

Series 995/995RPDA

Reduced Pressure Zone Backflow Preventer/
Reduced Pressure Detector Assemblies

Sizes: 3" - 6"

- Installation • Service
- Repair Kits • Maintenance

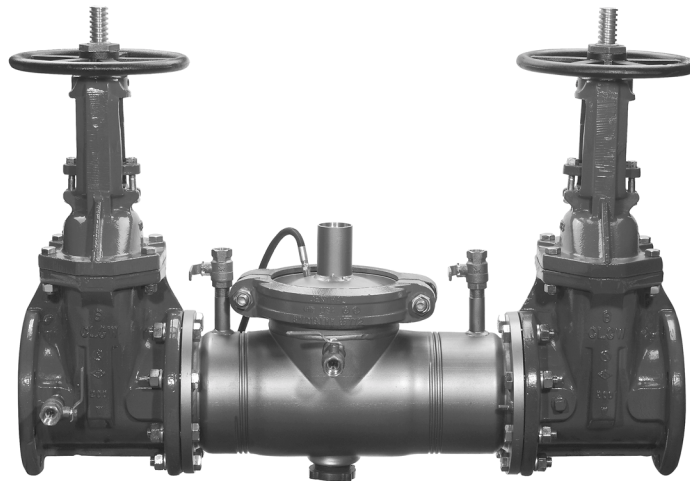
For field testing procedure, send for IS-TK-DL, IS-TK-9A, IS-TK-99E and IS-TK-99D.

For troubleshooting guide, send for S-TSG.

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

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

N995/Z995, N995RPDA, Z995RPDA are identical in construction to the 995/995RPDA Series, except include short radius elbows between the backflow preventer flange and the gate valve flange.



CALIFORNIA PROPOSITION 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
(Installer: California law requires that this warning be given to the consumer.)

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.

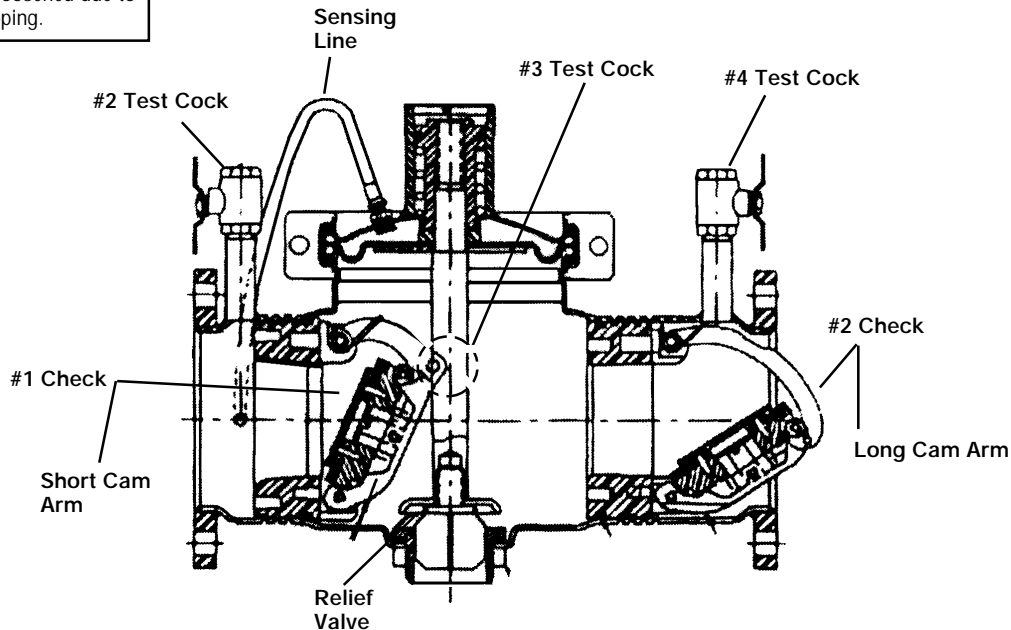
LIMITED WARRANTY: Watts Regulator Company warrants each product against defects in material and workmanship for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge. This shall constitute the exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental or consequential damages, includ

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.

Watts Series 995 Reduced Pressure Zone Backflow Preventer



Location and Installation Considerations

- 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.
- Installation procedures must comply with all state and local codes.**
- Installing a backflow preventer in a pit or vault is not recommended. 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. (Send for ES-WB)
- 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.
- 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.
- When a Series 995 backflow preventer is installed for dead-end service applications, discharge from the relief vent may occur due to water supply pressure fluctuation during static no-flow conditions. A spring load soft-seated check valve may be required ahead of the backflow preventer.
- 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 be 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.
- Prior to installation, thoroughly flush pipe line to remove any foreign matter.
- 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.

Figure 1

Valve Size (inches)	Typical Flow Rates as sized by floor drain manufacturers	Drain Size
2½	55 gpm	2
3	112 gpm	3
4	170 gpm	4
6 - 8 - 10	350 gpm	5

Watts Series 995 Installation Instructions

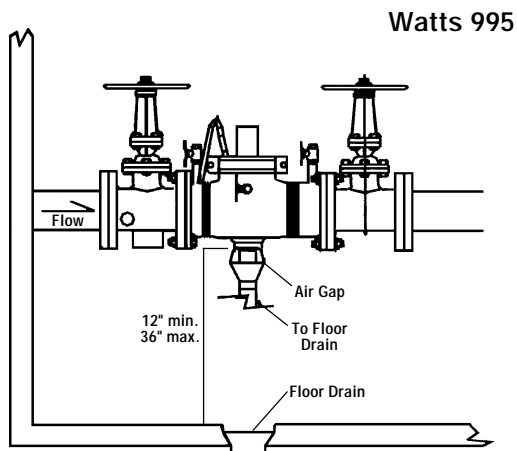
Installation

- A. Series 995 may be installed in a horizontal or vertical flow up position (Z995 Series). 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 995 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 995 assemblies to protect the discs from unnecessary fouling.

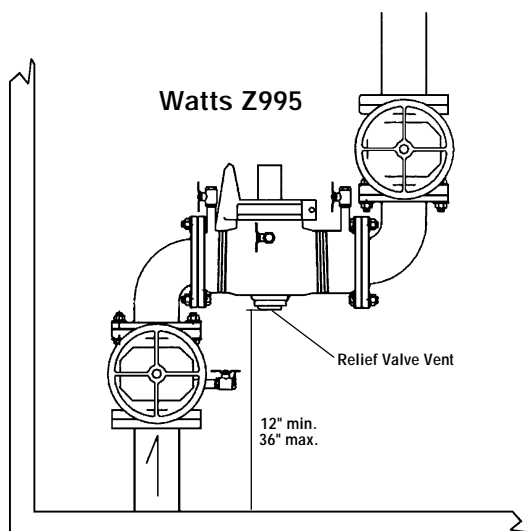
Start Up

- E. 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.
- F. 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.
- G. 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.

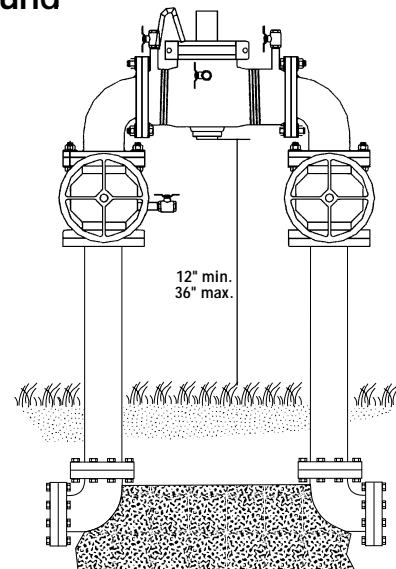
Indoors



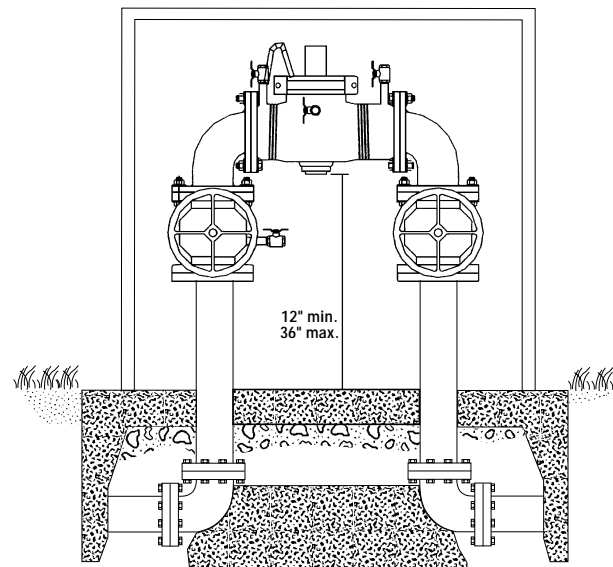
Vertical



Above Ground



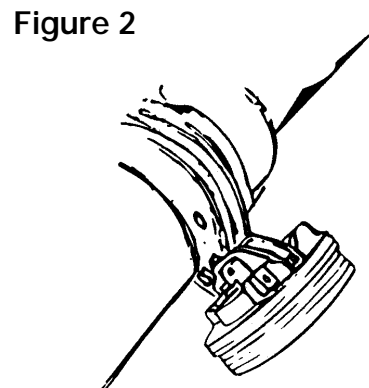
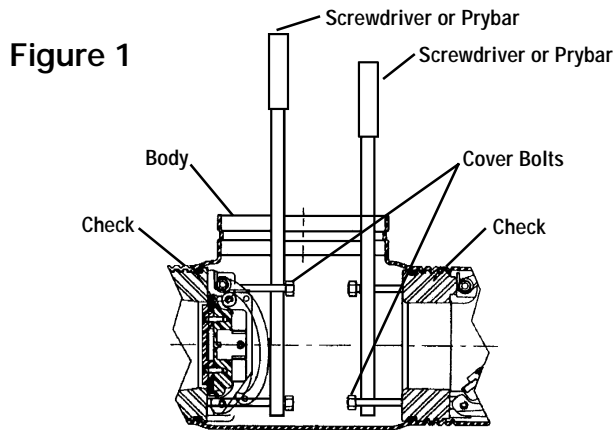
Watts N995



*Insulated Enclosure

Servicing First and Second Checks

Watts Series 995/995RPDA



3", 4" & 6" RP 1st Check Assmbly

Check Disassembly

Please use caution when disassembling check.
The check is a spring-loaded mechanical device.

Figure 3

Press down on the check assembly to unload the cambar from hinge arms and roller. Then place a thin rod or screwdriver into a maintenance hole in one hinge arm.

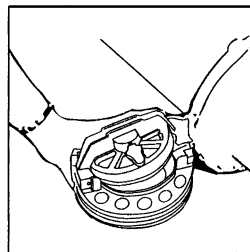
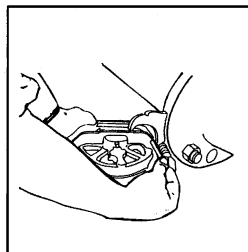


Figure 4

Using your free hand, swing the clapper assembly away from the seat. Align (A) lockout holes.

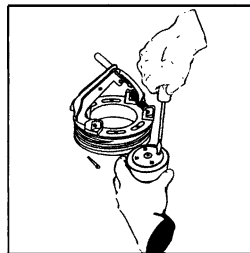
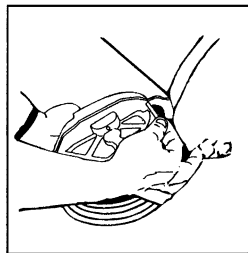


Figure 5

Remove 1 c-clip from the center pivot pin. Withdraw the center pivot pin from the clapper and the hinge arms. Remove the clapper assembly from the check assembly module. **Note: You may replace this item as an assembly or you may replace only the disc.**

Figure 6

Disassemble the clapper by removing 4 screws, disc retainer and the clapper disc. Disc may be flipped if sealing surface is damaged.

Before reinstallation of check assembly, thoroughly clean O-ring groove and lubricate O-ring with F.D.A. approved lubricant.

REMOVING CHECK ASSEMBLIES (Before servicing be sure shutoff valves are closed)

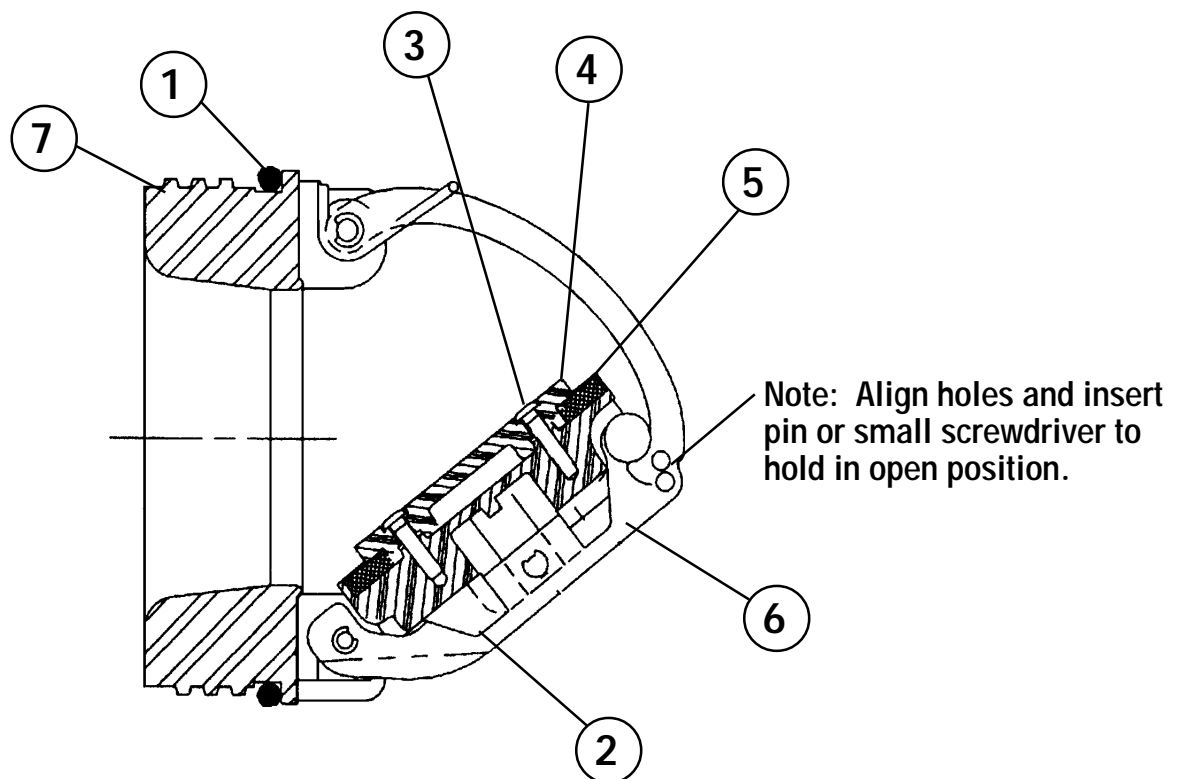
1. Slowly open all ball valves to relieve air and water pressure. After pressure is relieved, loosen bolts on groove coupler and remove groove coupler and cover plate from valve body.
2. Remove #1 Check Assembly. Do not use Check Arm as a handle to unscrew the Check. Insert lid bolts in 1st check seat ring (see fig. 1), insert a long screwdriver or pry bar between lid bolts. Gently apply pressure against the bolts and turn seat assembly counter clockwise moving bolts hole to hole to maintain turning leverage (two additional bolts will eliminate need to move lid bolts from hole to hole). Finish unscrewing by hand and remove through top access port. Unscrew #2 Check (turn counter-clock wise) by placing a long screwdriver across lid bolts inserted in holes located in the 2nd check seat ring, similar in method used to remove 1st check and applying pressure to loosen #2 Check. Finish unscrewing by hand.
3. To clean Check, locate the Check Arm opening stud on the out let flange of the valve assembly. Slide the Arm over the stud with the check threads facing downward (fig. 2). Tighten 1/4" nut on stud to secure cam bar. Slowly pull the assembly outward to open check allowing exposure of the seat and clapper contact area for cleaning. The assembly may be locked open by aligning the holes in the cam bar and hinge arms and inserting a rod (fig. 4).

Servicing First and Second Checks

Parts Table (figure 8)

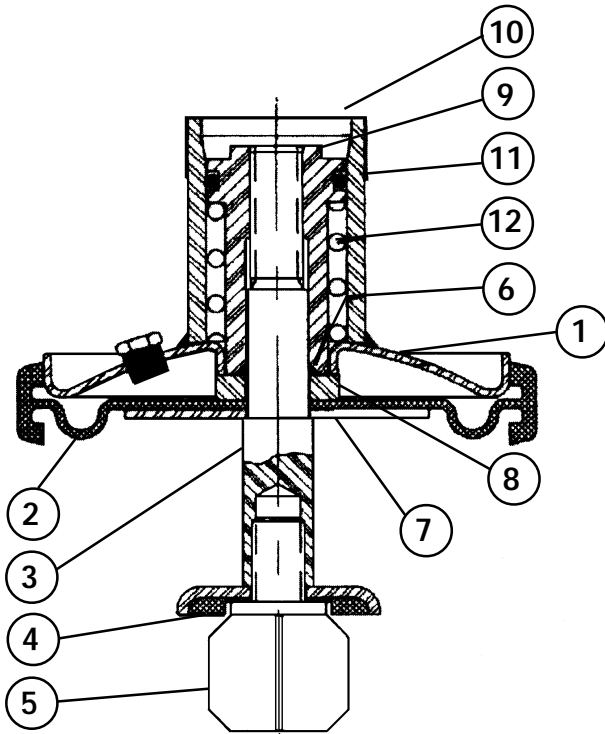
Item	Part Description	Qty.
1.	1st Cam-Check O-ring (removable)	1
2.	Clapper Assembly (removable)	1
3.	Clapper Retaining Plate Screws (removable)	4
4.	Clapper Retainer Plate (removable)	1
5.	Clapper Disc (removable)	1
6.	Pivot Arm Pin (removable) 2 c-clips	1
7.	2nd Cam-Check O-ring (removable)	1

Figure 8



Servicing the Relief Valve

Figure 9



Parts Table (figure 9)

Item	Part Description	Qty.
1.	Cover	1
2.	Diaphragm/Gasket	1
3.	Shaft	1
4.	Sealing Disc	1
5.	Guide, Lower	1
6.	O-ring	1
7.	Support Disc	1
8.	Disc, Diaphragm Stop	1
9.	Guide, Upper	1
10.	Cover, Dust	1
11.	O-ring, Upper	1
12.	Spring	1

RELIEF VALVE SERVICE INSTRUCTIONS

1. Prior to beginning any maintenance work, shut down the water supply to the unit.
2. The relief valve is an integral part of the lid assembly and may be serviced when the lid assembly is removed from the body of the valve.
3. The relief valve may be disconnected from the sensing line hose if desired to enable easier access to all parts of the assembly.

REPLACING THE SEALING DISC

1. Unscrew the lower guide, (5) from the shaft (3).
2. Replace the sealing disc assembly (4).
3. Screw the lower guide (5) back into the shaft (3). The lower guide will seal the assembly with pressure against the elastomer in the sealing disc assembly (4).

COMPLETE DISASSEMBLY OF THE RELIEF VALVE

1. Remove the sealing disc as above.
2. Remove the dust cover (10) from the cover weldment (1).
3. Unload the internal spring by unscrewing the guide, shaft (9) using a socket wrench.
4. Draw the shaft out through the bottom of the diaphragm.
5. Remove the spring through the top of the cover weldment.
6. Remove guide O-ring (6).
7. Remove O-ring (12) from the guide shaft.

REASSEMBLY

1. Replace all O-rings
2. Reverse disassembly steps above.

Testing - Reduced Pressure Zone Backflow Preventers

The following Test Procedure is one of several that is recognized throughout the United States for testing Backflow Preventers.

The following procedure is not a specific recommendation. The Watts series of test kits are capable of performing any of the recognized Backflow test procedures.

- A. Open TC #4 and flush test cocks Nos. 1, 2 and 3 on BF assembly, then close TC #4.
- B. Turn tester on (before connecting hoses). Tester must read all zeros. Close VA and VB.

Test No. 1 - Relief Valve

1. Install high-side hose between TC #2 and tester connection A.
2. Install low-side hose between TC #3 and tester connection B.
3. Open TC #3 then VB. Now open TC #2 slowly, then VA. Close VA then VB.
4. Close #2 shutoff valve.
5. Observe the apparent first check valve differential pressure (A - B).
6. Install bypass hose between VA and VB. Open VB and bleed air by loosening hose connection at VA. Tighten hose connection and close VB.

Push - Print Head (wait) then Push - Start Test

7. Open VA, then slowly open VB (no more than 1/4 turn). When relief valve drips, push the "hold button" for 2 seconds. Record reading (must be 2 PSID or more).

Push - Stop Test

8. Close VA and VB.

Test No. 2 - Test No. 2 Check Valve

9. Install bypass hose between VA and TC #4. Open VA, then bleed air by loosening hose connection at TC #4. Tighten hose connection. Close VA.

Push - Start Test

10. Open VB to reestablish pressure within the "zone". Close VB.
11. Open TC #4, then open VA. If relief valve does not drip, record second check valve as "close tight".

Test No. 3 - Test No. 1 Check Valve

12. Open VB to reestablish first check valve differential pressure. Close VB. Record pressure differential.

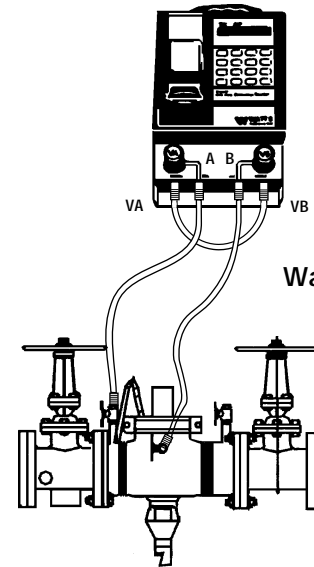
Stop Test (Push Stop Test twice)

13. Close test cocks and remove tester, return assembly to normal operating condition.

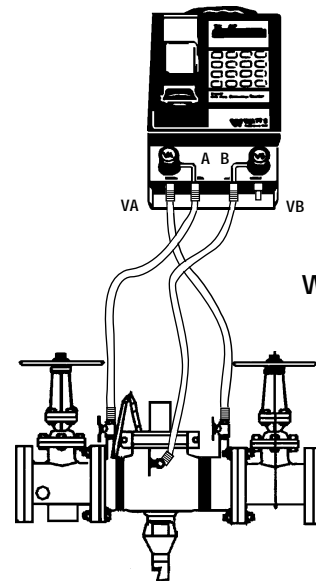
It is important that this device be tested periodically in compliance with local codes, but at least once per year or more as service conditions warrant. If installed on a fire sprinkler system all mechanical checks, such as alarm checks, single checks and backflow preventers should be inspected internally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

Watts TK-DP

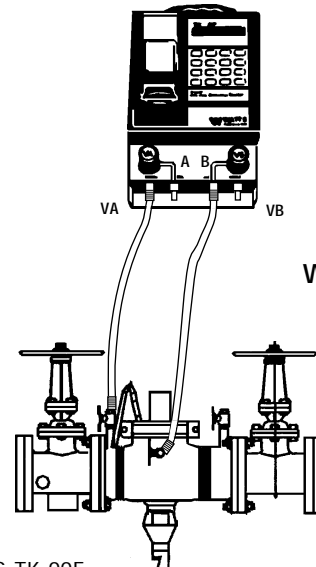
RPZ
Test 1



RPZ
Test 2



RPZ
Test 3



995/995RPDA Repair Kits

First Check Kit

EDP No.	Kit No.	Size	For use w/Model #'s
888915	RK 995/995 RPDA CK1	3" - 4"	3" - 4" 995/995 RPDA
888916	RK 995/995 RPDA CK1	6"	6" 995/995 RPDA

Kits include: Complete #1 Check Assembly and Check O-ring.

Second Check Kit

888917	RK 995/995 RPDA CK2	3" - 4"	3" - 4" 995/995 RPDA
888918	RK 995/995 RPDA CK2	6"	6" 995/995 RPDA

Kits include: Complete #2 Check Assembly and Check O-ring.

Relief Valve Total Kit

888919	RK 995/995 RPDA VT	3" - 4"	3" - 4" 995/995 RPDA
888920	RK 995/995 RPDA VT	6"	6" 995/995 RPDA

Kit includes: Relief Valve Assembly, Cover Plate, Diaphragm, and all relief valve components.

Relief Valve Rubber Parts Kit

888921	RK 995/995 RPDA RV	3" - 4"	3" - 4" 995/995 RPDA
888922	RK 995/995 RPDA RV	6"	6" 995/995 RPDA

Kits include: RV Diaphragm, RV Disc, Lower O-ring, Upper O-ring.

First Check Rubber Parts Kit

888923	RK 995/995 RPDA RC1	3" - 4"	3" - 4" 995/995 RPDA
888924	RK 995/995 RPDA RC1	6"	6" 995/995 RPDA

Kits include: First Check Assembly O-ring, check disc, and (2) C-clips.

Second Check Rubber Parts Kit

888925	RK 995/995 RPDA RC2	3" - 4"	3" - 4" 995/995 RPDA
888926	RK 995/995 RPDA RC2	6"	6" 995/995 RPDA

Kits include: Second Check Assembly O-ring, check disc, and (2) C-clips.

Rubber Total Parts Kit

888927	RK 995/995 RPDA RT	3" - 4"	3" - 4" 995/995 RPDA
888928	RK 995/995 RPDA RT	6"	6" 995/995 RPDA

Kits include: First and Second Check Assembly O-ring, first and second check disc, (4) C-clips, RV Diaphragm, RV Disc, RV lower O-ring, RV Upper O-ring.

Cover Kit

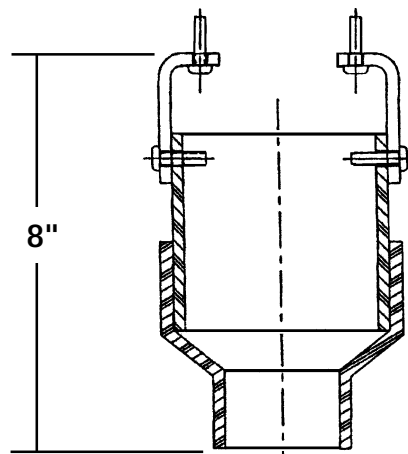
888929	RK 995/995 RPDA C	3" - 4"	3" - 4" 995/995 RPDA
888930	RK 995/995 RPDA C	6"	6" 995/995 RPDA

Kits include: Cover and Cover O-ring.

Air Gap Assembly

Air Gap Assembly

EDP No.	Kit No.
439190	995AG 3" - 6"



Air Gap Fitting

Trouble Shooting Guide

Problem	Cause	Solution
A. Assembly discharges from differential relief valve during no flow condition.	Fouled first check	Disassemble and clean No. 1 check valve
	Fluctuating inlet pressure	Control supply line water pressure. Install a spring-loaded soft seated check valve upstream of the back-flow prevention assembly.
	Outlet pressure higher than inlet pressure & leak in No. 2 check valve	Disassemble, clean #2 check valve & identify cause of back pressure
	Leak through diaphragm	Service relief valve
	Pressure relief valve does not close	See problem D
B. Assembly discharges from differential relief valve during a flow condition.	Pressure relief valve does not close	See problem D
C. Differential pressure relief valve does not open during test	Differential pressure across No. 1 check valve stays above 2.0 psi due to leaking outlet gate valve	Repair shutoff valves
	Weak or broken relief valve spring	Disassemble and replace relief valve spring
	Plugged hydraulic hose	Disassemble and repair
D. Pressure relief valve does not close	Debris on sealing surface	Remove relief valve and clean
	Plugged hydraulic hose	Disassemble and clean
	Damaged seat or rubber shutoff disc	Remove relief valve assembly and replace
	Ruptured diaphragm	Disassemble and replace diaphragm

Watts Backflow Preventer Test Kits



No. TK-DL

Test Kit for Backflow Prevention Products

TK-DL has Digital Print-Out and Computer Download

An advanced piece of test equipment designed to make pressure and differential gauges obsolete in the testing of backflow preventers.

- Accuracy
- Versatility
- Readability
- Portability
- Documentation
- Downloadable

Test kit contains hoses, adaptors, digital print-out unit with complete instructions in rugged case.

For additional information, send for F-TK-DL.



No. TK-99E

Backflow Preventer Test Kit

The Watts TK-99E has been designed for simplified operator operation and rugged reliability in a compact package. Offering the latest in gauge technology, the Watts TK-99E provides dependable accuracy when testing pressure vacuum breakers, anti-spill vacuum breaker, reduced pressure backflow preventers or double check assemblies. TK-99E for RPZ, DCVA, SVB and PVB models, accurate to $\pm 1\%$ of full scale.

- A large 4.5" anti-parallax dial which indicates descending measurement, accurate to $\pm 1\%$ of full scale.
- Complete kit contains gauge with color-coded valves and hoses, hose adapter, shock cord for easy mounting, supply pressure gauge. All contained in a durable carrying case with room for tools.

For additional information, send for S-TK-99E.



No. TK-9A

Backflow Preventer Test Kit

Especially made for testing all reduced pressure zone backflow preventers. It is easily connected to any RPZ enabling accurate testing of "zone" and relief valve opening differential fouled check valves or similar problems that visual inspections cannot locate.

Max. pressure 175 psi

Max. temperature 210°F.

Test kit contains: gauge, test valves, hoses, adaptors, securing strap, instruction guide and lightweight case.

For additional information, send for IS-TK9A.



No. TK-7

Backflow Preventer Test Kit

Tests the individual check modules of the Watts No. 7 Residential Dual Check. Also used to test No. 709 and 007.

For additional information, send for IS-TK7.



No. TK-99D

Backflow Preventer Test Kit

Hand held digital test kit designed to test PVB's, SVB's, DCVA's, DCDA's, RP's and RPDA's

For additional information, send for S-TK-99D.

WATTS TEST KITS

TK-DL With computer download.

No. TK-99E Anti-parallax dial for all RPZ, DCV, PVB and SVB.

No. TK-9A Analog differential gauge for all RPZ, DCV, PVB and SVB.

No. TK-99D Digital (Delta Lite™) for all RPZ, DCV, PVB and SVB

No. TK-7 Water column sight tube for Dual check and Double check valves

NOTES