



— MODEL — **58-01/658-01**

# Combination Back Pressure & Solenoid Shut-off Valve

## INTRODUCTION

The Cla-Val Model 58-01/658-01 valve performs two separate functions. When the solenoid is activated, it maintains a constant back pressure by discharging excess pressure downstream. When the solenoid is de-activated, the valve closes drip-tight. When the solenoid is activated, the valve is actuated by hydraulic line pressure through the pilot control system. When inlet pressure is greater than the control setting, the valve opens. When inlet pressure is equal to the control setting, the pilot modulates the valve, maintaining the pre-selected back pressure. When inlet pressure is less than the control setting, the pilot system closes the valve drip tight. Changing the pressure setting simply involves turning an adjusting screw on the pilot control.

## INSTALLATION

1. Allow sufficient room around the valve assembly to make adjustments and for servicing.

2. It is recommended that gate or block valves be installed to facilitate isolating valve for preventative maintenance. When used as a surge control or pressure relief valve where valve outlet discharge is to atmosphere, then a gate or block valve is needed at valve inlet. When used as a back pressure sustaining control valve where valve outlet is connected to pressurized downstream system, then gate or block valves are needed at valve inlet and outlet.

**NOTE: BEFORE THE VALVE IS INSTALLED, PIPE LINES SHOULD BE FLUSHED OF ALL FOREIGN MATTER.**

3. Place valve in line with flow through valve in direction indicated on inlet plate or flow arrows. Check all fittings and hardware for proper makeup and verify that no apparent damage is evident.

4. Cla-Val Valves operate with maximum efficiency when mounted in horizontal piping with the cover UP; however, other positions are acceptable. Due to size and weight of cover and internal components on six inch and larger valves, installation with the cover up is advisable. This makes periodic inspection of internal parts readily accessible.

5. Caution must be taken in the installation of this valve to insure that galvanic and/or electrolytic action does not take place. The proper use of dielectric fittings and gaskets are required in all systems using dissimilar metals.

## OPERATION AND START-UP

1. Prior to pressurizing the valve assembly make sure the necessary gauges to measure pressure in the system, are installed as required by the system engineer. A Cla-Val X101 Valve Position Indicator may be installed in the center cover port to provide a visual indication of the valve stem position during startup adjustment..

**CAUTION:** During start-up and test a large volume of water may be discharged downstream. Check that the downstream venting is adequate to prevent damage to personnel and equipment. **All pilot adjustments should be made slowly in small increments.** If the main valve closes too rapidly it may cause surging in upstream piping.

2. If isolation valves (B) are installed in pilot system open these valves (see schematic).

3. The three-way Solenoid Control applies or relieves pressure in the cover chamber of the Auxiliary Hytrol Valve (5) in the control piping. The following action takes place:

Solenoid Control (4)		Energized to Open Cla-Val 58-01	De-Energized to Open Cla-Val 58-01
Position	Port Flow	Auxiliary (5) and Main Valve (1) OPEN RELIEVES	Auxiliary (5) and Main Valve (1) CLOSED APPLIES
Energized	1 to 2	COVER PRESSURE CLOSED APPLIES	COVER PRESSURE OPEN RELIEVES
De-Energized	1 to 3	COVER PRESSURE	COVER PRESSURE

4. Loosen jam nut on X42N-2 strainer valve assembly and turn adjusting stem clockwise until it seats. Then turn stem counterclockwise 1/4 to 1/2 turn and tighten jam nut for an initial setting.

5. Remove cap on the CRL Pressure Relief Control, loosen jam nut and turn adjusting screw clockwise until spring is fully compressed. This puts the control in full closed mode and will cause the main valve to close when system is pressurized.

6. If a downstream block valve is installed, slowly open this valve.

7. Partially open upstream block valve. The main valve should close.

8. Carefully loosen the plug at top of indicator assembly. If an indicator (X101) is installed, loosen the bleed valve at top of indicator. Bleed air from cover and tighten plug or bleed valve. Carefully loosen tubing fittings at highest points and bleed air from system. Retighten fittings.

9. Open fully the upstream block valve and turn the CRL adjusting screw slowly counterclockwise until you begin to hear a flow through the control. The main valve should start to open. If the pressure is below the required relief setting, refer to the spring chart and turn the adjusting screw clockwise the number of turns required for the proper setting. Lock the jam nut and replace cover. An observation of the pressure relief setting should be made during usage. The controls can be readjusted as required.

10. To check the operation of the solenoid shutoff feature, alternately energize and de-energize the solenoid to open and close the main valve. The main valve should alternately close drip tight and open to set point of the CRL. The optional manual operator on solenoid overrides operation by shifting it to the energized position when small red knob is fully turned clockwise. By turning small red knob counterclockwise fully normal solenoid operation is restored.

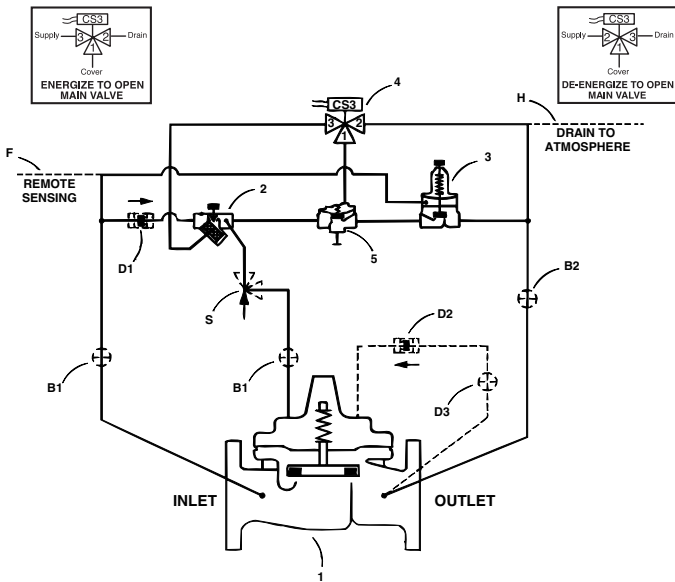
## MAINTENANCE

1. Cla-Val Valves and Controls require no lubrication or packing and a minimum of maintenance. However, a periodic inspection schedule should be established to determine how the fluid is affecting the efficiency of the valve assembly. Minimum of once per year.

2. Repair and maintenance procedures of the Hytrol Main Valve and control components are included in a more detailed IOM manual. It can be downloaded from our web site ([www.cla-val.com](http://www.cla-val.com)) or obtained by contacting a Cla-Val Regional Sales Office.

3. **When ordering parts always refer to the catalog number and stock number on the valve nameplate.**

# 58-01/658-01 SCHEMATIC



## BASIC COMPONENTS

- 1 100-01 Hytrol (Main Valve)
- 2 X42N-3 Strainer Needle Valve
- 3 CRL Pressure Relief Control
- 4 CS3 Solenoid Control
- 5 100-01 Hytrol (Reverse Flow)

## OPTIONAL FEATURES

- B CK2 (Isolation Valve)
- D Check Valves with (Isolation valve)
- F Remote Pilot Sensing
- H Drain to Atmosphere
- S CV Flow Control (Opening)

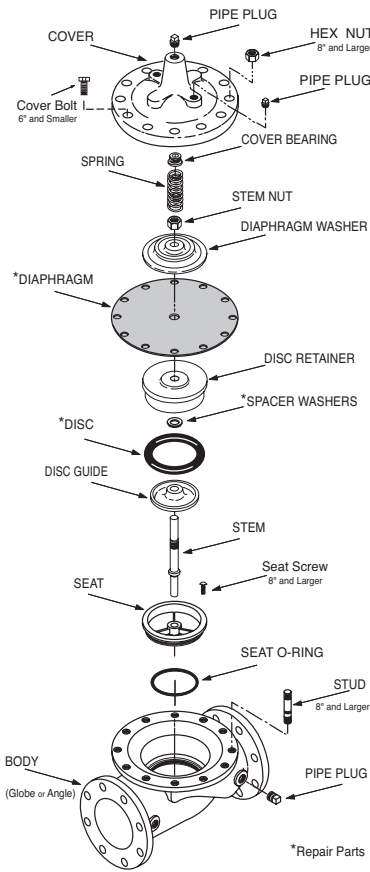
## X42N-3



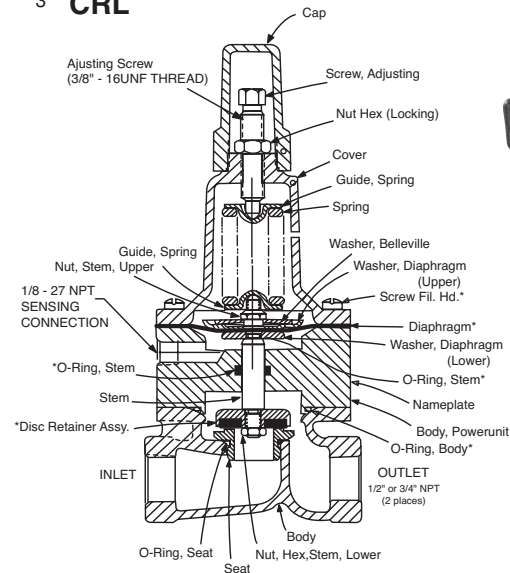
## 100-01 Hytrol (Reverse Flow)



## 1 HYTROL MAIN VALVE



## 3 CRL



## X140-1 Security Cap Option



CRL adjust range (psi)	Spring Color	psi change per turn*
0 - 75	Red	8.5
20 - 200	Green	28
100 - 300	Chrome Vanadium	18

\* approximate. Use gauge at valve inlet to set.

SYMPTOM	PROBABLE CAUSE	REMEDY
Main valve won't open	Inlet pressure below setting of pilot valve	Reset pilot valve. If change in setting is from tampering seal cap with wire and lead seal.
	Pilot valve stuck closed. Mineral deposit or foreign material between disc retainer and powerunit body.	Disassemble control and clean
	Pilot valve diaphragm ruptured or diaphragm nut loose. Water coming out of the vent hole in cover.	Disassemble and replace diaphragm. Tighten nut.
	Main valve stuck closed	Disassemble main valve
	Mineral buildup on stem. Stem damaged	Clean parts and/or replace damaged part. Check downstream and cover CK2 isolation valve are open.
Main Valve won't close	Inlet pressure above setting of pilot valve	Reset pilot valve
	Clogged needle valve or strainer	Disassemble and clean
	Pilot valve stuck open. Mineral deposit or foreign material under disc retainer or under diaphragm assembly.	Disassemble and clean
	Main valve stuck open. Mineral buildup on stem. Foreign material between seat and disc assembly.	Disassemble and clean
	Main valve diaphragm worn	Disassemble and replace
Valve leaks continuously	Pilot valve disc worn out	Disassemble and replace
	Main valve disc worn or small pin hole in main valve diaphragm	Disassemble and replace
	Set-point too close to inlet pressure	Reset CRL Pilot Control
Solenoid Valve will not operate	<b>Solenoid Symptoms</b>	
	Solenoid voltage	Check voltage across coil leads must be minimum of 85% of nameplate rating
	Burned out solenoid coil	Check for open circuit coil Replace coil

For a more detailed IOM Manual go to [www.cla-val.com](http://www.cla-val.com) or contact a Cla-Val Regional Sales Office.