Series 993/993RPDA

Reduced Pressure Zone Backflow Preventers / Reduced Pressure Detector Assemblies

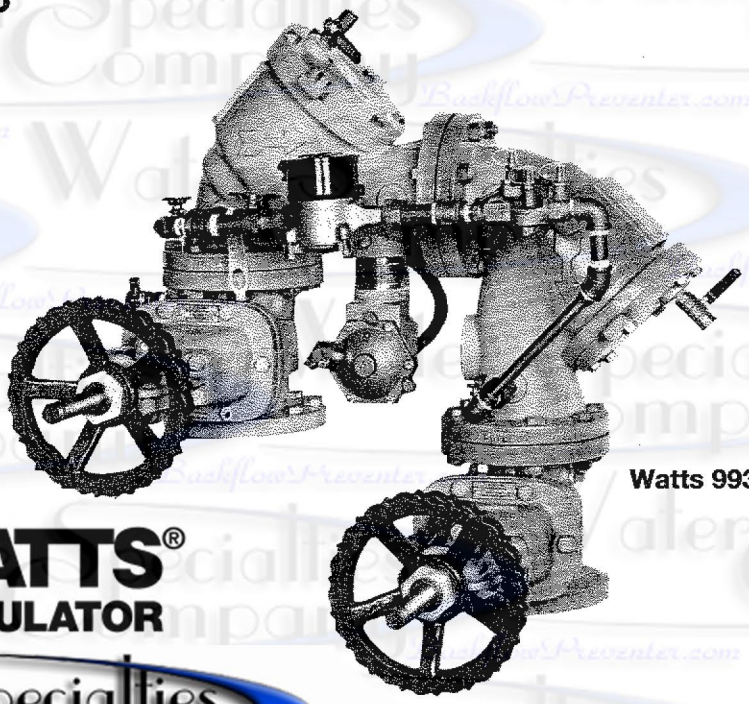
Sizes: 4" and 6"

• Installation • Service • Repair Kits • Maintenance

For field testing procedure, send for IS-TK-DP/DL, IS-TK-9A, IS-TK-99E AND IS-TK-99D.

For other repair kits and service parts, send for PL-RP-BPD.

For technical assistance, contact your local Watts representative on back page.



Watts 993RPDA

WATTS® REGULATOR

Water Specialties Company

CALIFORNIA PROPOSITION 65 WARNING

This product contains lead, a chemical known to the State of California to cause birth defects or other reproductive harm.

(Plumber: California law requires that this warning be given to the consumer.)

CONSUMER INFORMATION ABOUT CALIFORNIA PROPOSITION 65 WARNING

All faucets and products made of leaded brass alloys, even those that comply with U.S. Environmental Protection Agency regulations, contribute small amounts of lead to water that is allowed to stand in contact with the brass. This product complies with all E.P.A. regulations regarding the amount of lead used in plumbing brass and solder. The amount of lead contributed by any faucet/product is highest when the faucet/product is new.

The following steps will reduce potential exposure to lead from faucets and other parts of the plumbing system:

- Always run the water for a few seconds prior to use for drinking or cooking.
- Use only cold water for drinking or cooking.
- If you wish to flush the entire plumbing system of water that has been standing in the pipes or other fittings, run the cold water until the temperature of the water drops, indicating water coming from the outside main.
- If you are concerned about lead in your water, have your water tested by an EPA-certified laboratory in your area.

"ATTN. INSTALLER: After installation, please leave this instruction sheet for occupant's information."

IMPORTANT: Inquire with governing authorities for local installation requirements.

NOTE: For *Australia* and *New Zealand*, line strainers should be installed between the upstream shutoff valve and the inlet of the backflow preventer.

Its important that this device be tested periodically in compliance with local codes, but at least once per year or more as service conditions warrant. If installed on a fire sprinkler system, all mechanical checks, such as alarm checks and backflow preventers, should be flow tested and inspected internally in accordance with NFPA 13 and NFPA 25.

A LEADER IN VALVE TECHNOLOGY

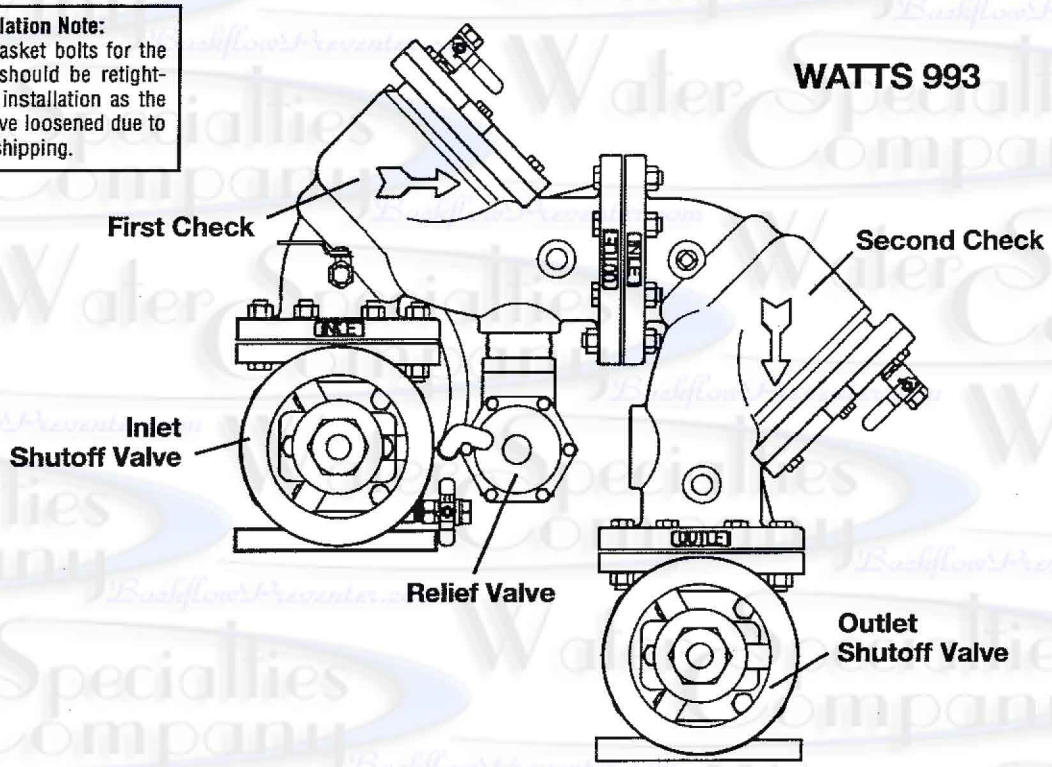
WATTS® REGULATOR

Since 1874 — Watts Industries, Inc.

Water Products Division • Safety & Control Valves

Basic Installation Instructions

Installation Note:
The flange gasket bolts for the gate valves should be retightened during installation as the bolts may have loosened due to storage and shipping.



Location and Installation Considerations

1. Backflow preventers must be installed in high-visibility locations in order to allow for immediate notice of telltale discharge or other malfunction. This location should also facilitate testing and servicing and protect against freezing and vandalism.
2. Installing a backflow preventer in a pit or vault is not recommended. However, if this becomes necessary, Watts highly recommends that a licensed journeyman trades-person, who is recognized by the authority having jurisdiction, be consulted to ensure that **all local codes and required safety provisions are met.** An air gap below the relief port must be maintained so as to avoid flooding and submersion of the assembly, which may lead to a cross connection. Watts recommends installations indoors or above ground in an insulated enclosure.
3. A strainer should be installed ahead of the backflow preventer to protect the discs from unnecessary fouling.
   CAUTION: Do not install a strainer ahead of the backflow preventer on seldom-used, emergency water lines (i.e. fire sprinkler lines). The strainer mesh could potentially become clogged with debris present in the water and cause water blockage during an emergency.
4. Normal discharge and nuisance spitting are accommodated by the use of a Watts air gap fitting and a fabricated indirect waste line. Floor drains of the same size **MUST** be provided in case of excessive discharge.
5. When a Series 993 backflow preventer is installed for dead-end service applications (i.e. boiler feed line, cooling tower makeup or other equipment with periodic flow requirements), discharge from the relief vent may occur due to water supply pressure fluctuation during static no-flow conditions. A check valve may be required ahead of the backflow preventer.
6. **ASSEMBLY:** If the backflow preventer is disassembled during installation, it **MUST** be reassembled in its **proper order.** The gate valve with the test cock is to mounted on the inlet side of the backflow preventer. The test cock must be on the inlet side of the wedge. Failure to reassemble correctly will result in possible water damage due to excessive discharge from the relief port/vent and possible malfunction of the backflow preventer.
7. **Installation procedures must comply with all state and local codes and must be completed by a licensed journeyman trades-person who is recognized by the authority having jurisdiction.**
8. Prior to installation, thoroughly flush all pipe line to remove any foreign matter.
9. **START UP at Initial Installations and After Servicing:** The downstream shutoff should be closed. Slowly open upstream shutoff and allow the backflow preventer to fill slowly. Bleed air at each test cock. When backflow preventer is filled, slowly open the downstream shutoff and fill the water supply system. This is necessary to avoid water hammer or shock damage.
10. **TEST:** The Series 993 backflow preventer must be tested by a certified tester at the time of installation in order to ascertain that the assembly is in full working order and may be relied upon to protect the safe drinking water as per applicable standard.

Figure 1

Valve Size (inches)	Typical Flow Rates as sized by floor drain manufacturers	Drain Size
2½	55.0 GPM	2
3	112.0 GPM	3
4	170.0 GPM	4
6 - 8 - 10	350.0 GPM	5

Watts Series 993 Installation Instructions

Installation

A. Series 993 may be installed in a flow up and down or vertical flow up position. The shutoff valve with the test cock is to be mounted on the inlet side of the backflow preventer. The test cock is on the inlet side of the shutoff valve.

B. The 993 should always be installed in an accessible location to facilitate testing and servicing. Check the state and local codes to insure that the backflow preventer is installed in compliance, such as the proper height above the ground. The backflow preventer must be supported and is not designed to carry full weight of the stand pipe.

C. Water discharge from the relief valve should be vented in accordance with code requirements. The relief valve should never be solidly piped into a drainage ditch, sewer or sump. The discharge should be funneled through a Watts air gap fitting piped to a floor drain.

D. Watts recommends a strainer be installed ahead of Watts Series 993 assemblies to protect the discs from unnecessary fouling.

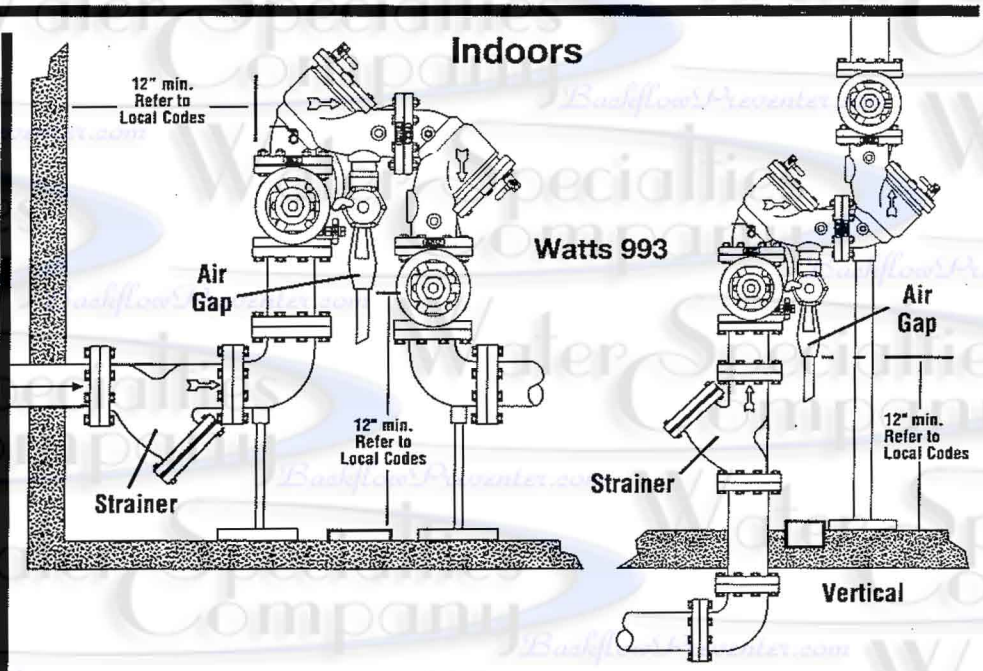
E. Backflow preventers should never be placed in pits unless absolutely necessary and then only when and as approved by local codes. Consult your local or state plumbing or health inspector. Watts recommends installation indoors or above ground in an insulated enclosure.

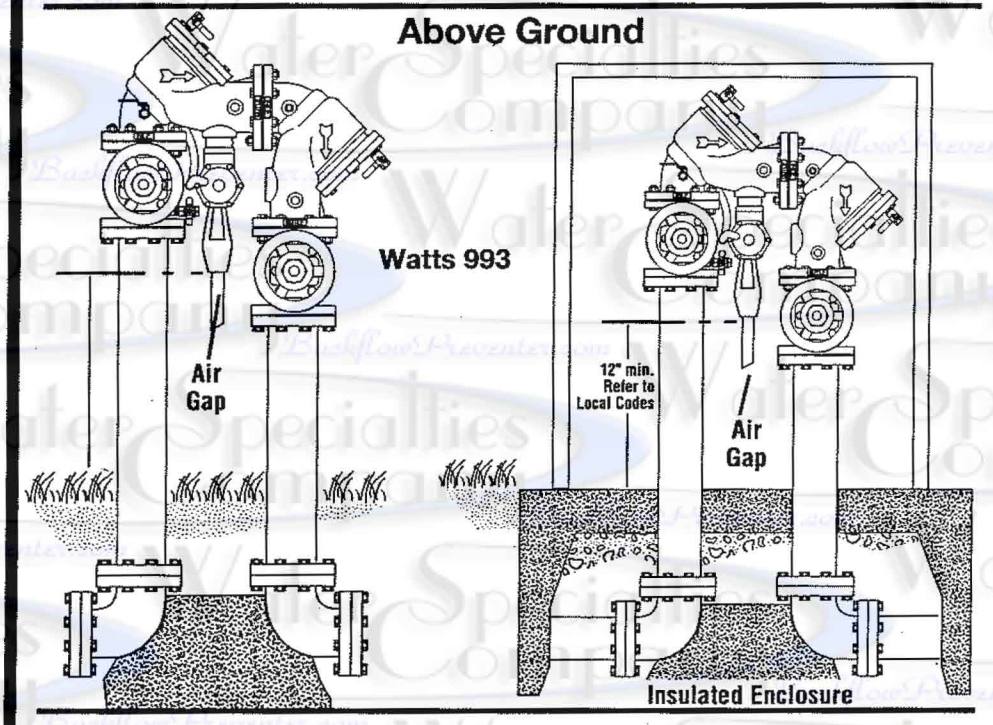
Start Up

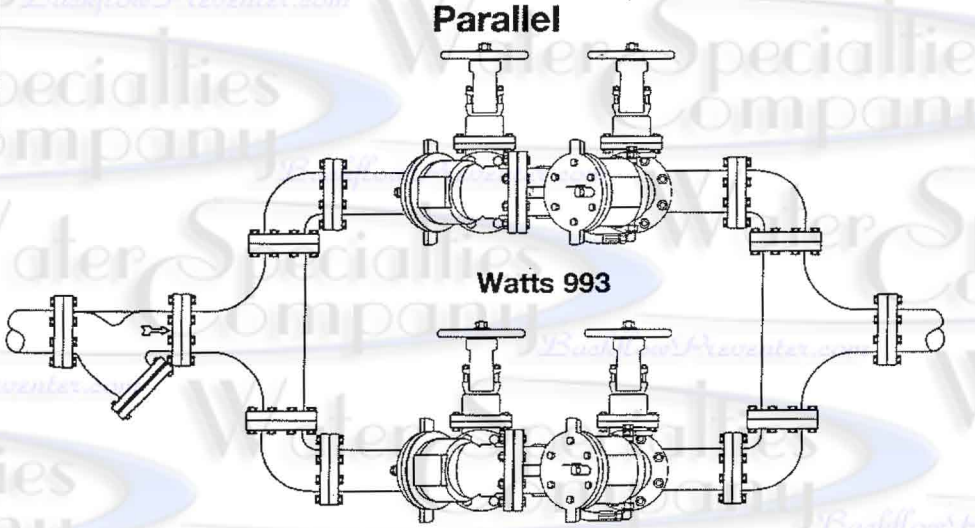
F. The downstream shutoff should be closed. Open upstream slowly, fill the valve and bleed the air through Test cock 2, 3 and 4. When valve is filled, open the downstream shutoff slowly and fill the water supply system. This is necessary to avoid water hammer or shock damage.

G. The installation of a Watts air gap with the drain line terminating above a floor drain will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size may need to be designed to prevent water damage caused by a catastrophic failure condition. Do not reduce the size of the drain line from the air gap fitting.

H. Two or more smaller size valves can be piped in parallel (when approved) to serve a large supply pipe main. This type of installation is employed where increase capacity is needed beyond that provided by a single valve and permits testing or servicing of an individual valve without shutting down the complete line. The number of assemblies used in parallel should be determined by the engineer's judgement based on the operating conditions of a specific installation.





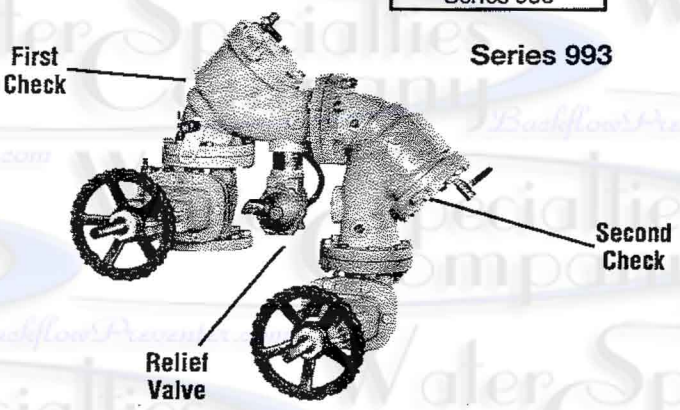


Servicing First and Second Checks

1. Remove the hatch cover bolts. **NOTE:** The 993 is designed so that when the bolts are backed off ½", all the spring load is released from the cover and retained by the check module. **CAUTION: Be sure to verify this before removing all the bolts.**
2. Lift the check valve module straight out taking care not to hit and damage the seating.
3. The seat ring may be removed and replaced by pulling out the two wire retainers. The wire retainers are 10" long. One is drawn out clockwise and the other is drawn out counterclockwise.
4. With the retainer wires removed, the seat ring can be lifted straight up and removed.
5. **CAUTION:** The Check valve spring is in compression. The spring load is captured by the two spring retainers and the stem. The spiring retainers are not to be removed for servicing. If there is a need to replace the spring, spring retainer or stem, an assembled module must be obtained from the factory. These modules are not interchangeable, be sure to replace the first check with a first check module and the second check with a second check module.
6. To replace the disc, simply remove the retaining nut. Reverse this procedure to install the new disc.

First and second checks are not interchangeable

NOTE: No special tools required to service Series 993



993 Repair Kits

First Check Kit

EDP No.	Kit No.	Size
888040	RK 993 CK1	4"
888500	RK 993 CK1	6"

Second Check Kit

888041	RK 993 CK2	4"
888501	RK 993 CK2	6"

Kits include: Disc & Spring assembly, Cover o-ring and Lubricant.

First Check Rubber Parts Kit

888042	RK 993 RC1	4"
888502	RK 993 RC1	6"

Second Check Rubber Parts Kit

888043	RK 993 RC2	4"
888503	RK 993 RC2	6"

Kits include: Disc assembly, Cover o-ring and Lubricant.

Seat Kit for Checks

888044	RK 993 S	4"
888504	4K 993 S	6"

Kit includes: Seat, Seat o-ring, Cover o-ring, Retainer wire and Lubricant.

Total Rubber Parts Kit

888048	RK 993 RT	4"
888505	RK 993 RT	6"

Kit includes: Disc assembly, Cover o-ring, Sleeve o-ring, Piston o-ring, RV disc assembly, Diaphragm, Piston seat and Lubricant.

Cover Kit

888047	RK 993 C	4"
888506	RK 993 C	6"

Kit includes: Cover, Cover o-ring and Lubricant.

993RPDA Repair Kits

First Check Kit

EDP No.	Kit No.	Size
888400	RK 993RPDA CK1	4"
888510	RK 993RPDA CK1	6"

Second Check Kit

888401	RK 993RPDA CK2	4"
888511	RK 993 RPDA CK2	6"

Kits include: Disc & Spring assembly, Cover o-ring and Lubricant.

First check Rubber Parts Kit

888402	RK 993RPDA RC1	4"
888512	RK 993RPDA RC1	6"

Second Check Rubber Parts Kit

888403	RK 993RPDA RC2	4"
888513	RK 993RPDA RC2	6"

Kits include: Disc assembly, Cover o-ring, and Lubricant

Seat Kit for Checks

888404	RK 993RPDA S	4"
888514	RK 993RPDA S	6"

Kit includes: Seat, Seat o-ring, Cover o-ring, Retainer wire and Lubricant.

Total Rubber Parts Kit

888408	RK 993RPDA RT	4"
888515	RK 993RPDA RT	6"

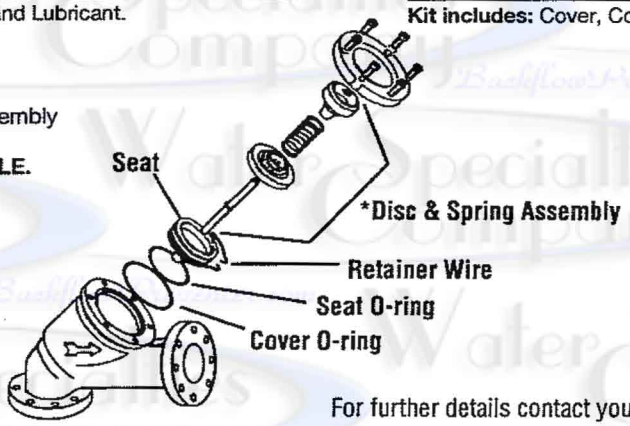
Kit includes: Disc assembly, Cover o-ring, Sleeve o-ring, Piston o-ring, RV disc assembly, Diaphragm, Piston seat and Lubricant.

Cover Kit

888407	RK 993RPDA C	4"
888516	RK 993RPDA C	6"

Kit includes: Cover, Cover o-ring and Lubricant.

***WARNING:** Spring assembly is factory assembled. **DO NOT DISASSEMBLE.**



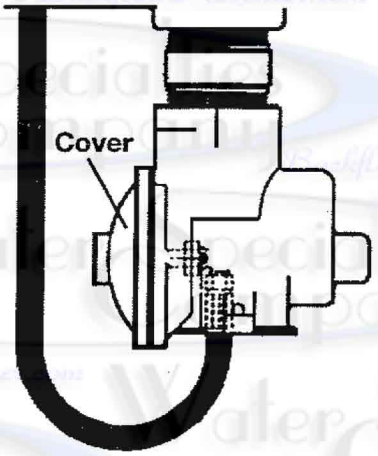
When ordering, specify **EDP number, Kit Number and Valve Size**

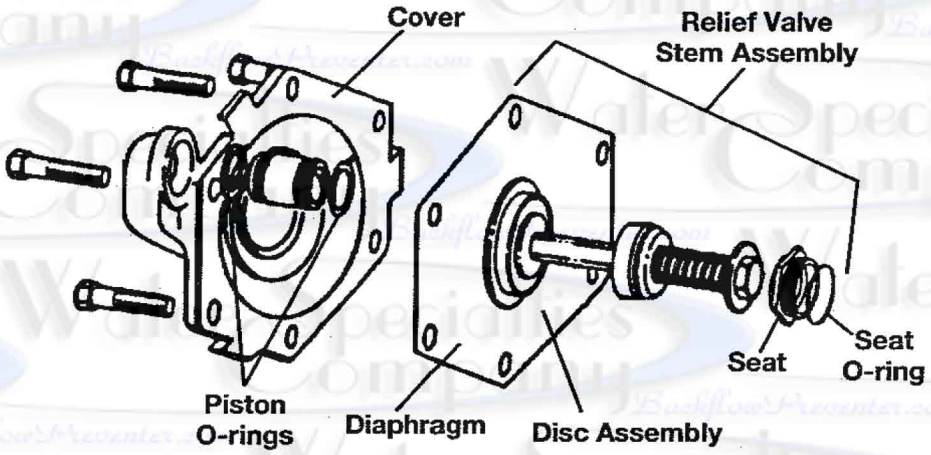
For further details contact your technical sales representative, see back page.

Servicing the Relief Valve

To Service the Relief Valve:

1. Remove sensing hose. Check for debris.
2. Remove cover.
3. Remove diaphragm and stem assembly. Check seat disc for debris and diaphragm for cuts or tears. Repair or replace as necessary.
4. Lubricate only sealing O-rings with Dow Corning FS 1292. **Do not** lubricate seat disc or diaphragm.
5. Reassemble and test.





993 Repair Kits

Relief Valve Rubber Parts

EDP No.	Kit No.	Size
888045	RK 993 RV	4"
888507	RK 993 RV	6"

Kit includes: Relief valve diaphragm, Piston o-rings, Disc assembly, Seat o-ring and Lubricant.

Relief Valve Total

888046	RK 993 VT	4"
888508	RK 993 VT	6"

Kit includes: Relief valve stem assembly, Seat o-ring and Lubricant.

993RPDA Repair Kits

Relief Valve Rubber Parts

EDP No.	Kit No.	Size
888405	RK 993RPDA RV	4"
888517	RK 993RPDA RV	6"

Kit includes: Relief valve diaphragm, Piston o-rings, Disc assembly, Seat o-ring and Lubricant.

Relief Valve Total

888406	RK 993RPDA VT	4"
888518	RK 993RPDA VT	6"

Kit includes: Relief valve stem assembly, Seat o-ring and Lubricant.