

Installation, Maintenance, and Repair Manual

Series 709, LF709, 709DCDA

Double Check Valve Assemblies Double Check Detector Assemblies

2½" – 10"

⚠ WARNING



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.



⚠ WARNING

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 the information provided here is not consistent with local building or plumbing codes, the local codes should be followed. This product must be installed by a licensed contractor in accordance with local codes and ordinances.

⚠ WARNING

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. All products must be retested once maintenance has been performed. 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 and external components helps assure maximum life and proper product function.

NOTICE

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

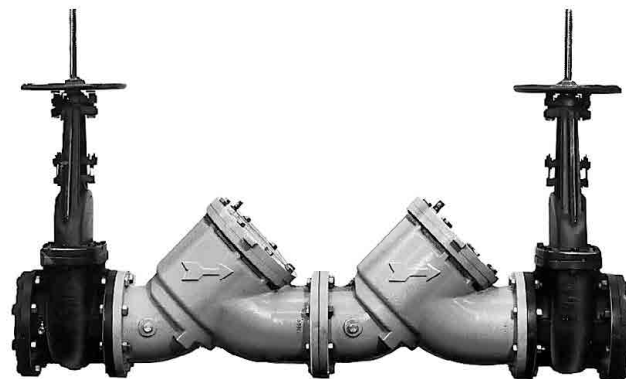
This device must be tested periodically in compliance with local codes, but at least once per year or more as service conditions warrant. If installed on a fire sprinkler system, all mechanical checks, such as alarm checks and backflow preventers, should be flow tested and inspected internally in accordance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

Testing

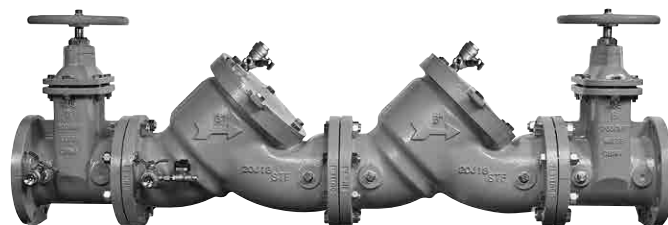
For field testing procedure, refer to Watts installation sheets IS-TK-DL, IS-TK-7, IS-TK-9A, IS-TK-99D, and IS-TK-99E at www.watts.com.

For other repair kits and service parts, refer to the Backflow Prevention Products Repair Kits & Service Parts price list PL-RP-BPD at www.watts.com.

For technical assistance, contact your local Watts representative.



709 OS&Y



LF709-NRS-IOT

Series 709 (2½" to 10"), LF709 (2½" to 10"), and 709DCDA (3" to 10") assemblies help prevent the reverse flow of polluted water from entering the potable water system. Series LF709 Model IOT includes factory-installed pressure sensors.

NOTICE

For IOT models, an add-on monitoring connection kit is required to collect psi measurements from the integrated pressure sensors. Without the connection kit, the pressure sensors are passive components and will not communicate with any other device. For BMS only. (The connection kit and pressure sensors are also available for existing installations. See "Add-on Monitoring Connection Kits," for ordering details.)

NOTICE

Use of integrated pressure sensors on and monitoring connection kit with IOT models does not remove the need to comply with all required instructions, codes, and regulations related to installation, operation, and maintenance of the backflow preventer.

Watts® is not responsible for data transmission failures due to power issues.

Installation Guidelines

Indoors

The series can be installed in either vertical or horizontal position, as shown in Figure 1. Approvals may vary by size or model. Refer to ES-709, ES-LF709, and ES-709DCDA for complete installation approval details.

Always install the valve in an accessible location to facilitate testing and servicing. Do not install the unit in a concealed location.

Pipelines should be thoroughly flushed to remove foreign material before installing the unit. A strainer should be installed ahead of the backflow preventer to prevent the disc from unnecessary fouling. Install valve inline with the arrow on valve body pointing in the direction of flow.

⚠ CAUTION

Do not install with a strainer when the backflow preventer is affixed to seldom-used water lines that are called upon during emergencies, such as fire sprinkler lines.

The series must be tested periodically in compliance with local codes, but at least once a year or more often depending upon system conditions.

Outside Building Above Ground

In area where freezing conditions do not occur, the series can be installed outside of a building. The most satisfactory installation is above ground and should be installed in this manner whenever possible.

Avoid installing backflow preventers in pits unless absolutely necessary and then only when approved by local codes. In such cases, a modified pit installation is preferred or an above ground insulated enclosure, as shown in Figure 2.

Parallel

Two or more assemblies may be piped in parallel (where approved) to serve a large supply pipe main, as shown in Figure 3. This type of installation is employed whenever it is vital to maintain a continuous supply of water where interruptions for testing and servicing would be unacceptable. It also has the advantage of providing increased capacity where needed beyond that provided by a single valve.

For two valve installations the total capacity of the devices should equal or exceed that required by the system. The capacity table shows the size of the assemblies required to meet a certain capacity. The quantity of devices used in parallel should be determined by the judgment of the compliance engineer, based on the operating conditions of a specific installation.

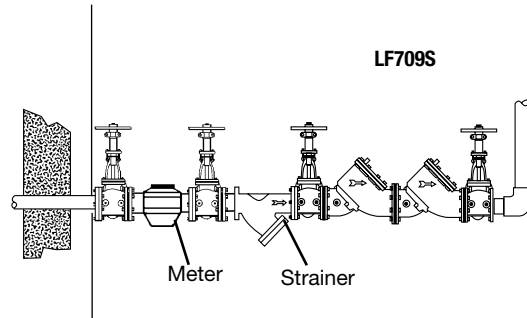
Capacity Required for System

Total capacity provided with dual valve installations of various sizes

450 GPM	640 GPM	1000 GPM	2000 GPM	3000 GPM	5000 GPM
Two 2½" devices	Two 3" devices	Two 4" devices	Two 6" devices	Two 8" devices	Two 10" devices

Figure 1

Horizontal



Vertical

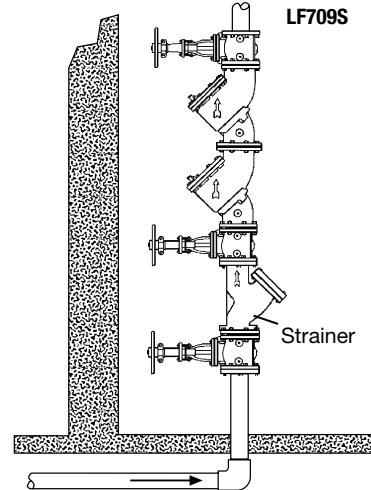
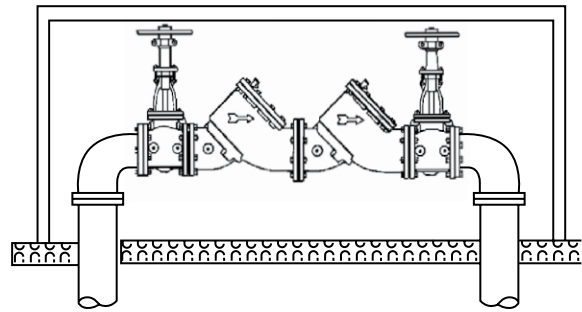
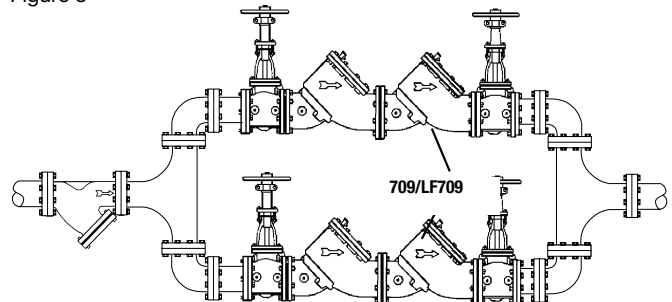


Figure 2



WattsBox Insulated Enclosures
Available in Aluminum or Fiberglass.
For more information, refer to ES-WB at www.watts.com.

Figure 3



Servicing First and Second Check Valves

⚠ CAUTION

The series are designed so that, when the bolts are backed off 1/2", all the spring load is released from the cover and retained by the check module. Verify this before removing all the bolts.

1. Remove hatch cover bolts.
2. Lift check valve module straight out, taking care not to hit and damage seat ring.
3. Remove the seat ring for replacement by pulling out the two 10" wire retainers. One wire is drawn out clockwise; the other, counterclockwise.
4. With the retainer wires removed, lift the seat ring straight up to remove it.

⚠ CAUTION

The check valve disc-and-spring assembly are in compression. The spring load is captured by the two spring retainers and the stem. The spring retainers are not to be removed for servicing. If there is a need to replace the spring, spring retainer, or stem, replace the disc-and-spring assembly.

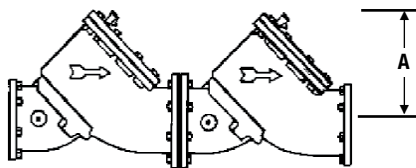
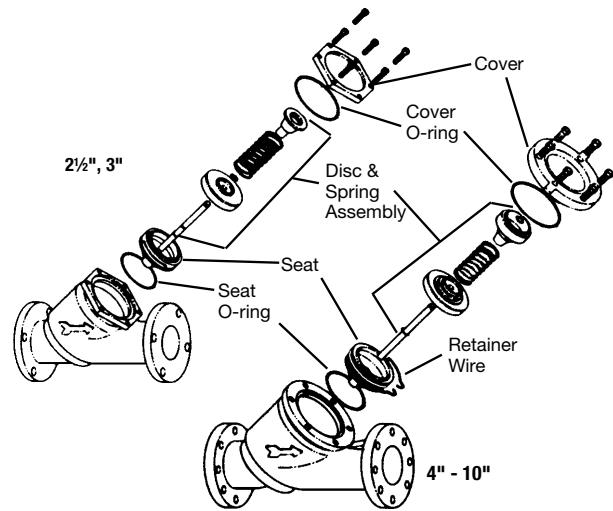
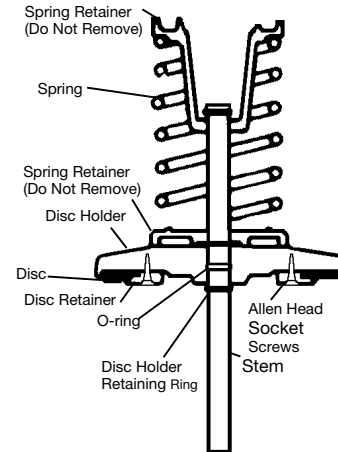
If the disc holder has been damaged by freezing or severe water hammer, it can be replaced in the field. Remove the disc holder retaining ring and slide the disc holder off the stem. Remove the O-ring from the stem and replace it with a new one. Apply grease to the O-ring and slide the new disc holder into place. Reinstall the retaining ring.

NOTICE

The disc holder should not be removed when servicing only the disc, remove the Allen head screws holding the disc retaining plate and replace the disc.

⚠ WARNING

The disc-and-spring assembly assembly is factory assembled.
DO NOT DISASSEMBLE.





Clearance Required for Servicing

SIZE	DIMENSION	
	A	
<i>in.</i>	<i>in.</i>	<i>mm</i>
2 1/2 - 3	10	250
4	15	380
6	15	380
8	23	580
10	25	640

Troubleshooting

SYMPTOM	CAUSE	SOLUTION
Check valve fails to hold 1.0 PSID minimum	Debris on check disc sealing surface	Disassemble and clean
	Leaking gate valve	Disassemble and clean or repair
	Damaged seat disc or seat O-ring	Disassemble and replace
	Damaged guide holding check open	Disassemble and clean or replace
	Weak or broken spring	Disassemble and replace spring
Chatter during flow conditions	Worn, damaged or defective guide	Disassemble and repair or replace guide
Low flows passing through mainline valve	Mainline check fouled	Disassemble and clean
	Meter strainer plugged	Disassemble and clean
	Damaged mainline seat disc or seat	Disassemble and replace
	Broken mainline spring	Disassemble and replace

Add-on Monitoring Connection Kits

ORDERING CODE	ADD-ON/REPLACEMENT KIT	DESCRIPTION	
88003067		BF-BMS-MCK BMS Monitoring Connection Kit Series LF709 Model IOT Sizes 2½" to 10"	Includes a turnkey solution for transmitting valve assembly pressure measurements to a building management system; consists of an interface module with three (3) sensor cables, data cable, and power adapter.
88003068		RK-BF-Sensors Pressure Sensor Module Replacement Kit Series LF709 Model IOT Sizes 2½" to 10"	Includes three (3) replacement pressure sensor modules for installation on test cocks No. 2, No. 3, and No. 4.

Limited Warranty: Watts (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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