

# INSTALLATION & MAINTENANCE INSTRUCTIONS

**ASCO**  
BULLETIN

## GENERAL PURPOSE SOLENOIDS WITH JUNCTION BOX

JB8017

Form No. V6076R1

### DESCRIPTION

Catalog numbers JB80171 and JB80172 solenoids have a Type 1, General Purpose Junction Box Solenoid Enclosure. When installed just as a solenoid and not as part of an ASCO valve, the core has a 0.250-28 UNF-2B tapped hole with 0.38 minimum full thread.

### OPERATION

When the solenoid is energized, the core is drawn into the solenoid base sub-assembly. **IMPORTANT:** When the solenoid is de-energized, the initial return force for the core, whether developed by spring, pressure, or weight, must exert a minimum force to overcome residual magnetism created by the solenoid. Minimum return force for AC construction is 1 pound 12 ounces and 5 ounces for DC construction.

### INSTALLATION

Check nameplate for correct catalog number, voltage, frequency, wattage, and service.

**IMPORTANT:** To protect a solenoid operator or valve, install a strainer or filter, suitable for the service involved in the inlet side as close to the valve or operator as possible. Clean periodically depending on service conditions. See ASCO Bulletins 8600, 8601 and 8602 for strainers.

### Temperature Limitations

For maximum valve ambient and fluid temperatures, refer to chart below. The temperature limitations listed below only indicate maximum application temperatures for field wiring rated at 90°C. For higher ambient and fluid temperature limitations, consult factory. Check wattage rating on nameplate to determine maximum temperatures. **NOTE:** For steam service, refer to "Wiring" section for temperature rating of supply wires.

Temperature Limitations for Bulletin JB8017 Solenoids or Valves Rated at 12.3, 15.4, 16.8, & 20 Watts		
Watt Rating See Nameplate	Max. Fluid Temp. For This Application	Max. Ambient Temp. For This Application
12.3, 15.4, & 16.8	200°F	200°F
20	181°F	104°F

### Positioning

This solenoid is designed to perform properly when mounted in any position. However, for optimum life and performance, the solenoid should be mounted vertically and upright to reduce the possibility of foreign matter accumulating in the solenoid base sub-assembly area.

### Wiring

Wiring must comply with local codes and the National Electrical Code. To facilitate wiring, the solenoid enclosure may be rotated 360° by removing the retaining cap or clip. **WARNING:** When metal retaining clip disengages, it will spring upward. The solenoid housing has two 7/8" diameter knockouts or one 7/8" diameter hole to accommodate 1/2" conduit. For extra support, leave solenoid enclosure assembled when driving out 7/8" diameter knockout. Remove housing cover by spreading cover and disengaging nibs; lift up and pull down simultaneously. A grounding screw and cup washer are supplied on a card inside of the solenoid enclosure. Install cup washer and grounding screw in either hole marked (GND). Within the solenoid enclosure use field wire that is rated 90°C or greater for connections. For steam service use 105°C rated wire up to 50 psi or use 125°C rated wire above 50 psi. For splicing, long coil leads should be cut back to approximately 6" in length from the coil. Some coils are supplied with 6" lead wires and do not require cutting back. **NOTE:** Alternating current (AC) and direct current (DC) solenoids are built differently. To convert from one to the other, it is necessary to change the complete solenoid including the core and solenoid base sub-assembly, not just the coil. Consult ASCO.

### Solenoid Enclosure Assembly

Bulletin JB8017 solenoids may be assembled as a complete unit. Tightening is accomplished by means of a hex flange at the base of the solenoid enclosure.

### Solenoid Temperature

Standard solenoids are supplied with coils designed for continuous duty service. When the solenoid is energized for a long period, the solenoid enclosure becomes hot and can be touched by hand only for an instant. This is a safe operating temperature. Any excessive heating will be indicated by the smoke and odor of burning coil insulation.

### MAINTENANCE

**WARNING:** Turn off electrical power supply and depressurize solenoid operator and/or valve before making repairs.

### Cleaning

All solenoid operators and valves should be cleaned periodically. The time between cleaning will vary depending on medium and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation, excessive noise, or leakage will indicate that cleaning is required. Clean strainer or filter when cleaning the valve.

### Preventive Maintenance

1. Keep the medium flowing through the solenoid operator or valve as free from dirt and foreign material as possible.
2. While in service, the solenoid operator or valve should be operated at least once a month to insure proper opening and closing.
3. Depending on the medium and service conditions, periodic inspection of internal solenoid or valve parts for damage or excessive wear is recommended. Thoroughly clean all parts. Replace any parts that are worn or damaged.

### Causes Of Improper Operation

1. **Faulty Control Circuit:** Check the electrical system by energizing the solenoid. A metallic "click" signifies that the solenoid is operating. Absence of the "click" indicates loss of power supply. Check for loose or blown fuses, open-circuited or grounded coil, broken lead wires or splice connections.
2. **Burned-Out Coil:** Check for open-circuited coil. Replace if necessary. Check supply voltage; it must be the same as specified on nameplate and as marked on the coil.
3. **Low Voltage:** Check voltage across the coil leads. Voltage must be at least 85% of nameplate rating.

### Coil Replacement (Refer to Figures 1 & 2)

**WARNING:** Turn off electrical power supply.

1. Remove housing cover by spreading cover and disengaging nibs; lift up and pull down simultaneously.
2. Break splice connections and disconnect grounding wire if necessary.
3. Remove retaining cap or clip, nameplate (if present), and cover. **WARNING:** When metal retaining clip disengages, it will spring upward.
4. For AC construction slip spring washer (if present) and yoke containing coil, sleeves, and insulating washers off the solenoid base sub-assembly. Insulating washers are omitted when a molded coil is used. Slip coil, sleeves, and insulating washers from yoke. For DC construction, remove spring washer (if present), flux washer, and coil.
5. Coil is now accessible for replacement. Reassemble solenoid in reverse order of disassembly. Use exploded view for identification and placement of parts.

**CAUTION:** Solenoid must be fully assembled because the housing and internal parts complete the magnetic circuit. Be sure to replace insulating washer at each end of non-molded coil.

### ORDERING INFORMATION FOR

#### ASCO SOLENOID SPARE PARTS OR COILS

- When Ordering ASCO SPARE PARTS, Specify Catalog Number, Serial Number, Voltage, and Frequency,
- When Ordering Coils for ASCO Solenoid Operators or Valves, order the number stamped on your coil.

**ASCO Valves**

**ASCO**

Form No. V6076R1

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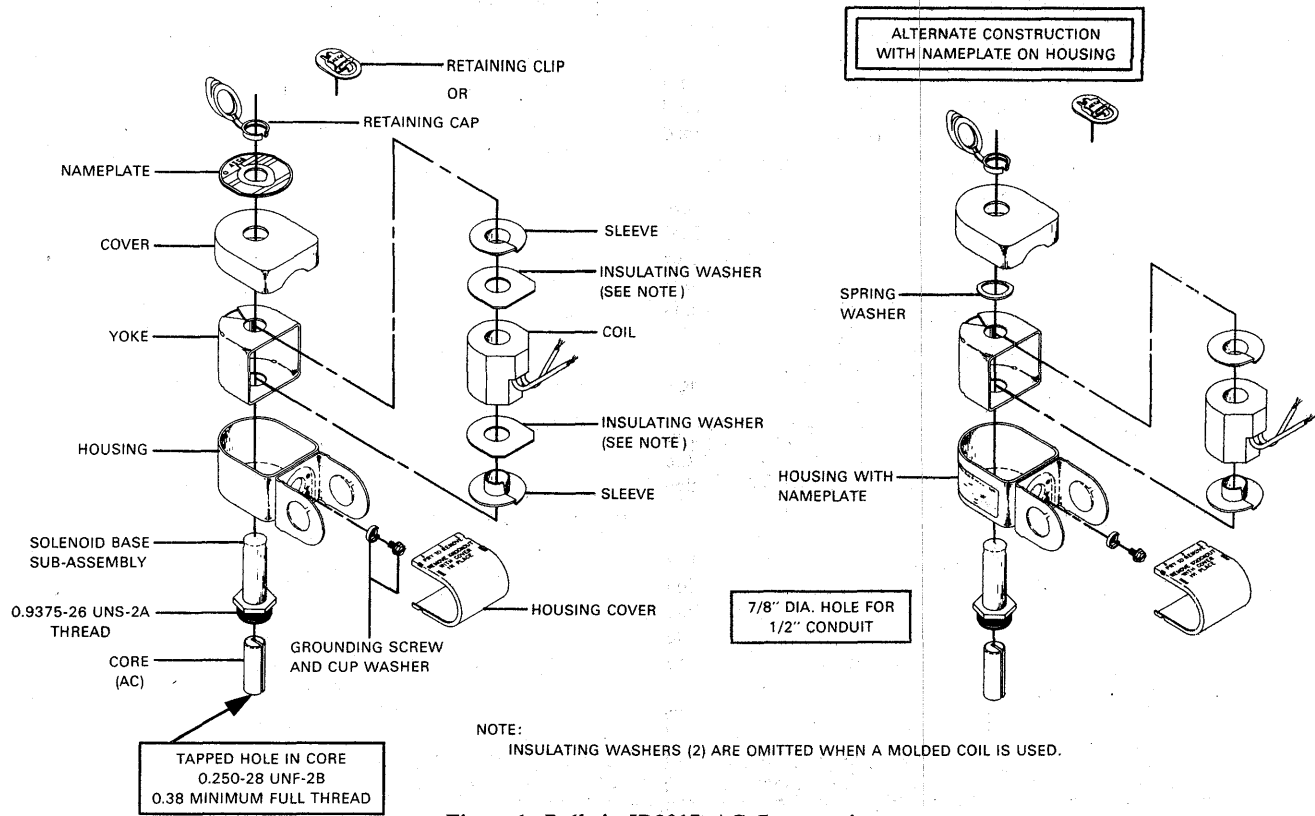


Figure 1. Bulletin JB8017, AC Construction  
General Purpose Junction Box Solenoid Shown.

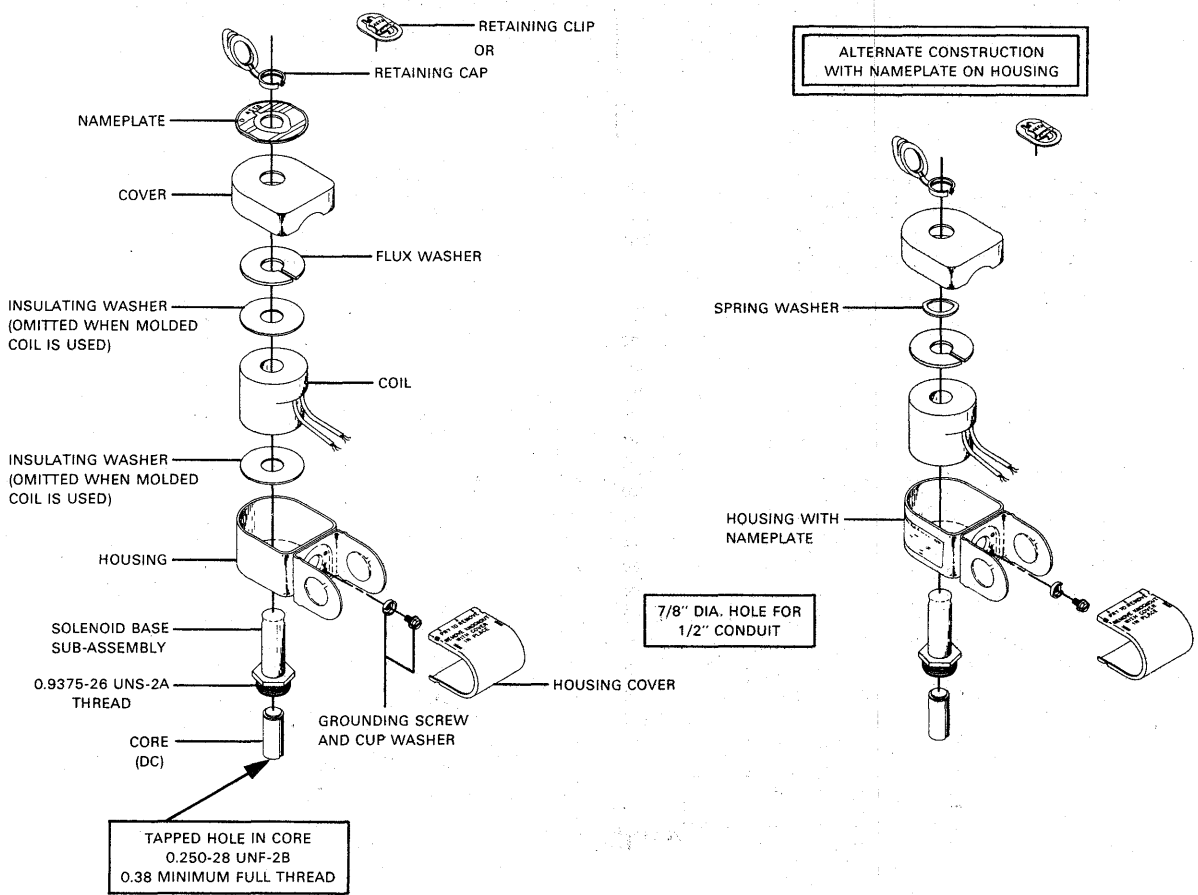


Figure 2. Bulletin JB8017, DC Construction  
General Purpose Junction Box Solenoid Shown.