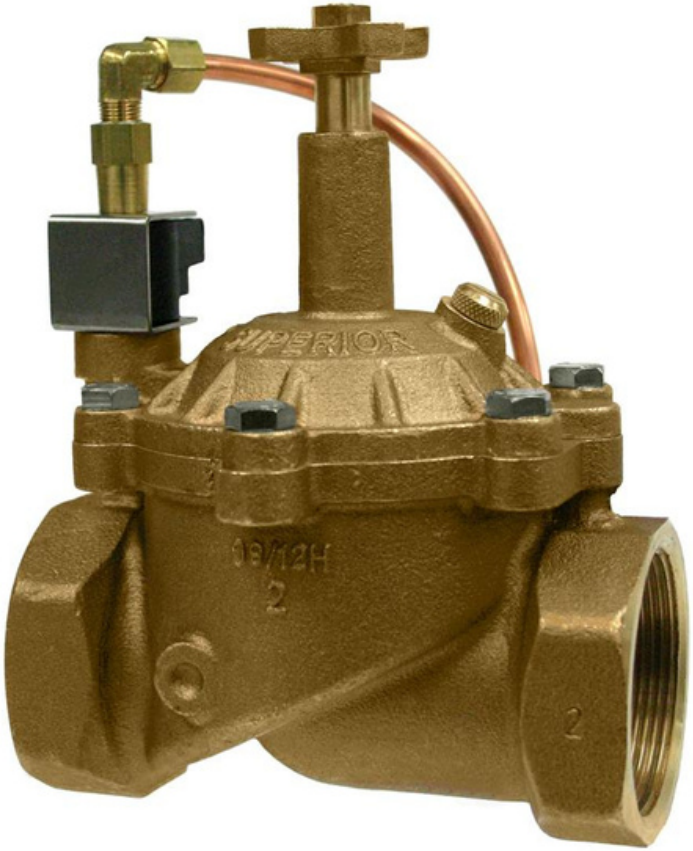
SUPERIOR

Model 3000

Disassembly Instructions and Troubleshooting



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Solenoid Disassembly Instructions

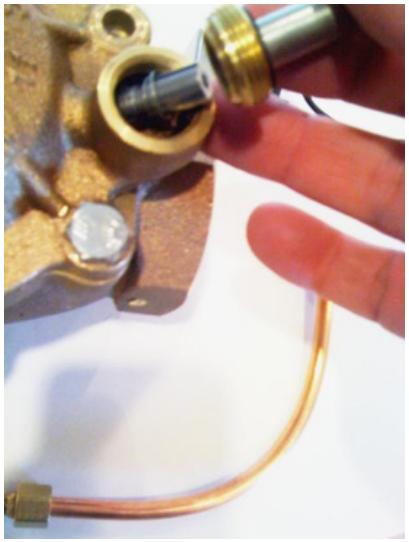
1. Using a ½" wrench, remove copper tubing through which water passes from inlet side of body to top of solenoid. Next, apply a ½" wrench to hex portion of coupling located between top of solenoid and L-fitting. Unscrew coupling and L-fitting from solenoid post. It is not necessary to separate L-fitting from coupling.

2. After removing coupling and L-fitting, lift the coil and U-frame off of post.

Solenoid Disassembly Instructions

3. Using a flathead screwdriver, unscrew the solenoid post from bonnet.

4. As you remove post from the solenoid cavity, the solenoid plunger will drop out of plunger tube.



Solenoid Disassembly Instructions

5. View of solenoid cavity. Note o-ring seal at bottom of cavity. The center port is the solenoid exhaust port that is sealed by the plunger seat when the solenoid is de-energized. The other port connects the diaphragm chamber to the solenoid chamber.

Valve Disassembly Instructions

1. Using a ½" wrench, remove copper tubing that on inlet side of body. connects L-fitting above solenoid to T-filter assembly

2. Remove top bolts then lift top assembly off of valve body.

Valve Disassembly Instructions

3. Remove diaphragm spring and diaphragm assembly from valve body.

4. To remove rubber seat disc from diaphragm assembly, unscrew cap from bottom of diaphragm shaft, then unscrew disc retaining nut. Next, remove retaining washer, rubber seat disc and disc holder from diaphragm shaft.

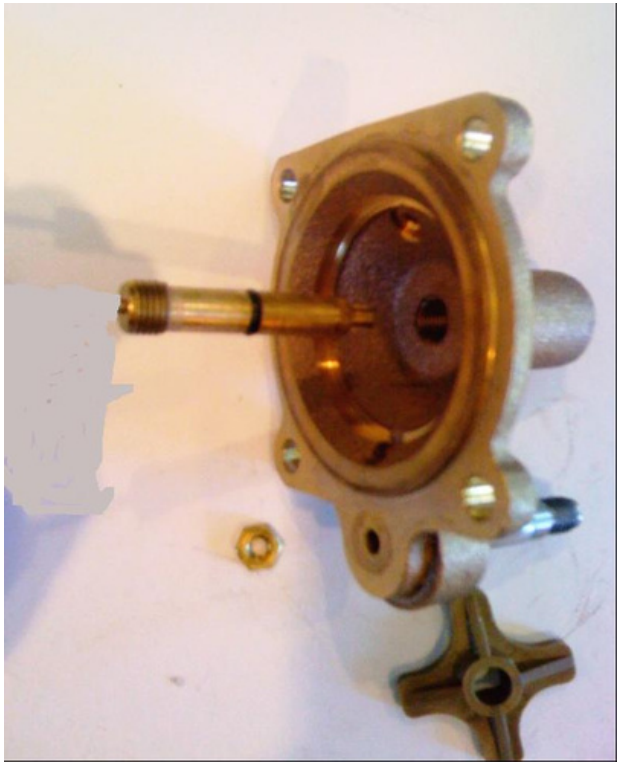
Valve Disassembly Instructions

5. Photo below shows completely disassembled diaphragm assembly. From top to bottom: Diaphragm shaft, fiber washer, upper diaphragm plate, diaphragm, lower diaphragm plate, fiber washer, spacer nut, fiber washer, disc holder, rubber seat disc, retaining washer, retaining nut, and cap.

6. To remove T-filter, use a ½" wrench and unscrew from T-fitting. Water entering the copper tubing on way to solenoid is metered and filtered by this assembly.

Valve Disassembly Instructions

7. To remove flow-control stem from bonnet, first rotate cross-handle clockwise as many turns as possible, then remove nut and cross- handle from top of stem. Next, unscrew flow- control stem from underside of bonnet.



Troubleshooting

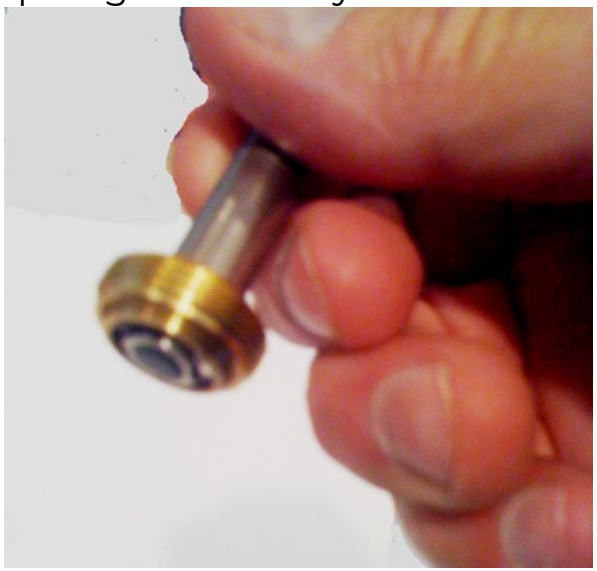
PROBLEM: Valve will not close

CAUSE #1:

Debris in solenoid cavity prevents solenoid plunger from sealing exhaust port, or solenoid plunger is stuck in plunger tube and will not drop and seal exhaust port.

SOLUTION:

Remove debris, or if plunger is stuck, clean plunger and tube or replace stem and plunger assembly.



CAUSE #2:

Clogged orifice at top of plunger tube prevents water from reaching upper diaphragm chamber.

SOLUTION:

Clean orifice or replace solenoid stem.

Troubleshooting

PROBLEM: Valve will not close.

CAUSE #3:

Water is not flowing through copper tubing to top of solenoid. This can be diagnosed by unscrewing compression nut that connects tubing to L-fitting. If no water exhausts from tube, diagnosis is confirmed.

SOLUTION:

T-filter needs to be cleaned or replaced if necessary.

PROBLEM:

Valve will not close, or closes but water weeps past valve.

CAUSE #4:

Debris in valve body or embedded in rubber seat disc is preventing rubber seat from forming a seal against brass seat in valve body.

SOLUTION:

Remove diaphragm assembly from body and remove debris. If rubber seat disc is damaged, disassemble lower part of diaphragm assembly and flip or replace seat disc.

Troubleshooting

PROBLEM: Valve will not close.

CAUSE #5:

Torn diaphragm.

SOLUTION:

Replace diaphragm assembly or disassemble diaphragm assembly and replace diaphragm.

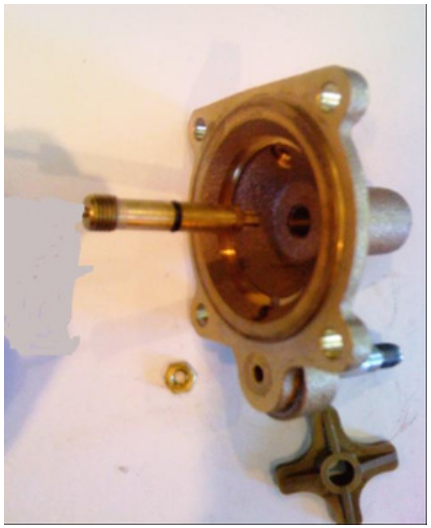
PROBLEM: Water leaks out around flow-control stem.

CAUSE:

Damaged flow-control o-ring

SOLUTION:

Remove flow-control stem from bonnet, and replace o-ring. Apply silicone grease to o-ring before reassembling to bonnet.



Troubleshooting

PROBLEM:
Valve will not open when energized.

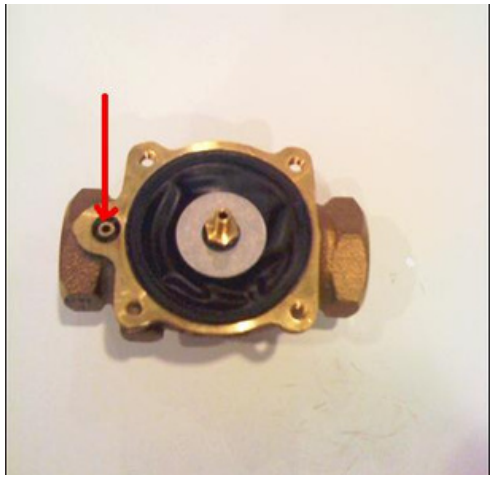
CAUSE #1:
Solenoid is not receiving power.

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

PROBLEM:
Valve will not open when energized.

CAUSE #2:
Clogged exhaust passage. To diagnose problem, run a thin rod or wire (must be less than 1/16” diameter) down through solenoid exhaust port until it passes into open area where water flows through valve.

SOLUTION:
If an obstruction is encountered that cannot be cleared with rod or wire, remove the bonnet and run a drill down exhaust port in body. The size of the drill must be smaller than 1/8”.



Parts, Sub-Assemblies, and Repair Kits

Solenoid Coil (24 VAC): 16008
Solenoid Stem and Plunger Assembly: 16300B
24 VAC Solenoid Assembly: 16075-A
L-Fitting: 16500-1
Flow-Control Stem (includes o-ring): 1”-16081N, 1 ¼”-16004-1N, 1 ½” & 2”-16004N, 2 ½” & 3”-19000N
Copper Tubing (includes compression nuts): 1”-16509, 1 ¼”-16510, 1 ½” & 2”-16511, 2 ½” & 3”-16512
T-Filter: 16520-1
T-Filter and T-Fitting Assembly: 16520-2
Diaphragm: 1”-16056-A, 1 ¼”-16057RW, 1 ½” & 2”-16058, 2 ½” & 3”-400028
Repair Kits (all rubber and fiber parts): 1”-17309, 1 ¼”-17310, 1 ½”-17311, 2”-17312, 2 ½” & 2”-17313
Diaphragm Assembly: 1”-16212N, 1 ¼”-16213N, 1 ½”-16214N, 2”-16215N, 2 ½” & 3”-16216N