

Fresenius Medical Care North America Service Bulletin

Equipment: 2008®K² Hemodialysis Machines
Bulletin: 15-FK2-001 Rev A
Subject: Optional Shunt Box Ferrite Core Installation

1.0 PURPOSE

To inform all Facilities, Field Service and Technical Support personnel of how to replace the shunt box wire harness (which includes a ferrite core) for ESD related “Dial Valve Failure 1” alarms on a 2008K² Hemodialysis machine.

2.0 PARTS REQUIRED

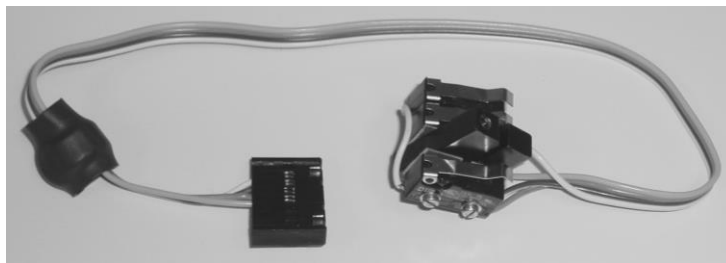


Figure 1 – Shunt Switch Assembly (P/N M42408)

3.0 REQUIRED TOOLS

- #1 Phillips Screwdriver
- #2 Phillips Screwdriver
- Masking tape or equivalent
- 5mm Hex (Allen) Wrench

4.0 INSTRUCTIONS

- 4.1 Stabilize the machine by applying the caster brake.
- 4.2 Remove any items hanging on the I.V. pole.
- 4.3 Locate and remove the screw attaching the I.V. pole to its mounting base using a 5mm Hex (Allen) Wrench. See Figure 2 for screw location.
- 4.4 Slide the I.V. pole up and out of the shunt box.

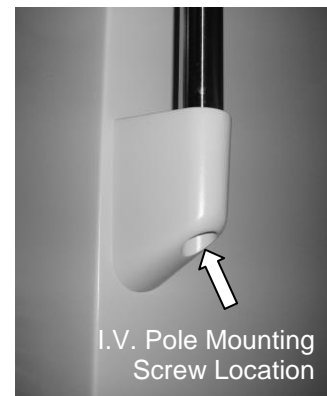


Figure 2

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- 4.5 With the machine turned off, remove the two (2) screws securing the card cage into the cabinet (see Figure 3). Slide the card cage out the front of the cabinet a few inches.

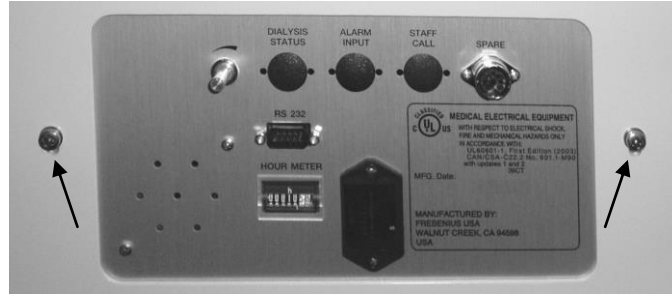


Figure 3

Note: The middle panel has a ground wire attached. Take care not to damage this wire when removing the panel.

- 4.6 Remove the middle panel cover. See Figure 4 for screw locations. Unplug the cover's ground wire.



Figure 4

- 4.7 Arrange the ribbon cable connected to the card cage and push the card cage out far enough to access the four screws indicated by white arrows in Figure 5 and disconnect the shunt box ribbon cable from the back of the card cage.

- 4.8 Remove the four screws securing the shunt box to the cabinet.

Note: One of the four screws secures a plastic clamp used as a cable restraint for the shunt box ribbon cable (see Figure 5). Retain this clamp for reinstallation.

* In some cases, there may be a ferrite core secured to this plastic clamp with a tie wrap and the shunt box ribbon cable loop through it. Remove the tie wrap from the plastic clamp and disregard the ferrite core; it will be replaced by these instructions.

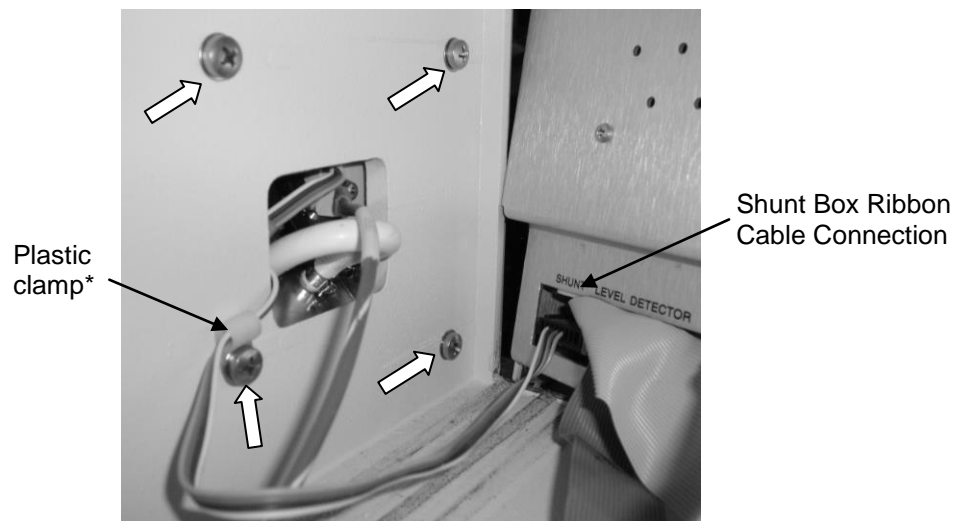


Figure 5

- 4.9 Once all four screws have been removed, the shunt assembly will be free of the cabinet. However, there will be a ground wire still attached within the shunt assembly. The ground wire screw (white arrow in Figure 6) can only be removed once the shunt box is free of the cabinet. Remove the ground wire screw and retain the hardware associated with this connection.

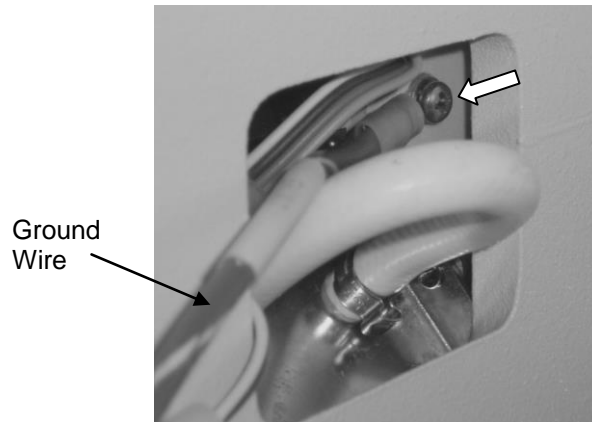


Figure 6

- 4.10 With the shunt door closed, locate and remove the remaining three screws securing the plastic and metal portions of the shunt box together.
- 4.11 Slide the metal portion out of the plastic portion and locate the pivot shaft ends using the arrows in Figure 7 below.
- Note:** With the shunt door closed, the pivot shaft is held in place by friction. Once the shunt door is opened, the friction is removed and the shaft can fall out of place.

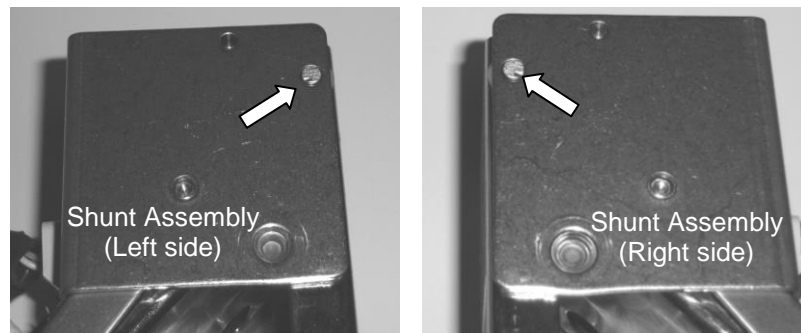


Figure 7 – Pivot Shaft Location (Door Closed)

In order to prevent the pivot shaft from sliding out of place, clean the surface and apply masking tape or equivalent over the shaft ends as illustrated in Figure 8.

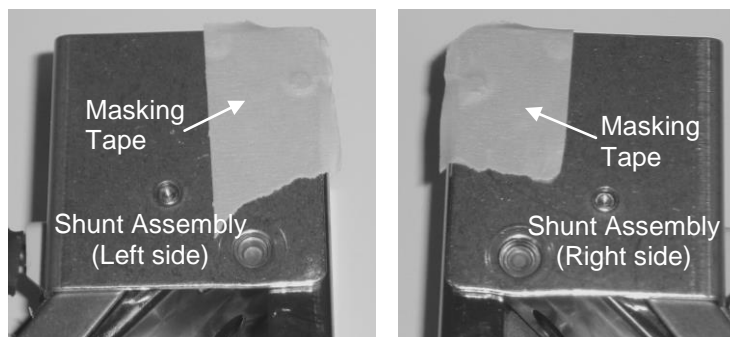


Figure 8 - Pivot Shaft Secured With Tape (Door Closed)

- 4.12 With the shunt door still closed, locate and remove the shunt switch cover screw using the arrow in Figure 9 as reference. Retain this screw.

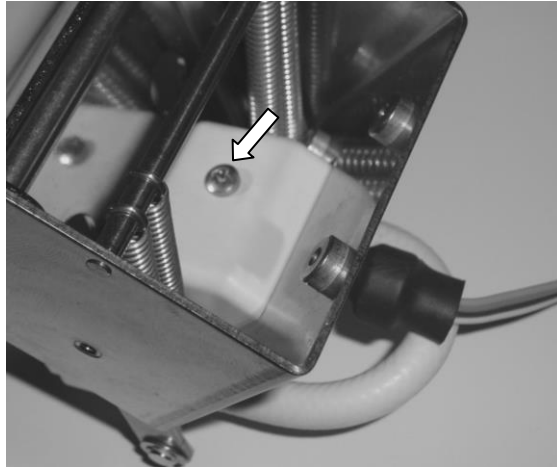


Figure 9 – Shunt Switch Cover

- 4.13 Carefully open the shunt door so the shunt switch cover can be removed out of the top of the shunt assembly. Once the cover is removed, the switch assembly is accessible. Figure 10 shows the shunt switch cover removed.

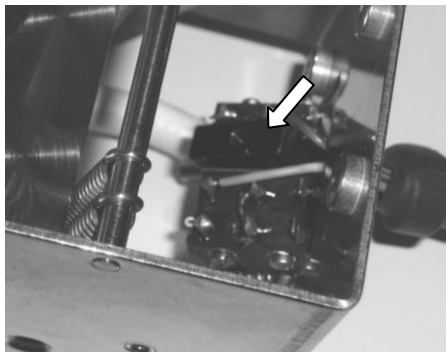


Figure 10 – Shunt Switch Assembly Uncovered

- 4.14 The shunt switch assembly is held in place with one screw as illustrated by the arrow in Figure 11. With the shunt door still open, remove the screw securing the shunt switch assembly in place. Retain this screw and lock washer.

Note: As the shunt switch assembly is being removed, make note of how the slit in the shunt switch assembly mounting bracket slides over the metal shelf of the shunt box structure. This will ease the installation of the new shunt switch assembly.

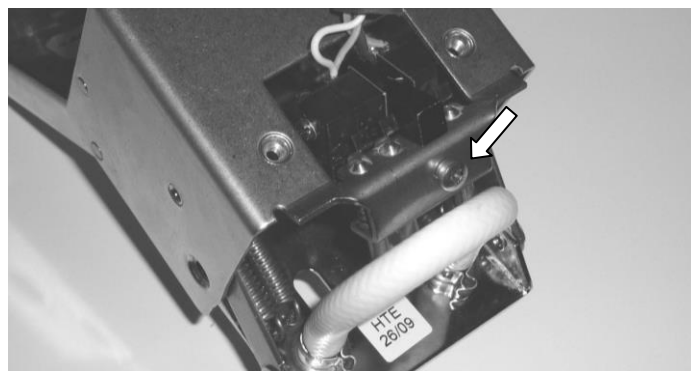


Figure 11 – Shunt Switch Assembly Screw Location

- 4.15 Once the mounting screw is removed, the shunt switch assembly can be removed out of the top of the shunt box structure. See Figure 12.

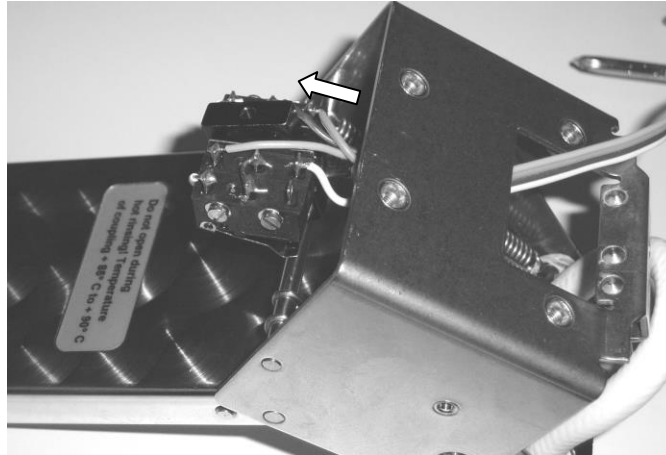


Figure 12 – Switch Assembly Removal

- 4.16 With the shunt door still open, slide the new shunt switch assembly (P/N M42408) into the shunt box structure using the noted orientation during removal. Install the original screw and lock washer but do not tighten the screw. Leave the screw loose as shown with the arrow in Figure 13 so the switch can move around during the installation of the switch cover.

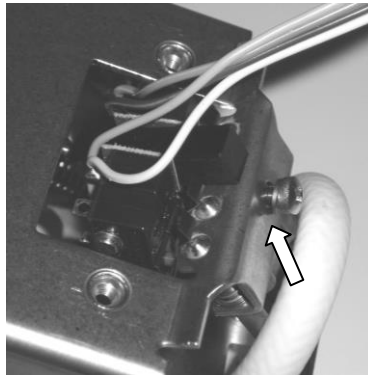


Figure 13 – New Shunt Switch Assembly Positioning

- 4.17 With the shunt door still open, refer to Figure 14 to position the shunt switch cover in the proper orientation over the shunt switch assembly.

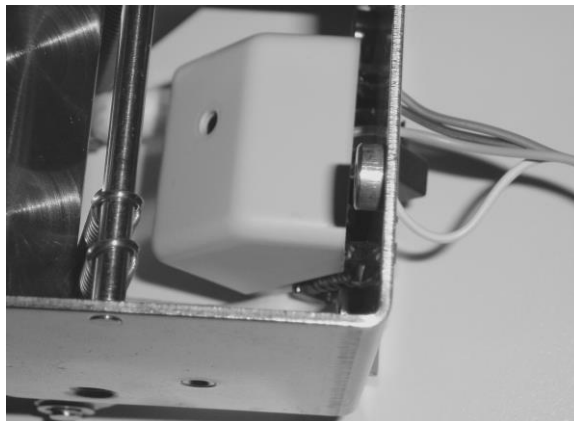


Figure 14 – Proper Shunt Switch Cover Orientation

- 4.18 Slide the shunt switch cover over the switch assembly and out the back of the shunt box structure as shown in Figure 15.

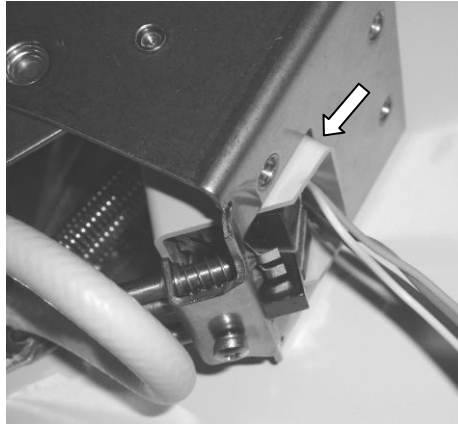


Figure 15 – Shunt Switch Cover Protrusion

- 4.19 Once the cover is seated properly, close the shunt door and align the shunt switch cover over the threaded hole in the shunt switch assembly bracket. Install the original screw to secure the cover.

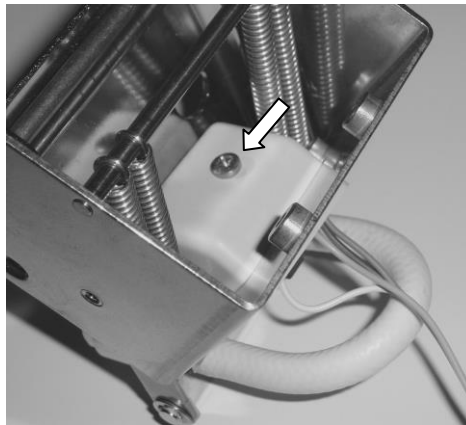


Figure 16

- 4.20 Once the shunt switch cover is secured, tighten the screw left loose earlier (see Figure 17).

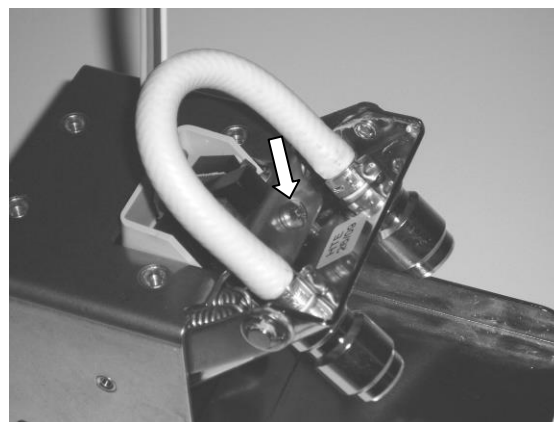


Figure 17

- 4.21 With the shunt door closed, remove the tape retaining the pivot pin and install the shunt box structure into the shunt box shroud. Secure with the original hardware including the ground wire screw. Securely tighten all screws.
- 4.22 Install the shunt box assembly onto the side of the machine using the original hardware. While installing, reuse the plastic clip shown in Figure 5 to secure the shunt box cable.
- 4.23 Plug the shunt box cable into its connector on the back of the card cage.
- 4.24 Slide the card cage back into the cabinet and check/reseat all connections to the card cage.
- 4.25 Install the screws securing the card cage into the cabinet.
- 4.26 Stow all ribbon cables and wire harnesses and connect the ground wire to the middle panel cover. Install the middle rear panel.
- 4.27 Slide the I.V. pole through the shunt box and into its mounting base. Secure the I.V. pole into place and secure it into place using the original screw.
- 4.28 Turn the machine on and bring it up into temperature and conductivity (out of bypass).
- 4.29 Once the machine is out of bypass, open the shunt door and confirm the machine goes into bypass by observing the float in the flow indicator.

If there are any questions regarding this bulletin, contact Fresenius Medical Care Technical Support at 800-227-2572