

# "Apollo"®



## **INSTALLATION, OPERATION & MAINTENANCE MANUAL**

1/2" - 2" Reduced Pressure Principle (RP) Backflow Preventer

**RP4A | RPLF4A | RP4AN | RPLF4AN**

ES1602 IOM BFMMRP4ASBF rev. a

# INSTALLATION, OPERATION & MAINTENANCE MANUAL

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## **I. DESCRIPTION AND OPERATION**

The Reduced Pressure Principle (RP) device consists of two independently-acting, spring-loaded 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.

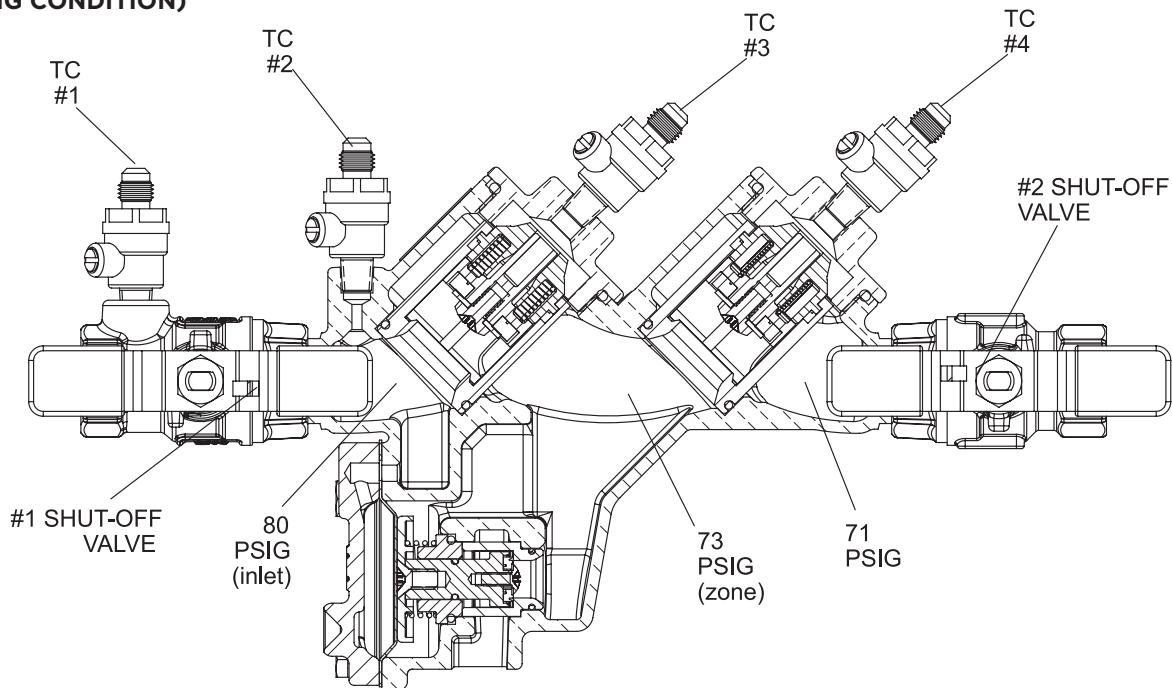
The first check is designed to maintain a minimum of 5 psi across the check valve. The second check is designed to maintain a minimum of 1 psi across the check valve during normal operation. The relief valve operates on a differential pressure. Supply pressure on the upstream side of the first check valve acts against the diaphragm to close the relief valve during normal operation. In the event of back-pressure, the relief valve will open to maintain the pressure in the "zone" at least 2 psi less than the inlet pressure. The flowing and no flow conditions are illustrated in Figures 1 and 2. A minimum supply pressure of 20 psig is normally required to fully shut the relief valve and open both checks.

## **II. INSTALLATION**

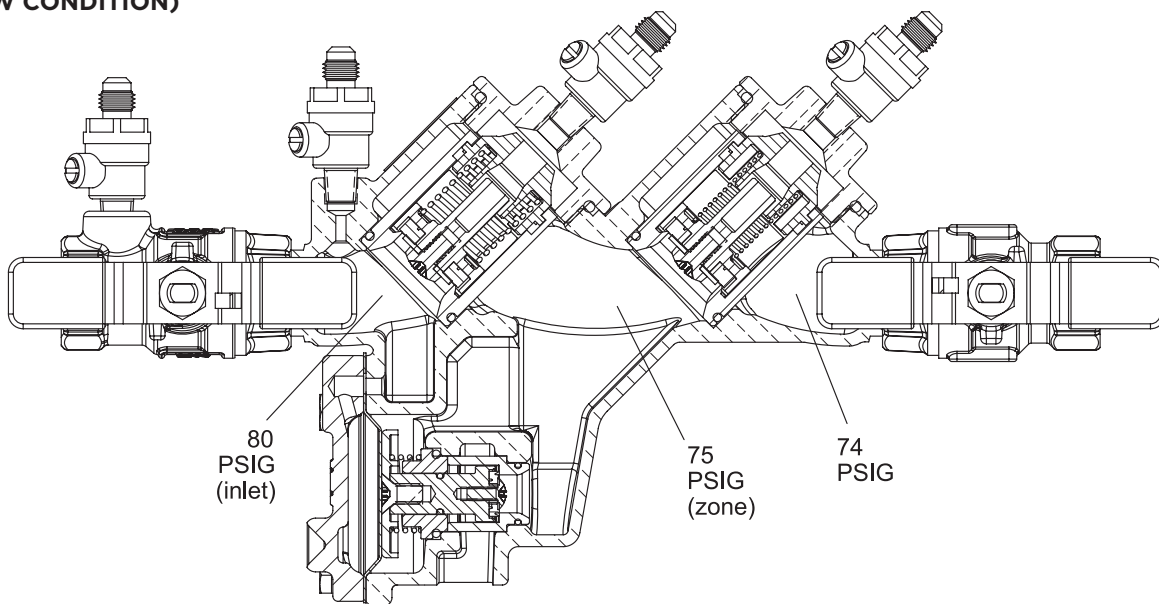
- A. The RP must be installed in an accessible location to facilitate periodic field testing and maintenance.
- B. The location selected should have adequate drainage for relief valve discharge. The device should never be placed where it may be submerged in standing water.
- C. Flush all upstream piping thoroughly to remove foreign matter prior to installing the device.
- D. The device must be installed in the horizontal position. A clearance between the lower most portion of the device and flood grade or floor should be provided for ease of maintenance.
- E. When shut-off valves are provided separately, they should be installed with a test cock on the upstream side of the inlet shut-off valve.
- F. After installing the assembly and with downstream or #2 shut-off valve closed, pressurize the device and bleed ALL air through test cock #4. Then open #2 shut-off valve.

# INSTALLATION, OPERATION & MAINTENANCE MANUAL

**FIGURE 1  
(FLOWING CONDITION)**



**FIGURE 2  
(NO FLOW CONDITION)**



*Note: Pressures shown are for illustrative purposes only and are not necessarily indicative of any actual valve.*

### III. TROUBLESHOOTING

SYMPTOM	CAUSE	CORRECTIVE ACTION
Relief valve continuously discharges during no-flow condition.	<ol style="list-style-type: none"> <li>#1 check valve fouled with debris.</li> <li>#2 check valve fouled with debris coupled with a back-pressure condition.</li> <li>#1 check poppet stem not moving freely in guide (or #2 check poppet during a back-pressure condition)</li> </ol>	<ol style="list-style-type: none"> <li>Inspect and clean seat disc and seat</li> <li>Inspect and clean seat disc and seat.</li> <li>Inspect for debris or deposit on poppet stem or guide.</li> </ol>
Relief valve discharges continuously during flow and no-flow conditions.	<ol style="list-style-type: none"> <li>Relief valve fouled with debris.</li> <li>Damaged diaphragm (allows water to pass through from inlet to zone).</li> <li>Sensing passage to inlet side of diaphragm plugged.</li> <li>#1 check poppet stem not moving freely in poppet guide.</li> </ol>	<ol style="list-style-type: none"> <li>Inspect and clean relief valve seat disc and seat.</li> <li>Replace diaphragm.</li> <li>Inspect and clean passage in cover and body.</li> <li>Inspect for debris or deposits on poppet stem or guide.</li> </ol>
Relief valve discharges intermittently in a "spitting" action during no-flow condition.	<ol style="list-style-type: none"> <li>Pressure fluctuations or water hammer from supply.</li> </ol>	<ol style="list-style-type: none"> <li>Eliminate or reduce supply pressure fluctuations.</li> </ol>
Relief valve does not open during test No. 1.	<ol style="list-style-type: none"> <li>#2 shut-off valve not closed completely.</li> <li>Test equipment improperly installed.</li> </ol>	<ol style="list-style-type: none"> <li>Close #2 shut-off valve or inspect for possible through leakage. Recheck test procedure.</li> </ol>
#2 check valve fails to hold back-pressure.	<ol style="list-style-type: none"> <li>#2 shut-off valve not closed completely.</li> <li>#2 check valve fouled with debris.</li> <li>#2 check poppet stem not moving freely in guide.</li> </ol>	<ol style="list-style-type: none"> <li>Close #2 shut-off valve or inspect for possible through leakage.</li> <li>Inspect and clean seat disc and seat.</li> <li>Inspect for debris or deposits on poppet stem or guide.</li> </ol>
Pressure differential across #1 check valve is low during field test No. 3 (does not meet 5 PSID minimum).	<ol style="list-style-type: none"> <li>#1 check valve fouled with debris.</li> <li>Upstream pressure fluctuations causing inaccurate gauge reading.</li> <li>#1 check poppet stem not moving freely in guide.</li> </ol>	<ol style="list-style-type: none"> <li>Inspect and clean seat disc and seat.</li> <li>Eliminate pressure fluctuations.</li> <li>Inspect for debris or deposits on poppet stem or guide.</li> </ol>

## IV. MAINTENANCE INSTRUCTIONS 1/2" - 2"

### A. DISASSEMBLY - CHECK VALVES

1. Close #2 shut-off valve, then close #1 shut-off valve.
2. Bleed pressure from the assembly by opening #2, #3, and #4 test cocks.
3. Unscrew cap using hex head provided.
4. Push down and turn the spring retainer 90 degrees to remove. Remove the spring. Remove the poppet from the check seat.
5. Normally, the check seat need not be removed. If removal is required, rock it back and forth while pulling outward.

### B. DISASSEMBLY - CHECK VALVE POPPET

**CAUTION:** Do not use pliers or other tools, which may damage or scratch the plastic stem.

1. Holding the poppet assembly in one hand, remove screw and retaining washer.
2. Remove the seat disc.
3. All parts should be carefully inspected for any damage or excessive wear and thoroughly rinsed in clean water prior to reassembly. Replace worn parts as necessary.

### C. ASSEMBLY - CHECK VALVE POPPET

1. Install new disc in poppet and secure with washer and screw.

### D. ASSEMBLY - CHECK VALVE

1. If the check seat was removed, install the new o-ring and lubricate with Apollo® lubricant, DOW® 111 or equal. Line up the seat with the bore and push it firmly into place.
2. Place and center the poppet assembly in the check seat.
3. Install the spring onto the poppet.
4. Install the spring retainer onto the spring by pushing down into the grooves of the check seat and turning 90 degrees. Ensure spring retainer pops up about .1" and locks into the lugs. CAUTION: Ensure the spring retainer orientation matches that in the parts list drawing or the device's flow will be significantly restricted.
5. Apply a thin coat of Apollo® lubricant, DOW® 111 or equal on cap o-ring.
6. Install cap.

### E. DISASSEMBLY - RELIEF VALVE

1. Remove cover bolts, cover, and diaphragm.
2. Grasp the diaphragm plate and pull the assembly straight out of the body.
3. Holding the relief valve assembly in one hand, remove the screw (and retaining washer on 1-1/4", 1-1/2", & 2" models only).
4. Remove the seat disc. (Items 5 through 7 are not normally required.)
5. Turn the assembly over, keeping the spring compressed by holding down on the diaphragm plate, remove the screw
6. Remove the diaphragm plate, spring, and bushing from the RV stem. Note the orientation of the bushing with respect to the spring.
7. Remove the o-ring from the RV stem.
8. Normally, the RV seat need not be removed. If removal is required, rock it back and forth while pulling outward.
9. All parts should be carefully inspected for any damage or excessive wear and thoroughly rinsed in clean water prior to reassembly. Replace worn parts as necessary.

### F. ASSEMBLY - RELIEF VALVE

1. Apply a thin coat of Apollo® lubricant, DOW® 111 or equal on o-rings before installing.
2. Install o-ring on RV seat. Line up the seat with the bore and push firmly into place.
3. If the RV stem has been disassembled, install o-ring onto RV stem.
4. Slide bushing over RV stem and position spring onto bushing. Note the correct position of the bushing from step #6 in disassembly instructions. (Spring must fit over the smaller shoulder of the bushing upon reassembly.)
5. Position diaphragm plate and compress spring, install screw into RV stem.
6. Turn the assembly over and install seat disc (and retaining washer on 1-1/4", 1-1/2", & 2" models only), and screw.
7. Install o-ring onto bushing.
8. Slide complete assembly onto the body.
9. Position diaphragm over flange, install cover, and tighten bolts evenly.
10. Open #1 shut-off valve and bleed air out of the unit through #2, #3, and #4 test cocks; then open #2 shut-off valve.
11. Test complete assembly to ensure proper operation.

**V. TESTING PROCEDURES**

**NOTE:** *This is a 3 valve test kit procedure and may or may not be approved in all jurisdictions. Consult your local water purveyor for acceptable test procedures.*

**TEST SETUP**

1. Notify customer water will be off; inspect device for leaks, verify the make, model, and serial number.
2. Flush test cocks, in order (4-1-2-3), (open #2 test cock very slowly to prevent accidental opening of the relief valve), then install appropriate adapters (if necessary)
3. Close valves "A", "B", & "C" on test kit and close the #2 shut-off valve.
4. Connect high side hose to test cock #2, and low hose to test cock #3.
5. Slowly open test cock #3, then open vent "C" valve and low "B" valve. This will bleed air from low side of gauge. Slowly open test cock #2, then open high "A" valve. This will bleed air from high side of gauge. Close valve "A", then valve "B", then valve "C".
6. Observe this apparent differential pressure for check valve #1; this value must be at least 5.0 psi or greater.

**TEST NO. 1**

**PURPOSE: TO TEST CHECK VALVE #2 AGAINST BACK PRESSURE.**

1. Connect the vent "C" hose to test cock #4.
2. Slowly open the high "A" and vent "C" valves and keep the low "B" closed.
3. Open test cock #4.
4. Gauge may decrease slightly due to disc compression. If pressure differential continues to decrease until the vent opens, then check valve #2 is reported as leaking.

**TEST NO. 2**

**PURPOSE: TO TEST SHUT-OFF VALVE #2 FOR TIGHTNESS.**

1. After passing test No. 1, continue to test No. 2 by closing test cock #2.
2. The indicated pressure differential will decrease slightly. If pressure differential continues to decrease (approaching zero) the
3. No. 2 shut-off valve is reported to be leaking.

**TEST NO. 3**

**PURPOSE: TO TEST CHECK VALVE #1 FOR TIGHTNESS.**

1. Close high "A" valve and open test cock #2.
2. Close test cock #4.
3. Open low valve "B", this will bleed air from low side of gauge, then closing valve "B" restores the system to a normal static condition.
4. Observe the pressure differential gauge; this value must be at least 5.0 psi or greater. Record this value for check valve #1 on the backflow test report form.

**TEST NO. 4**

**PURPOSE: TO TEST OPERATION OF THE DIFFERENTIAL PRESSURE RELIEF VALVE.**

1. The Pressure Differential Relief Valve must operate to maintain the "zone" between the two check valves at least 2 psi less than supply pressure.
2. Close vent "C" valve.
3. Open the high "A" valve.
4. Slowly open the low "B" valve no more than one turn.
5. Hold the valve at this position and observe the gauge reading at the first moment the first discharge is noted from the relief valve.
6. Record this as the opening differential pressure of the relief valve on the test report form.

**TEST NO. 5**

**PURPOSE: TO DO A DIFFERENTIAL PRESSURE TEST ON CHECK VALVE #2.**

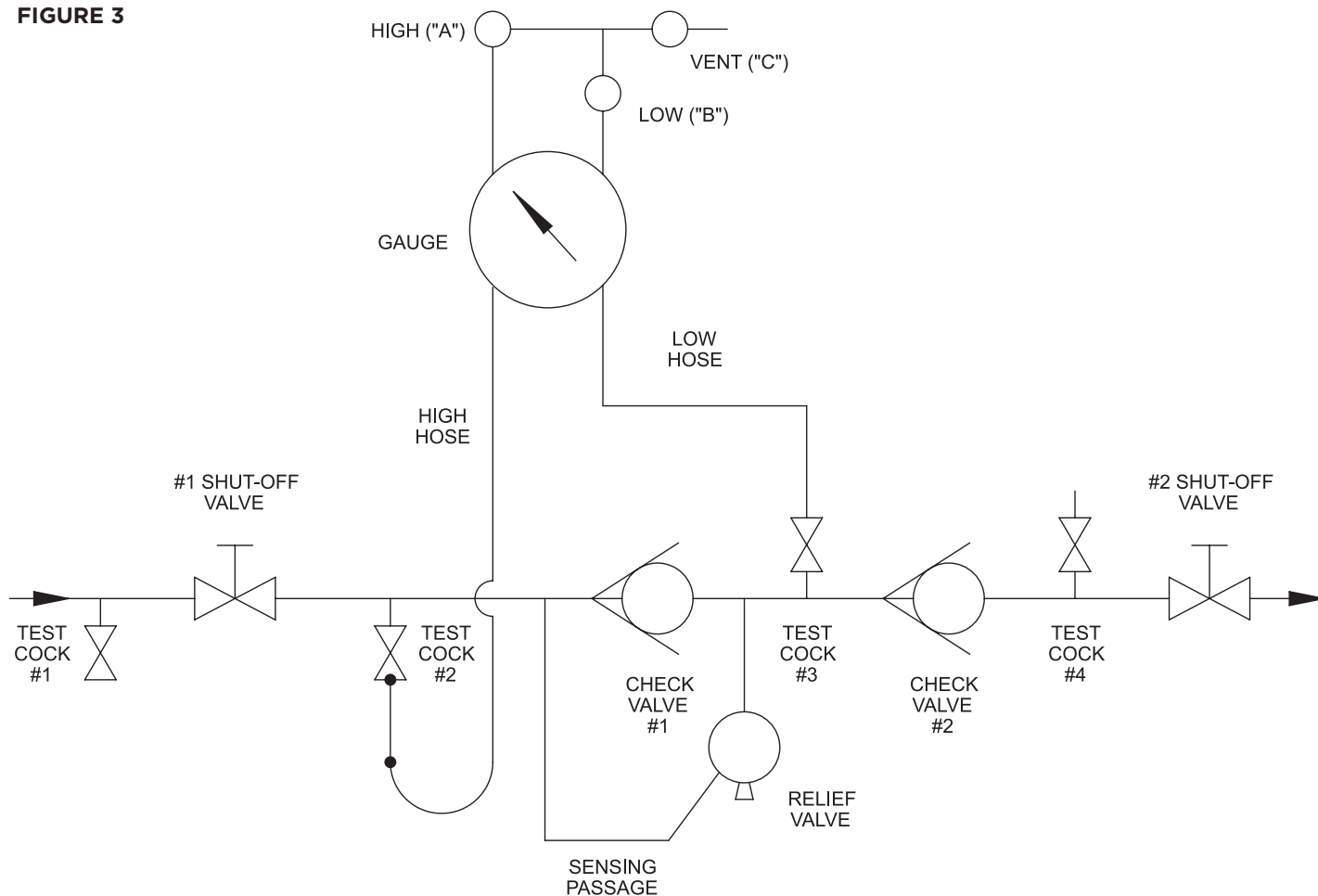
1. After completing test No. 4, close test cock #2, then close test cock #3.
2. Close valves "A", "B", and "C" on test kit.
3. Move low hose "B" to test cock #4, then move high hose "A" to test cock #3.
4. Slowly open test cock #4, then open vent "C" valve and low "B" valve. This will bleed air from low side of gauge.
5. Slowly open test cock #3, then open high "A" valve. This will bleed air from high side of gauge.
6. Close valve "A", then "B", then "C".
7. Observe the pressure differential gauge, this value must be at least 1.0 psi or greater.
8. Record this value for check valve #2 on the backflow test report form.

**END OF TESTING**

1. Make sure all test cocks are closed. Remove hoses and fittings. Slowly open shut-off valve #2 to restore water supply to the customer.

## 3 VALVE TEST KIT

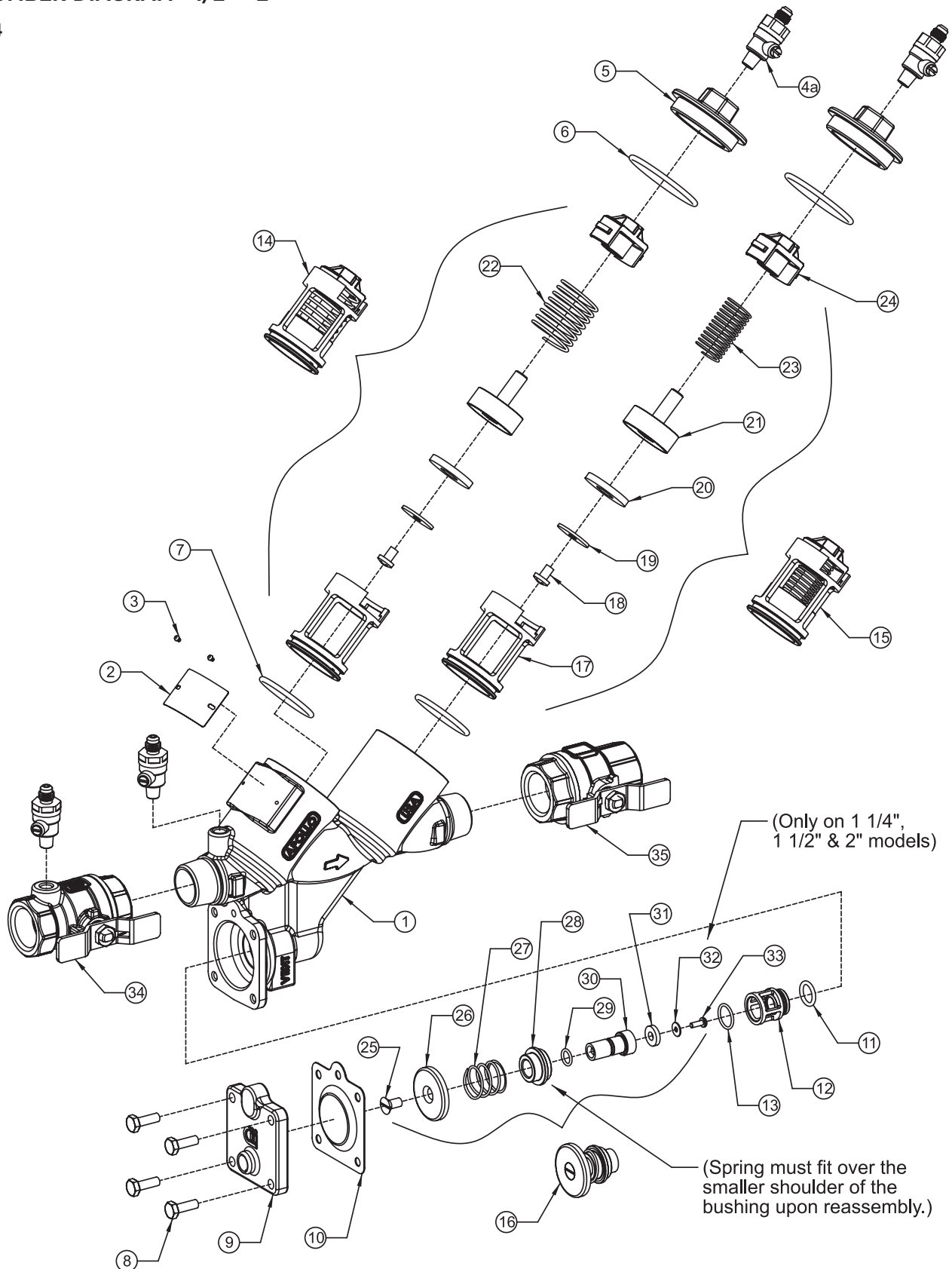
FIGURE 3





**PART NUMBER DIAGRAM - 1/2" - 2"**

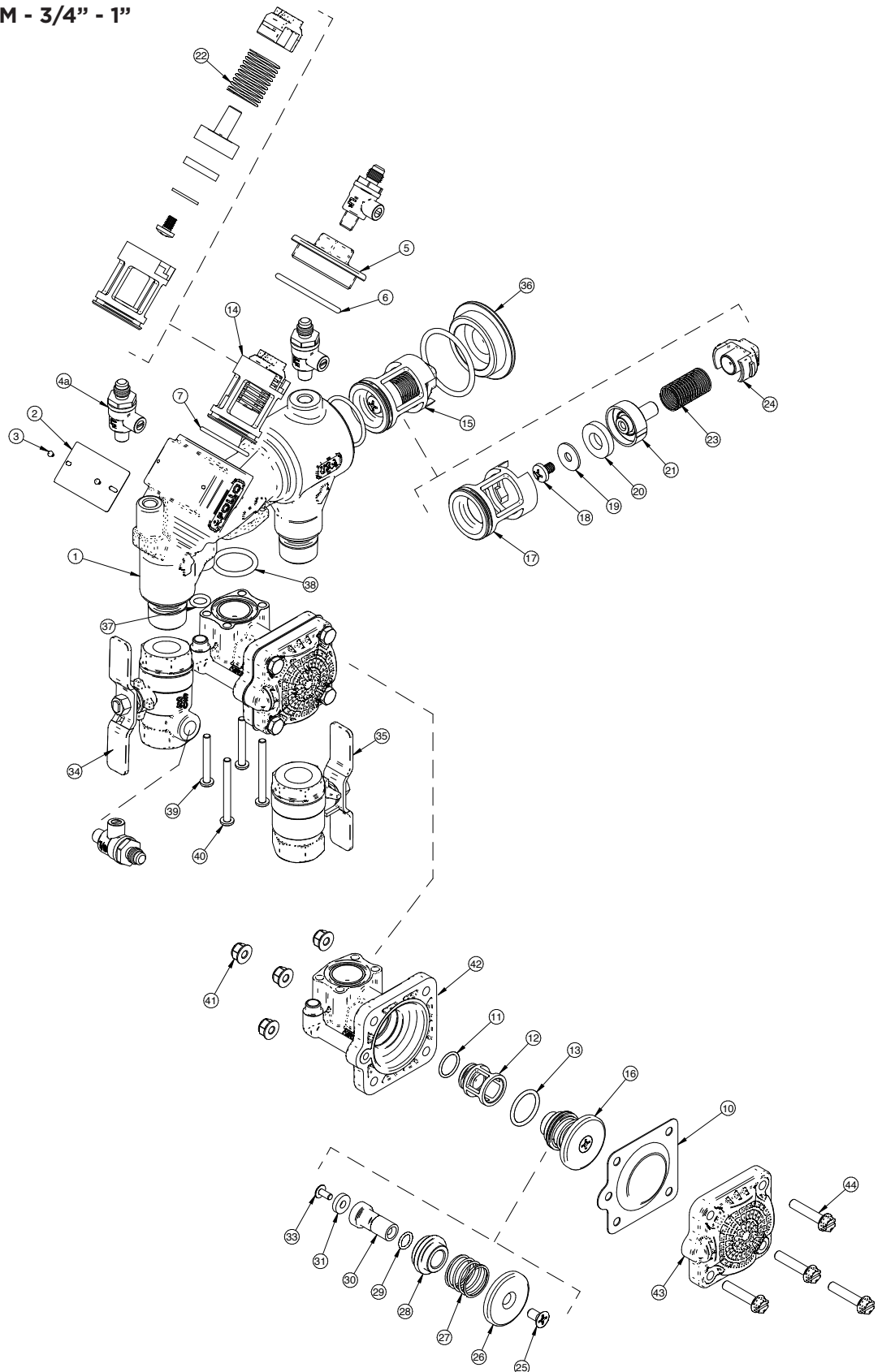
**FIGURE 4**



# INSTALLATION, OPERATION & MAINTENANCE MANUAL

## PART NUMBER DIAGRAM - 3/4" - 1"

FIGURE 5



### RP4A AND RPLF4A PARTS LIST

ITEM #	DESCRIPTION	STD. OR LF	QTY.	PART NUMBER					
				1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
1	Body	All	1	Consult Factory					
2	Label Plate	All	1	Consult Factory					
3	Label Plate Tacks	All	2	I-2614-00					
4	Test Cock M x F (81 metal)	Std	4	78-290-01 (Optional)			78-291-01 (Standard)		
	Test Cock M x F (Lead Free)	LF		78LF-290-01 (Optional)			78LF-291-01 (Standard)		
4a	Test Cock SAE (81 metal)	Std		78-292-01 (Standard)			78-293-01 (Optional)		
	Test Cock SAE (Lead Free)	LF		78LF-292-01 (Standard)			78LF-293-01 (Optional)		
5	Cap (81 metal)	Std	2	F-3846-05	F-3822-05	F-3848-05	F-3850-05	F-3854-05	
	Cap (Lead Free)	LF		F-3847-05	F-3823-05	F-3849-05	F-3851-05	F-3855-05	
6	Cap O-Ring	All	2	D-4881-00	D-4812-00	D-4884-00	D-4885-00	D-4888-00	
7	Check Module O-Ring	All	2	D-4880-00	D-4744-00	D-4882-00	D-4884-00	D-4885-00	
8	RV Cover Bolts	All	(QTY)	B-1793-00 (4)			B-1751-00 (6)		B-1751-00 (7)
9	RV Cover (81 metal)	Std	1	F-3890-05			F-3894-05		F-3892-05
	RV Cover (Lead Free)	LF		F-3891-05			F-3895-05		F-3893-05
10	RV Diaphragm	All	1	D-2632-00			D-2505-00		D-4909-00
11	RV Seat O-Ring	All	1	D-4892-00			D-4910-00		D-4903-00
12	RV Seat	All	1	L-7894-00			L-8038-00		L-8039-00
13	RV Bushing Face O-Ring	All	1	D-4893-00			D-4744-00		D-4904-00
14	1st Chk S-Assy (see below)	All	1	W-9207-05	W-9208-05	W-9209-05	W-9210-05		W-9211-05
15	2nd Chk S-Assy (see below)	All	1	W-9075-05	W-9003-05	W-9074-05	W-9159-05		W-9204-05
16	RV S-Assy (81) (see below)	Std	1	W-9223-05			W-9244-05		W-9245-05
	RV S-Assy (LF) (see below)	LF		W-9586-05			W-9587-05		W-9588-05

Individual parts are only available for bulk sales. Please refer to the appropriate repair kits on pages 13-14.

### CHECK MODULE SUB-ASSEMBLY PARTS LIST

ITEM #	DESCRIPTION	STD. OR LF	QTY.	PART NUMBER					
				1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
17	Check Seat	All	1	L-7815-00	L-7727-00	L-7813-00	L-7979-00		L-7983-00
18	Screw	All	1	B-3279-00	B-1750-00				
19	Disc Retaining Washer	All	1	E-2372-00	E-2841-00	E-2933-00	E-2860-00		E-2876-00
20	Seat Disc	All	1	D-4771-00	D-4743-00	D-4770-00	D-4853-00		D-4873-00
21	Poppet	All	1	K-4491-00	K-4471-00	K-4483-00	K-4511-00		K-4512-00
22	Spring 1st Check	All	1	A-2514-00	A-2515-00	A-2516-00	A-2517-00		A-2518-00
23	Spring 2nd Check			A-2505-00	A-2503-00	A-2510-00	A-2511-00		A-2512-00
24	Spring Retainer	All	1	L-7814-00	L-7726-00	L-7812-00	L-7980-00		L-7984-00

Individual parts are only available for bulk sales. Please refer to the appropriate repair kits on pages 13-14.

### RELIEF VALVE MODULE SUB-ASSEMBLY PARTS LIST

ITEM #	DESCRIPTION	STD. OR LF	QTY.	PART NUMBER					
				1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
25	RV Diaphragm Plate Screw	All	1	B-1749-00					B-1750-00
26	RV Diaphragm Plate	All	1	E-2222-00			D-2506-00		E-2891-00
27	RV Spring	All	1	A-2542-00			A-2543-00		A-2519-00
28	RV Bushing (Standard)	Std	1	I-8976-00			I-9053-00		I-9054-00
	RV Bushing (Lead Free)	LF		I-9225-00			I-9226-00		I-9277-00
29	RV Stem O-Ring	All	1	D-4891-00			D-4927-00		D-4902-00
30	RV Stem	All	1	G-4791-00			G-3212-00		G-4816-00
31	RV Seat Disc	All	1	D-4833-00			D-4911-00		D-4912-00
32	RV Seat Disc Washer	All	1	NONE			E-2280-00		E-2890-00
33	RV Seat Disc Screw	All	1	B-3254-00			B-3280-00		B-1750-00

Individual parts are only available for bulk sales. Please refer to the appropriate repair kits on pages 13-14.

## SHUT-OFF VALVES

### INLET AND OUTLET SHUT-OFF VALVES

ITEM #	DESCRIPTION	STD. OR LF	QTY.	PART NUMBER					
				1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
34	T2 Inlet NPT Ball Valve w/ "T" Handle (Standard)	81 Mtl	1	77B-103-85	77B-104-83	77B-105-83	Not Available		
		LF		77BLF-103-85	77BLF-104-83	77BLF-105-83			
	T4 Inlet Union Ball Valve w/ "T" Handle (Option)	81 Mtl		77B-303-85	77B-304-83	77B-305-83	Not Available		
		LF		77BLF-303-85	77BLF-304-83	77BLF-305-83			
	T2 Inlet NPT Ball Valve w/ Lever Handle (Standard)	81 Mtl		Not Available			77B-106-84	77B-107-84	77B-108-84
		LF					77BLF-106-84	77BLF-107-84	77BLF-108-84
	T4 Inlet Union Ball Valve with Lever Handle (Option)	81 Mtl		Not Available			77B-306-84	77B-307-84	77B-308-84
		LF					77BLF-306-84	77BLF-307-84	77BLF-308-84
	T2 Inlet NPT Ball Valve with Locking "T" Handle (Option)	81 Mtl		Not Available	77B-104-91	77B-105-91	Not Available		
		LF			77BLF-104-91	77BLF-105-91			
	T4 Inlet Union Ball Valve with Locking "T" Handle (Option)	81 Mtl		Not Available	77B-304-91	77B-305-91	Not Available		
		LF			77BLF-304-91	77BLF-305-91			
35	T2 Outlet NPT Ball Valve with "T" Handle (Standard)	81 Mtl	1	77C-103-A4	77C-104-83	77C-105-83	Not Available		
		LF		77CLF-103-85	77CLF-104-83	77CLF-105-83			
	T4 Outlet Union Ball Valve with "T" Handle (Option)	81 Mtl		77C-303-85	77C-304-83	77C-305-83	Not Available		
		LF		77CLF-303-85	77CLF-304-83	77C-305-83			
	T2 Outlet NPT Ball Valve with Lever Handle (Standard)	81 Mtl		Not Available			77C-106-84	77C-107-84	77C-108-84
		LF					77CLF-106-84	77CLF-107-84	77CLF-108-84
	T4 Outlet Union Ball Valve with Lever Handle (Option)	81 Mtl		Not Available			77C-306-84	77C-307-84	77C-308-84
		LF					77CLF-306-84	77CLF-307-84	77CLF-308-84
	T2 Outlet NPT Ball Valve with Locking "T" Handle (Option)	81 Mtl		Not Available	77C-104-91	77C-105-91	Not Available		
		LF			77CLF-104-91	77CLF-105-91			
	T4 Outlet Union Ball Valve with Locking "T" Handle (Option)	81 Mtl		Not Available	77C-304-91	77C-305-91	Not Available		
		LF			77CLF-304-91	77CLF-305-91			
	T2 Outlet NPT Ball Valve with Locking Lever Handle (Option)	81 Mtl		Not Available			77C-106-86	77C-107-86	77C-108-86
		LF					77CLF-106-86	77CLF-107-86	77CLF-108-86
	T4 Outlet Union Ball Valve with Locking Lever Handle (Option)	81 Mtl		Not Available			77C-306-86	77C-307-86	77C-308-86
		LF					77CLF-306-86	77CLF-307-86	77CLF-308-86

### REPLACEMENT HANDLES FOR BALL VALVE SHUT-OFF VALVES (T2 & T4 OPTIONS)

DESCRIPTION	STD. OR LF	PART NUMBER		
		1/2"	3/4" * 1"	1-1/4" / 1-1/2" / 2"
"T" Handle	All	W-9732-00	W-9864-00	W-9734-00
Lever Handle		Not Available		W-9366-00
Locking "T"		Not Available	W-2394-00	Not Available
Locking Lever		Not Available		W-9686-00

Stainless steel handles are standard on all Apollo® backflow devices.

**SHUT-OFF VALVES**

**INLET AND OUTLET SHUT-OFF VALVES**

ITEM #	DESCRIPTION	STD. OR LF	QTY.	PART NUMBER					
				1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
34	A2 Inlet NPT Ball Valve w/ "T" Handle (Standard)	81 Mtl	1	91B-103-85	91B-104-83	91B-105-83	Not Available		
		LF		91BLF-103-85	91BLF-104-83	91BLF-105-83			
	A4 Inlet Union Ball Valve w/ "T" Handle (Option)	81 Mtl		91B-303-85	91B-304-83	91B-305-83	Not Available		
		LF		91BLF-303-85	91BLF-304-83	91BLF-305-83			
	A2 Inlet NPT Ball Valve w/ Lever Handle (Standard)	81 Mtl		Not Available			91B-106-84	91B-107-84	91B-108-84
		LF					91BLF-106-84	91BLF-107-84	91BLF-108-84
	A4 Inlet Union Ball Valve with Lever Handle (Option)	81 Mtl		Not Available			91B-306-84	91B-307-84	91B-308-84
		LF					91BLF-306-84	91BLF-307-84	91BLF-308-84
	A2 Outlet NPT Ball Valve with "T" Handle (Standard)	81 Mtl	1	91C-103-85	91C-104-83	91C-105-83	Not Available		
		LF		91CLF-103-85	91CLF-104-83	91CLF-105-83			
35	A4 Outlet Union Ball Valve with "T" Handle (Option)	81 Mtl		91C-303-85	91C-304-83	91C-305-83	Not Available		
		LF		91CLF-303-85	91CLF-304-83	91C-305-83			
	A2 Outlet NPT Ball Valve with Lever Handle (Standard)	81 Mtl		Not Available			91C-106-84	91C-107-84	91C-108-84
		LF					91CLF-106-84	91CLF-107-84	91CLF-108-84
	A4 Outlet Union Ball Valve with Lever Handle (Option)	81 Mtl		Not Available			91C-306-84	91C-307-84	91C-308-84
		LF					91CLF-306-84	91CLF-307-84	91CLF-308-84

**LOCKING LEVER HANDLES FOR 91 SERIES BALL VALVE SHUT-OFF VALVES (A2 & A4 OPTIONS)**

ITEM #	DESCRIPTION	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
91B	Locking Lever	H397300	H399700	H395200	H399900	H395400	H395600
91BLF	Locking Lever, Lead Free	H397400	H399800	H395300	H400000	H395500	H395700
91C	Locking Lever	H397500	H400100	H395800	H400300	H396000	H396200
91CLF	Locking Lever, Lead Free	H397600	H400200	H395900	H400400	H396100	H396300

*Stainless steel handles are standard on all Apollo\*\* backflow devices.*

**RP4AN & RPFL4AN ONLY**

ITEM #	DESCRIPTION	STD. OR LF	QTY	PART #	
				3/4"	1"
36	Second Check Cap (81 mtl)	Std	1	F-4191-05	F-4193-05
	Second Check Cap (Lead Free)	LF		F-4192-05	F-4194-05
37	RV Sensing Passage O-Ring	ALL	1	D-5025-00	
38	RV Body O-Ring	ALL	1	D-5440-00	
39	Screw, Pan Hd	ALL	2	B-3429-00	
40	Screw, Pan Hd	ALL	2	B-3430-00	
41	Nut, Flg Hd	ALL	4	C-2785-00	
42	Body, Relief Valve	ALL	1	Consult Factory	
43	Cover, Relief Valve	ALL	1	Consult Factory	
44	Bolt, Flg Hd	ALL	4	B-3489-00	

## REPAIR KITS RP4A & RPLF4A - 1/2" - 2"

CHECK MODULE RUBBER KIT (ONE KIT REPAIRS ONE CHECK) (UNIVERSAL, FOR STANDARD & LEAD FREE VALVES)			SIZE				
			1/2"	3/4"	1"	1-1/4" - 1-1/2"	2"
			RK4A12CMR	RK4A34CMR	RK4A1CMR	RK4A112CMR	RK4A2CMR
ITEM #	REPAIR KIT MODEL NUMBER	QTY	4A-003-01	4A-004-01	4A-005-01	4A-007-01	4A-008-01
	ORDERING NUMBER						
not shown	O-Ring Lubricant		I-9016-00				
20	Check Module Seat Disc	1	D-4771-00	D-4743-00	D-4770-00	D-4853-00	D-4873-00
7	Check Module O-Ring	1	D-4880-00	D-4744-00	D-4882-00	D-4884-00	D-4885-00
6	Cap O-Ring	1	D-4881-00	D-4812-00	D-4884-00	D-4885-00	D-4888-00

RP FIRST CHECK COMPLETE KIT (ONE KIT REPAIRS ONE CHECK) (UNIVERSAL, FOR STANDARD & LEAD FREE VALVES)			SIZE				
			1/2"	3/4"	1"	1-1/4" - 1-1/2"	2"
			RK4A12RPCMC	RK4A34RPCMC	RK4A1RPCMC	RK4A112RPCMC	RK4A2RPCMC
ITEM #	REPAIR KIT MODEL NUMBER	QTY	4A-003-03	4A-004-03	4A-005-03	4A-007-03	4A-008-03
	ORDERING NUMBER						
not shown	O-Ring Lubricant		I-9016-00				
14	Check Module S-Assy	1	W-9207-05	W-9208-05	W-9209-05	W-9210-05	W-9211-05
7	Check Module O-Ring	1	D-4880-00	D-4744-00	D-4882-00	D-4884-00	D-4885-00
6	Cap O-Ring	1	D-4881-00	D-4812-00	D-4884-00	D-4885-00	D-4888-00

RP SECOND CHECK COMPLETE KIT (ONE KIT REPAIRS ONE CHECK) (UNIVERSAL, FOR STANDARD & LEAD FREE VALVES)			SIZE				
			1/2"	3/4"	1"	1-1/4" - 1-1/2"	2"
			RK4A12CMC	RK4A34CMC	RK4A1CMC	RK4A112CMC	RK4A2CMC
ITEM #	REPAIR KIT MODEL NUMBER	QTY	4A-003-02	4A-004-02	4A-005-02	4A-007-02	4A-008-02
	ORDERING NUMBER						
not shown	O-Ring Lubricant		I-9016-00				
15	Check Module S-Assy	1	W-9075-05	W-9003-05	W-9074-05	W-9159-05	W-9204-05
7	Check Module O-Ring	1	D-4880-00	D-4744-00	D-4882-00	D-4884-00	D-4885-00
6	Cap O-Ring (for DC/RP)	1	D-4881-00	D-4812-00	D-4884-00	D-4885-00	D-4888-00
extra part(s)	Bonnet O-Ring (for PVB)	1	D-4812-00	D-4883-00	D-4887-00	D-4858-00	

RP RELIEF VALVE RUBBER KIT (UNIVERSAL, FOR STANDARD & LEAD FREE VALVES)			SIZE				
			1/2"	3/4"	1"	1-1/4" - 1-1/2"	2"
			RK4A1RVR			RK4A112RVR	RK4A2RVR
ITEM #	REPAIR KIT MODEL NUMBER	QTY	4A-005-04			4A-007-04	4A-008-04
	ORDERING NUMBER						
not shown	O-Ring Lubricant		I-9016-00				
10	RV Diaphragm	1	D-2632-00			D-2505-00	D-4909-00
13	RV Bushing Face O-Ring	1	D-4893-00			D-4744-00	D-4904-00
11	RV Seat O-Ring	1	D-4892-00			D-4910-00	D-4903-00
29	RV Stem O-Ring	1	D-4891-00			D-4927-00	D-4902-00
31	RV Seat Disc	1	D-4833-00			D-4911-00	D-4912-00
37	RV Sensing Passage O-Ring		D502500				
38	RV Body O-Ring		D544000				

### REPAIR KITS RP4A & RPLF4A - 1/2" - 2" (CONTINUED)

RP RELIEF VALVE COMPLETE KIT (UNIVERSAL, FOR STANDARD & LEAD FREE VALVES)		QTY	SIZE				
			1/2"	3/4"	1"	1-1/4" - 1-1/2"	2"
ITEM #	REPAIR KIT MODEL NUMBER		RK4A1RVC			RK4A112RVC	RK4A2RVC
	ORDERING NUMBER		4A-005-05			4A-007-05	4A-008-05
not shown	O-Ring Lubricant		I-9016-00				
10	RV Diaphragm	1	D-2632-00			D-2505-00	D-4909-00
13	RV Bushing Face O-Ring	1	D-4893-00			D-4744-00	D-4904-00
11	RV Seat O-Ring	1	D-4892-00			D-4910-00	D-4903-00
16	RV S-Assy	1	W-9586-05			W-9587-05	W-9588-05
12	RV Seat	1	L-7894-00			L-8038-00	L-8039-00
37	RV Sensing Passage O-Ring			D502500			
38	RV Body O-Ring			D544000			

RP TOTAL RUBBER KIT (REPLACE ALL RUBBER PARTS IN ONE RP VALVE) (UNIVERSAL, FOR STANDARD & LEAD FREE VALVES)		QTY	SIZE				
			1/2"	3/4"	1"	1-1/4" - 1-1/2"	2"
ITEM #	REPAIR KIT MODEL NUMBER		RK4A12RPR	RK4A34RPR	RK4A1RPR	RK4A112RPR	RK4A2RPR
	ORDERING NUMBER		4A-003-09	4A-004-09	4A-005-19	4A-007-19	4A-008-19
not shown	O-Ring Lubricant		I-9016-00				
20	Check Module Seat Disc	2	D-4771-00	D-4743-00	D-4770-00	D-4853-00	D-4873-00
7	Check Module O-Ring	2	D-4880-00	D-4744-00	D-4882-00	D-4884-00	D-4885-00
6	Cap O-Ring	2	D-4881-00	D-4812-00	D-4884-00	D-4885-00	D-4888-00
10	RV Diaphragm	1	D-2632-00			D-2505-00	D-4909-00
13	RV Bushing Face O-Ring	1	D-4893-00			D-4744-00	D-4904-00
11	RV Seat O-Ring	1	D-4892-00			D-4910-00	D-4903-00
29	RV Stem O-Ring	1	D-4891-00			D-4927-00	D-4902-00
31	RV Seat Disc	1	D-4833-00			D-4911-00	D-4912-00
37	RV Sensing Passage O-Ring			D502500			
38	RV Body O-Ring			D544000			

RP COMPLETE INTERNALS KIT (ONE KIT REPAIRS ONE RP VALVE) (UNIVERSAL, FOR STANDARD & LEAD FREE VALVES)		QTY	SIZE				
			1/2"	3/4"	1"	1-1/4" - 1-1/2"	2"
ITEM #	REPAIR KIT MODEL NUMBER		RK4A12TRP	RK4A34TRP	RK4A1TRP	RK4A112TRP	RK4A2TRP
	ORDERING NUMBER		4A-003-10	4A-004-10	4A-005-10	4A-007-10	4A-008-10
not shown	O-Ring Lubricant		I-9016-00				
14	1st Check Module S-Assembly	1	W-9207-05	W-9208-05	W-9209-05	W-9210-05	W-9211-05
15	2nd Check Module S-Assembly	1	W-9075-05	W-9003-05	W-9074-05	W-9159-05	W-9204-05
7	Check Module O-Ring	2	D-4880-00	D-4744-00	D-4882-00	D-4884-00	D-4885-00
6	Cap O-Ring	2	D-4881-00	D-4812-00	D-4884-00	D-4885-00	D-4888-00
10	RV Diaphragm	1	D-2632-00			D-2505-00	D-4909-00
13	RV Bushing Face O-Ring	1	D-4893-00			D-4744-00	D-4904-00
11	RV Seat O-Ring	1	D-4892-00			D-4910-00	D-4903-00
16	RV S-Assembly	1	W-9586-05			W-9587-05	W-9588-05
12	RV Seat	1	L-7894-00			L-8038-00	L-8039-00
37	RV Sensing Passage O-Ring			D502500			
38	RV Body O-Ring			D544000			

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