Series 774/774DCDA 774X/774XDCDA

Double Check Backflow Preventer Double Check Detector Assemblies

Sizes: 2½" - 12" (65 - 300mm) 774
4" - 12" (100 - 300mm) 774DCDA
6" - 8" (150 - 200mm) 774X/774X DCDA

- 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.



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. (California law requires this warning to be given to customers in the State of California.)

For more information: www.watts.com/prop65

IMPORTANT: Inquire with governing authorities for local installation requirements.

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

Limited Warranty: Watts Regulator Co. (the "Company") warrants each product to be free from defects in material and workmanship under normal usage 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.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

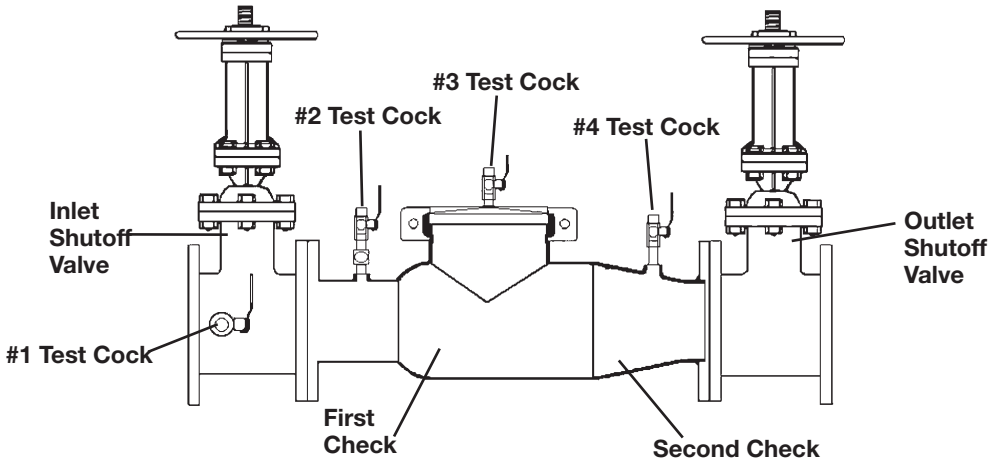
The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. **SO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.**

WATTS®

Installation Instructions
Watts Series 774 Double Check Valve

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.



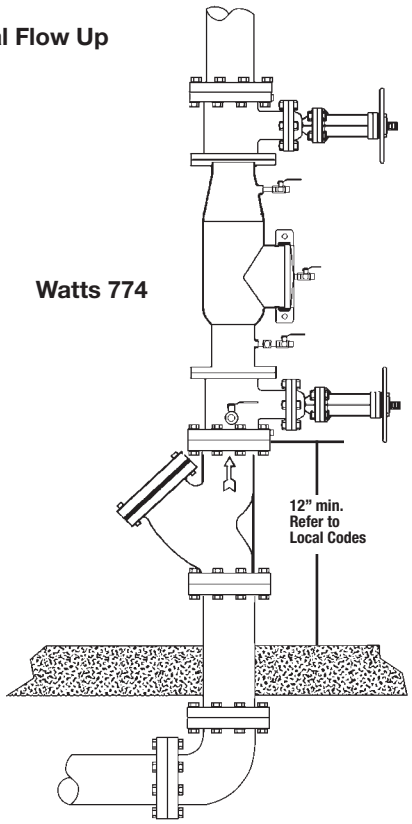
Check with local authorities for installation requirements. Install valve in the line with arrow on valve body pointing in the direction of flow. Pipe lines should be thoroughly flushed to remove foreign material before installing the unit. A strainer should be installed as shown, ahead of the backflow preventer to prevent discs from unnecessary fouling.

CAUTION: Do not install a strainer when backflow preventer is used on seldom-used water lines which are called upon during emergencies, such as fire sprinkler lines, etc.

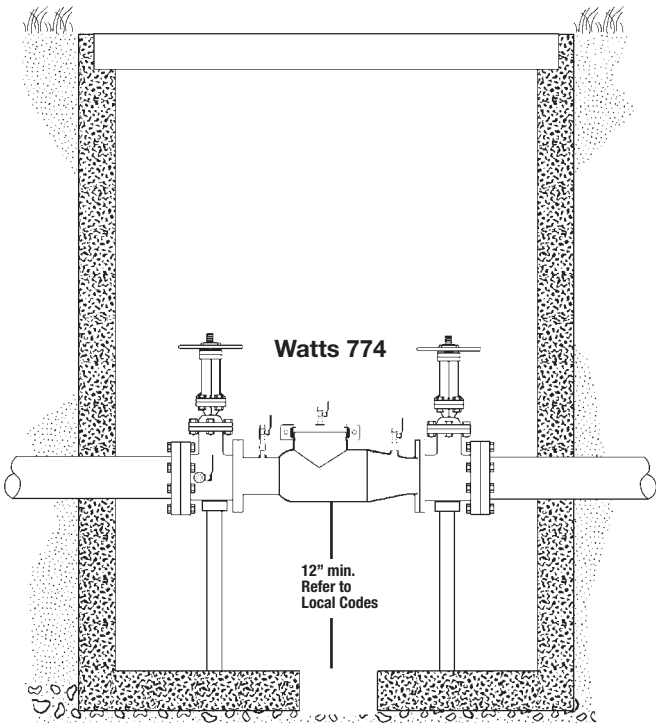
It is important that Series 774 be tested periodically in compliance with local codes, but at least once a year or more often, depending upon system conditions.

774 Series for Retrofit Installations

Vertical Flow Up



Vault Installation



Installation Instructions
Watts Series 774

Installation

A. Series 774 may be installed in a horizontal 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 774 should always be installed in an accessible location to facilitate testing and servicing. Check 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. 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.

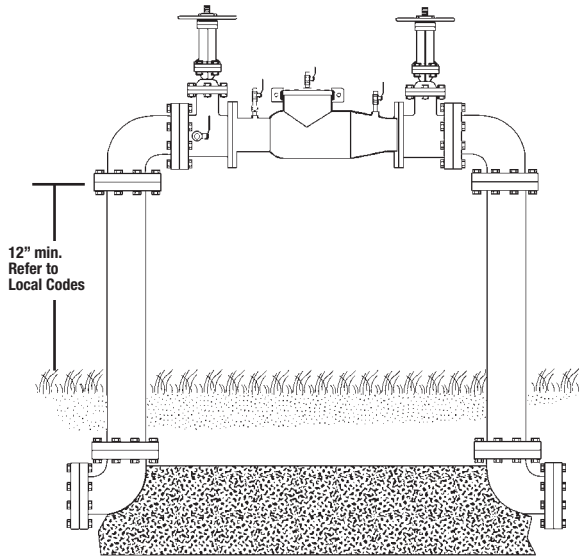
Start Up

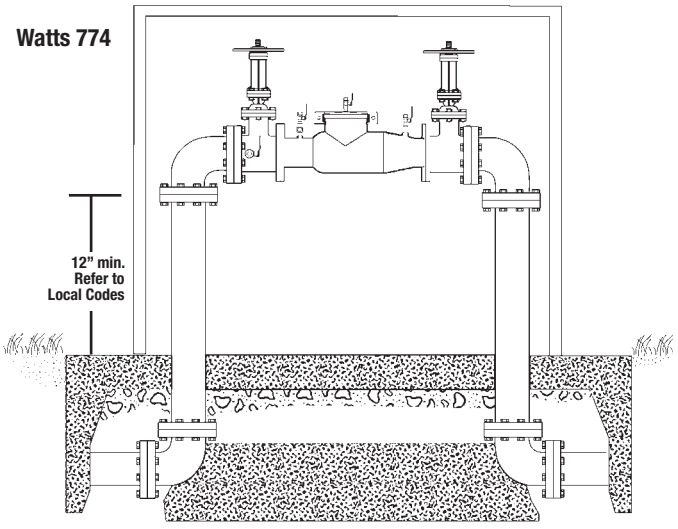
D. The downstream shutoff should be closed. Open upstream slowly, fill the valve and bleed the air through Test cock 2, 3 and 4. When valve is filled, open the downstream shutoff slowly and fill the water supply system. This is necessary to avoid water hammer or shock damage.

E . Two or more 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.

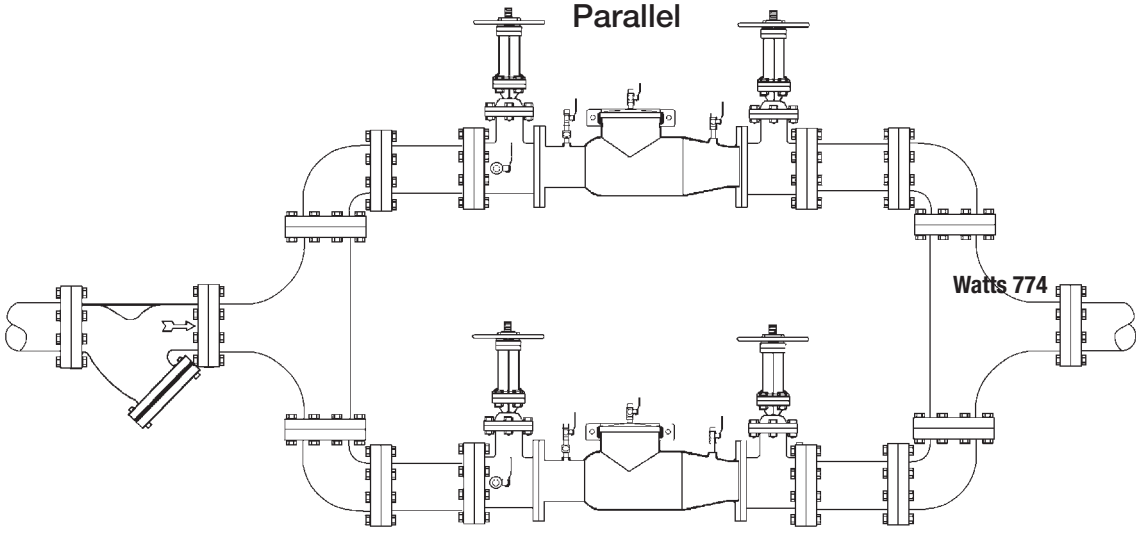
Above Ground





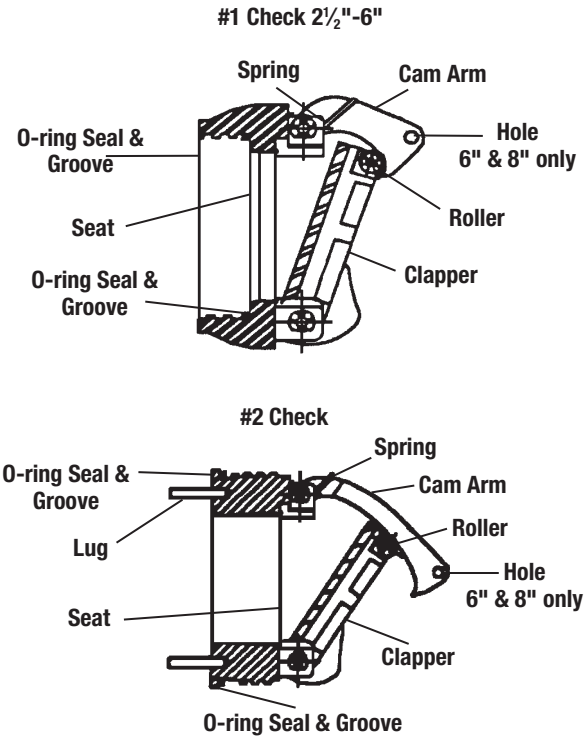
*Insulated Enclosure

Parallel



* For additional information on Watts insulated enclosures send for ES-WB or ES-WBT.

Servicing First and Second Checks



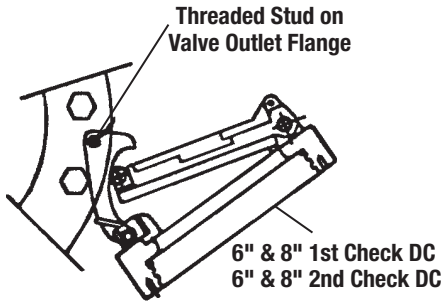


Figure 1

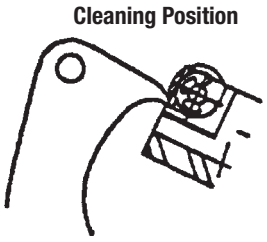


Figure 2

Removing Check Assemblies –

Before servicing be certain shut off valves are closed

1. Slowly open all ball valves to relieve air and water pressure. Loosen bolts on groove coupler and remove groove coupler and cover plate from valve body.
2. Remove #1 Check assembly by using your hands to unscrew (turn counterclockwise) Check and remove through top access port. Do not use Arm as a handle to unscrew. If Check can not be loosened by hand, insert a long screwdriver between valve body and Check (see Figure 3). Slowly apply pressure against the Check until loosened. Finish unscrewing by hand. Unscrew #2 Check (turn counterclockwise) by placing a long screwdriver between lugs and applying pressure to loosen #2 Check. Finish unscrewing by hand.
3. To clean #1 Check, (6' and 8" only) locate the Check Arm opening stud on the outlet flange of the valve assembly. Slide the Check Arm over the stud with the check threads facing downward (Figure 1). Tighten ¼" nut on stud to secure Check bar.

Slowly pull the assembly outward to open check allowing exposure of the seat and clapper contact area for cleaning. To clean #2 Check, lift Check Arm and hold in open position. Raise clapper so that the end of the Check Arm rests between roller and clapper (Figure 2). Thoroughly clean the seat area and clapper sealing surfaces of both Checks. Inspect seats, clapper sealing surfaces, Check Arms, and O-rings for damage. If not damaged gently close the clapper. If damaged, install a new Check assembly and/or O-ring.

4. Before reinstallation of Checks thoroughly clean O-ring groove and lubricate O-ring w/FDA approved lubricant. Insert and thread #2 Check first and then #1 Check. #2 Check should be tightened by inserting a long screwdriver between lugs to tighten firmly. Do not over tighten. Tighten #1 Check firmly by hand only. Replace cover plate, clean groove coupler gasket and groove, replace groove coupler.

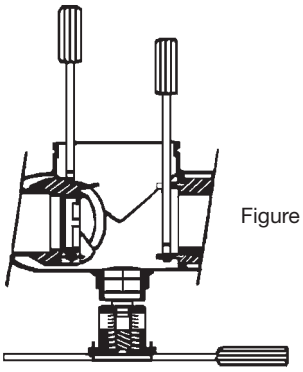
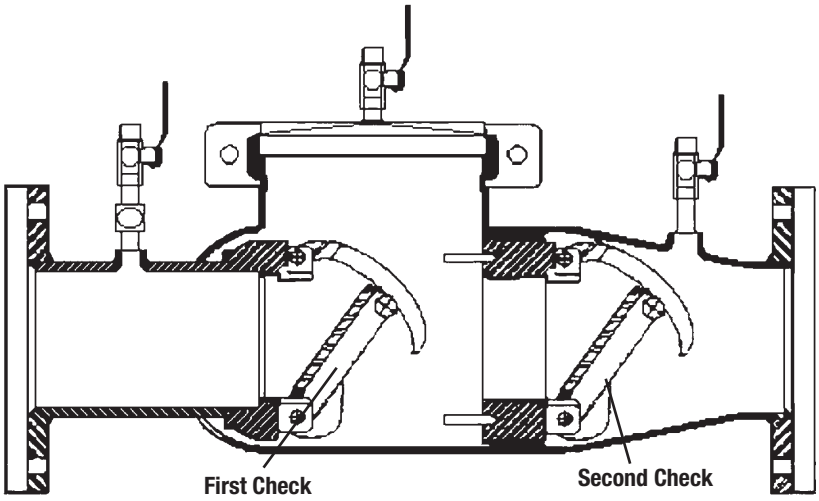


Figure 3

Watts Series 774/744DCDA 2½"- 6"

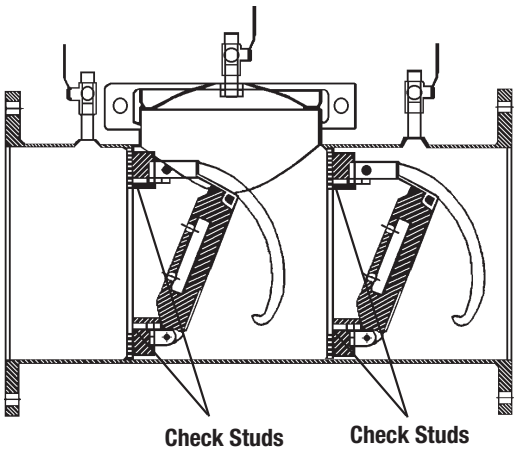


774/774DCDA Repair Kits

EDP NO	KIT NO.	SIZE		
		in.	*mm*	
First Check Kit				
0888820	RK 774/774DCDA CK 1	2½ - 4	65 - 100	2½"-4" 774/774DCDA / 6" 774X/774XDCDA
0888821	RK 774/774DCDA CK 1	6	150	6" 774/774DCDA / 8" 774X/774XDCDA
Kits include: Complete #1 Check with Check O-ring.				
Second Check Kit				
0888822	RK 774/774DCDA CK 2	2½ - 4	65 - 100	2½"-4" 774/774DCDA / 6" 774X/774XDCDA
0888823	RK 774/774DCDA CK 2	6	150	6" 774/774DCDA / 8" 774X/774XDCDA
Kits include: Complete #2 Check with Check O-ring.				
Cover Kit				
0888824	RK 774/774DCDA C	2½ - 4	65 - 100	2½"-4" 774/774DCDA
0888825	RK 774/774DCDA C	6	150	6" 774/774DCDA / 8" 774X/774XDCDA
0888826	RK 774X/774XDCDA C	6	150	6" 774X/774XDCDA

Kit includes: Cover, Grooved Coupler & Gasket.

Watts Series 774/744DCDA 8"- 12"

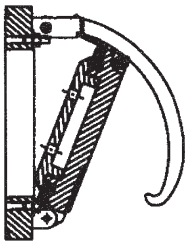


774/774DCDA Repair Kits

EDP NO	KIT NO.	SIZE		
		in.	*mm*	
First or Second Check Kit				
0888827	RK 774/774DCDA CK 4	8, 10, 12	200, 250, 300	774/774DCDA
Kits include: Complete Check with Check O-ring.				
Cover Kit				
0888828	RK 774/774DCDA C	8, 10, 12	200, 250, 300	774/774DCDA
Kits include: Cover, Grooved Coupler & Gasket.				

Servicing and Second Checks

#1 Cam-Check Figure 2



#2 Cam-Check Figure 3

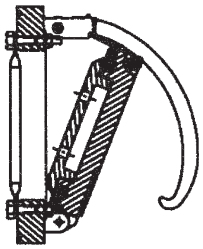
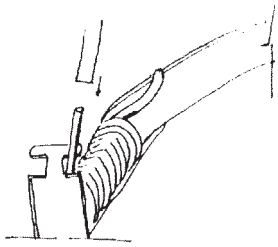


Figure 4



Watts assemblies require minimum maintenance. All assemblies must be retested once maintenance has been performed.
(Before servicing be certain shut off valves are closed)

Removing Cam-Checks

1. Shut down water system and lock out system if possible. Slowly open all ball valves to relieve air and water pressure. Loosen bolts on groove coupler and remove groove couple and cover plate from valve body
2. **#1 Check (Fig.2)** Using a $^{9}/_{16}$" socket wrench or nut driver, remove the four nuts from the #1 check studs (See fig. 1) Using two hands, place them at 12 o'clock and 6 o'clock, wiggle the check assembly free. Remove through access port with back of clapper first with back of clapper first with spring end down. Pull check assembly out of main body.
   #2 Check (Fig.3) After loosening bolts with a $^{9}/_{16}$" socket, remove bolts completely, Using the centerline access bar, spin the cam assembly from the 9 o'clock position to the 12 o'clock position, then (without letting go of the access bar) push the cam assembly slightly downstream so that the clapper is now parallel to the valve body. Now bring the cam assembly through the check retaining wall. Leave the cam assembly clapper parallel to the valve body. Pull the cam assembly through the access port.
3. Using a $^{3}/_{8}$" nut driver or a piece of small diameter pipe, place on the cam arm torsion spring and move away from and around the torsion spring retaining bracket so as to relieve the torsion spring tension. (See Figure 4) This will allow the cam arm to move freely, enabling you to inspect the clapper face and cam seat.Thoroughly clean the seat area and clapper sealing surfaces, cam arms, and O-rings.
4. Before reinstallation of Checks thoroughly clean O-ring groove and lubricate O-ring with F.D.A. approved lubricant.

Testing

Double Check Valve Assemblies

The following Test Procedure is one of several that is recognized throughout the United States for verification of the functioning of 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.

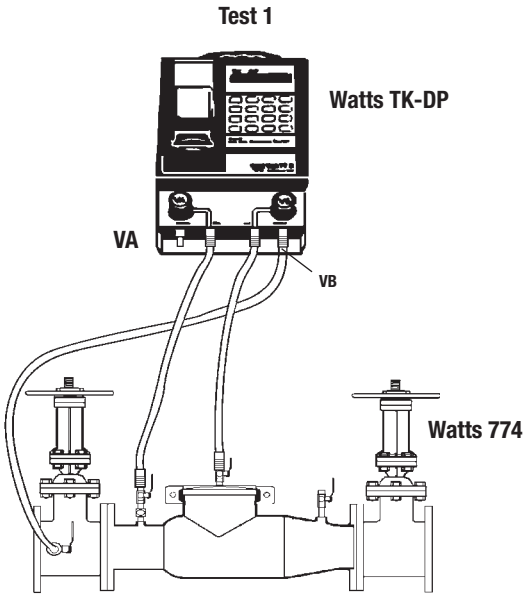
A. Flush all test cocks.

B. Turn tester on (before connecting hoses). Tester must read all zeroes. Close VA and VB.

Test No. 1 - Test No. 1 Check 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 #2 then VA, bleed hose, then close VA.
4. Open TC #3 then VB, bleed hose, then close VB.
5. Install a bypass hose between VB and TC #1. Open TC #1 and bleed by loosening hose connection at VB. Tighten hose connection, fully open VB.

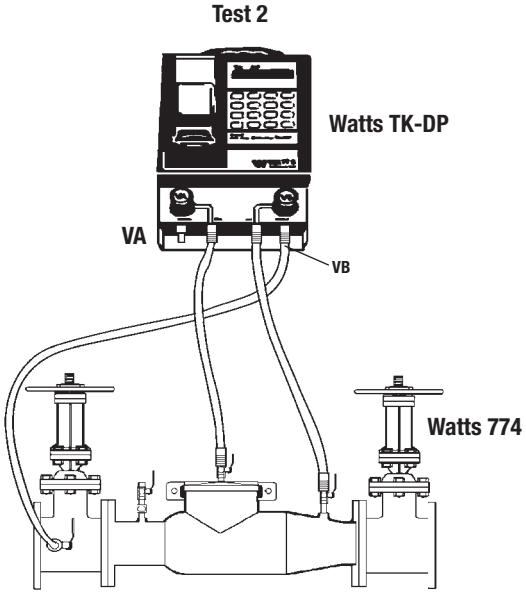
   Push - Print Head (wait) then Push - Star Test
6. Close shutoff valve #2 then #1.
7. Slowly open VA and loser high side pressure about -2 psi below the low side pressure (differential reading about -2.0 psi). Close VA. If reading is maintained, record as “tight”. If reading returns to 0 and the pressure A increases to pressure B, the check is recorded as leaking. If the reading returns to + psi, No. 2 shutoff valve is leaking excessively, and must be replaced to test the valve.
8. Close all test cocks, remove hoses from TC #2 and TC #3 and TC #1. reopen shutoff valve #1. Proceed to Test No.2. **Push - Stop Test.**



Test No. 2 - Test No. 2 Check Valve

1. Install high side hose between TC #3 and tester connection A.
2. Install low side hose between TC #4 and tester connection B.
3. Open TC #3 then VA, bleed hose, then close VA.
4. Open TC #4 then VB, bleed hose, then close VB.
5. Install a bypass hose between VB and TC #1. Open TC #1 and bleed by loosening hose connection at VB. Tighten hose connection, fully open VB.

   Push - Start Test
6. Close shutoff valve #1.
7. Slowly open VA and lower high side pressure about -2 psi below the low side pressure (differential reading about -2.0 psi). Close VA. If reading is maintained, record as “tight”.If reading returns to 0 and the pressure A increases to pressure B, the check is recorded as leaking. If the reading returns to + psi, No. 2 shutoff valve is leaking excessively, and must be replaced to test the valve.
   Push - Stop Test.



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

For additional testing information send for IS-TK-DP/DL, IS-TK-9A and IS-TK-99E

For additional information, visit our web site at: www.watts.com

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