

# Model 850-DI

## Disassembly Instructions and Troubleshooting



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# Solenoid Disassembly Instructions

1. Using a ½" wrench, remove copper tubing that is connected to T-filter assembly and L-fitting above solenoid.



2. Apply ½" wrench to hex portion of coupling located above solenoid and remove coupling and L-fitting. It is not necessary to separate L-fitting from coupling



# Solenoid Disassembly Instructions

**3.** Slide solenoid coil and U-frame off of solenoid post.



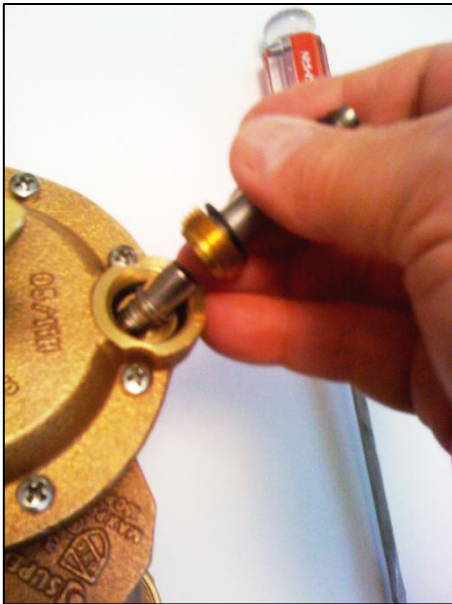
**4.** Using a flathead screwdriver, remove solenoid post from top of valve.



# Solenoid Disassembly Instructions

5. Take care as you remove post as the solenoid plunger will drop out of the plunger tube.

View of solenoid cavity. Note o-ring seal at bottom of cavity. The port in the center of the cavity is the exhaust port leading to exterior of valve. When the solenoid is energized, the water in the upper diaphragm assembly exhausts to atmosphere. About a quarter cup of water will exhaust, then stop. The other port connects the diaphragm assembly to the solenoid cavity.



# Removing Actuator from Valve Body

1. Using a ½" wrench, remove copper tubing.



2. Using a ½" wrench, remove coupling and L-fitting from solenoid post. Next, slide U-frame and coil off of solenoid post.



# Removing Actuator from Valve Body

3. Using a pair of channel-locks, remove anti-siphon cap from body.



4. Open bleed screw a few turns in order to relieve pressure from top of diaphragm.



# Removing Actuator from Valve Body

5. Apply a wrench to the hex neck of the actuator and unscrew it from valve body.

Photo of actuator after being removed from valve body.



# Actuator Disassembly Instructions

1. Using a 9/16" wrench, remove hex retaining nut from bottom of shaft.



2. To gain access to rubber seat disc, remove brass disc-holder and rubber seat from shaft after following step 1.





# Actuator Disassembly Instructions

**3.** Using a Phillips-head screwdriver, remove the eight screws that fasten the top portion of the actuator to the bottom portion.



**4.** Lift top of actuator off of lower portion.



# Actuator Disassembly Instructions

5. Remove diaphragm assembly from lower diaphragm housing.



# Troubleshooting

**PROBLEM:** Valve will not close and a steady stream of water exhausts to atmosphere from a port in lower diaphragm housing under the solenoid.

**CAUSE #1:** Stuck solenoid plunger.

**SOLUTION:** Clean stem and plunger or replace if necessary



**PROBLEM:** Valve will not close and a steady stream of water exhausts to atmosphere from port in lower diaphragm housing under the solenoid.

**CAUSE #2:** Debris in solenoid cavity prevents plunger from sealing exhaust port.

**SOLUTION:** Remove debris from solenoid cavity.



# Troubleshooting

**PROBLEM:** Valve will not close.

**CAUSE #1:** Clogged T-filter is not allowing water to enter copper tubing. To check, while valve is pressurized, loosen compression fitting where tubing connects to L-fitting above solenoid. If no water exhausts out around compression fitting, cause is confirmed.

**SOLUTION:** Using a ½" wrench, unscrew T-filter from T-fitting and clean or replace if necessary.



**PROBLEM:** Valve will not close.

**CAUSE #2:** Debris in valve body or debris embedded in rubber seat disc. To check, open manual bleed. If water exhausts out of manual bleed, then cause is confirmed.

**SOLUTION:** Remove actuator from valve body and check for debris in valve body or embedded in rubber seat. Remove debris. If seat disc is damaged, disassemble from shaft and flip or replace if necessary.



# Troubleshooting

**PROBLEM:** Valve will not close and water continuously exhausts from vent hole in lower section of actuator.

**CAUSE:** Torn Diaphragm.

**SOLUTION:** Replace diaphragm assembly or disassemble diaphragm from shaft and replace diaphragm.

**NOTE:** Vent hole is shown in photo.



# Troubleshooting

**PROBLEM:** Valve will not open electrically.

**CAUSE #1:** Solenoid is not receiving power. With the solenoid energized from controller, place fingers on solenoid coil. If there is no vibration, problem is due to one of the following: 1) no output from controller, 2) damaged or loose wire, or 3) bad solenoid coil.

**SOLUTION:** Check output at controller with volt meter. If there is output (24 VAC), disconnect solenoid coil leads from valve wires and conduct ohm reading. Ohm reading should be in range of 24 to 27 ohms. If reading is zero or infinity, replace solenoid coil. If coil is OK, problem is due to loose or damaged wire between controller and valve.

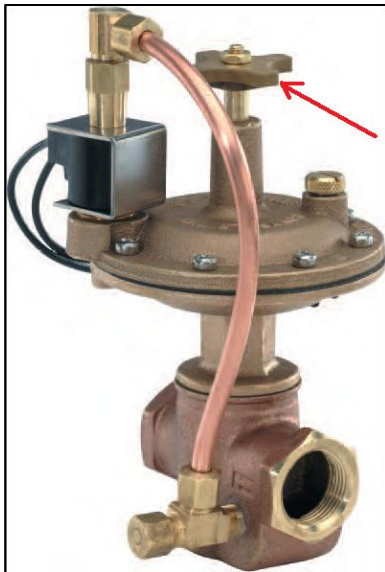


# Troubleshooting

**PROBLEM:** Valve will not open electrically.

**CAUSE #2:** Flow-control handle is all the way closed (clockwise).

**SOLUTION:** With solenoid energized from the controller, turn flow-control handle counter-clockwise, a half turn at a time until desired flow is seen from heads or emitters.



**PROBLEM:** When valve is closed, a continuous stream of water exhausts from vent hole in lower section of actuator (shown in red circle).

**CAUSE:** Damaged shaft o-ring.

**SOLUTION:** Replace o-ring. Apply silicone grease to o-ring before re-assembling shaft into lower section of actuator.



# Troubleshooting

**PROBLEM:** Water leaks out of area where flow-control stem protrudes from top of valve.

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

**SOLUTION:** Remove retainer nut and cross-handle from flow-control stem and unscrew flow-control stem from underside of top. Replace o-ring. Apply silicone grease to o-ring before re-assembling it into top.





# Parts, Sub-Assemblies, and Repair Kits

**Solenoid Coil (24 VAC):** 16008

**3-Way Solenoid Stem and Plunger Assembly:** 16300B

**24 VAC 3-Way Solenoid Assembly:** 16075-A

**Manual Bleed Screw:** 15013

**L-Fitting:** 16500-1

**T-Filter:** 16520-1

**T-Filter and T-Fitting:** 16520-2

**Copper Tubing (includes compression nuts):**  $\frac{3}{4}$ " & 1"-16502

**Flow-Control Stem:**  $\frac{3}{4}$ " & 1"-15011A

**Diaphragm:**  $\frac{3}{4}$ " & 1"-15019

**Repair Kits (includes all rubber and fiber parts):**  $\frac{3}{4}$ "-17318, 1"-17319