




**300 Series**  
**Normally Closed, Electric Sleeve Valve**  
**Troubleshooting Guide**

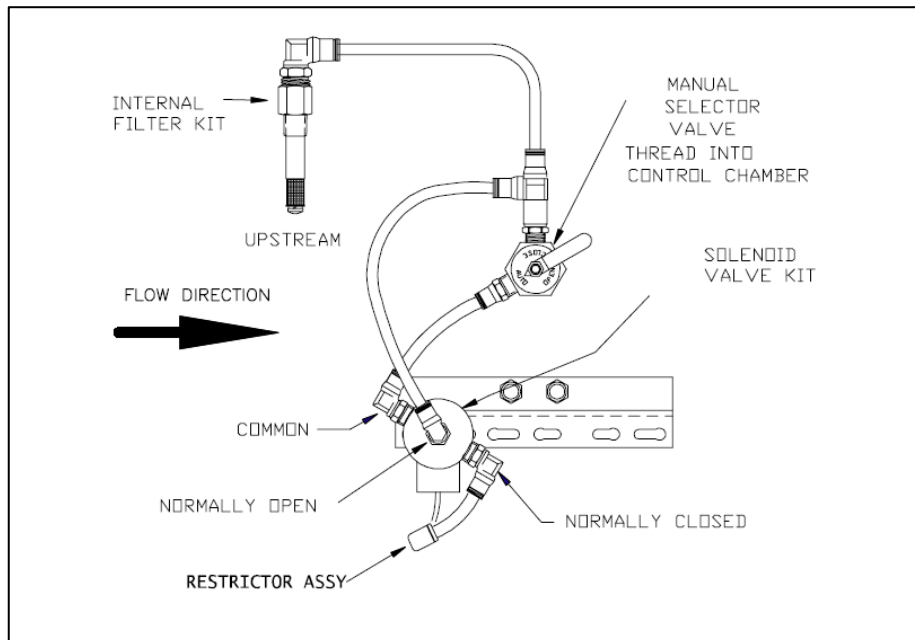


**Underhill International Corporation**  
20505 Crescent Bay Drive Lake Forest, CA 92630  
Phone: 949-305-7050 Fax: 949-305-7051  
[www.underhill.us](http://www.underhill.us)

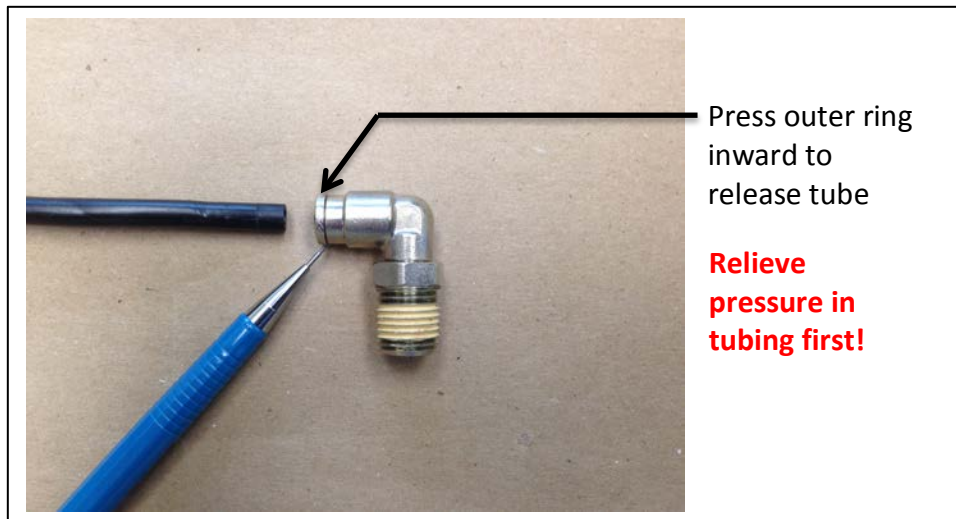
The enclosed tables identify commonly observed field conditions specific to the 300 sleeve valve series. Each condition identifies possible root causes and troubleshooting tips.

These troubleshooting tips do not require any specialty tools but there is a sequence to addressing each observed field condition. Recommended tools are a small crescent or open-end wrenches for removal of all compression-style, swivel fittings. Larger socket and ratchet tools are required if the valve has to be removed and serviced from the piping system. Additional tools maybe needed if female threaded valve inlet/and outlet models are used.


Observed Field Condition	Possible Cause	Troubleshooting Tips
Valve will not open or opens slowly	<p>Debris is clogging the restrictor tubing or assembly.</p> <p>Solenoid is defective</p> <div>  <p><b>The valve should <u>not</u> be pressurized during servicing.</b></p> </div>	<p>Turn the selector switch from the “Auto” position to “Open” and verify the valve opens fully. In this position the solenoid is bypassed completely.</p> <p>Locate the restrictor assembly as shown in figure 3-1. Remove the brass fitting from the end of this tube and remove any accumulated debris. This is a compression fitting and to release the tubing push the metal ring inward while pulling on the external tubing at the same time. See Figure 3-2. Next remove the 90° fitting at the end of the restrictor assembly that is threaded into the solenoid base. Verify it is also free of any debris.</p> <p>Using a multi-meter, disconnect the field wires to the solenoid. Set the multi-meter to “Ohms” and place the red and black probes on both wires leading into the solenoid. If Ohms resistance is higher than 65-85 ohms, then replace the solenoid.</p>



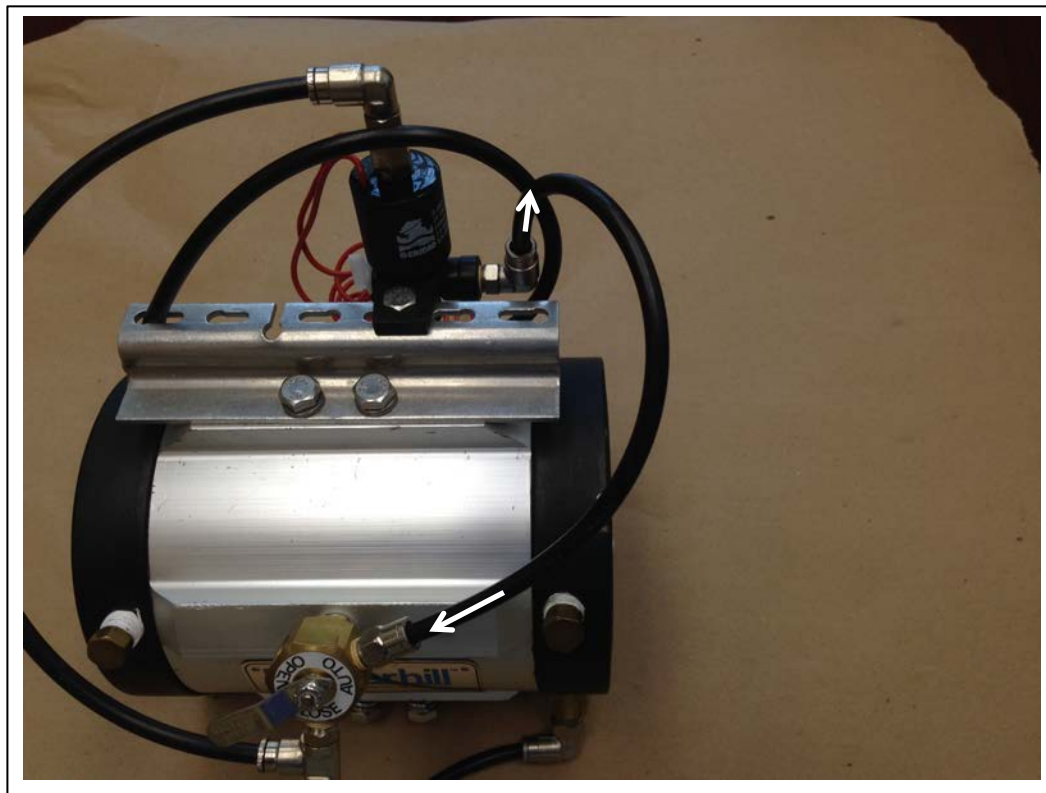
**External Tubing on 300 Series Valve**  
**Figure 3-1**




**Releasing a Compression Fitting**  
**Figure 3-2**

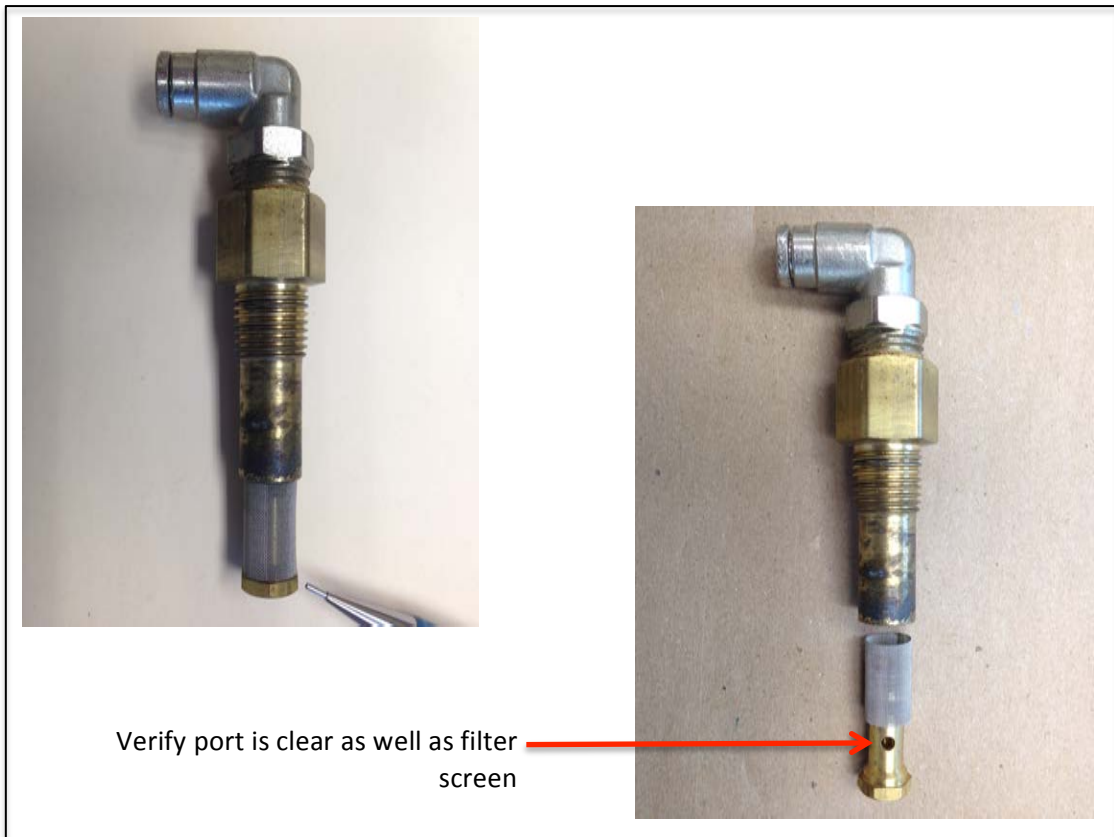
Observed Field Condition	Possible Cause	Troubleshoot Tips
Valve will not fully close and water is observed to be weeping around the corresponding sprinkler head.	<p>One or more of the external tubes on the sleeve valve is cracked or has been displaced.</p> <div>  <p><b>The valve should <u>not</u> be pressurized during servicing.</b></p> </div>	<p>The “selector switch” should be set to the “Auto” position, see Figure 3-2.</p> <p>Visually inspect on all external tubing. Replace or re-install any broken or displaced tubing. Replacement tubing can be ordered from Underhill International or through your local distributor. The fittings are compression-fit type and are pushed inward to release tubing. See Figure 7-1.</p>

Observed Field Condition	Possible Cause	Troubleshoot Tips
The valve is closing very slowly compared to adjacent valves.	The tubing between the selector switch and the base of the solenoid is clogged.	<p>Set the selector switch to the “Closed” position (see Figure 3-2). Locate the external tube between the selector switch and the base of the solenoid. See Figure 5-1.</p> <p>Disconnect the tubing at the base of the solenoid and confirm water flows freely. It may be necessary to relieve any residual pressure downstream of where the mainline has been turned off. <u>A pressurized line will make removing the external tubing difficult.</u></p> <p>A low volume of water indicates the filter is clogged. Re-connect the tubing to the corresponding compression fitting to stop the flow of water. Go to the next step to see how to locate and clean the filter.</p>



**External Tubing from Base of Solenoid to Selector Switch**  
**Figure 5-1**

Observed Field Condition	Possible Cause	Troubleshooting Tips
The valve is closing very slowly compared to other valves in the same supply system.	<p>The filter that protects all external tubing from debris is clogged.</p> <p> <b>The valve should <u>not</u> be pressurized during servicing.</b></p>	<p>Locate the filter inlet on the side of the valve body see Figure 3-2. This may require some removal of gravel in the bottom of the valve box to access this component.</p> <p>De-pressurize the mainline by closing a gate valve(s) prior to starting this task. Move the selector switch from “Auto” to “Open” to relieve any pressure within the valve after the mainline pressure has been relieved.</p> <p>Disconnect the external tube into the “Tee” compression fitting and verify if water flows freely.</p> <p>Using a small wrench loosen the larger of the two nuts and remove the entire filter assembly from the valve. See Figure 7-1.</p> <p><u>Note the 90° elbow is a swivel and can be rotated independently from the filter body.</u></p> <p>Locate a small hexagonal nut on the end of the filter assembly and remove with a 3/8” wrench. Carefully twist the fine stainless steel mesh screen and slide off the end of the brass holder, see Figure 7-1. Clean both the screen and the internal brass fitting making sure the port is completely clean.</p> <p>Re-assemble the filter assembly and external tubing in the reverse order, then pressurize the system and actuate the valve electrically to confirm operation.</p>

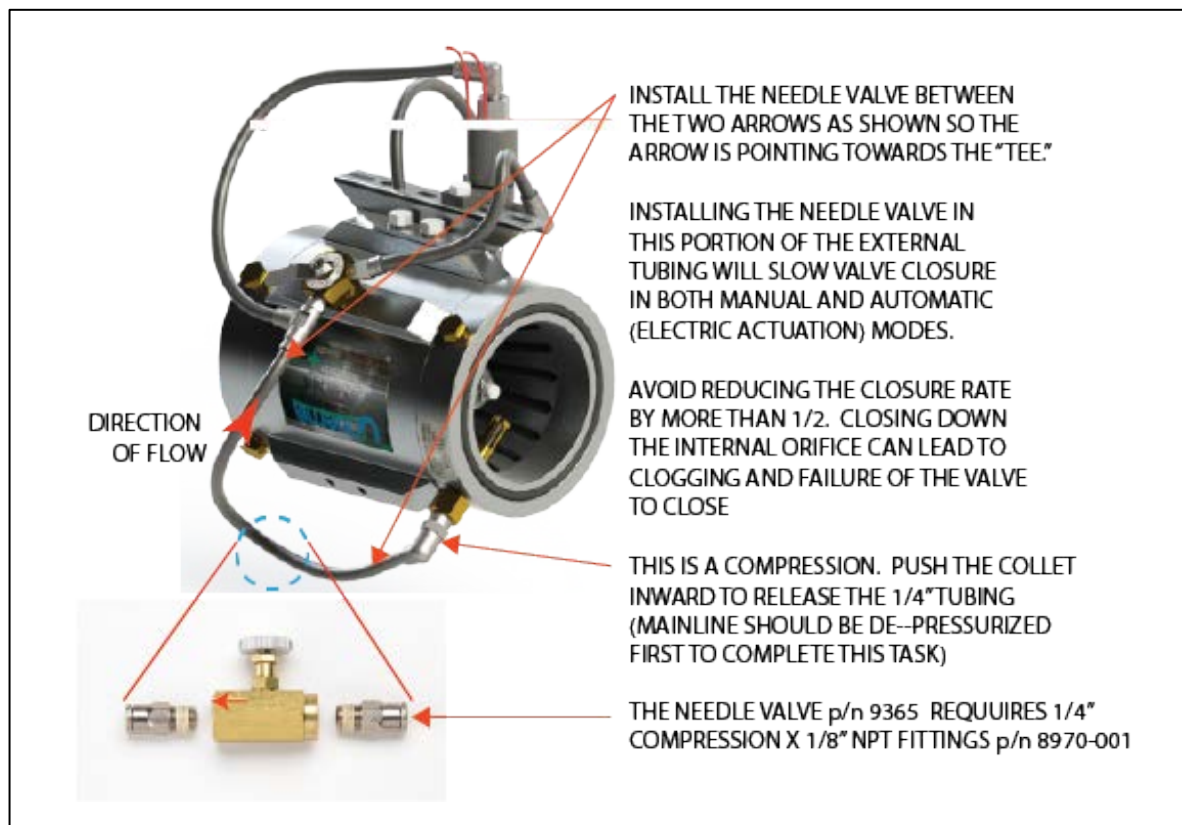


**External Tubing between the Selector Switch and Base of Solenoid**  
**Figure 7-1**

Observed Field Condition	Possible Cause	Troubleshooting Tips
<p>The valve won't close electrically and/or water is observed pooling around the sprinkler head.</p>	<p>Debris or rocks are embedded in the sidewall of the valve bladder preventing full and complete closure.</p> <div data-bbox="634 405 716 478"> </div> <p><b>The valve should <u>not</u> be pressurized during servicing.</b></p>	<p>De-pressurized the piping system to the valve then manually bleed the valve to remove any additional residual water pressure.</p> <p>Excavate any gravel within the bottom of the valve box to be able to access all four bolts for a wafer-type valve.</p> <p>Remove the valve from the piping system and verify all rocks or other debris have been removed from the valve diaphragm sidewalls.</p> <p>Re-install the valve and verify normal operation by electrically actuating the valve.</p>



Observed Field Condition	Possible Cause	Troubleshooting Tips
The valve is closing too fast and “water-hammer” can be felt in the piping system during valve closure.	The valve is closing too fast and valve closure needs to be slowed down.	A “needle-valve” can be ordered as a separate part from Underhill. It is installed in-line within the external tubing as shown in Figure 9-1. Once installed it can be adjusted to slow down valve closure by turning the knob in a clockwise or counter-clockwise manner to set a closure rate that prevents water hammer.



**Needle Valve Instructions**  
**Figure 9-1**