PositionPRO® Patient Repositioning Support Surface

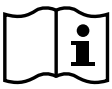
Standalone with pendant or integrated with FL27 InTouch® CC Model Beds

REF 2920

stryker®

Maintenance Manual

Symbols

	Operating instructions/Consult instructions for use
	General warning
	Caution
REF	Catalogue number
SN	Serial number
	Manufacturer
	Safe working load
~	Alternating current
	Dangerous voltage
	Protective earth ground
IPX4	Protection from liquid splash
	Type B equipment providing a particular degree of protection against electric shock, particularly regarding allowable leakage current and reliability of the protective earth connection. Class II Per Rule 9- PositionPRO is considered an active therapeutic device intended to be used to administer or withdraw energy to or from the body.
	Medical Equipment Recognized by Underwriters Laboratories LLC With Respect to Electric Shock, Fire, and Mechanical Hazards only in accordance with UL 60601-1: 2003 and CAN/CSA-C22.2 No. 601.1-M90 updates 1 and 2.
	In accordance with European Directive 2012/19/EU on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately. Contact your local distributor for disposal information.
	Wash by hand
	Do not dry-clean
	Allow to completely air dry
	Do not tumble dry
	Do not iron

Symbols

	Chlorinated bleach
US Patents	For US Patents see www.stryker.com/patents
	Do not stack more than 1 high

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Warning/Caution/Note Definition

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

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.

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 product 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.

Note: Provides special information to make maintenance easier or important instructions clearer.

Summary of safety precautions

Carefully read and strictly follow the warnings and cautions listed on this page. Service only by qualified personnel.

WARNING

- Do not immerse support surface or foot box in cleaning or disinfectant solutions. To avoid the risk of product damage or patient injury.
- Do not allow fluid to pool on the support surface or foot box. Fluids can cause degradation of components and may cause unpredictable safety and performance of this product.
- Always inspect support surface covers (top and bottom) for tears, punctures, excessive wear, and misaligned zippers each time the covers are cleaned. If compromised, the support surface cover should be removed from service immediately and replaced to prevent cross-contamination.
- Always perform preventative maintenance more frequently based on the usage level of the product. The life of the support surface can be adversely affected by an increase in usage which may include more frequent cleaning and disinfection.
- Always allow the control box to completely dry before you place the support surface on top of it.
- Always disinfect the support surface between patients, to avoid the risk of cross-contamination and infection.
- Always make sure that you wipe each product with clean water and thoroughly dry each product after cleaning. Some cleaning agents are corrosive in nature and may cause damage to the product if you use them improperly. If you do not properly rinse and dry the product, a corrosive residue may be left on the surface of the product that could cause premature degradation of critical components. Failure to follow these cleaning instructions may void your warranty.
- Always unplug the product power cord before cleaning or disinfecting to avoid the risk of shock.

CAUTION

- Improper usage of the product can cause injury to the patient or operator. Operate the product only as described in this manual.
- Do not modify the product or any components of the product. Modifying the product can cause unpredictable operation resulting in injury to patient or operator. Modifying the product also voids its warranty.
- Do not iron, dry-clean, or tumble dry the support surface covers.
- Do not power wash the support surface as this may cause malfunction and damage the product.
- Always make sure that the support surface cover is completely dry before storing, adding linens or placing a patient on the surface. Drying the product aids in preventing the performance of the product from being impaired.

Summary of safety precautions (Continued)

⚠ CAUTION (CONTINUED)

- Do not over expose the covers to higher concentration disinfectant solutions as these may degrade the covers.
- Do not use accelerated hydrogen peroxides or quaternaries that contain glycol ethers as they may damage the cover.
- Always make sure that the head of the support surface is flat before calibrating.

Introduction

This manual assists you with the operation or maintenance of your Stryker product. Read this manual before operating or maintaining this product. Set methods and procedures to educate and train your staff on the safe operation or maintenance of this product.

⚠ CAUTION

- Improper usage of the product can cause injury to the patient or operator. Operate the product only as described in this manual.
- Do not modify the product or any components of the product. Modifying the product can cause unpredictable operation resulting in injury to patient or operator. Modifying the product also voids its warranty.

Notes

- This manual is a permanent part of the product and should remain with the product even if the product is sold.
- Stryker continually seeks advancements in product design and quality. This manual contains the most current product information available at the time of printing. There may be minor discrepancies between your product and this manual. If you have any questions, contact Stryker Customer Service or Technical Support at 1-800-327-0770.

Expected service life

PositionPRO has a five year expected service life under normal use, conditions, and with appropriate periodic maintenance.

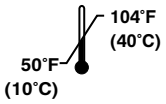
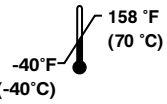
Specifications

Model	Pendant 2920-100-000	DH29201005 with Dartex Cover	
		DH29201015 with Nylon Cover	
	Integrated 2920-500-000	DH29201010 with Dartex Cover	
		DH29201020 with Nylon Cover	
Dimensions	Mattress	35” x 84” x 7”	88.9 cm x 213.4 cm x 17.8 cm
Weight	Complete system	63 lb	28.6 kg
	Mattress	29 lb	13.1 kg
	Pendant	1 lb	0.45 kg
	Pump Box	33 lb	15 kg
Safe working load	Stationary	500 lb	226.8 kg
	Default 22 mmHg, optimal pressure relief	200 lb	90.7 kg
	Turn Assist	300 lb	136.1 kg
Power cord	15 foot, 16 AWG cord with hospital grade plug for use with wall outlet 4 foot, 16 AWG cord with hospital grade plug for use with accessory outlet		
Over current protection	2 fuses 5 x 20 mm, 5 AMP Slo-Blo, 250 VAC		
	120VAC; 50-60Hz, 1AMP; Two 250V, 5A Fuses		
Output flow rate	12.5 LPM (0.4 SCFM) minimum @ 30mmHg		
Current leakage	300 uA Maximum		

Specifications (Continued)

Classification	Class 1 Grounded Equipment	
	Class 2, FDA and Health Canada	
	Continuous operation- Not suitable for use in the presence of flammable anesthetic mixture with air or with oxygen or nitrous oxide. Suitable for continuous duty.	
	Medical equipment: Classified with respect to electric shock, mechanical hazards only, in accordance with UL60601-1 CAN/CSA C22.2 No. 601.1.-M90.	
	Electromagnetic compatibility, meets EN 60601-1-2, 2001 (CISPR II classified as Class A, Group 1 ISM equipment)	
Flammability standards	USA 16 CFR 1632, USA 16 CFR 1633, CALTB 129, Boston BFD IX-11 Method 27.7-1979 of CAN 2-4.2 M77	
Compatible frames	84” x 35” flat deck frames	**GoBed II®**, **Secure 3®**, **InTouch®**, and **Epic II®**

Stryker reserves the right to change specifications without notice.

Environmental conditions	**Operation**	**Storage and transportation**
Temperature		

Contact information

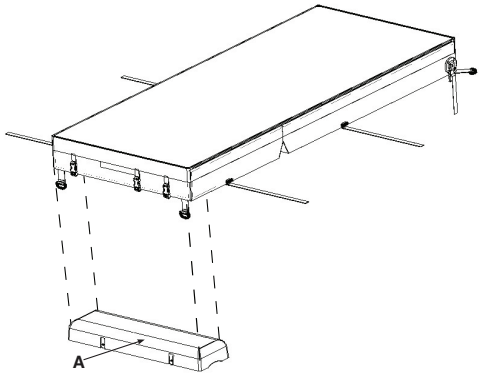
Contact Stryker Customer Service or Technical Support at: 1-800-327-0770.

Stryker Medical
3800 E. Centre Avenue
Portage, MI 49002
USA

To view your operations or maintenance manual online, see https://techweb.stryker.com/.

Have the serial number (A) of your Stryker product available when calling Stryker Customer Service or Technical Support. Include the serial number in all written communication.

Serial number location



Product illustration

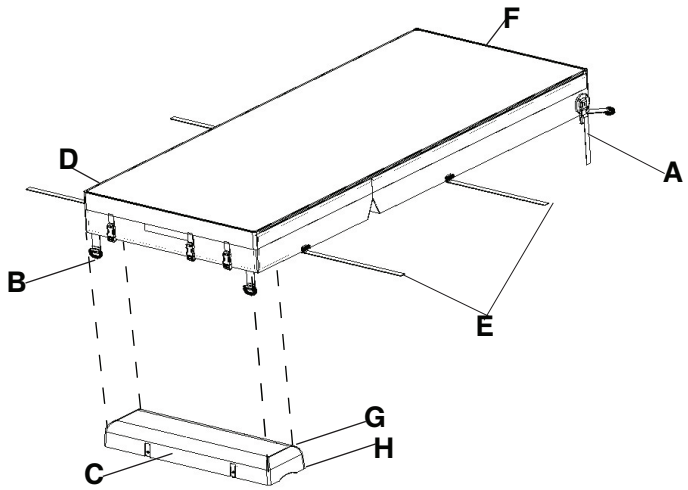


Figure 1: Product illustration

A	CPR straps	E	Handles
B	D rings	F	Head end
C	Foot box	G	Integration cable
D	Foot end	H	Power cord

Date of manufacture

The year of manufacture is the first four digits of the serial number.

WARNING

- Always unplug the support surface power cord before cleaning or disinfecting to avoid the risk of shock.
- Do not immerse support surface or foot box in cleaning or disinfectant solutions. To avoid the risk of product damage or patient injury.
- Do not allow fluid to pool on the support surface or foot box. Fluids can cause degradation of components and may cause unpredictable safety and performance of this product.
- Always inspect support surface covers (top and bottom) for tears, punctures, excessive wear, and misaligned zippers each time the covers are cleaned. If compromised, the support surface cover should be removed from service immediately and replaced to prevent cross-contamination.
- Always perform preventative maintenance more frequently based on the usage level of the product. The life of the support surface can be adversely affected by an increase in usage which may include more frequent cleaning and disinfection.

CAUTION

- Do not iron, dry-clean, or tumble dry the support surface covers.
- Do not power wash the support surface as this may cause malfunction and damage the product.
- Always make sure that the support surface cover is completely dry before storing, adding linens or placing a patient on the surface. Drying the product aids in preventing the performance of the product from being impaired.

Always follow hospital protocol for cleaning and disinfecting.

To clean the support surface covers between patient uses, follow these steps in order:

1. Unplug the support surface before cleaning.
2. Lift up the foot section of the support surface to clean the bottom surface.
3. Using a clean, soft, damp cloth, wipe the support surface covers with a mild soap and water solution to remove foreign material.
4. Wipe the support surface covers with a clean, dry cloth to remove any excess liquid or cleaning agent.

Cleaning the control box

WARNING

Always allow the control box to completely dry before you place the support surface on top of it.

To clean the control box:

1. Unplug the support surface before cleaning.
2. Using a clean, soft, damp cloth, wipe the control box with a mild soap and water solution.
3. Wipe the control box with a clean, dry cloth to remove any excess liquid or cleaning agents.
4. Thoroughly rinse and dry the control box after cleaning.
5. Disinfect the control box with a hospital grade disinfectant as necessary.

Cleaning the pendant

1. Unplug the pendant before cleaning.
2. Using a clean, soft, damp cloth, wipe down the pendant using a mild soap and water solution to remove foreign materials.
3. Wipe down the pendant with a clean, dry cloth to remove any excess liquid or cleaning agents.

Cleaning the pendant (Continued)

4. Care must be taken to thoroughly rinse and dry the pendant following cleaning.
5. Disinfect as necessary with a hospital grade disinfectant after cleaning has been completed.

Disinfecting

WARNING

- Always disinfect the support surface between patients, to avoid the risk of cross-contamination and infection.
- Always make sure that you wipe each product with clean water and thoroughly dry each product after cleaning. Some cleaning agents are corrosive in nature and may cause damage to the product if you use them improperly. If you do not properly rinse and dry the product, a corrosive residue may be left on the surface of the product that could cause premature degradation of critical components. Failure to follow these cleaning instructions may void your warranty.
- Do not allow fluid to pool on the support surface or foot box. Fluids may cause degradation of components and may cause unpredictable safety and performance of this product.
- Always unplug the product power cord before cleaning or disinfecting to avoid the risk of shock.

CAUTION

- Always completely dry the support surface covers before storing, adding linens, or placing a patient on the surface. Failure to remove excess disinfectant may degrade the cover material.
- Do not over expose the covers to higher concentration disinfectant solutions as these may degrade the covers.
- Do not use accelerated hydrogen peroxides or quaternaries that contain glycol ethers as they may damage the cover.

Prerequisite: Minimum of two operators are required to disinfect the support surface.

Suggested Disinfectants:

- Quaternaries
- Phenolic Disinfectants
- Chlorinated Bleach Solution (5.25% sodium hypochlorite at 1:100 dilution)
- 70% Isopropyl Alcohol

To disinfect the support surface covers after each patient use, follow these steps in order:

1. Unplug the support surface.
2. Thoroughly clean and dry the support surface covers (see Cleaning on page 9) before disinfectants are applied.
3. Apply recommended disinfectant solution by spray or pre-soaked wipes (do not soak the support surface).

   Note: Make sure that you follow the disinfectant's instructions for appropriate contact time and rinsing requirements.
4. Wipe the support surface covers with a clean, dry cloth to remove any excess liquid or disinfectant.
5. Allow the support surface covers to dry completely before returning to service. Air dry, if possible.

Preventive maintenance

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 your level of product usage.

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

Inspect the following items:

_____ Zipper and covers are free of tears, cuts, holes or other openings
_____ Fully unzip the cover to inspect the inside surface and core for signs of staining due to fluid ingress or contamination
_____ Pendant controls function properly
_____ Max Inflate functions properly
_____ Turn Assist functions properly
_____ Left and Right CPR releases function properly
_____ All electrical connections function properly
_____ Power cord and plug are free of damage
_____ Air cells are free of excessive wear, cracks, tears, or other damage
_____ Fire barrier cover for excessive wear
_____ All connectors are free of damage

Notes

- It is recommended to replace cells every six months.
- Replace worn or damaged components as necessary.

Product Serial Number:	
Completed by:	
Date:	

Quick reference replacement parts

These parts are currently available for purchase. Call Stryker Customer Service: 1-800-327-0770 for availability and pricing.

Part Name	Part Number
Clip	QDF2082
Pendant	QDF2081
Pump	56-0541
Transformer	56-0047
Manifold Valve Assembly	56-0503
Control Board	56-0280
Top Cover, Dartex, Standalone Mattress	56-0274
Top Cover, Dartex, Integrated Mattress, (with FL27 InTouch Critical Care Bed)	56-0528
Power Cord, 4 foot	QDF8087
Power Cord, 15 foot	QDF8088
Fan	56-0509
Sub Assembly Line Choke	56-0243
Sub Assembly Tilt Sensor	56-0287
Fire barrier	56-0670

Problem / Failure	Recommended Action
Support surface has no power	A. Make sure that the support surface power cord is connected properly, and make sure that power switch is turned "ON" (1). 1. If not, reconnect. If the support surface now has power, return it to service. B. Check the fuses above the control box power cord connection. 1. Replace the fuses and test. If the support surface now has power, return it to service. C. Check the power inlet. 1. Check the main fuse. Replace, if necessary. 2. Check for 120 VAC on the pump box assembly between the red/white and green/black wires from the power inlet filter. a) If no voltage, check for 120 VAC on the power cord inlet between the blue and brown wires. b) If voltage is present, replace the power inlet filter. D. See the CPU/Power Board diagram (Electrical diagram on page 30). Check DC voltages on the CPU/Power Board on connectors J1 or J2, pin 4 (ground) / pin 3 (+12) / pin 6 (+24) 1. If there is no voltage at any one of the points, check for 24 VAC on connector J7. If no voltage, replace the transformer. 2. If there is no voltage at any one of the points, replace the power board. If the support surface now has power, return it to service.
Pendant has no power, but the support surface has power	A. Lift up the foot section of the support surface, unplug the support surface power cord from the power source and make sure that the black connector in the control box is connected properly to the pendant. Reconnect if necessary. Plug the support surface power cord back into the power source. If the support surface now has power, return it to service. Check to make sure that the tilt sensor cable is connected to the control box. B. If the power cord is connected properly, test the power source with another pendant. If the pendant has power, calibrate Tilt Sensor and return the support surface to service.

Support surface does not inflate	A. Check the pendant for any alarm messages. B. Listen to the control box and make sure that the pump is turned on. 1. If not, make sure that both the left and the right CPR plugs are properly inserted and snapped in the locking mechanism. If the support surface will now inflate, return it to service. 2. If the control box pump is on, make sure that air valves are well connected to the control box and make sure that there are no kinks in the hoses. If the support surface will now inflate, return it to service.
Pendant does not respond	A. Make sure that the pendant control has not been locked. B. If the support surface has power, check for 12 VDC from the power board between pin 3 and pin 4 and for 24 VDC on J1 and J2 on the pendant connector. 1. If voltage is present, go to step C. 2. If no voltage is present, replace the transformer. If the controller now responds, return the support surface to service. C. Test with another pendant, if available. 1. If the different pendant works, return the support surface to service. 2. If the different pendant still does not respond, open the control box and see if the CAN bus LED's are flashing on the CPU board. D. Open the non-responding pendant and check all of the connections. 1. Reset the connectors, if necessary, and test. 2. Inspect for damage. 3. If the pendant now responds, return the support surface to service.
Bladder does not inflate or deflate	A. Verify bladder integrity. B. Verify connections. C. Verify that the right and left CPR mechanism are in place.
Turn Assist will not rotate to desired degree	A. Make sure that the litter surface is level. B. Re-calibrate the Tilt Sensor.

Calibrating the tilt sensor

Tools Required:

None

Procedure:

Note: This procedure is for the standalone configuration only.

1. Adjust the bed fowler and knee section to a flat position.
2. Lower the bed litter to the lowest position.
3. Cycle power the support surface and within the first 10 seconds, simultaneously press the **Turn Assist Left** button, **Turn Assist Right** button, and the **Stop** buttons.
4. Cycle power the support surface.
5. Return the bed to the full upright position.
6. Verify proper operation of the product before returning it to service.

Top cover replacement

Tools Required:

None

Procedure:

1. Unplug the support surface power cord from the power source.
2. Unzip the support surface top cover and discard.
3. Replace with new top cover and zip all sides.
4. Plug the support surface into a power source.
5. Verify proper operation of the support surface before returning it to service.

Fire barrier replacement

Tools Required:

- Diagonal pliers
- Utility knife
- Zip tie gun

Procedure:

1. Raise the bed height to the full up position.
2. Lower the fowler and gatch sections to the full down positions.
3. Unplug the support surface from the power source.
4. Unplug one of the CPR plugs to deflate the bladder.
5. Unzip the top cover and fold it off to the side.
6. Pull the fire barrier off starting from the head end pulling down to the foot end, working it from the left to the right while pulling it down.
7. Discard the fire barrier.
8. Starting at the foot end, roll the new fire barrier up and slide the fire barrier over the crib assembly.

   Note: Align the fire barrier on the crib before sliding over the crib assembly.
9. Carefully slide the fire barrier up the crib assembly, working from side to side, to make sure that the fire barrier is tight on the crib assembly.

Fire barrier replacement (Continued)

10. Align the crib assembly on top of the bottom part of the cover.

    Note: Spread the excess fire barrier material equally below the crib assembly at the head end.

11. Fold and align the top cover over the top of the crib assembly.
12. Zip the cover to close. Start at the head end patient right corner and stop at the foot end patient right corner.
13. Verify proper operation before returning the product to service.

Control box pump replacement

Tools Required:

- Phillips Screwdriver
- Diagonal Cutters

Procedure:

1. Unplug the support surface from the power source.
2. Carefully fold the foot end section of the support surface back over the head section (Figure 2 on page 17).

Figure 2: Folded foot end, unplug connectors

3. Unplug all connectors, power cord, and optional pendant cable.
4. Remove the control box from the support surface.
5. Using a Phillips screwdriver, remove the four screws that secure the cover to the control box (two screws on each side).
6. Remove the cover.

Control box pump replacement (Continued)

7. Hold the pump in one hand and carefully pull on the air hose to remove it from the barbed fitting (Figure 3 on page 18).

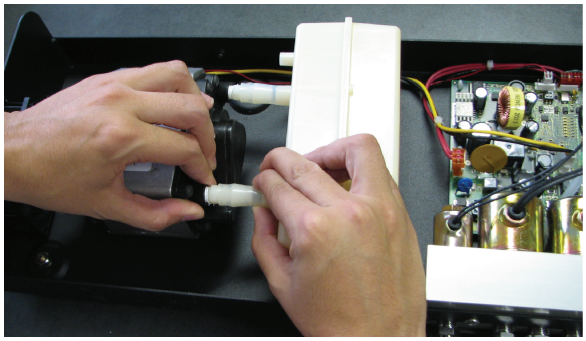


Figure 3: Remove the air hose from the barbed fitting

8. Disconnect the electrical connector (line choke) (Figure 4 on page 18).

Figure 4: Disconnect the line choke

9. Turn the control box on its side.
10. Remove the four screws that hold the pump to the control box (Figure 5 on page 18).

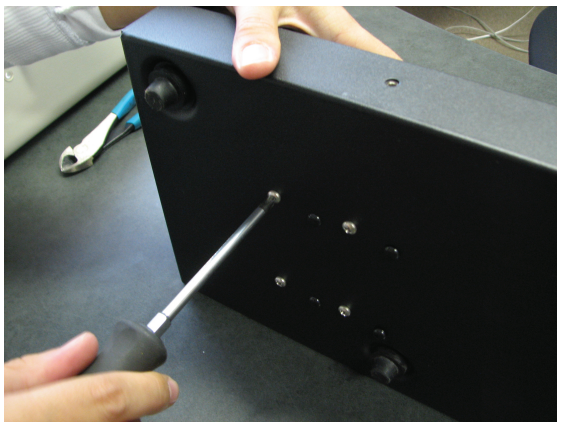


Figure 5: Remove the screws

Control box pump replacement (Continued)

11. Remove the pump from the control box and discard.
12. Reverse the steps to install new pump.
13. Verify proper operation of the product before returning it to service.

    Note: During installation of the new pump, leave enough slack to allow free movement of the control box to prevent pinching of the cable.

Control box pump CPU/power board replacement

Tools Required

- Phillips Screwdriver
- ESD System
- Needle Nose Pliers

Procedure:

1. Unplug the support surface from the power source.
2. Carefully fold the foot end section of the support surface back over the head section (Figure 6 on page 19).

Figure 6: Folded foot end, unplug connectors

3. Unplug all connectors, power cord, and optional pendant cable.
4. Remove the control box from the support surface.
5. Using a Phillips screwdriver, remove the four screws that secure the cover to the control box (two screws on each side).
6. Remove the cover.
7. Using an ESD system, properly ground yourself.

Control box pump CPU/power board replacement (Continued)

8. Unplug the cable connections and hoses from the CPU/power board (Figure 7 on page 20).

Figure 7: CPU power board unplug cables

Note: Pay attention to the cable routing for reinstallation.

9. Using needle nose pliers, squeeze the locking mechanism on the nine board mounts holding the CPU/power board to the control box.
10. Remove the CPU/power board from the control box and discard.
11. Reverse steps to install the supplied CPU/power board.
12. Calibrate the tilt sensor immediately after plugging in the support surface (see Calibrating the tilt sensor on page 16).

⚠ CAUTION

Always make sure that the head of the support surface is flat before calibrating.

13. Verify proper operation of the product before returning it to service.

Control box transformer replacement

Tools Required

- Phillips Screwdriver
- ESD System
- 7/16” Wrench

Procedure:

1. Unplug the support surface from the power source.

Control box transformer replacement (Continued)

2. Carefully fold the foot end section of the support surface back over the head section ()Figure 8 on page 21.

Figure 8: Folded foot end unplug connectors

3. Unplug all connectors, power cord, and optional pendant cable.
4. Remove the control box from the support surface.
5. Using a Phillips screwdriver, remove the four screws that secure the cover to the control box (two screws on each side).
6. Remove the cover.
7. Using an ESD system, properly ground yourself.
8. Unplug the transformer wire that connects to the electronic board (Figure 9 on page 21).

Figure 9: Unplug the transformer wire connector

Note: Pay attention to the transformer wire location for reinstallation.

Control box transformer replacement (Continued)

9. Unplug the 120V connector and cut the cable ties (Figure 10 on page 22).

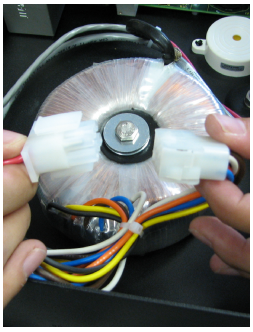


Figure 10: Unplug the 120V connector and cut the cable ties

10. Using a 7/16” wrench, remove the bolt on the top of the transformer (Figure 11 on page 22).

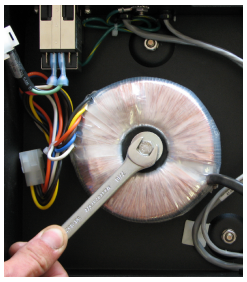


Figure 11: Remove the bolt from the transformer

11. Remove the transformer and discard.
12. Reverse steps to install the supplied transformer.

    Note: When reinstalling the bolt for the transformer, use purple Loctite 222 on the threads of the bolt.

13. Verify proper operation of the product before returning it to service.

Control box manifold replacement

Tools Required

- Phillips Screwdriver

Procedure:

1. Unplug the support surface from the power source.

Control box manifold replacement (Continued)

2. Carefully fold the foot end section of the support surface back over the head section (Figure 12 on page 23).

Figure 12: Folded foot end, unplug connectors

3. Unplug all connectors, power cord, and optional pendant cable.
4. Remove the control box from the support surface.
5. Using a Phillips screwdriver, remove the four screws securing the cover to the control box (two screws on each side).
6. Remove the cover.
7. Disconnect hoses and wires from the CPU/power board (Figure 13 on page 23).

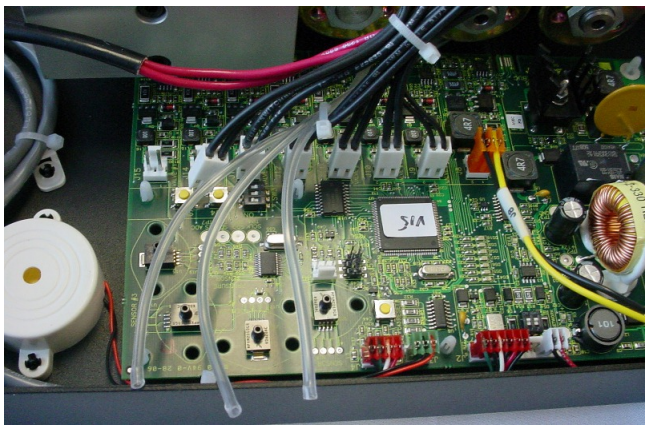


Figure 13: Disconnect hoses and wires

Note: Pay attention to the hoses and wire routing for reinstallation.

Control box manifold replacement (Continued)

8. Using a Phillips screwdriver, remove the three screws that hold the manifold valve assembly (Figure 14 on page 24).

Figure 14: Remove screws from valve

9. Remove the manifold valve assembly and discard.
10. Reverse steps to install the supplied manifold valve assembly.
11. Calibrate tilt sensor immediately after plugging in the support surface (see Calibrating the tilt sensor on page 16).

    Note: When reinstalling the three screws that hold the manifold valve assembly, use purple Loctite 222 on the threads of the screws.
12. Verify proper operation of the product before returning it to service.

Top air bladder replacement

Tools Required:

None

Procedure:

1. Unplug the support surface from the power source.
2. Unplug one of the CPR plugs to deflate the bladder.
3. Unzip the top cover and fold it off to the side.
4. Pull the flame barrier off starting from the head end pulling down to the foot end. working it from the left to the right while pulling it down.
5. Unsnap the four straps that hold the top bladder down to the foam crib, by unsnapping them from the restraints below the foam crib.
6. Unsnap the eight straps (four on each side) from the secondary bladder straps, two straps (on the bottom corners), and one snap on each side of the head end.
7. Unplug the hose between to the top bladder at the head end and the foot end left side of the bladder.
8. Remove the top bladder and discard.
9. Reverse the to install supplied top bladder.
10. Verify proper operation of the product before returning it to service.

Secondary air bladder replacement

Tools Required:

None

Procedure:

Secondary air bladder replacement (Continued)

1. Unplug the support surface from the power source.
2. Unplug one of the CPR plugs to deflate the bladder.
3. Unzip the top cover and fold it off to the side.
4. Pull the fire barrier off starting from the head end pulling down to the foot end, working it from the left to the right while pulling it down.
5. Unsnap the four straps that hold the top bladder down to the foam crib, by unsnapping them from the restraints below the foam crib.
6. Unsnap the 12 snaps (six on each side) from the top bladder and rotation bladder straps.
7. Unplug the two hoses at the foot right corner of the secondary bladder.

   Note: Pay attention to the hose locations. Mark the locations if necessary, for reinstallation.
8. Remove the secondary bladder and discard.
9. Reverse steps to install supplied secondary bladder.
10. Verify proper operation of the product before returning it to service.

Rotation air bladder replacement

Tools Required:

None

Procedure:

1. Unplug the support surface from the power source.
2. Unplug one of the CPR plugs to deflate the bladder.
3. Unzip the top cover and fold it off to the side.
4. Pull the flame barrier off starting from the head end pulling down to the foot end. working it from the left to the right while pulling it down.
5. Unsnap the four straps that hold the top bladder down to the foam crib by unsnapping them from the restraints below the foam crib.
6. Unsnap the four straps from the secondary bladder (two on each side).
7. Unplug the two hoses at the head end of the rotation bladders.
8. Unplug the two hoses at the foot end of the rotation bladders.

   Note: Pay attention to the hose locations. Mark the locations, if necessary, for reinstallation.
9. Remove the rotation bladder and discard.
10. Reverse steps to install supplied rotation bladder.
11. Verify proper operation of the product before returning it to service.

CPR air bladder replacement

Tools Required

- 3/8” Combination Wrench

Procedure:

1. Unplug the support surface from the power source.
2. Unplug one of the CPR plugs to deflate the bladder.
3. Unzip the top cover and fold it off to the side.
4. Pull the flame barrier off starting from the head end pulling down to the foot end. working it from the left to the right while pulling it down.

CPR air bladder replacement (Continued)

5. Unplug the six hoses from the CPR air bladder.

   Note: Pay attention to the hose locations, mark if necessary, for reinstallation.
6. Using a 3/8” combination wrench, remove the eight nuts and bolts that hold the CPR brackets to the product (four on each side).
7. Remove the CPR air bladder assembly and discard.
8. Reverse steps to install supplied CPR air bladder assembly.
9. Verify proper operation of the product before returning it to service.

Error alarms

CPR alarm, when activated, the manifold bladder deflates, the pump is off, and all of the valves are energized. CPR activation is detected by a fast drop of pressure in a short time period. The CPR LED starts flashing with no buzzing sound. The pump will stop for 30 minutes. If after this period, the pressure measured in the support surface stays low, a sound will be activated keeping the CPR alarm LED flashing for another 1 hour and 30 minutes. Afterwards the “Call Maintenance” alarm is activated along with a buzzing sound.

When call maintenance alarm is alarming, no valves are activated and the pump is off. When the pressure is resettled, the support surface exits “Call Maintenance” alarm state and goes to normal mode. Call maintenance alarm will occur in the following situations:

- Excessive temperature
- Loss of CAN network
- Pressure leakage
- Reading errors with pressure, temperature, and tilt sensors
- Calibration errors with the tilt sensor

Call maintenance alarm is illuminated along with a buzzing sound for many alarm situations:

- Pressure sensor reading errors (30 seconds)
- Tilt sensor reading errors (30 seconds)
- Temperature reading errors (immediately)
- Loss of presence (10 minutes)
- Loss of CAN network (only buzzer, no LED) (<10 seconds)
- Exceeded temperature (immediately)

Note: Only disconnect the connector from the PC board during cable continuity tests. Never insert meter leads or anything else into the connector pin receptacle. Always check continuity at the access slot on the side of the connector.

Error alarms (Continued)

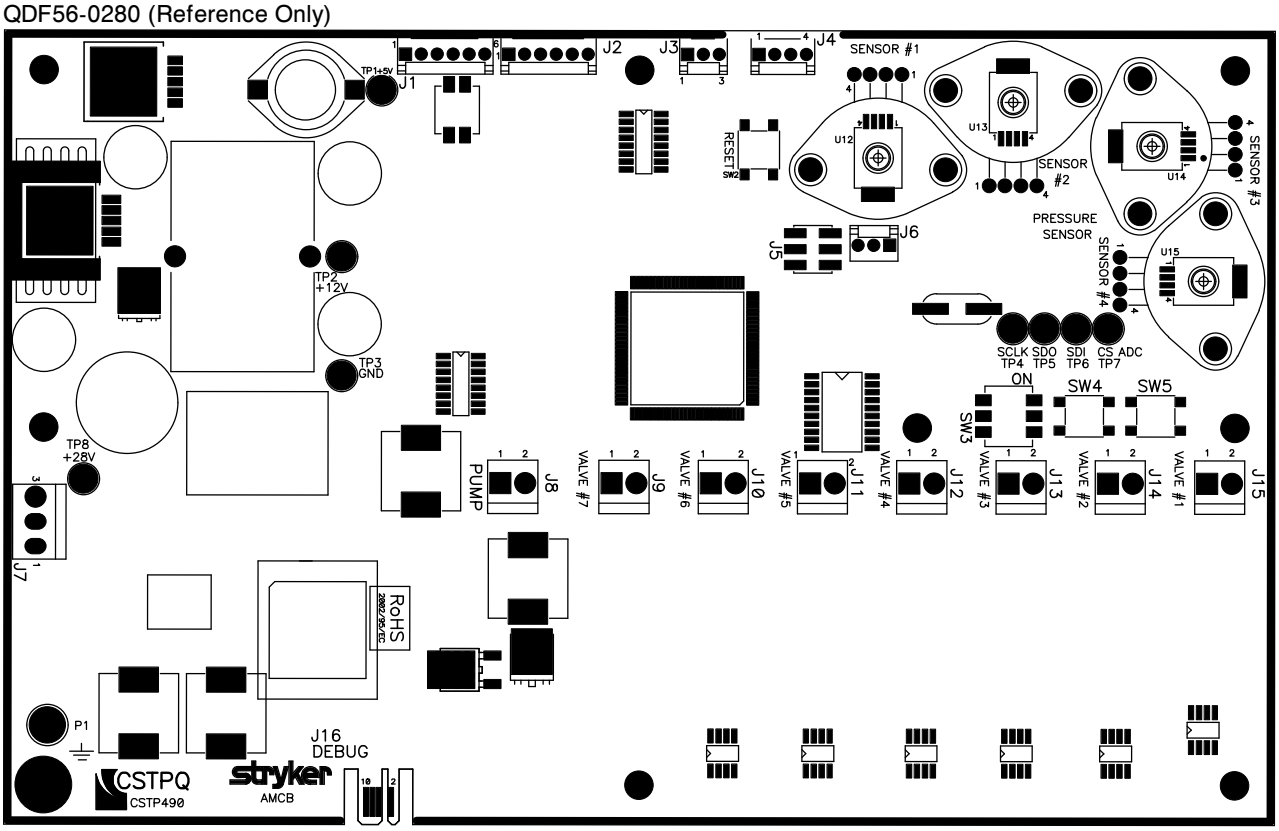
Service event	Description	Problem area
CPR alarm	Rapid drop in pressure	1. Make sure that the CPR mechanism is closed (right and left). 2. Make sure that the air bladders are not punctured or losing air. 3. Make sure that the connectors are properly inserted. **Note:** After 30 minutes of alarm a buzzer will sound. After 90 minutes, the “call maintenance” LED will flash. 4. Cancel the alarm by resetting system using the pendant. **Note:** Press the "**Stop**" and "+" buttons simultaneously for 1 second will reset the system.
Call Maintenance	Pressure sensor reading error	1. Make sure that the max inflate and turn assist attain their required pressure. (Touch the support surface to assess firmness and verify pressure). 2. Inflation does not stop or stops prematurely. 3. Verify the tube connections. 4. Verify the pressure sensor connections. 5. Change the board Air Main Control Board (AMCB)
Call Maintenance	Tilt sensor reading error	1. Make sure that the support surface calibration and "zeroing" of the tilt sensor, (see Calibrating the tilt sensor on page 16). 2. Make sure that the tilt sensor is in the right location in the support surface. 3. Change sensor or AMCB board (Air Main Control Board).

Error alarms (Continued)

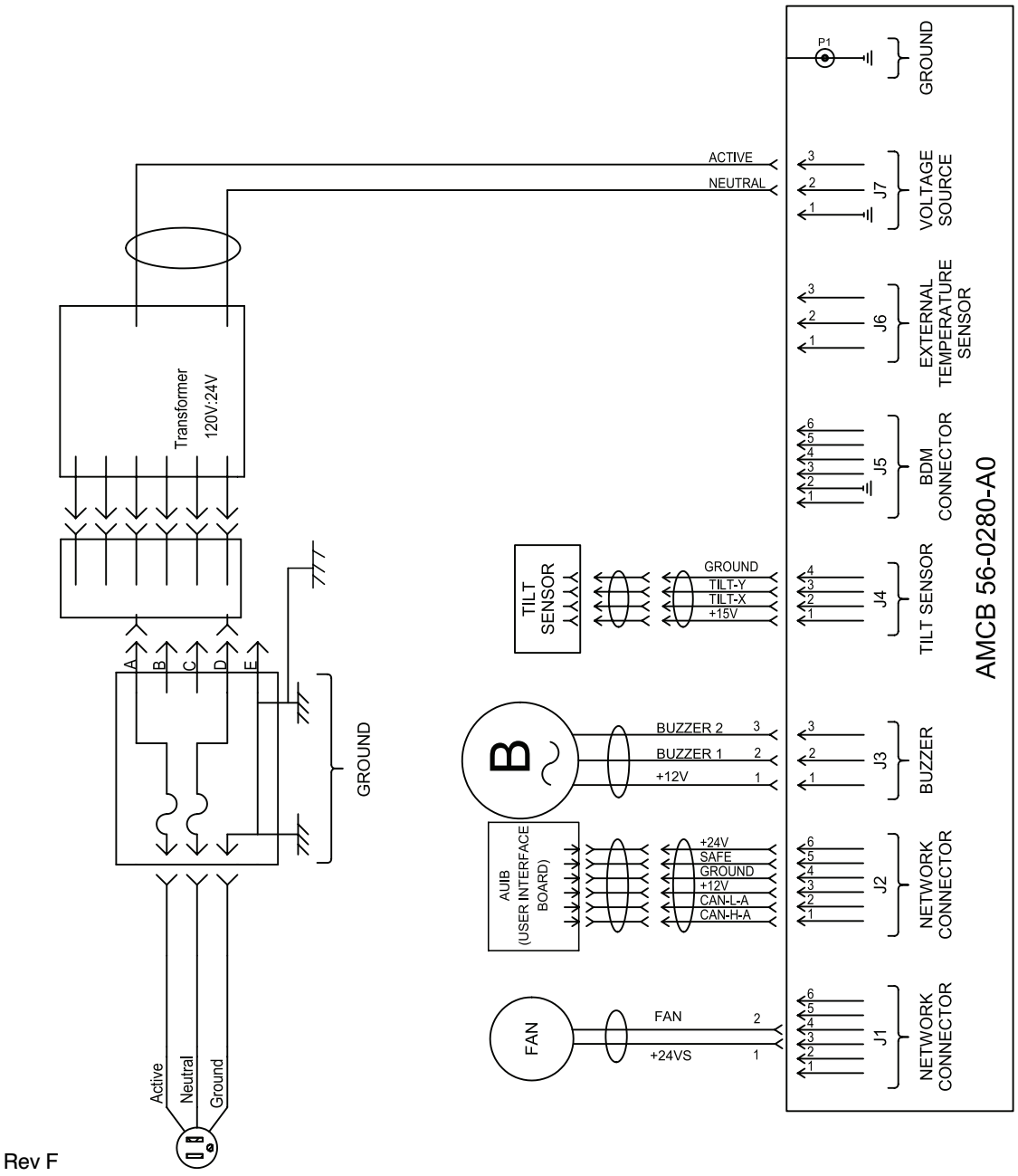
Service event	Description	Problem area
Call Maintenance	Temperature reading error or exceeded temperature	1. Check control box is not overheating. 2. Make sure that pump, transformer and valves are not overheating. 3. Make sure that connectors are in the correct position and not damaged. 4. Make sure that input power is 120 VAC. 5. Check if operating conditions are respected for ambient temperature.
Call Maintenance	Loss of pressure	1. Cannot inflate support surface. 2. Low loss of air "low leak". 3. Make sure that air bladders are not punctured. 4. Verify the tube connection. 5. Verify the pressure sensor connection.
Call Maintenance	Loss of can network	1. Make sure connections between the pendant and the control box are intact. 2. Make sure that the pendant connection to the board is intact.

CPU power board

QDF56-0280 (Reference Only)

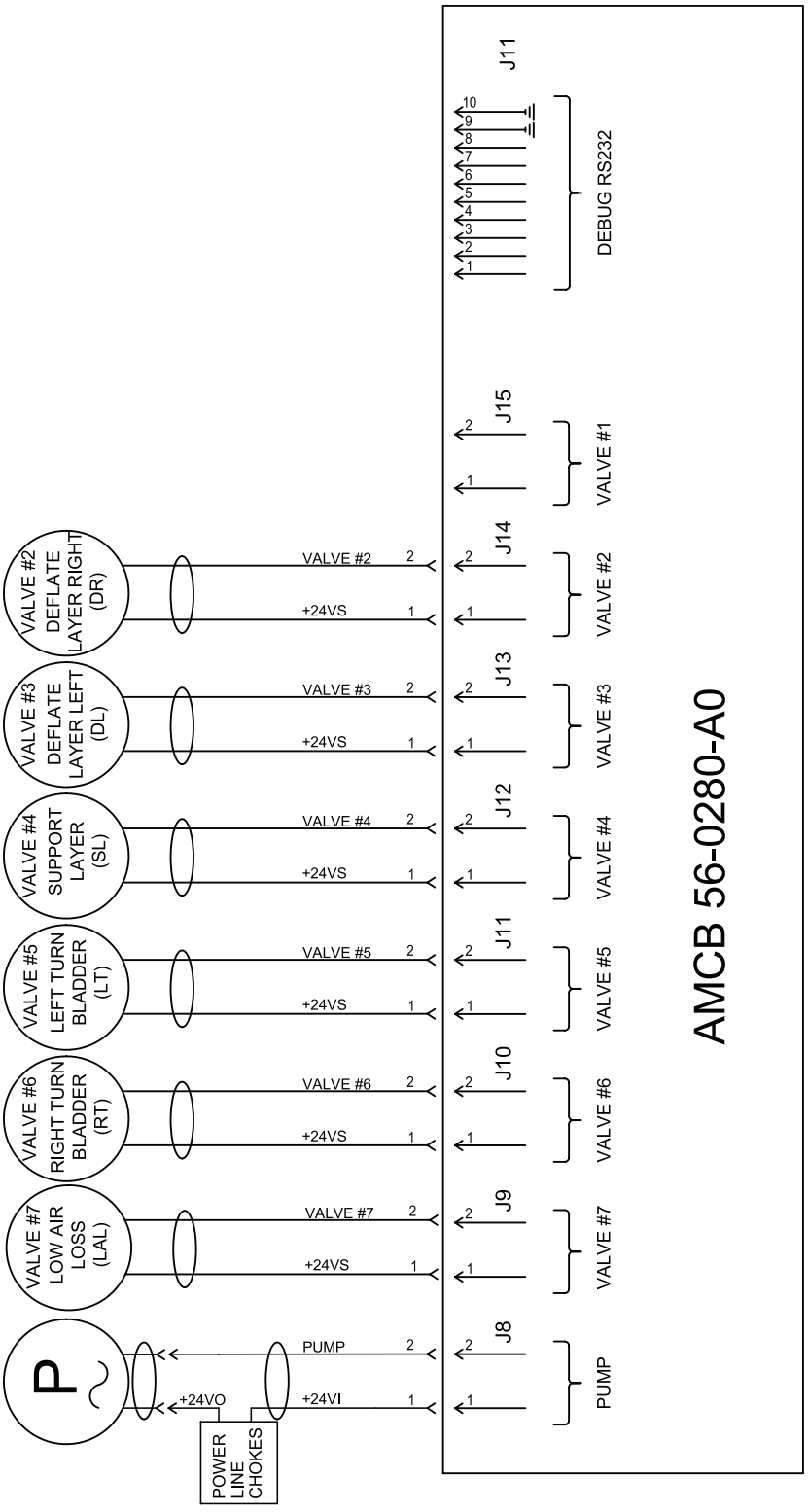


56-0280


AMCB 56-0280-A0
P1
GROUND
ACTIVE
NEUTRAL
J7
VOLTAGE SOURCE
J6
EXTERNAL TEMPERATURE SENSOR
J5
BDM CONNECTOR
J4
TILT SENSOR
J3
BUZZER
J2
NETWORK CONNECTOR
J1
NETWORK CONNECTOR
GROUND
TILT-Y
TILT-X
+15V
TILT SENSOR
BUZZER 2
BUZZER 1
+12V
B
+24V
SAFE
GROUND
+12V
CAN-L-A
CAN-H-A
AUIB (USER INTERFACE BOARD)
FAN
+24VS
FAN
Transformer 120V:24V
A
B
C
D
E
GROUND
Active
Neutral
Ground

Rev F

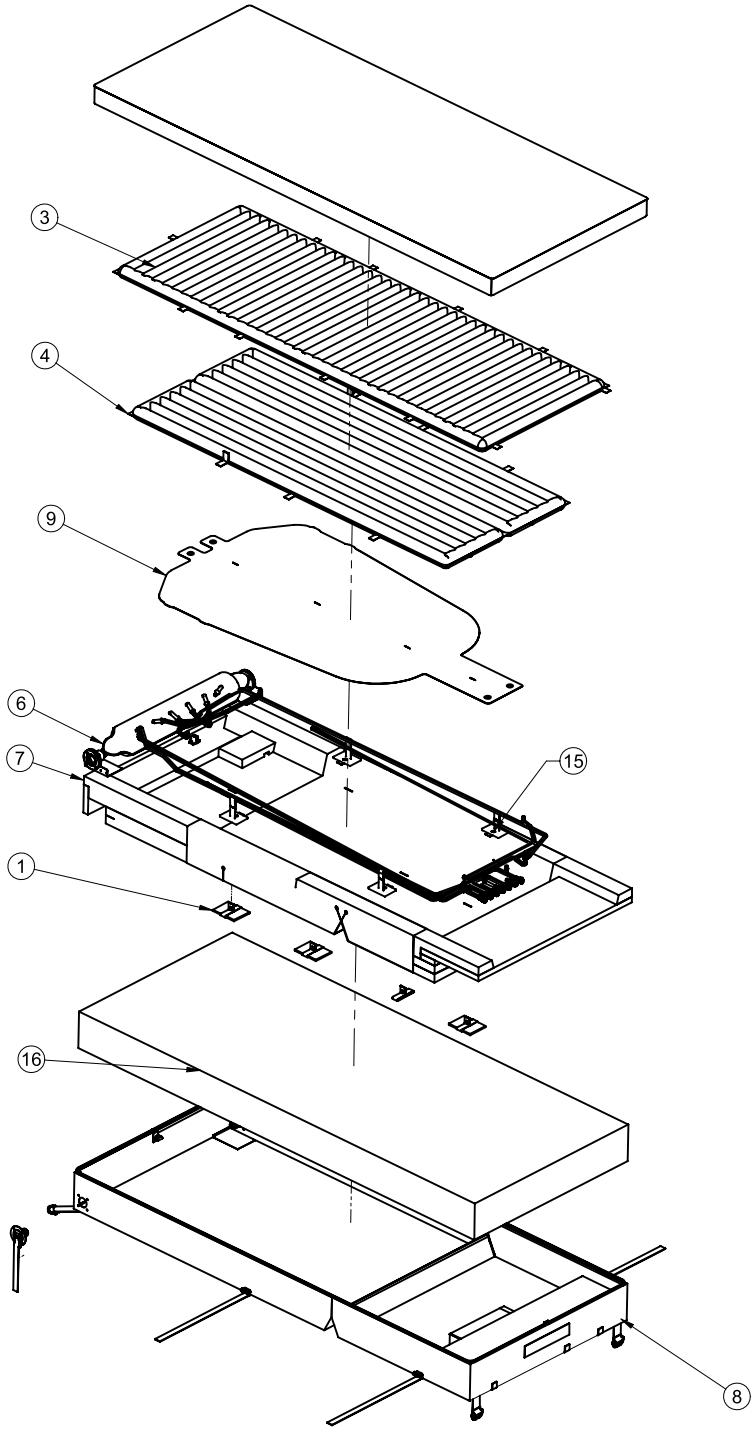
56-0280


AMCB 56-0280-A0
J11
DEBUG RS232
J15
VALVE #1
J14
VALVE #2
J13
VALVE #3
J12
VALVE #4
J11
VALVE #5
J10
VALVE #6
J9
VALVE #7
J8
PUMP
VALVE #2 DEFLATE LAYER RIGHT (DR)
VALVE #3 DEFLATE LAYER LEFT (DL)
VALVE #4 SUPPORT LAYER (SL)
VALVE #5 LEFT TURN BLADDER (LT)
VALVE #6 RIGHT TURN BLADDER (RT)
VALVE #7 LOW AIR LOSS (LAL)
P
POWER LINE CHOKES
VALVE #2
+24VS
VALVE #3
+24VS
VALVE #4
+24VS
VALVE #5
+24VS
VALVE #6
+24VS
VALVE #7
+24VS
PUMP
+24VO
+24VI

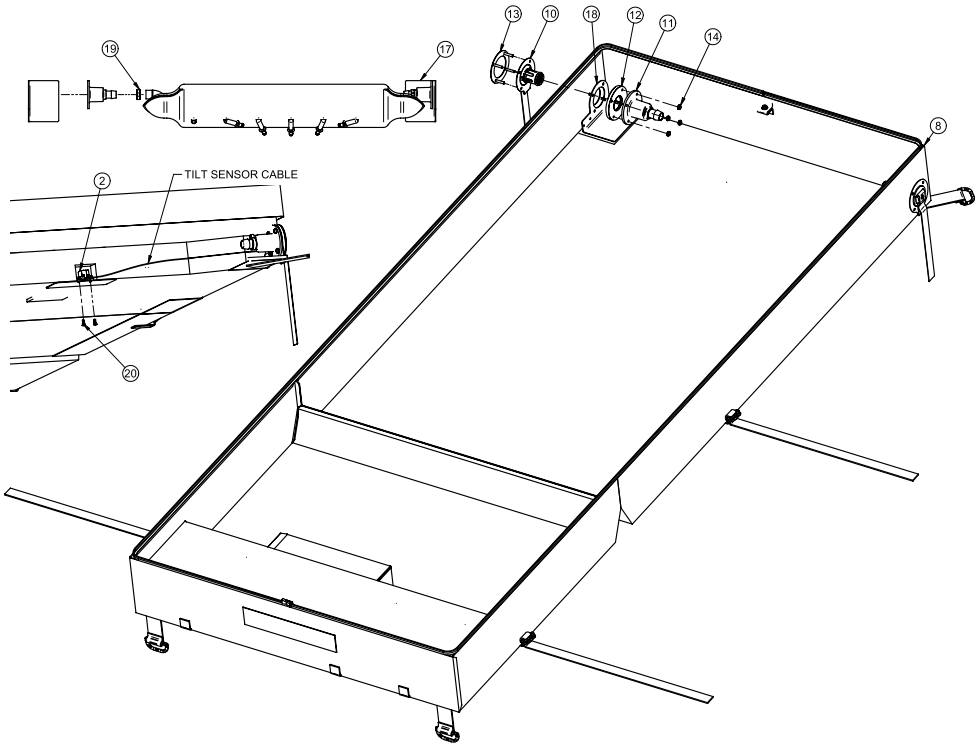
Support surface assembly

L56-004 Rev F (Reference Only)

Top Cover:
Standalone - 56-0274 or Integrated - 56-0528



Support surface assembly

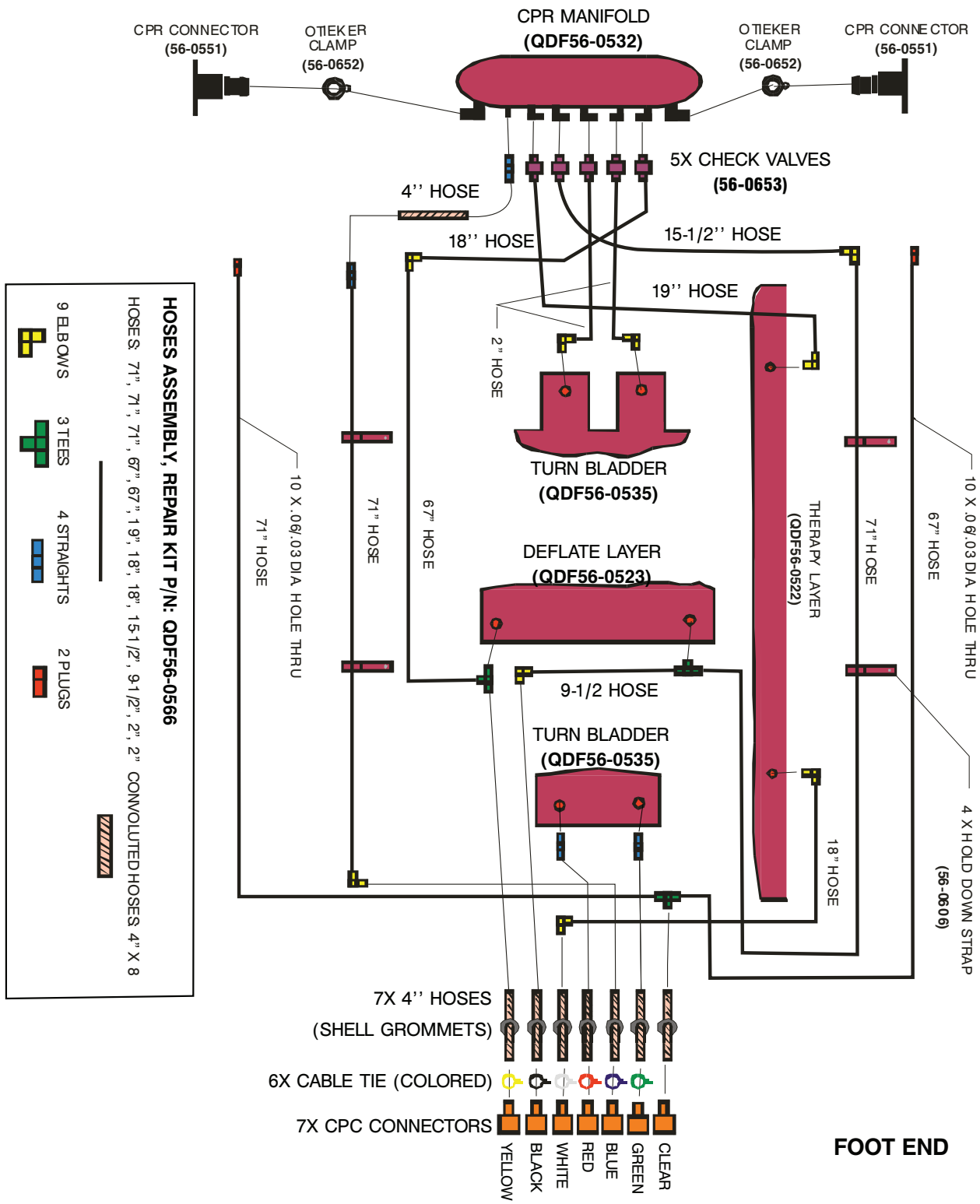


Item	Number	Name	Quantity
1	56-0147	Stopper	4
2	56-0287	Tilt sensor	1
3	56-0522	Fabric part. upper air cushion (inflated)	1
4	56-0523	Lower air cushion	1
6	56-0532	CPR manifold	1
7	56-0533	Foam cushion	1
8	56-0534	Bottom cover	1
9	56-0535	Turning bladder	1
10	56-0550	CPR pull	2
11	56-0551	CPR connector	2
12	56-0553	CPR plate	2
13	56-0277	Outside CPR flange	1
14	56-0567	Locknut no. 10-32	8
15	56-0607	Anchor hose assembly	4
16	56-0670	Fire barrier	1
17	56-0643	Left CPR support	1
18	56-0644	Right CPR support	1
19	56-0652	Oetiker clamp	2
20	56-0579	Snap rivets	2
21	56-0566	SITA hose assembly	1

Support surface hose assembly

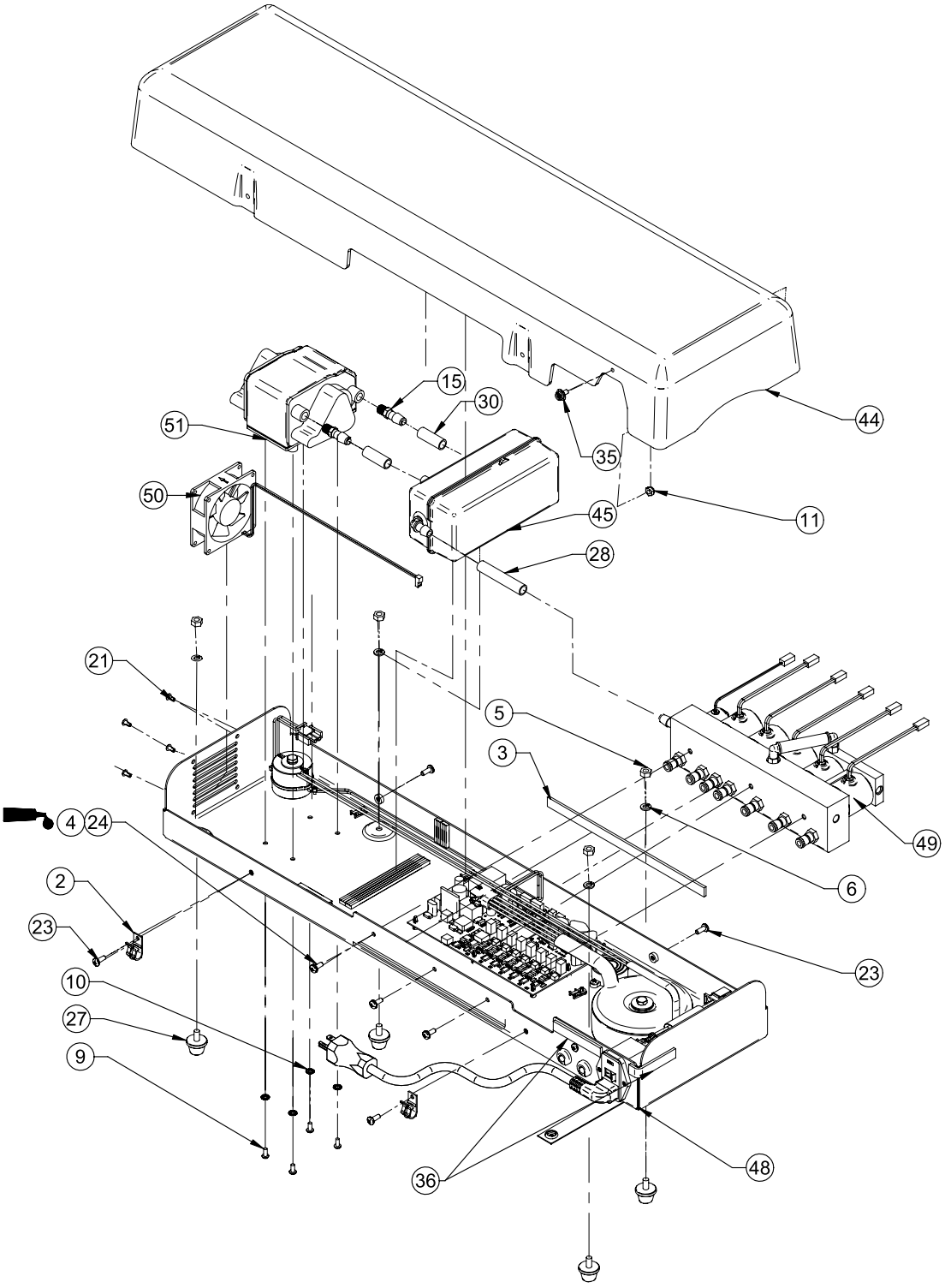
56-0566 (Reference Only)

HEAD END



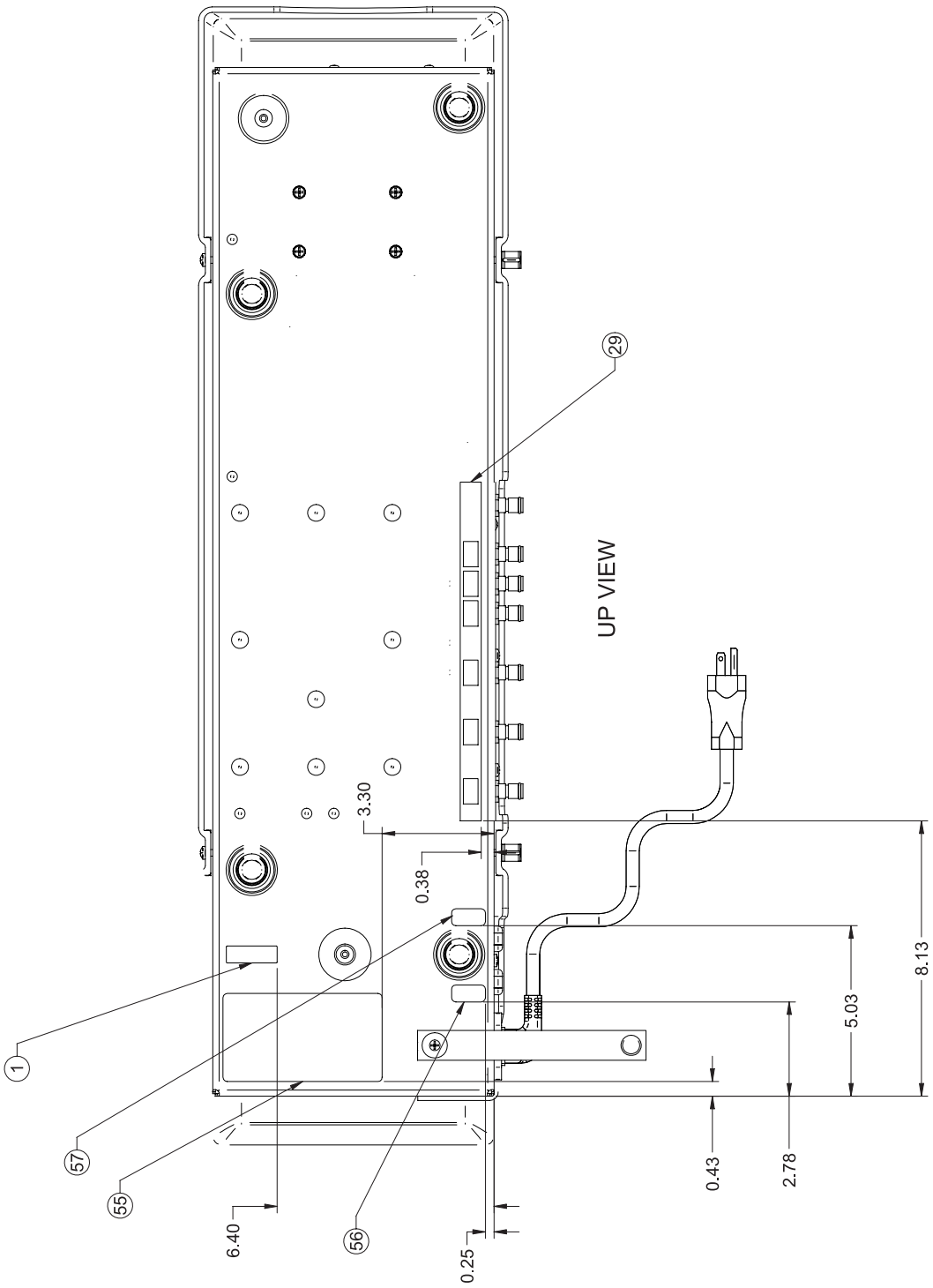
Control box assembly

56-0282 B (Reference Only)

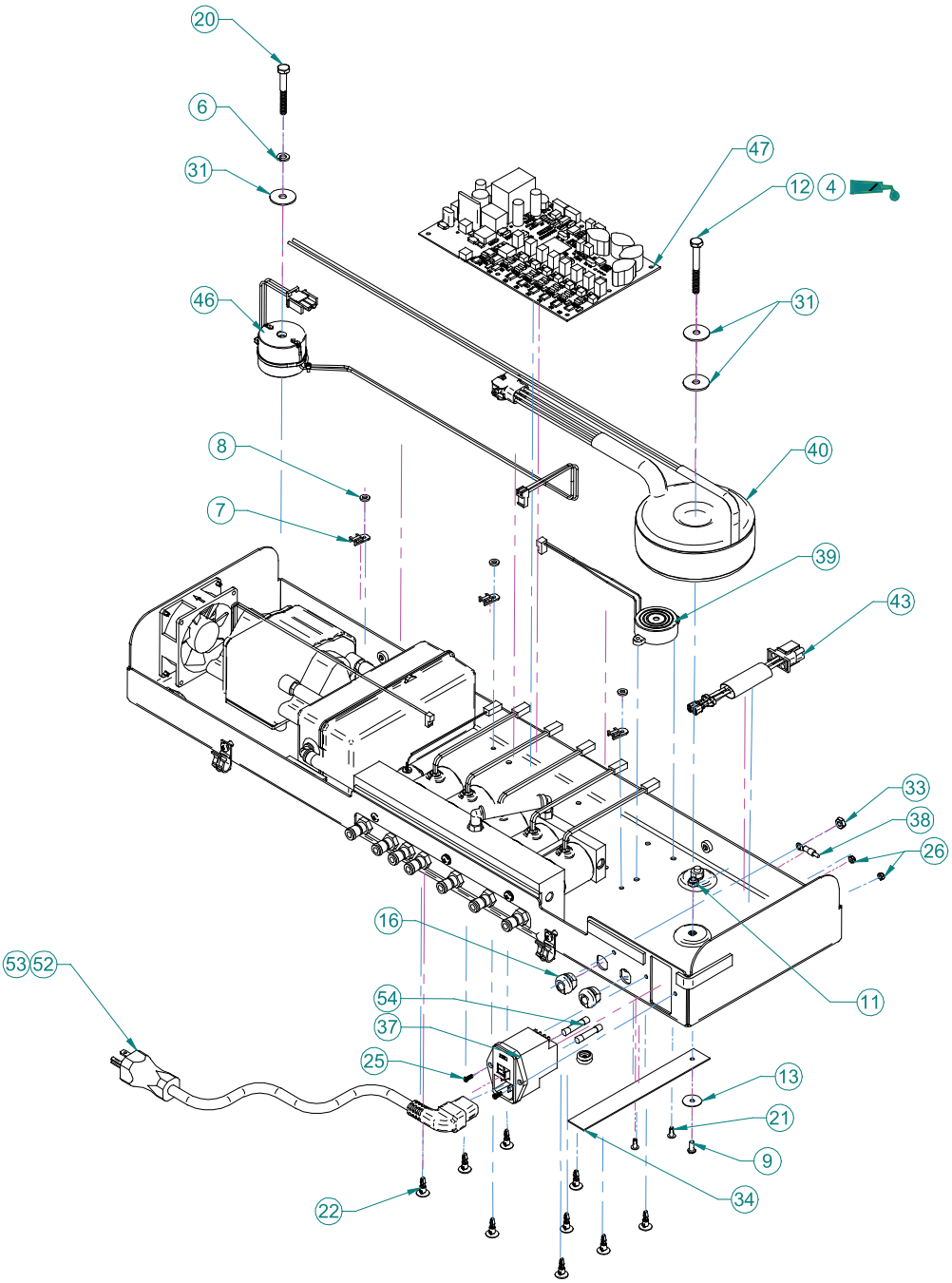


MECANICAL PART ASSEMBLY VIEW

Control box assembly

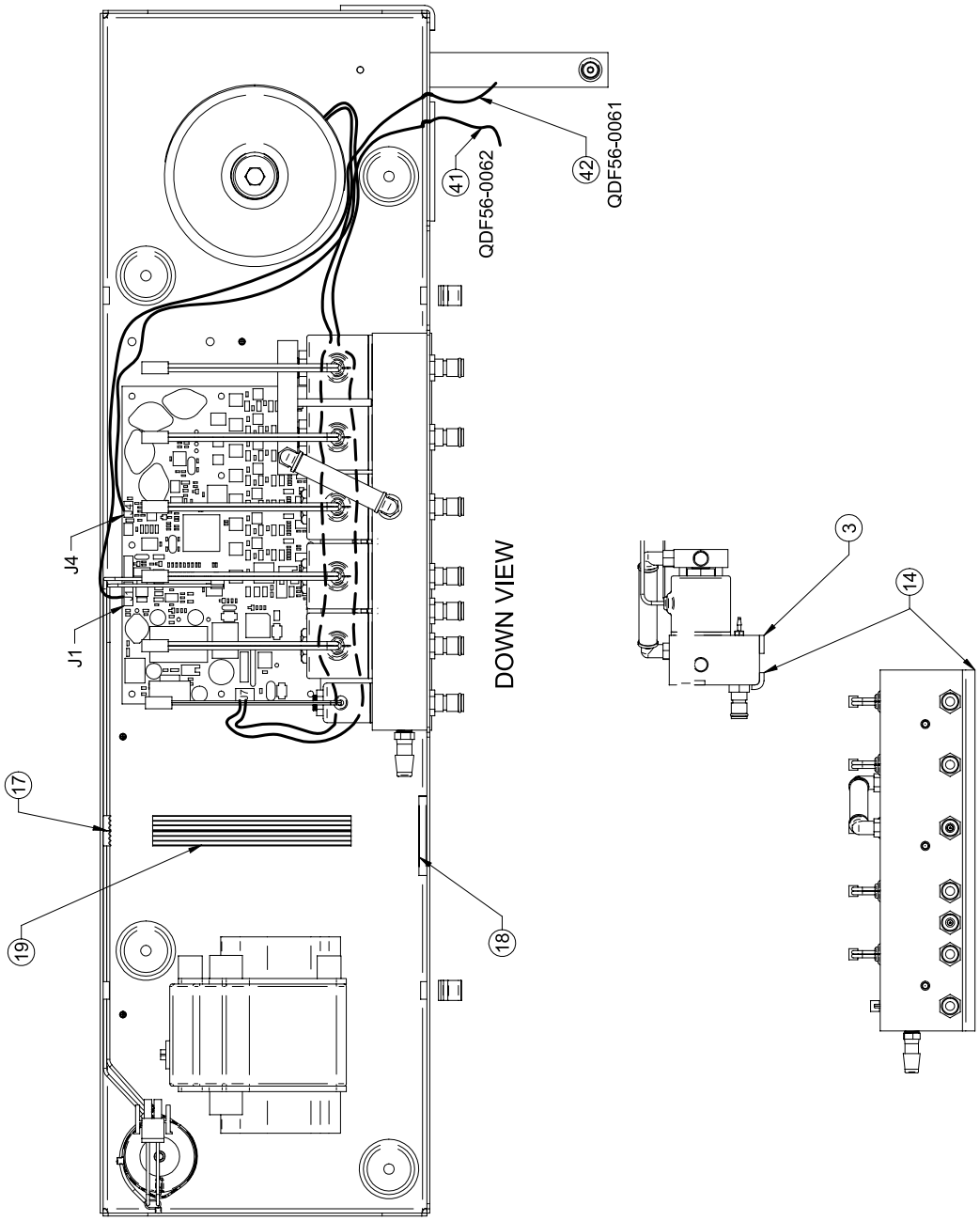


Control box assembly



ELECTRICAL PART ASSEMBLY VIEW

Control box assembly



Item	Number	Name	Quantity
1	QE56-0298TRI	Serial number controller sticker	1
2	56-0255	Power cord retainer	2
3	56-0258	Manifold isolation	2
4	56-0260	Loctite blue medium strength threadlocker	1
5	56-0262	Nut 1/4-20	4
6	56-0263	Lock washer 1/4”	5
7	56-0264	Tie-wrap hold-downs	3
8	56-0265	Nylon washer 3/8” x 1/16”	3
9	56-0266	Screw, PHP, 8-32 x 3/8	5
10	56-0267	Star washer #8	4

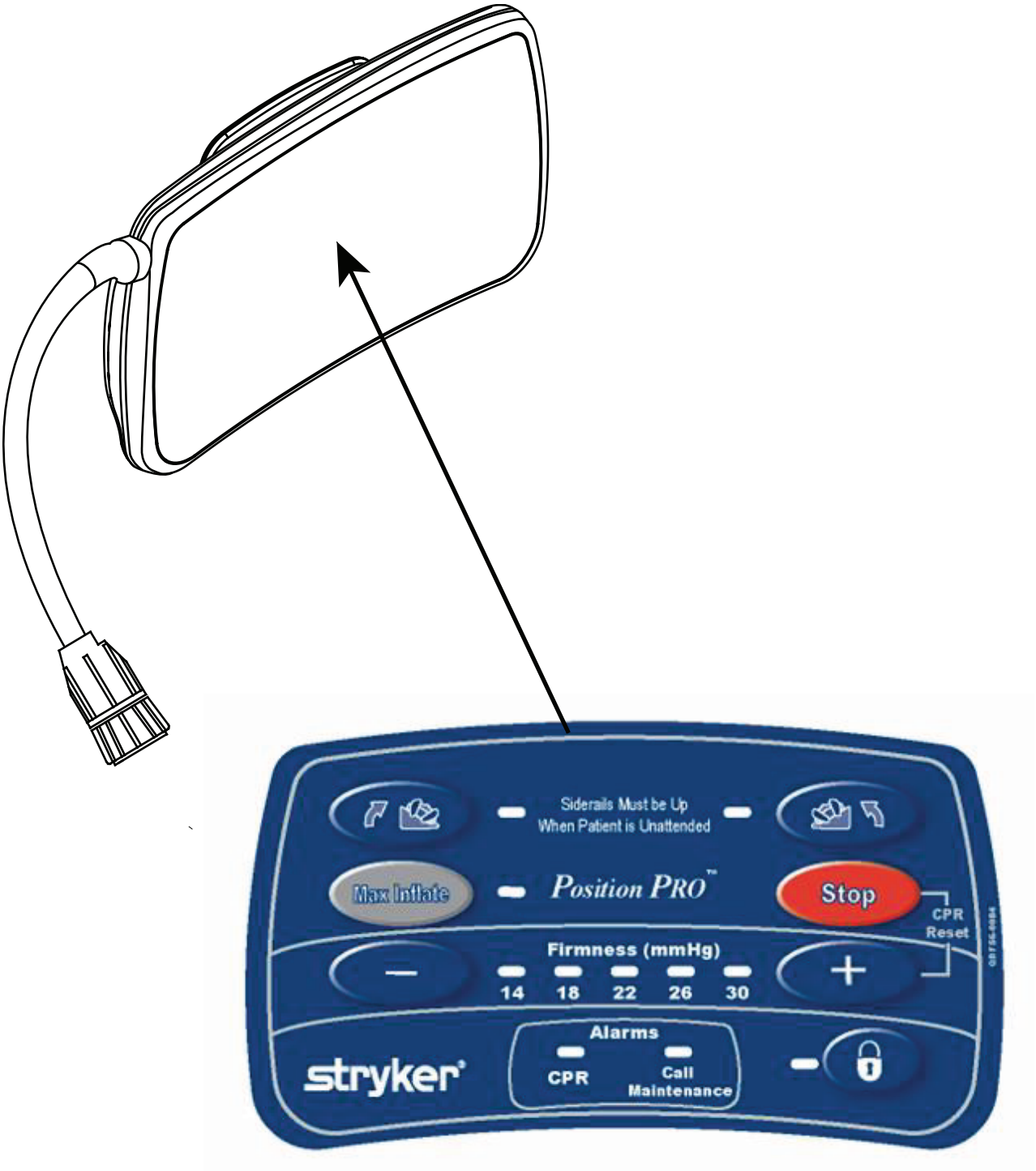
Control box assembly

Item	Number	Name	Quantity
11	56-0268	Nylon nut #10-32	2
12	56-0269	Hexagon cap screw, 1/4-20 x 2.25 stainless steel	1
13	56-0270	Washer, fender #8 x 3/4 x 1/64	1
14	56-0271	Manifold isolation	1
15	56-0571	Straight fitting, barb .38 - threaded	2
16	56-0572	Strain relief - bushing	2
17	56-0573	Rubber, bumper 1.25	1
18	56-0574	Rubber, bumper 2.00	1
19	56-0575	Rubber, bumper 5.00	1
20	56-0577	Screw, cap 1/4-20 x 2.00 stainless steel	1
21	56-0579	Rivet, snap	9
22	56-0580	Standoff, pcb	9
23	56-0581	Anodized screw, PHP, 10-24 x .50	4
24	56-0582	Screw, PHP vibra-tite, 10-32 x 5/8	3
25	56-0584	Screw, FHP 4-40 x .375	2
26	56-0585	Nylon nut locking 4-40	2
27	56-0586	Rubber feet	4
28	56-0599	Hose, PVC- clear .375 id x 2.25 l	1
29	56-0602	Label, connection - hoses	1
30	56-0613	Hose, PVC- clear .375 id x 2.25 l	2
31	56-0619	Washer, fender - 1/4 x 1 x 1/16	3
33	56-0621	Nut, 10-32	1
34	56-0635	Plug strap assembly	1
35	56-0636	Snap screw #8 1/2	1
36	56-0654	Isolation	2
37	QDF2034	120V power supply	1
38	QDF25-0508	Ground	1
39	QDF5095	Buzzer, sound	1
40	QDF56-0047	Transformer	1
41	QDF56-0061	Cable	1
42	QDF56-0062	Tilt sensor cable within box	1
43	QDF56-0078	120V connector	1
44	QDF56-0132	Plastic cover	1
45	QDF56-0143	Canister assembly	1
46	QDF56-0243	Line choke	1
47	QDF56-0280	Air main control board	1
48	QDF56-0500	Control box, bottom	1
49	QDF56-0503	Valve manifold assembly	1
50	QDF56-0509	Fan	1
51	QDF56-0541	Pump	1
52	QDF8087	Hospital grade power cord (4’)	1
53	QDF8088	Hospital grade power cord (15’)	1
54	QDF9578	Fuses 5A 250V	2
55	QE56-0244	PositionPro signalitic sticker	1

Control box assembly

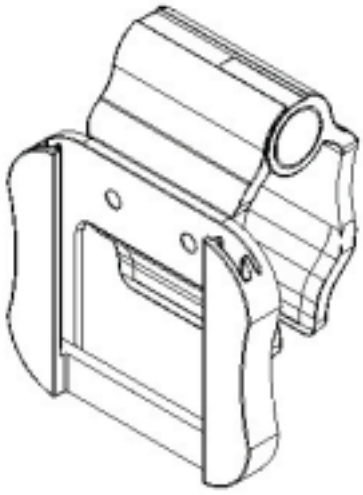
Item	Number	Name	Quantity
56	QE56-0245	Pendant connector sticker	1
57	QE56-0246	Tilt sensor connector sticker	1

QDF2081 (Reference Only)



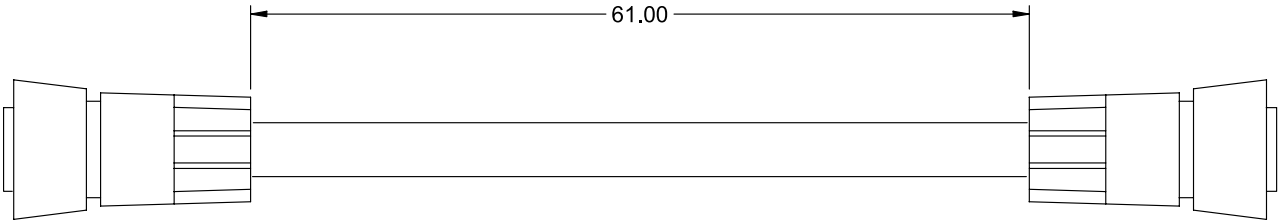
Standalone pendant control clip

QDF2082 (Reference Only)



InTouch integrated cable

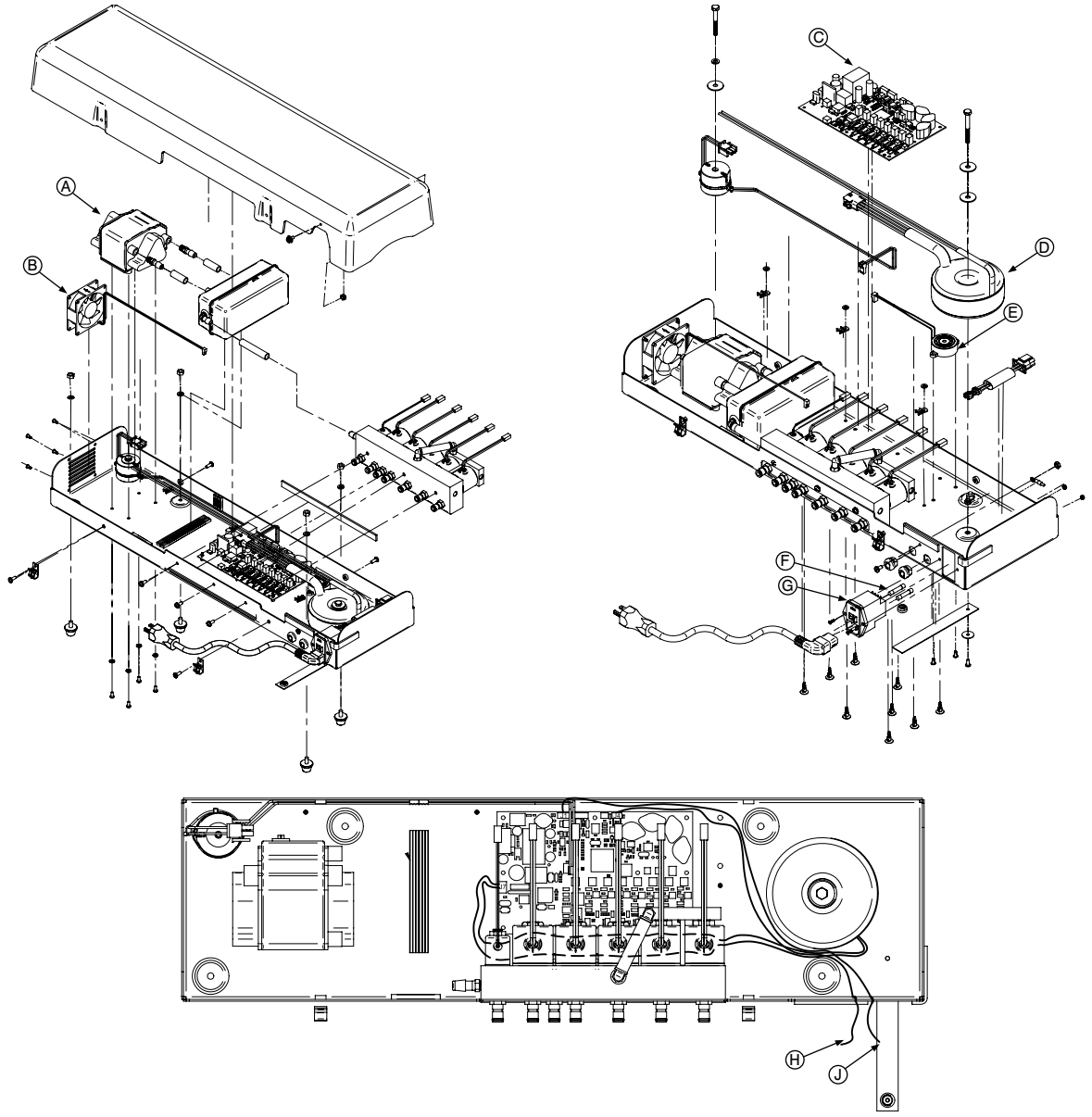
27-1534 (Reference Only)



Position on Connector	Position on Connector	Signal	Color
1	1	CAN-H-A	Black
2	2	CAN-L-A	Red
3	3	+12V	Black
4	4	Ground	White
5	5	Safe	Black
6	6	+24V	Green

Recycling passport

Assembly Part Number: 56-0282 (Reference Only)



Item	Recycling/Material Code	Quantity
A	Pump (QDF56-0541)	1
B	Fan (QDF56-0509)	1
C	CPU/power board (QDF56-0280)	1
D	Transformer (QDF56-0047)	1
E	Sound buzzer (QDF5095)	1
F	Fuses 5A 250V (QDF9578)	2
G	120V power supply (QDF2034)	1
H	Cable (QDF56-0061)	1
J	Tilt sensor cable (QDF56-0062)	1

Guidance and manufacturer's declaration - Electromagnetic Immunity			
PositionPRO is suitable for use in the electromagnetic environment specified below. The customer or the user of **PositionPRO** should make sure 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%.
Electrostatic 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	Main power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5 *	+8 kV differential mode +2 kV common mode	+8 kV differential mode +2 kV common mode	Main power quality is that of typical commercial and/or hospital environment.
Voltage dips, voltage variations and short interruptions on power supply input lines IEC 61000-4-11 *	<5%Ut (>95% dip in Ut) for 0.5 cycle 40%Ut (60% dip in Ut) for 5 cycles 70%Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec	<5%Ut (>95% dip in Ut) for 0.5 cycle 40%Ut (60% dip in Ut) for 5 cycles 70%Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec	Main power quality should be that of a typical commercial and/or hospital environment. If the user of **PositionPRO** requires continued operation during power main interruptions, it is recommended that the device be powered from an uninterrupted power supply or a battery.
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 and/or hospital environment.
Note: U_T is the a.c. mains voltage prior to applications of the test level.			

Recommended separation distances between portable and mobile RF communications equipment and PositionPRO.
PositionPRO is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of **PositionPRO** can help prevent electromagnetic interferences by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and **PositionPRO** as recommended below, according to the maximum output power of the communications equipment.

(Continued)

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d=[3.5/V1]\sqrt{P}$	80 MHz to 800 MHz $d=[3.5/E1]\sqrt{P}$	800 MHz to 2.5 GHz $d=[7/E1]\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. **Note:** At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. **Note:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

PositionPRO is suited for use in the electromagnetic environment specified below. The customer or the user of **PositionPRO** should make sure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**

(Continued)

Conducted RF IEC 61000- 4-6 * Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of **PositionPRO**, including cables, than the recommended separation distance calculated from the equation appropriate for the frequency of the transmitter. Recommended Separation Distance $d=1.2\sqrt{P}$ $d=1.2\sqrt{P}$ 80 MHz to 800 MHz $d=2.3\sqrt{P}$ 800 MHz to 2.5 GHz where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and *d* is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol: 

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

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

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

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

Guidance and manufacturer's declaration - Electromagnetic Emissions
PositionPRO is intended for use in an electromagnetic environment specified below. The customer or the user of **PositionPRO** should make sure that it is used in such an environment.

(Continued)

Emissions test	Compliance	Electromagnetic environment
RF Emissions CISPR 11	Group 1	**PositionPRO** uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	**PositionPRO** 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.
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage Fluctuations Flicker Emissions IEC 61000-3-3	Complies	

⚠ WARNING

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

Warranty

Stryker Medical, a division of Stryker Corporation (“Stryker”), warrants that it Stryker Model 2920 **PositionPRO®** product will be free from defects in material and workmanship for a period of two years after the date of delivery. Stryker’s obligation under this warranty is expressly limited to supplying replacement parts and labor for, or replacing at its option, any product which is , in the sole discretion of Stryker, found to be defective. If requested by Stryker, products or parts for which a warranty claim is made shall be returned prepaid to the factory. Any improper use or any alteration or repair by others in such manner as in Stryker’s judgement affects the product materially and adversely shall void this warranty. Any repair of Stryker products using parts not provided or authorized by Stryker shall void this warranty. No employee or representative of Stryker is authorized to change this warranty in any way.

Stryker Model 2920, **PositionPRO** product is designed for a five year expected service life under normal use, conditions, and with appropriate periodic maintenance as described in the maintenance manual for each device.

The above noted warranty periods apply only to the original purchaser of the product and begin on the date of delivery to such original purchaser.

Warranty exclusion and damage limitations

The express warranty set forth herein is the only warranty applicable to the product. **Any and all other warranties, whether express or implied, including any implied warranty of merchantability or fitness for a particular purpose are expressly excluded by Stryker.** In no event shall Stryker be liable for incidental or consequential damages.

To obtain parts and service

Stryker products are supported by a nationwide 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

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

Damaged product

ICC Regulations require that claims for damaged product must be made within fifteen (15) days of receipt of the product. 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. Claims 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 product, 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 within thirty (30) days of receipt. Claims for any incomplete shipments 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.

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