Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

This document contains **Section C** of the eMP troubleshooting documents **A, B,** and **C.**

Section C covers:

Part 5 - The alarm LED on the **eMP** is Green.

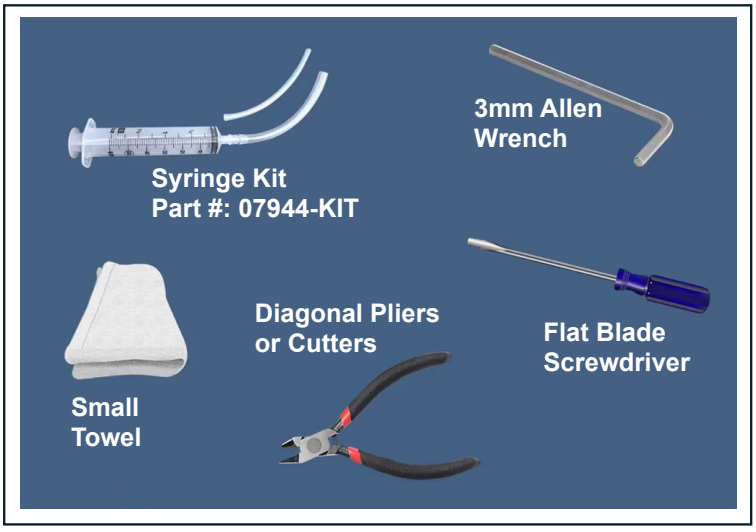
- **a**. Replace or refill your chemical bucket or stock tank.
- **b**. Inspect the suction tubing, tubing connections, and foot filter.
- **c.** Tighten the pump head.

Part 6 - The alarm LED on the **eMP** is Red.

- **a**. Assess the pressue of the installation.
- **b**. Inspect the discharge tubing, discharge and injection valves, and tubing connections.

Part 7 - The **eMP** does not run in either program - 1 Pulse per Gallon or 1 Pulse per 10 Gallons.

If these areas do not apply to your troubleshooting problem, please see **Section A** of these troubleshooting series for key areas 1, 2, and 3, or **Section B** for key area 4. You can also find the videos on our website.



To start you will need:

- A 3mm Allen wrench
- Diagonal pliers or cutters
- Small towel
- Flat blade screwdriver
- A syringe (**Syringe Kit Part #: 07944-KIT**)

If you do not have a syringe, you can purchase the **Syringe Kit (Part # 07944-KIT)** through **Dilution Solutions** at **1-800-451-6628** or search Syringe Kit at **dilutionsolutions.com.**

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

PART 5 - The alarm LED on the **eMP** is Green.

Part 5a - If the alarm LED on the **eMP** is Green, replace or refill the chemical bucket or stock tank.

Step 1: If the chemical bucket or stock tank is empty, replace it or refill it now. Once the chemical bucket or stock tank is replaced or refilled, go through the priming process from the initial installation.

Part 5b - If the alarm LED on the **eMP** is Green, inspect the suction tubing, tubing connections, and foot filter.

Step 2: Lift the PVC suction tubing, along with the foot filter out of the chemical bucket or stock tank. Be careful of any chemical splash.

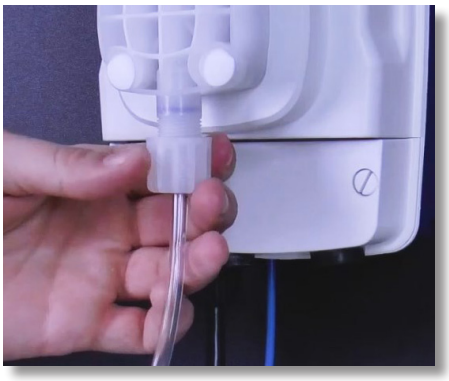
Disconnect the suction tubing and connections from the foot filter by unscrewing the tube nut. Set the foot filter aside.

Step 3: Remove the nozzle, collar, and tube nut from the PVC suction tubing and set aside.

Make sure any left-over chemical pours out into the chemical bucket or stock tank.

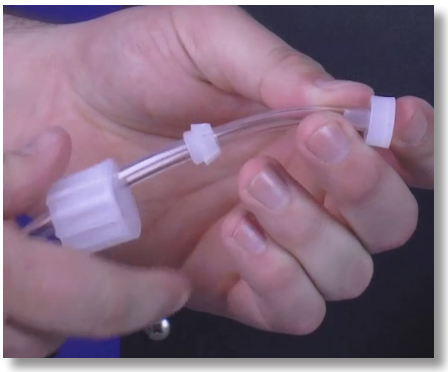
Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

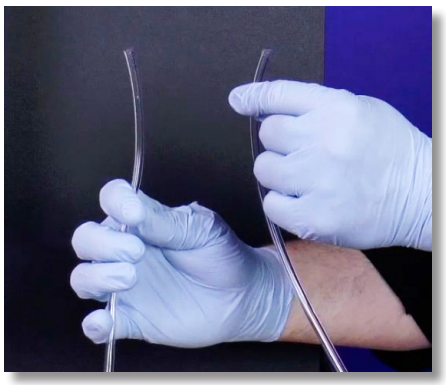


Step 4: Locate the suction valve at the bottom of the pump head.

Disconnect the suction valve tubing connections from the pump head by unscrewing the suction valve tube nut.



Step 5: Remove the nozzle, collar, and tube nut from the PVC suction tube, and set aside.



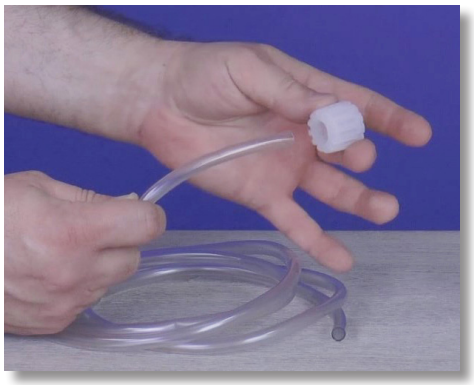
Step 6: Visually inspect the condition of the PVC suction tubing. Look at both ends of the tube, if either end is flared, use the diagonal pliers to cut the flared portion off. If the tubing is cracked, old, or broken, you need to replace it now.

You can replace the tubing with the same type left over from the install of the unit, or call Dilution Solutions at 1-800-451-6628 for assistance on the correct replacement tubing.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 7: Cut the PVC suction tubing so that the foot filter will comfortably sit in the chemical bucket in a vertical position from the suction valve. Set the remaining PVC tubing aside.



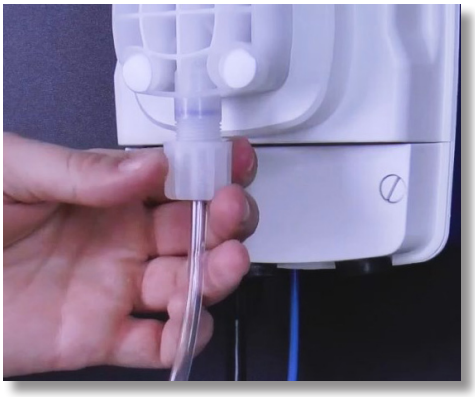
Step 8: Grab the suction valve tube nut and slide one end of the flexible PVC suction tubing through the outside opening of the tube nut.

Step 9: Slide the collar back onto the tube. Make sure the collar's crown is pointed away from the tube nut. Then, insert the nozzle back onto the end of the tube's opening.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

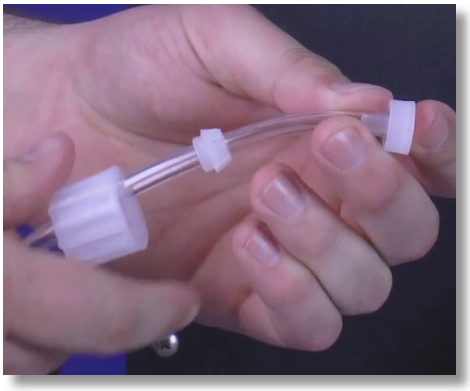
eMP - Metering Pump Troubleshooting Section C

Step 10: Push the collar and nozzle together as close as possible, and pull the tube nut toward the nozzle to com press the collar and nozzle tight together, forming a ferrule connection.



Step 11: Reattach the tube and tubing connections onto the suction valve of the pump head by hand tightening the tube nut. Do not cross thread or overtighten.

If the tube nut is not securing, recheck the ferrule connection. Pull the tube nut toward the nozzle once more, to compress the collar and nozzle together. Retighten the tube nut until secure.



Step 12: Reattach the foot filter tubing connections onto the loose end of the tube. Be mindful of their orientation. Push the collar and nozzle together as close as possible. Pull the tube nut toward the nozzle to compress the collar and nozzle tight together, forming a ferrule connection.

Let the PVC suction tubing hang from the pump head as you inspect the foot filter. Do not place it back into the chemical bucket or stock tank yet.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 13: Grab the foot filter and shake it back and forth. You should hear a ceramic ball moving freely inside.

Step 14: If not, separate the foot filter into three (3) pieces by popping the filter basket from the filter body.

Step 15: The filter seat may stick to the filter body. Make sure the filter seat rests in the filter basket instead, to avoid losing the ceramic ball.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 16: Set the filter body aside and locate the ceramic ball in the filter seat.

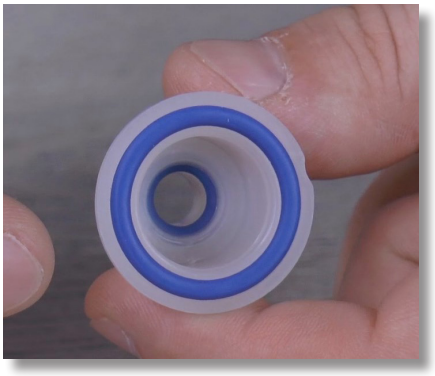
NOTE: If there is no ceramic ball, switch out the current foot filter with a new one or call **Dilution Solutions** at **1-800-451-6628** for assistance.

Step 17: Pull the filter seat out of the filter basket and set the filter basket aside.

Step 18: Pour the ceramic ball out of the filter seat and into your hand. Set the filter seat down and use the small towel to wipe the ceramic ball clean. Do not misplace it.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C



Step 19: While holding onto the ceramic ball, inspect the two (2) blue o-rings in the grooves of the filter seat and make sure they are not damaged.

Step 20: Put the ceramic ball back into the filter seat and set the filter seat aside.

Step 21: Grab the filter body and inspect to make sure the small blue o-ring on top of the filter body is not damaged.

NOTE: If any of the o-rings are damaged, switch out the current foot filter with a new one or call **Dilution Solutions** at **1-800-451-6628** for assistance.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 22: Set the filter body down, grab the filter basket and put the filter seat back into the filter basket.

Step 23: Insert the filter basket into the filter body and forcefully pop them together.

This may take a couple of tries, please be sure not to misplace the ceramic ball.

Step 24: Pull on the two (2) sections to make sure they are connected securely and shake the foot filter back and forth once more, verifying the ceramic ball is moving freely.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 25: Grab the PVC suction tubing and connections hanging from the suction valve of the pump. Reattach the tubing connections to the foot filter by hand tightening the tube nut. Do not cross thread or overtighten.

If the tube nut is not securing, recheck the ferrule connection. Set the foot filter down. Pull the tube nut toward the nozzle to compress the collar and nozzle together. Retighten the tube nut onto the foot filter.

Step 26: Place the foot filter back into the chemical bucket or stock tank, making sure it is sitting vertically.

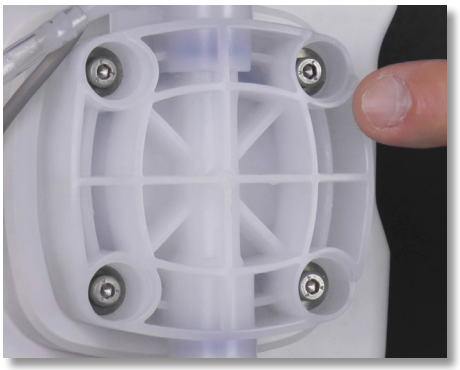
Part 5c - If the alarm LED on the **eMP** is Green, tighten the pump head.

Step 27: Over time the pump head may work itself loose from the pump. To check this, remove the four (4) white screw caps on the pump head.

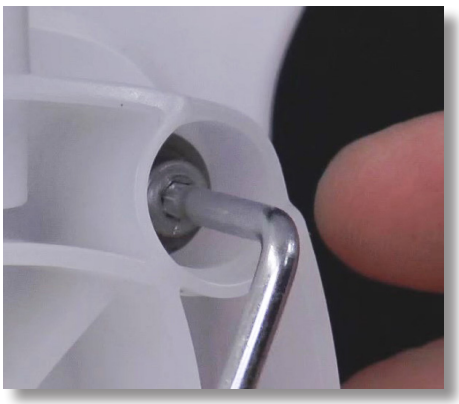
This can be done with your finger or a flat blade screwdriver. Set the white screw caps aside and do not lose them.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

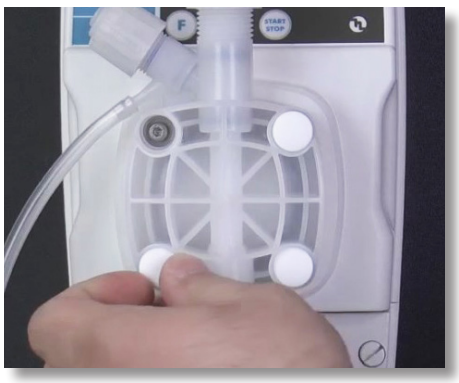
eMP - Metering Pump Troubleshooting Section C



Step 28: Underneath the caps are four (4) pump head screws.



Step 29: Using the 3mm Allen wrench, tighten the four (4) pump head screws about 1/8 turn each. It's best to tighten in a crisscross pattern.



Step 30: Reinsert the four (4) white screw caps back over the pump head screws.

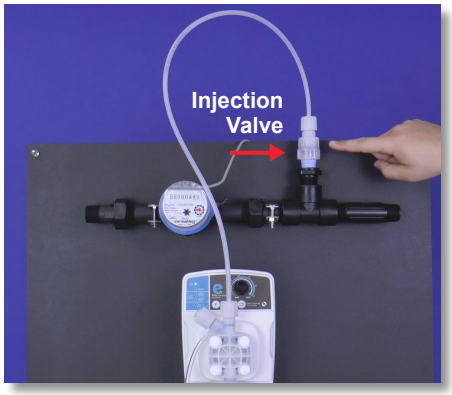
Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

PART 6: The alarm LED on the **eMP** is Red.

Part 6a: If the alarm LED on the **eMP** is Red, assess the pressure of the installation.

Step 1: Check to see if the pressure of the installation is too high by using a pressure gauge.



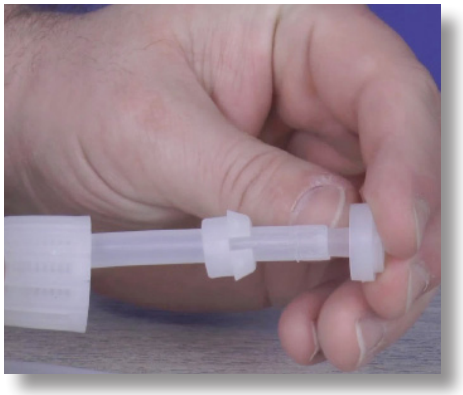
Part 6b: If the alarm LED on the **eMP** is Red, inspect the discharge tubing, tubing connections, and injection valve.

Step 2: Locate the injection valve installed in the supply line.

Step 3: Unscrew the tube nut from the injection valve.

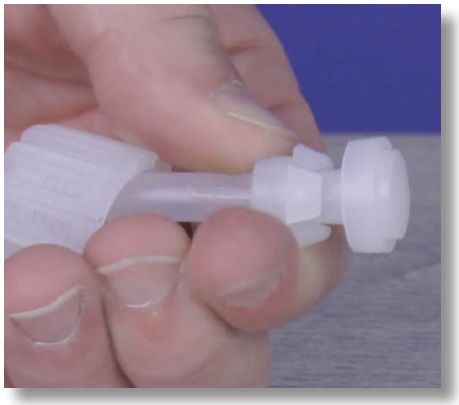
Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C



Step 4: Remove the nozzle, collar, and tube nut from the end of the tube and set them aside. Do not lose them.

Step 5: Now locate the discharge valve tube nut. Unscrew the discharge valve tube nut and disconnect the tubing from the discharge valve.



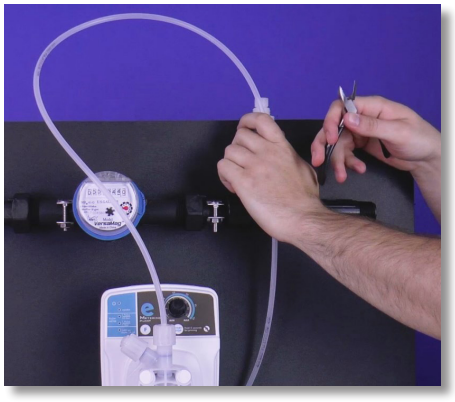
Step 6: Remove the connections, and set them aside. Visually inspect the condition of the rigid polyethylene discharge tubing.

If the tubing is cracked, old, or broken, then you need to replace it now.

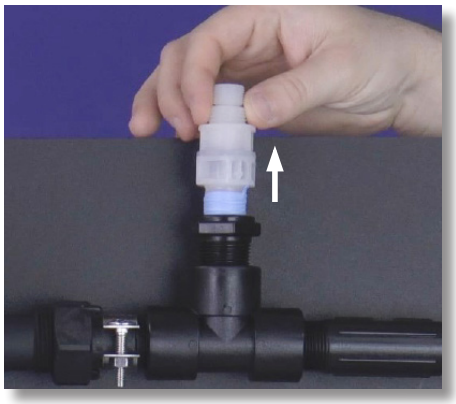
You can replace the tubing with the same type left over from the install or rebuild of the unit, or call **Dilution Solutions** at **1-800-451-6628** for assistance on the correct replacement tubing.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

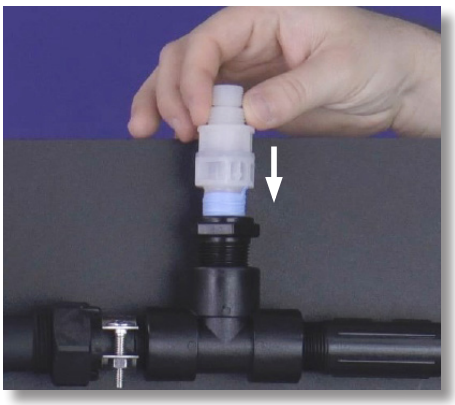


Step 7: Cut the rigid polyethylene discharge tubing so that it runs comfortably from the discharge valve to the injection valve. Set the remaining tubing aside.



Step 8: Locate and remove the injection valve from the installation saddle or tee. Visually inspect the injection valve for debris. Try to clear the debris with either running water or using a seal pick.

NOTE: If this does not work, call **Dilution Solutions** at **1-800-451-6628** to order a new injection valve.



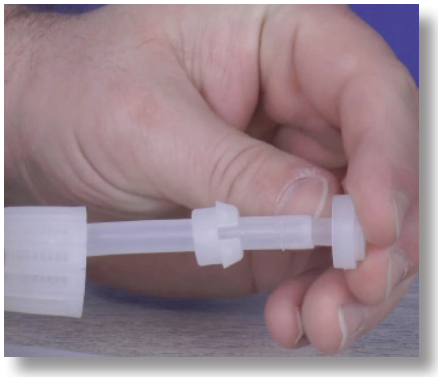
Step 9: Reinstall the injection valve into the installation saddle, hand-tight.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 10: Grab the polyethylene discharge tubing and the injection valve connections you set aside earlier.

Slide the tube nut and then the collar back onto the tube, making sure the collar's crown is pointing away from the tube nut.

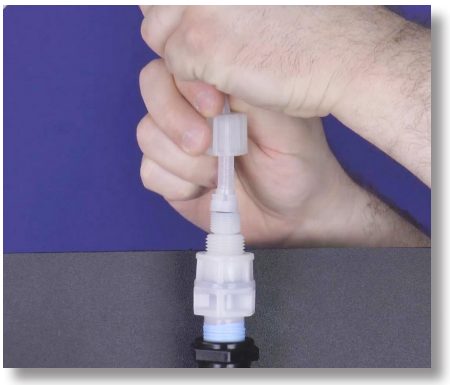


Step 11: Slide the nozzle back onto the end of the tube's opening and push the collar and nozzle together as close as possible.

Step 12: Pull the tube nut toward the nozzle to compress the collar and nozzle tight together, forming a ferrule connection.

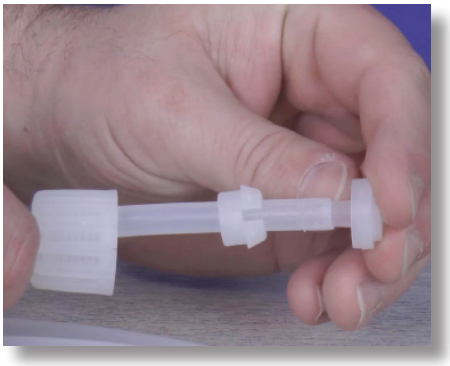
Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C



Step 13: Reattach the tube to the injection valve by hand tightening the tube nut. Do not cross thread nor overtighten.

If the tube nut is not securing, recheck the ferrule connection. Pull the tube nut toward the nozzle to compress the collar and nozzle together. Retighten the tube nut onto the injection valve.



Step 14: Grab the discharge valve connections you set aside earlier and reattach the tubing connections back onto the loose end of the tube.

NOTE: Be mindful of their orientation.

Step 15: Push the collar and nozzle together as close as possible. Pull the tube nut toward the nozzle to compress the collar and nozzle tight together, forming a ferrule connection.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 16: Reattach the tube onto the discharge valve by hand tightening the tube nut. Do not cross thread nor overtighten.

If the tube nut is not securing, recheck the ferrule connection. Pull the tube nut toward the nozzle, once more, to compress the collar and nozzle together. Retighten the tube nut onto the discharge valve. Be mindful of their orientation.

Without proper orientation, air can enter into the system causing the **eMP** to not operate correctly.

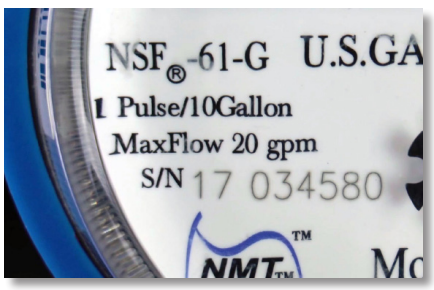
PLEASE NOTE: If the Overload Alarm LED is still Red, it may by disabled. To check this, try to run the **eMP** in **Standby Mode**. If it does run, the alarm has been disabled. Please call Dilution Solutions for assistance at 1-800-451-6628.

The Red **eMP** overload alarm LED should now turn off.

PART 7: The **eMP** does not run in either program - 1 Pulse per Gallon or 1 Pulse per 10 Gallons.

If the **eMP** does not run in either program - 1 Pulse per 1 Gallon or 1 Pulse per 10 Gallons, check the water meter interface and inspect the connection to the **eMP**.

*Not all water meters are created equal. Sometimes they send too many signals, or send signals too rapidly. In both case, the **eMP** strokes too many times and moves at a rapid pace.*

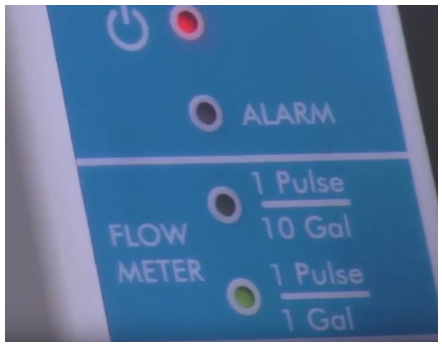


Step 1: First, check the water meter interface to see if the dial matches your desired program.

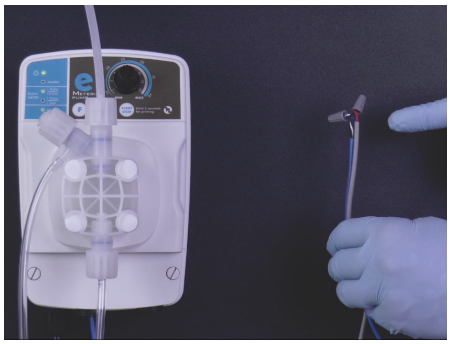
Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C

Step 2: Confirm the same program is set on the **eMP.**



Step 3: If not, change the **eMP** program or replace the water meter, so the programs match.

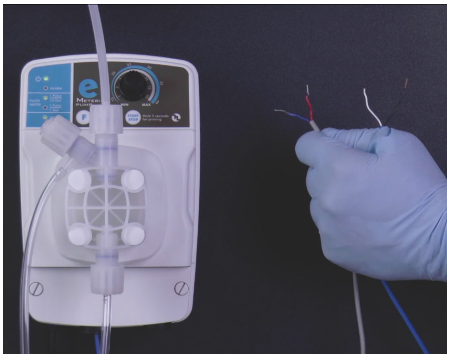


Step 4: If the issue persists, inspect the connection of the water meter to the **eMP** to see if it is loose, or has been disconnected.

The water meter makes the pump run and if a connection is loose or disconnected by mistake, the **eMP** will not operate.

Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C



Step 5: If the connection is fine, dis-connect the water meter and the **eMP** lead wires from each other.

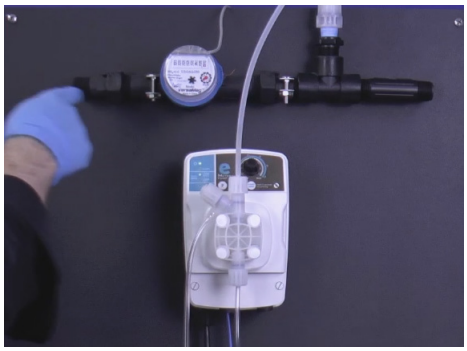
Step 6: Now test the **eMP** individually. To do this, touch the lead wires together.

This simulates a signal from the water meter, closes the contact, and tells the pump to stroke. Do this in both programs – 1 Pulse per 1 Gallon and 1 Pulse per 10 Gallons.

Step 7: Switch programs by putting the pump in **Standby Mode** and press the '**F**' or Function button. If the **eMP** works by itself, it is time to test the water meter.

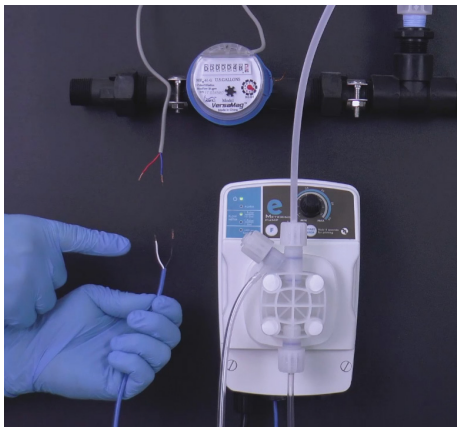
Proper protection, such as gloves, eyewear, and aprons, are recommended when handling a pump.

eMP - Metering Pump Troubleshooting Section C



Step 8: Do this by running fresh water through the supply line and watching the dial for movement.

If the dial moves, reconnect the **eMP** lead wires back to the water meter lead wires. Polarity typically does not matter, but if it does, the white wire of the **eMP** is positive.



Step 9: To finish up, run the **eMP** through both programs or at least through your desired setting to make sure it is working correctly.

The **eMP** should now run correctly through the 1 Pulse Per 1 Gallon or 1 Pulse Per 10-Gallons programs.

We hope this document has been helpful troubleshooting your **eMP Metering Pump**.

For more information, please call us at **1-800-451-6628**
or visit us online at **www.dilutionsolutions.com**.