Solinst® Peristaltic Pump Operating Instructions

Model 410

IMPORTANT

- Pump is water resistant but not waterproof. Do not submerge in water.
- Pumping rates will decrease as the amount of lift increases.
- Remove tubing when stored.
- Replace the tubing regularly. The pump will be inefficient if the tubing is worn. This will show as a limited ability to lift water. If the tubing looks worn, flattened or cracked, replace the tubing.
- If used in cold weather, ensure that there is no ice in the tubing before starting the pump.
- Pump is not designed for long-term continuous uninterrupted use.

Power

The pump operates from an external 12V DC power supply such as a car, truck or marine 12 volt battery and has a 12 ft (3.6 m) power cable with connector clips for direct battery connection.

The power cable clips are oversized for use with automotive batteries. The red clip connects to the positive (+) battery terminal, black to negative (-) battery terminal. If the battery is connected with reverse polarity the pump will not be harmed, but it will NOT operate until the polarity is connected correctly.

An externally accessible fuse holder is located on the side of the pump case. In the event of a blown fuse due to a stalled pump head, replace fuse with an 8 AMP, type 3AG (1/4" x 1 1/4") 'Slo-Blow' fuse.

Do not use a larger amperage fuse.

If the pump is to be powered by a vehicle battery for more than 3 continuous hours, start vehicle and run for 15 minutes to recharge the battery.

Operation

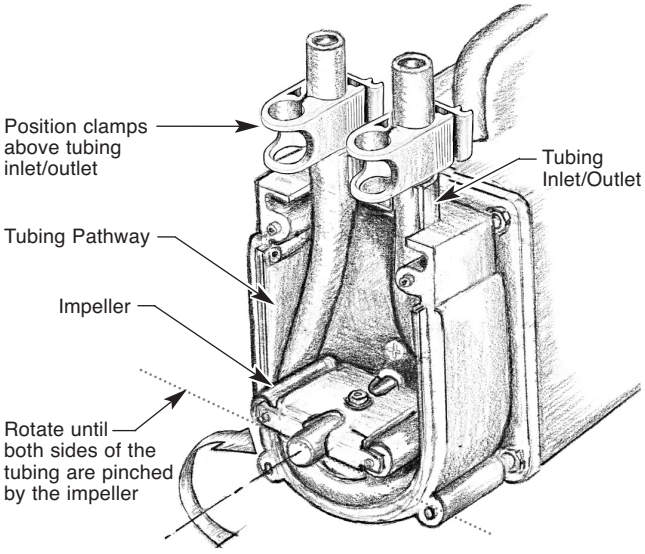
- The Solinst Peristaltic Pump has an integral Forward/Reverse, variable flow dial with an OFF position, which has a central detent. When turning the unit OFF, ensure you feel the dial snap into position.
- The pump should always be kept with the control in the OFF position when it is being attached to a power source or stored.
- Once attached to a power source, turn the dial in the direction required and adjust the flow as desired.
- The standard 5/8" (16 mm) OD medical grade silicon tubing can be attached to 1/2" (13 mm) OD down-hole sample tubing and gives purge rates up to 3.5 L/min and 120 mL/min at the low end.
- The optional 3/8" (10 mm) OD silicon tubing and adaptor kit allow the use of 1/4" (6 mm) OD down-hole sample tubing, giving flow rates up to 900 mL/min and sampling rates as low as 40 mL/min.

1. Ensure that the chosen silicon tubing has been properly installed in the pump head.

2. Connect one end of the silicon tubing to the down-hole sample line.
3. Either connect the other end of the silicon tubing to a discharge tube, or simply discharge out of this end of the tubing.
4. Connect the negative (black) battery clip to the negative terminal post on a 12V DC battery and the positive (red) battery clip to the positive terminal.

Changing or Installing 5/8" Silicon Tubing

1. To install or replace the tubing, disconnect the pump from its power supply, then undo the four thumbscrews on the drive head (black plastic end). Remove the drive head cover.
2. Manually rotate the pump impeller in any direction while gently pulling on the tubing to pull it away from the body.
3. Remove tube clamps from the old tubing.
4. Position the new tubing around the impeller in a "U" shape with equal lengths. Turn the impeller to the 6 and 12 o'clock position and push the right hand tubing into the tubing pathway, holding near the bottom. Rotate the impeller clockwise until tubing is in place. Push the left half of the tubing into place and rotate the impeller.
5. Replace clamps onto the tubing close to the drive head to prevent the tubing from being pulled into the drive head.
6. Reposition the pump head cover and screw firmly in place, but only finger tight. Do not use a wrench or over tighten.



Installing Optional Adapter Kit & 3/8" Tubing

Includes:

- 3 ft of 3/8" OD Silicon Tubing
- 2 Tube Clamps
- 2 Tube Bushings
- 1 Drive Head Insert

1. Disconnect the pump from the power supply, then undo the four thumbscrews on the drive head (black plastic end). Remove the drive head cover. Remove the existing tubing.
2. Make a "U" shape with the white plastic drive head insert and place around the tubing pathway in the drive head.
3. Position the new tubing around the impeller, following instruction #4 above.
4. Place the bushings onto the tubing making sure they are placed INTO the drive head tubing inlet/outlet.
5. To prevent the tubing from being pulled into the drive heads, place the clamps onto the tubing, close to the bushings and using the narrower clamp position.
6. Re-position the pump head cover and screw it firmly in place, but only finger tight. Do not use a wrench or over tighten.

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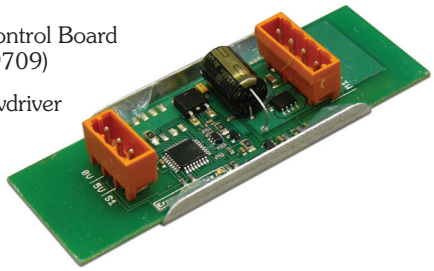
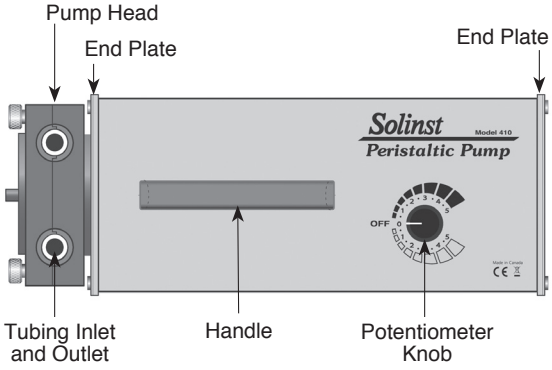
Tools and Materials Needed

1. Replacement Control Board Assembly (#109709)
2. Slot Head Screwdriver



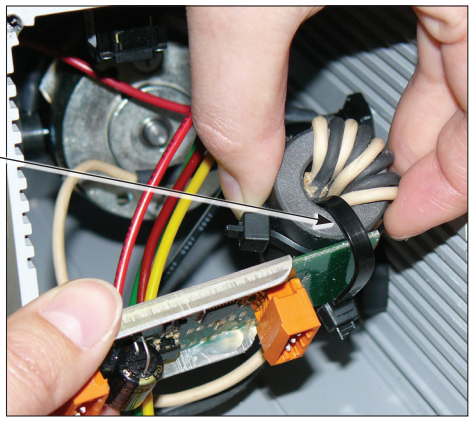
Replacement Control Board (#108561)



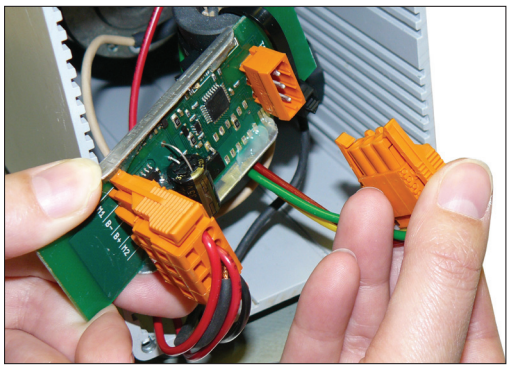
Model 410 MKIII Peristaltic Pump (#108592)

Instructions

1. Disconnect the Pump from the power supply.



2. Remove the four screws from the End Plate (opposite end from Pump Head).
3. Carefully slide the old Control Board out of the enclosure.



4. Unplug the 4-Pin and 3-Pin Plugs from the Control Board by pressing the sides and pulling out from the Board.
5. Slide the Control Board from the black plastic tie around the end of the Board.
6. Slide the end of the new Control Board with the 3-Pin Plug (plugs facing down) through the black plastic tie.
7. Plug the 3-Pin Plug and 4-Pin Plug into the new Control Board. The plugs are polarized so there is no risk of reverse polarity.
8. Slide the new Control Board into the enclosure in the slots, plugs facing down.
9. Carefully push all wires into the housing and screw the End Plate back on the Pump.

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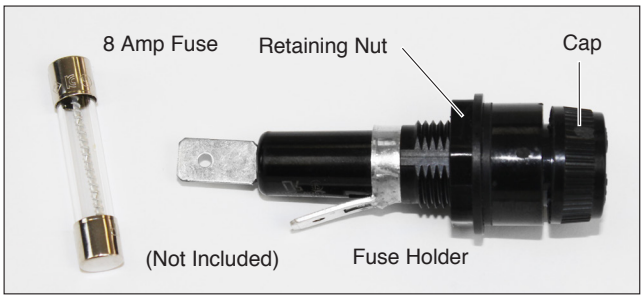
Fuse Holder Assembly Replacement

Model 410 MKIII

Tools and Materials Needed

1. Fuse Holder Assembly (Spare) (#109584)
2. 5/16" Wrench
3. 11/16" Wrench

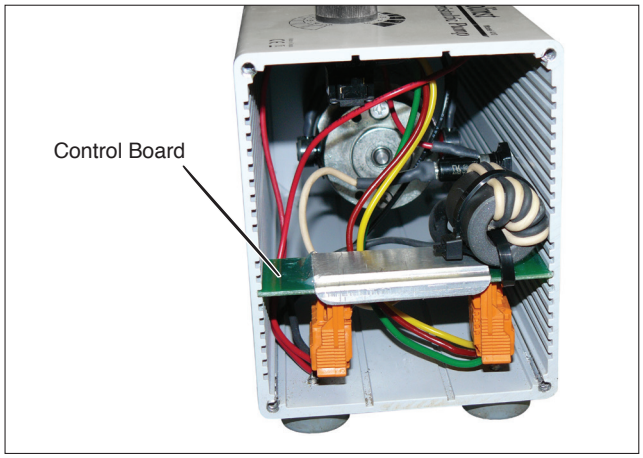


Fuse Holder Assembly

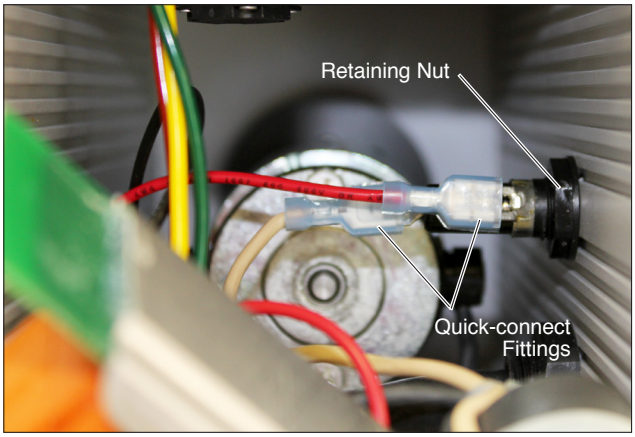
Instructions

1. Disconnect the Pump from the power supply.
2. Remove the Fuse from the Fuse Holder by twisting the Cap on the outside of the Pump Housing, and removing the Fuse from the Cap.

3. Using the 5/16" wrench, remove the four screws from the End Plate (opposite end from Pump Head).
4. Carefully slide the Control Board out of the enclosure to allow access to the Fuse Holder.



5. Disconnect the red and white wires from the Fuse Holder, by pulling off the quick-connect fittings.
6. Use the 11/16" wrench to remove the Retaining Nut from the Fuse Holder.



7. Pull out to remove the Fuse Holder from the Pump Housing.
8. Insert the new Fuse Holder through the Pump Housing (remove the Retaining Nut from the Fuse Holder first).
9. Use the 11/16" wrench to secure the Fuse Holder to the Pump Housing with the Retaining Nut.
10. Reconnect the red and white wires to the new Fuse Holder. The white wire goes to the connection on the end of the Fuse Holder, and the red wire to the connection on the side.
11. Slide the Control Board back into the enclosure in the slots, plugs facing down.
12. Carefully push all wires into the housing and screw the End Plate back on the Pump.

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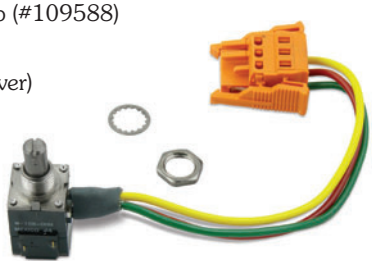
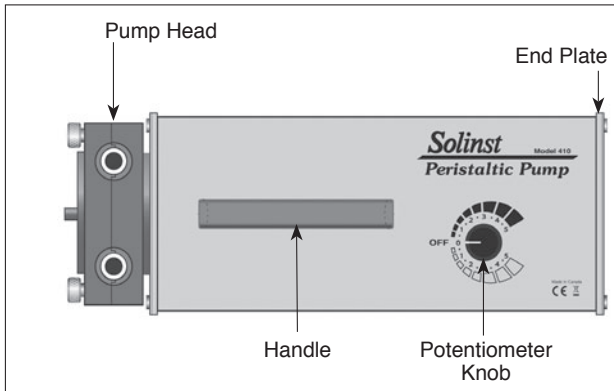
Tools and Materials Needed

1. 410 MKIII Potentiometer Repair Assembly for the Peristaltic Pump (#109588)
2. 5/64" Allen Key (or Small Flat Screwdriver)
3. 1/2" Wrench or Pliers
4. 5/16" Socket Driver (or Flat Screwdriver)



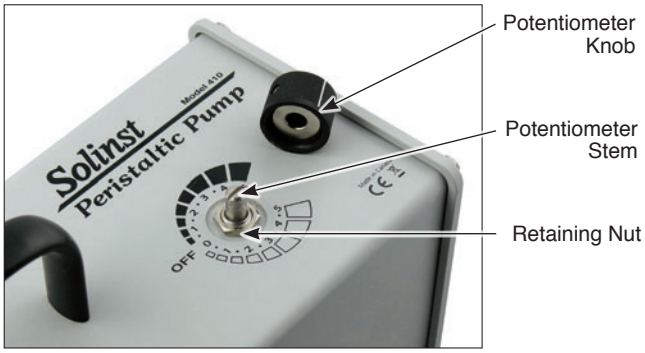
Potentiometer Assembly



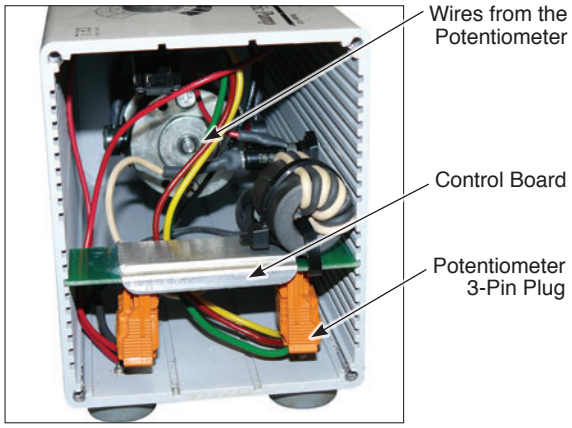
Model 410 MKIII Peristaltic Pump (#108592)

Instructions

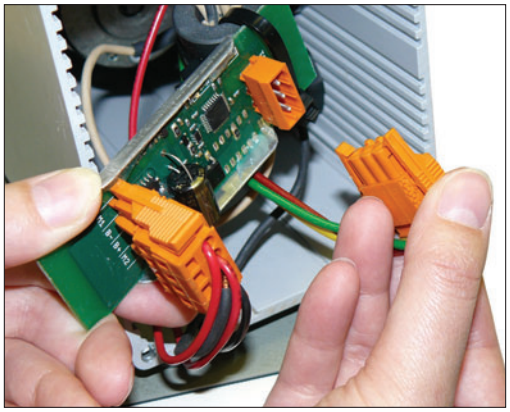
1. Disconnect the Pump from the power supply.



2. Use the Allen key to undo the two screws on the Potentiometer Knob and remove the Knob.
3. Use the wrench to unscrew the Retaining Nut from the Potentiometer (on the top of the pump housing), remove the small washer and push the Potentiometer into the housing.



4. Use the socket driver to remove the four screws from the End Plate (opposite end from Pump Head).
5. Carefully slide the Control Board out of the enclosure.



6. Unplug the 3-Pin Plug of the old Potentiometer Assembly from the Control Board by pressing the sides and pulling out from the Board.
7. Plug the 3-Pin Plug from the new Potentiometer Assembly into the Control Board. The plug is polarized so there is no risk of reverse polarity.
8. Slide the Control Board into the enclosure in the slots, plugs facing down and the wires of the Potentiometer Assembly to the inside of the Control Board.
9. Place the Potentiometer Stem through the opening in the pump housing, the side of the potentiometer with the wires facing out. Rotate the Potentiometer stem to the center position, and align with "OFF". Replace the small washer and tighten the Retaining Nut on the Potentiometer.
10. Slide the Potentiometer Knob onto the Potentiometer Stem and align the white indicator with "OFF".
11. Retighten the two screws on the Potentiometer Knob; do not over-tighten. Ensure when the Knob is turned, it rotates and stops at both "5" markings on the pump.
12. Carefully push all wires into the housing and screw the End Plate back on the Pump.

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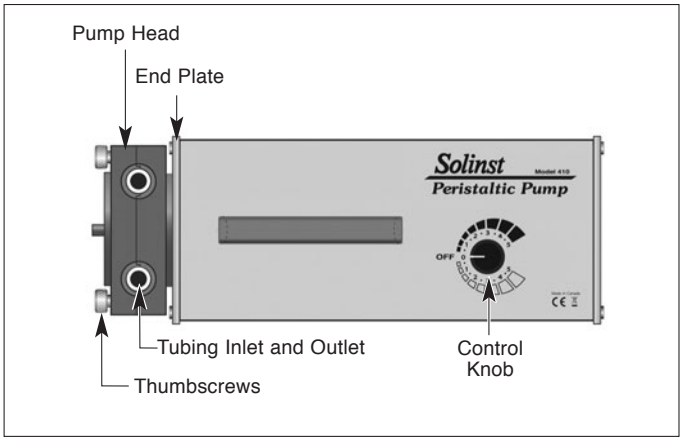
Pump Head Replacement

Model 410 MK I, MK II or MK III

Tools and Materials Needed

1. Replacement Pump Head Assembly (#109030)
2. 9/64" (3.60 mm) Allen Key
3. 11/32" (8.70 mm) Nut Driver
4. Phillips Screwdriver

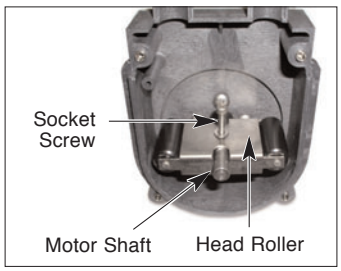


MK III Peristaltic Pump (#108592)

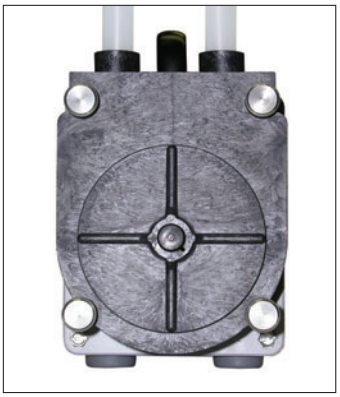
Instructions

1. Disconnect the Pump from the power supply. By hand, loosen the four thumbscrews on the Pump Head. Remove the Pump Head Cover.

2. Remove the tubing clamps if necessary.and manually rotate the Head Roller while pulling gently on the tubing to remove it from the Pump Head.



3. Use the 9/64" (3.60 mm) Allen Key and 11/32" (8.70 mm) Nut Driver to unscrew and remove the socket screw, nut, and washer from the Head Roller. Remove the Head Roller from the Motor Shaft.
4. Unscrew the four Phillips screws from inside the Pump Head and remove it from the End Plate.
5. Place the new Pump Head over the Motor Shaft and attach it to the End Plate using the four screws. Rotate the Shaft of the motor so the screw hole in the Shaft is vertically facing.
6. Slide the Head Roller onto the Motor Shaft and secure it using the screw, washer, and nut. Make sure the Head Roller turns freely and is not touching the Pump Head.
7. Position the tubing around the Head Roller in a "U" shape. Holding half of the tubing in place around the Head Roller, begin to manually rotate the Head Roller to replace the tubing back in the Pump. Repeat for the remaining half of the tubing. Replace clamps onto the tubing, close to the Pump Head.
8. Re-position the Pump Head Cover and screw it firmly in place by hand. Thumbscrews should be finger tight. Do not use a wrench or over-tighten.



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