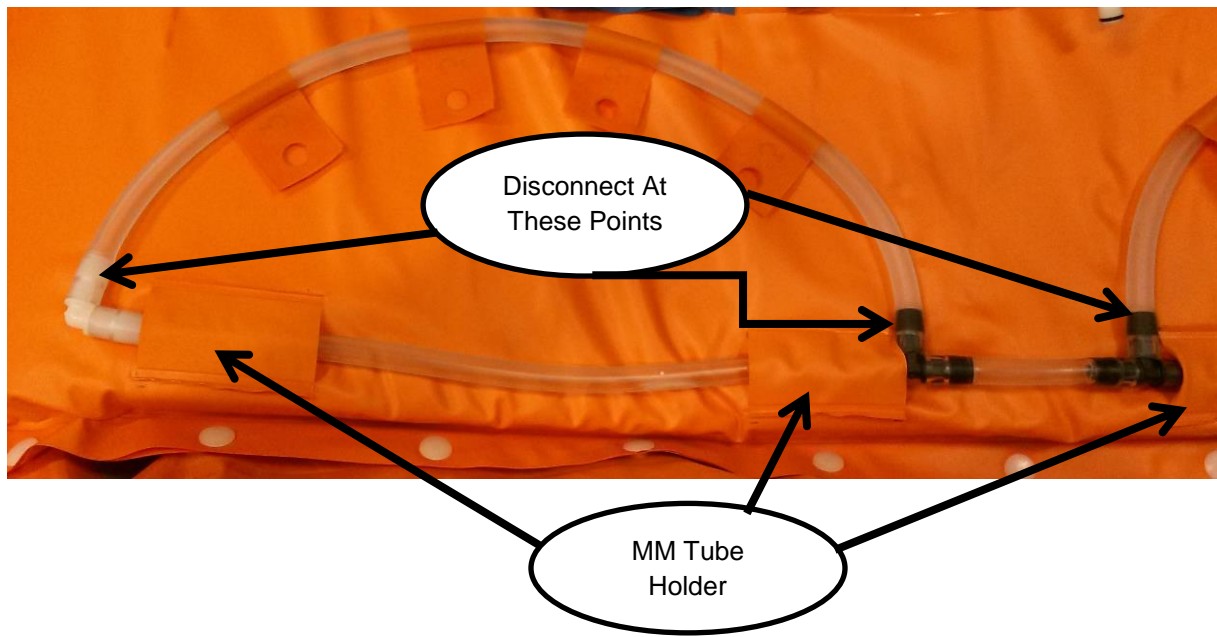


**Figure 66: Disconnected AST Air Cells**

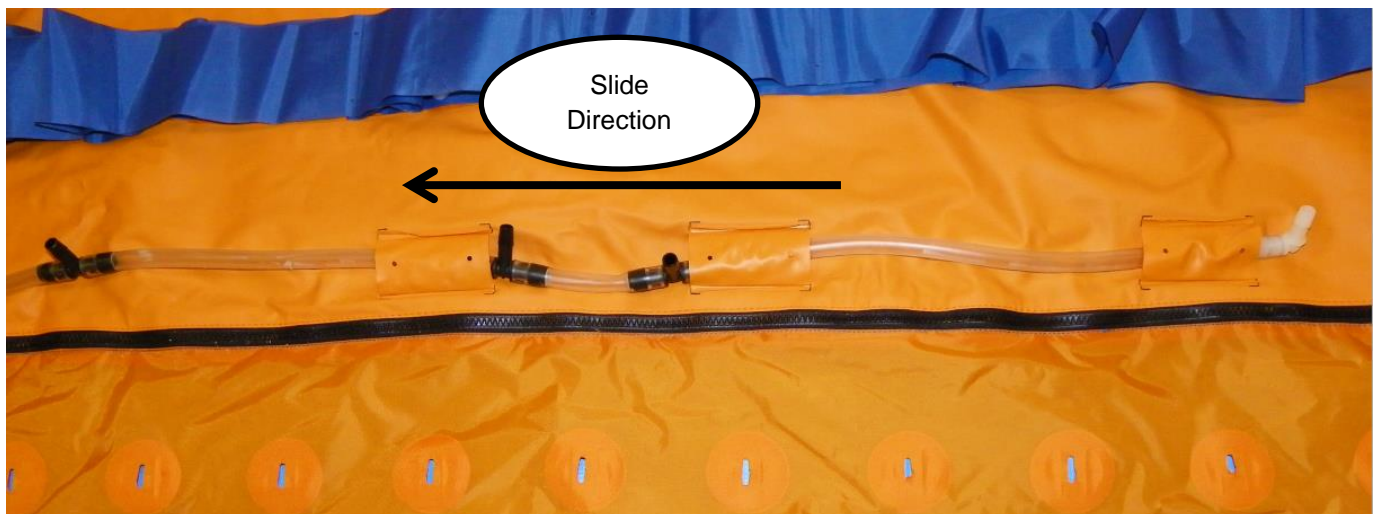
## Mattress Service Procedures

8. Disconnect MM hoses on both side of the mattress at the fittings so that all hoses can be retracted through the hose tabs and removed from the overlay. See **Figure 67** and **Figure 68**.

**IMPORTANT:** Make note of the position and orientation of the vent holes for each hose that is being removed. *Failure to make note of the position and orientation of the vent holes may result in improper installation causing a risk of patient not receiving proper therapy.*



**Figure 67: MM Hose Disconnection**



**Figure 68: MM Hose Removal**

9. Unzip overlay from bolster panel and remove overlay.
10. Discard damaged Overlay Assembly.

# Mattress Service Procedures

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## Installation:

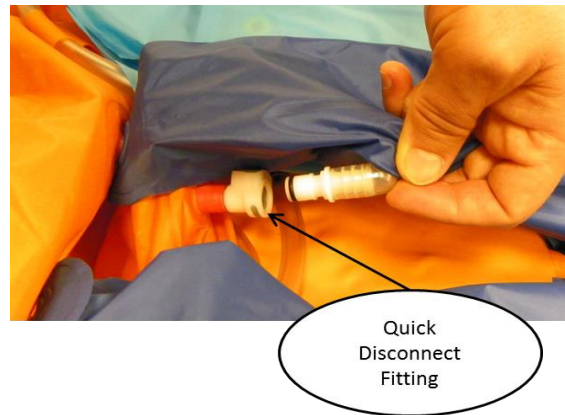
1. Obtain Kit, Overlay Assembly (32": 2940-002-004 or 35": 2940-002-005).
2. Insert replacement overlay and zip to left and right bolster panels.
3. Insert MM Hoses with tabs fully onto fittings (**Figure 76 and Figure 77**). Aim the vent holes towards the center of the mattress with the help of the pliers (**Figure 86**).
4. At the foot of the mattress, reconnect the hose with the green marking to elbow fitting. (**See Figure 74**)
5. Bundle MM Hose Assembly, AST Wire, and Bolster Hose Assembly together at the foot of mattress (**See Figure 87**).
6. Spiral Wrap bundle together at three locations (**See Figure 88, Figure 89 and Figure 90**).
7. Insert all aircells into the loops.
8. Connect aircells to the manifold.
9. Counting from the head of mattress re-insert the buttons of air cells 10, 11, and 12 through MM Hose Tab. (**See Figure 53**)
10. Button all the air cells that are attached to the nylon tabs on the MM hose assembly. (**See Figure 53**)
11. Button all air cells to bolster panels. (**See Figure 55**)
12. Insert bolsters and zip close bolster panels. Ensure bolsters are inside panels.

Refer to **Page 135** for Functional Test procedures.



# Mattress Service Procedures

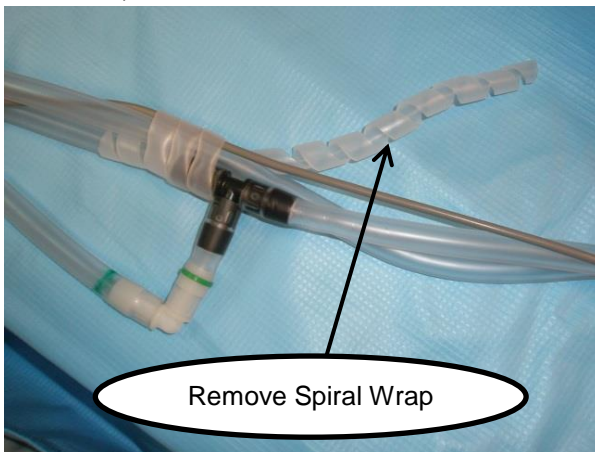
4. Disconnect all air cells from the manifold by disengaging the Quick Disconnect Air Fittings.



Quick  
Disconnect  
Fitting

**Figure 70: Quick Disconnect Fittings**

5. Unwrap the spiral wrap from the 3 locations at the foot of the mattress. (See **Figure 71**, **Figure 72** and **Figure 73**)

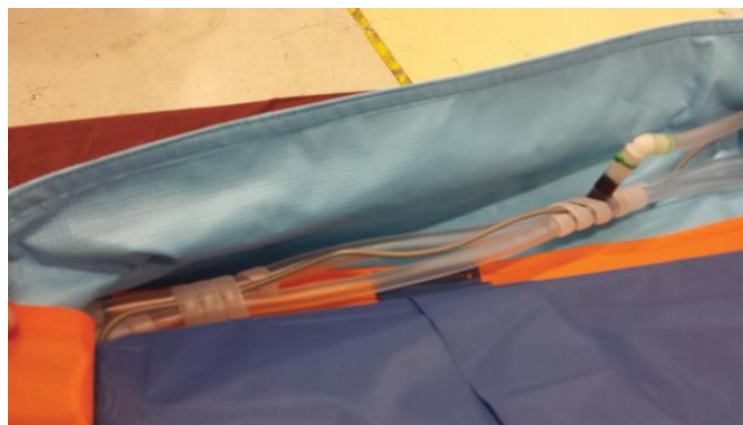


Remove Spiral Wrap

**Figure 71: Spiral Wrap Removal (Center)**



**Figure 72: Spiral Wrap Removal (Patient Right Side)**



**Figure 73: Spiral Wrap Removal (Patient Left Side)**

## Mattress Service Procedures

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6. At the foot of the mattress, disconnect the hose with the green marking from the elbow fitting.



Figure 74: Disconnected MM Hose Assembly



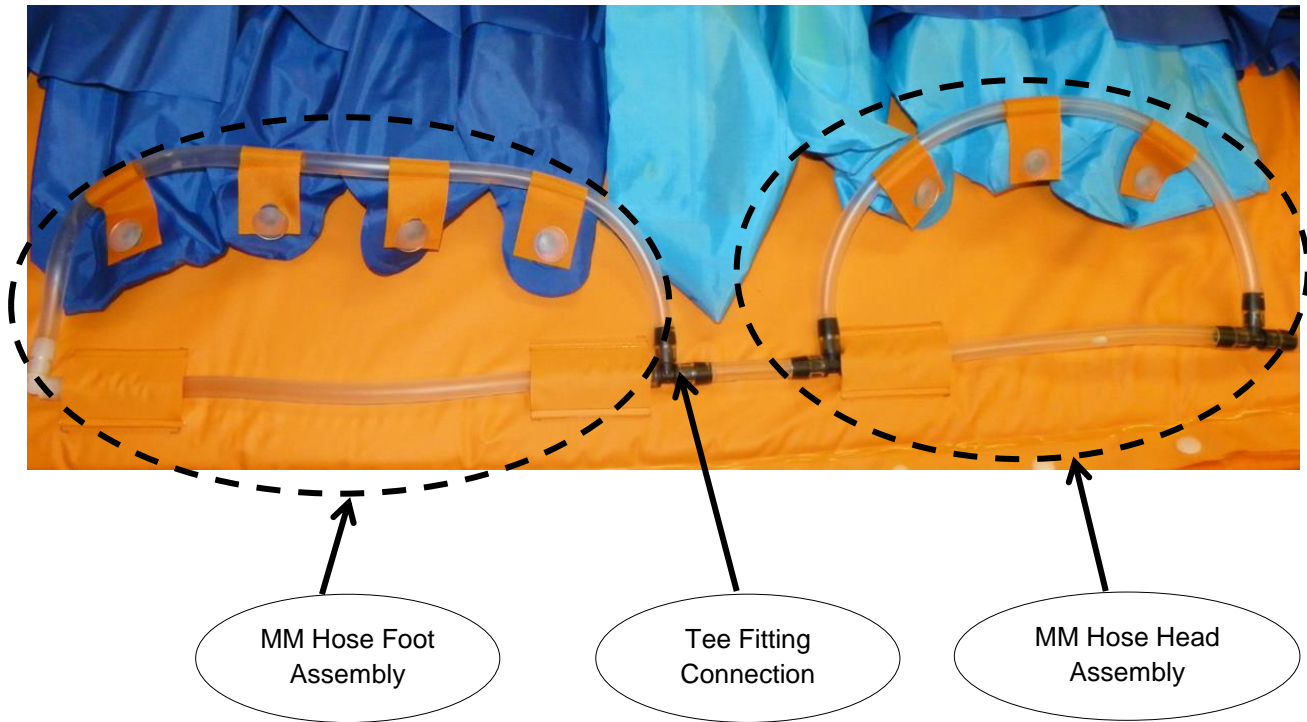
Figure 75: MM Hose Assembly Foot Fitting

**IMPORTANT:** Make note of the position and orientation of the vent holes for each hose that is being removed. *Failure to make note of the position and orientation of the vent holes may result in a risk of patient not receiving proper therapy.*

7. Separate MM Hose Head Assembly from the MM Hose Foot Assembly on both the right and left sides by disconnecting at the Tee Fitting connection. (See Figure 76)



## Mattress Service Procedures



**Figure 76: MM Hose Assembly**

10. Take the right and left MM Hose Foot Assemblies and disconnect the hoses with the nylon tabs from the Tee Fittings. (See **Figure 76** and **Figure 77**)



**Figure 77: MM Hose Assembly Removal**

11. Disconnect MM hoses on both side of the mattress at the fittings so that all hoses can be retracted through the overlay MM Tube Holder and removed from the overlay.

# Mattress Service Procedures



**Figure 78: MM Hose Assembly Removal**

12. Discard damaged MM Hose Assembly.

## Installation:

1. Obtain Kit, MM Hose Assembly (**32"**: 2940-002-006/022 or **35"**: 2940-002-007/023/067).
2. Insert the straight section of the MM Hose Foot Assembly (both sides) through the Overlay MM Tube Holder closest to the foot of the mattress. (**See Figure 79**)



**Figure 79: MM Hose Foot Assembly**

3. Insert the MM Hose Head Connection into the remaining hose tabs and connect with the foot assembly. Both the left and right sides of the MM Hose Assembly should appear as seen in **Figure 81**.



**Figure 80: MM Hose Head Connection**

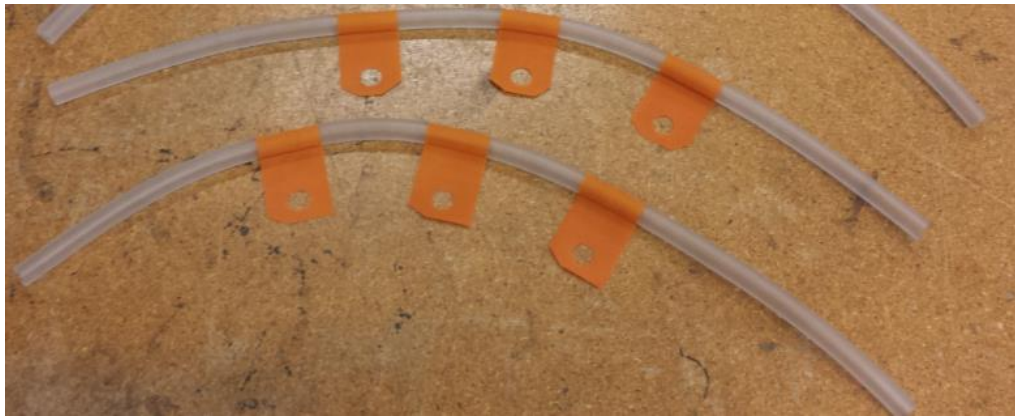
# Mattress Service Procedures

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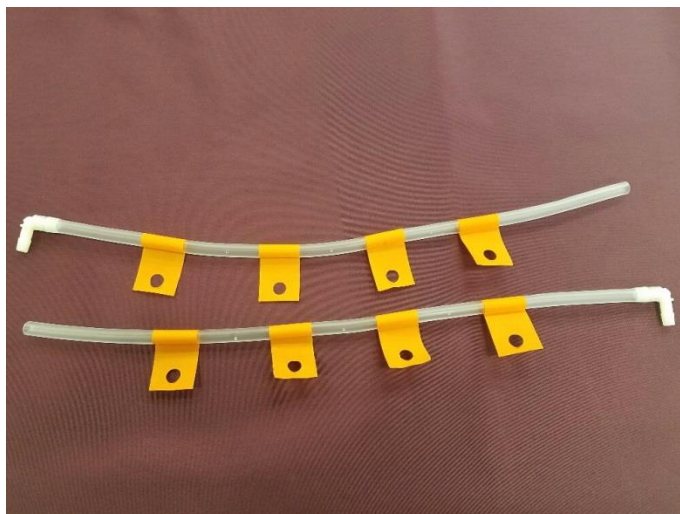


**Figure 81: MM Hose Assembly**

4. Obtain Head Left and Right MM Hoses and Foot Left and Right MM Hoses with tabs from Kit.



**Figure 82: MM Hose with Tabs, Foot Left and Right**

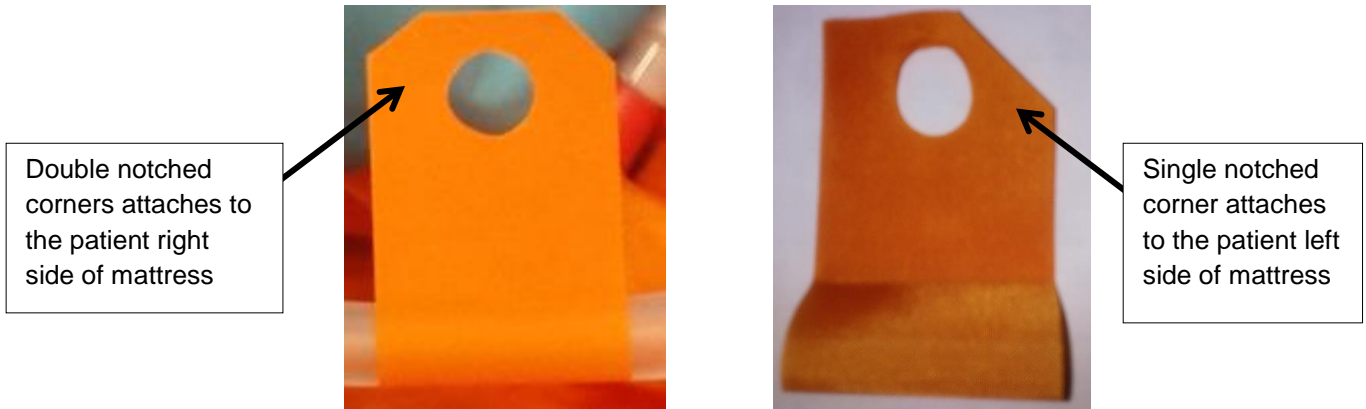


**Figure 83: MM Hose with Tabs, Head Left and Right**

**Note:** Hoses with four (4) Tabs attaches to the fittings located at the Head Section of the mattress. Hoses with three (3) Tabs attaches to the Trunk Section of the mattress.

# Mattress Service Procedures

**FOR 7.7" REPLACEMENT:** MM Hose Tabs have been notched for assembly guidance. Double notched corners are to be attached to the MM Hose Assembly on the patient right side of mattress. Single notched corners are to be attached to the MM Hose Assembly on the patient left side of mattress (**See Figure 84**). Vent holes for left and right MM Hoses with tabs must aim towards the center of mattress. **Failure to position the vent holes may result in a risk of patient not receiving proper therapy.**



**Figure 84: MM Hose Tabs**

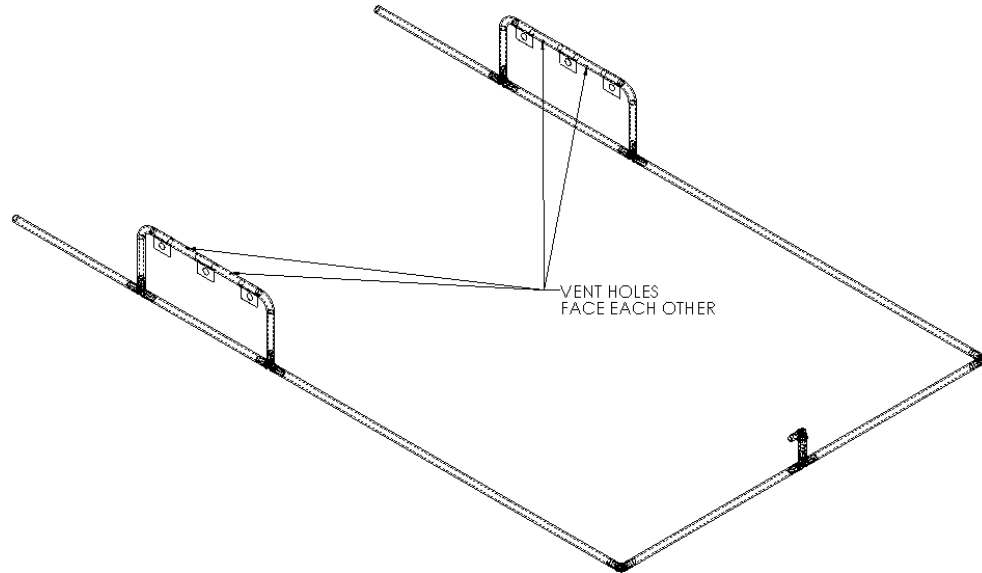
5. Insert MM Hoses with tabs fully onto fittings (**Figure 76 and Figure 77**). Aim the vent holes towards the center of the mattress with the help of the pliers (**Figure 86**).



**Figure 85: MM Hose Assembly**

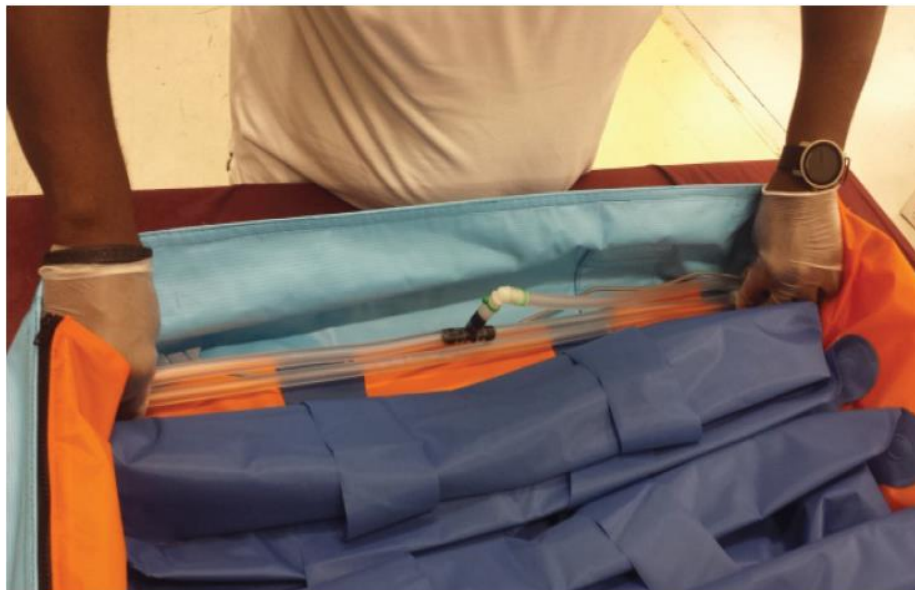
# Mattress Service Procedures

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**Figure 86: MM Hose Vent Orientation**

6. At the foot of the mattress, reconnect the hose with the green marking to elbow fitting. (See Figure 74)
7. Bundle MM Hose Assembly, AST Wire, and Bolster Hose Assembly together at the foot of mattress (See Figure 87).



**Figure 87: Bundle MM, Bolster Hose Assembly, & AST Wire**

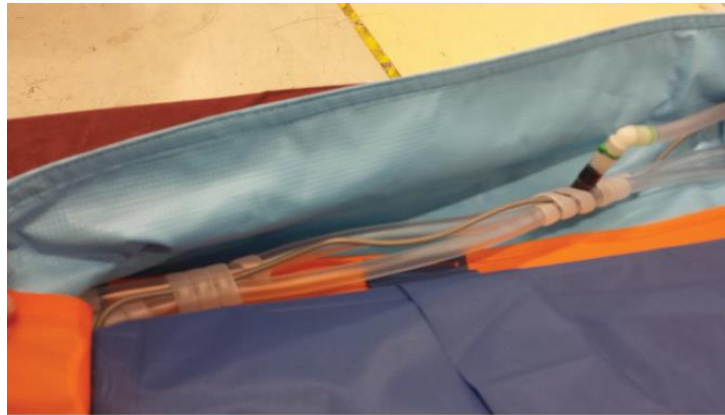
8. Spiral Wrap bundle together at three locations (See Figure 88, Figure 89 and Figure 90).

## Mattress Service Procedures

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**Figure 88: Spiral Wrap Installation (Center)**



**Figure 89: Spiral Wrap Installation (Patient Left Side)**



**Figure 90: Spiral Wrap Installation (Patient Right Side)**

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## Bolster Hose Assembly, 7.7" Replacement

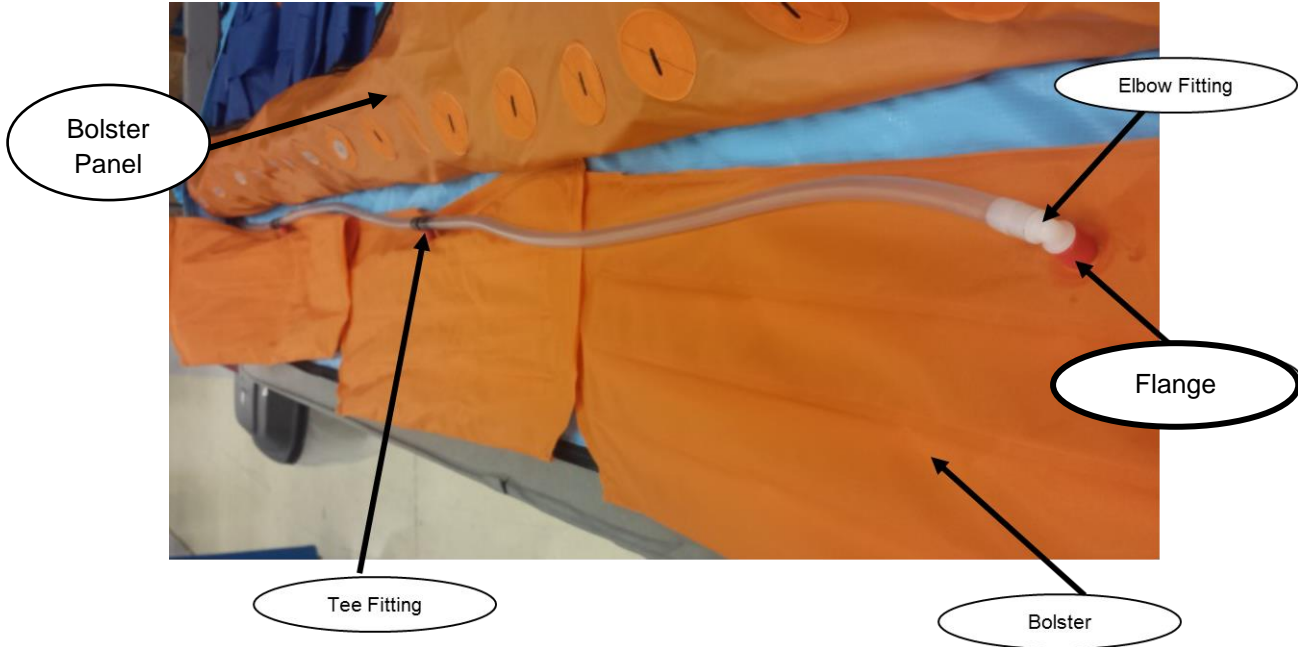
**Repair Kits:** Kit, Bolster Hose 32 X 7.7 (2950-002-008) **OR** Kit, Bolster Hose 35 X 7.7 (2950-002-009)

**Tools:**

- Tie-Wrap cutters (Flush cutters)
- Liquid soap

**Removal:**

1. Unzip left and right bolster panels of the mattress to expose the side bolsters and bolster tubing assembly.



**Figure 91: Bolster Hose Assembly (Connected)**

2. Remove the bolsters from the bolster hoses. Grip the Flange (Bright Orange fitting) with one hand and the Tee (or Elbow Fitting) fitting with the other. Apply the necessary pull force to separate the fittings from the flange. (See Figure 92)

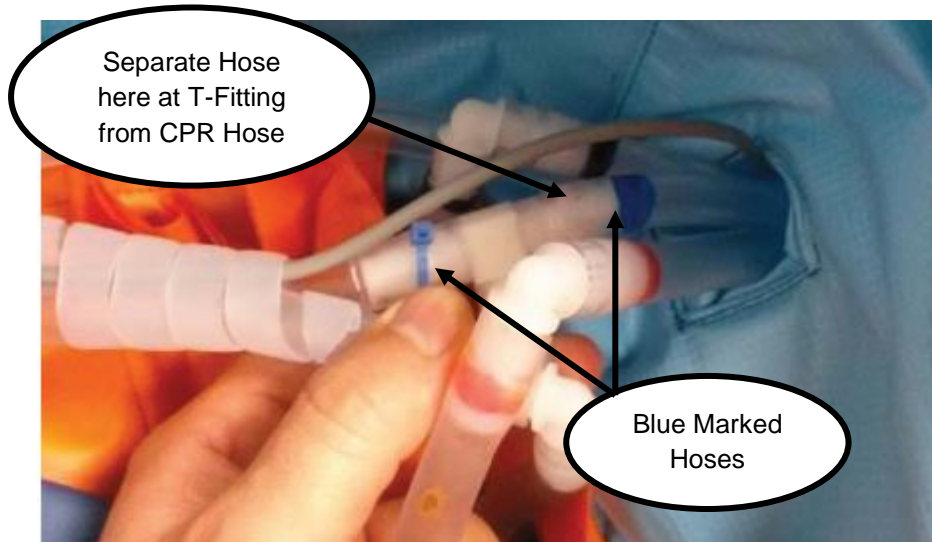


**Figure 92: Removing Bolster Hose from Flange**

**IMPORTANT: DO NOT** use the bolster nylon material for leverage when pulling the fittings out of the flanges. This could permanently damage the bolsters.

## Mattress Service Procedures

- Unwrap the spiral wrap from the 3 locations at the foot of the mattress. (**Figure 88 - Figure 90**).
- At the (patient) right side, foot end of the mattress, where all hoses exit the mattress, identify the blue marked hose line. Separate the T-Fitting from hose that connects to the CPR hose. (**See Figure 93**)

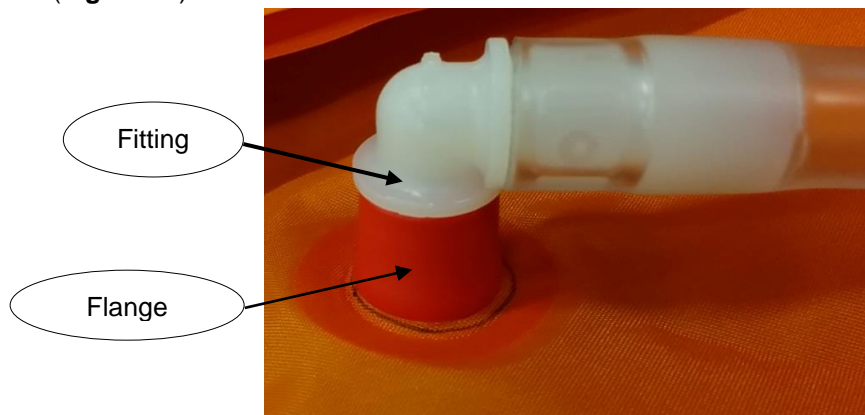


**Figure 93: Removing Hose at T-Fitting**

- Remove the entire hose assembly and discard.

### Installation:

- Obtain Kit, Bolster Hose Assembly (32": 2940-002-008 or 35": 2940-002-009).
- Lay replacement Bolster Hose into mattress with blue marked hose placed at the foot end of mattress next to the CPR Shell opening. (**See Figure 93**)
- Place the Bolster Hose next to unzipped left and right Bolster Panels. (**See Figure 91**)
- Insert Bolster Hose Fitting into Bolster Flange. (**See Figure 91**) Make use of liquid soap as a lubricant as needed when inserting Fittings into Flanges. Ensure all fittings are fully inserted and flush with the Flanges. (**Figure 94**)



**Figure 94: Fitting Flushed Into Flange**

- Align all bolsters end to end and ensure there is no overlap.
- Pull zipper closed on the bolster panel to join with the outer shell.
- Reapply the spiral wrap to the 3 locations at the foot of the mattress. (**Figure 88 - Figure 90**).

Refer to **Page 135** for Functional Test procedures.



# Mattress Service Procedures

## Head Bolster or Foot Bolster, 7.7" Replacement

**Repair Kits:** Kit, Bolster Head 7.7 (2940-002-011) OR Kit, Bolster Foot 7.7 (2940-002-012)

**Tools:**

- Liquid soap

**Removal:**

1. Unzip left and right bolster panels of the mattress to expose the side bolsters and bolster tubing assembly. (See Figure 91).
2. Remove the bolsters from the bolster hoses. Make note of the position of the Bolsters for installation purposes. Grip the Flange (red) with one hand and the T-Fitting or Elbow Fitting with the other. Apply the necessary pull force to separate the fittings from the flange (See Figure 92).

**IMPORTANT: DO NOT** use the bolster nylon material for leverage when pulling the fittings out of the flanges. This could permanently damage the bolsters.



**Figure 95: Bolsters Identified**

3. Remove the damaged bolster and discard.

# Mattress Service Procedures

---

## Installation:

1. Obtain Kit, Bolster Head or Bolster Foot (2940-002-011 or 2940-002-012).
2. Insert replacement Bolster Head or Bolster Foot. (**See Figure 95**)
3. Press fitting (T-Fitting or Elbow Fitting) located on the bolster hose into the flange (red). Use liquid soap to ease this operation. Ensure fitting is fully inserted and flush with the flange. (**See Figure 94**)
4. Zip the left and right Bolster Panels close, encasing the Bolsters.

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## Manifold Kit, 7.7" Replacement

**Repair Kit:** Kit, Manifold 7.7" (2940-002-010)

**Tools:**

- None

**Removal:**

1. Unzip bolster panel on patient right side of mattress to expose bolsters and the underside of the bolster panel (See **Figure 51**).
2. Unbutton all air cells from patient right side bolster panel (See **Figure 55**)
3. Disconnect all air cells from the manifold by disengaging the Quick Disconnect Air Fittings (See **Figure 65**).
4. Disconnect the manifold from the manifold hoses (See **Figure 96**).



**Figure 96: Manifold Hose Connections**

5. Remove the manifold and discard.

**Installation:**

1. Obtain Manifold Kit, 8" (2940-002-010).
2. Place Manifold into the shell adjacent to the patient right side bolster.
3. Connect manifold hoses as shown in **Figure 96**, with red hose on top, black hose on bottom
4. Connect air cells to manifold. (See **Figure 64**).
5. Button air cells to bolster panel. (See **Figure 55**).
6. Zip the bolster panel closed.

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## CPR Assembly Replacement (7.0" or 7.7")

**Repair Kit:** Kit, CPR Assembly (2940-002-017)

**Tools:**

- None

**Removal:**

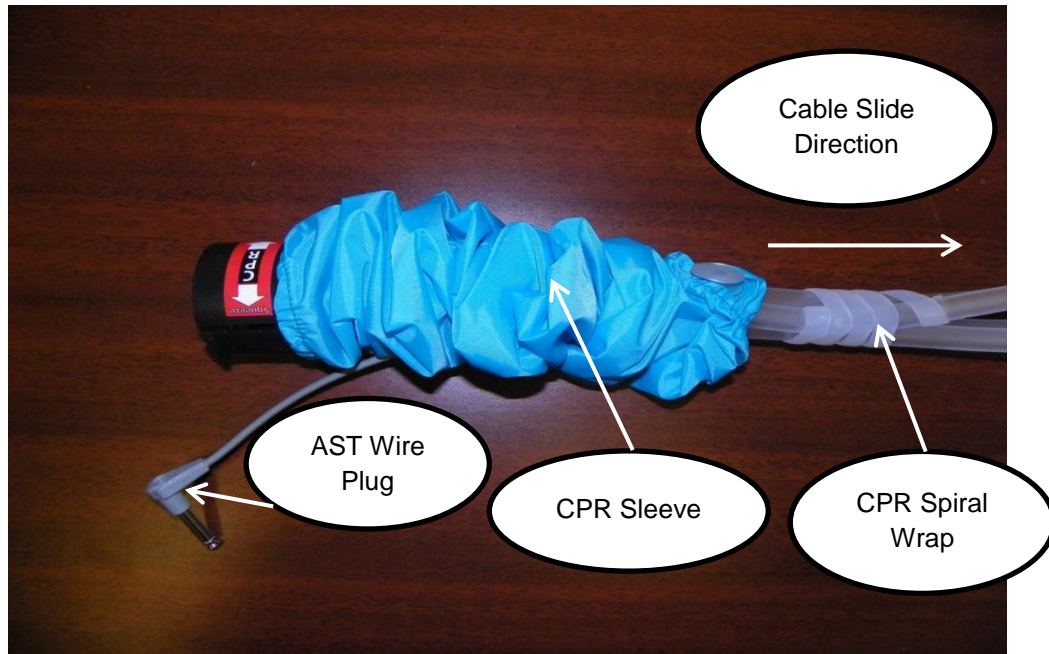
1. Unbutton the CPR sleeve from the shell.



**Figure 97: CPR Sleeve Button**

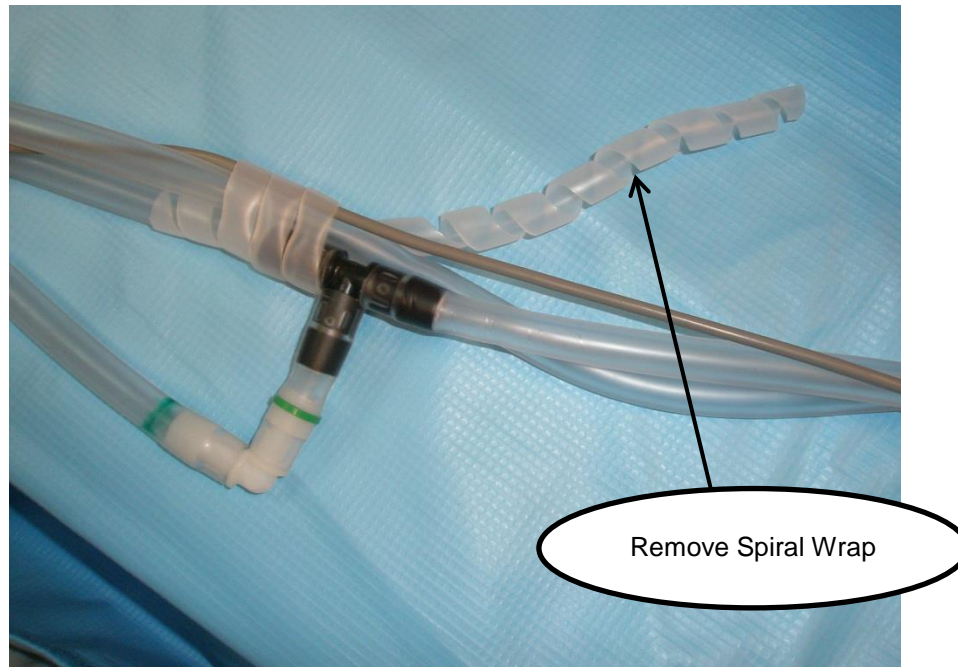
2. Remove the Spiral wrap inside the shell on the patient right side near the CPR opening. (See **Figure 72**).
3. With the CPR sleeve gathered towards the CPR connector, remove the spiral wrap and carefully slide the CPR plug underneath and pull the AST wire until the plug clears the sleeve. At this point, the entire AST cable is free from the CPR assembly. See **Figure 98**.

## Mattress Service Procedures



**Figure 98: CPR Sleeve (Retracted)**

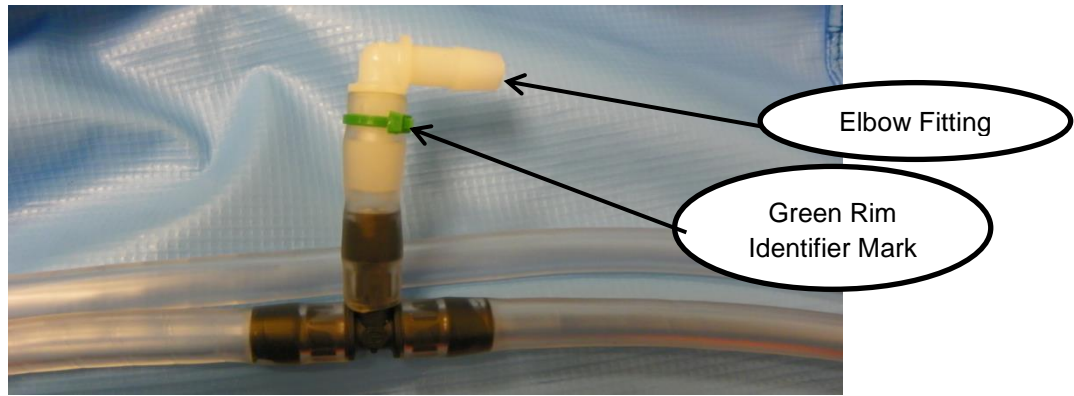
4. Completely remove the sleeve from the damaged CPR Assembly.
5. On the inside of the shell next to the CPR opening, disconnect all of the hoses that route from the CPR assembly.
6. At the foot of the mattress, disconnect the hose with the green marking from the elbow fitting.



**Figure 99: Spiral Wrap Removal**

## Mattress Service Procedures

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**Figure 100: MM Hose Assembly Foot Fitting**

7. Pull CPR Assembly completely out from shell CPR opening and discard.

# Mattress Service Procedures

## Installation:

1. Obtain CPR Assembly Kit (2940-002-017).
2. Slide sleeve onto the replacement CPR Assembly.
3. Insert all 4 hoses from the CPR sleeve assembly through the square opening in the shell. (See Figure 101)

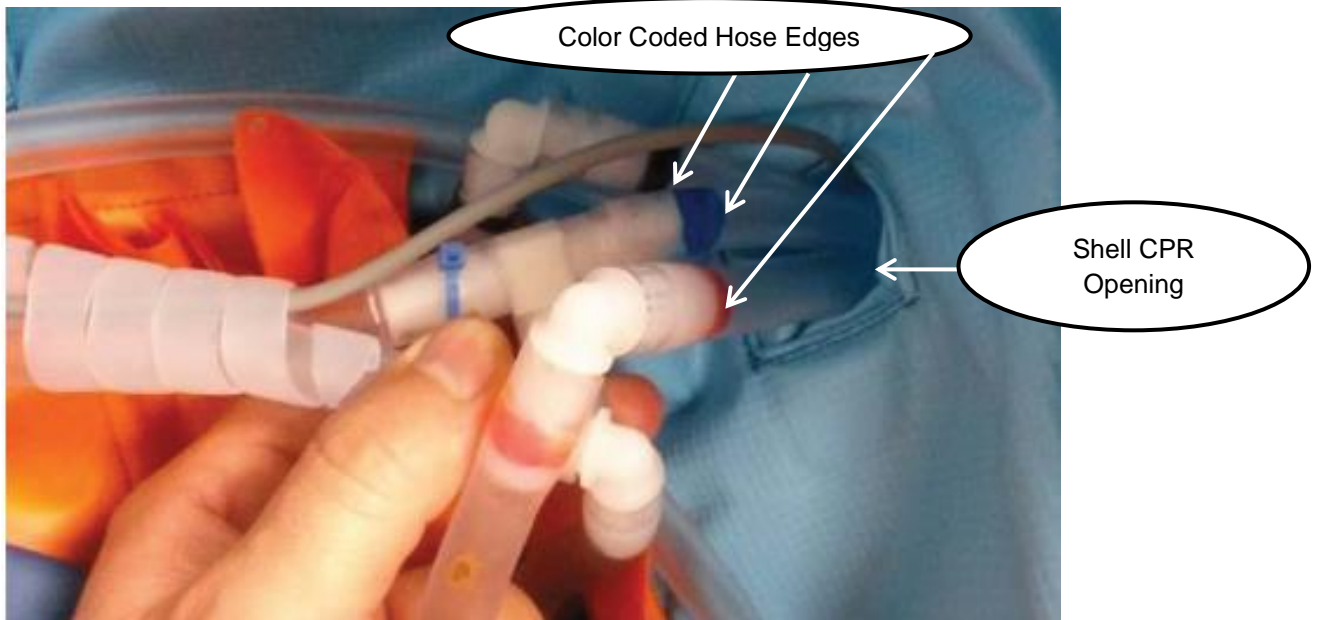
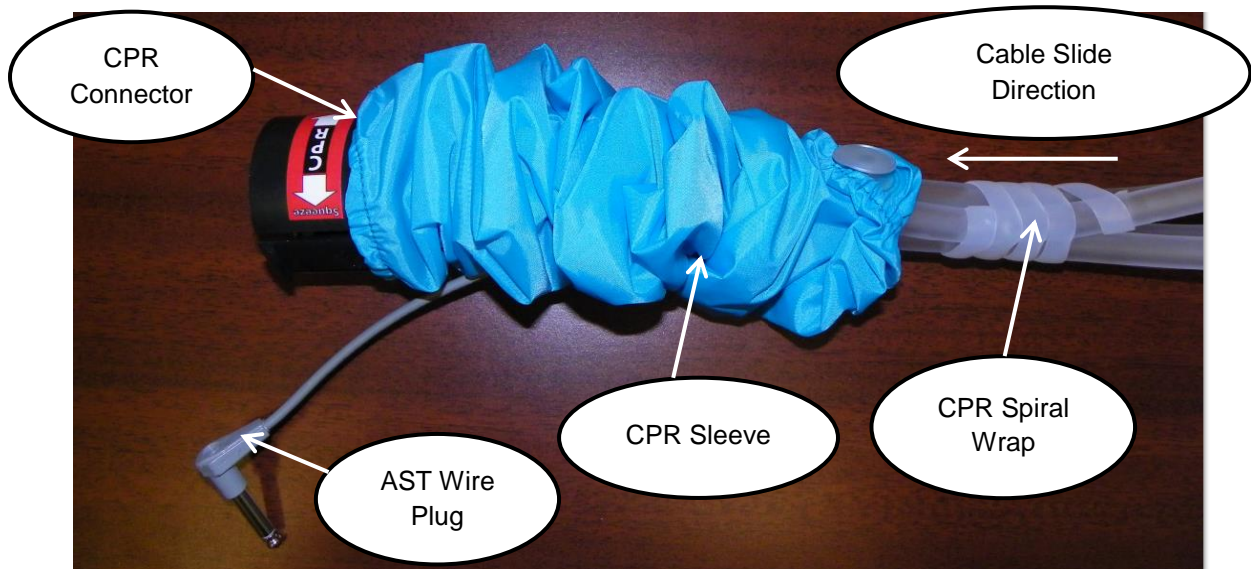


Figure 101: CPR Hoses

4. Connect all 4 hoses from the CPR sleeve assembly to the correct fittings based on color coding on both hoses and fittings. (See Figure 101)
5. Reapply the spiral wrap at the 3 locations at the foot of the mattress. (See Figure 71, Figure 72 and Figure 73)
6. Insert AST plug through the square cut out in the shell at the right foot side of the mattress.
7. Run the plug underneath the CPR sleeve and through the slit in the sleeve.
8. Secure the wire with spiral wrap (See Figure 102).

**IMPORTANT:** Ensure only 9-10 inches of AST cable is exposed when the installation is complete. This length can be controlled by the use of the spiral wrap throughout the length of the AST plug cable. Spiral wrap segments are used to lock the AST cable to the adjacent clear tubes. ***Failure to follow these instructions may result in risk of strangulation.***

## Mattress Service Procedures



**Figure 102: CPR Connector**

9. Pull sleeve to cover the exposed hoses of CPR Assembly and button to Shell. (See **Figure 97**)

Refer to **Page 135** for Functional Test procedures.



# Mattress Service Procedures

## Manifold Hose Assembly Replacement (7.0" & 7.7")

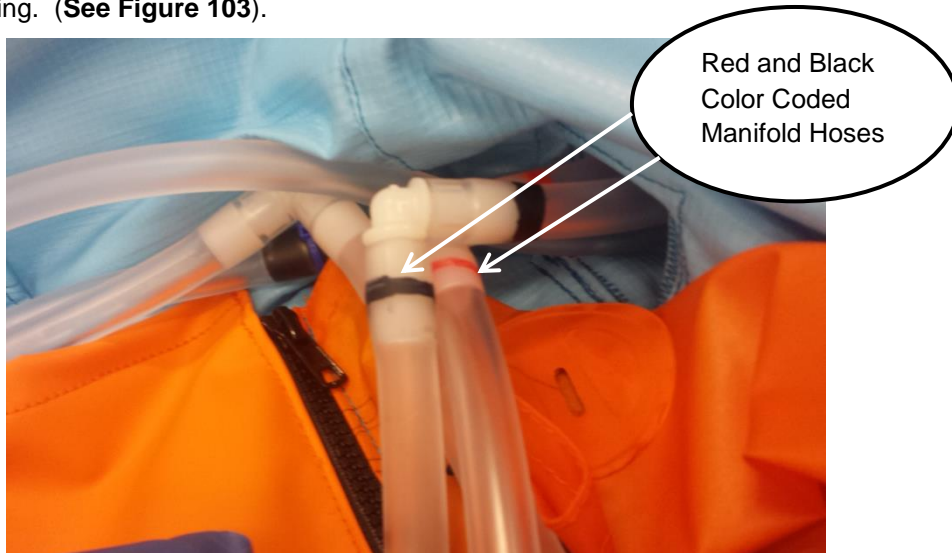
**Repair Kit:** Kit, Manifold Hose Assembly (2940-002-018)

**Tools:**

- None

**Removal:**

1. **FOR 7.7" ONLY:** Unzip the Bolster Panel (Patient Right) to access the Bolster Panel from underneath.
2. Unbutton all aircells on the patient right side of the mattress and use the Quick Disconnect fittings to separate aircells from the Manifold.
3. Disconnect the Red and Black color coded hoses from the corresponding fittings located inside the shell by the CPR opening. (See Figure 103).



**Figure 103: Manifold Hoses**

4. Disengage Quick Disconnect fittings to separate the two manifold hoses from the Manifold.



**Figure 104: Manifold Quick Disconnect Fitting (84")**

## Mattress Service Procedures

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**Figure 105: Manifold Quick Disconnect Fitting (80")**

5. Remove the damaged Manifold Hose Assembly and discard.

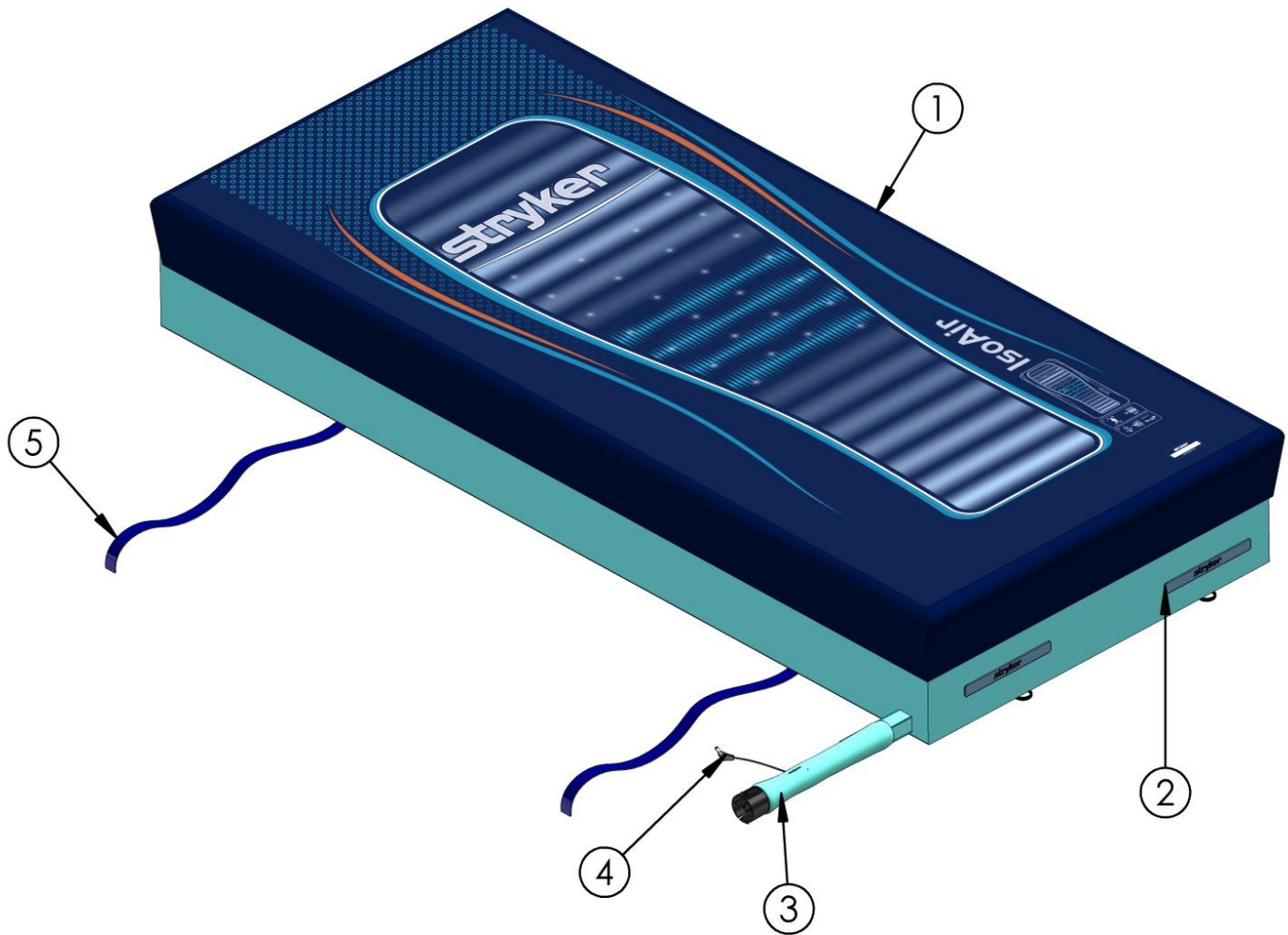
**Installation:**

1. Obtain Kit Manifold Hose Assembly (2940-002-018).
2. Connect the replacement Red and Black color coded hoses to the corresponding fittings located inside the shell by the CPR opening. (**See Figure 103**)
3. Connect the replacement Red and Black color coded hoses to the Manifold as shown in **Figure 104** (for 84" mattress) or as shown in **Figure 105** (for 80" mattress).
4. Engage the Quick Disconnect fittings to attach each aircell to the Manifold
5. Button aircells to Bolster Panel. (**See Figure 55**)
6. Zip Bolster Panel closed. (**See Figure 51**)


Refer **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## IsoAir 7.0" Mattress

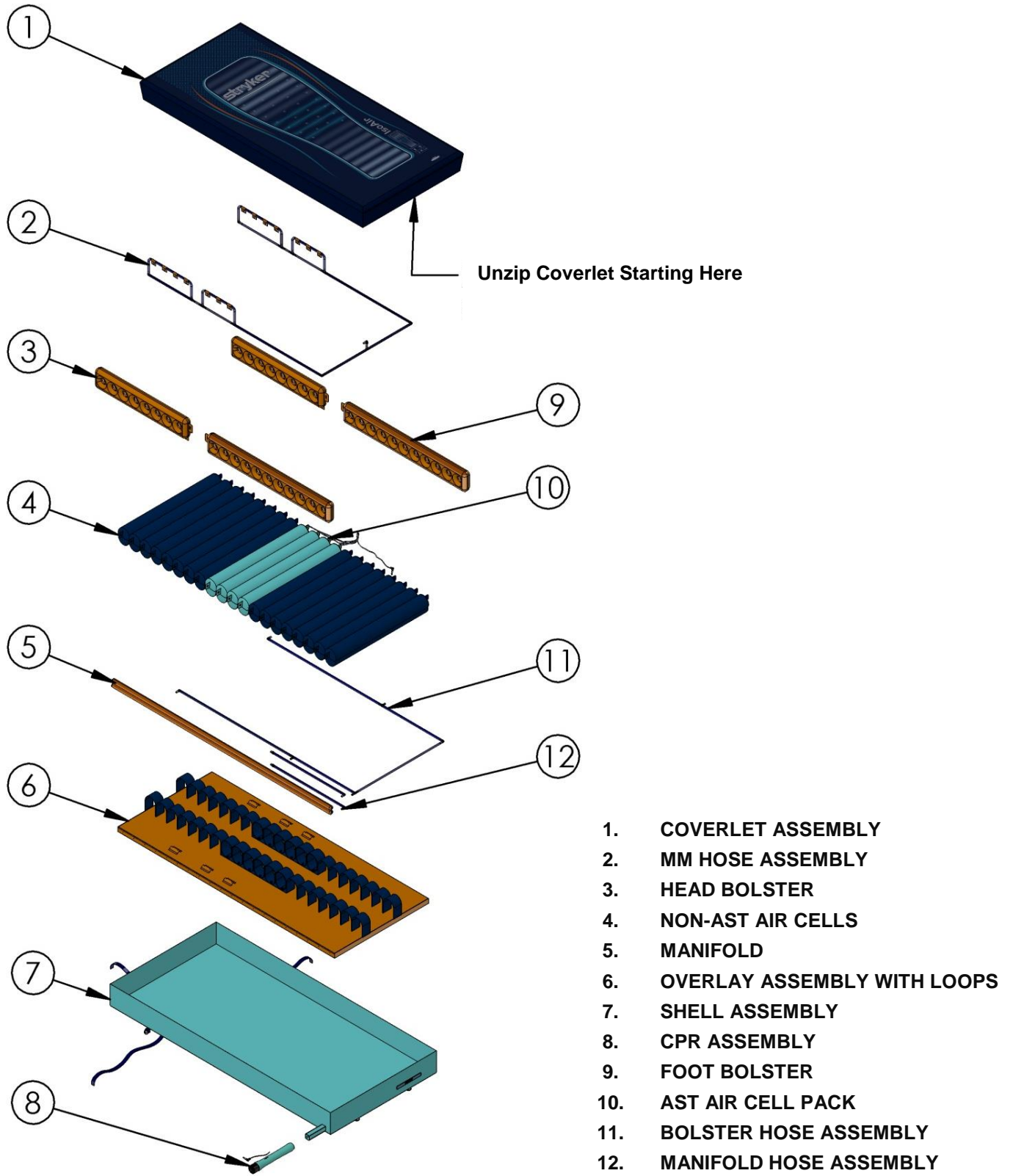


- 1 COVERLET
- 2 STRAP HANDLES (FOOT END SHOWN)
- 3 CPR CONNECTOR
- 4 AST CABLE
- 5 TIE DOWN STRAPS

 The Mattress includes straps at the bottom center (not shown) that are intended for storage use. Do not use these to tie the Mattress to the bedframe. May result in equipment damage.

# Mattress Service Procedures

## IsoAir 7.0" Mattress Exploded View



# Mattress Service Procedures

## Non-AST Air Cell, 7.0" Replacement

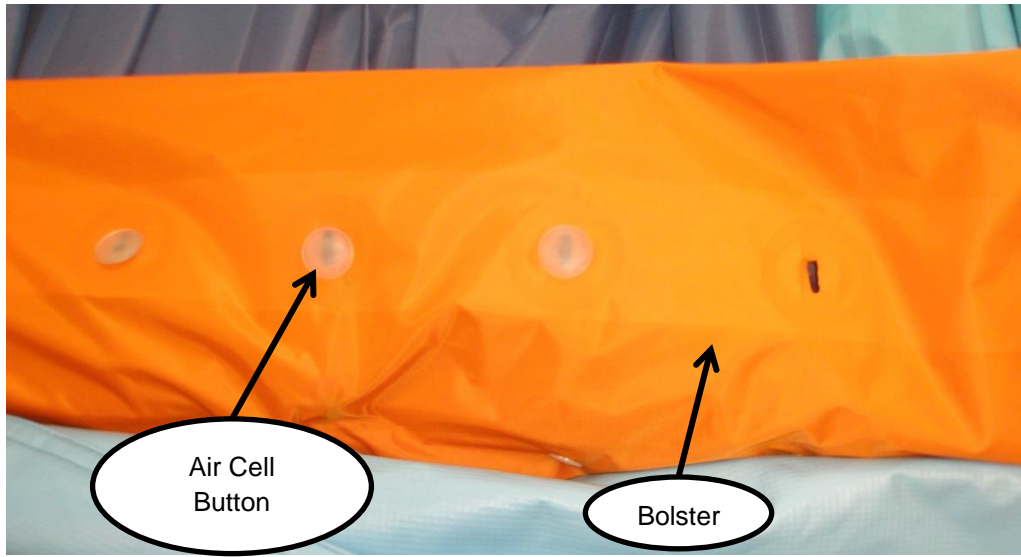
**Repair Kit:** Non-AST Air Cell 32 X 7.0 (2940-002-032) OR Non-AST Air Cell 35 X 7.0 (2940-002-033)

**Tools:**

- None

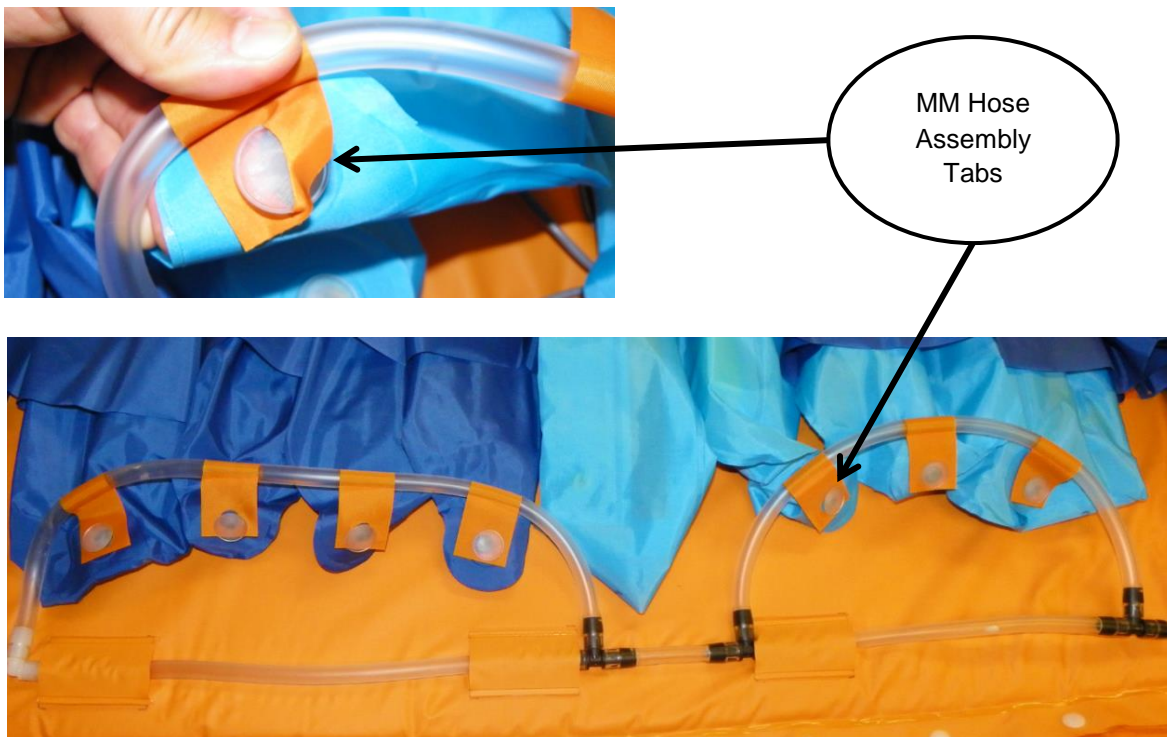
**Removal:**

1. Unbutton the air cell from both right and left bolsters.



**Figure 106: Air Cell Buttons**

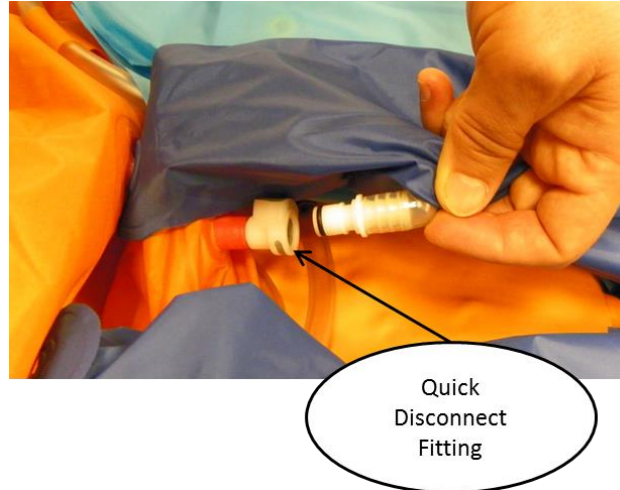
**Note:** Some air cells are connected directly to the MM hose assembly. In these cases, disconnect the air cell buttons from the nylon tabs on the MM hose assembly.



**Figure 107: Removing Air Cell from MM Tabs**

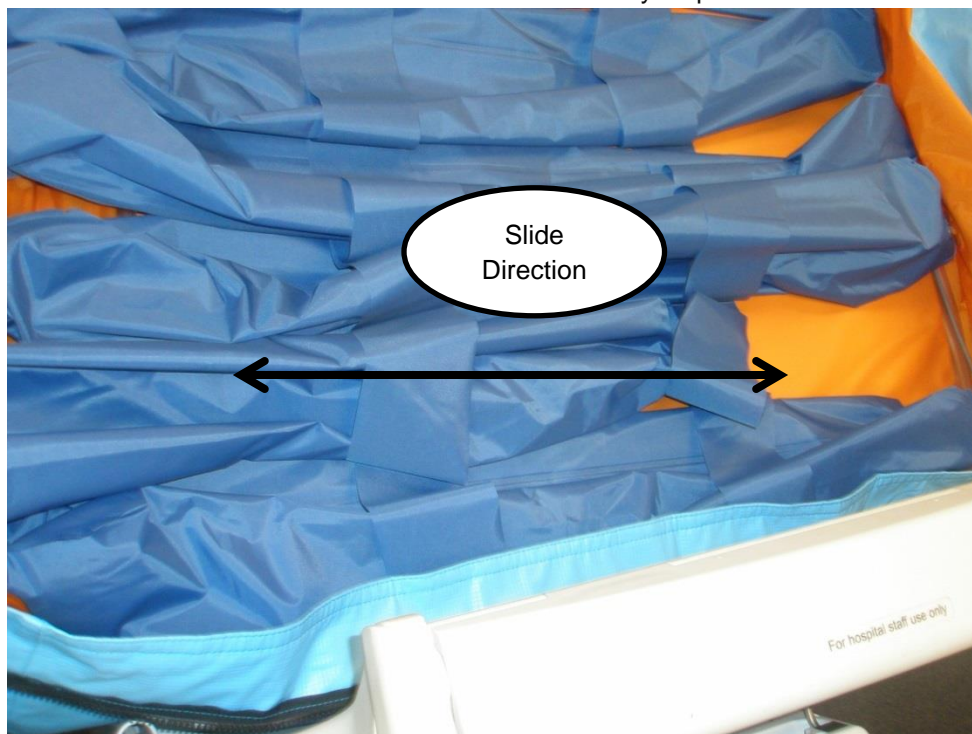
## Mattress Service Procedures

2. Disconnect the air cell from the manifold by disengaging the Quick Disconnect Air Fitting.



**Figure 108: Air Cell-Manifold Quick Disconnect Fittings**

3. Slide Non-AST air cell to either side to remove from the overlay loops.



**Figure 109: Non-AST Air Cell Removal**

### Installation:

1. Obtain Kit, Non-AST Air Cell (2940-002-032 or 2940-002-033)
2. Insert replacement air cell into the loops.
3. Button air cell through the MM Hose Tabs (if applicable).
4. Connect to Manifold with Quick Disconnect fitting.
5. Button replacement air cells to Bolster.

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

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## AST Air Cell Pack, 7.0" Replacement

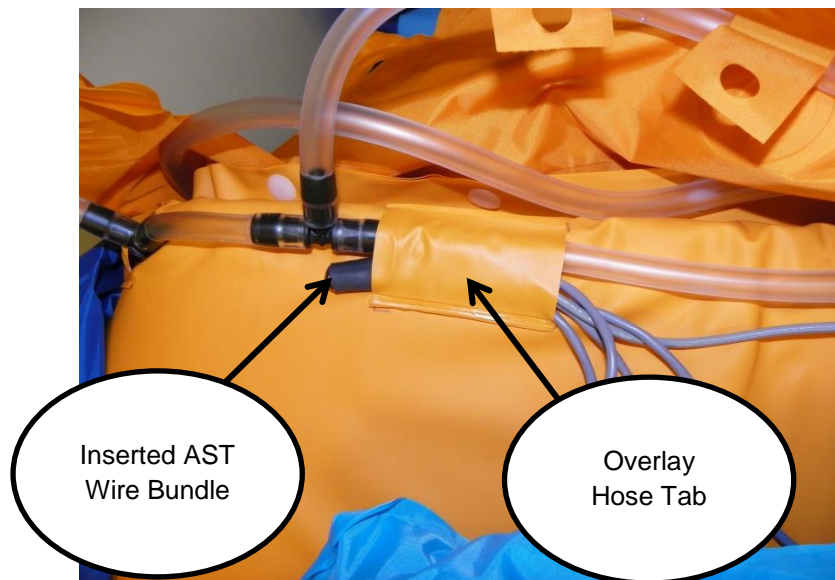
**Repair Kit:** Kit, AST Air Cell Pack 32 X 7.0 (2940-002-030) **OR** Kit, AST Air Cell Pack 35 X 7.0 (2940-002-031)

**Tools:**

- None

**Removal:**

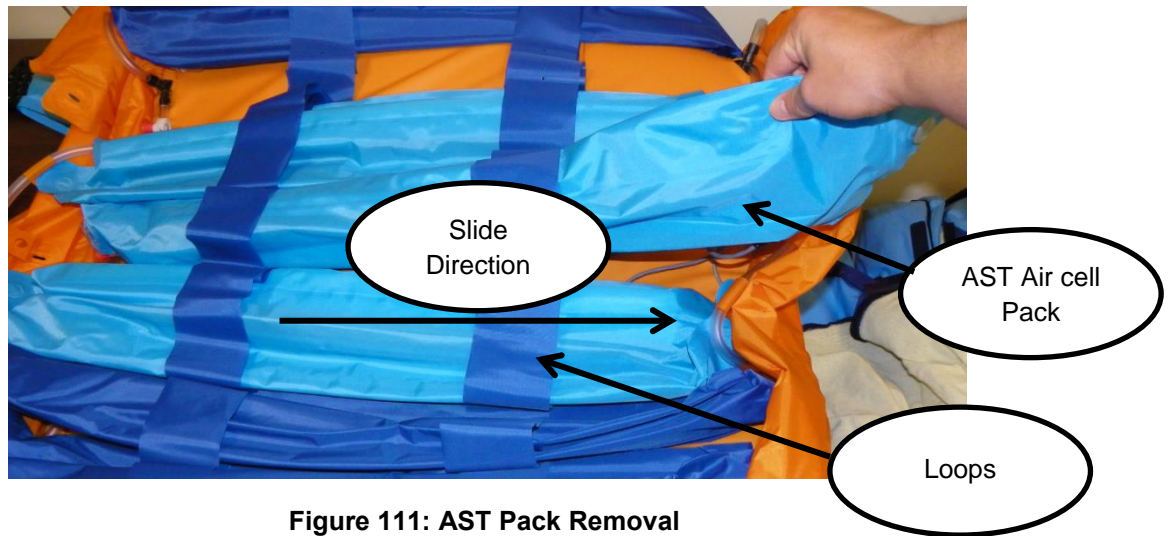
1. Unbutton all AST air cells from both right and left bolsters (Head and Foot) and from the MM hose tabs (See Figure 106 and Figure 107).
2. Disconnect the AST air cells from the Manifold by disengaging the Quick Disconnect Air Fittings. (See Figure 108).
3. Remove the AST wire bundle from the Overlay Hose Tab.



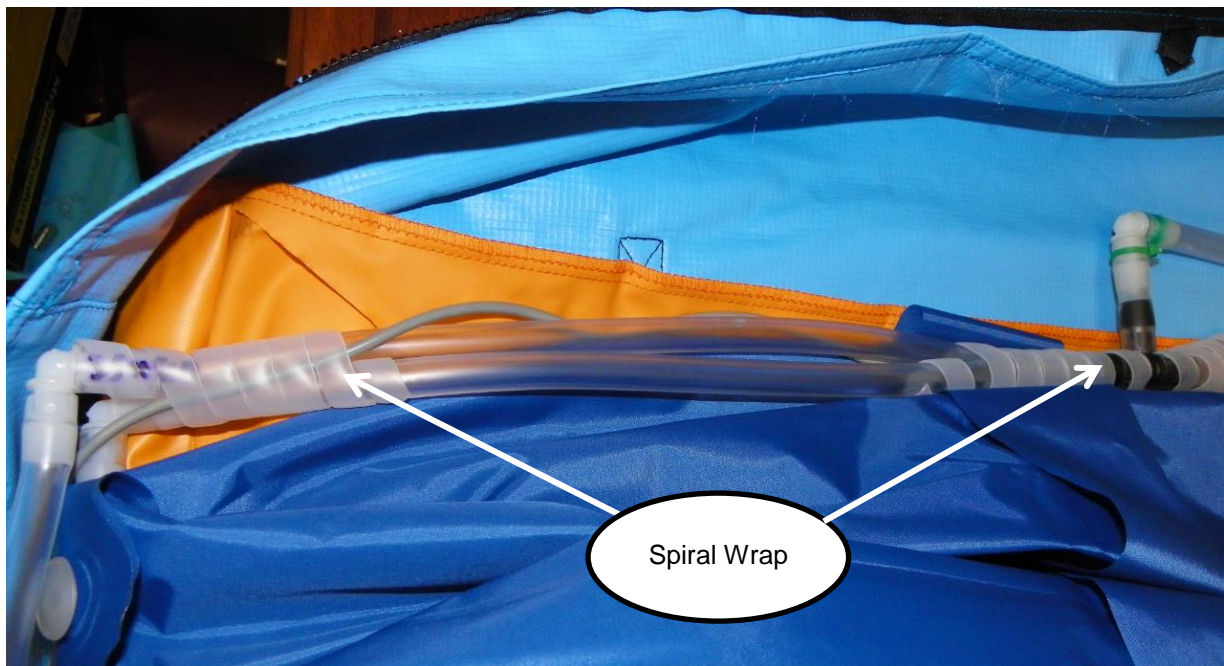
**Figure 110: AST Wire Bundle**

# Mattress Service Procedures

- Slide AST air cell pack through loop away from manifold toward the wire side of the air cells.



- Remove the spiral wrap along the length of the AST wire. See **Figure 112**, **Figure 113** and **Figure 114**.





# Mattress Service Procedures



Figure 113: Hose Spiral Wrap (Located at Patient Right Foot Side of Mattress)

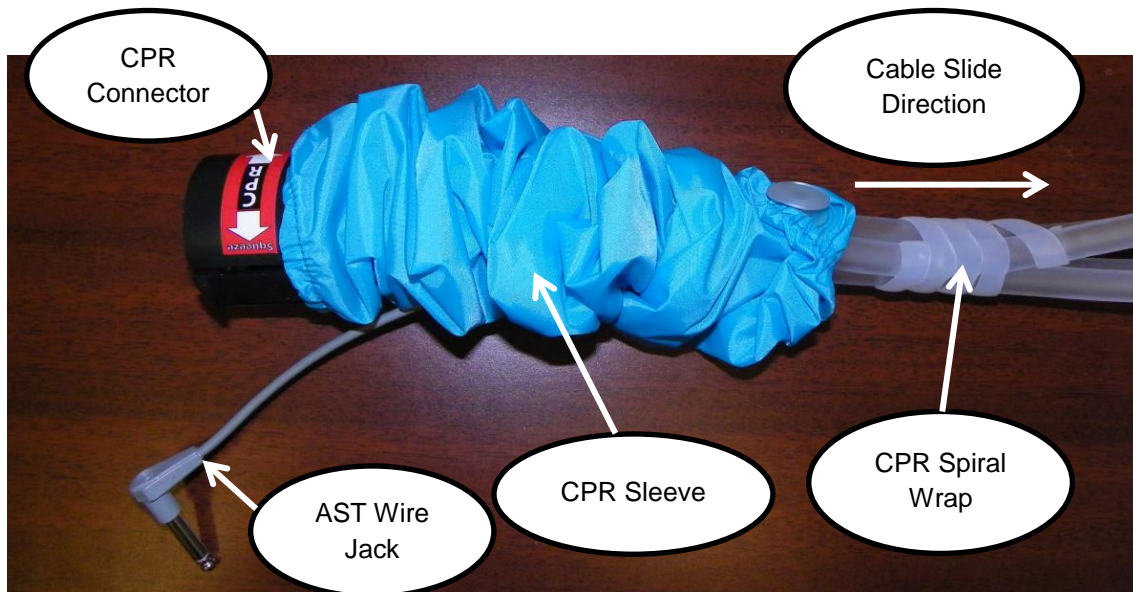


Figure 114: CPR Sleeve (Retracted)

## Mattress Service Procedures

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6. With the CPR sleeve gathered towards the CPR connector remove spiral wrap and carefully pull the AST Wire Plug underneath it. Push AST Wire Plug through the CPR Sleeve slot opening and pull wire until the plug clears the sleeve. At this point, the entire AST pack assembly is free from the mattress.



**Figure 115: Removing AST Wire Plug from CPR Sleeve**

7. Discard damaged AST Air Cell Pack.

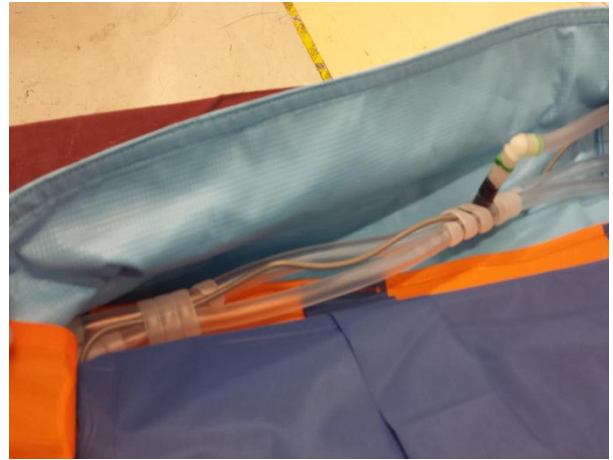
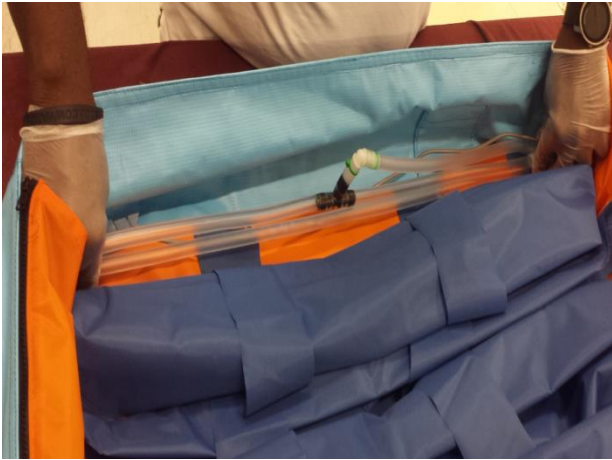
# Mattress Service Procedures

## Installation:

1. Obtain Kit, AST Air Cell Pack (32": 2940-002-030 or 35": 2940-002-031):
2. Slide all four replacement air cells into the loops with Quick Disconnect side towards manifold.
3. Slide the AST wire bundle into the Overlay Hose Tab. **See Figure 110.**
4. Connect the air cells to the manifold. See **Figure 108.**
5. Counting from the head of mattress re-insert air cell 10,11, and 12 button through MM Hose Tab.  
**See Figure 107.**

Button air cells to both left and right bolsters. (See **Figure 106** and **Figure 107**).

6. Guide the AST wire along the (patient) left side and foot of the mattress and secure the MM hoses with spiral wrap. **See Figure 112, Figure 113, Figure 114** and .



**Figure 116: AST WIRE ROUTING**

7. Insert AST plug through the square cut out in the shell at the right foot side of the mattress.
8. Run the plug underneath the CPR sleeve and secure the wire with spiral wrap (**Figure 114**).



**Figure 117: CPR Sleeve**

**IMPORTANT:** Ensure only 9-10 inches of AST cable is exposed when the installation is complete. This length can be controlled by the use of the spiral wrap throughout the length of the AST plug cable. Spiral wrap segments are used to lock the AST cable to the adjacent clear tubes. **Failure to follow these instructions may result in risk of strangulation.** See **Figure 117.**

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

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## Bolster (Foot or Head), 7.0” Replacement

**Repair Kit:** Kit, Bolster Head 7.0 (2940-002-028) OR Kit, Bolster Foot 7.0 (2940-002-029)

**Tools:**

- Tie-Wrap cutters (Flush cutters) or Side Cutters
- Liquid soap

**Removal:**

1. Unbutton ALL the air cells attached to the bolster being replaced (Head or Foot).



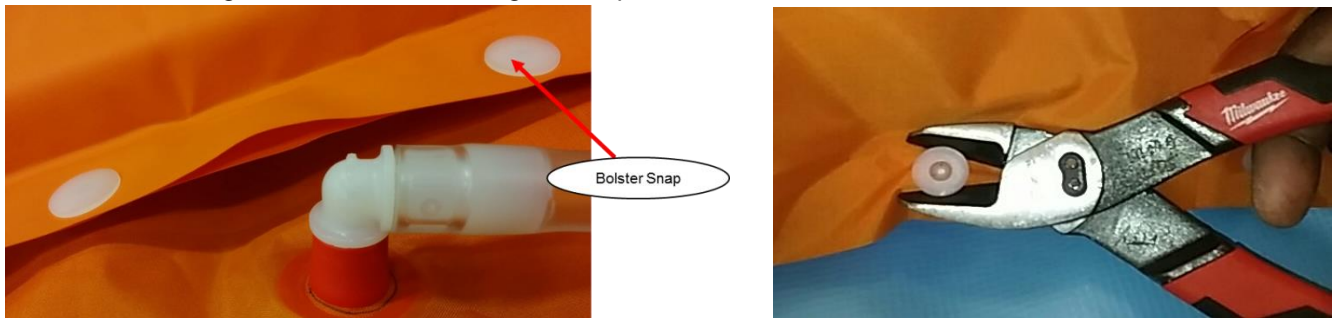
**Figure 118: Air Cell Buttons**

# Mattress Service Procedures



**Figure 119: Head and Foot Bolsters**

2. Use cutters to remove all plastic snaps from the bolster being removed. (See Figure 120). Take extra care not to damage the fabric while cutting the snaps.



**Figure 120: Cutting Bolster Snaps**

3. Once all bolster snaps are removed, detach the bolster from the bolster hose. Grip the Flange (Figure 121) with one hand and the Tee (or Elbow Fitting) fitting with the other. Apply the necessary pull force to separate the fittings from the flanges. **DO NOT** use the bolster nylon material for leverage when pulling the fittings out of the flanges. This could permanently damage the bolsters.



**Figure 121: Detach Bolster Hose from Bolster Flange.**

# Mattress Service Procedures

## Installation:

1. Obtain Kit, Bolster (Head: 2940-002-028, Foot: 2940-002-029):
2. Obtain Snap Rivets from Kit.

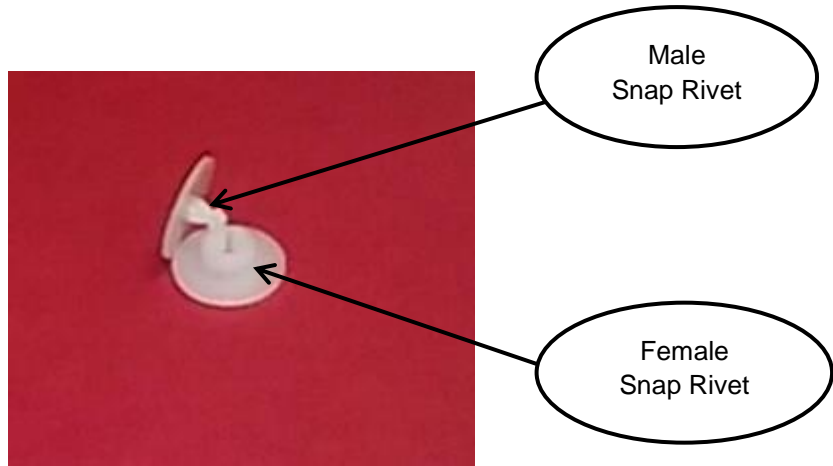


Figure 122: Snap Rivets

**IMPORTANT:** When aligning holes for snap placement for the Head Bolster you must start with the second hole on the Bolster to align properly onto overlay. (See Figure 123)



Figure 123: Attaching Bolsters to Overlay

3. Insert Male Rivet into overlay (Figure 124).



Figure 124: Insert Male Snap Rivet

# Mattress Service Procedures

4. Insert Female Rivet into replacement Head or Foot Bolster (**Figure 125**).



**Figure 125: Insert Female Snap Rivet**

5. Place replacement Bolster (Head or Foot) underneath Overlay flap aligning Snap Rivets. Snap Male and Female Rivets together securing Bolster to Overlay (**See Figure 126**).



**Figure 126: Attaching Bolster to Overlay**

6. Press fitting (T-Fitting or Elbow Fitting) located on the bolster hose into the flange (red). Use liquid soap to ease this operation. . Ensure fitting is fully inserted and flush with the flange.



**Figure 127: Fitting Inserted Into Flange**

7. Button air cells to bolsters. (**See Figure 118**).

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## Bolster Hose Assembly, 7.0" Replacement

**Repair Kits:** Kit, Bolster Hose 32 X 80 X 7.0 (2940-002-026) OR  
Kit, Bolster Hose 35 X 80 X 7.0 (2940-002-027) OR  
Kit, Bolster Hose 35 X 84 X 7.0 (2940-002-003)

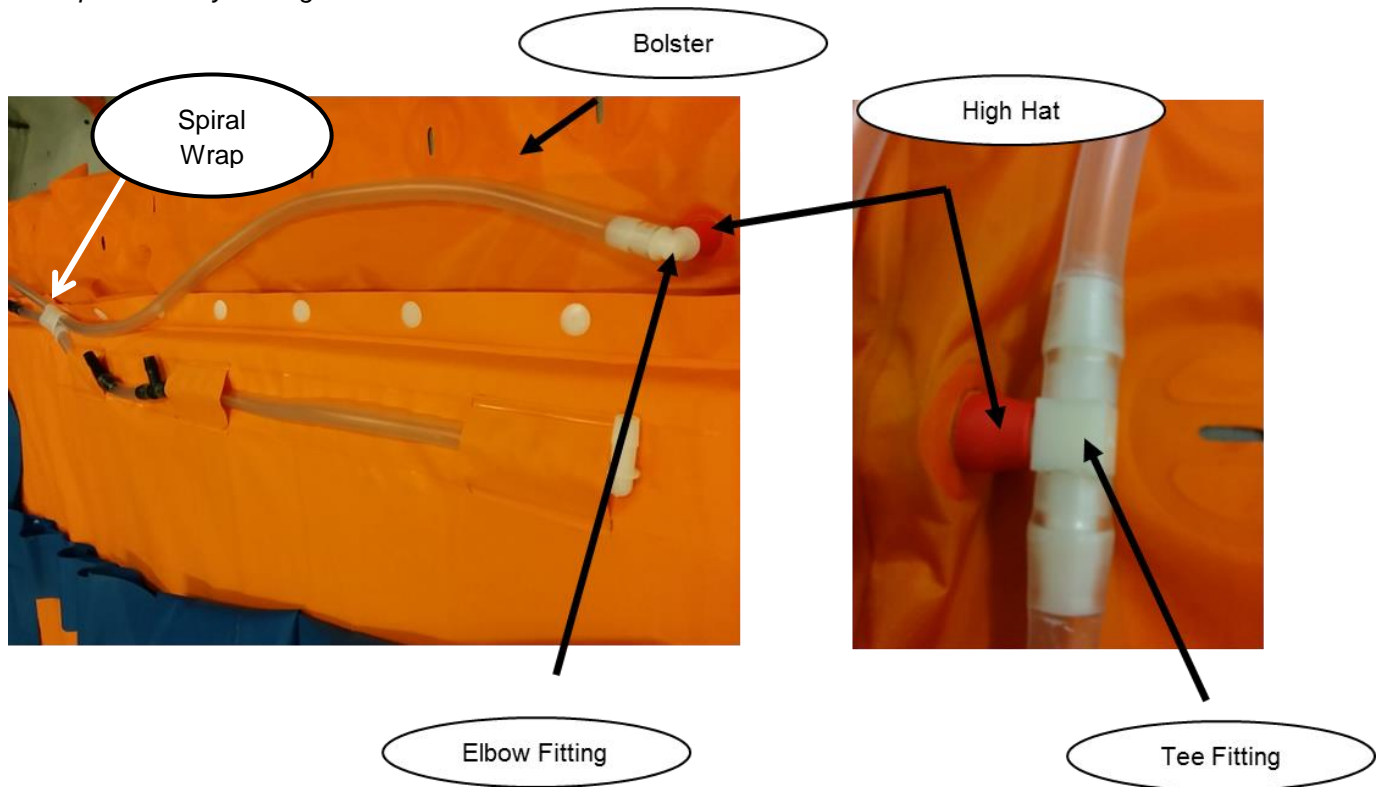
**Tools:**

- Tie-Wrap cutters (Flush Cutters)
- Liquid soap

**Removal:**

1. Unbutton **ALL** the air cells from all four bolsters. (See Figure 118).
2. Remove the bolsters from the bolster hoses (See Figure 121). Grip the Flange with one hand and the Tee (or Elbow Fitting) fitting with the other. Apply the necessary pull force to separate the fittings from the flanges.

**IMPORTANT: DO NOT** use the Bolster nylon material for leverage when pulling the fittings out of the flanges. This could permanently damage the bolsters.



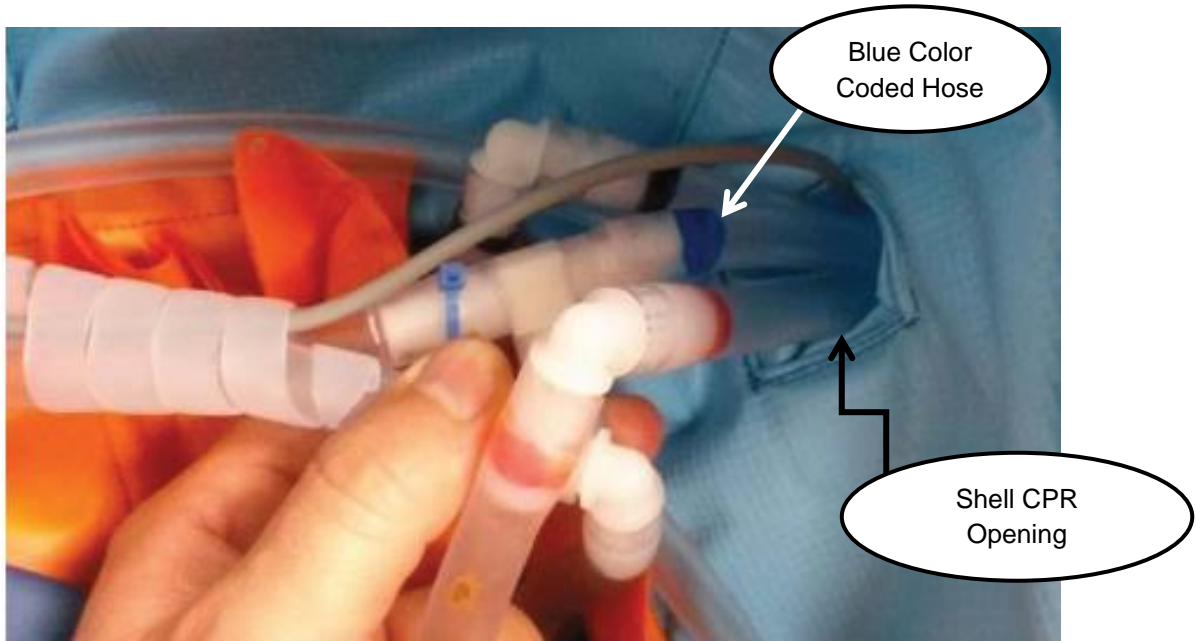
**Figure 128: Bolster Hose**

3. Remove the spiral wrap along the Bolster Hose and at the foot of the mattress. (See Figure 112 and Figure 128).



# Mattress Service Procedures

4. Disconnect the Blue color coded hose from the CPR side of the Tee fitting located inside the shell by the CPR opening.



**Figure 129: Disconnect Bolster Hose from CPR Assembly**

5. Remove the entire Bolster Hose Assembly and discard.

## Installation:

1. Obtain Kit, Bolster Hose Assembly:  
(32X80": 2940-002-026 OR 35X80": 2940-002-027 OR 35X84": 2940-002-003)
2. Place replacement Bolster Hose Assembly into the shell.
3. Connect to Blue Color Coded Hose on the CPR Assembly. See **Figure 129**.
4. Attach spiral wrap to secure bolster hose to adjacent hoses. See **Figure 128 & Figure 130**.



**Figure 130: Bundle Hoses and Spiral Wrap**

5. Press fitting (T-Fitting or Elbow Fitting) located on the bolster hose into the flange (red). Use liquid soap to ease this operation. Ensure fitting is fully inserted and flush with the flange. (See **Figure 127**).
6. Button air cells to bolsters. (See **Figure 118**).

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## Manifold Kit, 7.0" Replacement

**Repair Kit:** Kit, Manifold 80 X 7.0" (2940-002-024) OR Kit, Manifold 84 X 7.0" (2940-002-025)

**Tools:**

- None

**Removal:**

1. Unbutton all air cells from both right and left bolsters (Head and Foot) and from the MM hose tabs (See Figure 106 and Figure 107).
2. Disconnect all air cells from the Manifold by disengaging the Quick Disconnect Air Fittings. (See Figure 108).
6. Disengage Quick Disconnect fittings to separate the two manifold hoses from the Manifold. (See Figure 131 or Figure 132)



**Figure 131: Manifold Quick Disconnect Fitting (84")**

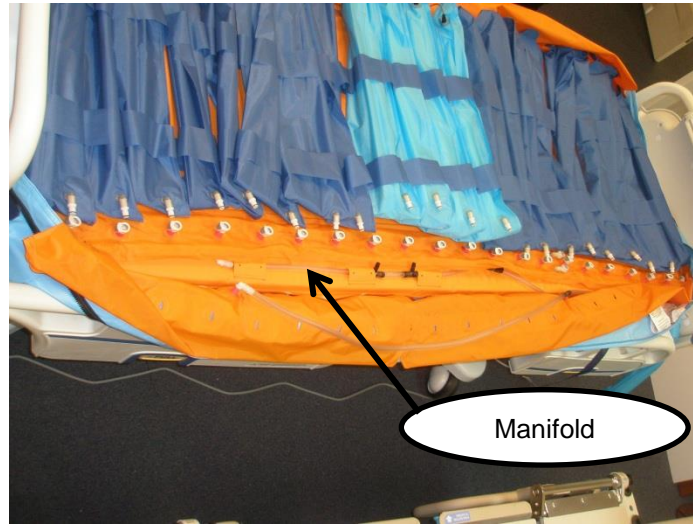


**Figure 132: Manifold Quick Disconnect Fitting (80")**

# Mattress Service Procedures

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7. Remove the damaged Manifold Hose Assembly and discard.



**Figure 133: Disconnected Manifold**

# Mattress Service Procedures

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## Installation:

1. Obtain Kit, Manifold (80": 2940-002-024 or 84": 2940-002-025)
2. Place Manifold into the shell adjacent to patient right side bolster. **See Figure 133.**
3. Connect the replacement Red and Black color coded hoses to the Manifold as shown in **Figure 131** (for 84" mattress) or as shown in **Figure 132** (for 80" mattress).
4. Connect all air cells to manifold. **See Figure 108.**
5. Button all air cells to both right and left bolsters (Head and Foot) and the MM hose tabs.  
**See Figure 106 & Figure 107.**

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

## Overlay Assembly, 7.0" Replacement

**Repair Kit:** Kit, Overlay Assy 32 X 80 X 7 (2940-002-019) OR  
Kit, Overlay Assy 35 X 80 X 7 (2940-002-020) OR  
Kit, Overlay Assy 35 X 84 X 7 (2940-002-021)

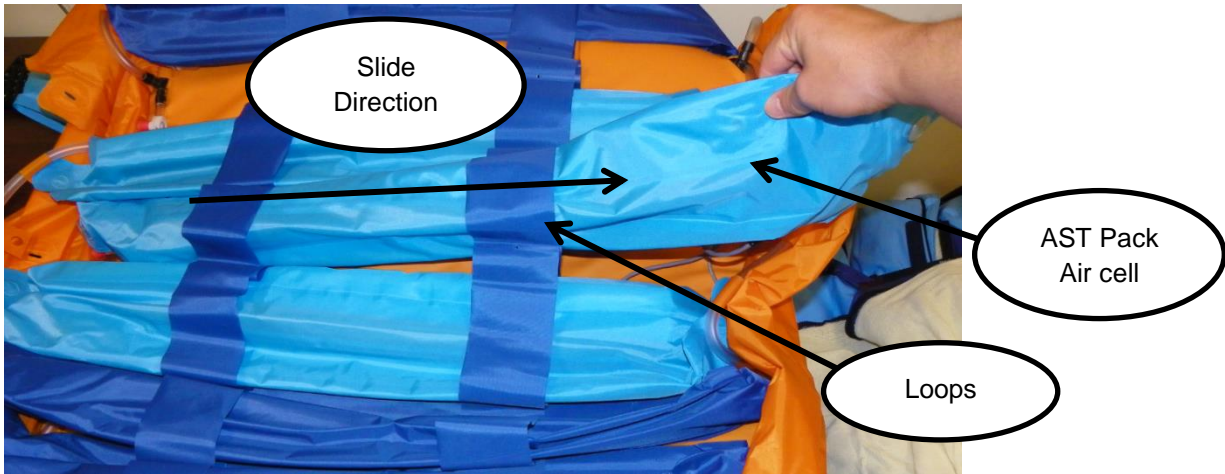
**Tools:**

- Pliers with protective jaw covers
- Liquid soap (Lubricant)

**Removal:**

1. Unbutton ALL air cells from both the right and left bolsters. (See **Figure 118**).
2. Follow the removal process for both Non-AST and AST air cells, and remove all air cells. It is not necessary to remove the AST wire from the CPR sleeve. Set the AST cell bundle aside.

**Note:** Slide AST air cell pack towards the patient left side of the mattress so that air cells clear the loops. (See **Figure 134: Removal of AST Air Cells**).



**Figure 134: Removal of AST Air Cells**

3. Follow the removal procedures for Bolsters and remove all bolsters. Do not remove the bolster hose assembly. Leave the bolster hoses along the side walls within the shell assembly.
4. Remove the manifold, but leave the manifold hose assembly along the side walls within the shell assembly.
5. Disconnect MM hoses on both side of the mattress at the elbows so that all hoses can be retracted through the hose tabs and removed from the overlay. Make note of the position and orientation of the vent holes for each hose that is being removed. (See **Figure 135** and **Figure 136**). Remove only the fittings shown. It is not necessary to remove the entire hose assembly.

## Mattress Service Procedures

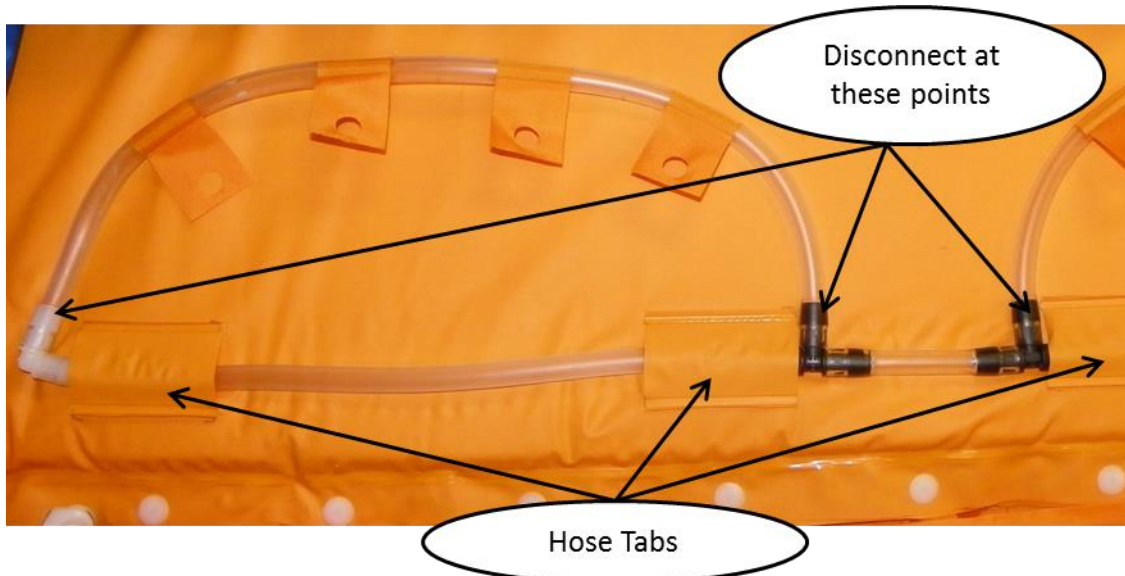


Figure 135: MM Hose Overlay Tabs

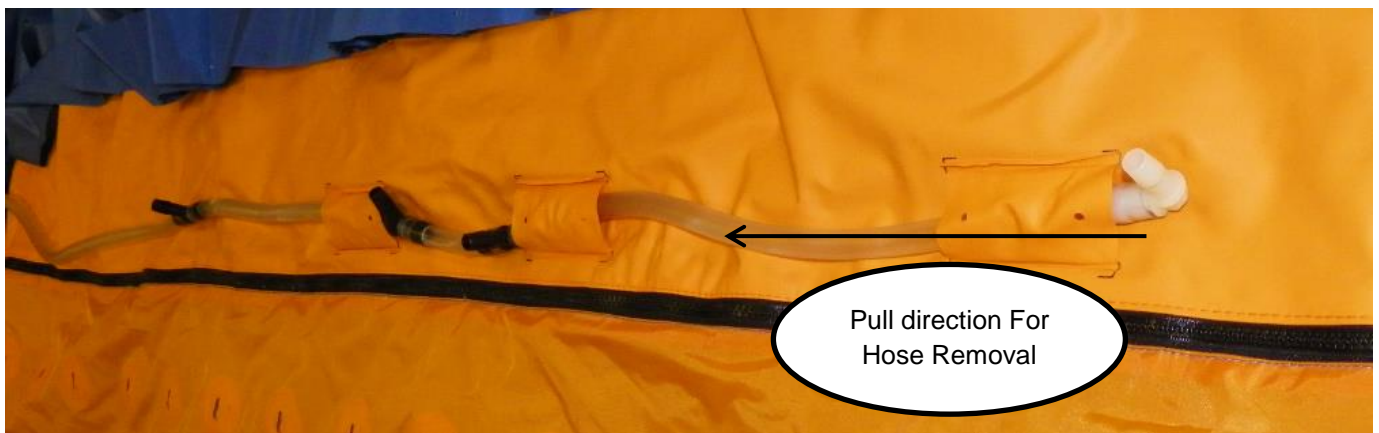


Figure 136: Disassembled MM Hose

6. Use cutters to remove all plastic snaps from the Bolsters to disconnect from Overlay Assembly. **(See Figure 120)** Take extra care not to damage the fabric while cutting the snaps.
7. Remove the damaged Overlay Assembly from Shell Assembly and discard.

# Mattress Service Procedures

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## Installation:

1. Obtain Kit, Overlay Assembly (32X80" (2940-002-019), 35X80" (2940-002-020) or 35X84" (2940-002-021)
2. Place the new overlay assembly into the shell assembly. The MM hose tabs on the overlay assembly must be oriented nearest to the head end of the Shell assembly. **(See Figure 135)**
3. Install the left and right head and foot bolsters. Snap bolsters to Overlay Assembly using the plastic snaps supplied. Refer to the bolster installation procedures. **(See Figure 122 - Figure 127)**
4. Insert MM Hoses with tabs fully onto fittings **(Figure 76 and Figure 77)**. Aim the vent holes towards the center of the mattress with the help of the pliers **(Figure 86)**.
5. At the foot of the mattress, reconnect the hose with the green marking to elbow fitting. **(See Figure 74)**
6. Bundle MM Hose Assembly, AST Wire, and Bolster Hose Assembly together at the foot of mattress **(See Figure 87)**.
7. Spiral Wrap bundle together at three locations **(See Figure 88, Figure 89 and Figure 90)**.
8. Insert all aircells into the loops.
9. Connect aircells to the manifold.
10. Counting from the head of mattress re-insert the buttons of air cells 10, 11, and 12 through MM Hose Tab. **(See Figure 53)**
11. Button all the air cells that are attached to the nylon tabs on the MM hose assembly. (See **Figure 53**)
12. Button all air cells to bolster panels. (See **Figure 55**)
13. Insert bolsters and zip close bolster panels. Ensure bolsters are inside panels.

Refer to **Page 135** for Functional Test procedures.

# Mattress Service Procedures

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## Mattress Functional Test

Follow final test procedure to verify proper functionality prior to returning the Mattress to service.

If any test fails, contact Stryker Customer Service, **See Page 10**

### Equipment list

- Known Good IsoAir Pump
- Tape Measure
- Timer (Stopwatch)

### Test Procedure

#### **Step 1 CPR Sleeve Inspection**

1. Inspect the CPR sleeve.
2. **Acceptance Criteria:** The elastic on the CPR sleeve is secured to the shell.
3. **Acceptance Criteria:** The elastic on the CPR sleeve is secured to the CPR plug.
4. **Acceptance Criteria:** The button on the CPR sleeve is secured to the shell.
5. Measure the length of cable from the head of the AST plug to the hole in the CPR sleeve.
6. **Acceptance Criteria:** The length is 9.0 to 10.0 in.

#### **Step 2 Snap Inspection**

1. Inspect all the snaps in the shell.
2. **Acceptance Criteria:** All trunk loop snaps are secured to the foam overlay.
3. **Acceptance Criteria:** All bolster snaps are secured to the foam overlay.

#### **Step 3 Spiral Wrap Inspection**

1. Inspect the manifold.
2. **Acceptance Criteria:** The spiral wrap is present in the manifold for both Zones A and B.
3. Inspect the wires and hoses in the shell.
4. **Acceptance Criteria:** The wires and hoses in the shell are secured with spiral wrap.
5. Inspect the CPR sleeve.
6. **Acceptance Criteria:** The spiral wrap in the CPR sleeve secures the wire and hoses.

#### **Step 4 Button Inspection**

1. Inspect all the air cell buttons.
2. **Acceptance Criteria:** All the air cell buttons are secured to the cell and the bolster.

#### **Step 5 Quick Disconnect Inspection**

1. Inspect all the quick-disconnect fittings.
2. **Acceptance Criteria:** All air cell quick-disconnect fittings are securely engaged.
3. **Acceptance Criteria:** All air cell quick-disconnect fittings are fully seated on air cell.
4. **Acceptance Criteria:** All air cell quick-disconnect fittings are fully seated on the manifold.

#### **Step 6 Hose Barb Inspection**

1. Inspect all the hose barb fittings.
2. **Acceptance Criteria:** All hoses on barbed fittings are fully seated.



# Mattress Service Procedures

## Step 7 MM Tubing Inspection

1. Inspect all the MM tubing.
2. **Acceptance Criteria:** All MM hose assembly tabs are securely fastened between the air cell and the bolster (7 tabs on each side).
3. **Acceptance Criteria (7.7" only):** The patient right side MM hose is attached with 7 tabs that are double notched.
4. **Acceptance Criteria (7.7" only):** The patient left side MM hose is attached with 7 tabs that are single notched.

## Step 8 Zipper Test

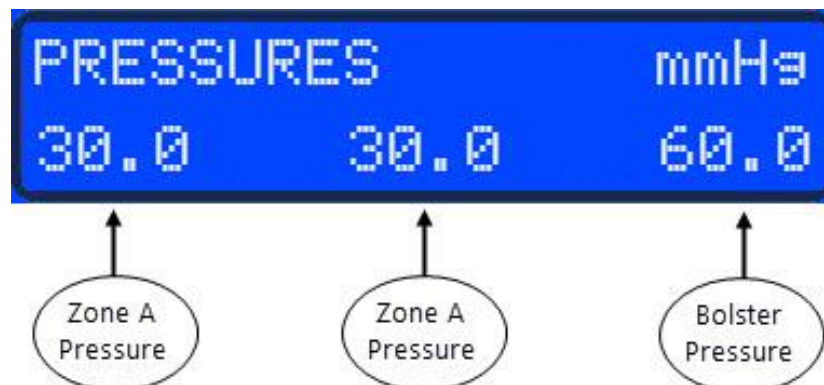
1. Completely zip and unzip the coverlet zipper.
2. **Acceptance Criteria:** The zipper glides smoothly.
3. For the 7.7" mattress, completely zip and unzip the 2 bolster zippers.
4. **Acceptance Criteria (7.7" only):** The zippers glide smoothly

## Step 9 Loop Position Test

1. Connect the Pump to the mattress CPR plug.
2. Press the Power button to put the Pump in Run mode.
3. Press the Max Inflate button to put the Pump in Max Inflate mode.
4. During inflation, adjust the air cells manually to orient them vertically within the loops.
5. Wait until both Zone A and Zone B on the LCD display show cell pressures above 40 mmHg.
6. Unzip the coverlet and observe the air cell loops.
7. **Acceptance Criteria:** The loops should fit snugly, without binding any air cell.

## Step 10 Leak Test

1. Press the CLP button to put the Pump in CLP mode.
2. If the AST LED is on, press the AST button to put the Pump in Manual mode (AST LED is off).
3. Press the Up button until all 5 pressure LEDs are on (30 mmHg)
4. Wait until the pressures stabilize (no inflation or venting for 3 seconds).
5. Press the Power button to put the Pump in Standby mode.
6. Start the timer and wait 1 minute.
7. Press the Alarm Silence button for 3 seconds until the "**PRESSURES mmHg**" screen appears



# Mattress Service Procedures

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8. Note the initial pressures displayed for Zone A, Zone B and Bolster.
9. Start the timer and wait 2 minutes.
10. Press the Alarm Silence button for 3 seconds until the “**PRESSURES mmHg**” screen appears
11. Note the final pressures displayed for Zone A, Zone B and Bolster.
12. Calculate each of the 3 pressure drops.
13. **Acceptance Criteria:** The pressure drop in each zone should be less than 1.0 mmHg

## Step 11 Hose Routing Test

1. Press the Alarm Silence button for 3 seconds until the “**PRESSURES mmHg**” screen appears
2. Squeeze the first air cell from the head of bed, while observing the display.
3. **Acceptance Criteria:** The Zone A Pressure fluctuates.
4. Press the Alarm Silence button for 3 seconds until the “**PRESSURES mmHg**” screen appears
5. Squeeze the second air cell from the head of bed, while observing the display.
6. **Acceptance Criteria:** The Zone B Pressure fluctuates.
7. Press the Alarm Silence button for 3 seconds until the “**PRESSURES mmHg**” screen appears
8. Squeeze the bolster, while observing the display.
9. **Acceptance Criteria:** The Bolster Pressure fluctuates.

## Step 12 MM Flow Test

10. Press the power button to set the Pump to Run mode.
11. If the MM LED is off, press the MM button to turn on MM.
12. Unzip the coverlet and use a finger to feel the air flow in each of the 10 holes in the MM hoses (5 on each side).
13. **Acceptance Criteria:** All 10 holes have air flow.
14. **Acceptance Criteria:** The air flow is directed horizontally across the air cells.

## Step 13 AST Contact Test

1. Press the MM button to turn off MM.
2. Press the Static button to put the Pump in Static mode.
3. Press the Down button until only 1 pressure LED is on (10 mmHg).
4. Wait until the pressures stabilize (no inflation or venting for 3 seconds).
5. Press the Power button to put the Pump in Standby mode.
6. Press the Lock, Up and Down buttons simultaneously for 3 seconds until the “**F1 SOFTWARE**” screen appears
7. Press the Up button 7 times to enter the “**F8 RESISTANCE**” screen.
8. Use a fist to press down on each of the 4 AST cells, and note the resistance value displayed on the screen.
9. **Acceptance Criteria:** All 4 resistance values should be less than 100 ohms.
10. **Acceptance Criteria:** When no AST cell is pushed down, the resistance value displayed on the screen should be 3375 to 4125 ohms.

# Product Compliance Declarations

## GUIDANCE AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC EMISSIONS


Guidance and Manufacturer's Declaration – Electromagnetic Emissions		
The IsoAir™ 2940 is intended for use in the electromagnetic environment specified below. The customer or the user of the IsoAir™ 2940 should assure that it is used in such an environment.		
Emissions Test	Compliance	Electromagnetic Environment – Guidance
RF emissions CISPR 11	Group 1	The IsoAir™ 2940 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.  The IsoAir™ 2940 is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
RF emissions CISPR 11	Class A	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

## GUIDANCE AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC IMMUNITY

Guidance and Manufacturer's Declaration – Electromagnetic Immunity			
The IsoAir™ 2940 is intended for use in the electromagnetic environment specified below. The customer or the user of the IsoAir™ 2940 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	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % $U_T$ (>95 % dip in $U_T$ ) for 0,5 cycle	<5 % $U_T$ (>95 % dip in $U_T$ ) for 0,5 cycle	Mains power quality should be that of a typical commercial or hospital environment. If the user of the IsoAir™ 2940 requires continued operation during power mains interruptions, it is recommended that the IsoAir™ 2940 be powered from an uninterruptible power supply or a battery.
	40 % $U_T$ (60 % dip in $U_T$ ) for 5 cycles	40 % $U_T$ (60 % dip in $U_T$ ) for 5 cycles	
	70 % $U_T$ (30 % dip in $U_T$ ) for 25 cycles	70 % $U_T$ (30 % dip in $U_T$ ) for 25 cycles	
	<5 % $U_T$ (>95 % dip in $U_T$ ) for 5 s	<5 % $U_T$ (>95 % dip in $U_T$ ) for 5 s	
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE $U_T$ is the a.c. mains voltage prior to application of the test level.			

# Product Compliance Declarations

## GUIDANCE AND MANUFACTURER'S DECLARATION – ELECTROMAGNETIC IMMUNITY - NOT LIFE-SUPPORTING

Guidance and Manufacturer's Declaration – Electromagnetic Immunity			
The IsoAir™ 2940 is intended for use in the electromagnetic environment specified below. The customer or the user of the IsoAir™ 2940 should assure that it is used in such an environment.			
Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment – Guidance
<p>Conducted RF IEC 61000-4-6</p> <p>Radiated RF IEC 61000-4-3</p>	<p>3 V<sub>RMS</sub> 150 kHz to 80 MHz</p> <p>3 V/m 80 MHz to 2.5 GHz</p>	<p><math>V_1 = 3 V_{RMS}</math></p> <p><math>E_1 = 3 V/m</math></p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the IsoAir™ 2940, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p><b>Recommended separation distance</b></p> $d = \left[ \frac{3.5}{V_1} \right] \sqrt{P}$ $d = \left[ \frac{3.5}{E_1} \right] \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = \left[ \frac{7}{E_1} \right] \sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ <p>where <math>P</math> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <math>d</math> is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,<sup>a</sup> should be less than the compliance level in each frequency range.<sup>b</sup></p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> <div style="text-align: center;">  </div>
<p><b>NOTE 1</b> At 80 MHz and 800 MHz, the higher frequency range applies.</p> <p><b>NOTE 2</b> These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.</p>			
<p><sup>a</sup> 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 IsoAir™ 2940 is used exceeds the applicable RF compliance level above, the IsoAir™ 2940 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the IsoAir™ 2940.</p> <p><sup>b</sup> Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</p>			

# Product Compliance Declarations

## GUIDANCE AND MANUFACTURER'S DECLARATION – RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND THE IsoAir™ 2940

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the IsoAir™ 2940			
The IsoAir™ 2940 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the IsoAir™ 2940 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the IsoAir™ 2940 as recommended below, according to the maximum output power of the communications equipment.			
Rated Maximum Output Power of Transmitter (in Watts)	Separation Distance According to Frequency of Transmitter (in meters)		
	150 kHz to 80 MHz $d = \left[ \frac{3.5}{V_1} \right] \sqrt{P}$	80 MHz to 800 MHz $d = \left[ \frac{3.5}{E_1} \right] \sqrt{P}$	800 MHz to 2.5 GHz $d = \left[ \frac{7}{E_1} \right] \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.2	1.2	2.3
10	3.7	3.7	7.4
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance $d$ in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where $P$ is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

# Warranty

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## LIMITED WARRANTY

The Stryker IsoAir™ System has a warranty of **TWO (2) YEARS** under normal use, conditions, and with appropriate periodic maintenance as described in this manual.

This statement constitutes Stryker's entire warranty with respect to the aforesaid equipment. **Stryker makes no other warranty or representation, either expressed or implied, except as set forth herein. There is no warranty of merchantability and there are no warranties of fitness for any particular purpose. In no event shall Stryker be liable here under for incidental or consequential damages arising from or in any manner related to sales or use of any such equipment.**

## CONDITIONS AND LIMITATIONS

This warranty does not extend to, nor cover:

- Normal wear and tear; or
- Damage or product failure due to causes beyond Stryker's control such as, but not limited to abuse, theft, fire, flood, wind, lightning, freezing, clogging of support surface pores due to tobacco smoke, unusual atmosphere conditions, material degradation due to exposure to moisture; or
- Damage to support surface or support surface handles through the use of the support surface for patient transfer or transport.

Normal use is defined as normal hospital or facility usage. Damages arising from abnormal use such as those caused by needle punctures, burns, chemicals, negligent use or improper care or improper cleaning or staining resulting from it are exempt from warranty coverage.

## TO OBTAIN PARTS AND SERVICE

Stryker products are supported by a network of dedicated Stryker Field Service Representatives. These representatives are factory trained, available locally, and carry a substantial spare parts inventory to minimize repair time. Simply call your local representative or call Stryker Customer Service at **1-800-327-0770**.

## RETURN AUTHORIZATION

Merchandise cannot be returned without approval from the Stryker Customer Service Department. An authorization number will be provided which must be printed on the returned merchandise. Stryker reserves the right to charge shipping and restocking fees on returned items. **Special, modified, or discontinued items not subject to return.**

## DAMAGED MERCHANDISE

ICC Regulations require that claims for damaged merchandise must be made with the carrier within fifteen (15) days of receipt of merchandise. **Do not accept damaged shipments unless such damage is noted on the delivery receipt at the time of receipt.** Upon prompt notification, Stryker will file a freight claim with the appropriate carrier for damages incurred. Claim will be limited in amount to the actual replacement cost. In the event that this information is not received by Stryker within the fifteen (15) day period following the delivery of the merchandise, or the damage was not noted on the delivery receipt at the time of receipt, the customer will be responsible for payment of the original invoice in full. Claims for any short shipment must be made within thirty (30) days of invoice

## INTERNATIONAL WARRANTY CLAUSE

This warranty reflects U.S. domestic policy. Warranty outside the U.S. may vary by country. Contact your local Stryker Medical representative for additional information.

# Notes

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USA

**stryker**<sup>®</sup>

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