

# Model 800

## Disassembly Instructions and Troubleshooting



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# Solenoid Disassembly Instructions

**1.** Unscrew and remove retaining nut from solenoid post and slide coil and U-frame off of solenoid post.



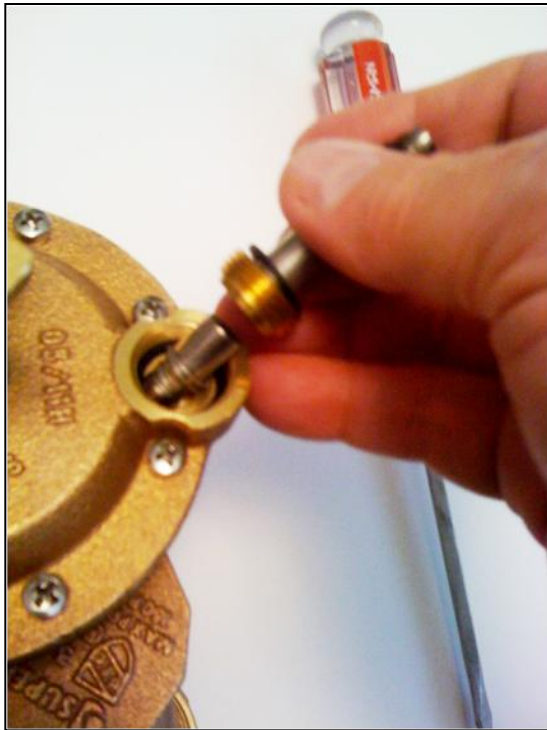
**2.** Using a flathead screwdriver, unscrew and remove solenoid post from top of adaptor.



# Solenoid Disassembly Instructions

3. Solenoid plunger will drop out of plunger tube as post is removed from solenoid cavity.

Solenoid cavity. The center port is the exhaust port. The other port connects the solenoid cavity to the diaphragm chamber.



# Removing the 800 Adaptor from the Anti-siphon Body

1. After shutting off water supply to the adaptor, remove solenoid retainer nut, coil, and U-frame from solenoid post.

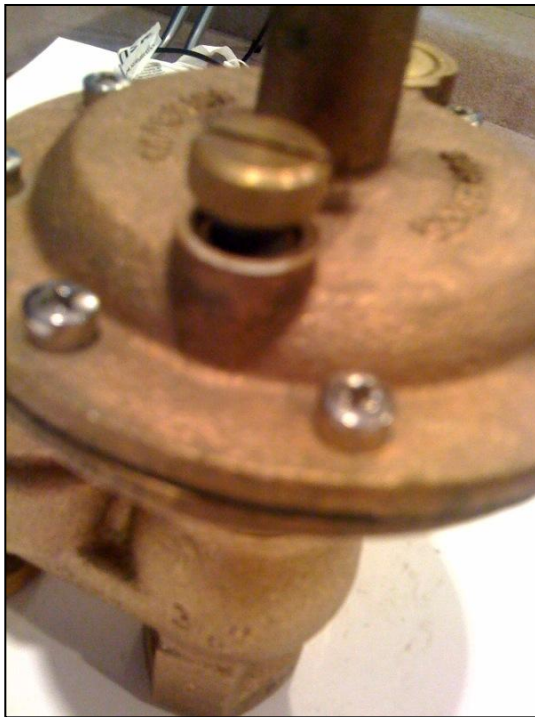


2. Using channel locks, remove anti-siphon cap from valve body.



# Removing the 800 Adaptor from the Anti-siphon Body

3. Unscrew manual bleeder a few turns to relieve pressure from the top of the diaphragm.



4. Apply a wrench to hex portion (neck) of adaptor and unscrew it from the valve body.



# Adaptor Disassembly Instructions

1. Use a 7/16" wrench to apply to shaft and 9/16" wrench to unscrew seat disc retaining nut.



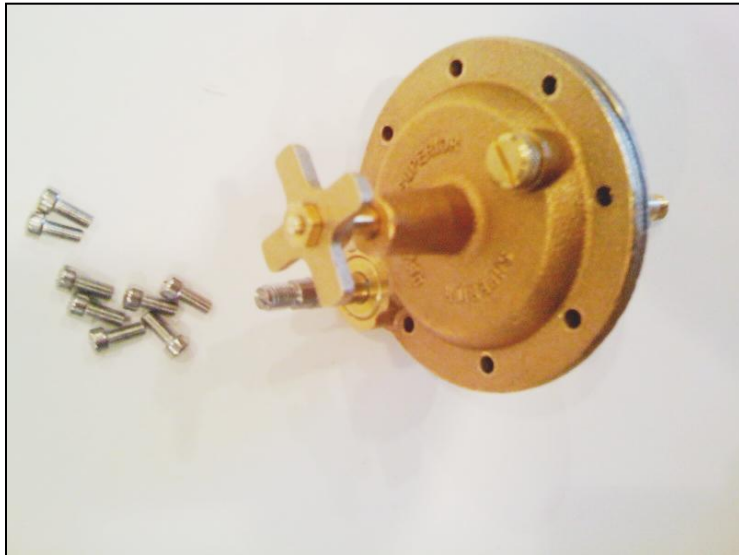
2. Remove seat disc, disc holder and spring from the shaft.



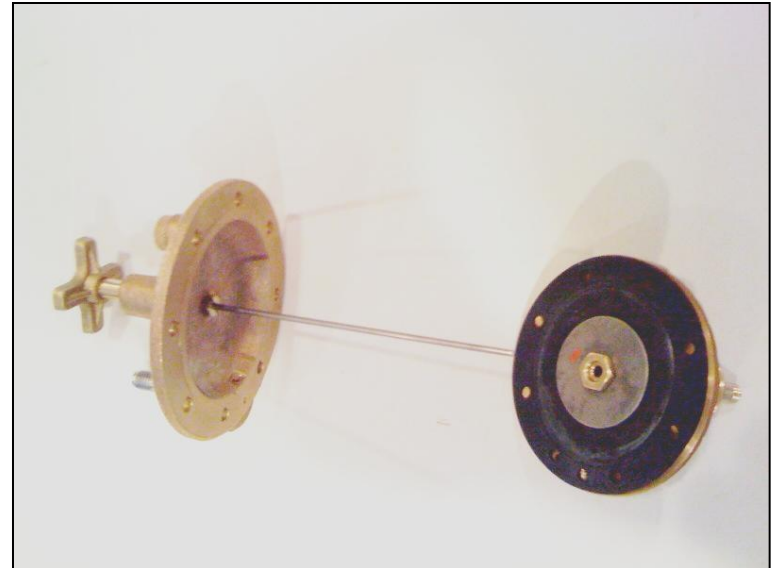


# Adaptor Disassembly Instructions

3. Using a Phillips head screwdriver, remove screws from top of adaptor.



4. Lift top straight up until metering rod clears the top of the diaphragm shaft. It may be necessary to pry the top loose from lower housing using a flathead screwdriver.

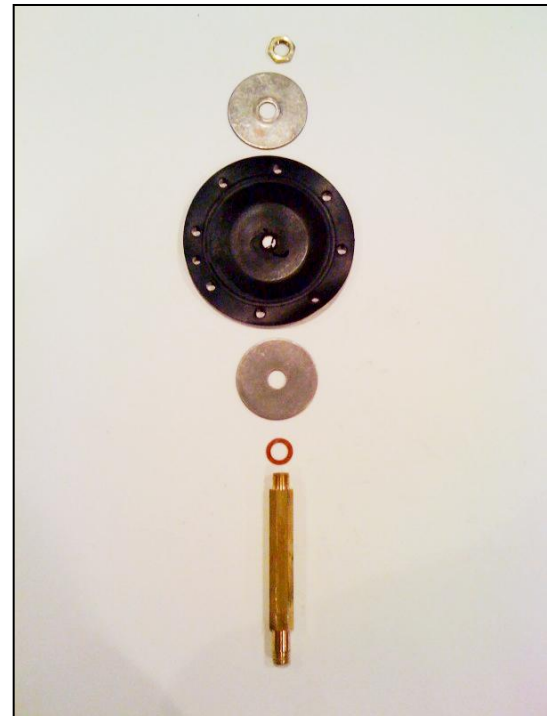


# Adaptor Disassembly Instructions

5. Lift and remove diaphragm assembly from lower diaphragm housing.



6. To disassemble diaphragm assembly, use a 7/16" wrench to hold shaft, and 9/16" wrench to remove nut at top of diaphragm shaft.



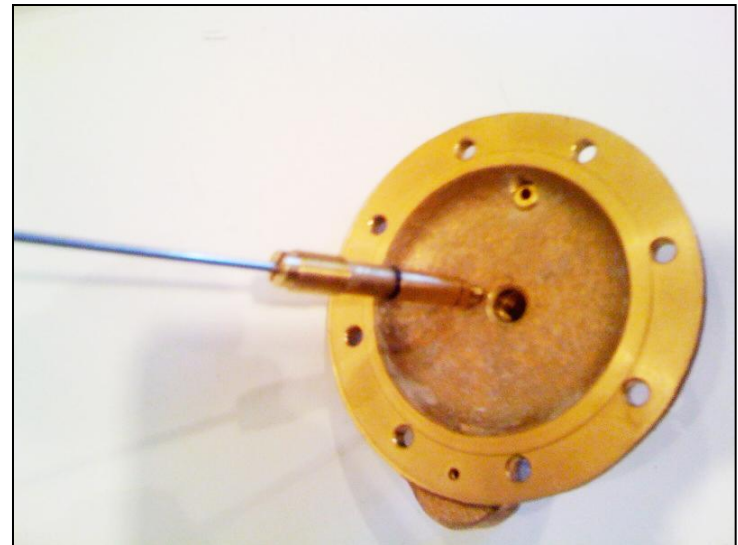


# Adaptor Disassembly instructions

**7.** To remove flow control stem from top of adaptor, first remove the nut and cross-handle from top of stem.



**8.** Unscrew flow control stem from under side of top.

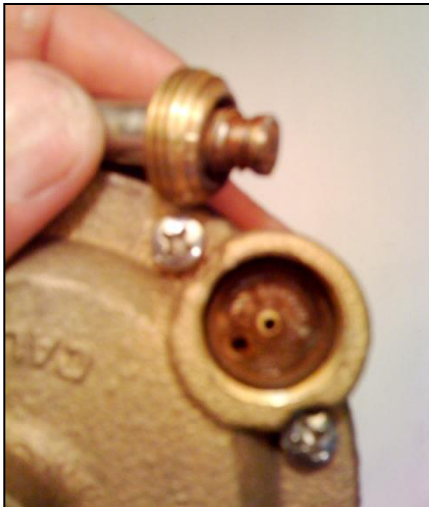


# Troubleshooting

**PROBLEM:** Valve will not close.

**CAUSE #1:** Malfunctioning solenoid. Solenoid plunger is unable to seal exhaust port due to debris in solenoid chamber or plunger being stuck in plunger tube and unable to drop.

**SOLUTION:** Remove debris from solenoid cavity and/or clean plunger tube. Replace stem and plunger assembly if necessary.



**PROBLEM:** Valve will not close.

**CAUSE #2:** Debris in valve body prevents rubber seat disc from seating onto brass seat in anti-siphon body.

**SOLUTION:** Remove adaptor from anti-siphon body and remove debris. If rubber seat disc is pitted, disassemble it from shaft and flip it over or replace if necessary.

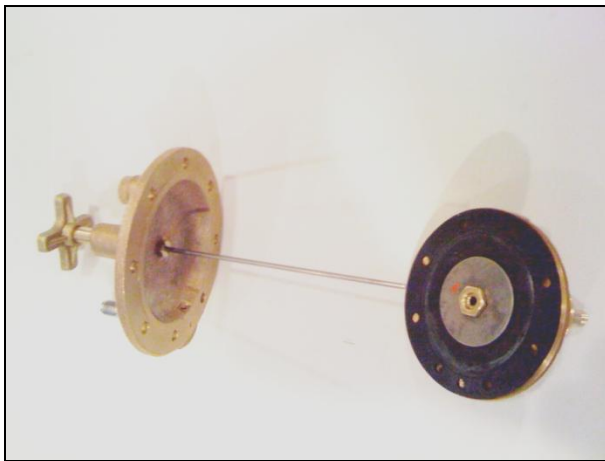


# Troubleshooting

**PROBLEM:** Valve will not close.

**CAUSE #3:** Open manual bleeder. If no water exhausts from manual bleeder, the likely cause is a buildup of minerals on the metering rod that is preventing water from entering the diaphragm chamber.

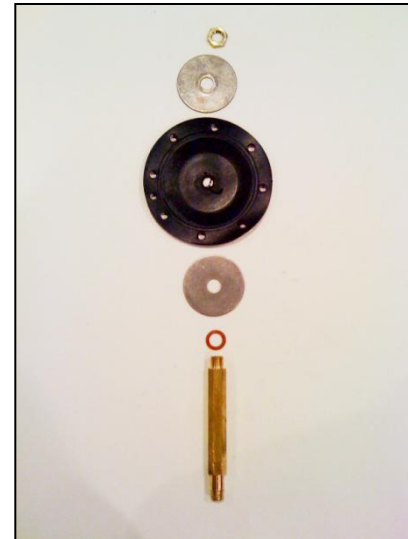
**SOLUTION:** Remove top of adaptor and clean the metering rod using emery cloth



**PROBLEM:** Valve will not close.

**CAUSE #4:** Torn Diaphragm.

**SOLUTION:** Disassemble valve and replace diaphragm .



# Troubleshooting

**PROBLEM:** Valve will not close.

**CAUSE #5:** Insufficient flow. Irrigation valves and adaptors have a minimum flow requirement in order to close. The larger the valve size, the greater the minimum flow requirement. A  $\frac{3}{4}$ " 800 adaptor has a minimum flow requirement of about 5 GPM.

**SOLUTION:** Sometimes, reducing the flow by turning the flow control handle clockwise as much as possible without adversely affecting coverage will enable the valve to close. If it works, do not readjust the flow control. If it does not work, then increase flow by adding sprinkler heads or emitters to the system. If that is not possible, then it is recommended that a model 850-DI be used in place of the model 800. This will necessitate replacing the anti-siphon valve body as well. The model 850-DI, shown in photo at right, has no minimum flow requirement. It was designed to be used in low flow drip irrigation systems.



# Troubleshooting

**PROBLEM:** Water weeps past the valve and seeps out of the lowest head.

**CAUSE #1:** Small debris under rubber seat disc or pitted rubber seat disc.

**SOLUTION:** Remove adaptor from anti-siphon body and clean debris. If the rubber seat disc is pitted, remove it, flip it over and reassemble, or replace seat disc.



**PROBLEM:** Water weeps past the valve and seeps out of the lowest head.

**CAUSE #2:** If there is no evidence of debris or pits in the rubber seat disc, the likely cause is that the nut at top of diaphragm assembly is loose allowing water to seep past the threads of the diaphragm shaft. This eventually causes the threads to erode and the problem becomes worse over time.

**SOLUTION:** Replace diaphragm assembly or replace adaptor.



# Troubleshooting

**PROBLEM:** Valve will not open when energized.

**CAUSE #1:** Solenoid is not receiving power.

**SOLUTION:** Place your fingers around the solenoid coil to see if it is receiving power. There should be a slight vibration and humming. If not, verify that there is output at the controller by using a volt meter. If there is electrical output (24 VAC) then the problem is either a bad coil or broken wire. Check the coil by disconnecting solenoid lead wires from valve wires and measure ohms with an ohm meter. A reading of 24 to 27 ohms means the coil is OK. If reading is 0 or infinity, replace coil.



**PROBLEM:** Valve does not open or only opens part way when energized.

**CAUSE #2:** Enlarged inlet orifice at bottom of diaphragm shaft is allowing water to enter diaphragm chamber at a rate greater than it can exit through solenoid exhaust port. Because the inlet orifice is brass, it can enlarge over time in high pressure/velocity conditions.

**SOLUTION:** Replace diaphragm assembly (which includes diaphragm shaft) or replace adaptor.



# Troubleshooting

**PROBLEM:** Valve will not open when energized.

**CAUSE #3:** If adaptor was recently taken apart and reassembled, it is possible that the diaphragm was not aligned properly. There are nine holes in the outer ring of the diaphragm, one for each screw hole plus one that lines up with the solenoid exhaust port. If that ninth hole is not positioned over the exhaust port, the valve will not open electrically.

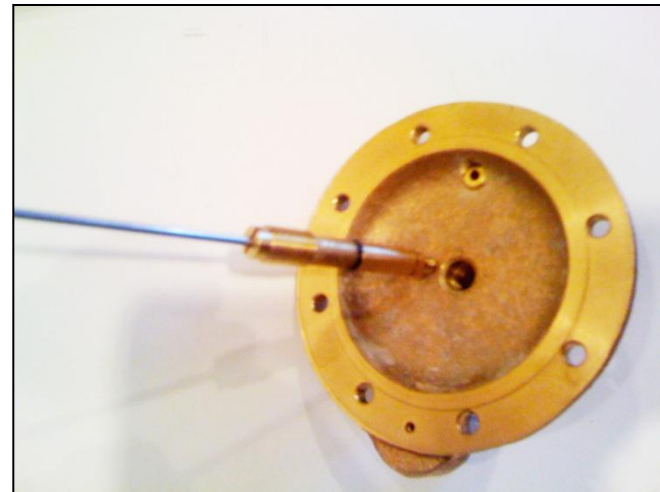
**SOLUTION:** Realign diaphragm properly.



**PROBLEM:** Water leaks out of top of adaptor where flow control stem protrudes from top housing.

**CAUSE:** Damaged flow control o-ring.

**SOLUTION:** Remove nut and flow control cross-handle, then unscrew flow control stem from the under side of the top. Replace o-ring. Apply silicone grease to the o-ring before reassembling it into the top.





# Troubleshooting

**PROBLEM:** Water leaks out around manual bleed screw.

**CAUSE #1:** Damaged o-ring on bleed screw.

**SOLUTION:** Replace bleed screw.



**PROBLEM:** Water leaks out around manual bleed screw.

**CAUSE #2:** Bleed screw cannot be screwed all the way down due to disappearing threads in opening. This is caused by a transfer of metal from threads on bleed screw to female threads in opening.

**SOLUTION:** Using a 5/16"-24 tap, rethread opening and replace bleed screw with a new one.



# Troubleshooting

**PROBLEM:** Water leaks out of adaptor between top and lower section and tightening top screws does not stop leakage.

**CAUSE:** Freezing temperatures. Water expands when turning to ice and causes scalloping of top casting particularly in old adaptors with metal fatigue.

**SOLUTION:** Place vice grips between two of top screws and squeeze top and bottom together then tighten screws on both sides of vice grips. Repeat process between all other screws.



**PROBLEM:** Water leaks out between adaptor and anti-siphon body.

**CAUSE:** Damaged fiber body washer.

**SOLUTION:** Replace damaged fiber body washer.



# Parts, Sub-Assemblies, and Repair Kits

**Solenoid Coil:** 16008 (all sizes)

**Solenoid Stem and Plunger Assembly:** 16010-2A

**Solenoid Assembly:** 16200

**Manual Bleed Screw:** 15013 (all sizes)

**Flow-Control Stem (includes o-ring):**  $\frac{3}{4}$ "-15220, 1"-15221, 1  $\frac{1}{4}$ "-15222, 1  $\frac{1}{2}$ "-15223, 2"-15224

**Diaphragm:**  $\frac{3}{4}$ " thru 1  $\frac{1}{4}$ "-15019, 1  $\frac{1}{2}$ "-3"-15020

**Diaphragm Assembly :**  $\frac{3}{4}$ "-15208, 1"-15209, 1  $\frac{1}{4}$ "-15210, 1  $\frac{1}{2}$ "-15211, 2"-15212

**Fiber Body Washer:**  $\frac{3}{4}$ "-15053, 1"-15054

**Repair Kits (includes all rubber and fiber parts):**  $\frac{3}{4}$ "-17301, 1"-17302, 1  $\frac{1}{4}$ "-17303, 1  $\frac{1}{2}$ "-17304, 2"-17305