

Installation, Maintenance, & Repair Series 995

Reduced Pressure Zone Backflow Preventers

Sizes: 1/2" through 2" (15-50mm)

⚠ 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. 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. 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 components helps assure maximum life and proper product function.

NOTICE

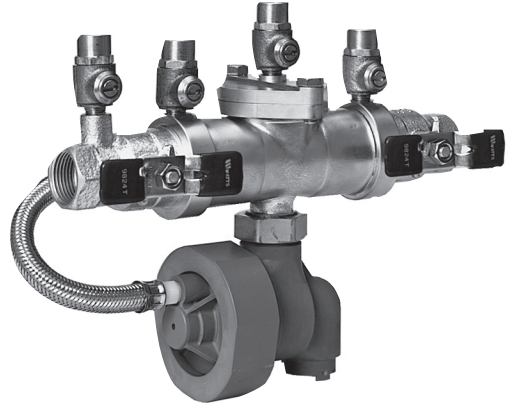
For *Australia* and *New Zealand*, line strainers should be installed between the upstream shutoff valve and the inlet of the backflow preventer.

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 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 watts.com.

For technical assistance, contact your local Watts representative.



Watts 995 shown



Basic Installation Instructions

1/2" - 2" (15 - 50mm)

Indoor Installation

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 wall, be sure the test cocks are easily accessible. A drain line and air gap 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.

Outside, Above Ground Installation

NOTICE

Must take precaution to protect against freezing. Temperatures below 32°F can lead to damage or property loss.

In areas where freezing conditions do not occur, Series 995 can be installed outside. The most satisfactory installation is above ground.

In areas where freezing conditions can occur, Series 995 should be installed above ground in an insulated enclosure.

Series 995 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 995 should never be installed where any part of the unit could become submerged in standing water.

Backflow preventers should never be placed in pits unless approved by local codes. In such cases, a modified pit installation is preferred.

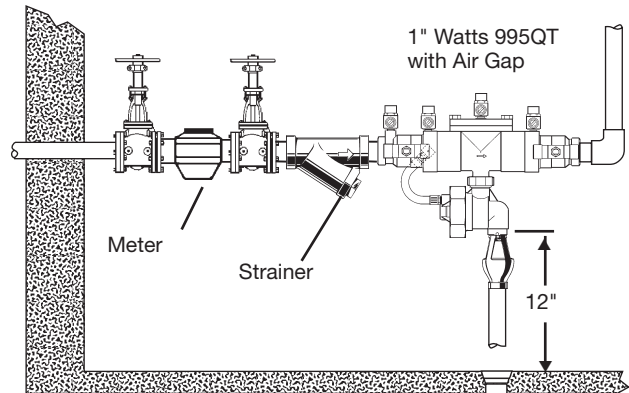
Parallel Installation

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 line completely.

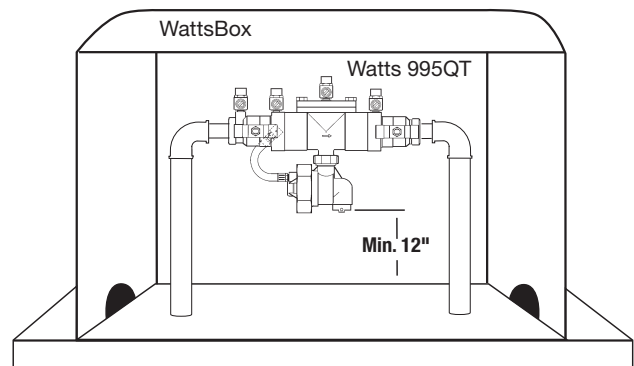
The number of assemblies used in parallel should be determined by the engineer's judgement based on the operating conditions of a specific installation.

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

Indoor Installation

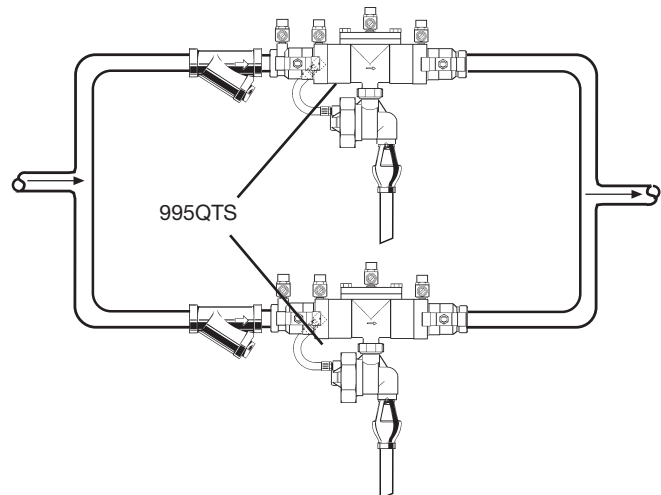


Outdoor Installation



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

Indoor Installation



Basic Installation Instructions

1/2" - 2" (15 - 50mm)

⚠ WARNING Depressurize valve before servicing.

- A. Series 995 must be installed in a horizontal position.
- B. The 995 should always be installed in an accessible location to facilitate testing and servicing (See page 2). Check the state and local codes to insure that the backflow preventer is installed in compliance, such as the proper height above the ground.
- C. We recommend a strainer be installed ahead of 995 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.

- D. 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" (300mm) 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. 1 for maximum relief valve discharge rates, size and capacity of typical floor drains.

NOTICE

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

- E. 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 check valve ahead of the backflow assembly to "lock-in" the downstream pressure.

- F. Backflow preventers should never be placed in pits unless absolutely necessary and then only when approved by local codes. In such cases, provision should be made to always vent above flood level or for a pit drain to insure an adequate air gap below the relief port.
- G. It is important that Series 995 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. Send for IS-TK-9A, IS-TK-DP/

DL, S-TK-99E and IS-TK-99D instruction manuals for test procedures.

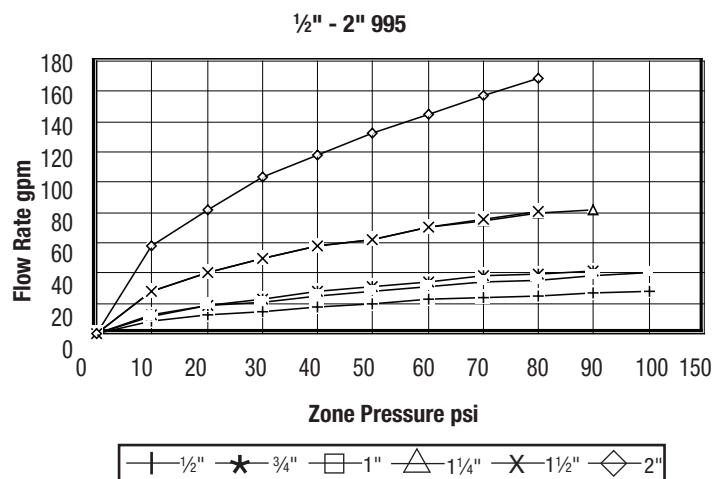
Relief vent will discharge water when, during no-flow periods, (1) the first check valve is fouled or (2) the inlet pressure to the device drops sufficiently due to upstream pressure fluctuations. Otherwise, such relief (spitting) can occur when the second check is fouled during emergency backflow or resulting from a water hammer condition. For trouble shooting 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 shut-off valves or a backflow assembly have been operated. Certified testers of backflow assemblies must conduct this confirming test.

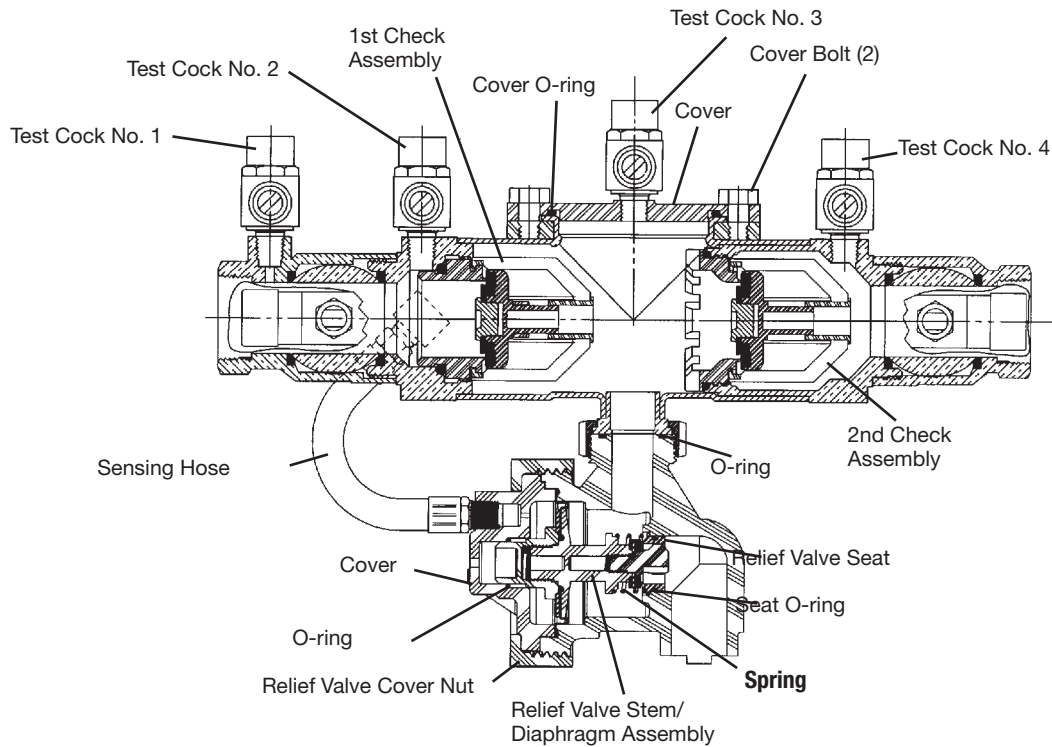
Figure 1
Relief Valve Discharge Rates



Typical Flow Rates as sized by floor drain manufacturers:
2" 55 gpm
3" 112 gpm
4" 170 gpm

Servicing the Relief Valve

1/2" - 2" (15 - 50mm)

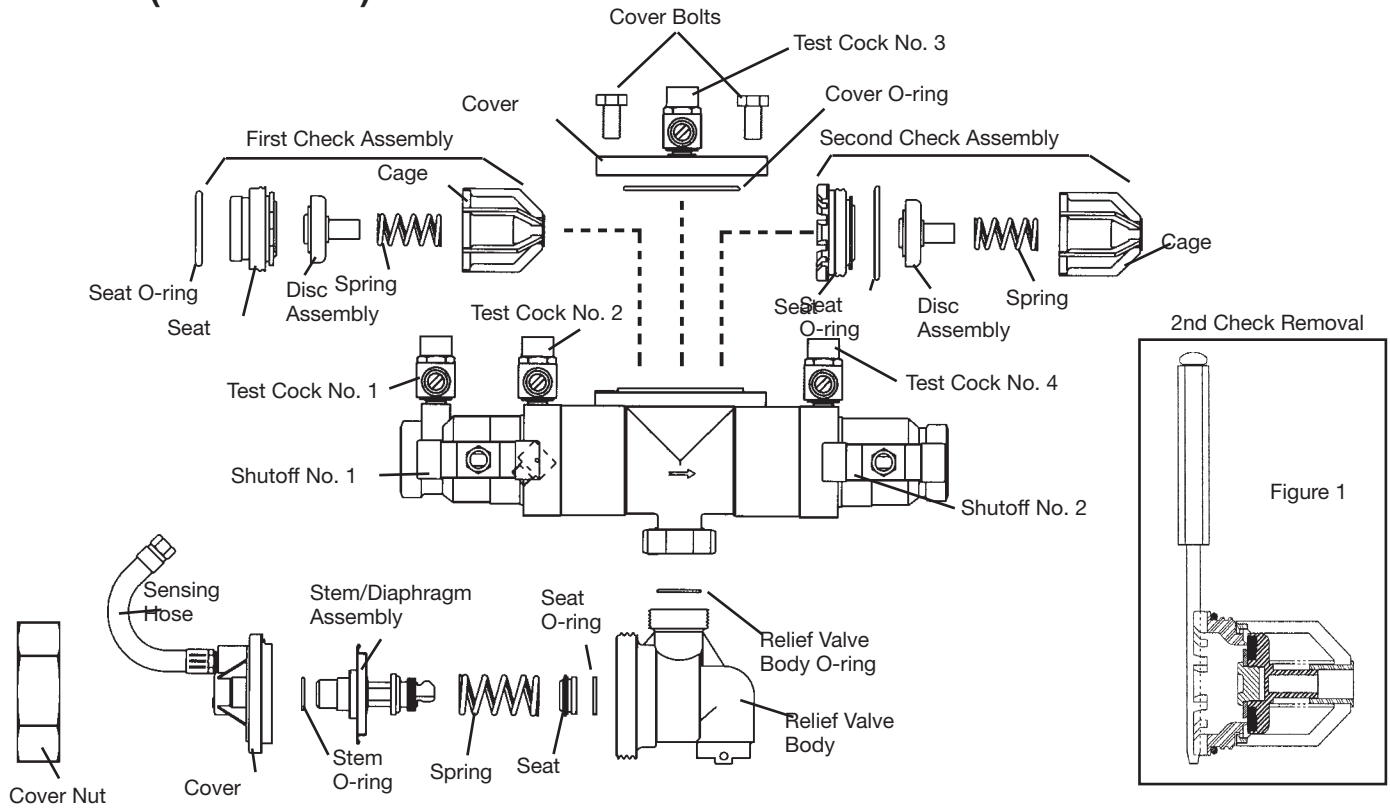


1. Remove the relief valve cover nut by turning the nut counter-clockwise
2. Remove the relief valve cover, stem/diaphragm assembly, and relief valve spring.
3. Inspect the relief valve diaphragm for wear and replace as needed.
4. The relief valve seat is located inside of the body and can be removed, if necessary, for cleaning/inspection. The seat is pressed into the body cavity and can be removed by inserting a finger in the center of the seat and pulling outwards. Inspect seat for nicks and replace as needed.
5. Inspect the disc rubber and clean or replace if required. The disc can be removed by screwing the white washer counter-clockwise.
6. To reassemble the relief valve, press the seat firmly into place in the body, snap the spring onto the relief valve stem, center the spring on the seat, and insert the cover and stem/diaphragm assembly as a unit, into the body bore. The locating pin in the relief valve cover should be aligned with the corresponding locating notch in the top of the relief valve body.
7. Install relief valve cover nut and tighten.

For repair kits and parts, refer to our Backflow Prevention Products Repair Kits & Service Parts price list PL-RP-BPD found on watts.com.

Servicing the First and Second Check Valves

1/2" - 2" (15 - 50mm)



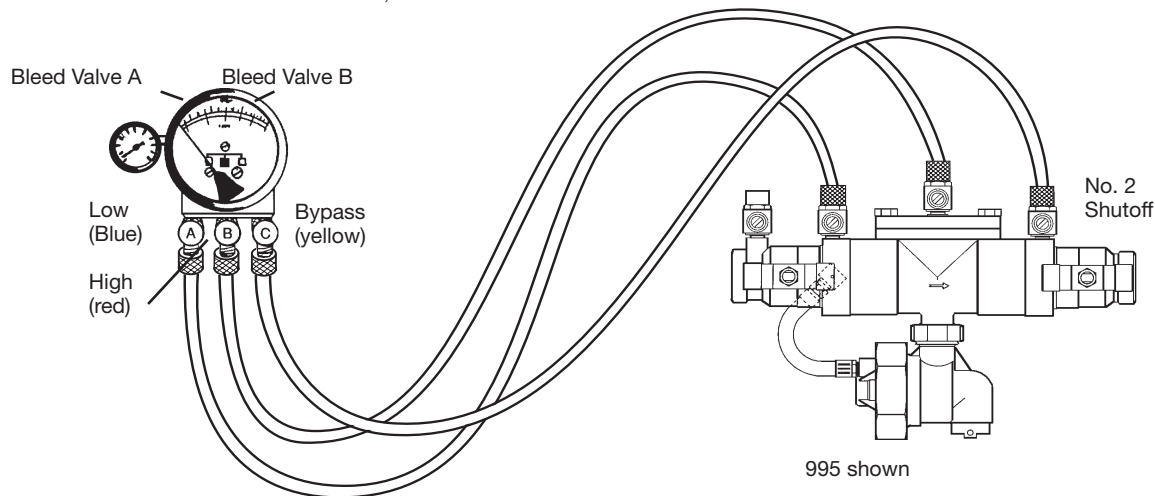
1. Close shutoff valves and open test cocks No. 2, 3 and 4 to relieve pressure from the body of the valve. Loosen cover bolts and remove cover. The check valve modules can now be removed from the valve by hand or with a screwdriver. Note: The first and second check assemblies are not interchangeable and the first check assembly must be removed prior to removing the second check assembly.
2. The check assemblies are threaded into the valve body. To remove the first check assembly, rotate the check module by hand counterclockwise.
3. The second check assembly is removed by inserting the blade of a screwdriver into two opposing slots of the seat as shown in Figure 1 and rotate the check assembly counterclockwise.
4. 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 clockwise against the cage. The seat, cage, spring and disc assembly are now individual components. If the cage disengages prematurely, simply use the cage as a tool to screw the check valve seat from the valve body.
5. The disc assembly may now be cleaned and reassembled or, depending on its condition, it may be replaced with a new assembly from a repair kit. Seat O-ring should be inspected and replaced as necessary.
6. Reassemble the check module in the reverse order. Install the check modules into the valve body hand-tight. Replace the cover.

For repair kits and parts, refer to our Backflow Prevention Products Repair Kits & Service Parts price list PL-RP-BPD found on watts.com.

Test Procedure

Test Procedure for Reduced Pressure Assembly

- A. All needle valves must be closed on test kit.
- B. Open test cock No. 4 and flush test cocks Nos. 1, 2 and 3 on reduced pressure assembly then close test cock No. 4.
- C. Attach hoses as shown. Bleed air from kit, close No. 2 shutoff.



Test No. 1 - Check Valve No. 2

Purpose: To test check valve No. 2 for tightness against reverse flow.

Requirements: Valve must be tight against reverse flow under all pres-sure differentials.

Step 1 Slowly open the needle valve “A” high side (red) and “C” bypass (yellow). Keep the “B” low (blue) closed.

Step 2 Open test cock No. 4. Open test cock No. 2 and test cock No. 3 after opening test cock No. 4.

Step 3 Indicated pressure differential will decrease slightly. If pressure differential continues to decrease (until the vent opens) the No. 2 check valve is reported as “leaking”.

Test No. 2 - Shutoff Valve No. 2

Purpose: To test shutoff valve No. 2 for tightness.

Step 1 After passing Test No. 1, continue to test No. 2 by closing test cock No.2.

Step 2 The indicated pressure differential will decrease slightly. If pressure differential continues to decrease (approaching “zero”) the No. 2 shutoff valve is reported to be “leaking”.
Note: A leaking No. 2 shutoff will give a false reading in tests No. 3 and 4

Test No. 3 - To test No. 1 Check Valve

Purpose: To test check valve No. 1 for tightness.

Requirements: Valve must be tight against reverse flow under all pressure differentials.

Step 1 Close needle valve “A” high side (red) and open test cock No. 2.

Step 2 Close test cock No. 4. Disconnect bypass hose (yellow) at test cock No. 4.

Step 3 Open needle valve “B” low (blue) and “C” bypass (yellow), bleeding to atmosphere, then closing needle valve “B” (blue) restores the system to a normal static condition.

Step 4 Observe the pressure differential gauge. If there is a decrease in the indicated value, the No. 1 check valve is reported as “leaking”.

Test No. 4 - Pressure Differential Relief Valve

Purpose: To test operation of pressure differential relief valve.

Requirements: The pressure differential relief valve must operate to maintain the “zone” between the two check valves at least 2 psi less than the supply pressure.

Step 1 Close needle valve “C” bypass (yellow).

Step 2 Open needle valve “A” high side (red).

Step 3 Open needle valve “B” low (blue) very slowly until the differential gauge needle starts to drop.

Step 4 Hold the valve at this position and observe the gauge reading at the moment the first discharge is noted from the relief valve. Record this as the opening differential pressure of the relief valve.

NOTICE

It is important that the differential gauge needle drops slowly.

Step 5 Close test cocks Nos. 2 and 3. Remove hose from test cocks Nos. 2 and 3.

Step 6 Use bypass hose (yellow) to relieve pressure from test kit by opening needle valve “A”, “B” and “C” and bleed valves “A” and “B”.

Step 7 Remove all test equipment and open No. 2 shutoff valve of the device.

Notes

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

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.

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