AIR+ Pump

Maintenance Manual

REF 2863

EN

2863-009-002 Rev AB.0 2024-11

Table of Contents

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

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

WARNING

- Do not modify or change this device. Service should only be completed by qualified personnel. Failure could result in injury and void your warranty.
- The use of accessories, transducers, and cables, other than those specified or provided by the manufacturer, could result in increased electromagnetic emissions or decreased electromagnetic immunity and result in improper operation.
- Portable RF communications equipment, including peripherals such as antenna cables and external antennas, should be no closer than 12 inches (30 cm) to any part of **AIR+**, including cables specified by the manufacturer.
- Avoid stacking or placing equipment adjacent with other equipment to prevent improper operation of the products. If such use is necessary, carefully observe stacked or adjacent equipment to make sure that they are operating properly.

CAUTION

- Always use electrostatic discharge (ESD) protective equipment before you open antistatic bags and service electronic parts.
- Do not place unprotected circuit boards on the floor.
- Always use a grounded static strap to prevent static coming into contact with the printed circuit board (PCB) assembly.

Introduction for service

This manual assists you with the service of your Stryker product. Read this manual to service this product. This manual does not address the operation of this product. See the Operations Manual for operating and use instructions. To view your Operations Manual online, see https://techweb.stryker.com/.

Expected service life

The **AIR+** pump has a five year expected service life under normal use conditions and with appropriate periodic maintenance.

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

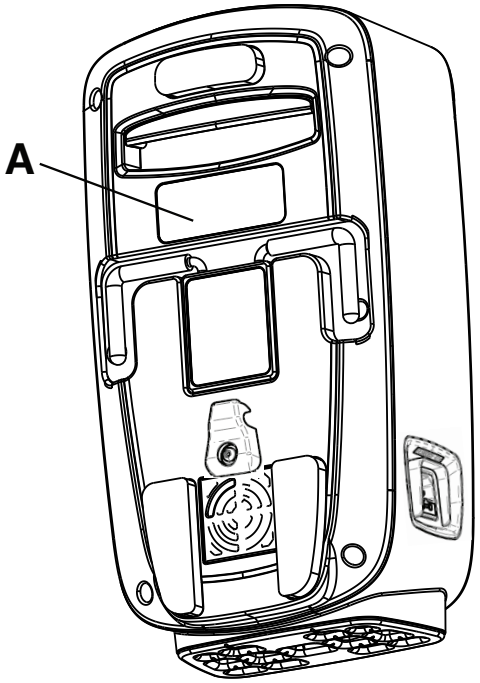


Figure 1 – Serial number location

Service

Protecting against electrostatic discharge (ESD)

CAUTION

- Always use electrostatic discharge (ESD) protective equipment before you open antistatic bags and service electronic parts.
- Do not place unprotected circuit boards on the floor.

Note - Always ship the circuit boards back to Stryker. Use the antistatic bag that the new board was originally shipped in.

The electronic circuits in the product are completely protected from static electricity damage when factory assembled. Always use adequate static protection when you service the electronic systems of the product. All service personnel must use static protection whenever they touch wires.

Sample antistatic protection equipment includes:

- Antistatic wrist strap
- Grounding plug
- Test lead with a banana plug on one end and an alligator clip on the other end

Make sure that you follow the ESD manufacturer's instructions for appropriate protection against static discharge.

Powering off the pump

Press and hold the **Power** button for two seconds to power off the pump.

Fuse replacement

Fuse: F3.5AH250V

Tools required:

- Slotted screwdriver
- Digital multimeter

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a slotted screwdriver, remove the fuse cover located below the power inlet. Save the fuse cover.

   Note - If you need to check a fuse, use a digital multimeter.
5. Remove and discard the fuse.
6. Reverse the steps to reinstall.
7. Test functionality. See *Testing functionality* (page 19). All tests must pass.
8. Verify proper operation before you return the product to service.

Bumper replacement

Tools required:

- Small slotted screwdriver

- **Goof Off**® Household Heavy Duty Remover
- Towels
- Alcohol prep wipes

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Using a small slotted screwdriver, scrape under each bumper to remove. Start from the corner of each bumper to remove the top bumper (A), bottom left bumper (B), and bottom right bumper (C) from the back cover (D) (Figure 2). Discard the bumpers.

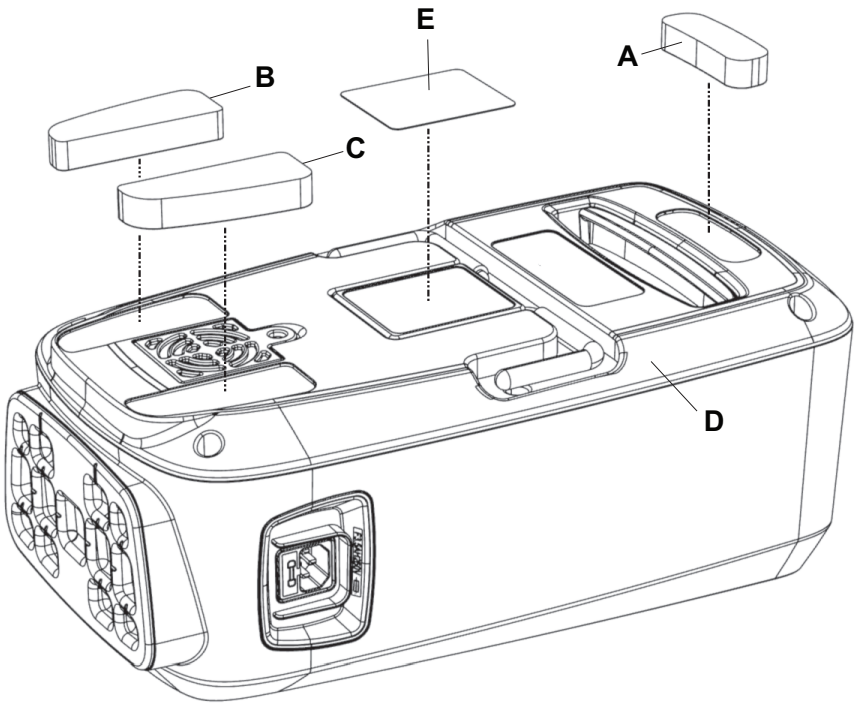


Figure 2 – Bumpers

4. Using **Goof Off**® Household Heavy Duty Remover, a small slotted screwdriver, and towels, remove the adhesive from the back cover.
5. Using alcohol prep wipes, clean the back cover bumper pad areas and current compliance label (E).
6. Install the supplied top bumper (A), bottom left bumper (B), and bottom right bumper (C) to the back cover (D).
7. Plug the support surface hose assembly back into the pump.
8. Plug the power cord back into the pump.
9. Test functionality. See *Testing functionality* (page 19). All tests must pass.
10. Verify proper operation before you return the product to service.

Foot replacement

Tools required:

- T20 Torx driver
- 6 mm socket
- Ratchet

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is on your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Using a ratchet and a 6 mm socket, remove the six nuts that secure the foot to the front pump housing. Save the nuts.
8. Remove and discard the foot.
9. Reverse the steps to reinstall. See *Pump housing rubber foot assembly - 2874-007-022* (page 25).
10. Test functionality. See *Testing functionality* (page 19). All tests must pass.
11. Verify proper operation before you return the product to service.

Air filter replacement

Tools required:

- T20 Torx driver

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the screw (A), washer (B), and flex grip (C) that secure the air filter access door (D) to the cover (Figure 3). Save the screw, washer, and flex grip.

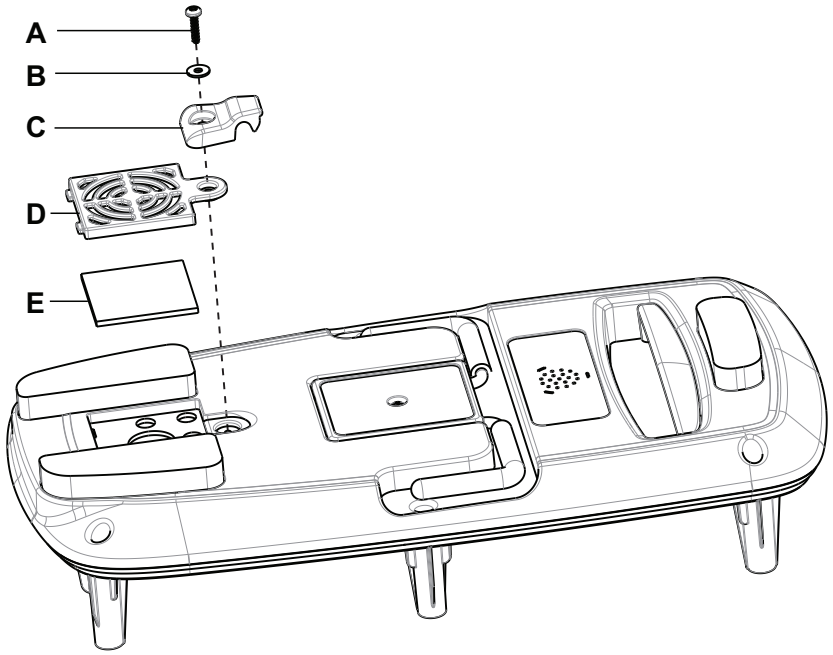


Figure 3 – Air filter

5. Remove and save the air filter access door (D).

6. Remove and discard the air filter (E).
7. Install the supplied air filter (E).
8. Reverse steps 3 - 5 to reinstall.
9. Insert the power cord under the power cord retention flex grip (F) (Figure 4).

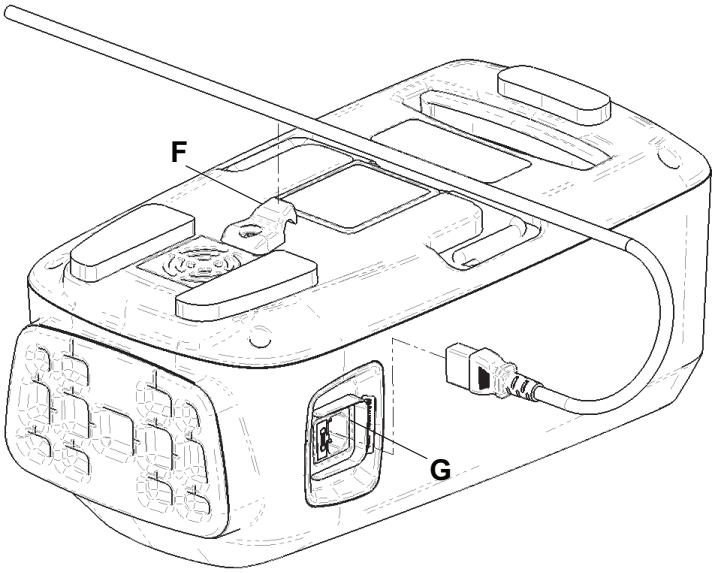


Figure 4 – Insert power cord

10. Plug the power cord back into the pump (G) (Figure 4).
11. Secure the power cord (Figure 5).

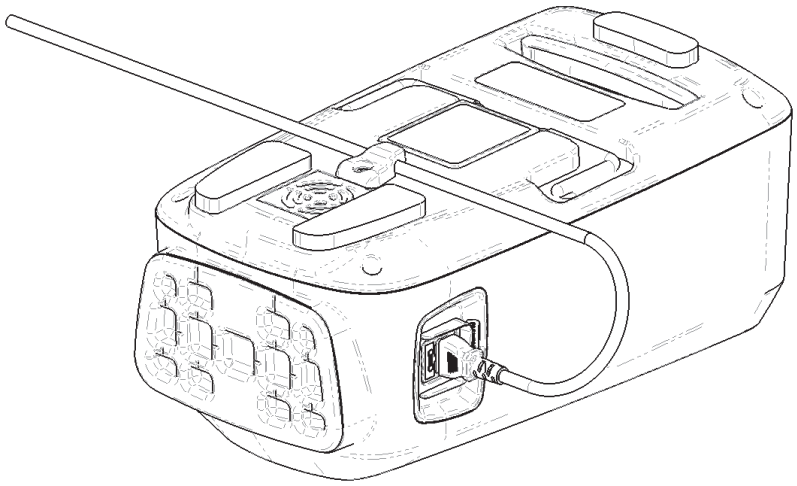


Figure 5 – Power cord secure

12. Plug the support surface hose assembly back into the pump.
13. Test functionality. See *Testing functionality* (page 19). All tests must pass.
14. Verify proper operation before you return the product to service.

Flex grip replacement

Tools required:

- T20 Torx driver

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the screw (A) that secures the air filter access door (B) to the back cover (Figure 6). Discard the screw.

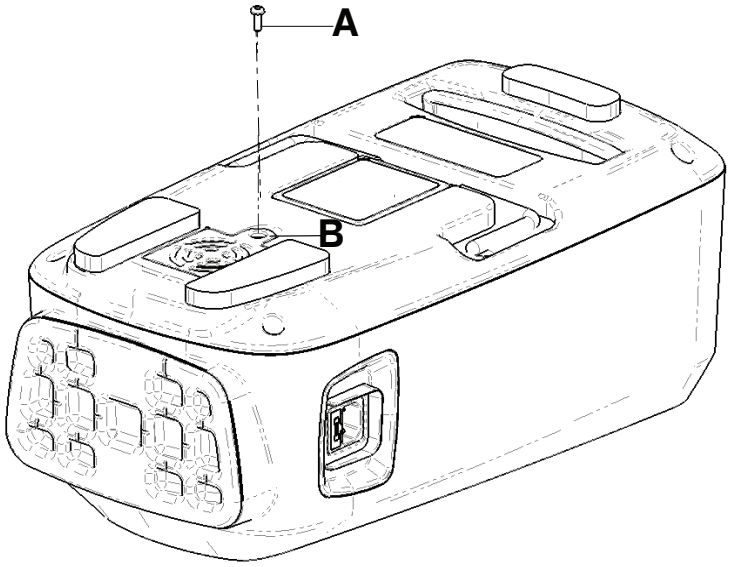


Figure 6 – Back cover

5. Using a T20 Torx driver, install the supplied delta screw (C) (0023-162-000), flat washer (D) (2941-007-002), and power cord retention flex grip (E) (2941-007-004) to secure the air filter access door (B) to the back cover (Figure 7).

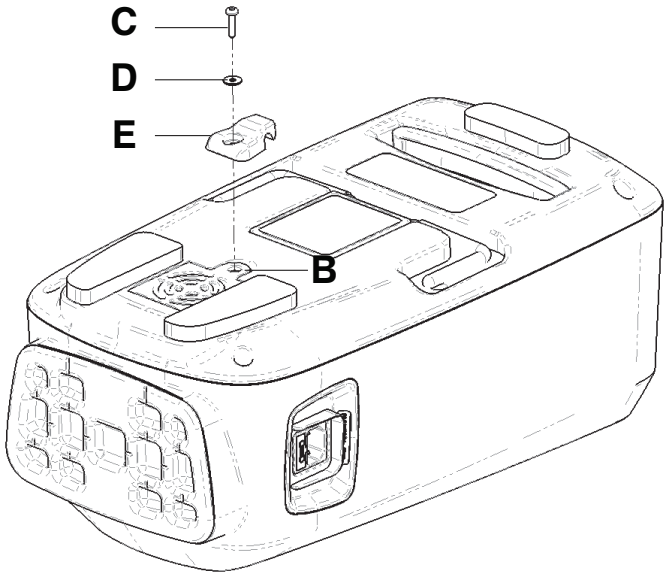


Figure 7 – Install the pump power cord p-clamp

6. Insert the power cord under the power cord retention flex grip (F) (Figure 8).

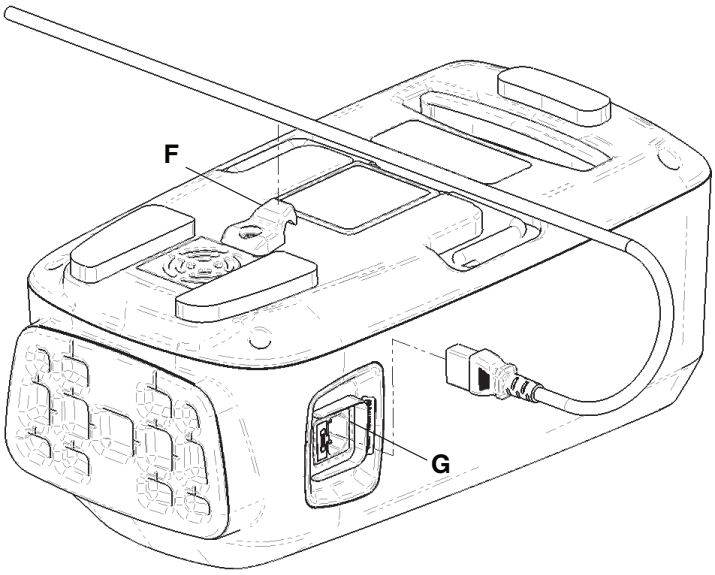


Figure 8 – Insert power cord

7. Plug the power cord back into the pump (G) (Figure 8).
8. Secure the power cord (Figure 9).

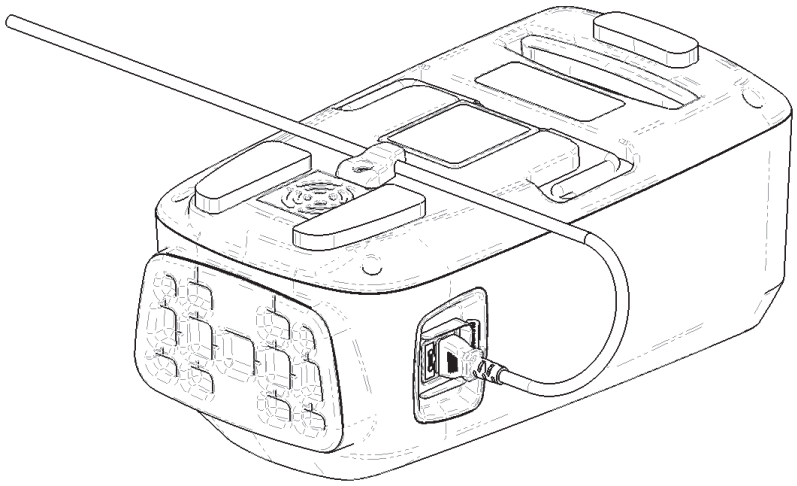


Figure 9 – Power cord secure

9. Plug the support surface hose assembly back into the pump.
10. Test functionality. See *Testing functionality* (page 19). All tests must pass.
11. Verify proper operation before you return the product to service.

Transport handle replacement

Tools required:

- T20 Torx driver
- #2 Phillips screwdriver

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Using a #2 Phillips screwdriver, remove the five screws that secure the back board to the back pump housing. Save the screws.
8. Remove and save the back board.
9. Using a #2 Phillips screwdriver, remove the four screws that secure the handles to the back pump housing. Save the screws.
10. Remove and discard the transport handle.
11. Reverse the steps to reinstall. See *Handle assembly - 2874-007-031* (page 26).
12. Test functionality. See *Testing functionality* (page 19). All tests must pass.
13. Verify proper operation before you return the product to service.

Hook assembly replacement

Tools required:

- T20 Torx driver
- Stubby #2 Phillips screwdriver
- Pick

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a pick, remove and discard the information label on the hook assembly.
5. Using a stubby #2 Phillips screwdriver, remove the screw (under the label removed in step 4) that secures the hook assembly to the back pump housing. Save the screw.
6. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
7. Using two hands, rotate the pump assembly to the right so the front is to your left.
8. Separate the front and back pump housing. Place the back pump housing down on the work surface.
9. Unplug the power input cable and the power output cable from the power supply.
10. Using one hand to hold the fish paper and a stubby #2 Phillips screwdriver, remove the four Phillips screws and washers that secure the power supply to the main frame. Save the screws and washers.
11. Remove and save the power supply and fish paper.
12. Using a stubby #2 Phillips screwdriver, remove the four screws that secure the pump frame to the main frame and set aside. Save the screws.
13. Using a stubby #2 Phillips screwdriver remove the six screws that secure the hook assembly to the back pump housing. Save the screws.
14. Remove and discard the hook assembly.
15. Reverse the steps to reinstall. See *Hook assembly - 2874-007-019* (page 27).
16. Test functionality. See *Testing functionality* (page 19). All tests must pass.
17. Verify proper operation before you return the product to service.

Front pump housing replacement

Tools required:

- ESD system
- T20 Torx driver
- #2 Phillips screwdriver

Procedure:

Note - Use ESD protection when necessary. See *Protecting against electrostatic discharge (ESD)* (page 5).

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.

CAUTION - Always use a grounded static strap to prevent static coming into contact with the printed circuit board (PCB) assembly.

6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Unplug all cables from the PCBA assembly.

   Note - Pay attention to the cable connection locations for when you reinstall.
8. Using a #2 Phillips screwdriver, remove the two support bracket screws that secure the PCBA assembly and the screen to the front pump housing. Save the screws and support bracket.
9. Using a #2 Phillips screwdriver, remove the three screws that secure the board to the screen. Save the screws.
10. Remove the PCBA assembly.
11. Grasp the air hose and pull out from the support surface hose connector to detach the hose from the connector.
12. Remove and discard the front pump housing.
13. Reverse the steps to reinstall.
14. Test functionality. See *Testing functionality* (page 19). All tests must pass.
15. Verify proper operation before you return the product to service.

Pump housing side fitting replacement

Tools required:

- Adjustable wrench

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump on a work surface with the pump housing side fitting face up.
4. Remove the broken fitting. Remove any thread sealing plumber's tape that may remain.
5. Using your hand, thread in the new side fitting. Tighten as much as you can by hand.
6. Using an adjustable wrench, make sure that the side fitting hose release button faces the top of the pump housing.

   Note - Make sure that the inside of the adjustable wrench is tight to the round part of the fitting.
7. Plug the support surface hose assembly back into the pump.
8. Plug the power cord back into the pump.
9. Test functionality. See *Testing functionality* (page 19). All tests must pass.
10. Verify proper operation before you return the product to service.

Power supply replacement

Tools required:

- T20 Torx driver
- #2 Phillips screwdriver

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.

4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Grasp the hose at the manifold coming from the pump and pull to remove the hose from the manifold.
8. Unplug the power input cable and the power output cable from the power supply.
9. Using one hand to hold the fish paper and a #2 Phillips screwdriver, remove the four Phillips screws and washers that secure the power supply to the main frame. Save the screws, washers, and fish paper.
10. Remove and discard the power supply.
11. Reverse the steps to reinstall. See *Power supply assembly - 2874-007-024* (page 32)).
12. Test functionality. See *Testing functionality* (page 19). All tests must pass.
13. Verify proper operation before you return the product to service.

Power inlet replacement

Tools required:

- T20 Torx driver
- Slotted screwdriver

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Unplug the power inlet from the power supply.
8. Using a slotted screwdriver and your finger, push out on the power inlet while you push in on each of the power inlet locks to loosen the power inlet from the front pump housing. Repeat on the other side to remove.
9. Remove and discard the power inlet.
10. Reverse the steps to reinstall.
11. Test functionality. See *Testing functionality* (page 19). All tests must pass.
12. Verify proper operation before you return the product to service.

PCBA assembly replacement

Tools required:

- T20 Torx driver
- #2 Phillips screwdriver

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.

4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Grasp and remove the pressure hose at the PCBA.
8. Unplug the three cables from the PCBA.
9. Using a #2 Phillips screwdriver, remove the two support bracket screws that secure the PCBA assembly and the screen to the front pump housing. Save the screws.
10. Using a #2 Phillips screwdriver, remove the three screws that secure the board to the PCBA assembly to the front pump housing. Save the screws.
11. Unlock the keypad ribbon connector and remove the ribbon cable from the PCBA assembly.
12. Reverse the steps to reinstall. See *PCBA assembly - 2863-007-004* (page 34).
13. Test functionality. See *Testing functionality* (page 19). All tests must pass.
14. Verify proper operation before you return the product to service.

Keypad membrane replacement

Tools required:

- T20 Torx driver
- #2 Phillips screwdriver
- Pick

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Grasp and remove the pressure hose at the PCBA.
8. Unplug the three cables from the PCBA.
9. Using a #2 Phillips screwdriver, remove the two support bracket screws that secure the PCBA assembly and the screen to the front pump housing. Save the screws.
10. Using a #2 Phillips screwdriver, remove the three screws that secure the board to the PCBA assembly to the front pump housing. Save the screws.
11. Unlock the keypad ribbon connector and remove the ribbon cable from the PCBA assembly.
12. Using a pick, peel up the keypad membrane from the front pump housing. Remove and discard the keypad membrane.
13. Reverse the steps to reinstall.
14. Test functionality. See *Testing functionality* (page 19). All tests must pass.
15. Verify proper operation before you return the product to service.

Pump assembly replacement

Tools required:

- ESD system
- T20 Torx driver
- Wire cutters
- #2 Phillips screwdriver

Procedure:

Note - Use ESD protection when necessary. See *Protecting against electrostatic discharge (ESD)* (page 5).

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.
4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Grasp the hose at the manifold coming from the pump and pull to remove the hose from the manifold.

   CAUTION - Always use a grounded static strap to prevent static coming into contact with the printed circuit board (PCB) assembly.

8. Using wire cutters, cut the four cable ties that secure the pump power cable to the rest of the cables.

   Note
   - Use care when you cut the cable ties that you do not cut or damage the cables.
   - Replace the cable ties when you reinstall.
9. Unplug the pump power cable from the PCBA assembly.
10. Using a #2 Phillips screwdriver, remove the screw that secures the pump cable p-clamp to the main frame. Remove the p-clamp. Save the p-clamp and screw.
11. Using a T20 Torx driver, remove the four screws that secure the pump frame to the main frame. Save the screws.
12. Remove the spring from the hose and insert the spring into the new pump assembly hose.
13. Remove and discard the pump assembly.
14. Reverse the steps to reinstall.
15. Test functionality. See *Testing functionality* (page 19). All tests must pass.
16. Verify proper operation before you return the product to service.

Muffler replacement

Tools required:

- T20 Torx driver
- #2 Phillips screwdriver

Procedure:

1. Unplug the power cord from the pump.
2. Unplug the support surface hose assembly from the pump.
3. Place the pump face down on a work surface.

4. Using a T20 Torx driver, remove the six screws that secure the back pump housing to the front pump housing. Save the screws.
5. Using two hands, rotate the pump assembly to the right so the front is to your left.
6. Separate the front and back pump housing. Place the back pump housing down on the work surface.
7. Grasp the inlet hose and remove the inlet hose from the muffler. Repeat for the outlet hose.
8. Using a #2 Phillips screwdriver, remove the two mounting screws that secure the muffler to the back support plate. Save the screws.
9. Reverse the steps to reinstall. See *Muffler - 2863-007-005* (page 35).
10. Test functionality. See *Testing functionality* (page 19). All tests must pass.
11. Verify proper operation before you return the product to service.

Preventive maintenance

WARNING - Do not modify or change this device. Service should only be completed by qualified personnel. Failure could result in injury and void your warranty.

Remove the product from service before you perform 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 often based on your level of product usage. Service only by qualified personnel.

Note - Consult your local regulations to dispose of electronic equipment.

Inspect the following items:

_____ All fasteners are secure

_____ Pump housing or components (hose, power cords, or case) are free of cracks, holes, or damage

_____ Bed frame pump hooks are free of damage

_____ Hose connections are secure

_____ User interface are free of cracks or damage

_____ Fuse

_____ Air filter (replace each year)

_____ Test functionality (all tests must pass)

Product serial number:
Completed by:
Date:

Testing functionality

Complete this functional test procedure where indicated. Make sure that you pass all acceptance criteria.

Procedure:

1. Plug the power cord from the controller into a wall outlet.
2. Press the **Power** button.

   Acceptance criteria:

   _____ Pump turns on.
3. Press the **SPR Plus** button.

   Acceptance criteria:

   _____ Button is tactile and toggles to **SPR Plus** mode.

   _____ **SPR Plus** button illuminates.

   _____ **Increase/Decrease firmness** buttons illuminate.
4. Press the **Increase/Decrease firmness** buttons. Continue to press the **Increase/Decrease firmness** buttons to test the pressure mmHg value settings.

   Acceptance criteria:

   _____ The mmHg pressure value settings illuminate.

   _____ Button is tactile and increases the mmHg pressure value setting to the maximum value, then sequences to the lowest value.
5. Press the **IsoFlex LAL** button.

   Acceptance criteria:

   _____ Button is tactile and toggles to **IsoFlex LAL** mode.

   _____ The **Increase/Decrease firmness** and **SPR Plus** lights turn off.

Troubleshooting

Problem	Screen	Cause	Recommended action
Power loss, product does not turn on		Power cord not seated, power cord unplugged from the wall outlet, or possible internal damage	1. Make sure that the power cord is plugged into the product and a wall outlet. 2. Make sure that the power cord is routed through the flex grip.
Button not responsive		Lock is on	Press and hold the **Lock** button for two seconds to turn lock off.
Alarm icon is on		Pressure alert	1. Make sure there are no kinks in the air hose. 2. Make sure that the hose is connected.
		Mode selected does not match the connected product. For example, if you selected **SPR Plus** mode but you are connected to an **IsoFlex LAL** support surface.	Make sure that you are connected to the correct product for the mode selected.
		Mode or pressure setting changed	1. Wait for the pressure to stabilize. The error will clear when the pump reaches the new target pressure. 2. Power cycle the unit. 3. If not resolved, call service.

Software version location

You can find the software version (B) on the circuit board (Figure 10).

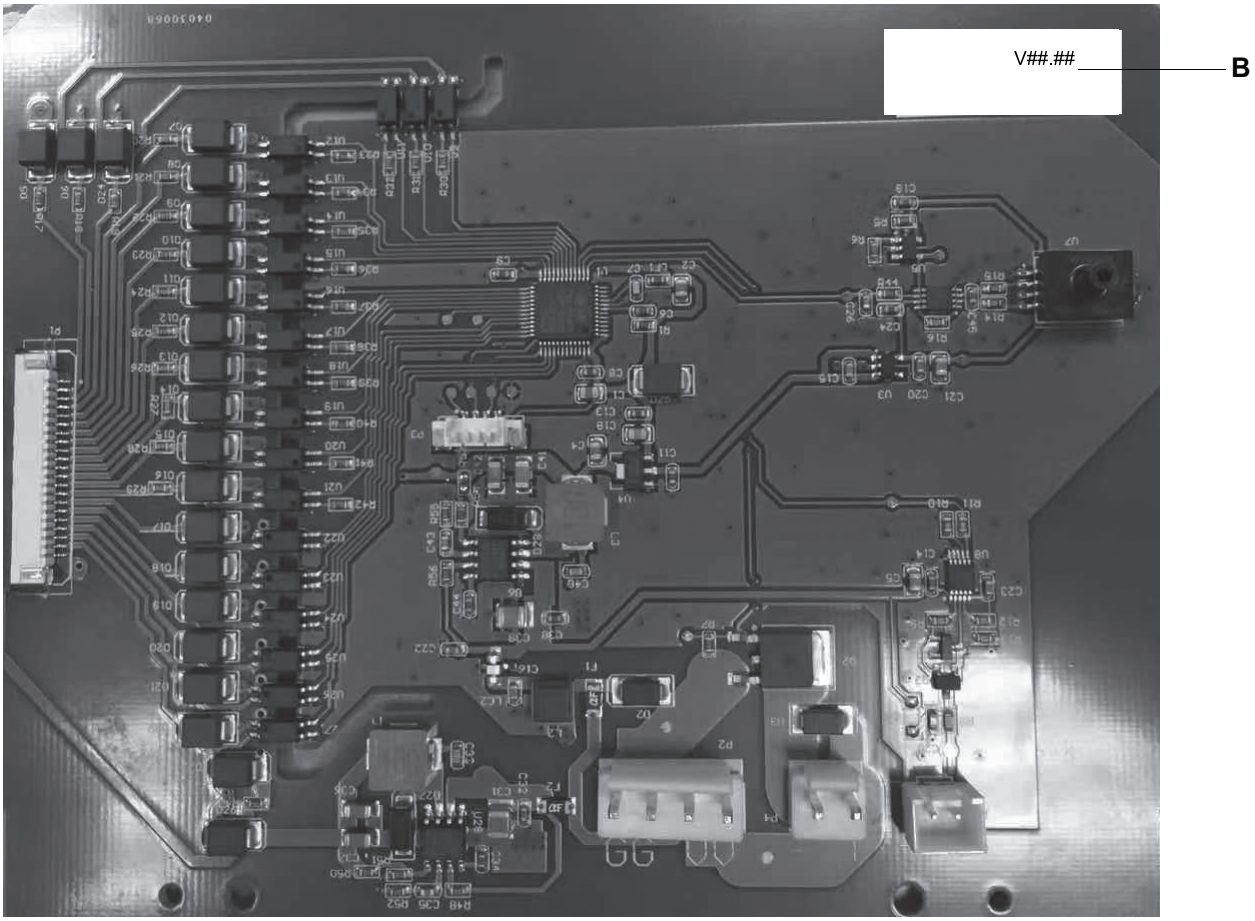
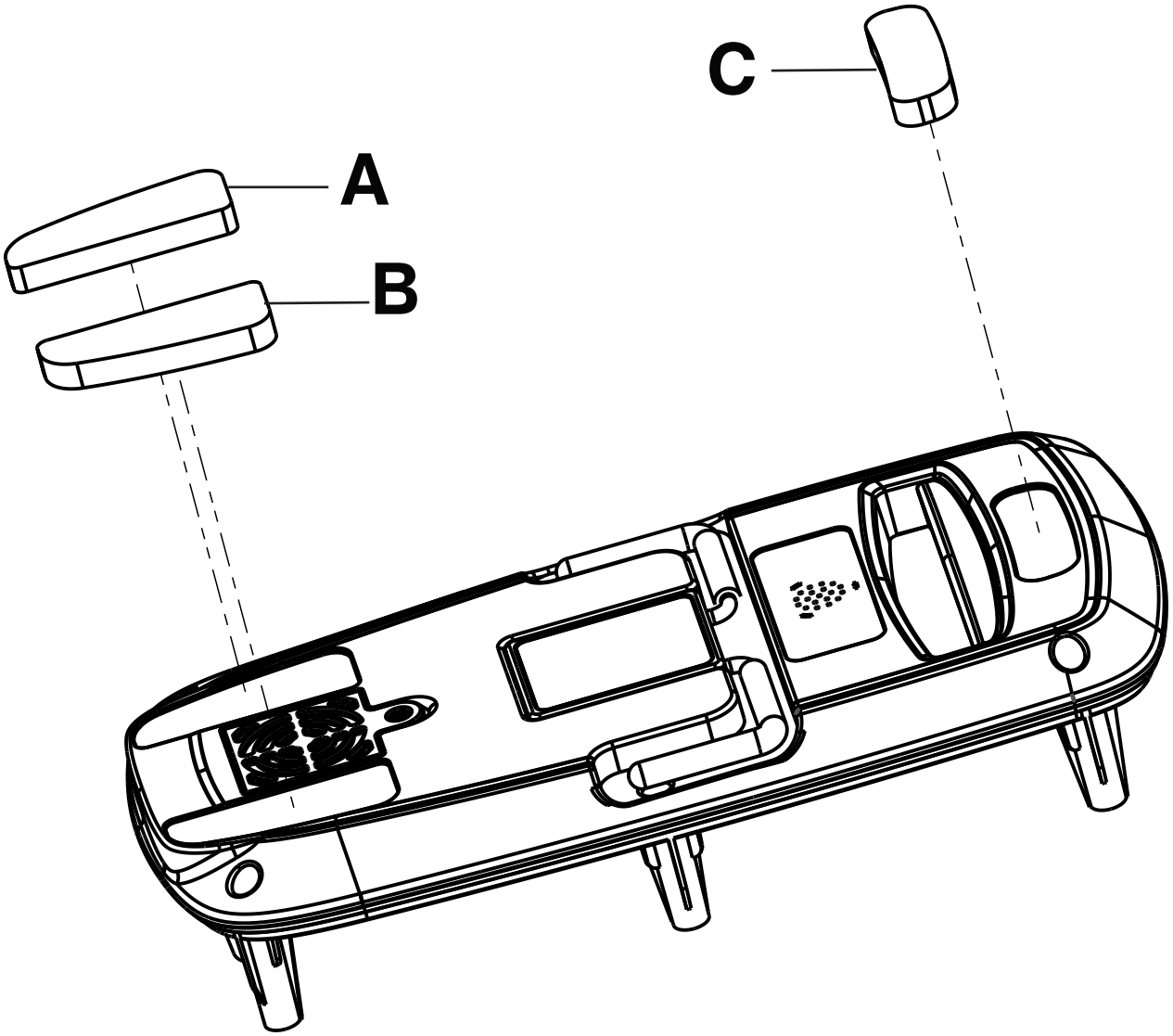


Figure 10 – Software version location on circuit board

Bumper pack - 2874-007-020

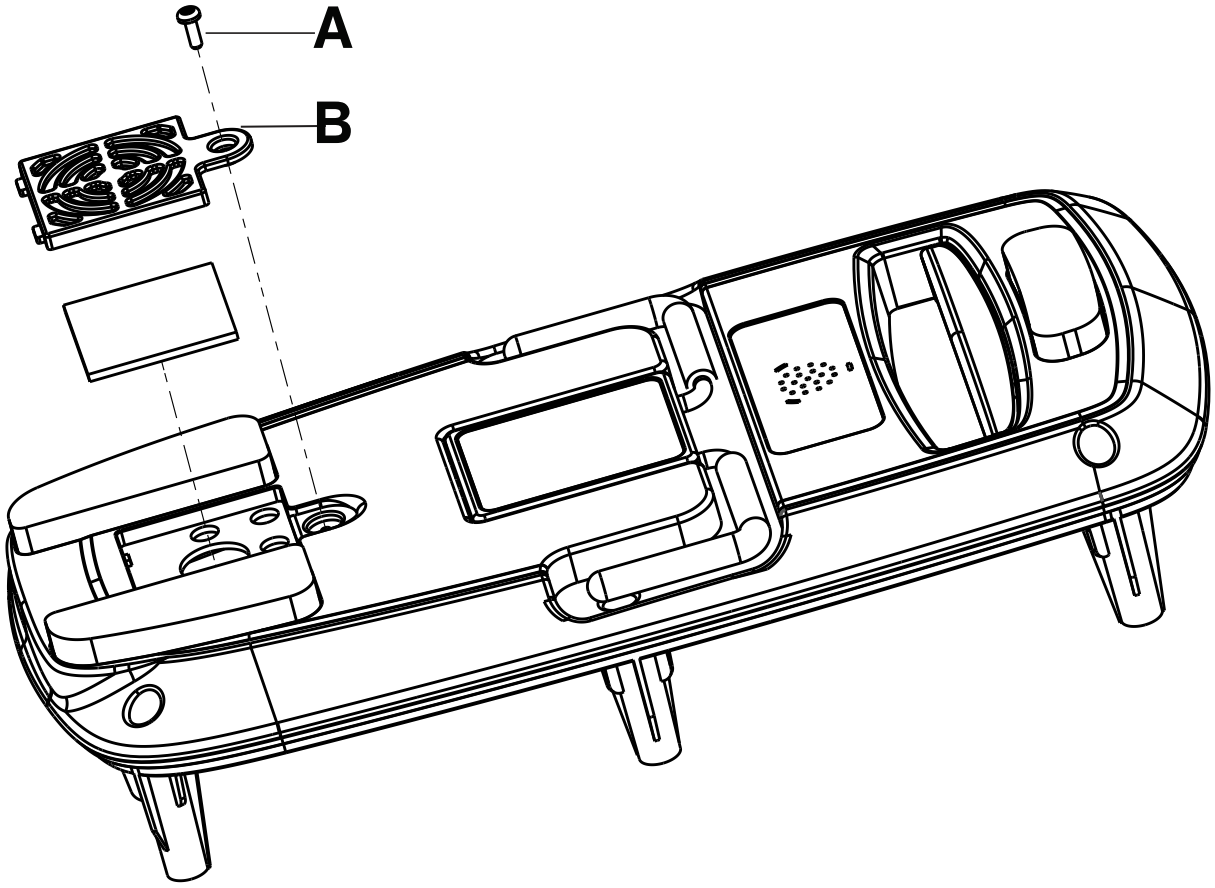
Rev AB (Reference only)



Item	Number	Name	Quantity
A	517M104004	Bumper bottom, left	1
B	517M104005	Bumper bottom, right	1
C	517M104006	Bumper top	1

Air filter guard - 2874-007-027

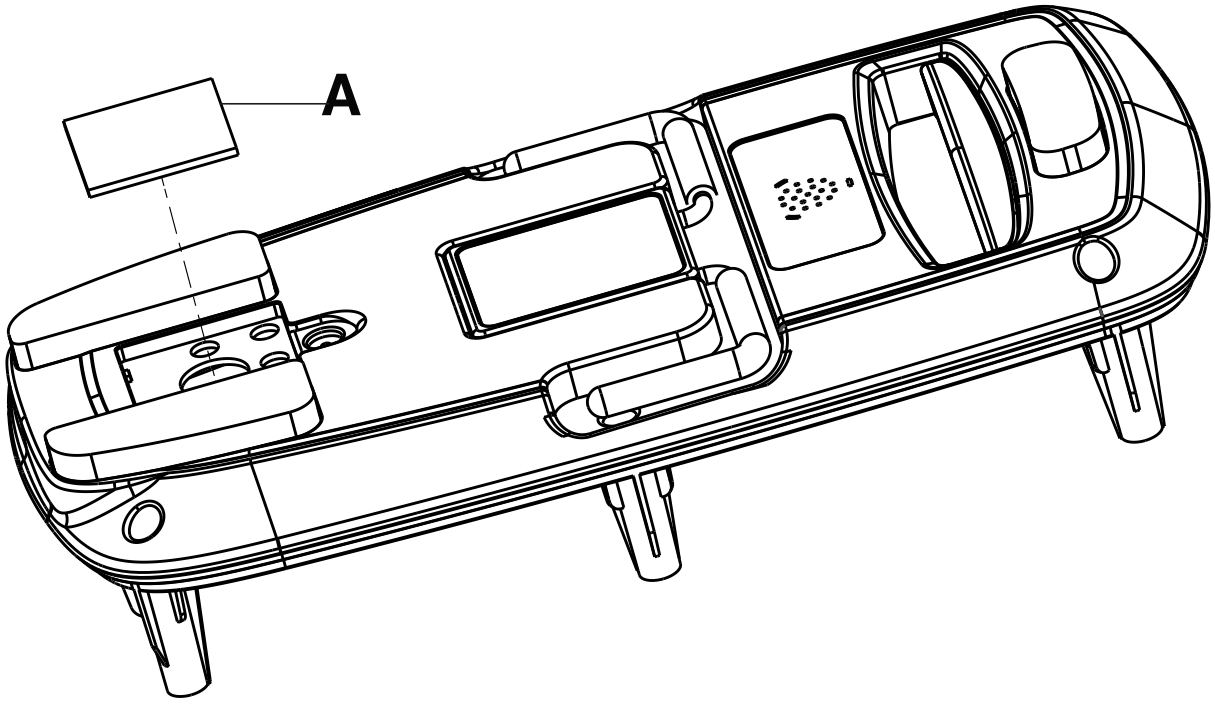
Rev AB (Reference only)



Item	Number	Name	Quantity
A	511M104015	Molded air filter guard	1
B	521M064029	Screw	1

Air filter - 2874-007-026

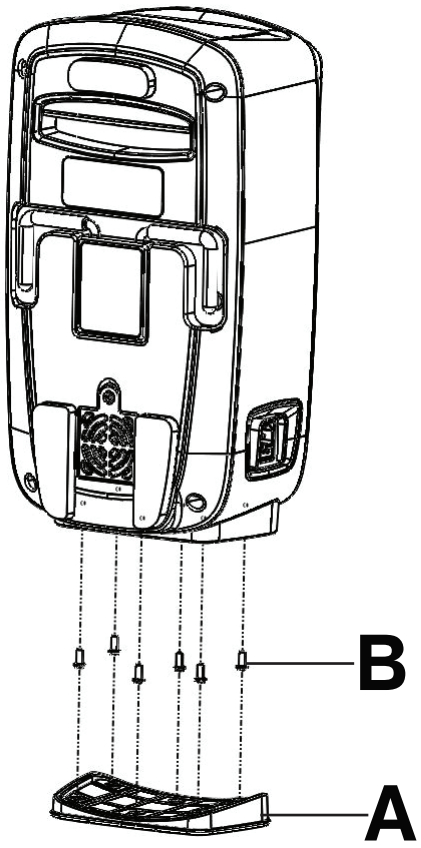
Rev AB (Reference only)



Item	Number	Name	Quantity
A	517M104015	Air filter	1

Pump housing rubber foot assembly - 2874-007-022

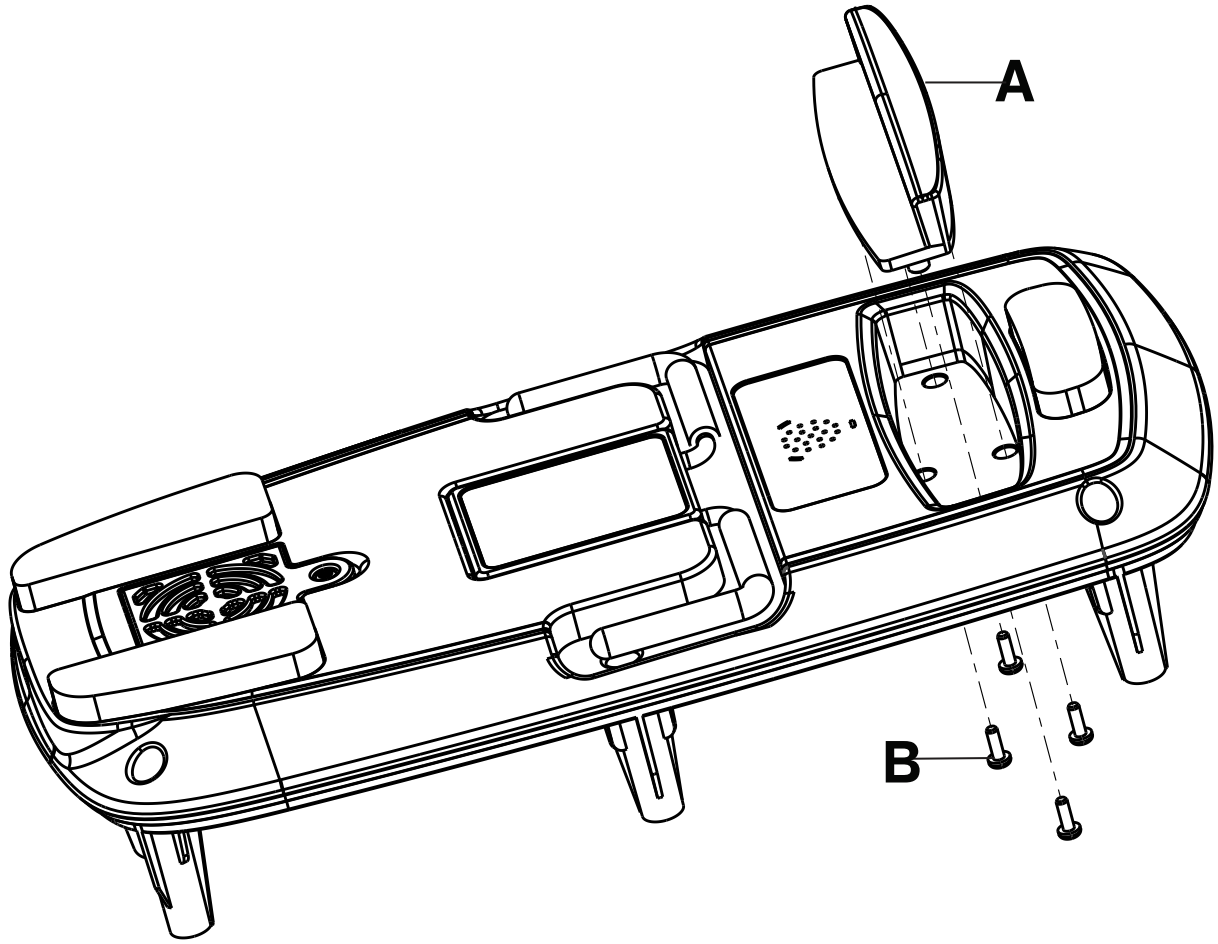
Rev AB (Reference only)



Item	Number	Name	Quantity
A	517M104001	Molded rubber foot	1
B	521096N01	Nut fasteners	6

Handle assembly - 2874-007-031

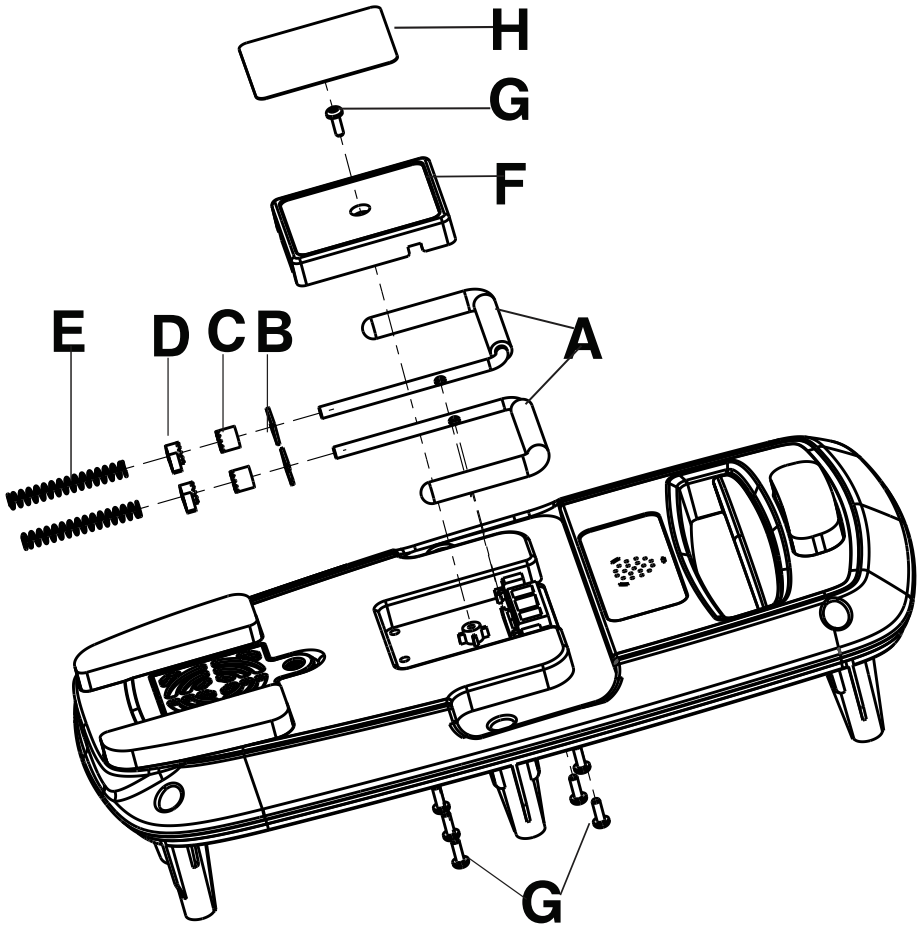
Rev AB (Reference only)



Item	Number	Name	Quantity
A	511M104017	Molded handle	1
B	521M064005	Phillips pan head screw	4

Hook assembly - 2874-007-019

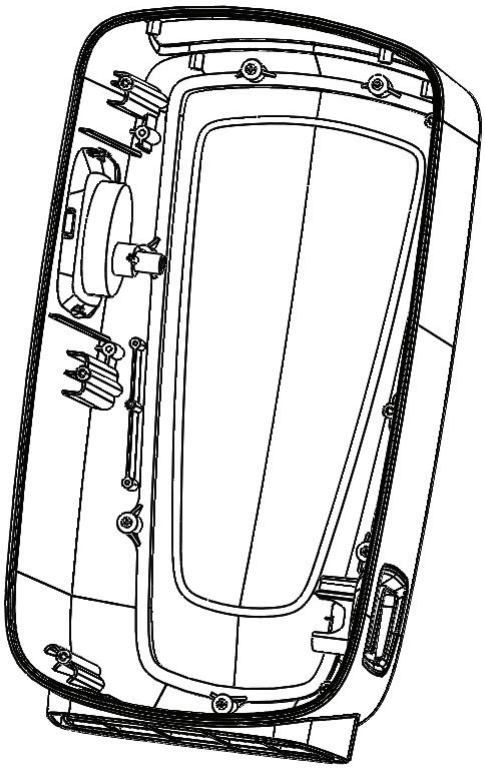
Rev AB (Reference only)



Item	Number	Name	Quantity
A	515M064013	Hook	2
B	515M064014	Hook stopper	2
C	511M064104	Hook clutch gear A	2
D	511M064105	Hook clutch gear B	2
E	523M064001	Hook spring	2
F	511M104016	Hook back cover	1
G	521M064005	Internal screw	7
H	622M104003	Label, hook back cover	1

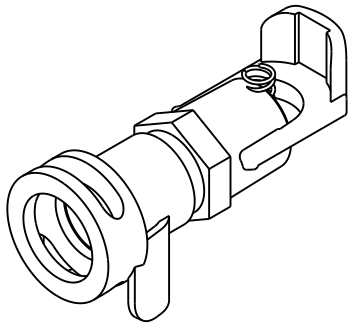
Pump housing assembly - 2863-007-001

Rev AA (Reference only)



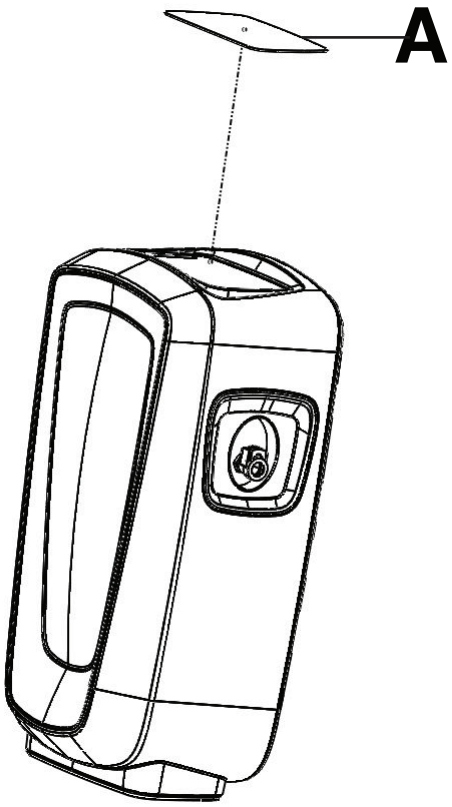
Side fitting service part - 2863-007-009

Rev AA (Reference only)



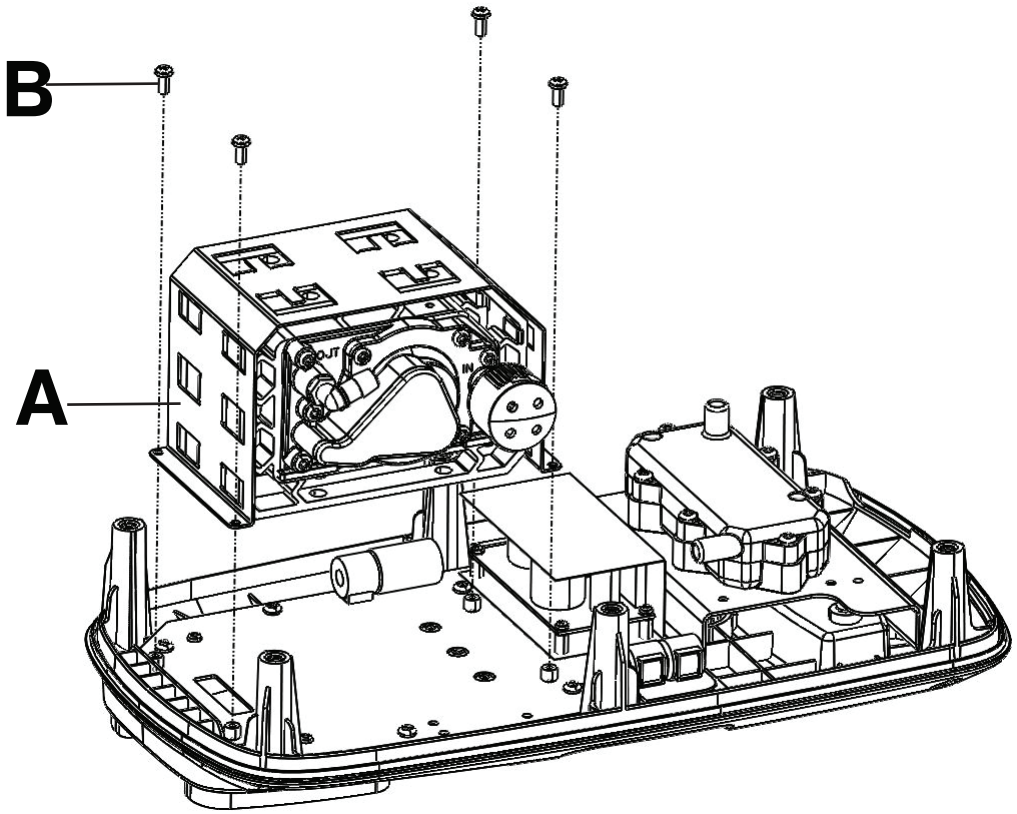
Membrane keypad assembly - 2863-007-002

Rev AA (Reference only)



Compressor assembly - 2863-007-003

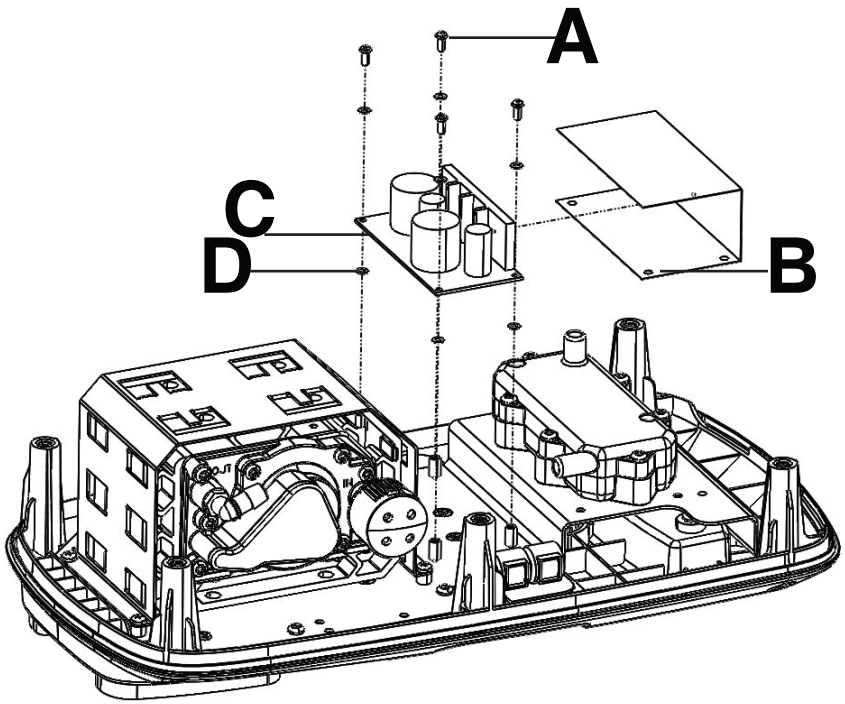
Rev AB (Reference only)



Item	Number	Name	Quantity
A	4M01M104061	Compressor-subass	1
B	521M064065	Torx screw M4X8	5
C	555096016	Nylon wire tie (not shown)	6

Power supply assembly - 2874-007-024

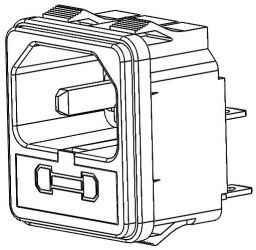
Rev AB (Reference only)



Item	Number	Name	Quantity
A	521096B07	Mounting screw	4
B	521M064024	Isolation paper	1
C	553M104003	Power supply	1
D	521M064050	Screw gasket	8
E	555M064028	Cable (not shown)	1
F	511M092013	Cable nylon tie (not shown)	4

Power inlet - 2874-007-032

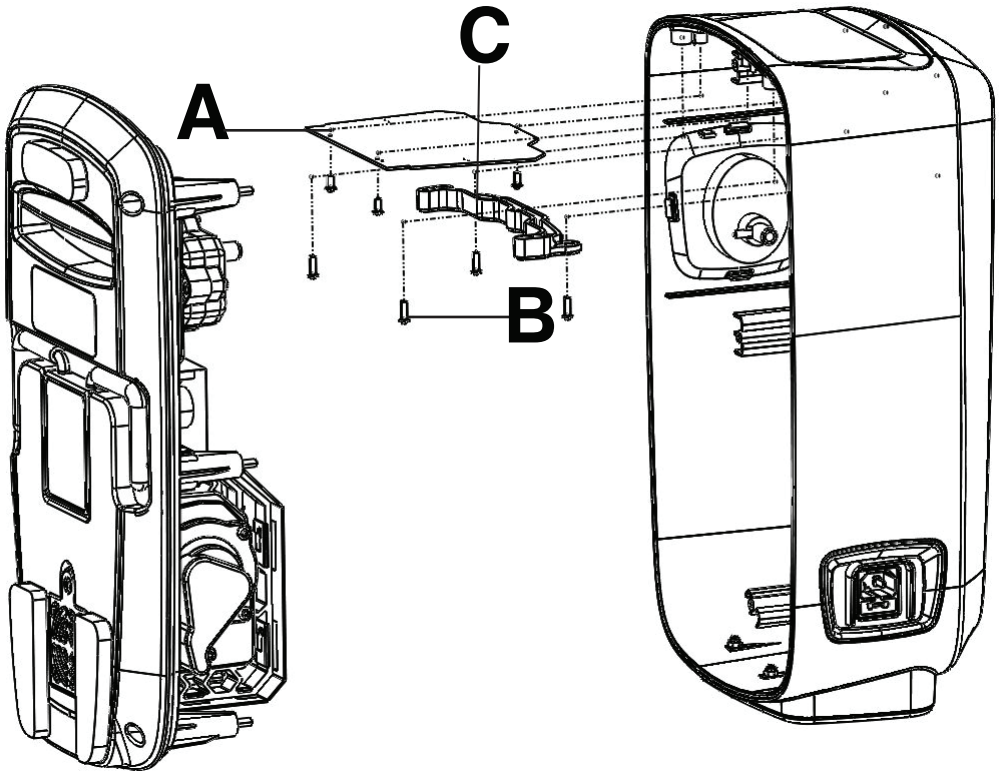
Rev AA (Reference only)



Item	Number	Name	Quantity
A	4M01M104086	IEC power inlet socket	1

PCBA assembly - 2863-007-004

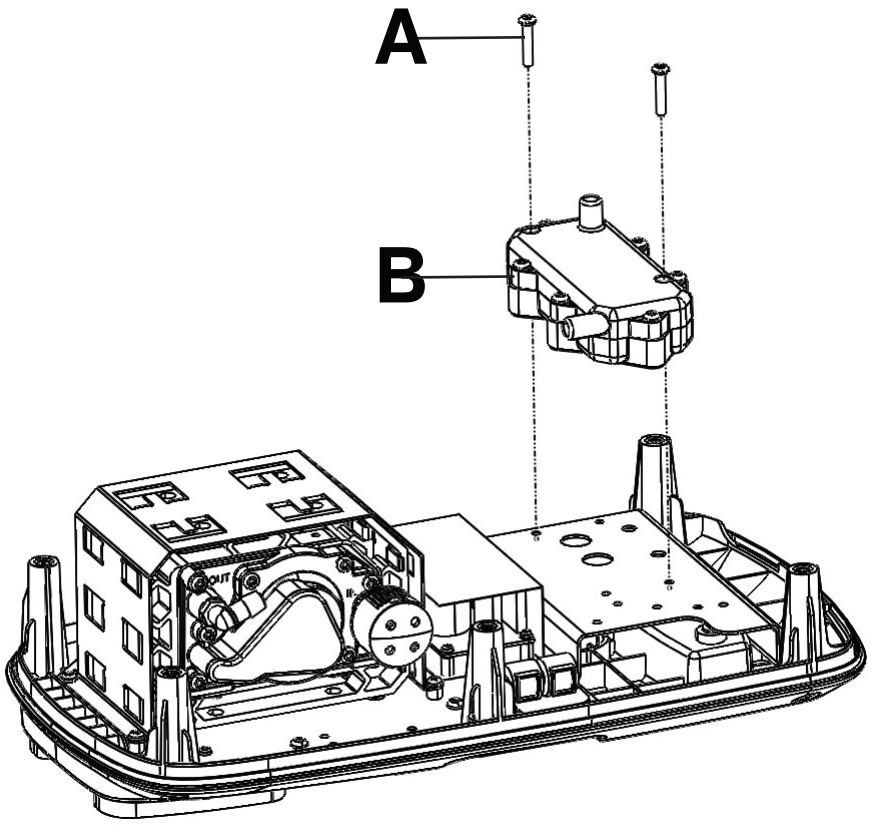
Rev AB (Reference only)



Item	Number	Name	Quantity
A	511M104013 reference only	PCBA subassembly	1
B	521096S05	Screw	4
	521M064051	Screw	5
C	511M104013	Molded PCB holder	1

Muffler - 2863-007-005

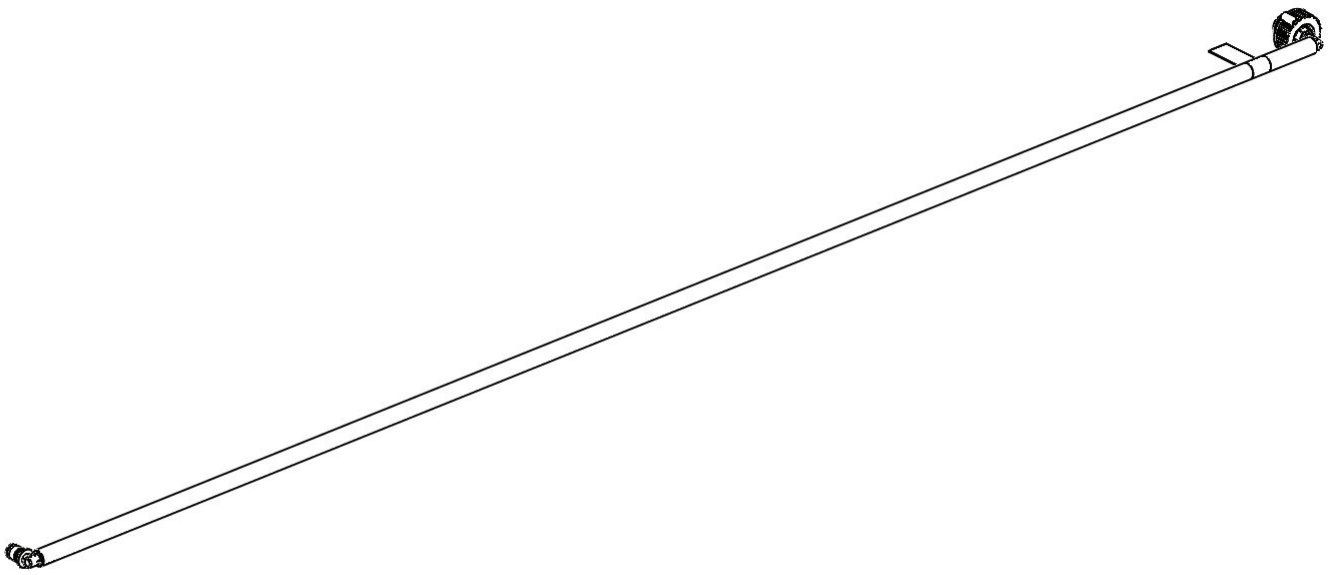
Rev AB (Reference only)



Item	Number	Name	Quantity
A	521M064025	Screw	2
B	Reference only	Muffler subassembly	1

Support surface hose assembly - 2863-007-006

Rev AA (Reference only)



EMC information

WARNING

- The use of accessories, transducers, and cables, other than those specified or provided by the manufacturer, could result in increased electromagnetic emissions or decreased electromagnetic immunity and result in improper operation.
- Portable RF communications equipment, including peripherals such as antenna cables and external antennas, should be no closer than 12 inches (30 cm) to any part of **AIR+**, including cables specified by the manufacturer.
- Avoid stacking or placing equipment adjacent with other equipment to prevent improper operation of the products. If such use is necessary, carefully observe stacked or adjacent equipment to make sure that they are operating properly.

Note

- The emissions characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.
- This equipment is suitable for use in hospitals except for near active HF surgical equipment and the RF shielded room of an ME system for magnetic resonance imaging, where the intensity of EM disturbances is high.

Guidance and manufacturer's declaration - electromagnetic emissions

The 2863 **AIR+** pump is intended for use in the electromagnetic environment specified below. The customer or the user of the 2863 **AIR+** pump should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment
RF Emissions CISPR 11	Group 1	The 2863 **AIR+** pump uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class A	The 2863 **AIR+** pump 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	N/A
Voltage Fluctuations Flicker Emissions IEC 61000-3-3	Complies	

Recommended separation distances between portable and mobile RF communication equipment and the 2863 AIR+ pump

The 2863 **AIR+** pump is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the 2863 **AIR+** pump can help prevent electromagnetic interferences by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the 2863 **AIR+** pump as recommended below, according to the maximum output power of the communications equipment.

Band (MHz)	Service	Maximum Power (W)	Minimum Separation Distance (m)
380-390	TETRA 400	1.8	0.3
430-470	GMRS 460; FRS 460	2.0	0.3
704-787	LTE Band 13, 17	0.2	0.3

Recommended separation distances between portable and mobile RF communication equipment and the 2863 AIR+ pump			
800-960	GSM 800/900; TETRA 800; iDEN 820; CDMA 850; LTE Band 5	2.0	0.3
1,700-1,990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	2.0	0.3
2,400-2,570	Bluetooth; WLAN; 802.11 b/g/n; RFID 2450; LTE Band 7	2.0	0.3
5,100-5,800	WLAN 802.11 a/n	0.2	0.3
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** - These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

Guidance and manufacturer's declaration - electromagnetic immunity			
The 2863 **AIR+** pump is suitable for use in the electromagnetic environment specified below. The customer or the user of the 2863 **AIR+** pump should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment-guidance**
Electrostatic Discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 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	±1 kV for input/output lines	±1 kV for input/output lines	Main power quality should be that of a typical commercial or hospital environment.

Guidance and manufacturer's declaration - electromagnetic immunity			
Voltage dips, voltage variations and short interruptions on power supply input lines IEC 61000-4-11	0%U_T for 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315° 0%U_T for 1 cycle 70%U_T (30% dip in U_T) for 25/30 cycles 0% U_T for 250/300 cycles	0%U_T for 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315° 0%U_T for 1 cycle 70%U_T (30% dip in U_T) for 25/30 cycles 0% U_T for 250/300 cycles	Main power quality should be that of a typical commercial or hospital environment. If the user of the 2863 **AIR+** pump 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	30 A/m	30 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 before applications of the test level.			

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 2.7 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the 2863 **AIR+** pump, including cables, than the recommended separation distance calculated from the equation appropriate for the frequency of the transmitter. Recommended separation distance D=(1.2) (√*P*) 80 MHz to 800 MHz D=(2.3) (√*P*) 800 MHz to 2.7 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 meters (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.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.
- The ISM (Industrial, Scientific, and Medical) bands between 0.15 MHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz.

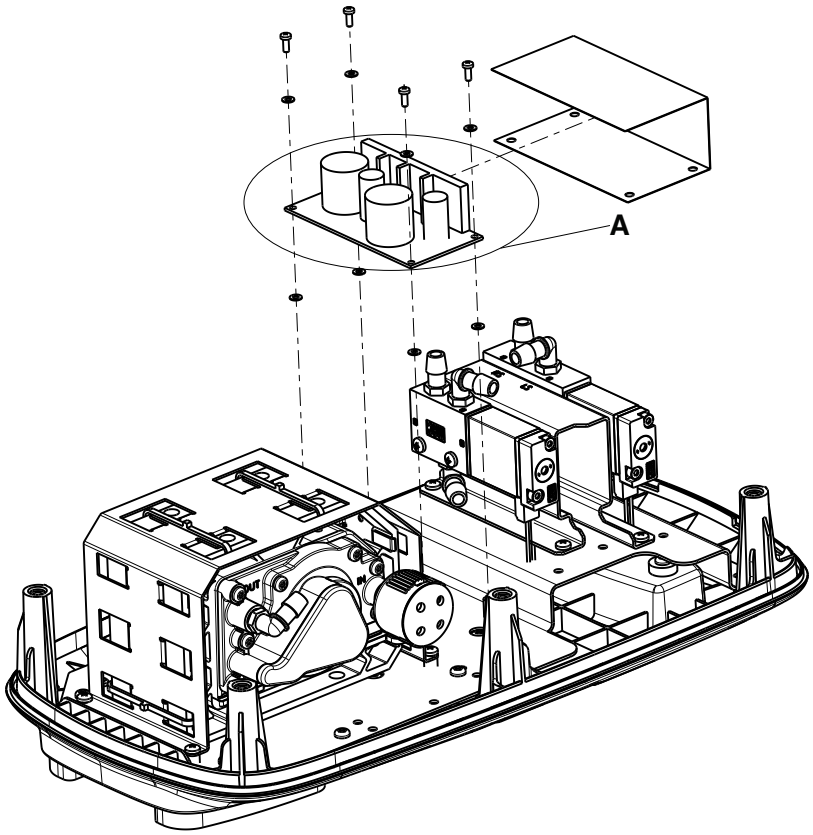
[a]Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the 2863 **AIR+** pump is used exceeds the applicable RF compliance level above, the 2863 **AIR+** pump should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the 2863 **AIR+** pump.

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

Recycling passport

553M104003

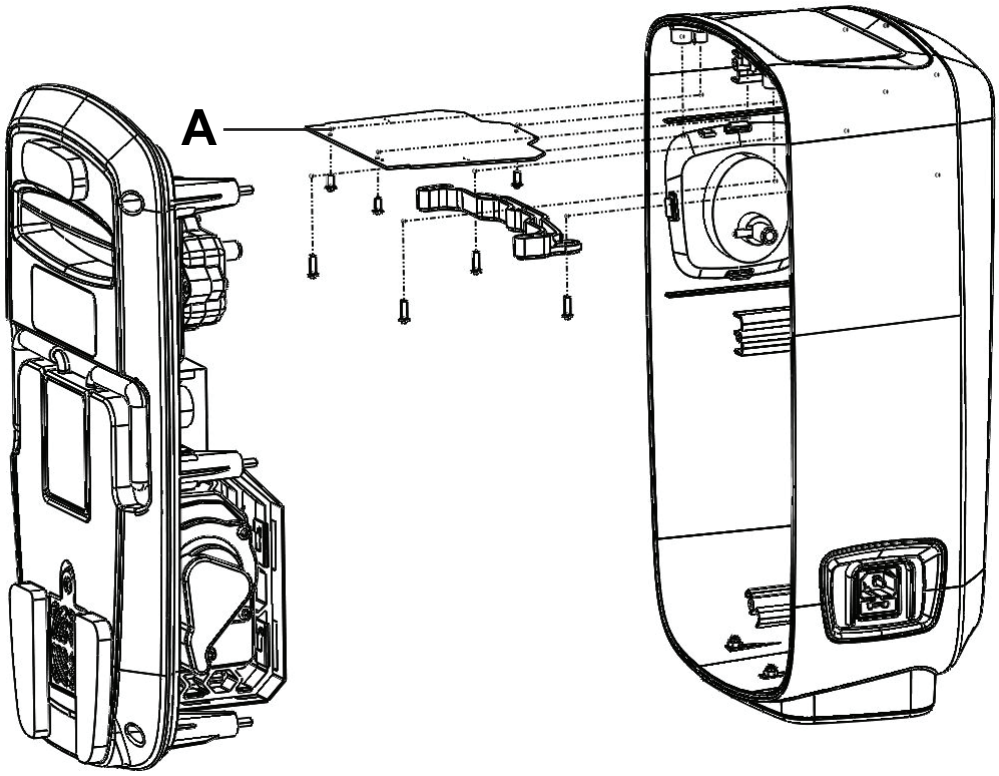
Rev A



Item	Recyclable part number	Material code	Important information	Quantity
A	553M104003	Circuit board with surface > 10cm2	SMPS power supply	1
		Capacitors > 25mm in height or diameter		

583M104005

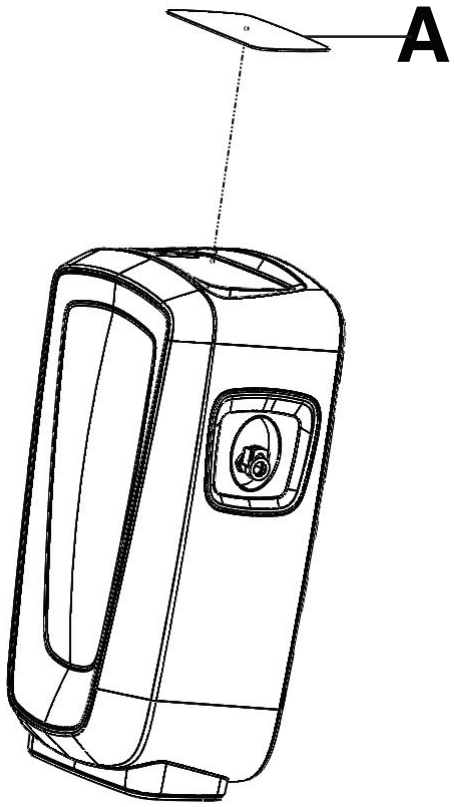
Rev AA



Item	Recyclable part number	Material code	Important information	Quantity
A	583M104005	Circuit board with surface >10cm2	PCBA	1

2863-007-002

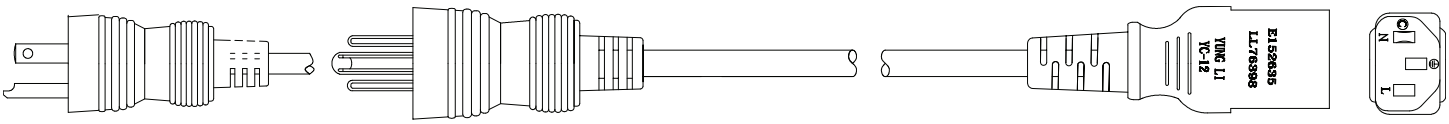
Rev AA



Item	Recyclable part number	Material code	Important information	Quantity
A	2863-007-002	Polyester film	Recycle according to local regulations	1

2874-007-001

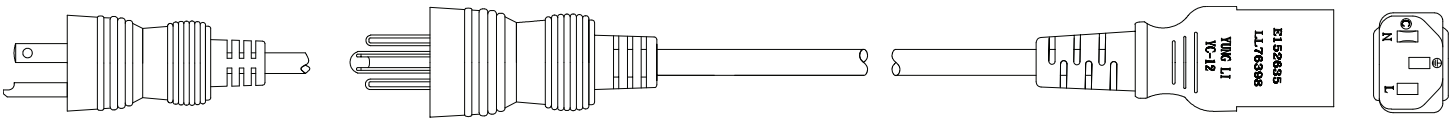
Rev AA



Item	Recyclable part number	Material code	Important information	Quantity
Shown	511M064099	External cable	Power cord, type B, 1 meter	1

2874-007-002

Rev AA



Item	Recyclable part number	Material code	Important information	Quantity
Shown	511M064098	External cable	Power cord, type B, 5 meter	1

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

2863-009-002 Rev AB.0 2024-11
WCR: AD.19