

# Installation, Maintenance, & Repair Series 009 and LF009

## Reduced Pressure Zone Assemblies

Sizes: 1/4" – 3" (8 – 80mm)

### WARNING



**THINK  
SAFETY  
FIRST**

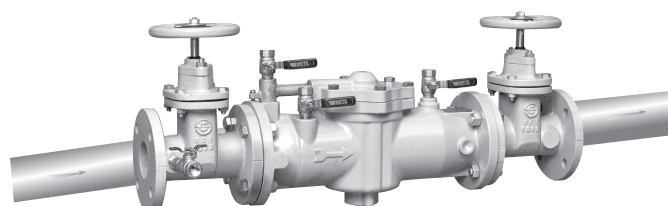
Read this Manual **BEFORE** using this equipment.  
Failure to read and follow all safety and use information  
can result in death, serious personal injury, property  
damage, or damage to the equipment.  
Keep this Manual for future reference.

Local building or plumbing codes may require modifications to the information provided. You are required to consult the local building and plumbing codes prior to installation. If this information is not consistent with local building or plumbing codes, the local codes should be followed.

**Need for Periodic Inspection/Maintenance:** This product must 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 suppression system, all mechanical checks, such as alarms and backflow preventers, should be flow tested and inspected in accordance with NFPA 13 and/or NFPA 25.

Corrosive water conditions, and/or unauthorized adjustments or repair could render the product ineffective for the service intended. Regular checking and cleaning of the product's internal components helps assure maximum life and proper product function.



3" (80mm) 009NRS

### NOTICE

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

### Testing

For field testing procedure, refer to Watts installation sheets IS-TK-DP/DL, IS-TK-9A, IS-TK-99E and IS-TK-99D found on [www.watts.com](http://www.watts.com).

For other repair kits and service parts, refer to our Backflow Prevention Products Repair Kits & Service Parts price list PL-RP-BPD found on [www.watts.com](http://www.watts.com).

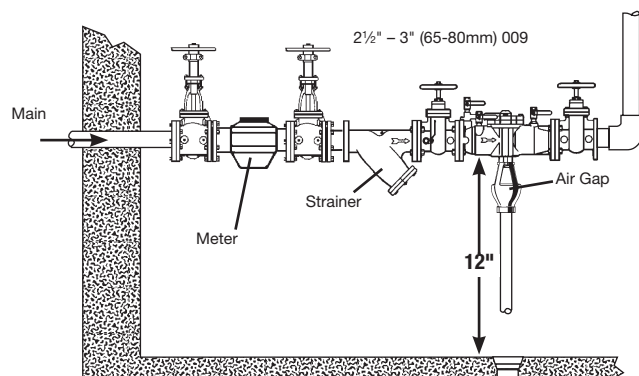
For technical assistance, contact your local Watts representative.

## Installation Instructions Series 009 and LF009

### Indoors – Figure 1

For indoor installations, it is important that the assembly be easily accessible to facilitate testing and servicing. If it is located in a line close to a wall, be sure the test cocks are easily accessible. A drain line and air gap (see literature ES-AG/EL/TC) should be piped from the relief valve connection as shown, where evidence of discharge will be clearly visible and so that water damage will not occur. Therefore, never install in concealed locations.

Figure 1



### NOTICE

In an area where freezing conditions can occur, Series 009 and LF009 should be installed above ground in an insulated enclosure.

Series 009 and LF009 must be installed in an accessible location to facilitate testing and servicing. A discharge line should be piped from the air gap at the relief valve connection making sure that there is adequate drainage. Never pipe the discharge line directly into a drainage ditch, sewer or sump. Series 009 and LF009 should never be installed where any part of the unit could become submerged in standing water.

### Outside – Figure 2

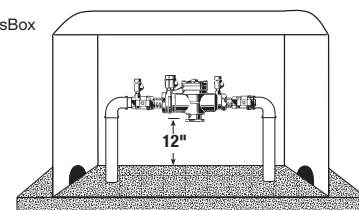
In an area where freezing conditions do not occur, Series 009 and LF009 can be installed outside. The most satisfactory installation is above ground and should be installed in this manner whenever possible.

It is generally recommended that backflow preventers never be placed in pits unless absolutely necessary and then only when approved by local codes. In such cases, a modified pit installation is preferred.

Figure 2

WattsBox

Now available, WattsBox Insulated Enclosures, for more information, send for literature ES-WB.



**WATTS®**

# Installation Instructions

## Series 009 and LF009

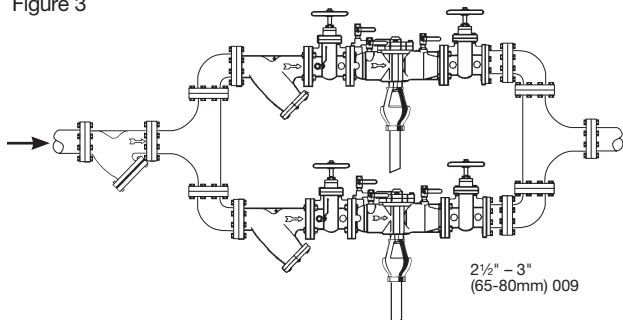
### Parallel – Figure 3

Two or more smaller size assemblies can be piped in parallel (when approved) to serve a large supply pipe main. This type of installation is employed where increased 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 judgment based on the operating conditions of a specific installation.

For parallel valve installations, the total capacity of the assemblies should equal or exceed that required by the system.

Figure 3



Annual inspection of all water system safety and control valves is required and necessary. Regular inspection, testing and cleaning assures maximum life and proper product function.

#### NOTICE

**Shutoff Valves:** When shutoff valves are removed and reassembly is necessary, the shutoff valve with the test cock is to be mounted on the inlet side of the backflow preventer.

- A. The 009 and LF009 should always be installed in an accessible location to facilitate testing and servicing (See page 2). **Check the state and local codes to ensure that the backflow preventer is installed in compliance, such as the proper height above the ground.**
- B. We recommend a strainer be installed ahead of 009 and LF009 series assemblies to protect the internal components from unnecessary fouling.

#### CAUTION

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

**Start Up:** The downstream shutoff should be closed. Open upstream slowly and fill valve. 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.

- 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 terminated approximately 12" above the ground or through an air gap piped to a floor drain.

#### NOTICE

##### Relief Valve Discharge Rates

The installation of an 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. Please refer to Figure No. 4 for maximum relief valve discharge rates, size and capacity of typical floor drains.

**Do not** reduce the size of the drain line from the air gap fitting. Pipe full line size.

- D. After initial installation, a discharge from the relief valve opening may occur due to inadequate initial flushing of pipe lines to eliminate dirt and pipe compounds. If flushing will not clear, remove the first check valve and clean thoroughly.

#### NOTICE

Periodic relief valve discharge may occur on dead end service applications, such as boiler feed lines or cooling tower makeup lines due to fluctuating supply pressure during a static or no flow condition. To avoid this discharge, install a spring-loaded rubber seated check valve ahead of the backflow assembly to "lock-in" the downstream pressure.

- E. Backflow preventers should never be placed in pits unless absolutely necessary and then only when and as approved by local codes. In such cases, provision should be made to always vent above flood level or for a pit drain to ensure an adequate air gap below the relief port.
- F. It is important that Series 009 and LF009 backflow preventers be inspected periodically for any discharge from the relief valve which will provide a visual indication of need for cleaning or repair of check valves. Also testing for proper operation of the device should be made periodically in compliance with local codes, but at least once a year or more often, depending upon system conditions.

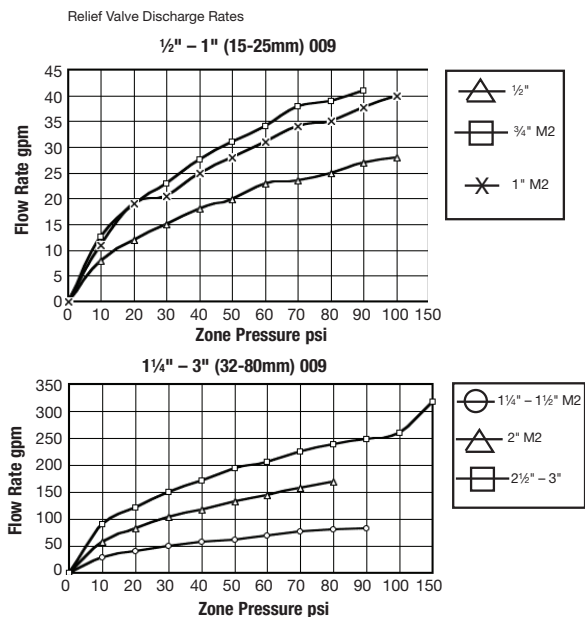
Relief vent will discharge water when, during no-flow periods, (1) the first check valve is fouled or (2) the inlet pressure to the device drops sufficiently due to upstream pressure fluctuations to affect the required operating differential between the inlet pressure and reduced pressure zone. Otherwise, such relief (spitting) can occur when the second check is fouled during emergency backflow or resulting from a water hammer condition. For Troubleshooting Guide send for S-TSG.

#### NOTICE

**Special considerations are necessary when testing assemblies installed on Fire Prevention Systems.**

**Fire Protection System Installations:** The National Fire protection Agency (NFPA) Guidelines require a confirming flow test be conducted whenever a "main line" valve such as the shutoff valves or a backflow assembly have been operated. Certified testers of backflow assemblies must conduct this confirming test.

Figure 4



##### TYPICAL FLOW RATES AS SIZED BY FLOOR DRAIN MANUFACTURERS:

|                     |                     |
|---------------------|---------------------|
| 2" (50 mm) 55 GPM   | 5" (125 mm) 350 GPM |
| 3" (80 mm) 112 GPM  | 6" (150 mm) 450 GPM |
| 4" (100 mm) 170 GPM | 8" (200 mm) 760 GPM |

# Servicing the Relief Valve

## Series 009 and LF009

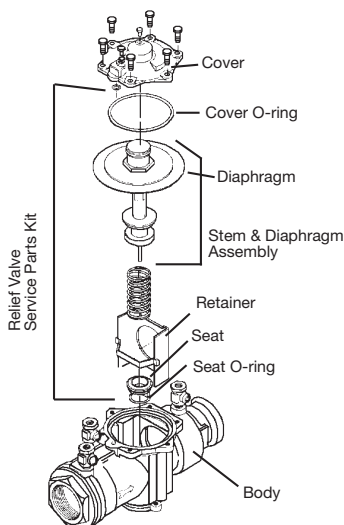
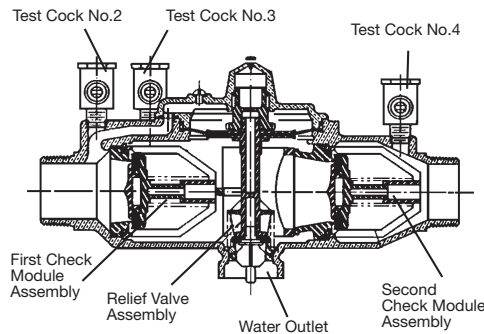
1/4" – 3" (8 – 80mm)

1. Remove the four or six relief valve cover bolts while holding the cover down.
2. Lift the cover straight off. The stem and diaphragm assembly will normally remain with the cover as it is removed. The relief valve spring will be free inside the body at this point.
3. The relief valve seat is located at the bottom of the body bore, and can be removed, if necessary, for cleaning. The disc can be cleaned without disassembly of the relief valve module. If it is determined that the relief valve diaphragm and/or disc should be replaced, the relief valve module can be readily disassembled without the use of special tools. **NOTE:** The disc rubber is molded into the disc holder and is supplied as a disc holder assembly.
4. To reassemble the relief valve, press the seat firmly into place in the body, center the spring on the seat, and insert the cover and relief valve module as a unit straight into the bore. Press down on the cover to assure proper alignment. Insert and tighten bolts.

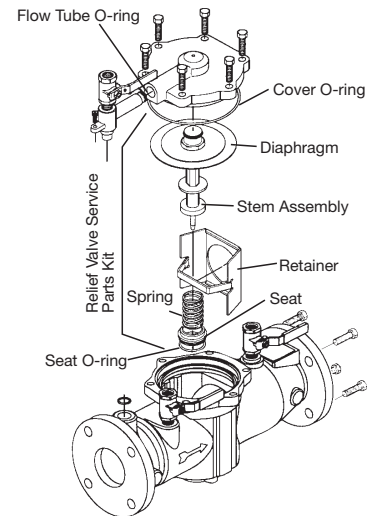
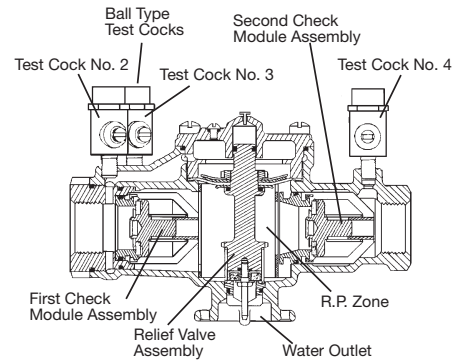
### NOTICE

If cover will not press flat against body, stem assembly is crooked and damage can result. Realign stem and cover before bolts are inserted.

**NOTE:** No special tools required to service Series 009 2 1/2" – 3" (65 – 80mm).



For repair kits and parts, refer to our Backflow Prevention Products Repair Kits & Service Parts price list PL-RP-BPD found on [www.watts.com](http://www.watts.com).



## Servicing First & Second Check Valves

### Series 009 and LF009

1/4" – 3" (8 – 80mm)

1. Remove the relief valve assembly as outlined on page 3.
2. Remove the retainer from the body bore. The check valve modules can now be removed from the valve by hand or with a screwdriver.

**NOTE:** The seats and springs of the first and second check modules are not interchangeable. The heavier spring and smaller diameter seat belong with the first check module.

3. The check seats are attached to the cage with a bayonet type locking arrangement. Holding the cage in one hand, push the seat inward and rotate counterclockwise against the cage. The seat, spring cage, spring and disc assembly are now individual components.
4. The disc assembly may now be cleaned and reassembled or, depending on its condition, may be discarded and replaced with a new assembly from the repair kit. O-rings should be cleaned or replaced as necessary and lightly greased with the FDA approved silicon grease. For more information refer to repair parts price list PL-RP-BPD.

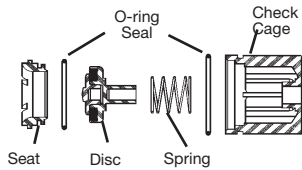
5. Reassemble the check valve modules. Check modules are installed in the valve body with the seat facing the valve inlet. The modules must be securely in place before the retainer can be replaced. Replace relief valve assembly.

**NOTE:** No special tools required to service Series 009 2 1/2" – 3" (65 – 80mm)

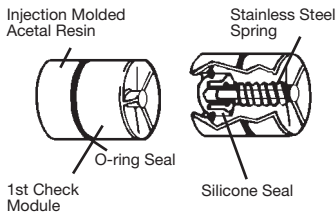
# Servicing First & Second Check Valves

## Series 009 and LF009 — ¼" – 3" (8 – 80mm)

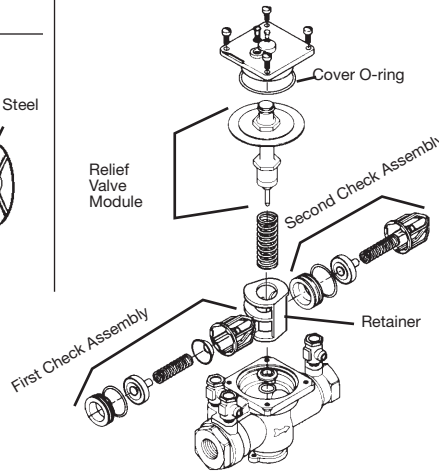
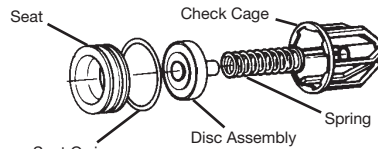
CHECK ASSEMBLY ¼" M3



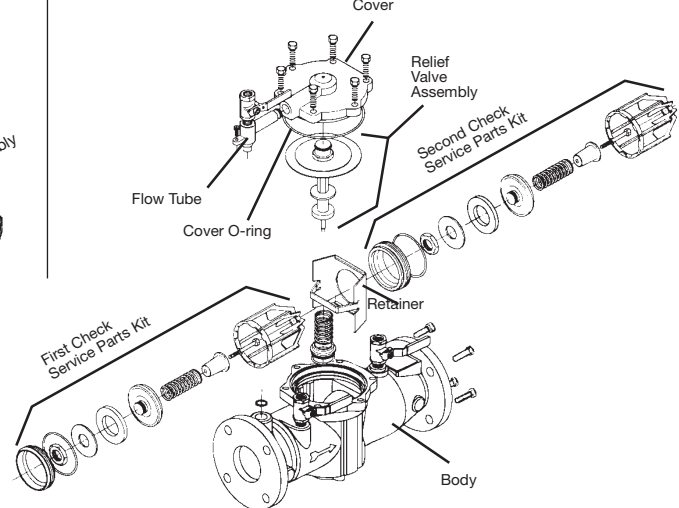
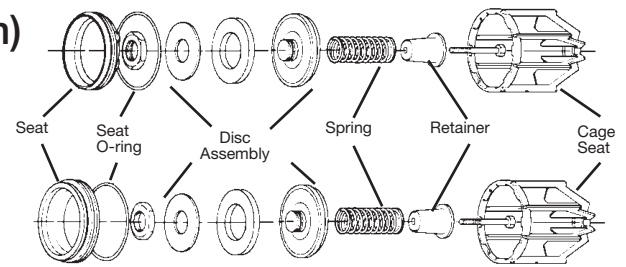
CHECK ASSEMBLY ¼" – ¾"



CHECK ASSEMBLY 1" – 2" (25 – 50mm)



Check Assemblies



## Troubleshooting Guide

For repair kits and parts, refer to our Backflow Prevention Products Repair Kits & Service Parts price list PL-RP-BPD found on [www.watts.com](http://www.watts.com).

Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.  
For more information: [www.watts.com/prop65](http://www.watts.com/prop65)

| Symptom                                       | Cause                                                                                                                                                                           | Solution                                                                                                                                                  |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Check valve fails to hold 1.0 PSID minimum | a. Debris on check disc sealing surface<br>b. Leaking isolation valve<br>c. Damaged seat disc or seat o-ring<br>d. Damaged guide holding check open<br>e. Weak or broken spring | Disassemble and clean<br>Disassemble and clean or repair<br>Disassemble and replace<br>Disassemble and clean or replace<br>Disassemble and replace spring |
| 2. Chatter during flow conditions             | a. Worn, damaged or defective guide                                                                                                                                             | Disassemble and repair or replace guide                                                                                                                   |
| 3. Low flows passing through mainline valve   | a. Mainline check fouled<br>b. Meter strainer plugged<br>c. Damaged mainline seat disc or seat<br>d. Broken mainline spring                                                     | Disassemble and clean<br>Disassemble and clean<br>Disassemble and replace<br>Disassemble and replace                                                      |

**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.**



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