



## Magnatrol Valve Corporation

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### POSSIBLE CAUSES OF SOLENOID COIL BURNOUT

#### **If coil burned out while it was continuously energized:**

- Ambient temperature is too high for the rating of the coil insulation.
- Prolonged abnormally high voltages are applied or voltage surges occur due to other heavy equipment on the line.
- Solenoid connected to the wrong voltage. Check across lead wires with voltmeter.
- Lightning struck the area
- Power was supplied to the coil while the valve was disassembled.
- Coil encapsulation has been damaged and moisture has somehow entered the solenoid enclosure and shorted the coil.

#### **If coil burned out because the valve failed to actuate (did not fully open or close):**

- The valve is not installed with the solenoid in an upright, vertical position
- Fluid being handled is too viscous (for this valve type).
- Actual line pressure exceeds or at one time has exceeded that appearing on the nameplate, thus overloading the solenoid.
- Something in the valve, either a damaged part or foreign matter (such as a metal chip, pipe dope, welding slag, etc.) prevents the solenoid plunger or piston from rising all the way to the top of its stroke. Damaged parts such as a bent or crimped bonnet tube or a distorted piston ring can lead to the same result. Note that the plunger must rise all the way to the stop at the top of the bonnet or the coil will burn out.
- A solid particle or dirt has entered or collected in the valve, or the fluid has built up a sticky film on the inner parts, or has dried in the valve. The valve needs to be opened up and cleaned. Note: Strainers are available from the factory to prevent entry of solids into the valve.
- The valve operates simultaneously with a pump, motor or other large induction device, or the electrical system becomes overloaded frequently, and the resulting voltage drop prevents the solenoid from receiving its necessary inrush current at the rated voltage.
- The switch actuating the valve has contacts with too small a current rating, and the contacts have become burnt or carbonized so that adequate inrush current at the rated voltage is not being delivered to the solenoid.
- The electrical wire connecting the solenoid to the control switch may be too small, especially where the wire is over 50 feet long, causing excessive voltage drop.
- The valve has been disassembled for cleaning, reorientation of the body or solenoid for mounting convenience, examination purposes, etc. and proper alignment of the internal parts or the valve in relation to the piping was not returned. Applying power to the coil while the valve is not completely and properly assembled can cause coil burnout.
- Flange bolts were over-tightened creating distortion of the valve body bore causing the piston to bind.