

- |                        |                          |
|------------------------|--------------------------|
| 1. Adjusting Screw Cap | 11. Body O-Ring (K-15)   |
| 2. Adjusting Screw     | 12. O-Ring               |
| 3. Lock Nut            | 13. Valve Pusher Stem    |
| 4. O-Ring              | 14. Piston               |
| 5. Spring Button       | 15. Cylinder (K-15 only) |
| 6. Spring Chamber      | 16. O-Ring (K-15 only)   |
| 7. Pressure Spring     | 17. Body                 |
| 8. Assembly Screw      |                          |
| 9. Spring Seat         |                          |
| 10. O-Ring Retainer    |                          |

## DESCRIPTION

The Types K-10 and K-15 are fully automatic piston type back pressure valves. They are designed to dependably maintain a predetermined pressure in a vessel or system by maintaining a predetermined valve inlet pressure and relieving the excess pressure into a lower pressure line. Type K valves are not emergency relief devices, but are designed for regulating continuous pressure.

## SPECIFICATION DATA

**Service:** For water, other liquids, and fuel oils of all grades, Not for steam. Designed to limit a specific pump discharge pressure on machine tool hydraulic systems, oil burning equipment, rams, presses, lifts, etc. The Type K is well suited for bypass applications on high pressure pumps or any system requiring automatic regulation of

pump discharge pressure, especially in the chemical and process field (waste treatment-desalination) and car washes.

**Sizes:** K-10: 1/4", 3/8", 1/2", 3/4", 1", and 1-1/4"

K-15: 1/4", 3/8", 1/2", and 3/4"

**Connections:** Threaded female bottom inlet side outlet

Body: Bronze

**Maximum Temperature:** 450°F

**Pressure Control Range:**

K-10: 15-600 psi

K-15: 25-1500 psi

**Capacity:** Refer to Bulletin BPV-K (supersedes BPV-1) for capacity information.

## GENERAL INSTALLATION INSTRUCTIONS

When installing the valve, connect the line (usually the pump discharge line) from the system pressure to be regulated to the bottom (inlet) connection on the valve. Connect the bypass return line to the side outlet on the valve. All fluid in excess of the valve pressure setting will now be automatically relieved or by-passed to maintain the correct pump discharge (system) pressure.

Thoroughly flush out the valve and the adjacent piping before installing the valve to remove any foreign material to ensure efficient and trouble free operation for which the valve was designed.

In the typical installations shown on the following page, the Type K-10 valve is shown installed in the horizontal position with the spring chamber upright. This is the recommended way to install the valve. Although installing the valve in a vertical line (valve on its side) or inverted in a horizontal line is not entirely discouraged, there are certain cautions to be considered. The concerns are (1) low pressure settings and (2) a fluctuating pressure in the return line or relief line. In cases where either of these concerns are present and such types of installations are being considered, consult with the factory or its authorized representative before proceeding with the installation.

## OPERATING INSTRUCTIONS

### Adjusting the Delivery Pressure

The regulator's delivery pressure setting is adjusted by turning the adjusting screw (2) at the top of the spring chamber after removing



## Type K-10 K-15

## BACK PRESSURE VALVES

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the adjusting screw cap (1) and loosening the adjusting screw lock nut (3). To obtain a higher pressure setting, turn the adjusting screw clockwise (into the spring chamber). To lower the pressure setting, turn the adjusting screw counter-clockwise (out of the spring chamber). Tighten the adjusting screw lock nut after the adjustment has been made and install the closing cap.

## MAINTENANCE INSTRUCTIONS

The following procedures are provided for servicing the K-10 and K-15 back pressure relief valves. All repair parts can easily be installed without removing the valve from the line.

**CAUTION:** More attempting to replace any spare parts be sure to shut off all pressure connections to the valve. With the valve closed, however, system pressure could still be locked between the shutoff valve and the inlet and/or outlet sides of the relief valve. Before proceeding with any service be certain to relieve the pressure from BOTH sides of the valve.

# INSTALLATION, MAINTENANCE & REPAIR PARTS INFORMATION

Refer to the Type K-15 cut away view for parts identification.

**Servicing the Pressure Spring (7), Valve O-Rings (11 and 12), Valve Pusher Stem (13) and Piston (14)**

1. Unscrew the adjusting screw cap (1). Inspect and if necessary replace the cap O-ring (4).
2. Loosen the lock nut (3) 1/4 turn and turn the adjusting screw (2) counter-clockwise until the pressure spring (7) is no longer under tension.

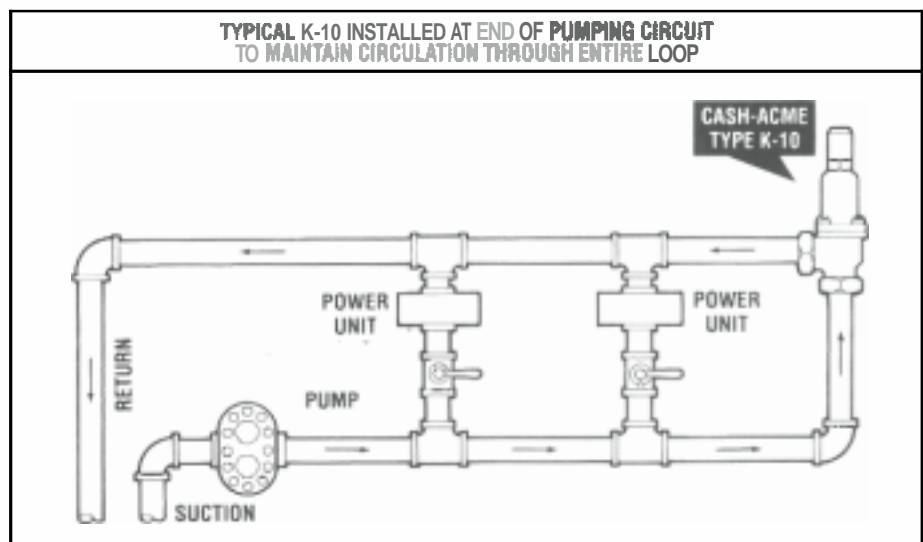
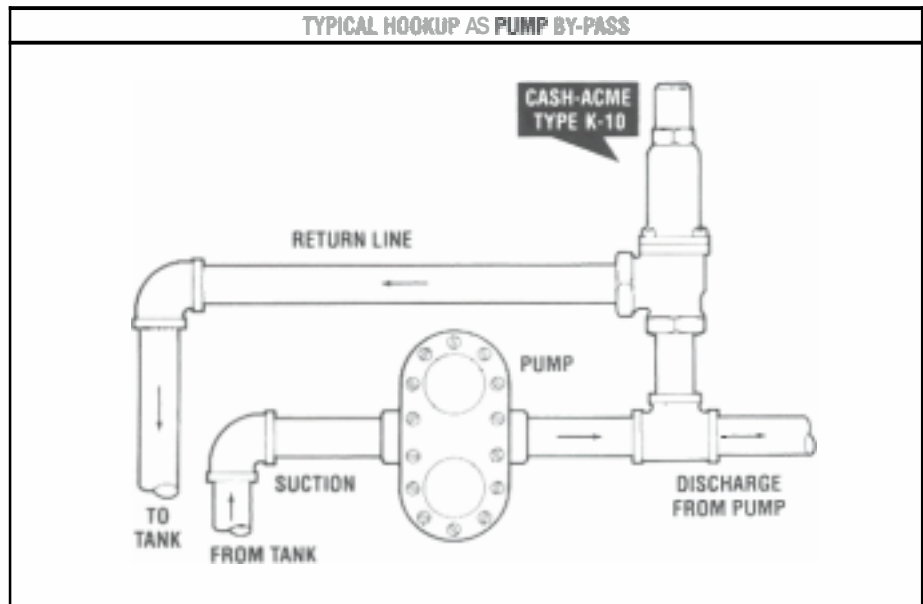
**NOTE:** When installing the adjusting screw during reassembly, turn the screw clockwise until the lock nut just touches the spring chamber. When the valve is placed in service the pressure setting should be very close to the original setting.

3. Remove the assembly screws (8) securing the spring chamber (6) to the valve body (17). During reassembly, tighten the screws evenly.
4. Lift the spring chamber (6) from the valve body. Then remove the upper spring seat (5), pressure spring (7), lower spring seat (9), and valve pusher stem (13) from the valve body.
5. Remove the O-ring retainer (10). On Type K-15 valves, then carefully lift out the body O-Ring (11).
6. Lightly tap the bottom of the piston (14) to push it out of the body (17). The piston O-ring (12) can now be easily removed and replaced if necessary.
7. K-15 valves only: Once the piston is removed, the cylinder (15) and O-ring (16) can be removed.

8. Inspect all parts and replace if necessary. Reassemble the valve parts in reverse order. Lightly lubricate all O-rings prior to installing them in the valve body. After placing the valve back in service, adjust the valve pressure setting as detailed under Operating Instructions.

For ease of operation and maintenance, it is suggested that manual shut-off valves be installed upstream and downstream from the valve. Use a good pipe joint compound on the male pipe threads and do not over tighten the valve connections.

**TYPICAL INSTALLATIONS**

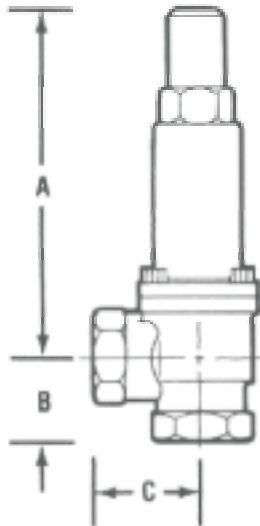


## REPAIR PARTS INFORMATION

Refer to the K-15 valve cut away view for part location and identification.

### SPECIFICATIONS

Each Type K-10 and K-15 back pressure valve is supplied with a pressure spring selected to provide the desired pressure setting. The range of adjustment, or satisfactory "working range", of individual springs is shown for each valve size. Each valve has the "set" pressure and range of adjustment stamped on the identification tag fastened to the valve. The ranges shown are recommended for best performance.



TYPE K-10

### K-10 SPRING RANGES

SIZE	ADJUSTMENT RANGE (psi)				
1/4"	15-30	25-75	50-140	100-300	200-600
1/8"	15-30	25-75	50-140	100-300	200-600
1/2"	15-75	-	50-150	100-300	200-600
3/4"	15-75	-	50-150	100-300	200-600
1"	15-75	-	50-150	100-300	200-600
1-1/4"	15-75	-	50-150	100-300	200-600

### K-15 SPRING RANGES

SIZE	ADJUSTMENT RANGE (psi)				
1 1/4", 3/8"	25-75	20-150	100-300	150-800	600-1500
1/2", 3/4"		25-150	20-200	100-700	600-1500

### DIMENSIONS

VALVE TYPE	VALVE SIZE	DIMENSIONS			SHIP. WT. (lbs.)
		A	B	C	
K-10, K-15	1/4", 3/8"	4-11/4"	31/32"	1-1/4"	1-1/4
	1/2"	5-5/8"	1-3/8"	1-7/8"	4
	3/4"	5-5/8"	1-3/8"	1-7/8"	4-1/2
K-10	1"	7-7/8"	1-7/8"	2-1/4"	8-1/2
	1-1/4"	7-7/8"	1-7/8"	2-1/4"	9

## HOW TO ORDER

When ordering repair parts, refer to the cut away view of the Type K-15 to identify the part required. When ordering, please use the part names listed and provide the valve serial number stated on the identification tag. Also state the following:

"Repair Parts for Type K-10 or K-15" and provide:

1. Valve size
2. Service (water, air, oil, etc.)
3. Inlet pressure
4. Outlet or delivery pressure range and setting
5. Part description
6. Quantity of each part
7. Valve assembly or serial number stated on the metal identification tag attached to the valve.



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