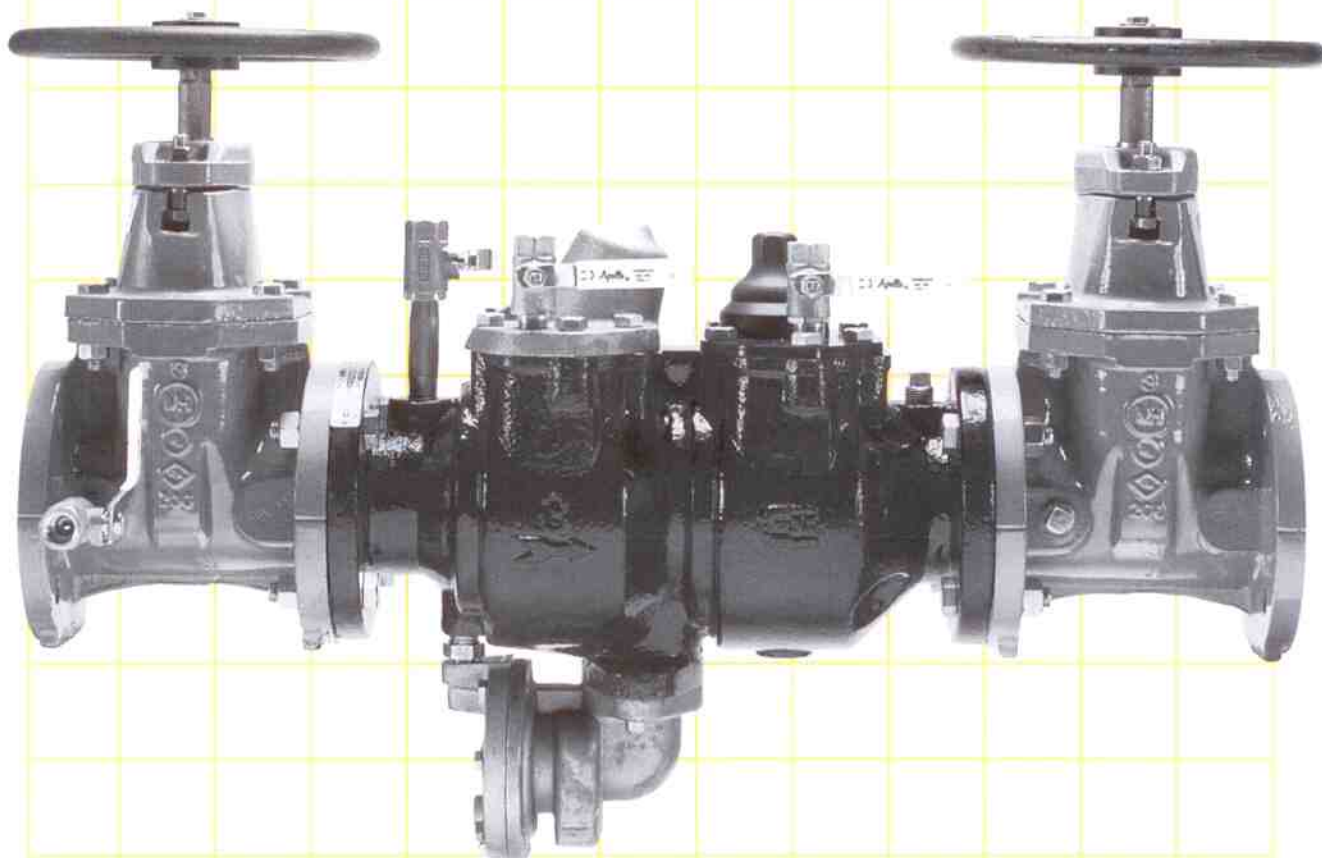


# "Apollo" Valves

## MAINTENANCE MANUAL



**MODEL RP (4S-200 SERIES)  
REDUCED PRESSURE PRINCIPLE (RP)  
BACKFLOW PREVENTERS  
2-1/2" - 10"**

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# REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER

## I. DESCRIPTION AND OPERATION

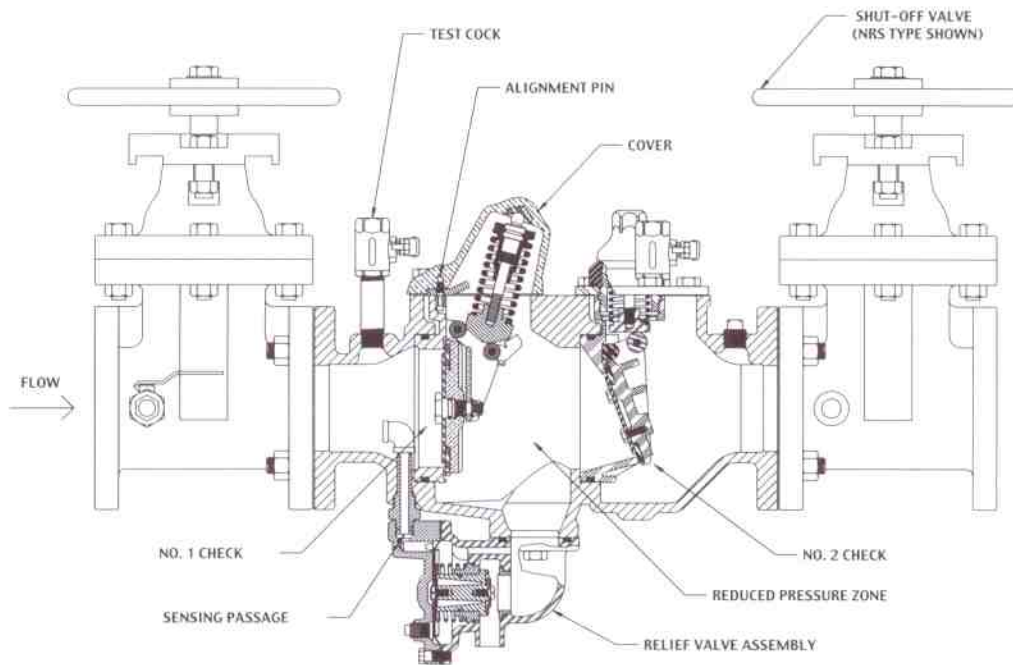
The RP assembly consists of two independently acting, spring loaded, swing-type check valves, together with a hydraulically dependent, mechanically independent pressure differential relief valve, located in the zone between the check valves. Two resilient seated shut-off valves and four test cocks complete the assembly.

During normal operation, the pressure drop across the first check valve into the "zone" area is approximately 7 PSI. The second check valve is slightly spring

loaded to provide a minimum pressure drop of 1 PSI across it. (See Figures 1 & 2)

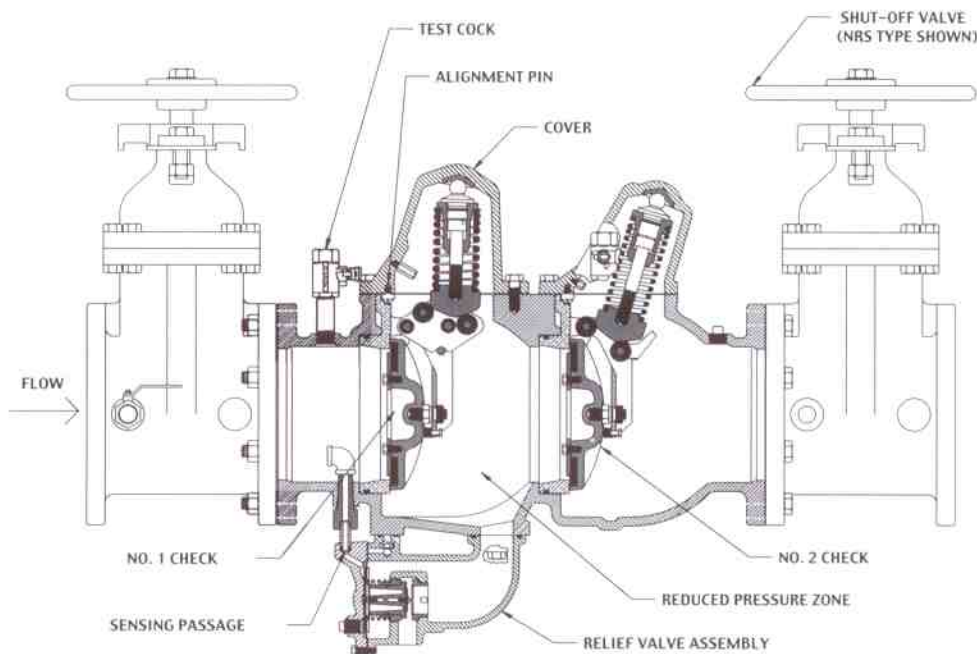
The relief valve operates on a differential pressure. Supply pressure on the upstream side of the first check valve acts against the diaphragm to close the relief valve during normal operation. In the event of backpressure, the relief valve will open to maintain the pressure in the "zone" at least 2 PSI less than the inlet pressure.

FIG. 1



2-1/2" - 4" RP

FIG. 2



6" - 10" RP

## II. INSTALLATION

The RPZ assembly must be installed in an accessible location to facilitate periodic field testing and maintenance.

The location selected should have adequate drainage for relief valve discharge. Drainage may be piped away, providing an approved air gap device is used (see Fig. 3). The device should never be placed where it may be submerged in standing water.

Flush all upstream piping thoroughly to remove foreign matter prior to installing the device.

Install the device in a horizontal position with adequate clearance from walls and/or obstructions, for testing and maintenance. A 12" to 30" clearance between the lower most portion of the device and flood grade or floor should be provided.

A "Y" strainer can be installed just upstream of the RPZ assembly to eliminate any debris from entering the device and fouling the check and/or relief valve.

After installing the assembly, and with downstream or #2 shut-off valve closed, pressurize the RPZ assembly and bleed air through test cock #4. Then open #2 shut-off valve.

**NOTE:**

If water continues to drain from the relief valve, check the Trouble Shooting section for probable causes and solutions.

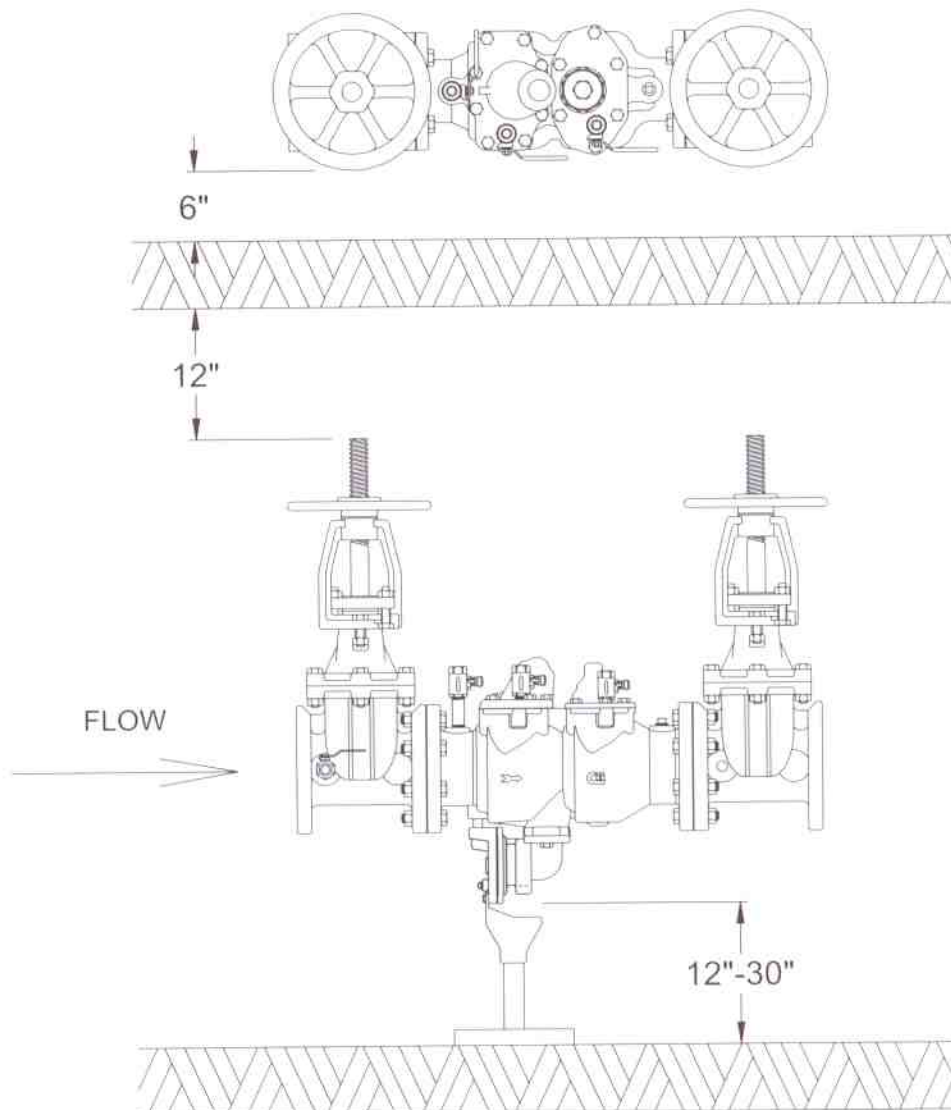


FIG. 3

### III. TROUBLE SHOOTING GUIDE

SYMPTOM	CAUSE	CORRECTIVE ACTION
<p>1. Relief valve continuously discharges during no-flow condition.</p>	<p>a. #1 check valve fouled with debris.                      b. #2 check valve fouled with debris coupled with a backpressure condition.                      c. #1 check not moving freely.</p>	<p>a. Inspect and clean seat disc and seat.                      b. Inspect and clean seat disc and seat.                      c. Inspect for debris or deposit on check valve components.</p>
<p>2. Relief valve discharges continuously during flow and no-flow conditions.</p>	<p>a. Relief valve fouled with debris.                      b. Damaged diaphragm (allows water to pass through from inlet to zone).                      c. Sensing passage to inlet side of diaphragm plugged.                      d. #1 check not moving freely.</p>	<p>a. Inspect and clean relief valve seat disc and seat.                      b. Replace diaphragm.                      c. Inspect and clean tube.                      d. Inspect for debris or deposits on check valve components.</p>
<p>3. Relief valve discharges intermittently in a "spitting" action during no-flow condition.</p>	<p>a. Pressure fluctuations (water hammer) from supply.</p>	<p>a. Eliminate or reduce pressure fluctuations.</p>
<p>4. Relief valve does not open during test No. 1.</p>	<p>a. #2 shut-off valve not closed completely.                      b. Test equipment improperly installed.</p>	<p>a. Close #2 shut-off valve or inspect for possible through leakage.                      b. Recheck test procedure.</p>
<p>5. #2 check valve fails to hold backpressure.</p>	<p>a. #2 shut-off valve not closed completely.                      b. #2 check valve fouled with debris.                      c. #2 check not moving freely.</p>	<p>a. Close #2 shut-off valve or inspect for possible through leakage.                      b. Inspect and clean seat disc and seat.                      c. Inspect for debris or deposits on check valve components.</p>
<p>6. Pressure differential across #1 check valve is low during test No. 3.</p>	<p>a. #1 check valve fouled with debris.                      b. Upstream pressure fluctuations causing inaccurate gauge reading.                      c. #1 check not moving freely.</p>	<p>a. Inspect and clean seat disc and seat.                      b. Eliminate pressure fluctuations.                      c. Inspect for debris or deposits on check valve components.</p>

