UNITED FIRE SYSTEMS

PREACTION PAC
SPRINKLER VALVE ASSEMBLY®

with No Built-In Releasing Control Panel

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

Serial Number _____

Date of Installation _____ **Date of Commissioning** _____

FM APPROVED

UNITED Fire Systems
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Kenilworth, NJ USA 07033
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Manual Part Number 10-500001-00N
Version 2.00
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HAZARD IDENTIFICATION

Carefully read, understand, and follow instructions identified by these symbols.

DANGER

The use of the word “DANGER” identifies an immediate hazard with a likelihood of death or serious personal injury if instructions, including recommended precautions, are not followed.

WARNING

The use of the word “WARNING” identifies the presence of hazards or unsafe practices that could result in death, personal injury, or serious property damage if instructions, including recommended precautions, are not followed.

CAUTION

The use of the word “CAUTION” identifies possible hazards or unsafe practices that could result in personal injury or property damage if instructions, including recommended precautions, are not followed.

IMPORTANT

The use of the word “IMPORTANT” identifies special instructions, not related to hazards, that should be followed.

FOREWORD

This manual is written for those who install, operate and maintain **UNITED Fire Systems PREACTION-PAC™** sprinkler valve assemblies. The manual contains installation, operation, and maintenance information for these assemblies.

IMPORTANT

UNITED Fire Systems assumes no responsibility for the installation, operation, or maintenance of any systems other than those addressed in this manual. The data contained in this manual is for information purposes only. **UNITED Fire Systems** believes this data to be accurate at the time of publication, but the data is published and presented without any guarantee or warranty whatsoever. **UNITED Fire Systems** disclaims any liability for any use that may be made of the data and information contained in this manual by any and all parties.

IMPORTANT

The **UNITED Fire Systems PREACTION-PAC™** sprinkler valve assembly is a vital part of the fire protection of any facility where these units are installed. Life safety and property protection depends on continuing proper operation of the assembly. The owner of the **PREACTION-PAC™** is responsible for the condition of the assembly and its continued proper operation. **UNITED Fire Systems** strongly recommends that all owners of **PREACTION-PAC™** engage the services of qualified, trained fire protection professionals to design the system containing the assembly, and to install and maintain the assembly.

UNITED Fire Systems PREACTION-PAC™ sprinkler valve assemblies are to be installed and maintained by qualified, trained personnel in accordance with:

- This Installation, Operation, and Maintenance Manual P/N 10-500001-00N.
- National Fire Protection Association No. 13, “Standard for the Installation of Sprinkler Systems.”
- National Fire Protection Association No. 25, “Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.”
- National Fire Protection Association No. 70, “National Electrical Code®”.
- National Fire Protection Association No. 72, “National Fire Alarm Code®.”

Any questions on the information in this manual should be addressed to:

UNITED Fire Systems
1 Mark Road
Kenilworth, NJ USA 07033
908-688-0300
www.unitedfiresystems.com

LIMITED WARRANTY
PREACTION-PAC™

What Does This Warranty Cover?
This Limited Warranty covers all manufacturing defects in material and workmanship in all equipment supplied by **UNITED Fire Systems** for new **PREACTION-PAC™** sprinkler valve assemblies.

How Long Does The Coverage Last?
This Limited Warranty lasts for either eighteen (18) months from the date of shipment to the original purchaser or twelve (12) months from the date of commissioning by **UNITED Fire Systems** or a trained distributor, whichever comes first.

What Will UNITED Fire Systems Do?
UNITED Fire Systems will repair, replace, or refund the purchase price of, at its option, any defective **PREACTION-PAC™** equipment at no charge.

What Does This Warranty Not Cover?
- Equipment that is not supplied by **UNITED Fire Systems** is not covered.
- Equipment that has not been installed, commissioned, operated, and maintained per the instructions in the applicable **UNITED Fire Systems** instruction manual is not covered.
- Equipment that has been repaired, modified, or otherwise tampered with not in accordance with the applicable **UNITED Fire Systems** instruction manual is not covered.
- Any problem that is caused by abuse, misuse, or an act of God (such as a flood) is not covered.
- Transportation and shipping charges to return equipment to **UNITED Fire Systems** or for **UNITED Fire Systems** to return repaired or replacement equipment are not covered.
- Consequential and incidental damages are not covered. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion may not apply.

What Are The Customer's Responsibilities?
- Ensuring that the **UNITED Fire Systems** equipment is installed, commissioned, operated, and maintained per the instructions in the applicable **UNITED Fire Systems** instruction manual.
- Where applicable, ensuring that checklists supplied by **UNITED Fire Systems** are properly used and completed at the time of installation, commissioning, operation, and maintenance, and such checklists are retained as records of proper completion.
- Noting and recording the serial number(s) of **UNITED Fire Systems** equipment.
- Notifying **UNITED Fire Systems** or a trained distributor of the need for service under this Limited Warranty.

How Is Warranty Service Obtained?
If anything goes wrong with **UNITED Fire Systems** equipment, contact:

UNITED Fire Systems
Division of United Fire Protection Corporation
1 Mark Road
Kenilworth, NJ 07033 USA
Phone: 908-688-0300
Fax: 908-481-1131
www.unitedfiresystems.com

= OR =

Your
Trained
Distributor

Be prepared to supply the serial number(s) of the equipment requiring service, and copies of the installation, commissioning, and maintenance checklists, as applicable.

LIMITED WARRANTY
PREACTION-PAC™

Is This Limited Warranty Transferable?
If the **PREACTION-PAC™** equipment is moved from one to another installation during the time period of Limited Warranty coverage, the **PREACTION-PAC™** equipment must be re-commissioned by **UNITED Fire Systems** or a trained distributor to be eligible for continuing coverage. There will be a quoted charge for this re-commissioning.

Is This The Entire Warranty?
This Limited Warranty is the entire warranty given by **UNITED Fire Systems** to the purchaser of new **PREACTION-PAC™** equipment. Component warranties supplied by component manufacturers to **UNITED Fire Systems** that are valid for a longer period of time than the **UNITED Fire Systems** Limited Warranty may apply. Contact **UNITED Fire Systems** for more information. There are no other warranties expressed or implied, beyond those required by law.

How Do State and Federal Laws Apply?
This Limited Warranty grants specific legal rights per Federal law. There may also be other rights which vary from state to state.

UFS-113 Rev. 2.01 Nov 2020

Figure 1 – PREACTION-PAC™ Shown With Enclosure Doors Closed

1. GENERAL

1.1. Introduction. The **UNITED Fire Systems PREACTION-PAC™** is a fully assembled and factory tested preaction fire suppression system, including preaction valve, and trim, providing one complete zone of preaction water sprinkler fire protection. All components are contained in two steel enclosures assembled one above the other. The system pressure gauges and the required manual release handle are mounted on the front of the lower enclosure. The system electrical connection terminal strip, compressor disconnect switch (where applicable), and spare sprinkler head storage are behind a door in the upper enclosure Lockable latches on both doors permit authorized access to all system components. Both enclosures are finished in powder-coat red paint. Gasketing provides sealing of the enclosure doors. Knockouts permit easy attachment of external electrical conduits.

1.1.1. Preaction Valve. The preaction valve installed in the **PREACTION-PAC™** is a low-differential, latched clapper valve that uses a unique direct-acting diaphragm to separate the system water supply from the system piping. The positive latching system uses the supply water pressure to hold the clapper shut. When the water pressure in the diaphragm chamber is released, the latch retracts from the clapper and the valve actuates. The low differential and unique latch and actuator design of the valve allows the valve to be self-resetting.

1.1.2. Piping. Water inlet pipe connections are located on the lower left and lower right sides of the lower enclosure. The unused inlet is left plugged. Grooved pipe is used for the inlet connection. The water outlet pipe connection is located at the top center of the lower enclosure, behind the upper enclosure. The drain connection is accessible within the lower enclosure, and knockouts are provided allowing exit of the drain from either side. All pipe connections are done in the lower enclosure.

1.1.3. Wiring. All wiring from the integral terminal strip to the valve solenoid and all switches is factory installed and tested. Where applicable, wiring for compressor power and control is also factory installed and tested. All field wiring for compressor power, switch contacts, and the preaction valve solenoid is connected to a terminal strip in the upper enclosure. No access to the lower enclosure is necessary to complete the wiring installation.

1.1.4. Compressor. For assemblies equipped with a compressor for air pressurization of the preaction sprinkler piping, all wiring and adjustments are performed at the factory. Three sizes of compressor are available, depending on the volume of installed piping to be pressurized. The compressor is mounted using molded rubber mounts and bushings to minimize noise and vibration during motor operation. A compressor disconnect switch is located in the upper enclosure.

1.1.5. Pressure Maintenance Device. Assemblies are equipped with a pressure maintenance device when the source of the supervisory gas is external of the **PREACTION-PAC™**, such as a tank-mounted air compressor or a nitrogen generator. A blank plate replaces the compressor disconnect switch.

1.2. Features

1.2.1. Attractive and rugged metal enclosure. The entire enclosure is manufactured from steel with continuous welded seams. The lower enclosure is 12 gauge, while the upper enclosure is 14 gauge. Both enclosures are coated with red powder-coat paint inside and out. Continuous piano-style hinges attach the doors to the enclosures.

1.2.2. Easy-to-see gauges on front of enclosure. Three pressure gauges are mounted on the front of the lower enclosure, and are visible at all times. These gauges monitor the air pressure in the system piping, the water supply pressure up to the preaction valve, and the water pressure keeping the valve clapper piston closed.

1.2.3. Easy access to manual release valve. The emergency manual release ball valve is located behind a small unlocked door on the front of the lower enclosure. Operation of this ball valve opens the preaction valve, filling the system piping with water. No power is necessary to accomplish this

operation. The key for the lower enclosure main door does not have to be available to accomplish this operation.

1.2.4. Water inlet connections. The water inlet piping may attach to the lower enclosure near the bottom on either side.

1.2.5. Space for required spare sprinkler heads and wrench. As required by NFPA 13, a built-in storage location for spare sprinkler heads and a sprinkler wrench is behind the door of the upper enclosure.

1.2.6. Separate mechanical and electrical enclosures. This allows mechanical and electrical trades to keep their work areas separate.

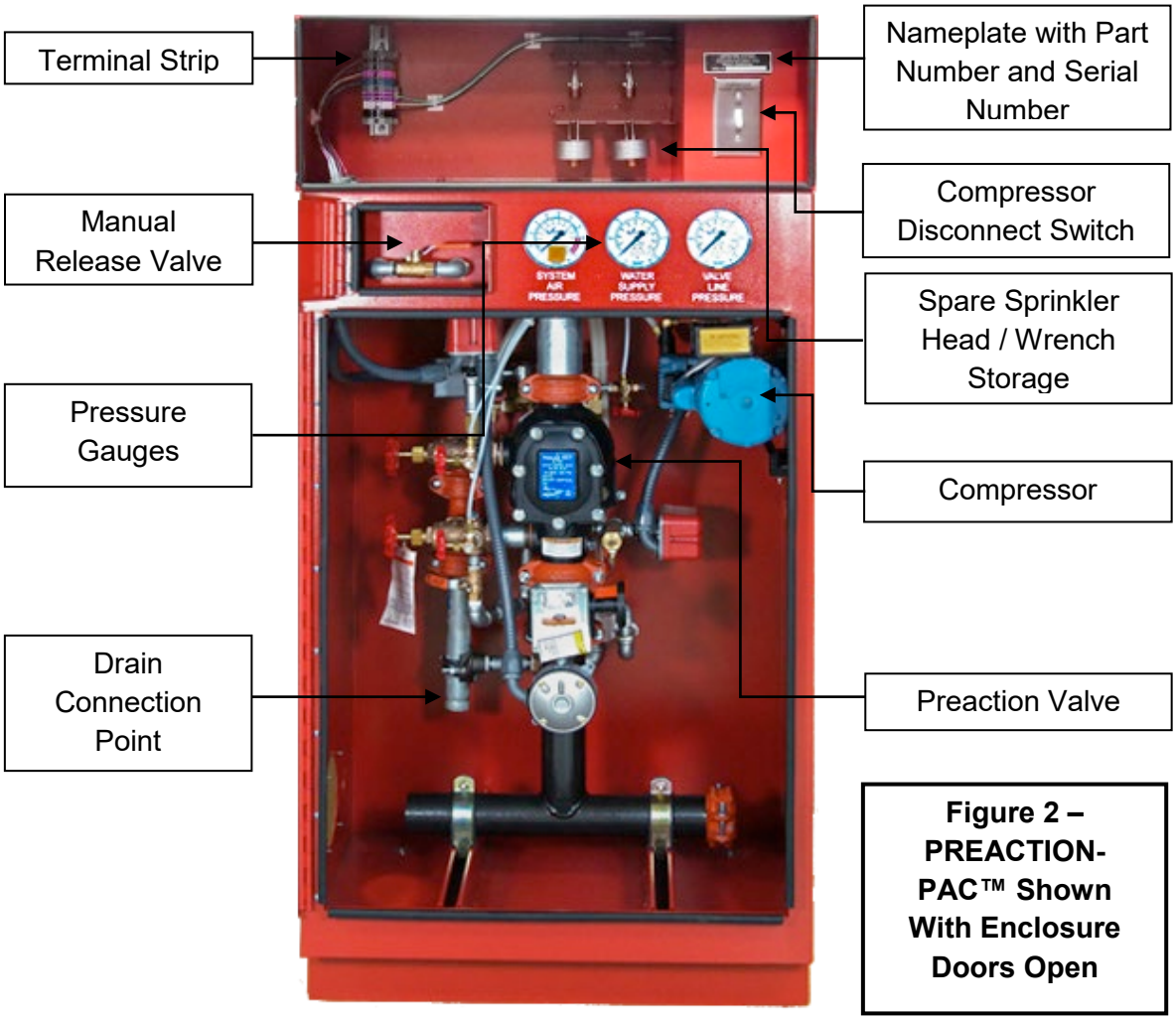


Figure 2 – PREACTION-PAC™ Shown With Enclosure Doors Open

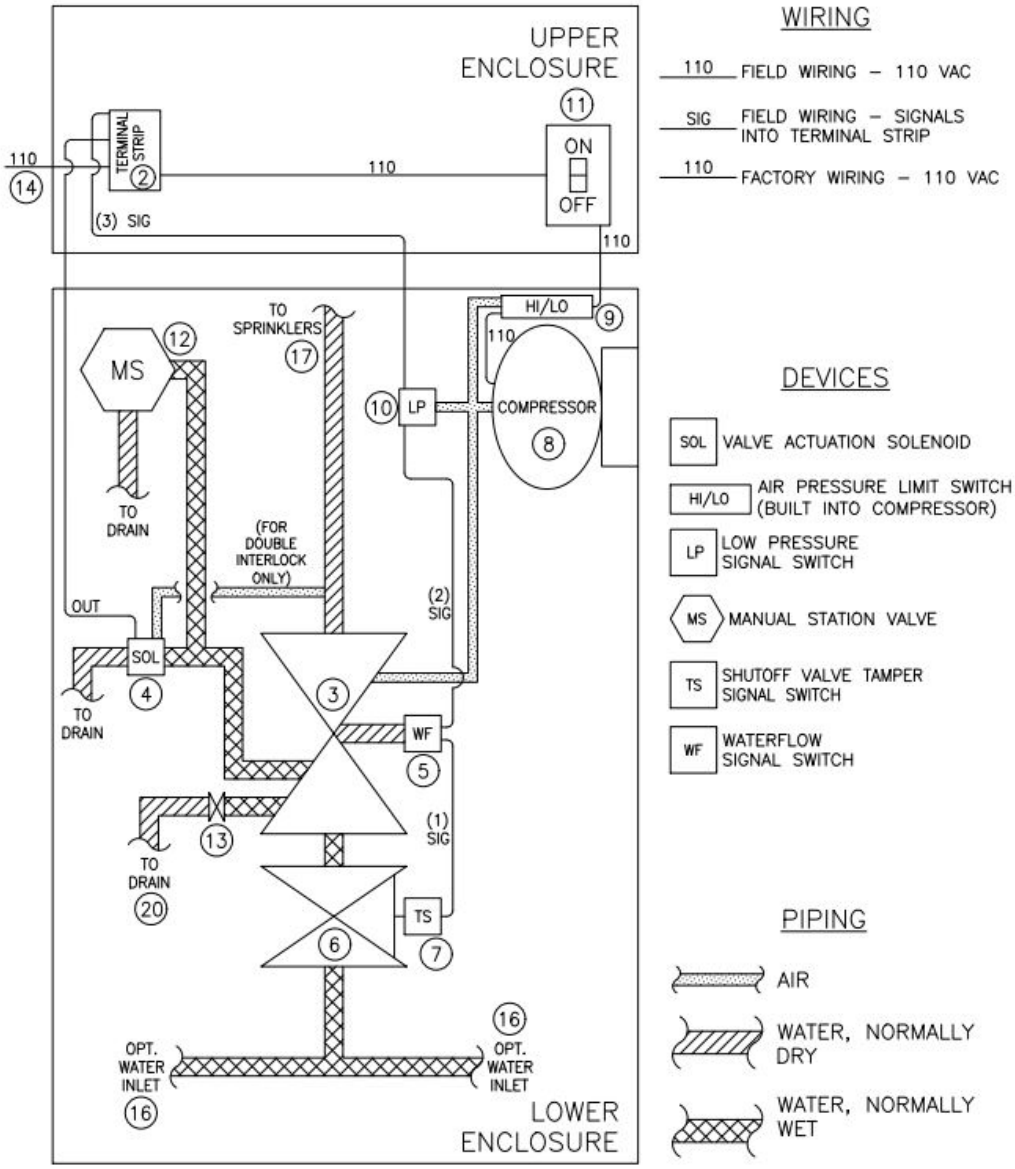


Figure 3a – Diagram –

Functional Description with Compressor

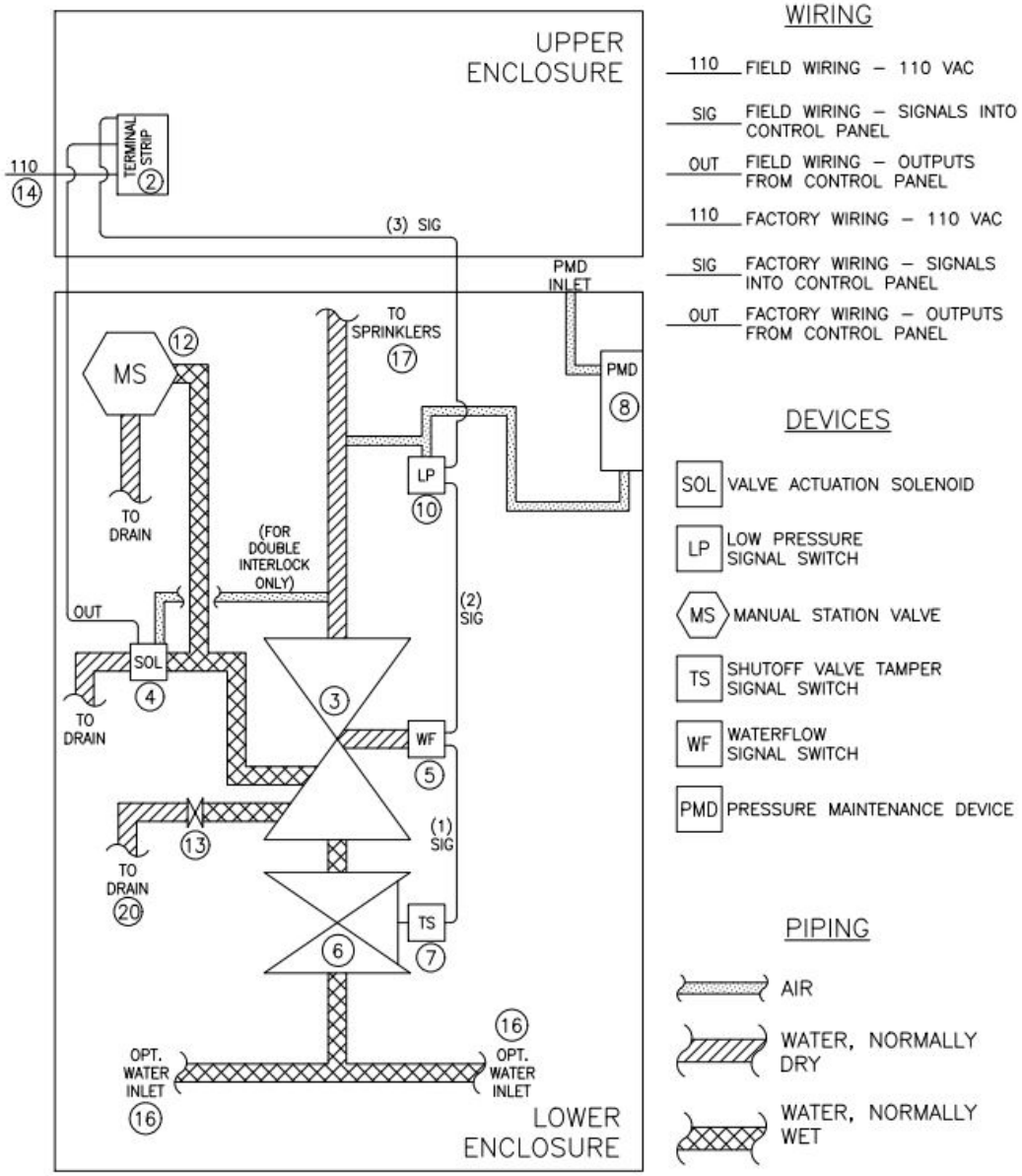


Figure 3b – Diagram –

Functional Description with Pressure Maintenance Device

1.3. Functional Description. Refer to Figure 3a on page 4 and Figure 3b on page 5.

1.3.1. Terminal strip (2). The terminal strip provides a convenient point for landing the required field wiring.

1.3.2. Preaction valve (3). The preaction valve is the heart of the assembly. The valve holds back the sprinkler water until the field-installed control panel reacts to the signal from the fire detectors and sends a signal to the valve actuation solenoid (4). In single-interlock assemblies, actuation of the valve actuation solenoid (4) sends water into the sprinkler pipe. In double-interlock assemblies, fusing of a sprinkler head from heat is required, along with valve actuation solenoid (4) actuation, to send water into the sprinkler pipe. Refer to Manual I-769N in Section 2 for more detailed information on the preaction valve.

1.3.3. Valve actuation solenoid (4). The valve actuation solenoid receives the signal from the field-installed control panel, and actuates the preaction valve (3). The solenoid is the Victaulic Series 753-E, and is rated at 24VDC, 0.364 amps, 8.7 watts, 66 ohms. The solenoid is FM Approved under Group I (as in India). Refer to Manual I-769N in Section 2 for more detailed information.

1.3.4. Waterflow signal switch (5). The waterflow signal switch responds to waterflow in the pipe downstream of the preaction valve (3). The switch contains Quantity 2, SPDT switches, rated at 10A-125/250VAC, 1/2HP, 2.5A-6/12/24VDC. Contacts transfer when waterflow begins after preaction valve opens. Contacts automatically restore when waterflow ceases. The switch sends a signal to the field-installed control panel.

1.3.5. Manual shutoff valve (6). The manual shutoff valve is used to shut off the flow of water after actuation of the preaction valve (3). The normal position of this valve when the system is in service is open. Refer to Manual I-769N in Section 2 for more detailed information on the use of this valve.

1.3.6. Shutoff valve tamper signal switch (7). The shutoff valve tamper signal switch sends a supervisory signal to the field-installed control panel when the manual shutoff valve (6) is closed. The switch contains Quantity 2, SPDT switches, rated at 10A-125/250VAC, 0.5A-125VDC. Contacts transfer when valve begins to close. Contacts restore when valve is fully open.

1.3.7. Compressor (8). The compressor supplies supervisory air pressure to fill the sprinkler pipe downstream of the preaction valve (3). The sprinkler pipe is pressurized to 13 PSIG minimum and 18 PSIG maximum by the compressor (8). Loss of this pressure, from damage to the pipe or a sprinkler head, results in a supervisory signal at the field-installed control panel.

1.3.8. Pressure Maintenance Device (8). The pressure maintenance device supplies supervisory gas pressure, from either a tank-mounted air compressor or nitrogen generator, to fill the sprinkler pipe downstream of the preaction valve (3). The sprinkler pipe is pressurized to 15 PSIG by the pressure maintenance device (8). Loss of this pressure, from damage to the pipe or a sprinkler head, results in a supervisory signal at the field-installed control panel.

1.3.9. High / low air pressure limit switch (9). The high / low air pressure limit switch is built in to the compressor (8). When pressure in the pipe falls below 13 PSIG, the switch turns the compressor (8) on. When pressure in the pipe rises to 18 PSIG, the switch turns the compressor (8) off.

1.3.10. Low pressure signal switch (10). The low pressure signal switch sends the supervisory signal for low pressure to the field-installed control panel. The switch contains Quantity 2, SPDT switches, rated at 10A-125/250VAC, 1/2HP, 2.5A-6/12/24VDC. Contacts transfer when pressure in the piping falls below 13PSIG. Contacts automatically restore when pressure rises above 13PSIG.

1.3.11. Compressor disconnect switch (11). Where applicable, the compressor disconnect switch is used to manually interrupt the 110VAC power to the compressor motor, during inspection, maintenance, and resetting of the assembly. Only trained personnel should use this switch. The normal position of this switch when the system is in service is ON.

1.3.12. Manual station valve (12). The manual station valve is located behind a separate door on the front of the lower enclosure. No key is needed to open this door. To manually open the preaction valve (3), open the door and pull the lever on the manual station valve forward. The preaction

valve (3) will open, and the sprinkler pipe will fill with water. No power is needed to manually open the preaction valve (3) in this manner.

IMPORTANT

Fusing of a sprinkler head by heat is necessary for water to be discharged onto a fire, even after operation of the manual station valve.

1.3.13. Drain valve (13). The drain valve is used to drain the sprinkler pipe after actuation of the preaction valve (3). This valve is used only during inspection, maintenance, and resetting of the assembly. Only trained personnel should use this valve. Refer to Manual I-769N in Section 2 for more detailed information on this valve. The normal position of this valve is closed.

1.3.14. Input connection for 110 VAC power (14). 110VAC is required to power the assembly. This power shall come from a source in compliance with all applicable codes and standards. Internal wiring (factory assembled) takes this power to the compressor (8). Refer to Section 1.10 for additional information on this connection.

1.3.15. Water inlet connection (16). The sprinkler water supply is field-connected to this connection. One of two optional water inlet connections may be chosen. The connection may be made on the lower right of the assembly, or by removing the cap, the connection may be made on the lower left of the assembly. Refer to Section 1.10 and Section 2 – Victaulic manual I-769N for more detailed information on this connection.

1.3.16. Outlet connection to fire sprinklers (17). The outlet connection from the assembly to the fire sprinklers is field-connected to this connection. The connection is located in the top center of the lower enclosure, behind the upper enclosure. Refer to Section 1.10 and Section 2 – Victaulic manual I-769N for more detailed information on this connection.

1.3.17. Drain connection (20). Drain water from the assembly must be piped away to a drain. The drain piping may be connected to the assembly on the left or the right side. Refer to Section 1.10 and Section 2 – Victaulic manual I-769N for more detailed information on this connection.

1.3.18. Output connections to field-installed control panel. These connections are:

1.3.18.1. Valve actuation solenoid (4). The solenoid is to be connected to the releasing output of an FM Approved releasing control panel. The solenoid is the Victaulic Series 753-E, and is rated at 24VDC, 0.364 amps, 8.7 watts, 66 ohms. The solenoid is FM Approved under Group E.

1.3.18.2. Waterflow signal switch (5). Quantity 2, SPDT switches, rated at 10A-125/250VAC, 1/2HP, 2.5A-6/12/24VDC. Contacts transfer when water flow begins after preaction valve opens. Contacts automatically restore when waterflow ceases. One contact should be connected to signal field-installed control panel, which should respond with ALARM signal.

1.3.18.3. Shutoff valve tamper signal switch (7). Quantity 2, SPDT switches, rated at 10A-125/250VAC, 0.5A-125VDC. Contacts transfer when manual shutoff valve is closed. Contacts automatically restore when shutoff valve is manually re-opened. One contact should be connected to signal field-installed control panel, which should respond with SUPERVISORY signal.

1.3.18.4. Low pressure signal switch (10). Quantity 2, SPDT switches, rated at 10A-125/250VAC, 1/2HP, 2.5A-6/12/24VDC. Contacts transfer when pressure less than 13 PSIG is sensed in the sprinkler pipe. Contacts automatically restore when compressor restores pressure above 13 PSIG. One contact should be connected to signal field-installed control panel, which should respond with SUPERVISORY signal.

1.4. Configurations. **UNITED Fire Systems** **PREACTION-PAC™** sprinkler valve assemblies are available in the following configurations:

1.4.1. Valve sizes: 1-1/2" through 4".

1.4.2. Valve types: Single-interlock and double-interlock available in all valve sizes.

1.4.3. Supervisory gas sources:

1.4.3.1. For 1-1/2" and 2" valves: 1/6HP compressor and pressure maintenance device available.

1.4.3.2. For 2-1/2" valves: 1/6HP and 1/3HP compressors and pressure maintenance device available.

1.4.3.3. For 3" and 4" valves: 1/6HP, 1/3HP, and 1/2HP compressors and pressure maintenance device available.

1.4.3.4. Gas sources are capable of pressurizing piping systems up to the following limits:

1.4.3.4.1. 1/6HP compressor: maximum system capacity is 290 gallons.

1.4.3.4.2. 1/3HP compressor: maximum system capacity is 475 gallons.

1.4.3.4.3. 1/2HP compressor: maximum system capacity is 780 gallons.

1.4.3.4.4. Pressure maintenance device: Refer to manual of the external source.

1.5. Options - None at this time.

1.6. Approvals. **UNITED Fire Systems** **PREACTION-PAC™** sprinkler valve assemblies, as listed in this Manual, are Approved by FM Approvals under the heading "Automatic Water Control Valves." See pages 11 and 12 for Approved assemblies. NOTE: Although most **PREACTION-PAC™** assemblies are FM Approved, custom-built units are supplied from time to time upon request. Various components within these custom assemblies maintain their individual approvals, but these custom assemblies are not FM Approved as a unit.

1.7. Applicable Standards. **UNITED Fire Systems** **PREACTION-PAC™** sprinkler valve assemblies are to be installed and maintained by qualified, trained personnel in accordance with:

1.7.1. National Fire Protection Association No. 13, "Standard for the Installation of Sprinkler Systems."

1.7.2. National Fire Protection Association No. 25, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems."

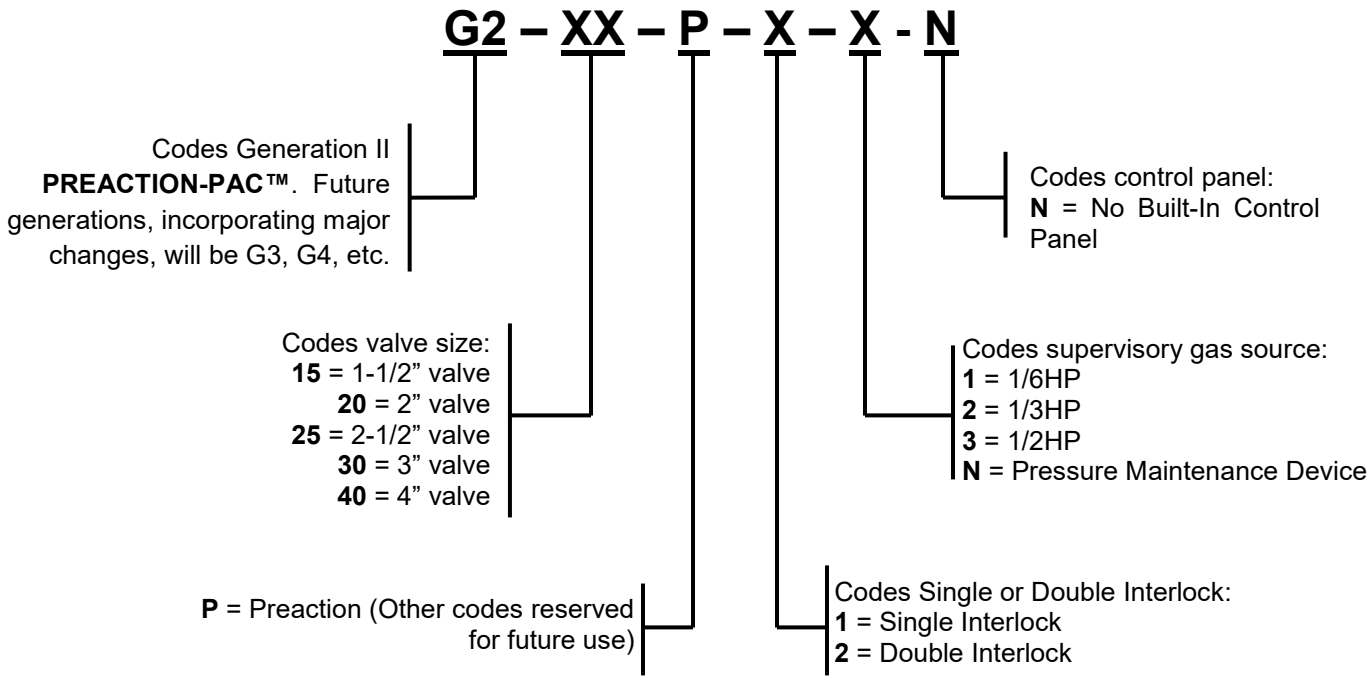
1.7.3. National Fire Protection Association No. 70, "National Electrical Code®".

1.7.4. National Fire Protection Association No. 72, "National Fire Alarm Code®."

1.8. Applicable Manuals. Manuals supplied by the manufacturers of components used in **UNITED Fire Systems** **PREACTION-PAC™** assemblies are included with this manual. In some cases, these manuals contain references that are **NOT APPLICABLE** to **PREACTION-PAC™** assemblies. The following tables detail these NOT APPLICABLE items. Care should be taken to be clear on what is applicable and what is not when referring to these manuals for installation, operation, inspection, and maintenance instructions.

1.9 FM Approved Assemblies

Part Number Coding:



PREACTION-PAC™ assemblies with indicated part numbers are FM Approved. From time to time, custom-built units are supplied upon request. The components in these custom-built units retain their individual approvals, but these custom-built units are not FM Approved.

All FM Approved systems require the installation of an FM Approved preaction control panel.

When the **PREACTION-PAC™** is installed where FM Global is an AHJ, follow the requirements of FM Approvals Class Numbers 1011, 1012, 1013 and FM Global Property Loss Prevention Data Sheet 5-40 dated 2007, especially:

- Alarm control panels for automatic release of preaction sprinkler systems are required to have 90 hours of secondary power followed by 10 minutes of release power and alarm operation.
- Include the installation of Class A (Style D or E) initiating device circuits. All FM Approved systems / installations must be configured as Class A for Deluge and Preaction Releasing Service.
- Do not include abort switches to abort the preaction sprinkler actuation function.

Table 1.9 – Approved PREACTION-PAC™ Assemblies with No Built-In Releasing Control Panel

Part Number	Valve Size, in.	Valve Type	Supervisory Gas Source	Control Panel
G215P11N	1-1/2”	Single Interlock	1/6 HP Compressor	No Panel
G215P1NN	1-1/2”	Single Interlock	Pressure Maintenance Device	No Panel
G215P21N	1-1/2”	Double Interlock	1/6 HP Compressor	No Panel
G215P2NN	1-1/2”	Double Interlock	Pressure Maintenance Device	No Panel
G220P11N	2”	Single Interlock	1/6 HP Compressor	No Panel
G220P1NN	2”	Single Interlock	Pressure Maintenance Device	No Panel
G220P21N	2”	Double Interlock	1/6 HP Compressor	No Panel
G220P2NN	2”	Double Interlock	Pressure Maintenance Device	No Panel
G225P11N	2-1/2”	Single Interlock	1/6 HP Compressor	No Panel
G225P12N	2-1/2”	Single Interlock	1/3 HP Compressor	No Panel
G225P1NN	2-1/2”	Single Interlock	Pressure Maintenance Device	No Panel
G225P21N	2-1/2”	Double Interlock	1/6 HP Compressor	No Panel
G225P22N	2-1/2”	Double Interlock	1/3 HP Compressor	No Panel
G225P2NN	2-1/2”	Double Interlock	Pressure Maintenance Device	No Panel
G230P11N	3”	Single Interlock	1/6 HP Compressor	No Panel
G230P12N	3”	Single Interlock	1/3 HP Compressor	No Panel
G230P13N	3”	Single Interlock	1/2 HP Compressor	No Panel
G230P1NN	3”	Single Interlock	Pressure Maintenance Device	No Panel
G230P21N	3”	Double Interlock	1/6 HP Compressor	No Panel
G230P22N	3”	Double Interlock	1/3 HP Compressor	No Panel
G230P23N	3”	Double Interlock	1/2 HP Compressor	No Panel
G230P2NN	3”	Double Interlock	Pressure Maintenance Device	No Panel
G240P11N	4”	Single Interlock	1/6 HP Compressor	No Panel
G240P12N	4”	Single Interlock	1/3 HP Compressor	No Panel
G240P13N	4”	Single Interlock	1/2 HP Compressor	No Panel
G240P1NN	4”	Single Interlock	Pressure Maintenance Device	No Panel
G240P21N	4”	Double Interlock	1/6 HP Compressor	No Panel
G240P22N	4”	Double Interlock	1/3 HP Compressor	No Panel
G240P23N	4”	Double Interlock	1/2 HP Compressor	No Panel
G240P2NN	4”	Double Interlock	Pressure Maintenance Device	No Panel

1.10. Installation.

1.10.1. Location. Locate the **PREACTION-PAC™** assembly as shown on the system shop drawings or design plans. The location should be dry, clean, and within the Approved temperature range of the assembly (+40 deg F to +110 deg F). Refer to Figure 4 for overall dimensions.

1.10.2. Unpacking, Placement & Leveling. Unpack the **PREACTION-PAC™** as follows:

1.10.2.1. Remove the outer carton and any other packing material surrounding the assembly.

1.10.2.2. Open the lower enclosure door.

1.10.2.3. Use a flat-bladed or Phillips screwdriver to remove the (4) bolts holding the assembly to the pallet. See Figure 5.

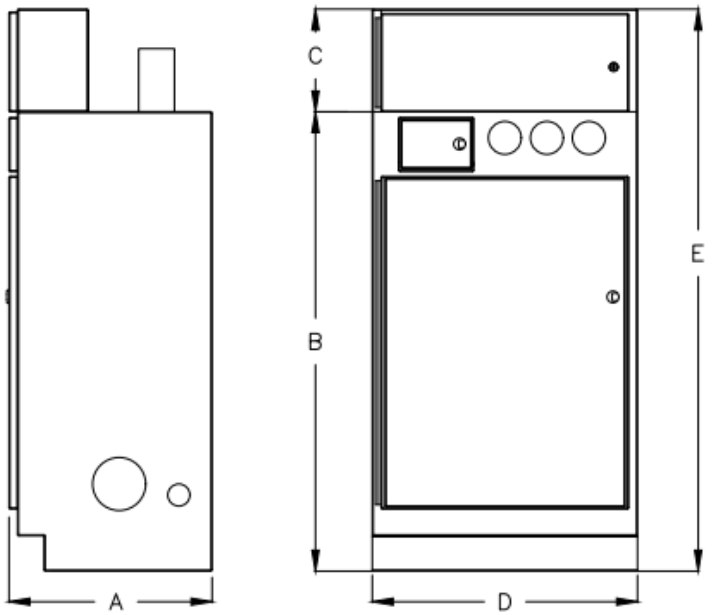
1.10.2.4. Close the lower enclosure door. Remove the unit from the pallet, and place in the intended installation location.

1.10.2.5. Level the unit:

1.10.2.5.1. Open the lower enclosure door.

1.10.2.5.2. Using a flat-bladed screwdriver, adjust the (4) leveling feet from inside the enclosure until all feet are firmly in contact with the floor. See Figure 5.

1.10.2.5.3. Using a spirit level, adjust the leveling feet until the assembly is level both front-to-back and side-to-side.



Dimension	Assemblies with 1-1/2” thru 3” Preaction Valves	Assemblies with 4” Preaction Valves
A	22.00	24.00
B	52.00	52.00
C	10.00	10.00
D	30.00	30.00
E	62.00	62.00
NOTE: All units are in inches.		

Figure 4 – Diagram - Overall Dimensions

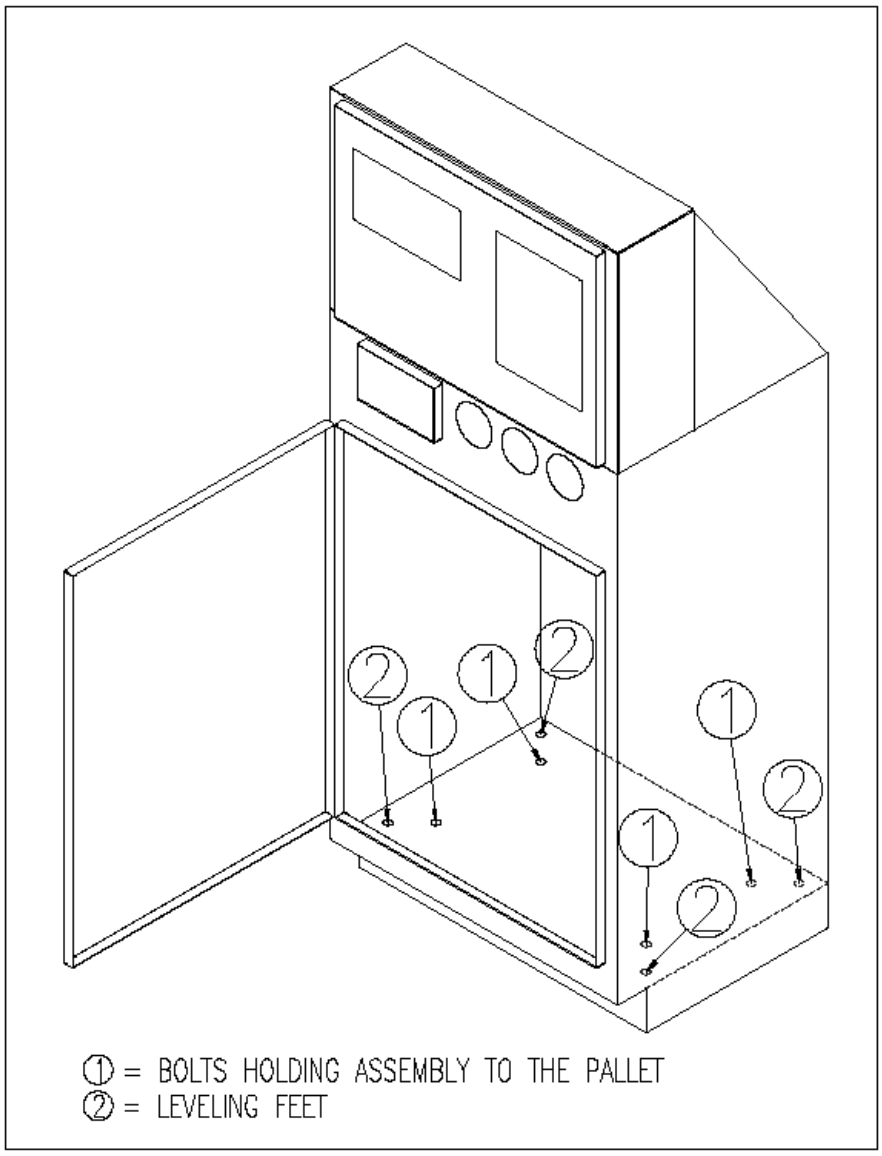
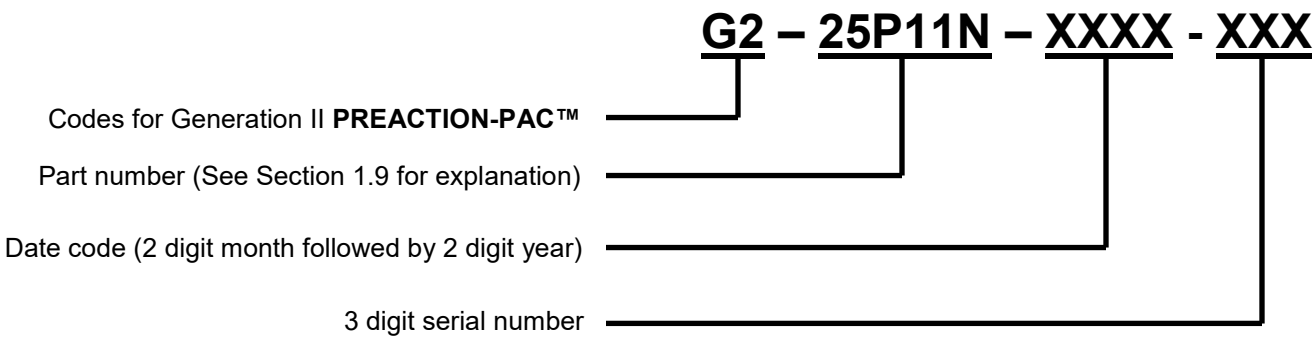


Figure 5 – Diagram - Location of Pallet Bolts and Leveling Feet

1.10.3. Serial Number. The serial number of each assembly is located on a permanent metal nameplate, located behind the upper enclosure door above the compressor disconnect switch. The serial number is coded as follows:



Note the serial number, date of installation, and date of commissioning on the front of this manual where indicated.

1.10.4. External Attachments.

1.10.4.1. Preaction Valve. Use Section 2 - Victaulic manual I-769N to guide the installation of inlet, outlet, and drain piping. See Figure 6 for details.

1.10.4.1.1. Inlet Piping. Inlet piping may be attached to the **PREACTION-PAC™** in one of two locations:

- The standard connection is at the lower right center of the lower enclosure. The assembly is pre-piped to accept inlet piping at this location. This location is labeled INLET. Remove the plastic protection cap from the inlet pipe, and use a field-supplied grooved coupling to make this connection.
- An optional connection at the lower left center of the lower enclosure. Remove the precut knockout from the lower left center of the lower enclosure. Remove the steel cap from the grooved coupling on the left side of the tee at the bottom of the enclosure. Attach the inlet piping to the left side of the tee using the grooved coupling. Remove the plastic protection cap from the lower right center inlet connection, and assemble the steel cap removed from the tee to the lower right connection using a field-supplied grooved coupling.

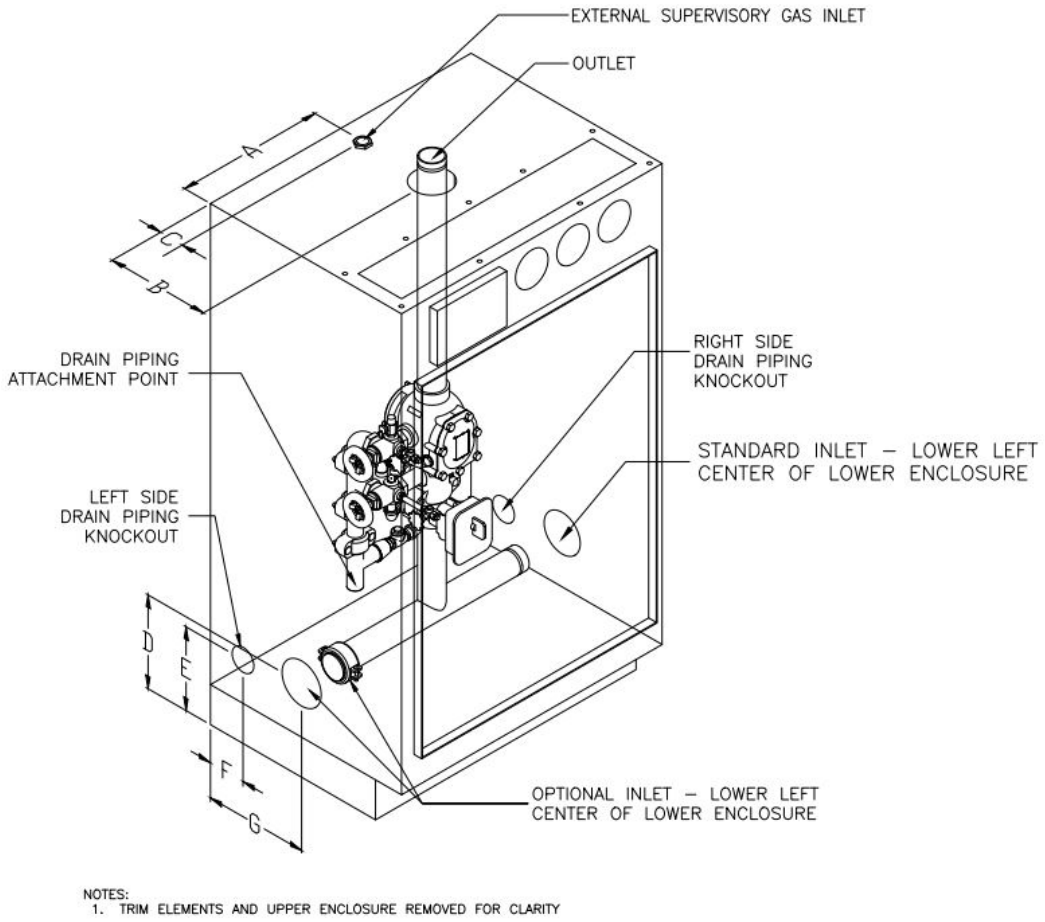
CAUTION

Failure to assemble the steel cap to the top inlet will result in property damage due to water escaping from the top inlet.

1.10.4.1.2. Outlet Piping. Outlet piping is attached to the **PREACTION-PAC™** in one location; at the top center of the lower enclosure. This location is labeled OUTLET. Remove the plastic protection cap from the outlet pipe, and used a field-supplied grooved coupling to make this connection.

1.10.4.1.3. Drain Piping. Drain piping is attached to the **PREACTION-PAC™** at a nipple located in the lower enclosure. The drain pipe may exit the enclosure on either the left or right side. Remove the precut knockout from the chosen side. Attach the drain pipe to the nipple with two field-supplied grooved couplings and a field-supplied grooved elbow.

1.10.4.1.4. External Supervisory Gas Inlet. External supervisory gas inlet piping is attached to the **PREACTION-PAC™** in one location: the back center of the top surface of the lower enclosure. The connection point is a ½ NPT female bulkhead (through-wall) fitting. Make the field connection by removing the red plastic plug and plumbing to the location with ½ inch pipe, typically either steel or copper. PLEASE NOTE: This inlet option is only present on configurations with a pressure maintenance device.



Dimension	Assemblies with 1-1/2" thru 3" Preaction Valves	Assemblies with 4" Preaction Valves
A	15.00	15.00
B	10.50	12.50
C	9.36	9.86
D	8.36	8.86
E	3.75	5.75
F	10.50	12.50
NOTE: All units are in inches.		

Figure 6 – Diagram - Piping Attachment Details

1.10.4.2. Terminal Strip. Use Figure 6 to guide the installation of connections to the terminal strip in the upper enclosure. Terminals for 110VAC power accept qty. (1) 10 ga. max. conductor. Terminals for signal switch and solenoid connection accept qty. (1) 12 ga. max or qty. (2) 16 ga. max conductors. NOTE: All conductors used for field wiring must comply with NFPA 70 – National Electrical Code. Power-limited and non-power limited conductors should be run with minimum 1/4" spacing within the upper enclosure. 110VAC power conductors are non-power-limited. Refer to the field-installed control panel instruction manual for information on the power- or non-power-limited status of the solenoid and signal conductors.

 **CAUTION** 

DO NOT drill or punch the upper enclosure to attach conduit. Use the knockouts supplied at the lower back of the upper enclosure. Failure to follow these instructions can result in damage to the assembly.

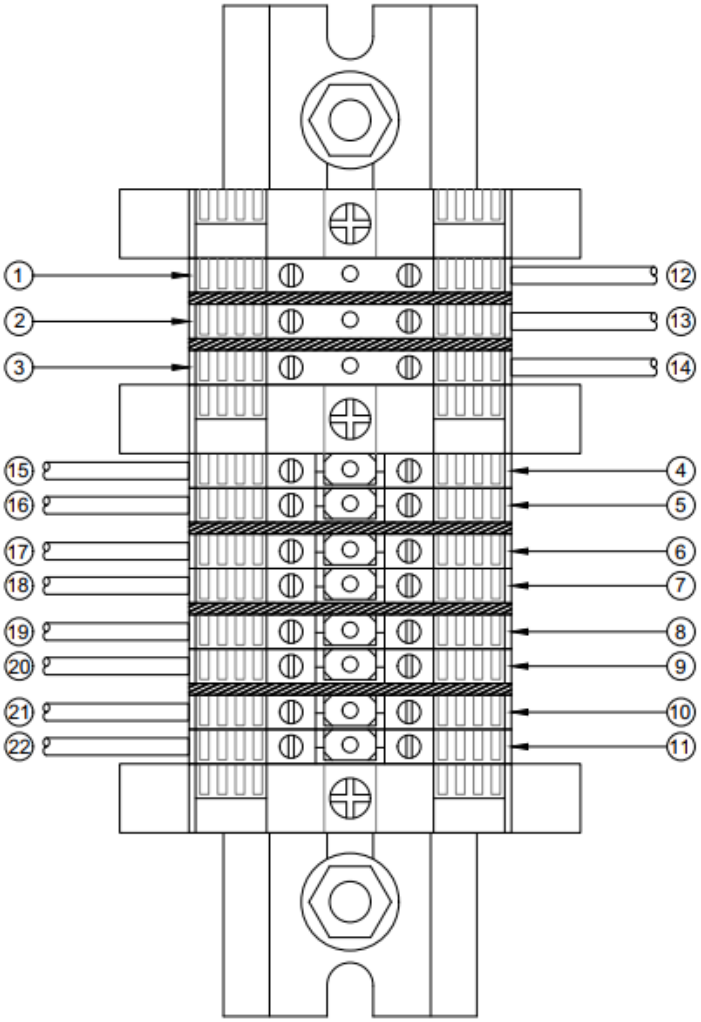


Figure 7a – Diagram –

Terminal Strip with Compressor Wiring Detail

LEGEND		
FIELD WIRING		
		COLOR OF TERMINAL BLOCK
1	110 VAC GROUND FOR COMPRESSOR	GREEN/YELLOW
2	110 VAC NEUTRAL FOR COMPRESSOR	WHITE
3	110 VAC HOT FOR COMPRESSOR	BLACK
4	PREACTION SOLENOID WIRING (-) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	GRAY
5	PREACTION SOLENOID WIRING (+) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	RED
6	LOW AIR SIGNAL SWITCH WIRING (NO) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	GRAY
7	LOW AIR SIGNAL SWITCH WIRING (COM) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	GRAY
8	WATERFLOW SIGNAL SWITCH WIRING (NO) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	BLUE
9	WATERFLOW SIGNAL SWITCH WIRING (COM) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	BLUE
10	TAMPER SIGNAL SWITCH WIRING (NO) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	YELLOW
11	TAMPER SIGNAL SWITCH WIRING (COM) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	YELLOW
FACTORY WIRING		
12	110 VAC GROUND TO COMPRESSOR	GREEN/YELLOW
13	110 VAC NEUTRALTO COMPRESSOR	WHITE
14	110 VAC HOT TO COMPRESSOR	BLACK
15	PREACTION SOLENOID WIRING (-) FROM LOWER ENCLOSURE	GRAY
16	PREACTION SOLENOID WIRING (+) FROM LOWER ENCLOSURE	RED
17	LOW AIR SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	GRAY
18	LOW AIR SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	GRAY
19	WATERFLOW SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	BLUE
20	WATERFLOW SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	BLUE
21	TAMPER SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	YELLOW
22	TAMPER SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	YELLOW

Legend for Figure 7a

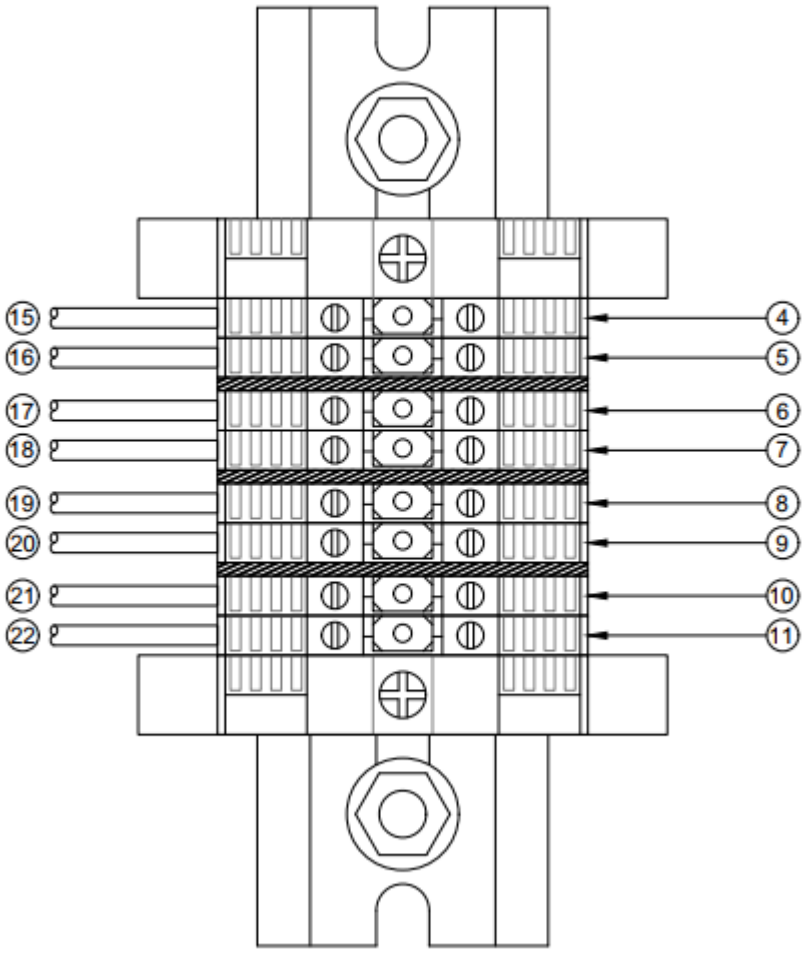


Figure 7b – Diagram –

Terminal Strip with Pressure Maintenance Device Wiring Detail

LEGEND		
FIELD WIRING		
		COLOR OF TERMINAL BLOCK
4	PREACTION SOLENOID WIRING (-) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	GRAY
5	PREACTION SOLENOID WIRING (+) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	RED
6	LOW AIR SIGNAL SWITCH WIRING (NO) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	GRAY
7	LOW AIR SIGNAL SWITCH WIRING (COM) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	GRAY
8	WATERFLOW SIGNAL SWITCH WIRING (NO) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	BLUE
9	WATERFLOW SIGNAL SWITCH WIRING (COM) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	BLUE
10	TAMPER SIGNAL SWITCH WIRING (NO) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	YELLOW
11	TAMPER SIGNAL SWITCH WIRING (COM) TO FIELD-INSTALLED CONTROL PANEL OR MODULE	YELLOW
FACTORY WIRING		
15	PREACTION SOLENOID WIRING (-) FROM LOWER ENCLOSURE	GRAY
16	PREACTION SOLENOID WIRING (+) FROM LOWER ENCLOSURE	RED
17	LOW AIR SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	GRAY
18	LOW AIR SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	GRAY
19	WATERFLOW SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	BLUE
20	WATERFLOW SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	BLUE
21	TAMPER SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	YELLOW
22	TAMPER SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	YELLOW

Legend for Figure 7b

1.10.4.2.1. Power. 110VAC, 3-wire, single-phase power is attached to the terminal strip in the upper enclosure. See Figure 7. Terminals for 110VAC power accept qty. (1) 10 ga. max. conductor. Current draw: With 1/6HP compressor = 6.6 amps; with 1/3HP compressor = 6.6 amps; with 1/2HP compressor = 8.0 amps; with pressure maintenance device = 0 amps.

DANGER

Only qualified electricians should connect incoming power to the assembly. Failure to follow this instruction could result in death or serious personal injury.

A. Turn off circuit breaker at the main power distribution panel.
B. Connect service ground conductor to terminal marked GROUND.
C. Connect primary neutral conductor to terminal marked NEUTRAL.
D. Connect primary hot conductor to terminal marked HOT.

1.10.4.3. Compressor. Where applicable. See Figure 7a. 110VAC, 3-wire, single-phase power is attached to the terminal strip in the upper enclosure. The compressor power is factory-wired to the terminal strip in the upper enclosure. The compressor pressure outlet is factory-attached to the system piping within the lower enclosure.

1.10.5. Prior To Placing In Service. Before placing the **PREACTION-PAC™** in service, perform the following steps. Ensure that all discrepancies are corrected before proceeding to the next step.

1.10.5.1. Ensure the entire system is installed per the latest revision of all applicable shop drawings.
1.10.5.2. Ensure all testing has been performed on the sprinkler piping per the requirements of the authority having jurisdiction and NFPA 13.
1.10.5.3. Perform all preliminary tests on the field-installed control panel, field wiring, and field devices.
1.10.5.4. Use Section 2 – Victaulic manual I-769N to perform all preliminary tests on the preaction valve, trim, and sprinkler piping.
1.10.5.5. Perform all tests required to be witnessed by the authority having jurisdiction. Obtain AHJ approval of the installation.

1.10.6. Placing In Service.

1.10.6.1. Verify that the water supply is on.
1.10.6.2. Using Section 2 – Victaulic manual I-769N, verify that all valves are in the proper position for in-service status. Verify that the three pressure gauges on the front of the lower enclosure are indicating expected values within expected limits.
1.10.6.3. Ensure that the owner of the system has received adequate introductory training.
1.10.6.4. Turn over this manual and the enclosure door keys to the owner. The manual may be stored in the pocket on the inside of the lower enclosure door.

1.11. Operation.

1.11.1. Automatic. Fully automatic operation of the system will be conducted by the field-installed control panel. Power from 110VAC and / or batteries is required for the control panel to function in this way. No manual intervention is required for the control panel to perform its functions. Manual intervention to acknowledge and silence signals may be performed.

IMPORTANT

Fusing of a sprinkler head by heat is necessary for water to be discharged onto a fire, even after operation of automatic fire detectors.

1.11.2. Manual. Manual operation of the preaction valve is accomplished with the manual release valve. Open the door marked IN CASE OF FIRE OPEN DOOR AND PULL LEVER. No key is needed to open this door. Pull the lever. No power is needed to open the preaction valve in this manner. The door may not be closed until the lever is restored to its normal position.

IMPORTANT

Fusing of a sprinkler head by heat is necessary for water to be discharged onto a fire, even after operation of the manual station valve.

1.11.3. Restoring To Service. After automatic or manual system operation, follow instructions in Section 2 – Victaulic manual I-769N to restore the **PREACTION-PAC™** to service.

1.12. Inspection, Testing, and Maintenance. Regular inspection, testing and maintenance of the **PREACTION-PAC™** assembly is essential to the assembly's continued proper operation. Follow all instructions in the documents described in this section. Pay particular attention to the required minimum interval for each item of inspection, testing, and maintenance. The owner of the system (or their designated representative) is responsible for the overall condition of the system, and ensuring that all inspection, testing, and maintenance items are conducted as recommended.

IMPORTANT

The **UNITED Fire Systems PREACTION-PAC™** sprinkler valve assembly is a vital part of the fire protection of any facility where these units are installed. Life safety and property protection depends on continuing proper operation of the assembly. The owner of the **PREACTION-PAC™** is responsible for the condition of the assembly and its continued proper operation. **UNITED Fire Systems** strongly recommends that all owners of **PREACTION-PAC™** engage the services of qualified, trained fire protection professionals to inspect, test, maintain, and repair the assembly.

1.12.1. Inspection. Inspection involves carrying out a set of procedures to discover and note any and all discrepancies that could render the system impaired, inoperative, or ineffective. The result of an inspection is a comprehensive list of these discrepancies. Inspection does not specifically include maintenance or repair; however, maintenance and repair can be and usually is conducted at the time of inspection.

1.12.2. Testing. Testing involves carrying out procedures to discover if tested components function as intended. Testing is an integral part of performing inspection. Testing is also done after the performance of some maintenance procedures.

1.12.3. Maintenance. Maintenance involves carrying out procedures to ensure that maintained components continue to function as intended. Maintenance is usually preventive in nature. Maintenance can be conducted during inspection.

1.12.4. Repair. Repair involves carrying out procedures to correct the deficiencies found during inspection, or as a result of other events such as system actuation or control panel trouble / alarm signals.

1.12.5. Documents Relevant To Inspection, Testing, Maintenance, and Repair.

1.12.5.1. Victaulic Manual I-769N.

1.12.5.2. General Air Products Manual OILLESSINST.

1.12.5.3. United Fire Systems Instruction Sheet UFS-710.

1.12.5.4. National Fire Protection Association No. 25, "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems."

1.12.5.5. National Fire Protection Association No. 72, "National Fire Alarm Code®"

SECTION 2

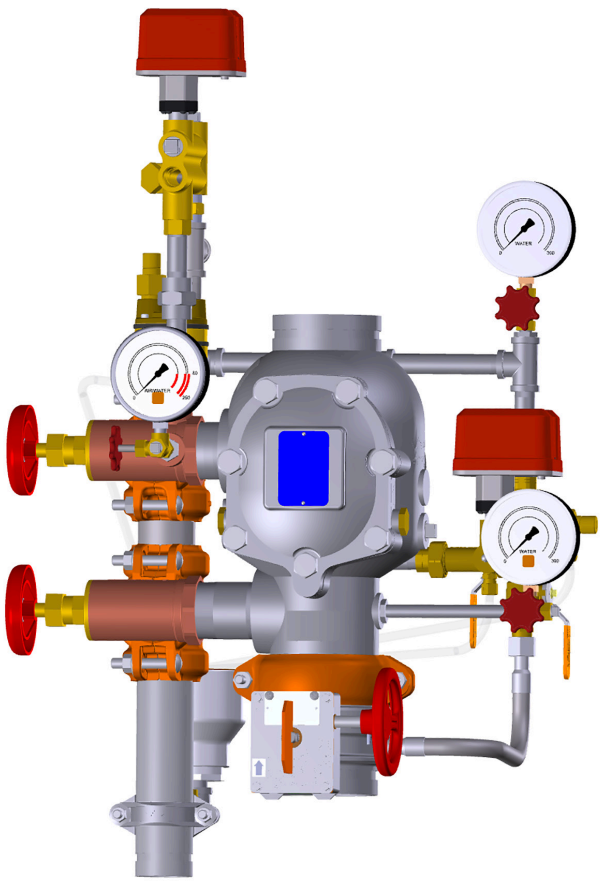
Victaulic Manual I-769N

Firelock NXT Preaction Valve

Victaulic® Series 769N FireLock NXT™ Actuated Valve with Preaction Trim

Non-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator
Non-Interlocked Pneumatic/Electric Release with Series 776 Low-Pressure Actuator and Series 753-E Solenoid Valve
Single-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator
Single-Interlocked Electric Release with Series 753-E Solenoid Valve
Double-Interlocked Electric (Electric-Pneumatic/Electric) Release with Series 753-E Solenoid Valve
Electric Release with Series 753-E Solenoid Valve and Redundant Solenoid Valve LPCB

KEEP THESE INSTRUCTIONS WITH THE INSTALLED VALVE FOR FUTURE REFERENCE



Single-Interlocked Pneumatic Release Trim Shown

⚠ WARNING

- Read and understand all instructions before attempting to install, remove, adjust, or perform maintenance on any Victaulic piping products.
- Depressurize and drain piping systems before attempting to install, remove, adjust, or perform maintenance on any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.
- Save this installation, maintenance, and testing manual for future reference.

Failure to follow instructions and warnings could cause system failure, resulting in death or serious personal injury and property damage.

SERIES 769N FIRELOCK NXT™ ACTUATED VALVE WITH PREACTION TRIM

THIS QUICK REFERENCE SECTION IS FOR PLACING THE SYSTEM IN SERVICE AND FOR PERFORMING WATER FLOW ALARM TESTS.

AN EXPERIENCED, TRAINED INSTALLER MUST READ AND UNDERSTAND THE FULL CONTENTS OF THIS MANUAL AND ALL WARNING MESSAGES BEFORE ATTEMPTING TO PLACE THE SYSTEM INTO SERVICE.

INITIAL SYSTEM SETUP

NOTICE

Before proceeding with initial system setup, verify that the following steps have been completed:

- **Verify that the system air feed piping is connected to the location indicated on the trim drawing.**
- **FOR TRIM EQUIPPED WITH A SOLENOID VALVE: Verify that an approved control panel is installed for proper system operation.**

Step 1:
Confirm that all system drains are shut and that the system is free of leaks.

Step 2:
Confirm that the system has been depressurized. The gauges should indicate zero pressure.

Step 2a: If a Series 746-LPA Dry Accelerator is installed, confirm that the isolation ball valve is closed.
Step 2b: If a Series 746-LPA Dry Accelerator is installed, open the ¼-turn vent ball valve.

Step 3:
Confirm that the alarm test ball valve is closed.

Step 4:
For single-interlocked electric and double-interlocked electric (electric-pneumatic/electric) release trim, open the charge line ball valve. Allow water to flow through the auto drain tube, then proceed to step E5a. For trim equipped with a Series 776 Low-Pressure Actuator, proceed to step P5a.

FOR TRIM EQUIPPED WITH A SERIES 776 LOW-PRESSURE ACTUATOR:
Step P5a: Charge the system with air by turning on the compressor or by opening the fast-fill ball valve on the AMTA. Charge the system to 13 psi/90 kPa/0.9 Bar minimum.
Step P5b: When the system reaches approximately 10 psi/69 kPa/0.7 Bar, and no additional moisture is being released from the Auto Vent, pull up on the Auto Vent Sleeve of the Series 776 Low-Pressure Actuator. **NOTE:** The Auto Vent Screw should seal and remain in the set ("UP") position.
Step P5c: When system air pressure is established, close the fast-fill ball valve on the AMTA.
Step P5d: Open the slow-fill ball valve on the AMTA. **NOTE:** Failure to leave the slow-fill ball valve open may allow system pressure to drop, resulting in valve operation in the event of a system leak.
Step P5e: Open the charge line ball valve. Allow water to flow through the auto drain tube.
Step P5f: Pull up on the auto drain sleeve.

FOR TRIM EQUIPPED WITH A SOLENOID VALVE:
Step E5a: Confirm that the solenoid is closed (de-energized).
Step E5b: Confirm that water is not flowing through the solenoid valve.

Step 6:
Open the manual pull station valve to bleed off any air that is present, then close the manual pull station valve. Verify that the charge line pressure is equal to the supply pressure, and verify that the auto drain is set by pulling up on the auto drain sleeve.

Step 6a: If a Series 746-LPA Dry Accelerator is installed, close the ¼-turn vent ball valve.
Step 6b: If a Series 746-LPA Dry Accelerator is installed, open the isolation ball valve. This will set the accelerator.

Step 7:
Open the water supply main drain valve.

Step 8:
Open the water supply main control valve slowly until water flows steadily from the open water supply main drain valve.

Step 9:
Close the water supply main drain valve when a steady flow of water occurs.

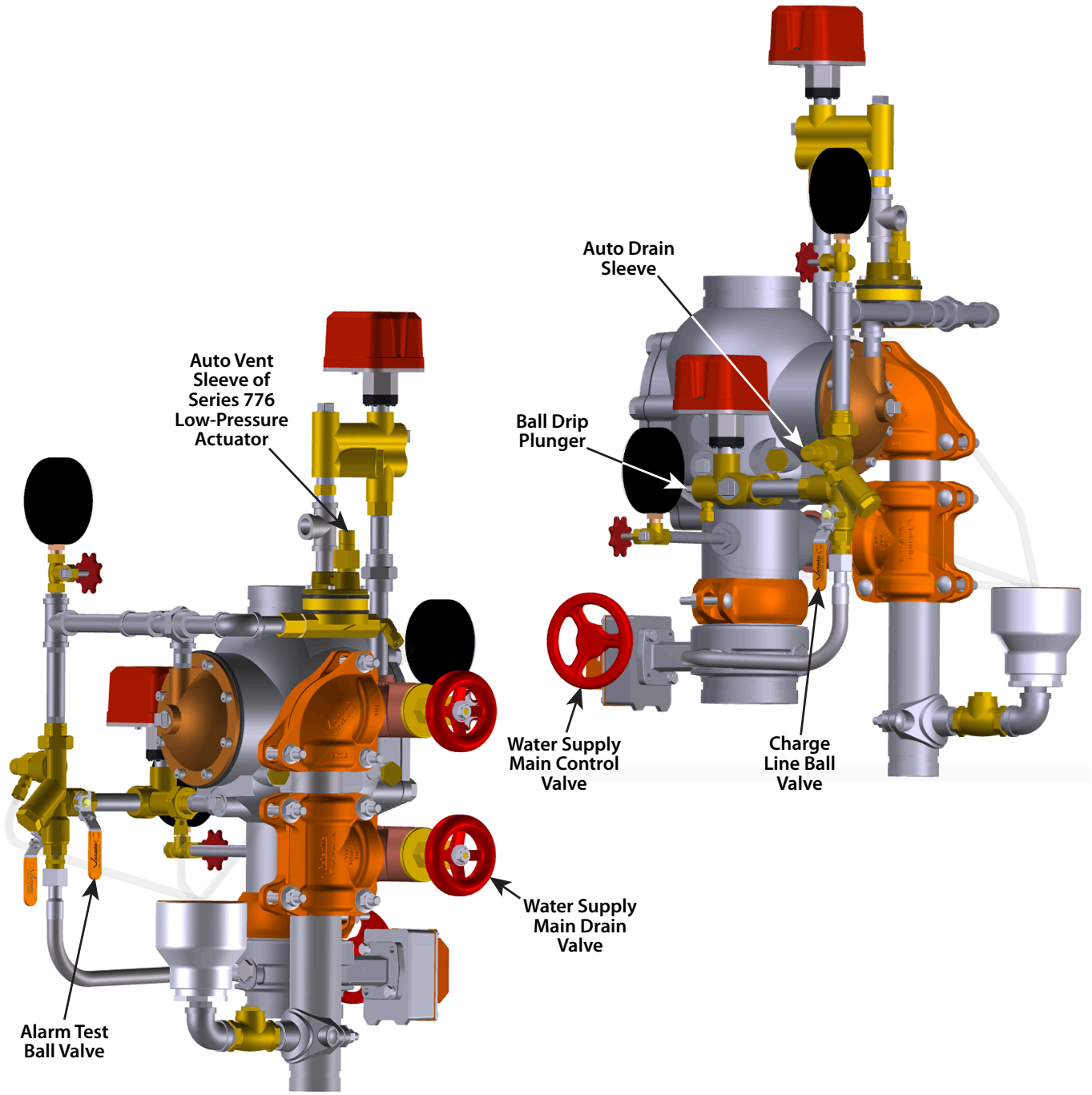
Step 10:
Open the water supply main control valve fully.

Step 11:
Confirm that all valves are in their normal operating positions (refer to the table below).

NORMAL OPERATING POSITIONS FOR VALVES

Valve	Normal Operating Position
Water Supply Main Control Valve	Open
Water Supply Main Drain Valve	Closed
System Main Drain Valve	Closed
Charge Line Ball Valve of the Priming Manifold Assembly	Open
Alarm Test Ball Valve of the Priming Manifold Assembly	Closed

Valve	Normal Operating Position
Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)	Open
Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)	Closed
Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Open
¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Closed



Single-Interlocked Pneumatic Release Trim Shown

WATER FLOW ALARM TEST

Perform the water flow alarm test on a frequency required by the current NFPA-25 code. The authority having jurisdiction in the area may require these tests on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the water flow alarm test will be performed.
2. Open the water supply main drain valve fully to flush the water supply of any contaminants.
3. Close the water supply main drain valve.
4. Open the alarm test ball valve. Confirm that mechanical and electrical alarms are activated and that remote monitoring stations, if provided, receive an alarm signal.
5. Close the alarm test ball valve after verifying proper operation of all alarms.
6. Push in the ball drip plunger on the alarm manifold assembly to verify that there is no pressure in the alarm line.
7. Verify that all alarms stopped sounding, that the alarm line drained properly, and that remote station alarms reset properly.
8. Confirm that the ball drip on the alarm manifold assembly is not leaking water or air.
9. Provide test results to the authority having jurisdiction, if required.

TABLE OF CONTENTS

HAZARD IDENTIFICATION

Definitions for identifying the various hazard levels are provided below. When you see this symbol, be alert to the possibility of personal injury. Carefully read and fully understand the message that follows.

⚠ WARNING

- **The use of the word "WARNING" identifies the presence of hazards or unsafe practices that could result in death or serious personal injury and property damage if instructions are not followed.**

⚠ CAUTION

- **The use of the word "CAUTION" identifies possible hazards or unsafe practices that could result in personal injury and product or property damage if instructions are not followed.**

NOTICE

- **The use of the word "NOTICE" identifies special instructions that are important but not related to hazards.**

INSTALLER SAFETY INFORMATION

⚠ WARNING


- **An experienced, trained installer must install this product in accordance with all instructions. These instructions contain important information.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.**

Failure to follow these instructions can cause product failure, resulting in death or serious personal injury and property damage.

1. **Read and understand all instructions and refer to the trim diagrams before installing, maintaining, or testing this Victaulic Series 769N FireLock NXT Actuated Valve with Preaction Trim.** For proper operation and approval, the Series 769N FireLock NXT Actuated Valve and accessories must be installed in accordance with the specific trim diagrams included with the shipment.
2. **Use only recommended accessories.** Accessories and equipment that are not approved for use with this actuated valve may cause improper system operation and property damage.
3. **Wear safety glasses, hardhat, foot protection, and hearing protection.** Wear hearing protection if you are exposed to long periods of noisy jobsite operations.
4. **Prevent back injury.** Valve assemblies require more than one person (or mechanical lifting equipment) to position and install the assembly. Always practice proper lifting techniques.
5. **Keep work areas clean.** Keep the work area clean and well lit, and allow enough space to accommodate proper installation of the valve, trim, and accessories.
6. **Avoid pinch points.** Due to the weight of the valve body, use caution around pinch points and spring-loaded components (i.e. clapper assembly) in order to prevent bodily injury.

IMPORTANT INSTALLATION INFORMATION

1. **Confirm that adequate space is available for valve, trim, and accessories.** Refer to page 8 for dimensional information.
2. **Flush water supply piping.** Before installing the Series 769N FireLock NXT Actuated Valve, flush the water supply piping thoroughly to remove all foreign material.
3. **Protect system from freezing temperatures.** Series 769N FireLock NXT Actuated Valves and supply piping MUST NOT be located in an area where the valve can be exposed to freezing temperatures or mechanical damage.
4. **Confirm material compatibility.** It is the system designer's responsibility to confirm material compatibility of the Series 769N FireLock NXT Actuated Valve, trim, and associated accessories when a corrosive environment or contaminated water is present.
5. **Supply air or nitrogen to the system.** Air or nitrogen supply to the piping system must be clean, dry, and oil-free and must be regulated, restricted, and uninterrupted. Refer to the "Air Supply Requirements" section. Observe the system air pressure over a 24-hour period to confirm system integrity. If there is degradation in system air pressure, find and correct all leaks. **NOTE:** NFPA requires less than 1½-psi/10-kPa/0.1-Bar leakage in 24 hours.
6. **Supply water to the system.** Supply pressure to the charge line by providing an uninterrupted source of water from upstream of the main control valve. When an uninterrupted water flow alarm is required, Victaulic recommends the use of a low-pressure alarm installed on the charge line downstream of the priming manifold assembly.
7. **Pitch the water supply piping.** Per NFPA 13 requirements, piping must be pitched so that systems can drain properly. For areas that are subject to high levels of condensation, or where piping is not properly pitched, an optional Series 75D Water Column Device kit is available to assist in automatically draining water out of the riser.
8. **IF THE INLET WATER SUPPLY IS INTERRUPTED FOR ANY REASON, AND SYSTEM SUPPLY PRESSURE TO THE VALVE DECREASES, ENSURE THAT THE CHARGE LINE IS FULLY PRESSURIZED BEFORE PLACING THE SYSTEM BACK IN SERVICE.**

HYDROSTATIC TESTING

⚠ WARNING

- **If air testing is required, DO NOT exceed 50 psi/345 kPa/3.4 Bar air pressure.**

Failure to follow this instruction could result in death or serious personal injury and property damage.

Maximum working pressure of valve:
- 300 psi/2065 kPa/20.7 Bar

Valve is factory tested to:
- 600 psi/4135 kPa/4.1 Bar (all sizes)

The valve can be hydrostatically tested against the clapper at:
- 200 psi/1380 kPa/13.8 Bar or 50 psi/345 kPa/3.4 Bar above the normal water supply pressure (2-hour limited time period) for acceptance by the authority having jurisdiction

RECEIVING THE SHIPMENT

NOTICE

- **Drawings and/or pictures in this manual may be exaggerated for clarity.**
- **This product and this installation, maintenance, and testing manual contain trademarks, copyrights, and/or patented features that are the exclusive property of Victaulic.**

The components shaded in orange on the following two pages are shipped separate from the valve and must be installed in accordance with the trim drawing provided. **NOTE:** The Vic-Quick Riser (VQR) assembly is shown.

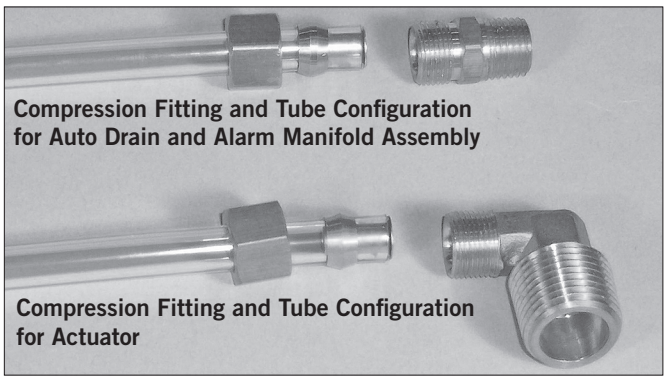
1. Ensure that all components are included in the shipment and that all necessary tools are available for installation. Verify that the provided trim drawing matches the system's requirements.
2. Remove all plastic caps and foam spacers from the valve.

⚠ CAUTION

- **Ensure that all protective shipping items are removed from the interior and exterior of the valve body before installation.**
- **Ensure that no foreign material gets into the valve body, pipe nipples, or valve openings.**
- **If using any material other than PTFE thread sealant tape, use extra caution so that material does not enter the trim.**

Failure to follow these instructions could cause improper valve operation, resulting in personal injury and property damage.

3. Install the valve assembly into the riser with two Victaulic rigid couplings. Refer to the instructions, supplied with the coupling, for complete installation requirements. **SERIES 769N FIRELOCK NXT ACTUATED VALVES MUST BE INSTALLED ONLY IN THE VERTICAL POSITION WITH THE ARROW ON THE BODY POINTING UPWARD.**
4. For components shipped separate from the valve, apply a small amount of pipe joint compound or PTFE thread sealant tape to the external threads of all threaded connections. DO NOT get any tape, compound, or other foreign material into the openings of the threaded connections.



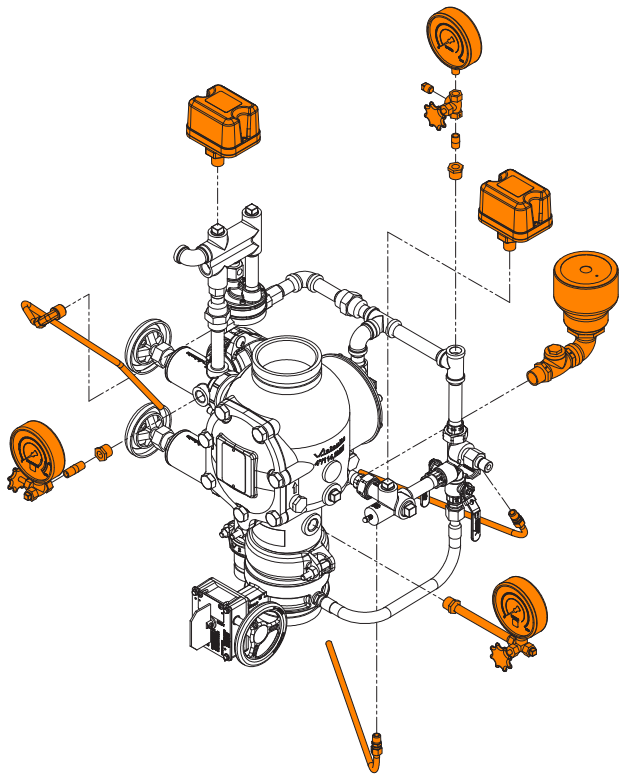
Compression Fitting and Tube Configuration for Auto Drain and Alarm Manifold Assembly

Compression Fitting and Tube Configuration for Actuator

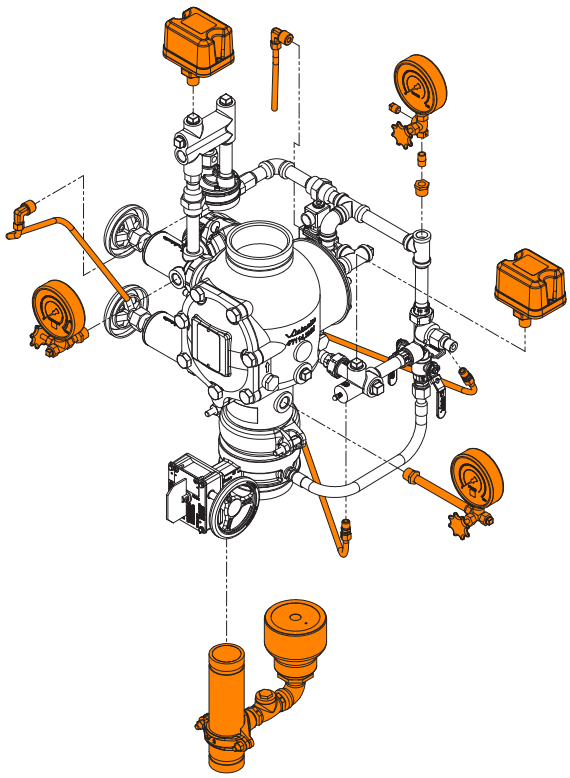
5. Compression fittings and tubes are provided for connection from the outlet of the auto drain, alarm manifold assembly, and actuator to the drip cup or drain. Install the compression fittings in accordance with the trim drawing provided. **NEVER INSERT A PLUG INTO THE OUTLET OF THE AUTO DRAIN, ALARM MANIFOLD ASSEMBLY, OR ACTUATOR IN PLACE OF THE COMPRESSION FITTING/TUBE.**

The components shaded in orange below are shipped separate from the valve and must be installed in accordance with the trim drawing provided.
NOTE: The Vic-Quick Riser (VQR) assembly is shown.

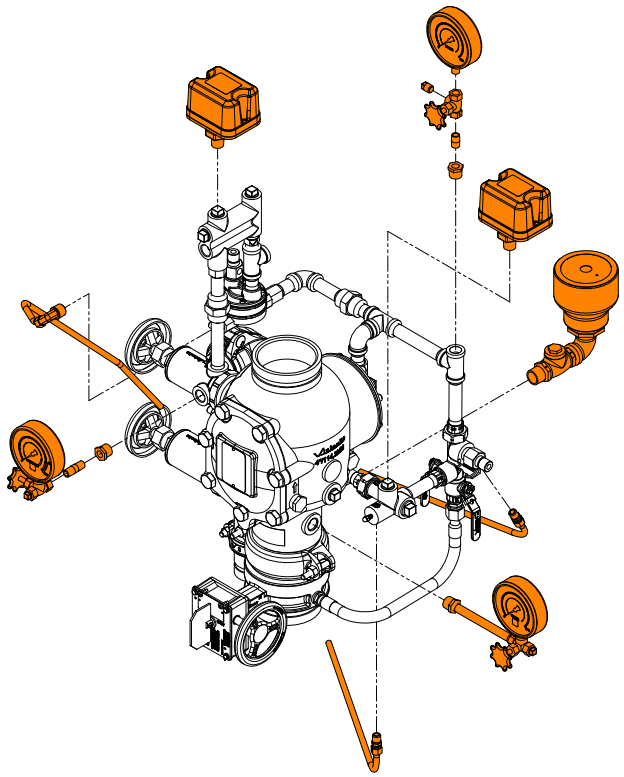
Non-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator



Non-Interlocked Pneumatic/Electric Release with Series 776 Low-Pressure Actuator and Series 753-E Solenoid Valve

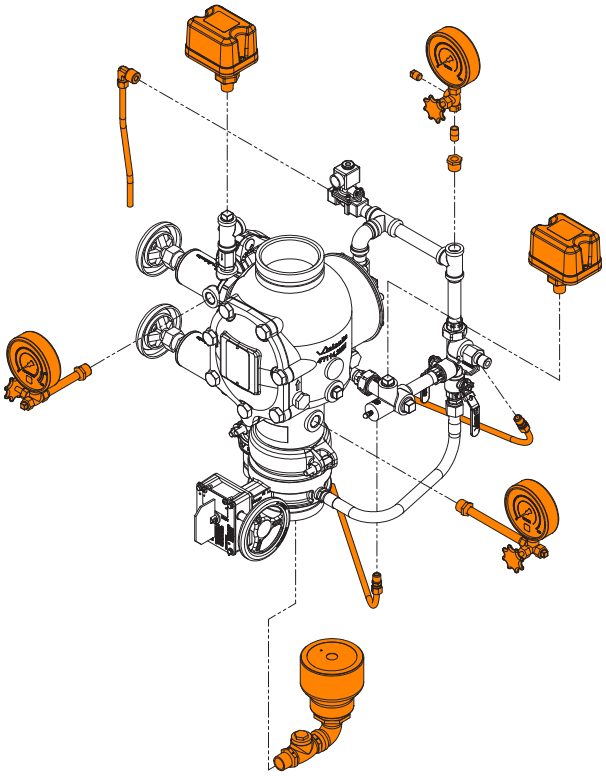


Single-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator

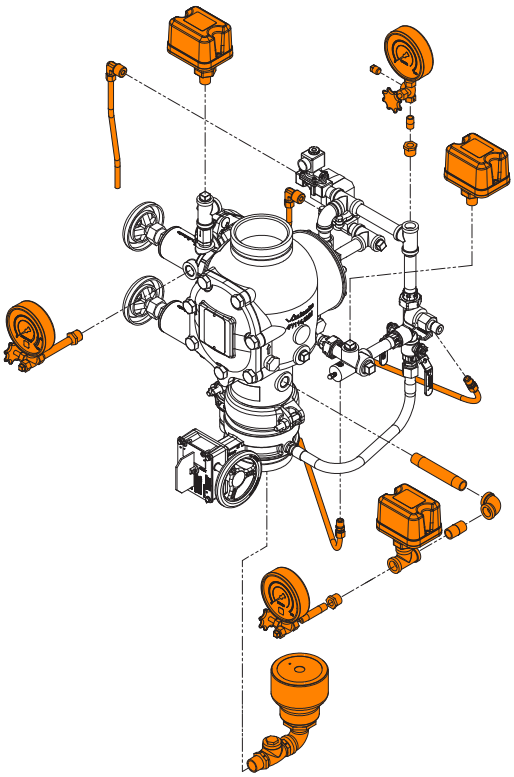


The components shaded in orange below are shipped separate from the valve and must be installed in accordance with the trim drawing provided.
NOTE: The Vic-Quick Riser (VQR) assembly is shown.

Single-Interlocked Electric and Double-Interlocked Electric (Electric-Pneumatic/Electric) Release with Series 753-E Solenoid Valve

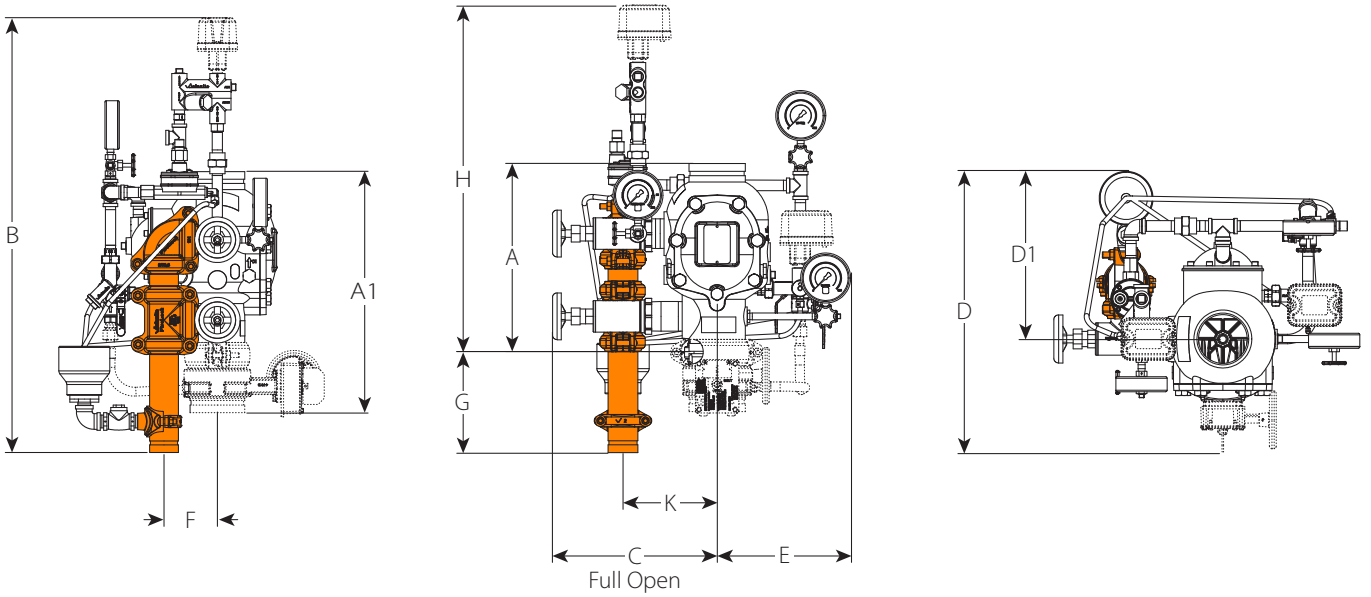


Electric Release with Series 753-E Solenoid Valve and Redundant Solenoid Valve LPCB



TRIM DIMENSIONS

A 4-INCH/114.3-MM VALVE WITH SINGLE-INTERLOCKED PNEUMATIC RELEASE PREACTION TRIM IS SHOWN BELOW
1 ½ – 2-INCH/48.3 – 60.3-MM CONFIGURATIONS CONTAIN ¾-INCH/19-MM DRAIN VALVES
2 ½ – 3-INCH/73.0 – 88.9-MM CONFIGURATIONS CONTAIN 1 ¼-INCH/31-MM DRAIN VALVES
4 – 8-INCH/114.3 – 219.1-MM CONFIGURATIONS CONTAIN 2-INCH/50-MM DRAIN VALVES



NOTES:
The drawings shown above reflect the single-interlocked pneumatic release trim with Series 776 Low-Pressure Actuator. In addition, these dimensions can be applied to all other trim configurations featured within this manual.

The "A" dimension is the actual takeout dimension of the valve body.

The "A1" dimension is the actual takeout dimension of the valve body with water supply main control valve.

For systems with the optional Series 746-LPA Dry Accelerator, add 11.50 inches/292 mm to the "B" dimension to account for the additional height.

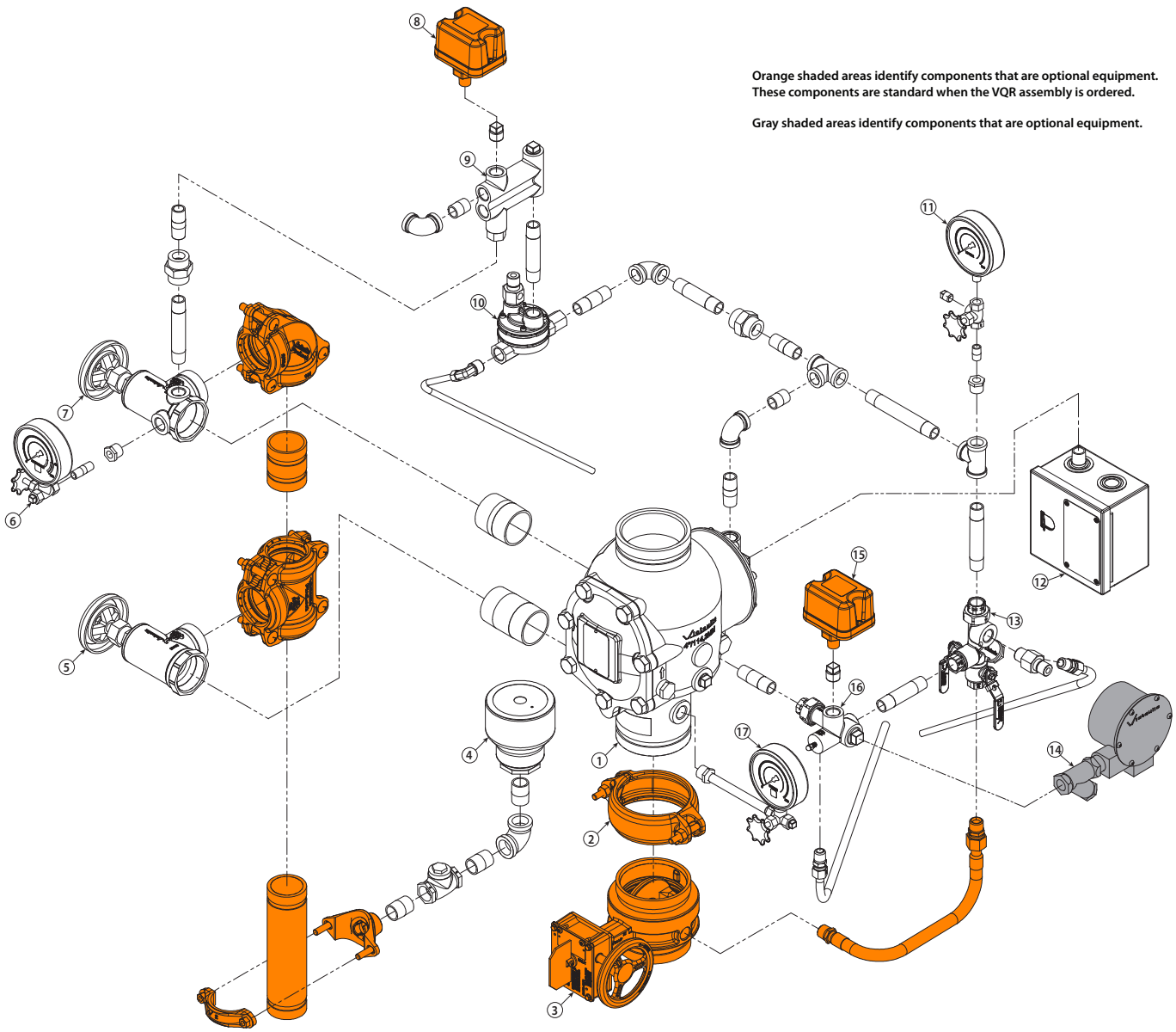
The "D" and "D1" dimensions are not fixed measurements. The drip cup can be rotated to provide more clearance at the back of the trim.

Components shown as dotted lines denote optional equipment.

The recommended drain connection kit (shaded in orange) is for reference and takeout dimensions. This drain connection comes standard when the VQR assembly is ordered.

Nominal Size inches or mm	Dimensions – inches/mm											Approx Weight Each lbs/kg	
	A	A1	B	C	D	D1	E	F	G	H	K	Without Trim	With Trim
1 ½	9.00 228.60	16.37 415.80	34.25 870	9.25 235	16.25 413	11.00 279	9.00 229	3.25 83	10.25 260	24.00 610	6.00 152	16.7 7.6	43.0 19.5
2	9.00 228.60	13.83 351.28	34.25 870	9.25 235	17.50 445	11.00 279	9.00 229	3.25 83	10.25 260	24.00 610	6.00 152	17.0 7.7	43.0 19.5
2 ½	12.61 320.29	16.51 419.35	35.75 908	11.25 286	20.00 508	12.50 318	9.50 241	4.00 102	9.75 248	26.00 660	6.50 165	41.0 18.7	65.0 29.5
76.1 mm	12.61 320.29	16.51 419.35	35.75 908	11.25 286	20.00 508	12.50 318	9.50 241	4.00 102	9.75 248	26.00 660	6.50 165	41.0 18.7	65.0 29.5
3	12.61 320.29	16.51 419.35	35.75 908	11.25 286	20.00 508	12.50 318	9.50 241	4.00 102	9.75 248	26.00 660	6.50 165	41.0 18.7	65.0 29.5
4	15.03 381.76	19.85 504.19	36.50 927	13.50 343	22.25 565	13.50 343	11.00 279	4.75 121	8.50 216	28.00 711	8.00 203	59.0 26.7	95.0 43.0
165.1 mm	16.00 406.40	22.13 562.10	36.75 933	14.00 356	24.50 622	13.25 337	11.00 279	4.50 114	8.25 210	28.50 724	8.25 210	80.0 36.2	116.0 52.6
6	16.00 406.40	22.13 562.10	36.75 933	14.00 356	24.50 622	13.25 337	11.00 279	4.50 114	8.25 210	28.50 724	8.25 210	80.0 36.2	116.0 52.6
8	17.50 444.50	23.02 584.71	39.50 1003	14.75 375	27.00 686	13.50 343	12.25 311	4.75 121	8.25 210	31.25 794	9.25 235	122.0 55.3	158.0 71.6

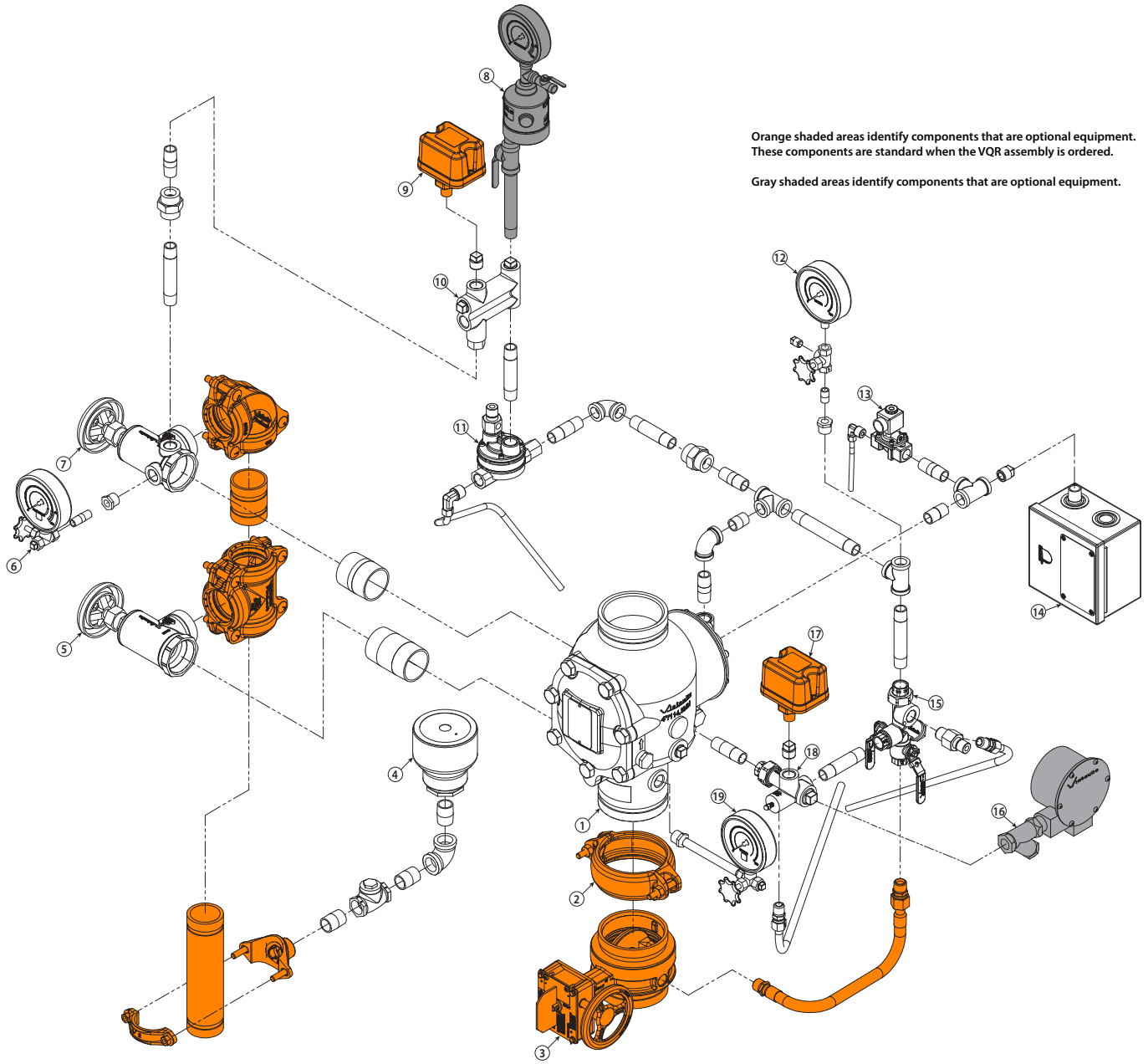
TRIM COMPONENTS – EXPLODED VIEW DRAWING
Series 769N FireLock NXT Actuated Valve - Non-Interlocked Pneumatic Release Preaction Trim with Series 776 Low-Pressure Actuator



Item	Description
1	Series 769N FireLock NXT Actuated Valve
2	FireLock Rigid Coupling
3	Water Supply Main Control Valve
4	Drip Cup
5	Water Supply Main Drain Valve – Flow Test
6	System Pressure Gauge/Gauge Valve Assembly
7	System Main Drain Valve
8	Air Supervisory Pressure Switch
9	Air Manifold

Item	Description
10	Series 776 Low-Pressure Actuator
11	Charge Line Pressure Gauge/Gauge Valve Assembly
12	Series 755 Manual Pull Station
13	Priming Manifold Assembly
14	Series 760 Water Motor Alarm Assembly
15	Alarm Pressure Switch
16	Alarm Manifold Assembly
17	Water Supply Pressure Gauge/Gauge Valve Assembly

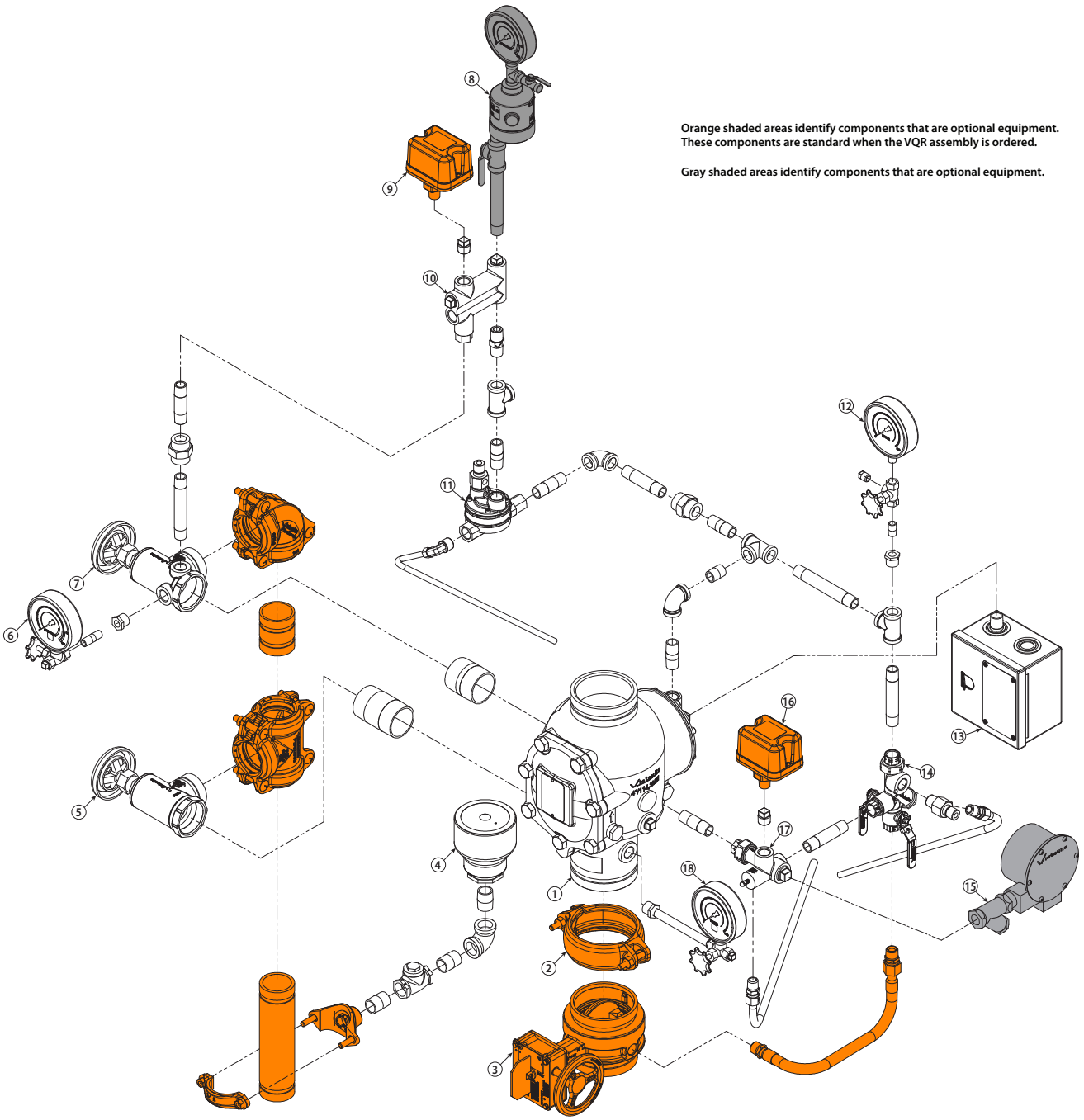
TRIM COMPONENTS – EXPLODED VIEW DRAWING
Series 769N FireLock NXT Actuated Valve - Non-Interlocked Pneumatic/Electric Release Preaction Trim with Series 776 Low-Pressure Actuator and Series 753-E Solenoid Valve



Item	Description
1	Series 769N FireLock NXT Actuated Valve
2	FireLock Rigid Coupling
3	Water Supply Main Control Valve
4	Drip Cup
5	Water Supply Main Drain Valve – Flow Test
6	System Pressure Gauge/Gauge Valve Assembly
7	System Main Drain Valve
8	Series 746-LPA Dry Accelerator
9	Air Supervisory Pressure Switch
10	Air Manifold

Item	Description
11	Series 776 Low-Pressure Actuator
12	Charge Line Pressure Gauge/Gauge Valve Assembly
13	Series 753-E Solenoid Valve
14	Series 755 Manual Pull Station
15	Priming Manifold Assembly
16	Series 760 Water Motor Alarm Assembly
17	Alarm Pressure Switch
18	Alarm Manifold Assembly
19	Water Supply Pressure Gauge/Gauge Valve Assembly

TRIM COMPONENTS – EXPLODED VIEW DRAWING
Series 769N FireLock NXT Actuated Valve - Single-Interlocked Pneumatic Release Preaction Trim with Series 776 Low-Pressure Actuator



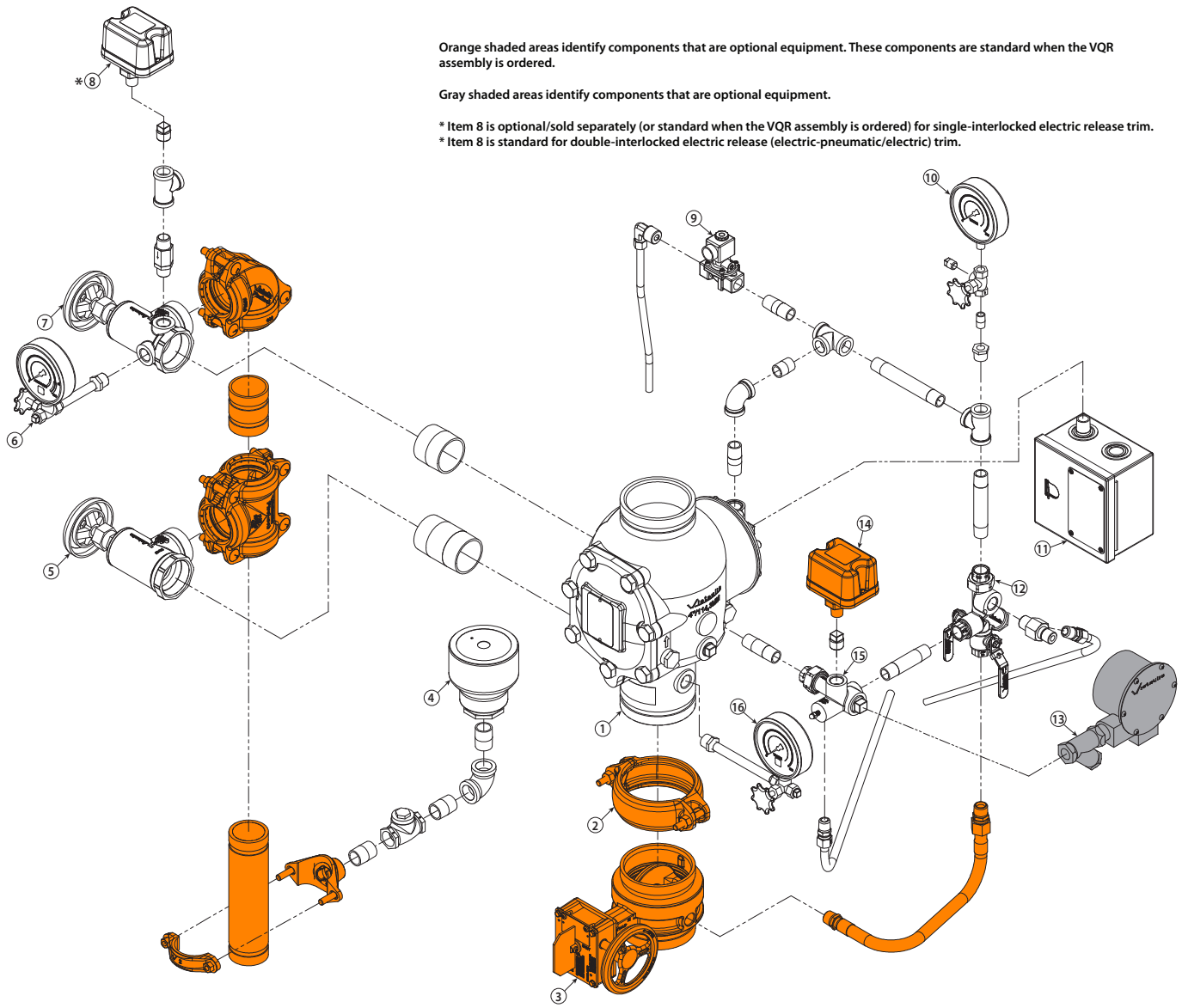
Orange shaded areas identify components that are optional equipment. These components are standard when the VQR assembly is ordered.

Gray shaded areas identify components that are optional equipment.

Item	Description
1	Series 769N FireLock NXT Actuated Valve
2	FireLock Rigid Coupling
3	Water Supply Main Control Valve
4	Drip Cup
5	Water Supply Main Drain Valve – Flow Test
6	System Pressure Gauge/Gauge Valve Assembly
7	System Main Drain Valve
8	Series 746-LPA Dry Accelerator
9	Air Supervisory Pressure Switch

Item	Description
10	Air Manifold
11	Series 776 Low-Pressure Actuator
12	Charge Line Pressure Gauge/Gauge Valve Assembly
13	Series 755 Manual Pull Station
14	Priming Manifold Assembly
15	Series 760 Water Motor Alarm Assembly
16	Alarm Pressure Switch
17	Alarm Manifold Assembly
18	Water Supply Pressure Gauge/Gauge Valve Assembly

TRIM COMPONENTS – EXPLODED VIEW DRAWING
Series 769N FireLock NXT Actuated Valve - Single-Interlocked Electric and Double-Interlocked Electric (Electric-Pneumatic/Electric) Release Preaction Trim with Series 753-E Solenoid Valve



Orange shaded areas identify components that are optional equipment. These components are standard when the VQR assembly is ordered.

Gray shaded areas identify components that are optional equipment.

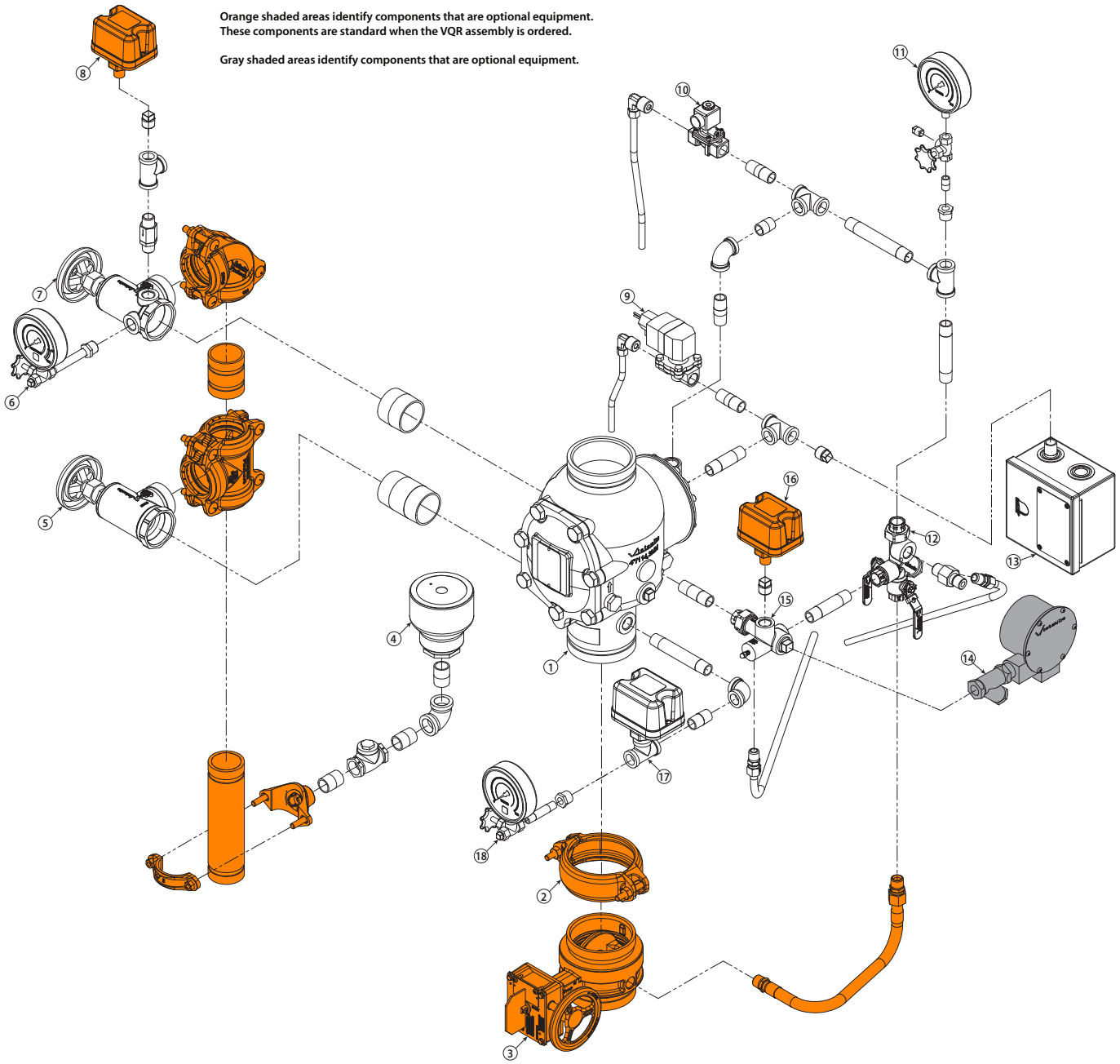
*** Item 8 is optional/sold separately (or standard when the VQR assembly is ordered) for single-interlocked electric release trim.**
*** Item 8 is standard for double-interlocked electric release (electric-pneumatic/electric) trim.**

Item	Description
1	Series 769N FireLock NXT Actuated Valve
2	FireLock Rigid Coupling
3	Water Supply Main Control Valve
4	Drip Cup
5	Water Supply Main Drain Valve – Flow Test
6	System Pressure Gauge/Gauge Valve Assembly
7	System Main Drain Valve
8	Air Supervisory Pressure Switch (See Notes Above)

Item	Description
9	Series 753-E Solenoid Valve
10	Charge Line Pressure Gauge/Gauge Valve Assembly
11	Series 755 Manual Pull Station
12	Priming Manifold Assembly
13	Series 760 Water Motor Alarm Assembly
14	Alarm Pressure Switch
15	Alarm Manifold Assembly
16	Water Supply Pressure Gauge/Gauge Valve Assembly

TRIM COMPONENTS – EXPLODED VIEW DRAWING
Series 769N FireLock NXT Actuated Valve - Electric Release Preaction Trim with Series 753-E Solenoid Valve and Redundant Solenoid Valve

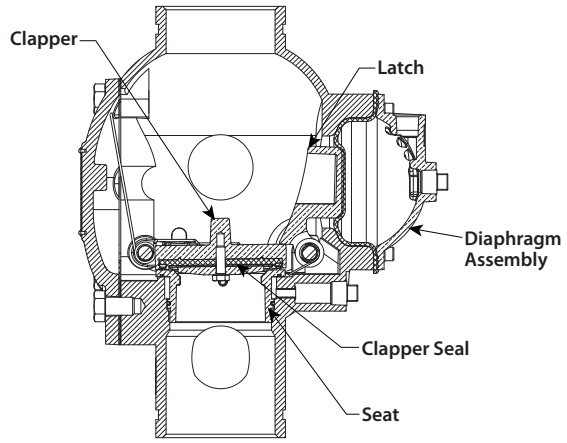
LPCB



Item	Description
1	Series 769N FireLock NXT Actuated Valve
2	FireLock Rigid Coupling
3	Water Supply Main Control Valve
4	Drip Cup
5	Water Supply Main Drain Valve – Flow Test
6	System Pressure Gauge/Gauge Valve Assembly
7	System Main Drain Valve
8	Air Supervisory Pressure Switch
9	Redundant Solenoid Valve

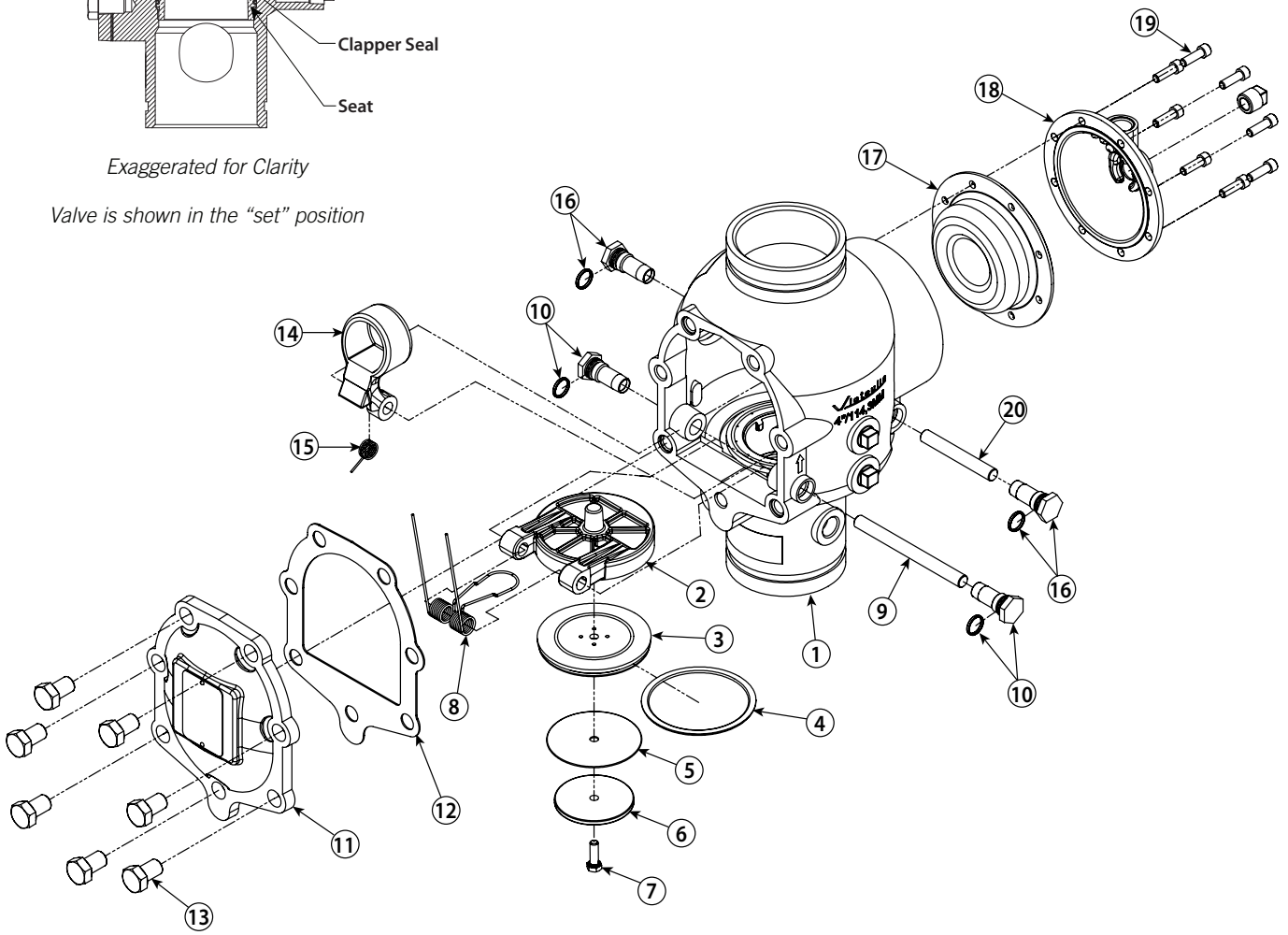
Item	Description
10	Series 753-E Solenoid Valve
11	Charge Line Pressure Gauge/Gauge Valve Assembly
12	Priming Manifold Assembly
13	Series 755 Manual Pull Station
14	Series 760 Water Motor Alarm Assembly
15	Alarm Manifold Assembly
16	Alarm Pressure Switch
17	Low Water Pressure Switch
18	Water Supply Pressure Gauge/Gauge Valve Assembly

INTERNAL VALVE COMPONENTS – SECTION VIEW AND EXPLODED VIEW DRAWINGS



Exaggerated for Clarity

Valve is shown in the "set" position



The 1½-inch/48.3-mm and 2-inch/60.3-mm valve sizes contain washers under the heads of the cover plate bolts.

Item	Description
1	Valve Body
2	Clapper
3	Clapper Seal
4	Seal Ring
5	Seal Washer*
6	Seal Retaining Ring
7	Seal Assembly Bolt
8	Clapper Spring
9	Clapper Shaft
10	Clapper Shaft Bushing and O-Ring (Qty. 2)

Item	Description
11	Cover Plate
12	Cover Plate Gasket
13	Cover Plate Bolts
14	Latch
15	Latch Spring
16	Latch Spring Bushing and O-Ring (Qty. 2)
17	Diaphragm
18	Diaphragm Cover
19	Diaphragm Cover Cap Screws (Qty. 8)
20	Latch Shaft

* Item 5 (Seal Washer) is not used in 1½-inch/48.3-mm and 2-inch/60.3-mm valve sizes.

AIR SUPPLY REQUIREMENTS

The required air pressure for Series 769N FireLock NXT Actuated Valves is 13 psi/90 kPa/0.9 Bar minimum, regardless of the system supply water pressure. Normal air pressure should not exceed 20 psi/138 kPa/1.4 Bar. Failure to maintain air pressure within the 13 psi/90 kPa/0.9 Bar to 18 psi/124 kPa/1.2 Bar range may delay system operation response time.

The Series 746-LPA Dry Accelerator must be used only on systems operating below 20 psi/138 kPa/1.4 Bar of air. If air pressure is higher than 20 psi/138 kPa/1.4 Bar, the Series 746 Dry Accelerator should be used.

If multiple Series 769N FireLock NXT Actuated Valves are installed with a common air supply, isolate the systems with a spring-loaded, soft-seated ball check valve to ensure air integrity for each system. Good practice is to include a ball valve for isolation and service of each individual system.

The engineer/system designer is responsible for sizing the compressor so that the entire system is charged to the required air pressure within 30 minutes. DO NOT oversize the compressor to provide more airflow. An oversized compressor will slow down or possibly prevent valve operation.

If the compressor fills the system too fast, it may be necessary to restrict the air supply. Restricting the air supply will ensure that air being exhausted from an open sprinkler or manual release valve is not replaced by the air supply system as fast as it is being exhausted.

BASE- OR RISER-MOUNTED AIR COMPRESSORS

For base- or riser-mounted air compressors, the recommended air pressure of 13 psi/90 kPa/0.9 Bar is the “on” or “low” pressure setting for the compressor. The “off” or “high” pressure setting should be 18 psi/124 kPa/1.2 Bar.

When a base- or riser-mounted air compressor supplies air to a Series 769N FireLock NXT Actuated Valve, it is not necessary to install the Victaulic Series 757 Regulated Air Maintenance Trim Assembly (AMTA). In this case, the air line of the compressor connects to the trim at the fitting where the Series 757 Regulated AMTA is installed normally (refer to the applicable trim drawing). If the compressor is not equipped with a pressure switch, the Series 757P Air Maintenance Trim Assembly with Pressure Switch should be installed.

NOTICE
• **Victaulic recommends a maximum of two Series 769N FireLock NXT Actuated Valves per Series 757 Regulated AMTA or Series 757P AMTA with Pressure Switch.**

SHOP AIR OR TANK-MOUNTED AIR COMPRESSORS

In the event a compressor becomes inoperative, a properly sized tank-mounted air compressor provides the greatest protection for systems.

When shop air or a tank-mounted air compressor is used, the Series 757 Regulated AMTA must be installed. The Series 757 Regulated AMTA provides proper air regulation from the air reservoir to the sprinkler system.

For tank-mounted air compressors, the recommended air pressure of 13 psi/90 kPa/0.9 Bar should be used as the set point for the air regulator. The “on” pressure of the compressor should be at least 5 psi/34 kPa/0.3 Bar above the set point of the air regulator.

COMPRESSOR REQUIREMENTS AND SETTINGS FOR A SERIES 769N FIRELOCK NXT ACTUATED VALVE INSTALLED WITH A SERIES 746-LPA DRY ACCELERATOR

Set the air regulator of the Series 757 Regulated AMTA to a minimum of 13 psi/90 kPa/0.9 Bar.

The Series 757P Air Maintenance Trim Assembly with Pressure Switch MUST NOT be used on a Series 769N FireLock NXT Actuated Valve installed with a Series 746-LPA Dry Accelerator, unless a tank and air regulator are added.

In the event a compressor becomes inoperative, a properly sized tank-mounted air compressor provides the greatest protection for systems installed with a Series 746-LPA Dry Accelerator. In this situation, air can be supplied continuously to the sprinkler system for an extended time period. **NOTE:** The Series 757 Regulated AMTA should be used with a tank-mounted air compressor to supply air to a Series 769N FireLock NXT Actuated Valve when the Series 746-LPA Dry Accelerator is used. The use of an air regulator with a base- or riser-mounted air compressor could cause short cycling, resulting in premature wear of the compressor.

The air regulator of the Series 757 Regulated AMTA is a relief-type design. Any pressure in the system that is above the set point of the air regulator will be released. Therefore, charging the air regulator above the set point could cause premature operation of a valve installed with a Series 746-LPA Dry Accelerator.

SETTINGS FOR AIR SUPERVISORY PRESSURE SWITCHES AND ALARM PRESSURE SWITCHES

1. Air supervisory pressure switches are required for preaction systems and must be set according to the following notes. **NOTE:** Switches for VQR assemblies are pre-set at the factory.

1a. Wire the air supervisory pressure switches to activate a low-pressure alarm signal. **NOTE:** In addition, the local authority having jurisdiction may require a high-pressure alarm. Contact the local authority having jurisdiction for this requirement.

1b. Set the air supervisory pressure switches to activate at 2 – 4 psi/14 – 28 kPa/0.1 – 0.3 Bar below the minimum air pressure required (but not lower than 10 psi/69 kPa/0.7 Bar).

1c. Wire the alarm pressure switch to activate a water flow alarm.

1d. Set the alarm pressure switch to activate on a pressure rise of 4 – 8 psi/28 – 55 kPa/0.3 – 0.6 Bar.

SECTION I

- **Initial System Setup**

INITIAL SYSTEM SETUP

NOTICE

Before proceeding with initial system setup, verify that the following steps have been completed:

- **Verify that the system air feed piping is connected to the location indicated on the trim drawing.**
- **FOR TRIM EQUIPPED WITH A SOLENOID VALVE: Verify that an approved control panel is installed for proper system operation.**

Step 1:

Confirm that all system drains are shut and that the system is free of leaks.

Step 2:

Confirm that the system has been depressurized. The gauges should indicate zero pressure.

Step 2a: If a Series 746-LPA Dry Accelerator is installed, confirm that the isolation ball valve is closed.

Step 2b: If a Series 746-LPA Dry Accelerator is installed, open the ¼-turn vent ball valve.

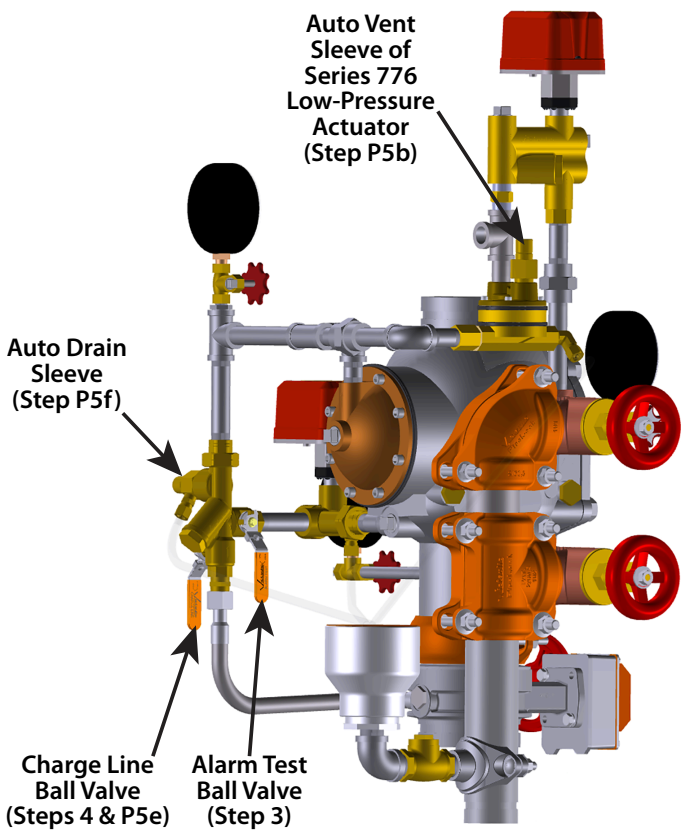
Step 3:

Confirm that the alarm test ball valve is closed.

Step 4:

For single-interlocked electric and double-interlocked electric (electric-pneumatic/electric) release trim, open the charge line ball valve. Allow water to flow through the auto drain tube, then proceed to step E5a. For trim equipped with a Series 776 Low-Pressure Actuator, proceed to step P5a.

Single-Interlocked Pneumatic Release Trim Shown



FOR TRIM EQUIPPED WITH A SERIES 776 LOW-PRESSURE ACTUATOR:

Step P5a: Charge the system with air by turning on the compressor or by opening the fast-fill ball valve on the AMTA. Charge the system to 13 psi/90 kPa/0.9 Bar minimum. Refer to the "Air Supply Requirements" section.

Step P5b: When the system reaches approximately 10 psi/69 kPa/0.7 Bar, and no additional moisture is being released from the Auto Vent, pull up on the Auto Vent Sleeve of the Series 776 Low-Pressure Actuator. **NOTE:** The Auto Vent Screw should seal and remain in the set ("UP") position.

Step P5c: When system air pressure is established, close the fast-fill ball valve on the AMTA.

Step P5d: Open the slow-fill ball valve on the AMTA. **NOTE:** Failure to leave the slow-fill ball valve open may allow system pressure to drop, resulting in valve operation in the event of a system leak.

Step P5e: Open the charge line ball valve. Allow water to flow through the auto drain tube.

Step P5f: Pull up on the auto drain sleeve.

FOR TRIM EQUIPPED WITH A SOLENOID VALVE:

Step E5a: Confirm that the solenoid is closed (de-energized).

Step E5b: Confirm that water is not flowing through the solenoid valve.

Step 6:

Open the manual pull station valve to bleed off any air that is present, then close the manual pull station valve. Verify that the charge line pressure is equal to the supply pressure, and verify that the auto drain is set by pulling up on the auto drain sleeve.

Step 6a: If a Series 746-LPA Dry Accelerator is installed, close the ¼-turn vent ball valve.

Step 6b: If a Series 746-LPA Dry Accelerator is installed, open the isolation ball valve. This will set the accelerator.

INITIAL SYSTEM SETUP (CONTINUED)

Step 7:

Open the water supply main drain valve.

Step 8:

Open the water supply main control valve slowly until water flows steadily from the open water supply main drain valve.

Step 9:

Close the water supply main drain valve when a steady flow of water occurs.

Step 10:

Open the water supply main control valve fully.

Step 11:

Confirm that all valves are in their normal operating positions (refer to the table to the right).

Step 12:

Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the system is in service.

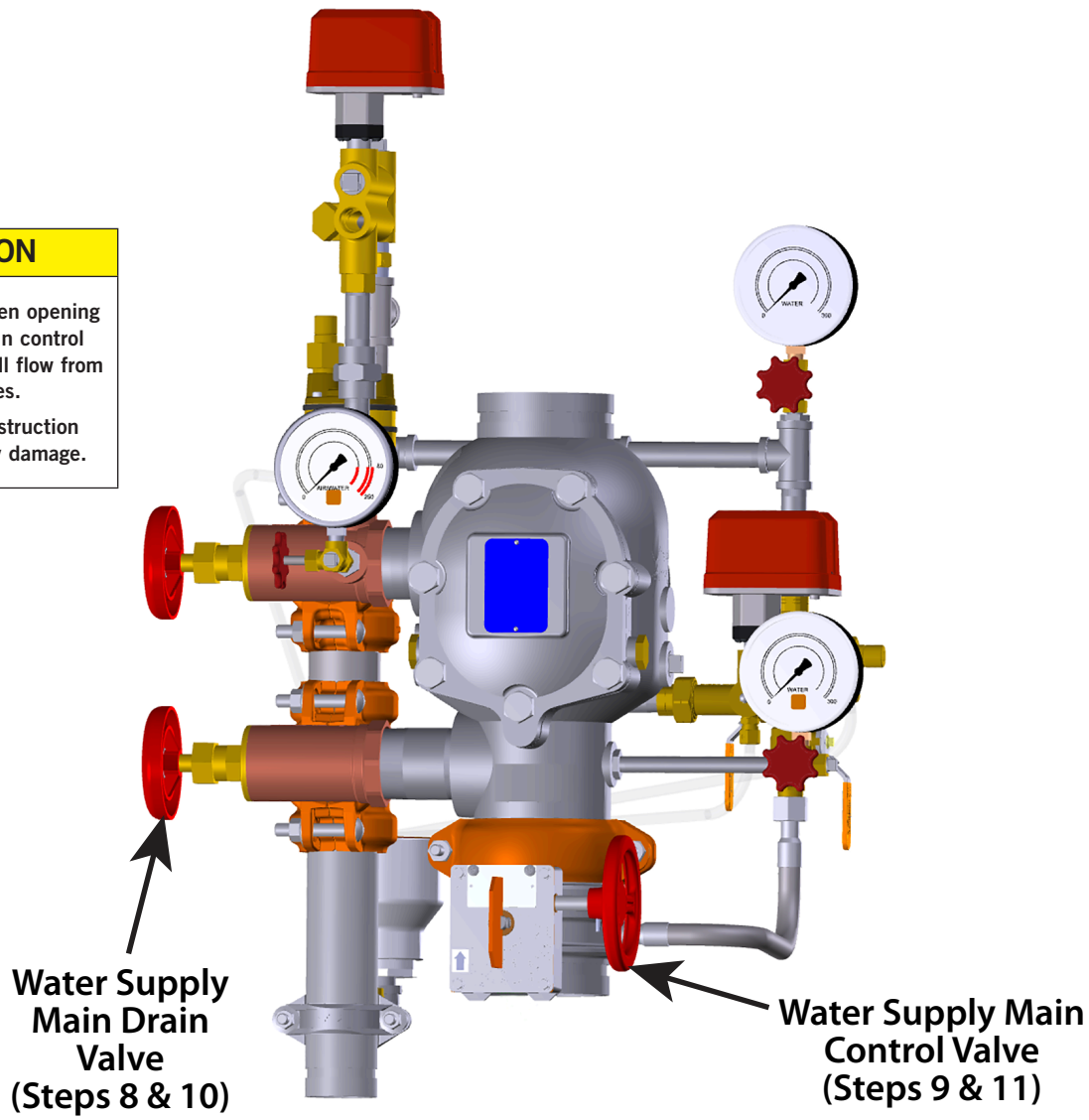
Valve	Normal Operating Position
Water Supply Main Control Valve	Open
Water Supply Main Drain Valve	Closed
System Main Drain Valve	Closed
Charge Line Ball Valve of the Priming Manifold Assembly	Open
Alarm Test Ball Valve of the Priming Manifold Assembly	Closed
Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)	Open
Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)	Closed
Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Open
¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Closed

⚠ CAUTION

- **Take precautions when opening the water supply main control valve, since water will flow from all open system valves.**

Failure to follow this instruction could result in property damage.

Single-Interlocked Pneumatic Release Trim Shown



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SECTION II

- **Resetting the System**

RESETTING THE SYSTEM

Step 1:

Isolate the charge line ball valve by placing it in the closed position.

Step 2:

Close the water supply main control valve.

Step 3:

Open the system main drain valve. Confirm that the system is drained.

Step 3a: Push in the ball drip plunger to release pressure.

Step 4:

Close the system main drain valve.

Step 5:

Confirm that all system drains are shut and that the system is free from leaks.

Step 6:

Confirm that the system has been depressurized. The gauges should indicate zero pressure.

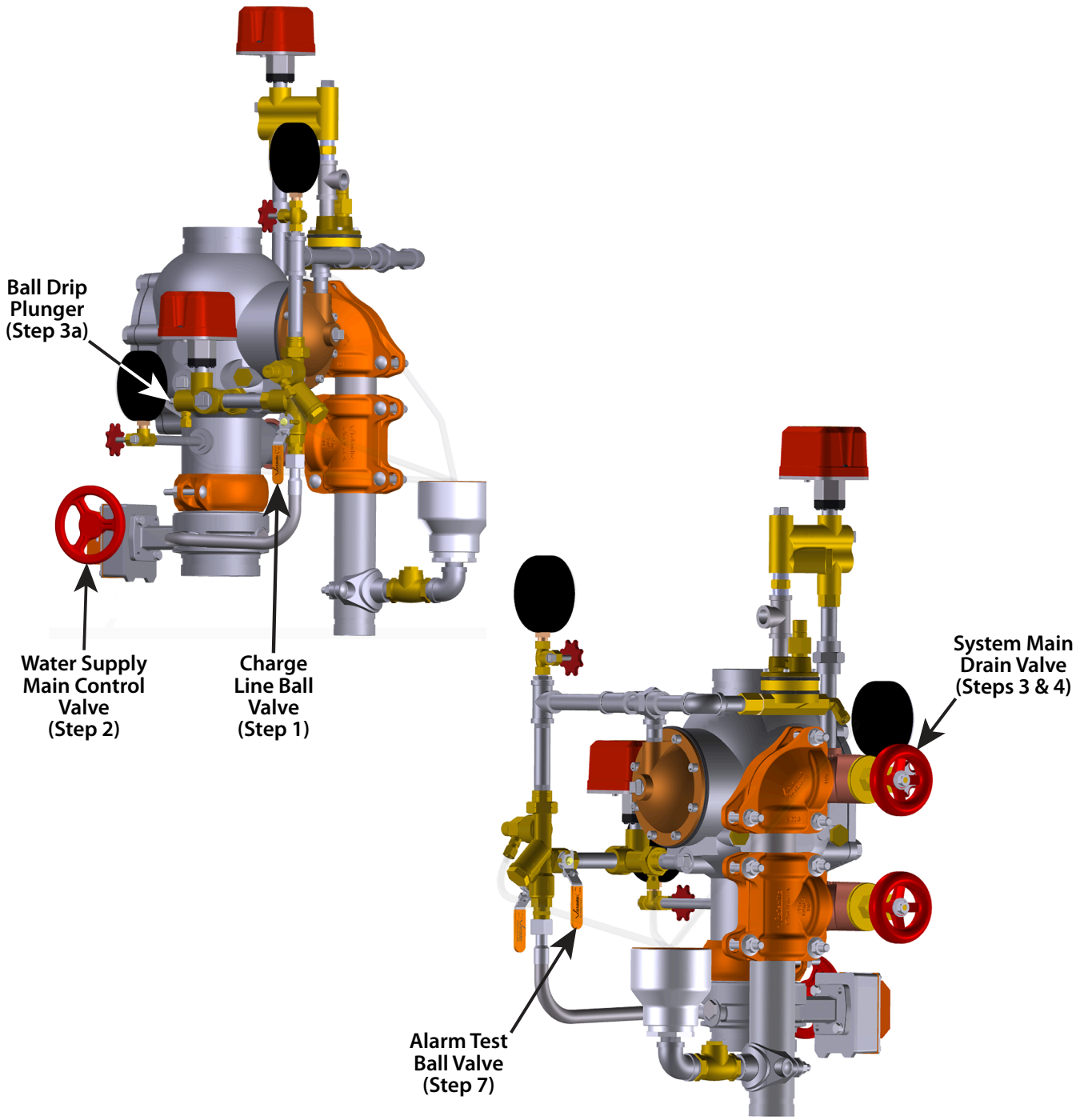
Step 7:

Confirm that the alarm test ball valve is closed.

Step 8:

Follow steps 4 - 12 of the “Initial System Setup” section.

Single-Interlocked Pneumatic Release Trim Shown



SECTION III

- Weekly External Inspection
- Monthly External Inspection

⚠ WARNING

- **The building owner or their representative is responsible for maintaining the fire protection system in proper operating condition.**
- **To ensure proper system operation, valves must be inspected in accordance with current NFPA-25 requirements or in accordance with the requirements of the local authority having jurisdiction (whichever is more stringent). Always refer to the instructions in this manual for additional inspection and testing requirements.**
- **The frequency of inspections must be increased in the presence of contaminated water supplies, corrosive/scaling water supplies, and corrosive atmospheres.**

Failure to follow these instructions could cause system failure, resulting in death or serious personal injury and property damage.

WEEKLY EXTERNAL INSPECTION

⚠ CAUTION

- **Perform a visual inspection of the valve and trim on a weekly basis.**
- **If the preaction system is equipped with a low-pressure alarm, monthly inspections may be sufficient. Contact the local authority having jurisdiction for specific requirements.**

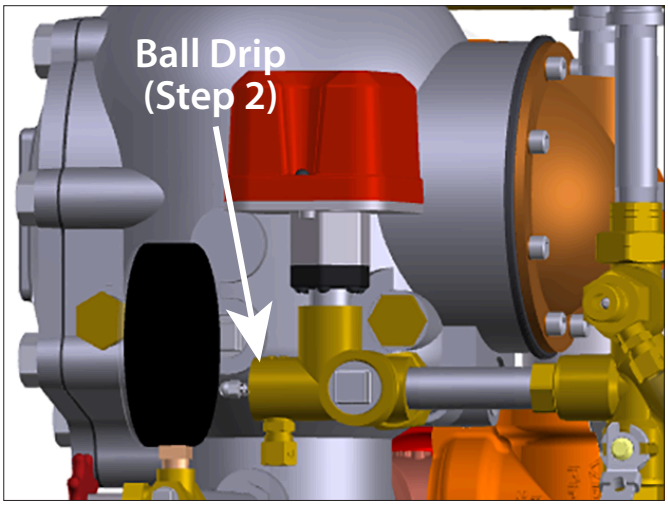
Failure to perform weekly inspections may result in damage to the valve and trim.

On a weekly basis, when the valve is reset after an operational test (or after any system operation): The water supply main drain valve and any low-point drains should be partially opened and then closed to drain water that might be present in the riser. Continue this procedure until all water is released. **NOTE:** The optional Series 75D Water Column Kit can be installed to automate this step.

MONTHLY EXTERNAL INSPECTION

1. Record the system air pressure and water supply pressure. Confirm that the water supply pressure is within the range of normal pressures observed in the area. Significant loss of water supply pressure could indicate an adverse condition in the water supply. Confirm the proper water-to-air ratio is being maintained.
2. Confirm that there is no leakage from the intermediate valve chamber. The ball drip on the alarm manifold assembly should not be leaking water or air.
3. Inspect the valve and trim for mechanical damage and corrosion. Replace any damaged or corroded parts.
4. Confirm that the actuated valve and trim are located in an area that is not subject to freezing temperatures.
5. Confirm that all valves are in their normal operating positions (refer to the table below).

Valve	Normal Operating Position
Water Supply Main Control Valve	Open
Water Supply Main Drain Valve	Closed
System Main Drain Valve	Closed
Charge Line Ball Valve of the Priming Manifold Assembly	Open
Alarm Test Ball Valve of the Priming Manifold Assembly	Closed
Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)	Open
Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)	Closed
Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Open
¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Closed



SECTION IV

- Required Main Drain Test
- Required Water Flow Alarm Test
- Required Water Level and Low-Air Alarm Tests
- Required Partial Operational Trip Test
- Required Full Operational Trip Test

⚠ WARNING

- The building owner or their representative is responsible for maintaining the fire protection system in proper operating condition.
- To ensure proper system operation, valves must be inspected in accordance with current NFPA-25 requirements or in accordance with the requirements of the local authority having jurisdiction (whichever is more stringent). Always refer to the instructions in this manual for additional inspection and testing requirements.
- The frequency of inspections must be increased in the presence of contaminated water supplies, corrosive/scaling water supplies, and corrosive atmospheres.
- Any activities that require taking the valve out of service may eliminate the fire protection provided. A fire patrol is strongly recommended for the affected areas.
- Before servicing or testing the system, notify the authority having jurisdiction.

Failure to follow these instructions could cause system failure, resulting in death or serious personal injury and property damage.

NOTICE

- When the valve is reset after an operational test (or after any system operation), the main drain valve and any low-point drain valves should be partially opened and then closed to drain water that might be present in the riser. Continue this procedure until all water is released.
- The optional Series 75D Water Column Kit can be installed to automate this step.

REQUIRED MAIN DRAIN TEST

Perform the main drain test on a frequency required by the current NFPA-25 code. The authority having jurisdiction in the area may require these tests on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the main drain test will be performed.
2. Confirm that sufficient drainage is available.
3. Record the water supply pressure and system air pressure.
4. Confirm that there is no leakage from the intermediate valve chamber. The ball drip on the alarm manifold assembly should not be leaking water or air.

   FOR TRIM EQUIPPED WITH A SERIES 776 LOW-PRESSURE ACTUATOR:
   Verify that the system is at the proper air pressure for the local water supply pressure.

⚠ CAUTION

- **Use caution to prevent opening the system main drain valve accidentally.**
- **Opening the system main drain valve will cause the valve to operate.**

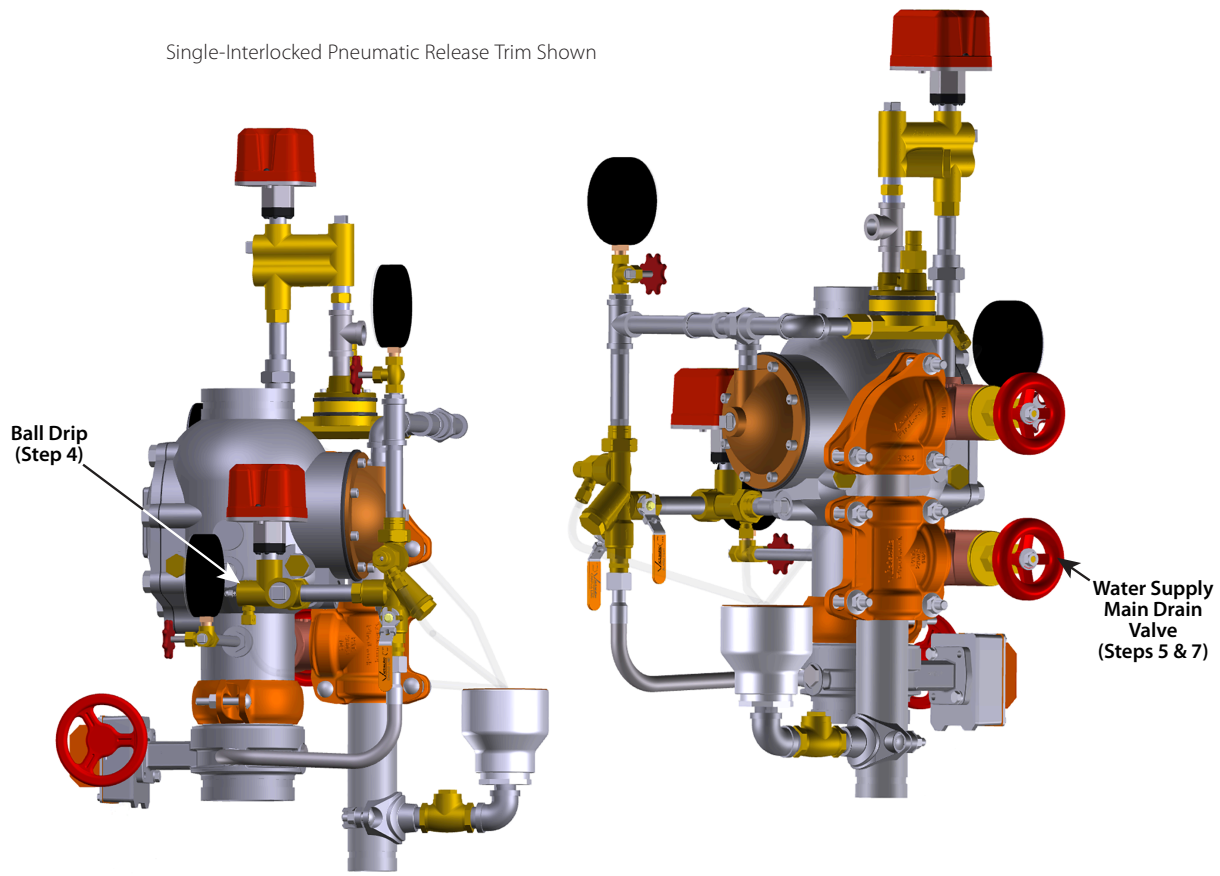
Failure to pipe the system main drain valve to a proper wastewater drain will result in property damage.

5. Open the water supply main drain valve fully to flush the water supply of any contaminants.
6. While the water supply main drain valve is fully open, record the water supply pressure (from the water supply gauge) as the residual pressure.
7. Close the water supply main drain valve slowly.
8. Record the water pressure established after closing the water supply main drain valve.
9. Compare the residual pressure reading to the residual pressure readings taken in previous main drain tests. If there is degradation in the residual water supply reading, restore the proper water supply pressure.
10. Confirm that all valves are in their normal operating positions (refer to the table below).

Valve	Normal Operating Position
Water Supply Main Control Valve	Open
Water Supply Main Drain Valve	Closed
System Main Drain Valve	Closed
Charge Line Ball Valve of the Priming Manifold Assembly	Open
Alarm Test Ball Valve of the Priming Manifold Assembly	Closed
Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)	Open
Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)	Closed
Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Open
¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Closed

11. Confirm that there is no leakage from the intermediate valve chamber. The ball drip on the alarm manifold assembly should not be leaking water or air.
12. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the valve is back in service. Provide test results to the authority having jurisdiction, if required.

Single-Interlocked Pneumatic Release Trim Shown



REQUIRED WATER FLOW ALARM TEST

Perform the water flow alarm test on a frequency required by the current NFPA-25 code. The authority having jurisdiction in the area may require these tests on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the water flow alarm test will be performed.

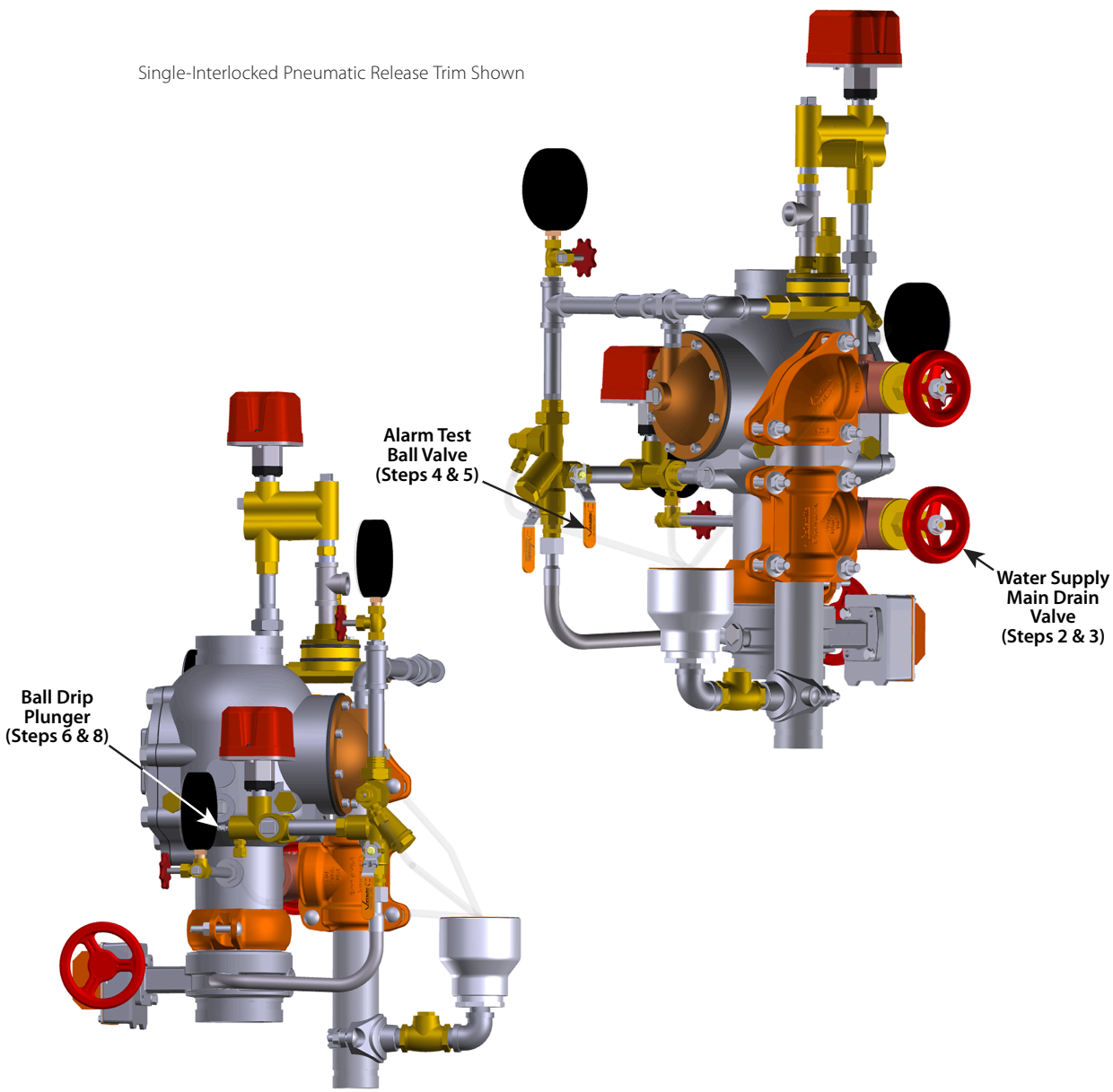
⚠ CAUTION

- **Use caution to prevent opening the system main drain valve accidentally.**
- **Opening the system main drain valve will cause the valve to operate.**

Failure to pipe the system main drain valve to a proper wastewater drain will result in property damage.

2. Open the water supply main drain valve fully to flush the water supply of any contaminants.
3. Close the water supply main drain valve.
4. Open the alarm test ball valve. Confirm that mechanical and electrical alarms are activated and that remote monitoring stations, if provided, receive an alarm signal.
5. Close the alarm test ball valve after verifying proper operation of all alarms.
6. Push in the ball drip plunger on the alarm manifold assembly to verify that there is no pressure in the alarm line.
7. Verify that all alarms stopped sounding, that the alarm line drained properly, and that remote station alarms reset properly.
8. Confirm that the ball drip on the alarm manifold assembly is not leaking water or air.
9. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the valve is back in service. Provide test results to the authority having jurisdiction, if required.

Single-Interlocked Pneumatic Release Trim Shown



REQUIRED WATER LEVEL AND LOW AIR ALARM TESTS

Perform the water level and low air alarm tests on a frequency required by the current NFPA-25 code. The authority having jurisdiction in the area may require these tests on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

NOTICE

- **If a Series 746-LPA Dry Accelerator is installed, ensure that the authority having jurisdiction is notified that the water level and low air alarm tests are in progress. Failure to close the isolation ball valve of the Series 746-LPA Dry Accelerator may cause the valve to trip, resulting in a false alarm.**

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the water level and low air alarm tests will be performed.
2. **If a Series 746-LPA Dry Accelerator is installed, close the isolation ball valve.**
3. Open the water supply main drain valve fully to flush the water supply of any contaminants.
4. Close the water supply main drain valve.
5. Close the water supply main control valve.
6. Partially open the system main drain valve slowly. Confirm that water is not flowing from the drain. **NOTE:** If water is flowing from the drain, the system may not have drained properly. In this case, follow all steps in the "Resetting the System" section.

   FOR TRIM EQUIPPED WITH A SERIES 776 LOW-PRESSURE ACTUATOR:
   Record the system air pressure at which the low air alarm activates.
7. Close the system main drain valve.

   FOR TRIM EQUIPPED WITH A SERIES 776 LOW-PRESSURE ACTUATOR:
   Close the slow-fill ball valve on the AMTA.

   Open the fast-fill ball valve on the AMTA. Bring the pressure back up to the normal system pressure.

   When the normal system air pressure is reached, close the fast-fill ball valve on the AMTA.

   Open the slow-fill ball valve on the AMTA.
8. Open the water supply main drain valve.

⚠ CAUTION

- **Take precautions when opening the water supply main control valve, since water will flow from all open system valves.**

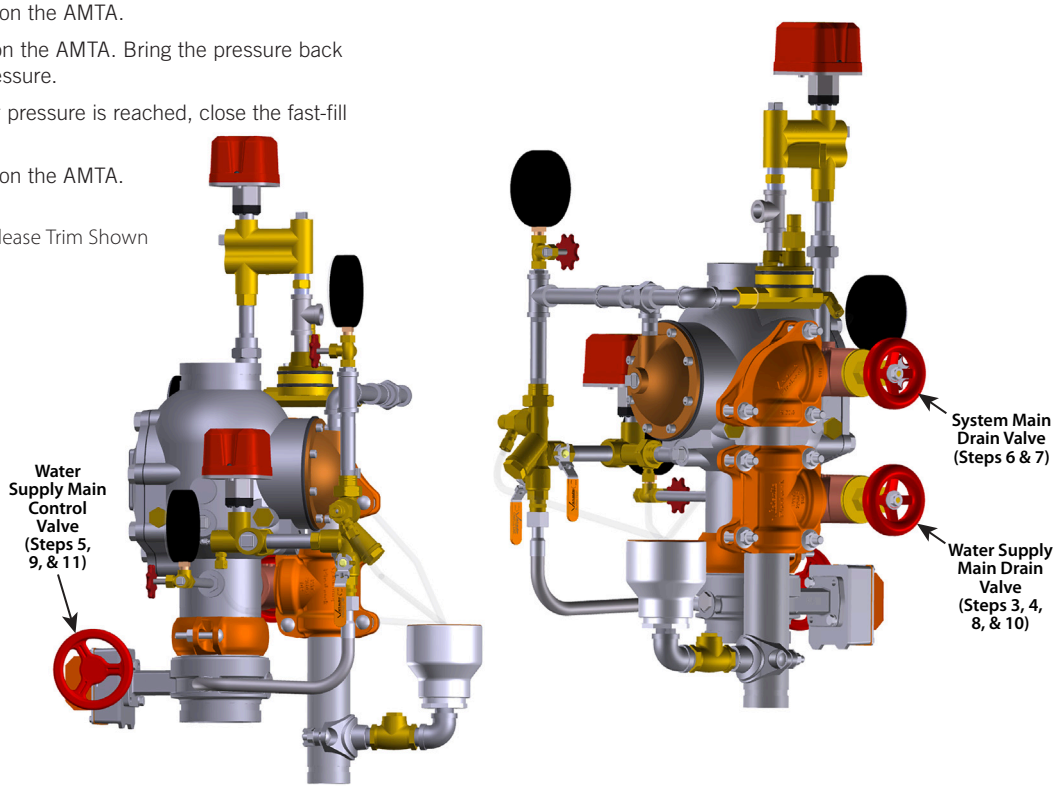
Failure to follow this instruction could result in property damage.

9. Open the water supply main control valve slowly until water flows steadily from the open water supply main drain valve.
10. Close the water supply main drain valve when a steady flow of water occurs.
11. Open the water supply main control valve fully.
12. Confirm that all valves are in their normal operating positions (refer to the table below).

Valve	Normal Operating Position
Water Supply Main Control Valve	Open
Water Supply Main Drain Valve	Closed
System Main Drain Valve	Closed
Charge Line Ball Valve of the Priming Manifold Assembly	Open
Alarm Test Ball Valve of the Priming Manifold Assembly	Closed
Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)	Open
Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)	Closed
Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Open
¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Closed

12. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the valve is back in service. Provide test results to the authority having jurisdiction, if required.

Single-Interlocked Pneumatic Release Trim Shown



LOW WATER ALARM TEST LPCB

Perform the low water alarm test on a frequency required by current LPCB/EN requirements. The authority having jurisdiction in the area may require these tests on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the low water alarm test will be performed.
2. Close the water supply main control valve.

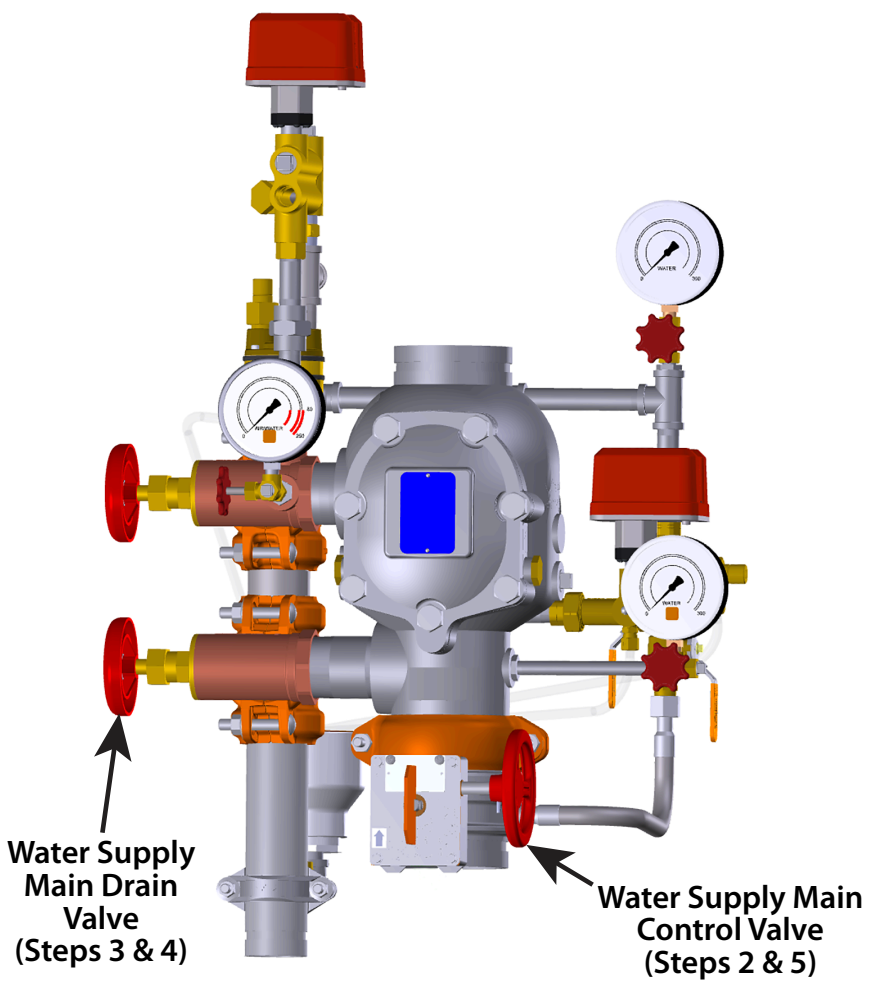
2a. Verify that the water pressure is above 1.4 Bar/20 psi.

3. Partially open the water supply main drain valve slowly. Record the pressure at which the low water alarm activates. **NOTE:** The low water alarm will sound only if it is connected properly to the Fire Alarm Control Panel (FACP). The low water alarm should clear automatically when the valve is reset.
4. Close the water supply main drain valve.
5. Open the water supply main control valve fully.
6. Confirm that all valves are in their normal operating positions (refer to the table below).

Valve	Normal Operating Position
Water Supply Main Control Valve	Open
Water Supply Main Drain Valve	Closed
System Main Drain Valve	Closed
Charge Line Ball Valve of the Priming Manifold Assembly	Open
Alarm Test Ball Valve of the Priming Manifold Assembly	Closed
Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)	Open
Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)	Closed
Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Open
¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)	Closed

7. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the valve is back in service.
8. Provide test results to the authority having jurisdiction, if required.

Single-Interlocked Pneumatic Release Trim Shown

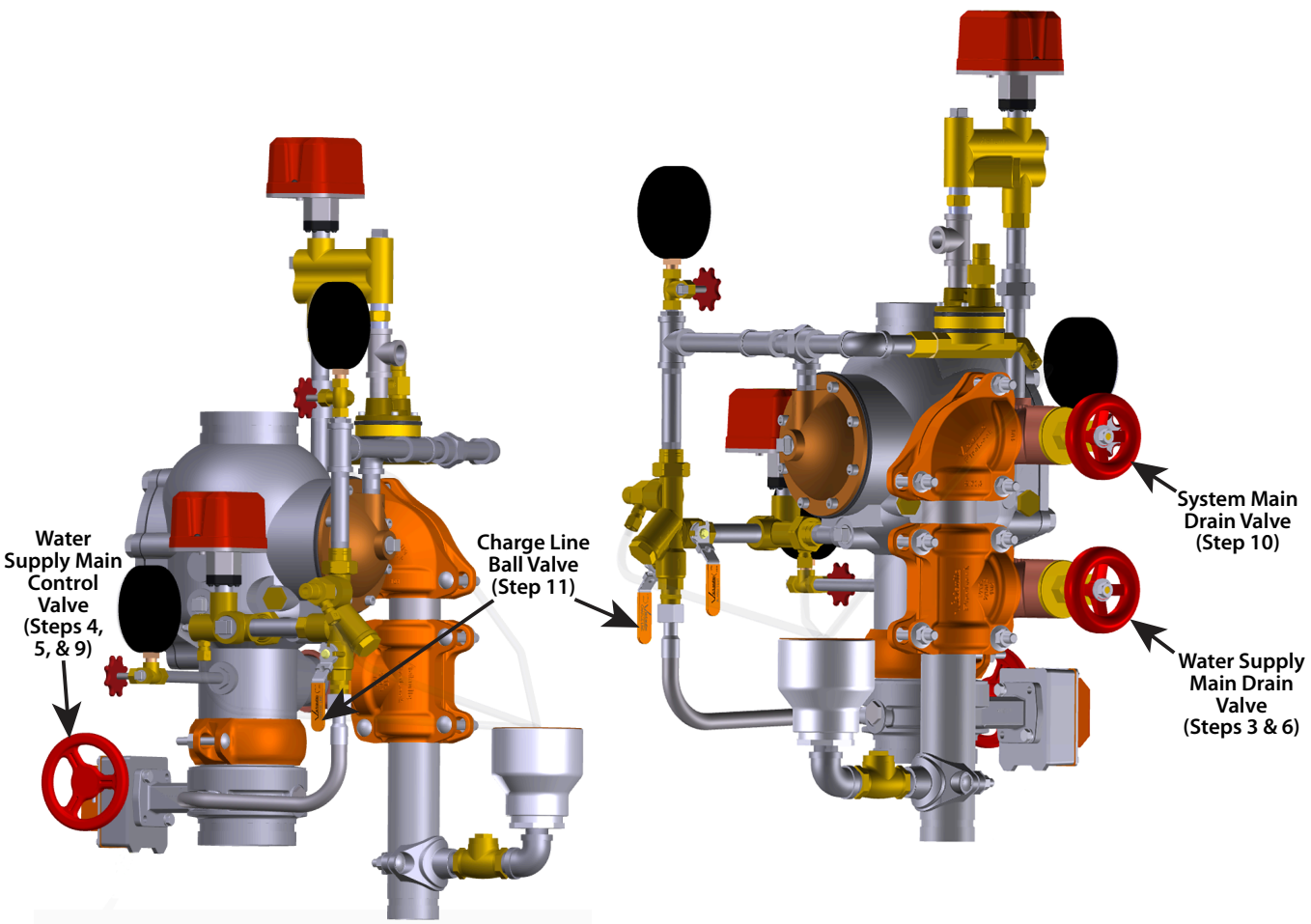


REQUIRED PARTIAL OPERATIONAL TRIP TEST

Partial operational (trip) tests are required to confirm proper valve operation; however, this test does not confirm full system operation. Victaulic recommends performing the partial operational (trip) test annually (at minimum). **NOTE:** The frequency of the partial operational (trip) test must be increased in the presence of contaminated water supplies, corrosive/scaling water supplies, and corrosive atmospheres. In addition, the authority having jurisdiction in the area may require partial operational (trip) tests on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the partial operational (trip) test will be performed.
2. Record the water supply pressure and system air pressure.
3. Open the water supply main drain valve fully to flush the water supply of any contaminants.
4. Close the water supply main control valve to the point where additional closure will not provide flow through the water supply main drain valve.
5. Open the water supply main control valve slowly until a small amount of water flows through the water supply main drain valve.
6. Close the water supply main drain valve.
7. **Trip the valve by doing one of the following:**
   a. Open (energize) the solenoid valve
   b. Relieve pressure from the pilot line
   c. Open the manual pull station valve
8. Confirm that the charge line's pressure drops to zero and that water is flowing through the auto drain to the drip cup.
9. Close the water supply main control valve fully.
10. Close the remote system test valve (inspector's test connection) or the system main drain valve.
11. **Shut off the air supply.**
11. Close the charge line ball valve.
12. Perform all steps in the "Resetting the System" section.

Single-Interlocked Pneumatic Release Trim Shown

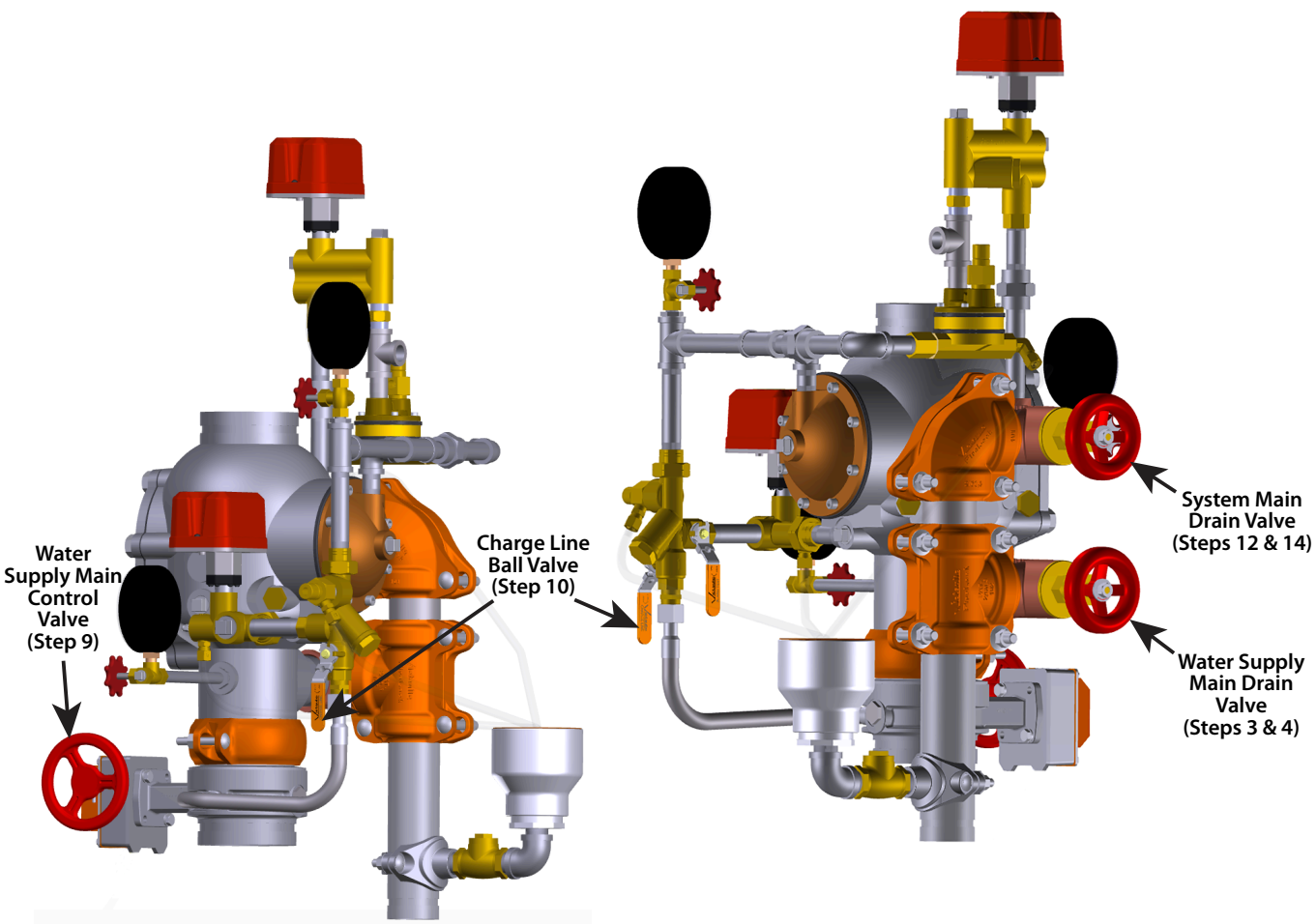


REQUIRED FULL OPERATIONAL TRIP TEST

Victaulic recommends the full operational (trip) test every 3 years (at minimum). **NOTE:** The frequency of the full operational (trip) test must be increased in the presence of contaminated water supplies, corrosive/scaling water supplies, and corrosive atmospheres. This test allows a full flow of water into the sprinkler system; therefore, this test must be performed when there is no chance for freezing conditions. In addition, the authority having jurisdiction in the area may require full operational (trip) tests on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the full operational (trip) test will be performed.
2. Record the water supply pressure and system air pressure.
3. Open the water supply main drain valve fully to flush the water supply of any contaminants.
4. Close the water supply main drain valve.
5. **Trip the valve by doing one of the following:**
   a. Open (energize) the solenoid valve
   b. Relieve pressure from the pilot line
   c. Open the manual pull station valve
6. Record the following:
   6a. The time between opening the remote system test valve (inspector's test connection) and operation of the actuated valve
   6b. System air pressure when the valve operated
   6c. The time between opening the remote system test valve (inspector's test connection) to when water flows from the test connection's outlet
   6d. All information required by the authority having jurisdiction
7. Confirm that all alarms operate properly.
8. Continue to run water until it is clear.
9. Close the water supply main control valve.
10. Close the charge line ball valve.
11. **Shut off the air supply.**
12. Open the system main drain valve to drain the system.
13. After the system is drained, close the remote system test valve (inspector's test connection).
14. Close the system main drain valve.
15. Perform all steps in the "Resetting the System" section.

Single-Interlocked Pneumatic Release Trim Shown



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SECTION V

• Required Internal Inspection

⚠ WARNING

- **Depressurize and drain the piping system before attempting to remove the cover plate from the valve.**
- **The building owner or their representative is responsible for maintaining the fire protection system in proper operating condition.**
- **To ensure proper system operation, valves must be inspected in accordance with current NFPA-25 requirements or in accordance with the requirements of the local authority having jurisdiction (whichever is more stringent). Always refer to the instructions in this manual for additional inspection and testing requirements.**
- **The frequency of inspections must be increased in the presence of contaminated water supplies, corrosive/scaling water supplies, and corrosive atmospheres.**
- **Any activities that require taking the valve out of service may eliminate the fire protection provided. A fire patrol is strongly recommended for the affected areas.**
- **Before servicing or testing the system, notify the authority having jurisdiction.**

Failure to follow these instructions could cause system failure, resulting in death or serious personal injury and property damage.

REQUIRED INTERNAL INSPECTION

Inspect internal components at the frequency required by the current NFPA-25 code. The authority having jurisdiction in the area may require these inspections on a more frequent basis. Verify these requirements by contacting the authority having jurisdiction in the affected area.

1. Notify the authority having jurisdiction, remote station alarm monitors, and those in the affected area that the system is being taken out of service.
2. Open the water supply main drain valve fully to flush the water supply of any contaminants.
3. Close the water supply main drain valve.
4. Close the water supply main control valve to take the system out of service.
5. Open the water supply main drain valve.
6. Confirm that water is not flowing from the water supply main drain valve.
7. Close the charge line ball valve.
8. Open the system main drain valve to drain any water that has accumulated and to release system air pressure.

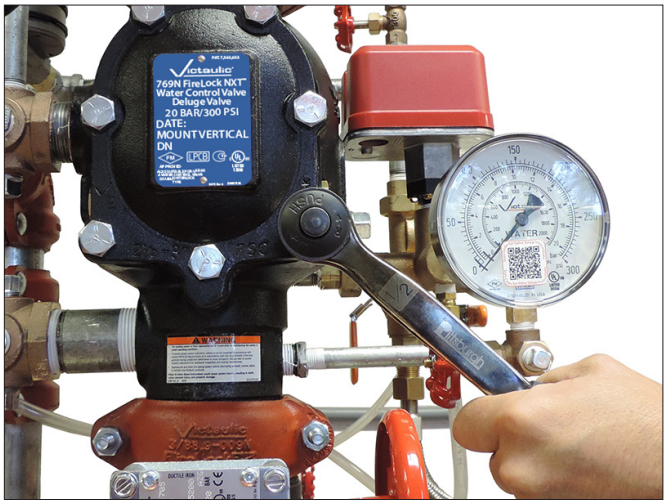
   NOTE: If the system has operated, open the remote system test valve (inspector's test connection) and any auxiliary drain valves.

   FOR TRIM EQUIPPED WITH A SERIES 776 LOW-PRESSURE ACTUATOR: Close the slow-fill ball valve on the AMTA.
9. Open the manual pull station valve.
10. **PUSH DOWN ON THE AUTO DRAIN SCREW TO REMOVE PRESSURE IN THE CHARGE LINE. VERIFY THAT THERE IS NO PRESSURE ON THE GAUGES.**

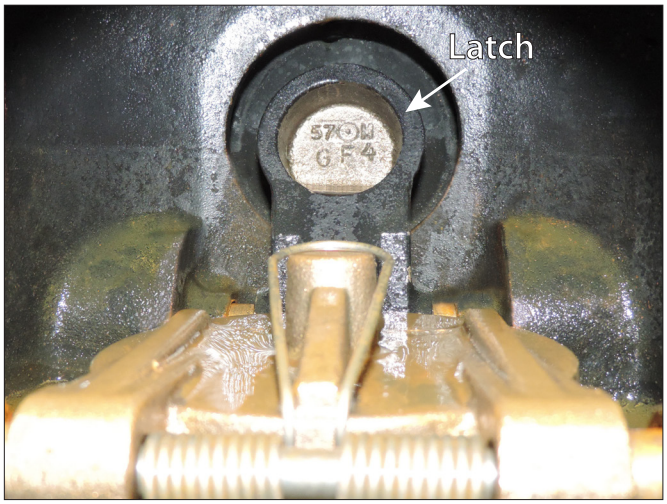
⚠ WARNING

- **Ensure that the valve is depressurized and drained completely before the cover plate bolts are removed.**

Failure to follow this instruction could result in death or serious personal injury and property damage.



11. After all pressure is released from the system, loosen the cover plate bolts slowly. **NOTE:** DO NOT remove any cover plate bolts until all cover plate bolts are loosened.
12. Remove all cover plate bolts, along with the cover plate and cover plate gasket. **NOTE:** The 1 ½-inch/48.3-mm and 2-inch/60.3-mm valve sizes contain washers under the heads of the cover plate bolts. Keep these washers for re-installation.

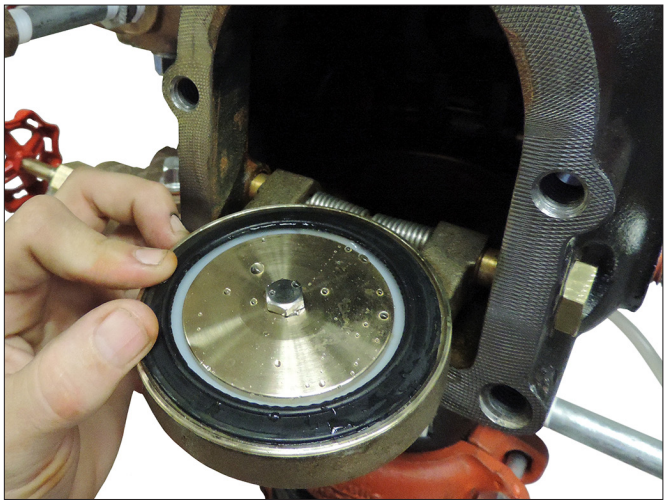


13. Push the latch back (toward the diaphragm).

⚠ CAUTION

- **DO NOT use solvents or abrasives on or near the valve body seat ring.**

Failure to follow this instruction could prevent the clapper from sealing, resulting in valve leakage.



14. Rotate the clapper out of the valve body. Inspect the clapper seal and seal-retaining ring. Wipe away any contaminants, dirt, and mineral deposits. Clean out any holes that are plugged in the valve-body seat ring. **DO NOT USE SOLVENTS OR ABRASIVES.**
15. While the clapper is rotated out of the valve body, pull the latch forward to inspect the diaphragm. If the diaphragm shows any signs of wear or damage, replace it with a new, Victaulic-supplied diaphragm. Refer to the "Removing and Replacing the Diaphragm" section.
16. Inspect the clapper for freedom of movement and physical damage. Replace any damaged or worn parts by following the applicable instructions in Section VI.
17. Re-install the cover plate by following the "Installing the Cover Plate Gasket and Cover Plate" section.
18. Place the system back in service by following the "Resetting the System" section.

SECTION VI

- Removing and Replacing the Clapper Seal
- Removing and Replacing the Clapper Assembly
- Installing the Cover Plate Gasket and Cover Plate
- Removing and Replacing the Diaphragm
- Cleaning the Cartridge in the Air and Priming Manifold Assemblies
- Replacing the Filter in Series 776 Low-Pressure Actuators

⚠ WARNING

- Before servicing or testing the system, notify the authority having jurisdiction.
- Depressurize and drain the piping system before attempting to remove the cover plate from the valve.
- The building owner or their representative is responsible for maintaining the fire protection system in proper operating condition.
- To ensure proper system operation, valves must be inspected in accordance with current NFPA-25 requirements or in accordance with the requirements of the local authority having jurisdiction (whichever is more stringent). Always refer to the instructions in this manual for additional inspection and testing requirements.
- The frequency of inspections must be increased in the presence of contaminated water supplies, corrosive/scaling water supplies, and corrosive atmospheres.
- Any activities that require taking the valve out of service may eliminate the fire protection provided. A fire patrol is strongly recommended for the affected areas.

Failure to follow these instructions could cause system failure, resulting in death or serious personal injury and property damage.

REMOVING AND REPLACING THE CLAPPER SEAL

1. Perform steps 1 – 13 of the "Required Internal Inspection" section.

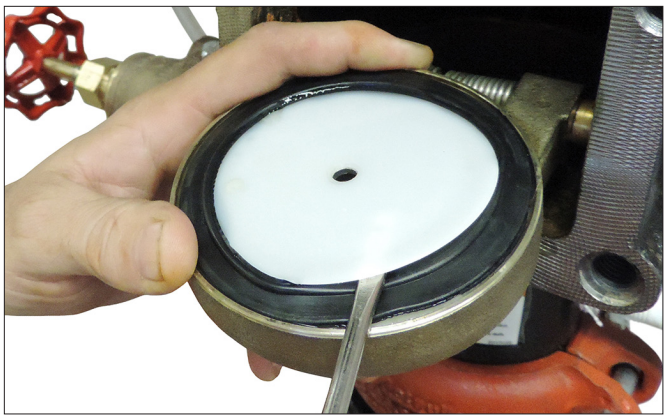
2. Remove the seal assembly bolt/bolt seal from the clapper seal.

3. Remove the seal-retaining ring. Save the seal-retaining ring for re-installation.

⚠ CAUTION

- **DO NOT pry the seal washer out of the clapper seal from the inner hole.**

Failure to follow this instruction could damage the seal washer, resulting in improper clapper sealing and valve leakage.



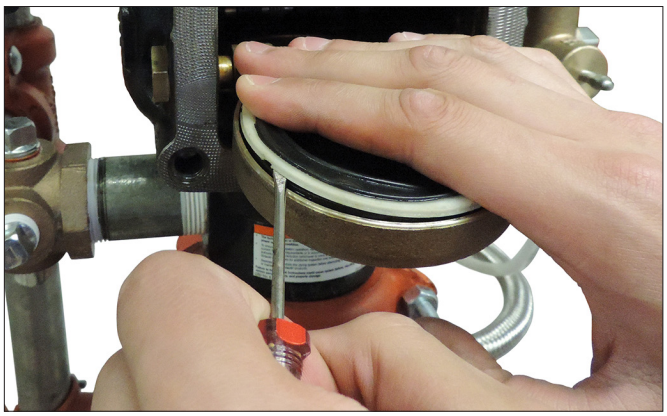
4. Pry the edge of the seal washer from inside the clapper seal, as shown above. **DO NOT PRY THE SEAL WASHER OUT FROM THE INNER HOLE.**

5. Remove the seal washer from the clapper seal. Dry up any moisture under the seal washer or on the clapper seal.

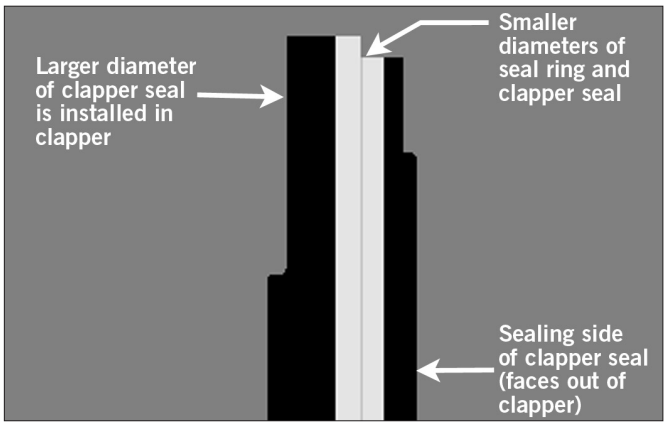
⚠ CAUTION

- **Use only Victaulic-supplied replacement parts.**

Failure to follow this instruction could cause improper valve operation, resulting in property damage.



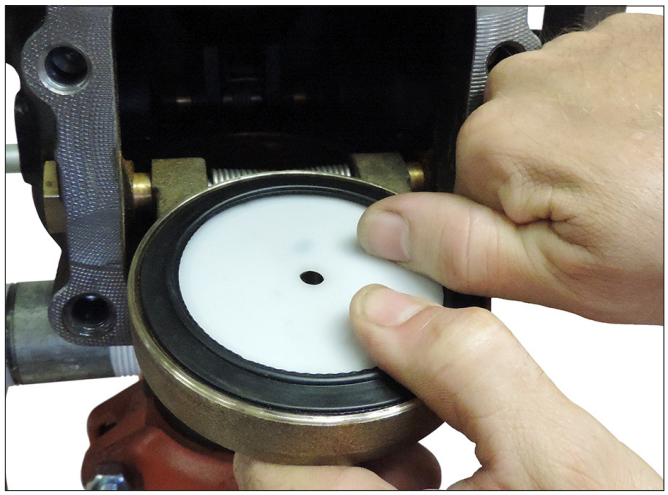
6. Pry the clapper seal, along with the seal ring, out of the clapper. Inspect the clapper seal. If the clapper seal is torn or worn, replace it with a new, Victaulic-supplied clapper seal. If replacing the clapper seal assembly with a new assembly, skip to step 7.



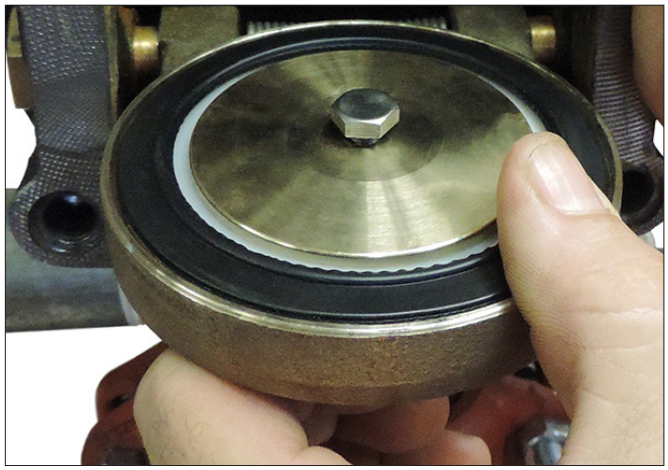
6a. If using the same clapper seal assembly and the seal ring was removed from the clapper seal in the previous step: Re-insert the seal ring carefully underneath the outer lip of the clapper seal. Ensure that the smaller diameter of the seal ring is toward the sealing surface of the clapper seal.

7. Insert the seal washer carefully underneath the sealing lip of the gasket.

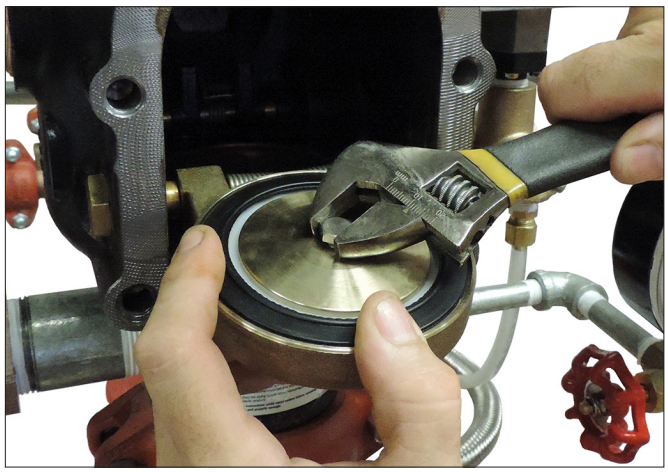
8. Remove any debris from the clapper. Inspect the clapper for damage that may affect the sealing capabilities of the new clapper seal. Contact Victaulic of the clapper requires replacement.



9. Install the clapper seal into the clapper carefully. Ensure that the seal ring snaps into the clapper completely.



10. Place the seal-retaining ring onto the seal washer of the clapper seal. Install the seal assembly bolt/bolt seal through the seal-retaining ring and clapper.



11. Tighten the seal assembly bolt/bolt seal to the torque value listed in the table on this page to ensure a proper seal.

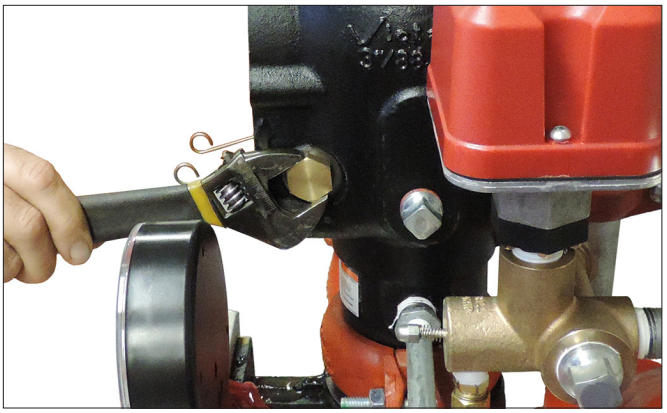
REQUIRED SEAL ASSEMBLY BOLT/BOLT SEAL TORQUES

Nominal Size inches or mm	Required Torque inch-lbs/N•m
1 ½	40 5
2	40 5
2 ½	90 10
76.1 mm	90 10
3	90 10
4	110 12
165.1 mm	160 18
6	160 18
8	160 18

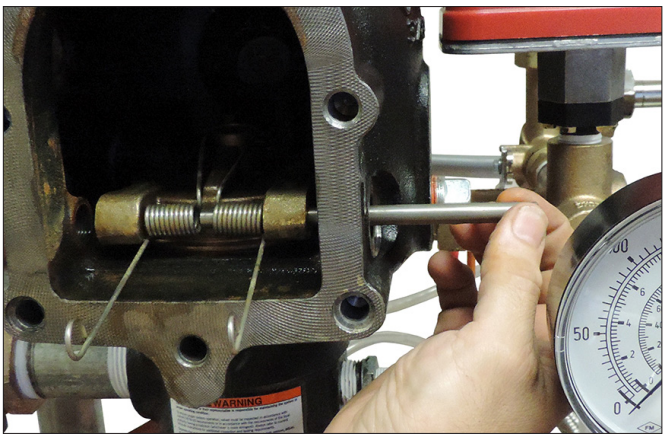
12. Replace the cover plate by following the “Installing the Cover Plate Gasket and Cover Plate” section.
13. Place the system back in service by following the “Resetting the System” section.

REMOVING AND REPLACING THE CLAPPER ASSEMBLY

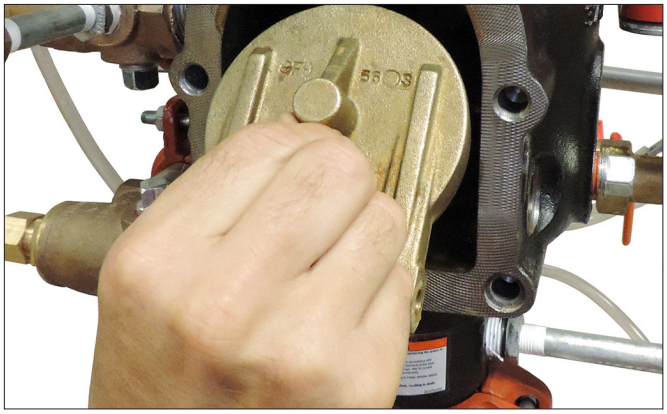
1. Perform steps 1 – 13 of the “Required Internal Inspection” section.



2. Remove the clapper shaft bushings with o-rings from the valve body.



3. Remove the clapper shaft. **NOTE:** As the shaft is being removed, the clapper spring will drop out of position. Save the clapper spring for re-installation.

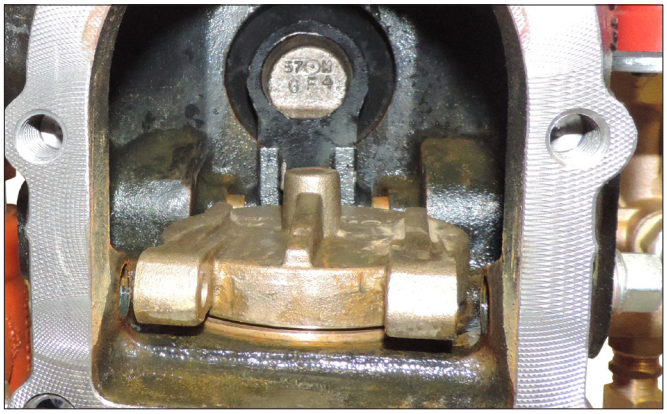


4. Remove the clapper assembly from the valve body seat ring. Clean the valve body seat ring.

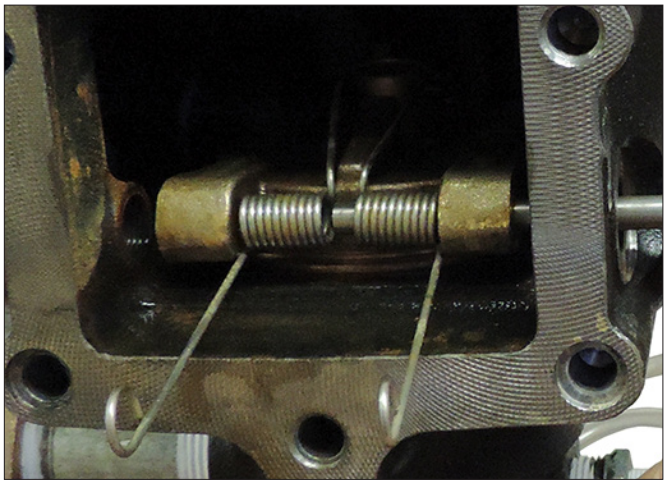
⚠ CAUTION

- **Use only Victaulic-supplied replacement parts.**

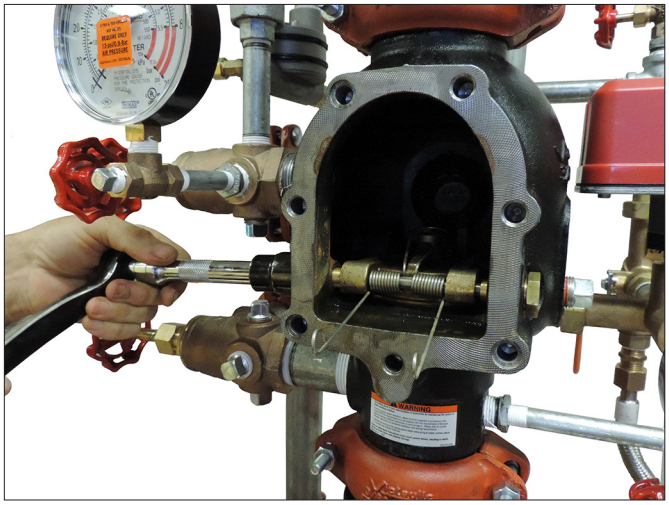
Failure to follow this instruction could cause improper valve operation, resulting in property damage.



5. Place the new clapper assembly onto the valve body seat ring. Ensure that the holes in the clapper arms align with the holes in the valve body.



6. Insert the clapper shaft halfway into the valve body.
7. Install the clapper spring onto the clapper shaft. Ensure that the loop of the clapper spring is facing the clapper, as shown above.
8. Finish inserting the clapper shaft through the clapper arm and valve body.



9. Ensure that a clapper shaft bushing o-ring is installed on each clapper shaft bushing.

9a. Apply thread sealant to each clapper shaft bushing. Install the clapper shaft bushings into the valve body until hand-tight.

9b. Tighten the clapper shaft bushings until metal-to-metal contact occurs with the valve body. DO NOT exceed 10 ft-lbs/14 N•m of torque on the clapper shaft bushings.

9c. Check the clapper for freedom of movement.

10. Replace the cover plate by following the “Installing the Cover Plate Gasket and Cover Plate” section.
11. Place the system back in service by following the “Resetting the System” section.

INSTALLING THE COVER PLATE GASKET AND COVER PLATE

⚠ CAUTION

- **Use only Victaulic-supplied replacement parts.**

Failure to follow this instruction could cause improper valve operation, resulting in property damage.

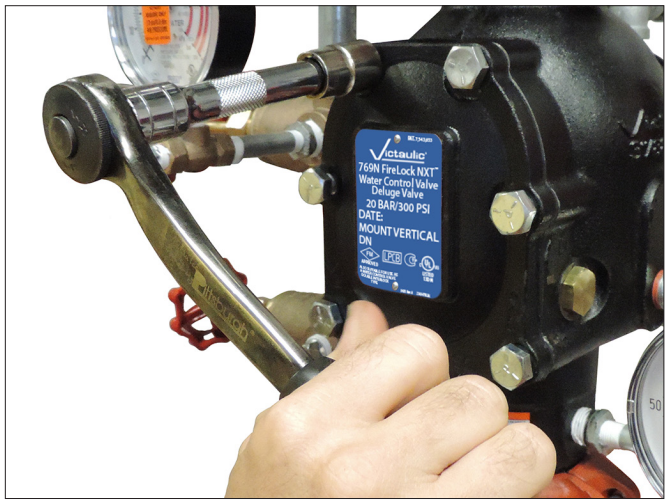
1. Verify that the cover plate gasket is in good condition. If the gasket is torn or worn, replace it with a new, Victaulic-supplied gasket.

2. Align the holes of the cover plate gasket with the holes in the cover plate.
3. Insert one cover plate bolt through the cover plate and cover plate gasket to ease alignment. **NOTE:** For 1 ½-inch/48.3-mm and 2-inch/60.3-mm valve sizes, a washer must be re-installed under the head of each cover plate bolt.

⚠ CAUTION

- **DO NOT over-tighten the cover plate bolts.**

Failure to follow this instruction could cause damage to the cover plate gasket, resulting in valve leakage.



4. Align the cover plate/cover plate gasket to the valve. Ensure that the clapper spring's arms are rotated to their installed position. Tighten all cover plate bolts into the cover plate/valve body.
5. Torque all cover plate bolts in an even, crossing pattern. Refer to the "Required Cover Plate Bolt Torques" table below for the required torque values. DO NOT over-tighten the cover plate bolts.

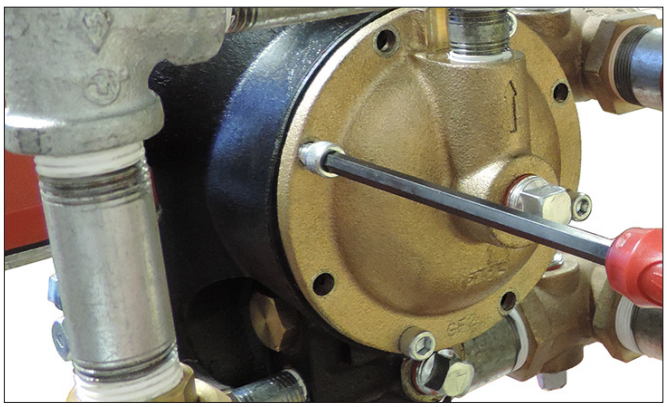
REQUIRED COVER PLATE BOLT TORQUES

Nominal Size inches or mm	Required Torque ft-lbs/N•m
1 ½	30 41
2	30 41
2 ½	60 81
76.1 mm	60 81
3	60 81
4	100 136
165.1 mm	115 156
6	115 156
8	100 136

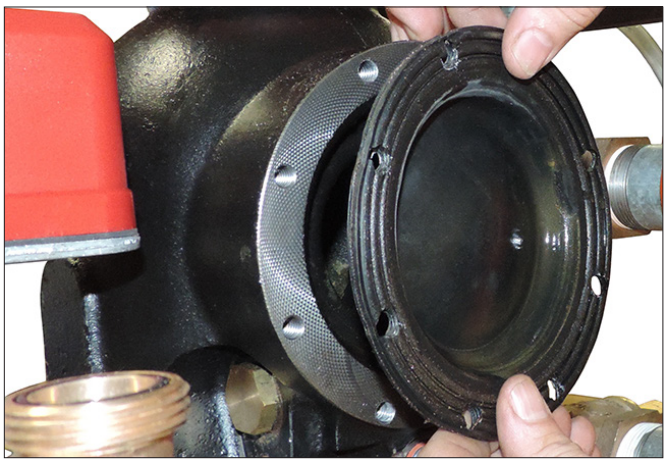
6. Place the system back in service by following the "Resetting the System" section.

REMOVING AND REPLACING THE DIAPHRAGM

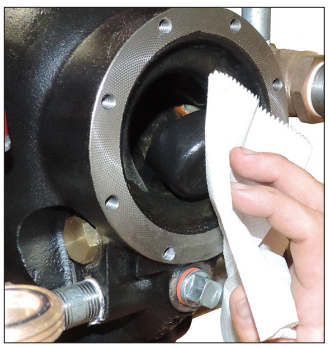
1. Remove the system from service by following steps 1 – 10 of the "Required Internal Inspection" section.
2. Break the unions that connect the trim to the diaphragm cover. Refer to the applicable trim drawing for details.



3. Remove the cap screws from the diaphragm cover, and pull the diaphragm cover/trim off the valve.



4. Remove the diaphragm from the valve body. Discard the diaphragm.



5. Clean the back of the valve body to remove any debris that may interfere with proper diaphragm seating.

5a. Clean the inside of the diaphragm cover.

⚠ CAUTION

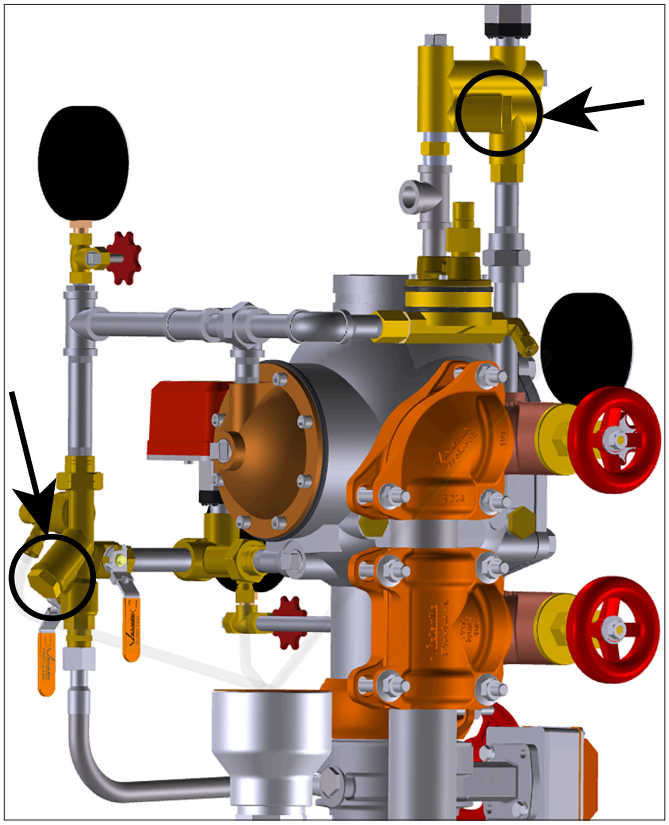
- **Use caution when installing a new diaphragm into the valve body.**

Failure to follow this instruction could cause damage to the diaphragm, resulting in improper valve operation and valve leakage.

6. Replace the diaphragm with a new, Victaulic-supplied diaphragm. Align the holes in the diaphragm with the holes in the valve body. Use caution to prevent damage to the diaphragm during installation.
7. Align the holes of the diaphragm cover with the holes in the diaphragm/valve body. Tighten all cap screws into the diaphragm cover/valve body in an even, crossing pattern to a torque of 10 ft-lbs/14 N•m. Repeat this tightening sequence to verify that all cap screws have been torqued to 10 ft-lbs/14 N•m.
8. Re-attach the trim at the unions that were loosened in step 2. Refer to the applicable trim drawing for details. **VERIFY THAT ALL UNIONS THAT WERE LOOSENED TO PERMIT ACCESS TO THE DIAPHRAGM COVER HAVE BEEN RE-TIGHTENED BEFORE ATTEMPTING TO PLACE THE SYSTEM BACK IN SERVICE.**
9. Place the system back in service by following the "Resetting the System" section. Inspect all trim components to confirm that there are no leaks. Any leaks must be corrected immediately by depressurizing the system and tightening any affected components.

CLEANING THE CARTRIDGE IN THE AIR AND PRIMING MANIFOLD ASSEMBLIES

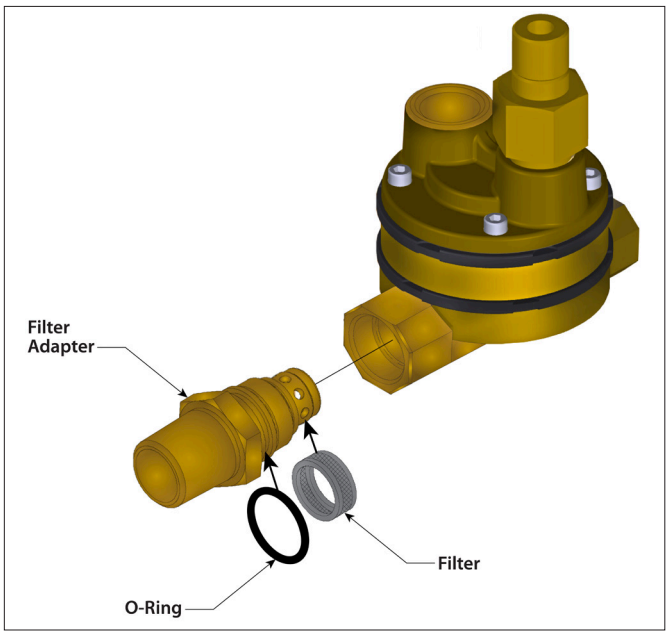
1. Remove the system from service by following steps 1 – 10 of the "Required Internal Inspection" section.



2. Remove the existing cartridge from the air manifold and priming manifold assemblies, shown above. Rinse the cartridges to remove any deposits.
3. Install the corresponding cartridge into the air manifold and priming manifold assemblies. **NOTE:** The face of the air manifold cartridge is stamped "AM" and the face of the priming manifold cartridge is stamped "PM." These cartridges are designed so that they cannot be interchanged.
4. Place the system back in service by following the "Resetting the System" section.

REPLACING THE FILTER IN SERIES 776 LOW-PRESSURE ACTUATORS

1. Remove the system from service by following steps 1 – 10 of the "Required Internal Inspection" section.



2. Remove the Series 776 Low-Pressure Actuator from the trim. Refer to the applicable trim drawing for details.
3. Remove and discard the filter.

⚠ CAUTION

- **DO NOT re-use filters. After removal, the old filter must be replaced with a new, Victaulic-supplied filter.**

Failure to follow this instruction could cause improper valve operation, resulting in property damage.

4. Use only a new, Victaulic-supplied filter. Install the new filter onto the filter adapter, as shown above. Make sure the o-ring is positioned on the filter adapter, as shown above.
5. Carefully re-install the filter adapter into the actuator. Use caution to prevent damage to the o-ring.
6. Re-install the actuator into the trim. Refer to the applicable trim drawing for details.

SECTION VII

- Troubleshooting
- System Sensor* PDRP-2001 or NOTIFIER* RP-2001 Field Wiring Diagrams
- Sample Program for System Sensor* PDRP-2001 or NOTIFIER* RP-2001 Panel

* System Sensor and NOTIFIER are registered trademarks of Honeywell International, Inc.

TROUBLESHOOTING – SYSTEM

Problem	Possible Cause	Solution
The valve operates without sprinkler activation.	There is a loss of air pressure in the system or trim.	Check for any leaks in the system and trim. Confirm that the AMTA is operating properly. Consider installing a low-air supervisory switch.
	The pressure switch on the air compressor is set too low, or the compressor is not operating properly.	Increase the "ON" setting of the air compressor's pressure switch, and check the air compressor for proper operation.
Water is leaking from the ball drip on the alarm manifold assembly.	Water is getting past the clapper seal and into the intermediate chamber of the valve.	Check the clapper seal and valve body seat ring for physical damage and foreign material.
	Water is under the clapper seal.	Inspect the clapper seal to ensure that no water is under the seal. If water is present, remove and replace the seal. Refer to the "Removing and Replacing the Clapper Seal" section.
Air is leaking from the ball drip on the alarm manifold assembly.	Air is getting past the clapper seal and into the intermediate chamber of the valve.	Check the clapper seal and valve body seat ring for physical damage and foreign material.
	Water is under the clapper seal.	Inspect the clapper seal to ensure that no water is under the seal. If water is present, remove and replace the seal. Refer to the "Removing and Replacing the Clapper Seal" section.
The clapper will not latch closed.	There is no water pressure on the diaphragm.	Check the water pressure in the charge line. Ensure that the restrictor in the charge line is clean.
	The auto drain is not set.	Set the auto drain by pulling up on the auto drain sleeve.
Water is leaking from the diaphragm assembly.	The diaphragm is damaged.	Contact Victaulic.
Air is leaking from the diaphragm assembly.	The diaphragm is damaged.	Contact Victaulic.

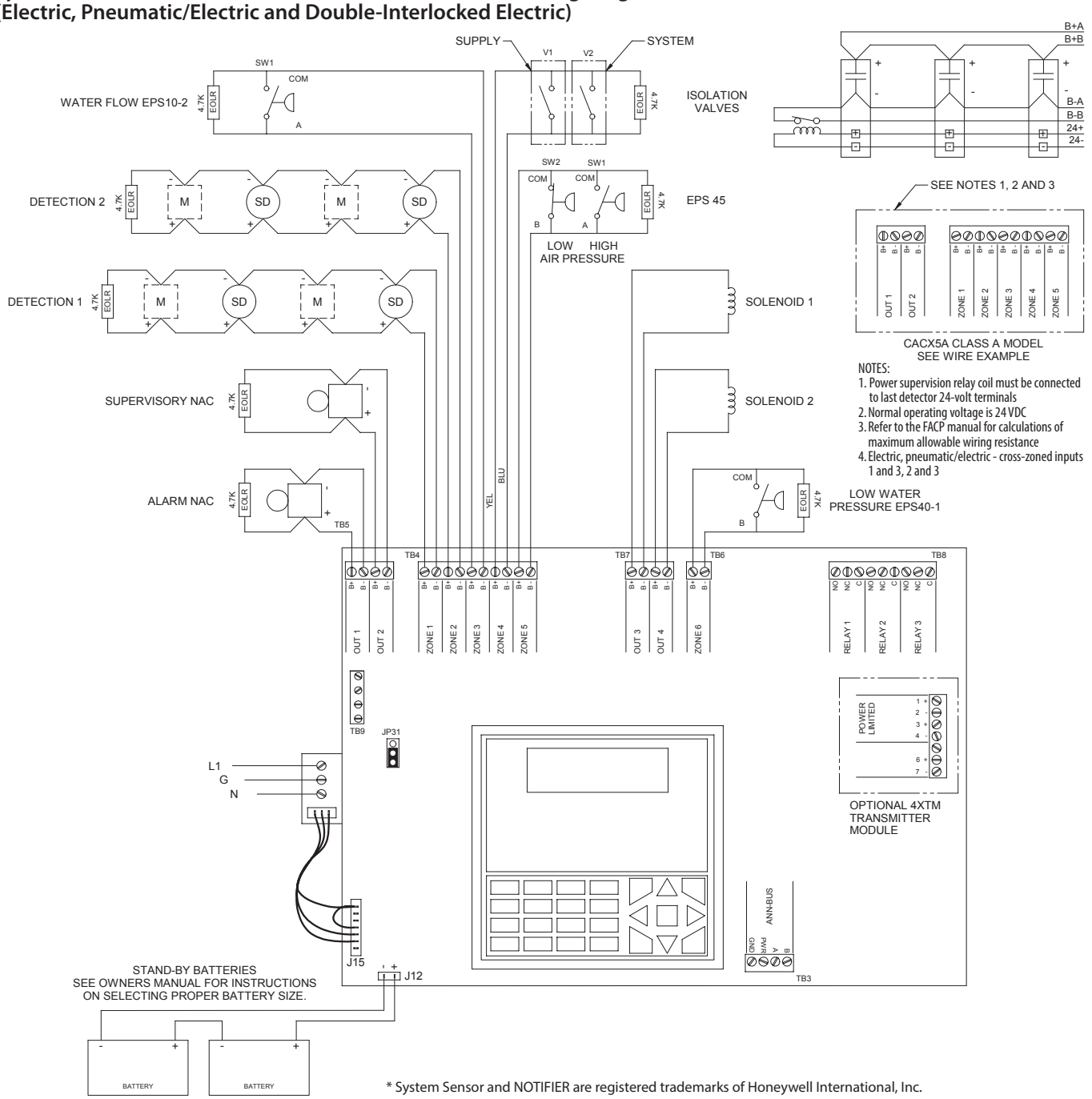
TROUBLESHOOTING – SERIES 776 LOW-PRESSURE ACTUATOR

Problem	Possible Cause	Solution
When air in the system is released, the Series 776 Low-Pressure Actuator does not trip.	There is a restriction in the piping between the air manifold and the auto vent of the Series 776 Low-Pressure Actuator.	Remove the air feed nipple and remove any debris. Clean the restrictor and strainer in the air manifold. Verify that no debris has built up in the air manifold ports that could be restricting airflow.
When the Auto Vent Sleeve of the Series 776 Low-Pressure Actuator is pulled up, the screw does not stay set in the "UP" position.	The Series 776 Low-Pressure Actuator is not receiving enough air.	Increase the air pressure going into the Series 776 Low-Pressure Actuator.
	The Series 776 Low-Pressure Actuator has a broken seal.	If the above procedure does not work, contact Victaulic.
Water is leaking through the Series 776 Low-Pressure Actuator.	The air chamber of the Series 776 Low-Pressure Actuator is not set.	Ensure that the vent seal of the Series 776 Low-Pressure Actuator is in the set position and the air chamber is pressurized.
	The filter on the Series 776 Low-Pressure Actuator is clogged.	Replace the filter of the Series 776 Low-Pressure Actuator. Refer to the "Replacing the Filter in Series 776 Low-Pressure Actuators" section.
	The Series 776 Low-Pressure Actuator has a ripped diaphragm.	If water still leaks through the Series 776 after performing the above procedures, contact Victaulic.
No water is passing through the Series 776 Low-Pressure Actuator.	The cartridge in the priming manifold is clogged.	Disassemble and clean the priming manifold cartridge. Refer to the "Cleaning the Cartridge in the Air and Priming Manifold Assemblies" section.

TROUBLESHOOTING – SERIES 753-E SOLENOID VALVE

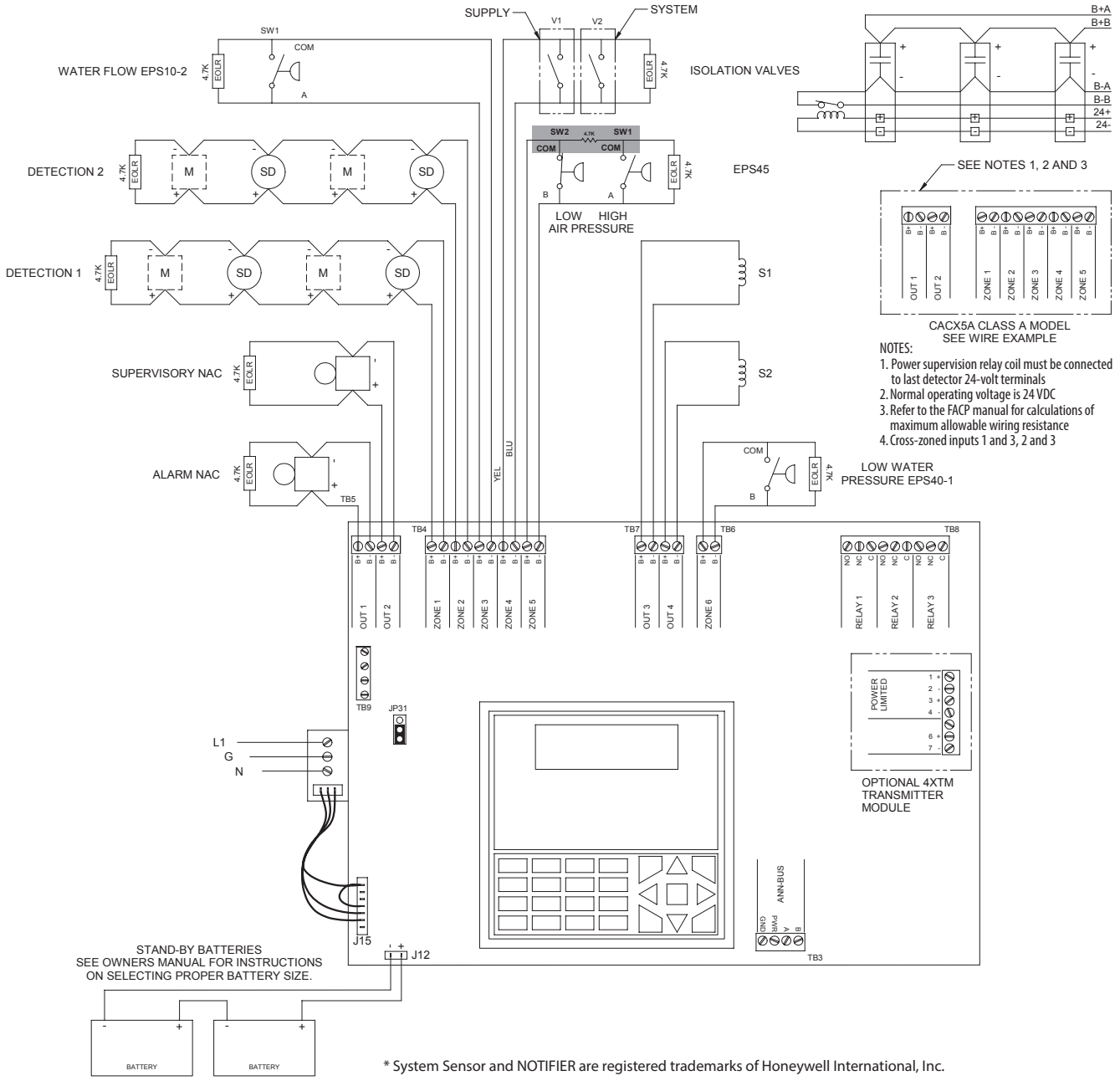
Problem	Possible Cause	Solution
No water is passing through the Series 753-E Solenoid Valve.	The cartridge in the priming manifold is clogged.	Disassemble and clean the priming manifold cartridge. Refer to the "Cleaning the Cartridge in the Air and Priming Manifold Assemblies" section.
The Series 753-E Solenoid Valve does not open.	Power is not being supplied to the solenoid.	Check all electrical connections to verify power is being supplied to the solenoid. If there are still issues with power being supplied to the solenoid, a qualified fire alarm control specialist should verify that the fire alarm control panel is configured correctly.
	Solenoid coil has been removed from the valve.	Reinstall the coil to the solenoid valve.

System Sensor* PDRP-2001 or NOTIFIER* RP-2001 Field Wiring Diagram (Electric, Pneumatic/Electric and Double-Interlocked Electric)



* System Sensor and NOTIFIER are registered trademarks of Honeywell International, Inc.

System Sensor* PDRP-2001 or NOTIFIER* RP-2001 Field Wiring Diagram (Double-Interlocked Electric-Pneumatic/Electric, Cross-Zoned with Low-Air Switch)



NOTES:
1. Power supervision relay coil must be connected to last detector 24-volt terminals
2. Normal operating voltage is 24 VDC
3. Refer to the FACP manual for calculations of maximum allowable wiring resistance
4. Cross-zoned inputs 1 and 3, 2 and 3

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SAMPLE PROGRAM FOR SYSTEM SENSOR* PDRP-2001 OR NOTIFIER* RP-2001 PANEL (DUAL OR SINGLE HAZARD)

SYSTEM SETUP

NOTE: Pull All IDC Connections at Panel to Enter Program Mode

Select Template 9

1. Press "MODE"
2. 2=PROGRAMMING MODE
3. Enter Password "00000"
4. 1=FACP CONFIGURATION
5. Press ↓ x 3
6. 3=TEMPLATE 9
7. 1=YES
8. Panel Resets Automatically

Make the Following Changes

Edit Zone 4

1. Press "MODE"
2. 2=PROGRAMMING MODE
3. Enter Password "00000"
4. Press ↓ to 3= SYSTEM SETUP
5. Select 2=TIMERS
6. Select 1=SOAK 1
7. Select 1=ALWAYS ON
8. Return To Main Programming Menu
9. Press 2=INPUT ZONES
10. Press ↓ x 1
11. 1=ZONE 4
12. Press ↓ x 1 to Edit
13. 2=TYPE
14. Press ↓ x 8
15. 1=SUPERVISORY AR
16. Press "ESC"
17. Press ↓ x 2
18. 2=DESCRIPTION
19. Enter "ISOLATION VALVE"
20. Press "ENTER"
21. Press "ESC"

Edit Zone 5

1. Press 2=INPUT ZONES
2. Press ↓ x 1
3. 2=ZONE 5
4. Press ↓ x 1 To Edit
5. 2=TYPE
6. Press ↓ x 8
7. Select COMBO SUPERVISORY AR
8. For Double Knock
   TYPE=COMBO SUPERVISORY AR

1.2K Ohm Resistor Must be Placed

1. Press "ESC"
2. Press ↓ x 2
3. 2=DESCRIPTION
4. Enter "HIGH/LOW AIR"
5. Press "ENTER"
6. Press "ESC"

Edit Zone 6

1. Press 2=INPUT ZONES
2. Press ↓ X 1
3. Press 3=ZONE 6
4. Press ↓ x 1 to Edit
5. 2=TYPE
6. Press ↓ x 8
7. 1=SUPERVISORY AR
8. Press "ESC"
9. Press ↓ x 1
10. 2=DESCRIPTION
11. Enter "LOW WATER PRESSURE"
12. Press "ENTER"
13. Press "ESC" Several Times Until Program Saves

DOUBLE KNOCK/CROSS ZONE- DETECTION Z1+Z2=RELEASE

1. Press "MODE"
2. 2=PROGRAMMING MODE
3. Enter Password "00000"
4. Press ↓ x 1
5. Press 1=CROSS INPUT ZONES
6. Press 1=RELEASE 1 GROUP
7. Press 1=NONE

Zone Selection

1. Press 1=ZONE 1 YES
2. Press 2=ZONE 2 YES
3. Press "ESC" Several Times Until Program Saves

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DOUBLE KNOCK/CROSS ZONE DETECTION AND LOW AIR PRESSURE

1. Press “MODE”
2. 2=PROGRAMMING MODE
3. Enter Password “00000”
4. Press ↓ x 1
5. Press 1=CROSS INPUT ZONES
6. Press 1=RELEASE 1 GROUP
7. Press 1=NONE

Zone Selection-Z1+Z5=RELEASE

1. Press 1=ZONE 1 Yes
2. Press ↓ x 1
3. Press 2=ZONE 5 Yes
4. Press “ESC” Twice

Zone Selection-Z2+Z5=RELEASE

1. Press 1=RELEASE 1 GROUP
2. Press 2=NONE
3. Press 2=ZONE 2 Yes
4. Press ↓ x 1
5. Press 2=ZONE 5 Yes
6. Press “ESC” Several Times Until Program Saves

INPUT/OUTPUT DIAGRAMS

DUAL OR SINGLE HAZARD

	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
INPUT 1	X		X	X
INPUT 2	X		X	X
INPUT 3	X			
INPUT 4		X		
INPUT 5		X		
INPUT 6		X		

ELECTRIC-PNEUMATIC/ELECTRIC

	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
INPUT 1 & 5	X		X	X
INPUT 2 & 5	X		X	X
INPUT 3	X			
INPUT 4		X		
INPUT 6		X		

CROSS ZONE/DOUBLE KNOCK SINGLE HAZARD

	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4
INPUT 1 & 2	X		X	X
INPUT 3	X			
INPUT 4		X		
INPUT 5		X		
INPUT 6		X		

Victaulic® Series 769N FireLock NXT™ Actuated Valve with Preaction Trim

Non-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator
Non-Interlocked Pneumatic/Electric Release with Series 776 Low-Pressure Actuator and Series 753-E Solenoid Valve
Single-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator
Single-Interlocked Electric Release with Series 753-E Solenoid Valve
Double-Interlocked Electric (Electric-Pneumatic/Electric) Release with Series 753-E Solenoid Valve
Electric Release with Series 753-E Solenoid Valve and Redundant Solenoid Valve LPCB

SECTION 3

General Air Products Manual

Riser and Tank Mounted Oilless Air Compressors Installation, Operation and Maintenance Manual

GENERAL AIR PRODUCTS

OL *Plus*
& OLT *Plus* Series

Riser and Tank Mounted Oilless Air Compressors

Installation, Operation and Maintenance Manual

Call **1-800-345-8207**
or visit our web site for our complete product listing
www.GeneralAirProducts.com

version 2.3
07-2019

Table of Contents

If there are any questions regarding installation, operation, or maintenance of this compressor, please call 800-345-8207

IMPORTANT: ALL INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE.
Consult factory for the most up to date version of this manual - 1-800-345-8207.

Section 1 - Safety & Warnings

1.1 Safety Guidelines

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

DANGER - *Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.*

WARNING - *Warning indicates a potentially hazardous situation which, if not avoided COULD result in death or serious injury.*

CAUTION - *Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.*

NOTICE - *Notice indicates important information, that if not followed may cause damage to equipment.*

1.2 General Information

This compressor is intended for installation indoors for use on dry sprinkler systems in accordance with the Standard for Installation of Sprinkler Systems, NFPA 13 and the National Electrical Code, NFPA 70. The compressor should be sized to restore and maintain the air pressure in the sprinkler system in accordance with the requirements in NFPA 13.

1.3 General Safety Information

1. Read all manuals included with this product carefully. Be thoroughly familiar with the controls and the proper use of the equipment.
2. Follow all local electrical and safety codes as well as National Electrical Codes (NEC), Occupational Safety and Health Act (OSHA), and National Fire Protection Association (NFPA).
3. Only persons familiar with these rules of safe operation should be allowed to use the equipment.
4. Keep visitors away and NEVER allow children in the work area.
5. Wear safety glasses and use hearing protection when operating the unit.
6. Do not stand on or use the unit as a handhold.
7. **Periodic inspection and test of this equipment is required.** Consult your installer and local codes to meet all requirements.
8. Check all fasteners at frequent intervals for proper tightness.

1.4 Safety Notes

DANGER - This compressor is not equipped and should NOT be used “as is” to supply breathing quality air.

WARNING - Motors, electrical equipment and controls can cause electrical arcs that will ignite flammable gas or vapor. Never operate or repair in or near flammable gas or vapor. Never store flammable liquids or gasses near the compressor.

WARNING - These compressors are suitable for pumping only atmospheric air. As defined in Compressed Gas Association Pamphlet G-7, page 3, atmospheric air is a mixture of elements and compounds where nitrogen and oxygen comprise more than 99% with all other trace gasses comprising less than 1%. **Do not use this compressor in contaminated environments or for pumping mixtures other than atmospheric air**.

WARNING - Compressed air contains liquid water and is saturated with water vapor, which can freeze when surrounding temperatures are lower than 32°F (0°C). Component selection to minimize the effects of water vapor must be considered.

Section 2 - Receiving

Your compressor is inspected at the factory and packaged to protect against shipping damage. When the compressor is unpacked, inspect for damage or missing parts. All claims should be settled directly with the freight company.

WARNING

- Do not operate this compressor if damaged during shipment, handling or use. Any damage may result in failure and cause injury or property damage.

Section 3 - Installation Location

Locate the compressor in a clean, well ventilated area where air is relatively cool, clean and dry. A 110°F (43°C) maximum and 40°F (4.5°C) minimum temperature for surrounding and inlet air are recommended. Provide at least 12 to 18 inches of clearance from any wall or other obstruction that will interfere with airflow over and through the compressor. Blocking airflow through the fan may cause the compressor to overheat. Do not place the compressor in an area of excessive heat, such as near a boiler.

Section 4 - Mounting

OL Plus Series (Riser mounted units) may be mounted to a firm level floor, wall or system riser. A mounting bracket and straps are provided. Tank mounted units must be leveled and anchored to the floor; the vibration isolators (P/N KVP4X4) supplied with the unit must be used. Both tank and riser mounted units are shipped with a flex hose and union. The flex hose (P/N P3002MP) is recommended to be installed between the compressor or tank outlet and service piping.

Section 5 - Lubrication

NOTICE

- This compressor is designed for non-lubricated service. Bearings are permanently lubricated. **Do not lubricate any part of the compressor or motor**.

Section 6 - Piping

6.1 Piping Instructions

WARNING

- Compressed air contains liquid water and is saturated with water vapor, which can freeze when surrounding temperatures are lower than 32°F (0°C). Component selection to minimize the effects of water vapor must be considered.

Piping between the compressor, accessory items and the sprinkler system must be at least ½" internal diameter to minimize pressure drop from the compressor to system. Larger pipe size may be required by code and may be substituted with no adverse effects.

NOTICE

- Smaller line size must not be used and will restrict the compressor flow, lowering capacity and causing the compressor/motor to work harder, which shortens compressor/motor life. All piping connected to the compressor must be fully supported and not transfer any loads to the compressor.

If an AMD-1 is used, allow sufficient distance between the compressor and AMD-1 to ensure that the maximum temperature at the AMD-1 is 200°F or less.

NOTICE

- When an AMD is used with riser mounted units, a riser mounted tank kit (P/N OLR-TK) is recommended to prevent short cycling the compressor.

All oilless compressors include a relief valve. For riser mounted models, the relief valve is installed on the compressor. For tank mounted models, an ASME Code relief valve is mounted on the compressor tank. This valve will open at a preset value above the pressure switch setting to prevent excess tank pressure in the event of a switch failure.

WARNING

- Do not attempt to change the safety relief valve setting.

A manual drain is provided on the bottom of each tank mounted compressor. Moisture accumulated in the tank must be drained weekly. An automatic drain, P/N DVA-2T, is recommended in areas of high humidity.

The compressor outlet piping should contain an accessible drain. As a minimum a manual drain may be used, but an automatic drain is recommended to remove excess water.

NOTICE

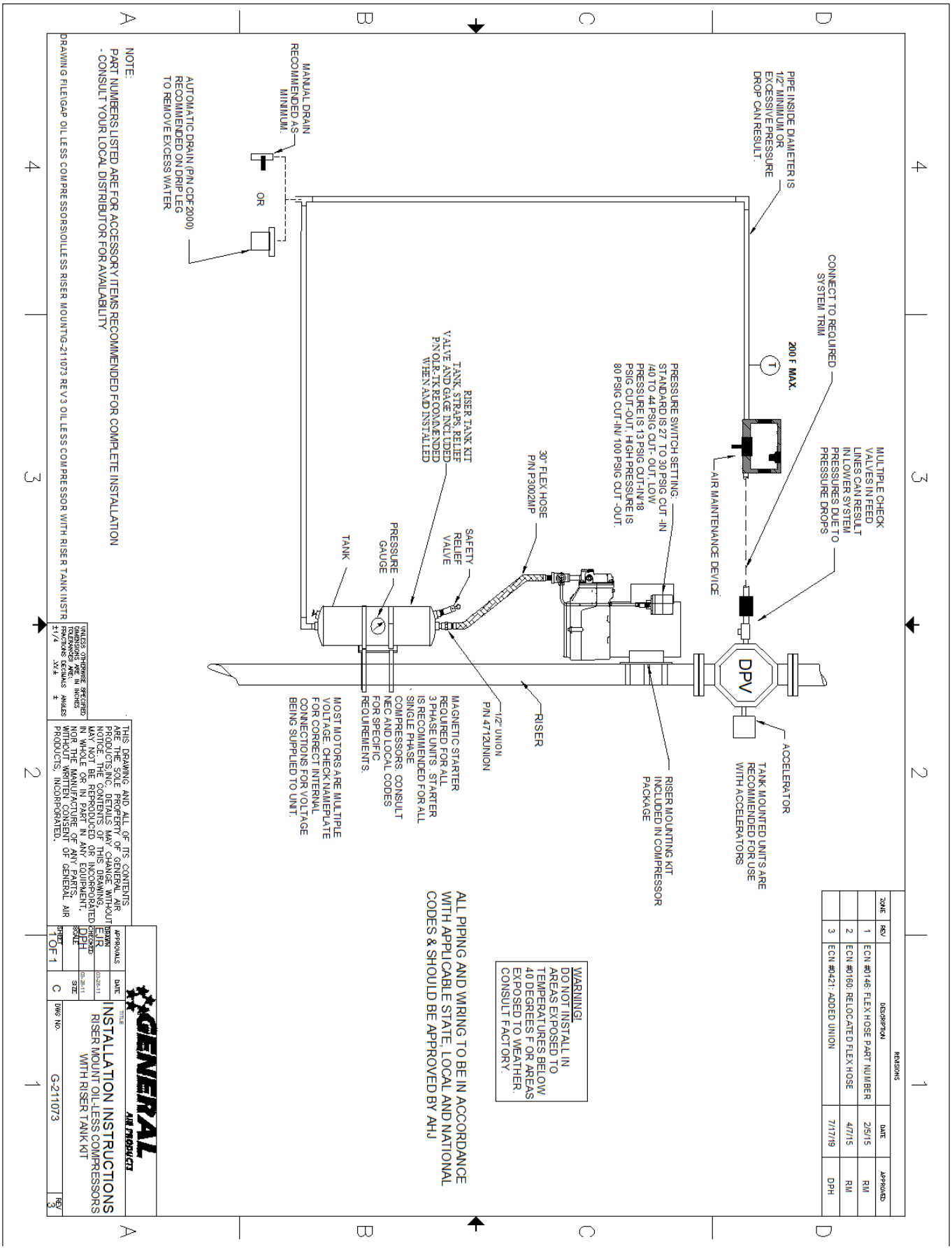
- Accumulation of condensed water in the system can cause corrosion of components and reduction of system capacity.

NOTICE

- Warranty is void if a separate check valve is not installed to prevent water backflow to compressor.

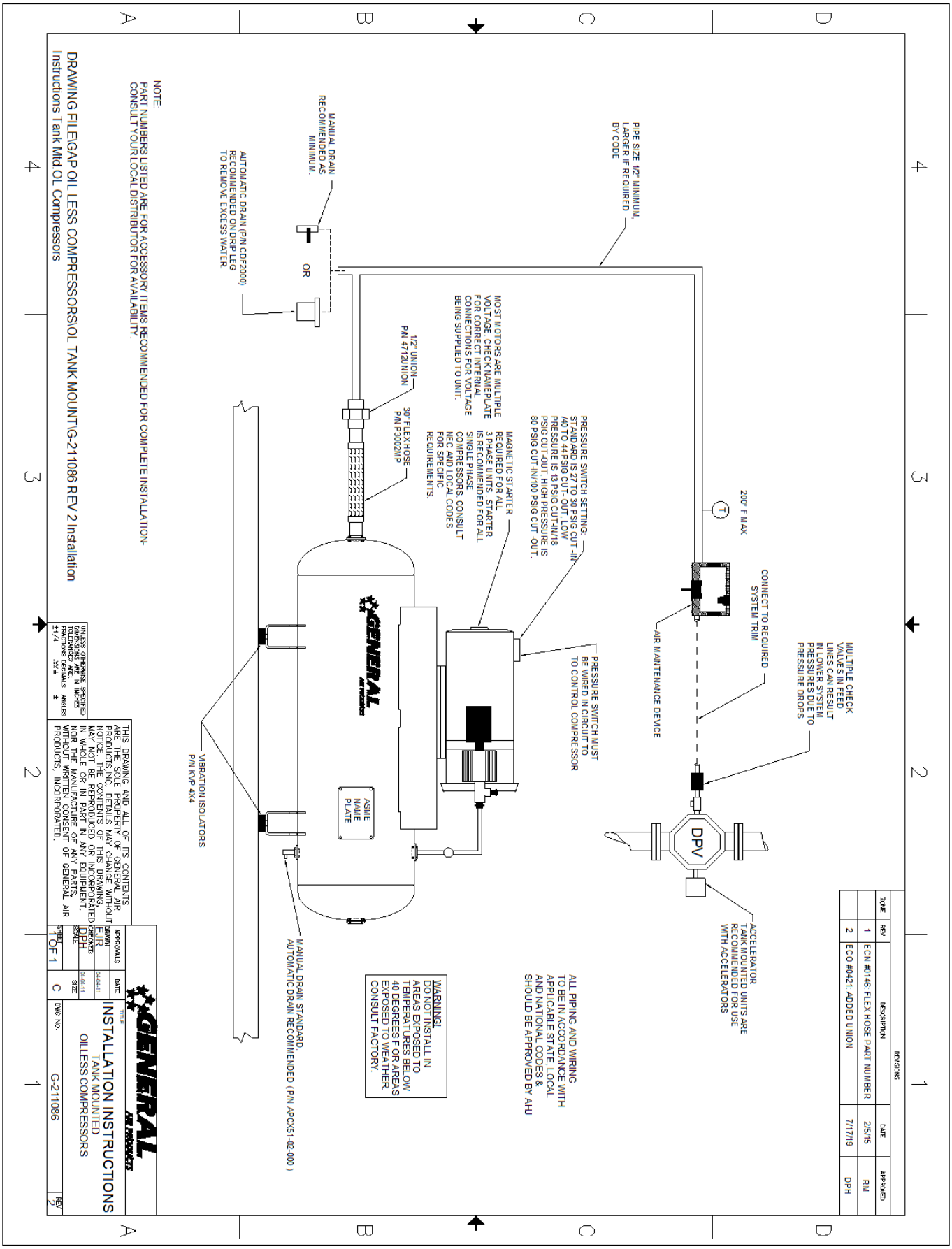
Section 6 - Piping

6.2 OL Plus Series Riser Mounted Oilless Air Compressor Installation Drawing



Section 6 - Piping

6.3 OLT Plus Series Tank Mounted Oilless Air Compressor Installation Drawing



Section 7 - Wiring

7.1 Wiring Instructions

WARNING

- Wiring should be in accordance with the national electrical code and any local codes or regulations. Have a licensed and competent electrician ensure that the voltage supplied matches the compressor voltage.

CAUTION

- Inadequate wiring size can cause insufficient voltage at the compressor during start-up. Overheating and damage can result to the motor and controls.

NOTICE

- Failure to use the pressure switch may result in overpressure of the compressor or other components in the system. Overpressure of the compressor can result in blown head gaskets or other damage.

NOTICE

- Grounding Instructions: This product must be connected to a grounded, metallic, permanent wiring system, or an equipment grounding terminal or lead on the product.

The supply wire must be of adequate size and no other equipment should be connected to the same line. The adjacent table lists the recommended wire size for each model based on a 100' run and lowest operating voltage. Consult factory for longer runs. The motors supplied are multiple voltage motors. A label on the pressure switch cover indicates the voltage the motor is pre-wired for. If the supply voltage, on site, is different from the voltage indicated on this label, change the internal motor voltage connections to match the supply voltage. To change internal voltage connections, remove the cover plate located on the rear or side of the motor and reconnect the wire leads as shown on the motor's wiring diagram.

On all three phase compressors an arrow on the motor indicates the required direction of rotation of the compressor. If the compressor rotates in the opposite direction, reverse the rotation of the motor. Interchanging any two incoming supply wires reverses rotation of three phase motors.

Minimum Recommended Wire Size		
Model #	1 Phase	3 Phase
OL(T)12516**	12	N/A
OL(T)25033**	12	N/A
OL(T)36550**	12	12
OL(T)43075**	10	12
OL(T)615100**	6	12
OL(T)915150**	6	12
OL(T)1225200**	10	10
OL(T)32016**-LP	12	N/A
OL(T)55033**-LP	12	N/A
OL(T)86050**-LP	12	12
OL(T)99075**-LP	10	12

NOTICE

- Single-phase motors include internal thermal overload protection, which has an automatic reset device.

WARNING

- Disconnect electrical power before servicing to disable reset devices. Thermal protection can automatically start the motor when the protector resets.

On single phase models, the motor is pre-wired to the pressure switch provided, which controls starting (cut in pressure) and stopping (cut out pressure) of the motor. The pressure switch is factory set. Standard models switch is set at 27 to 30 psig cut in and 40 to 44 psig cut out. Low pressure models ("-LP") switch is set at 13 psig cut in and 18 psig cut out. Consult General Air Products before adjusting the pressure switch.

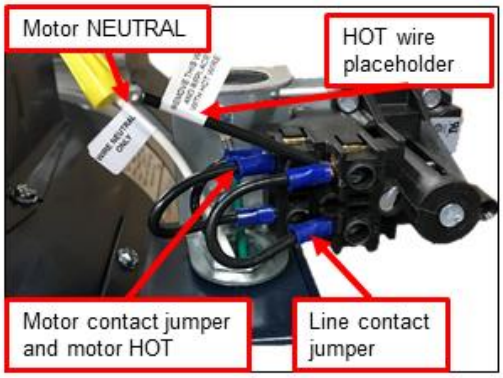
On three-phase compressors, the motor is not pre-wired to the pressure switch. Refer to the three phase wiring instruction drawing for recommended wiring. **A motor starter is required, for all three phase models, to protect the motor from overload conditions to meet NEC, NFPA70, Article 430. A motor starter is recommended, for all single phase models.** Consult the National Electric Code and local codes for motor starter requirements. Refer to the proper wiring instruction drawing for recommended wiring to a starter.

NOTICE

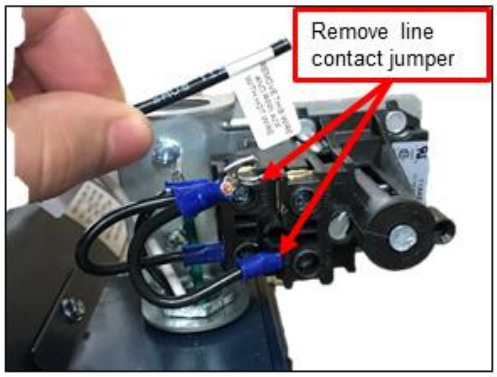
- Do not run two phases of a three phase supply through the pressure switch. Serious damage can result. Warranty is voided if connected this way.

Section 7 - Wiring

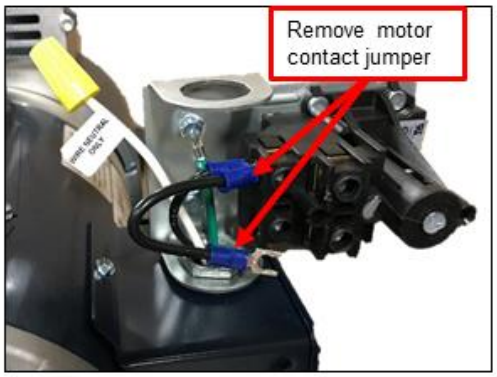
Convert Pressure Switch from 115V to 230V



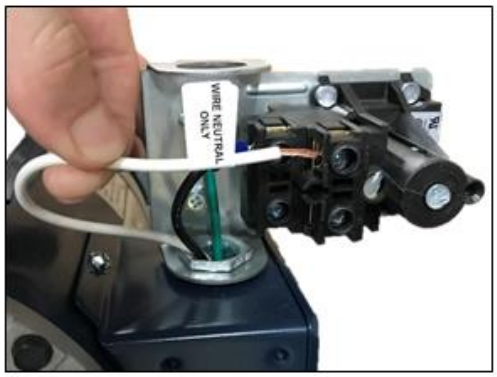
1. Identification of wires.



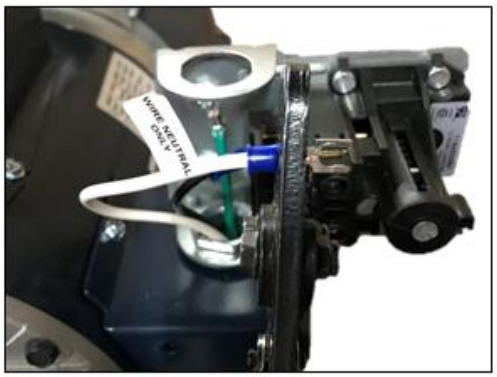
2. Remove line contact jumper and HOT wire placeholder.



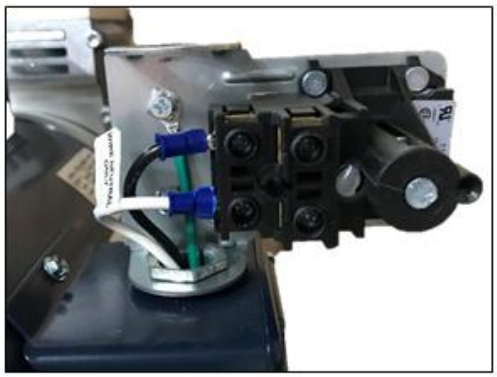
3. Remove motor contact jumper, leaving motor HOT in terminal. Retighten motor HOT wire in terminal.



4. Remove yellow wire nut from motor NEUTRAL.



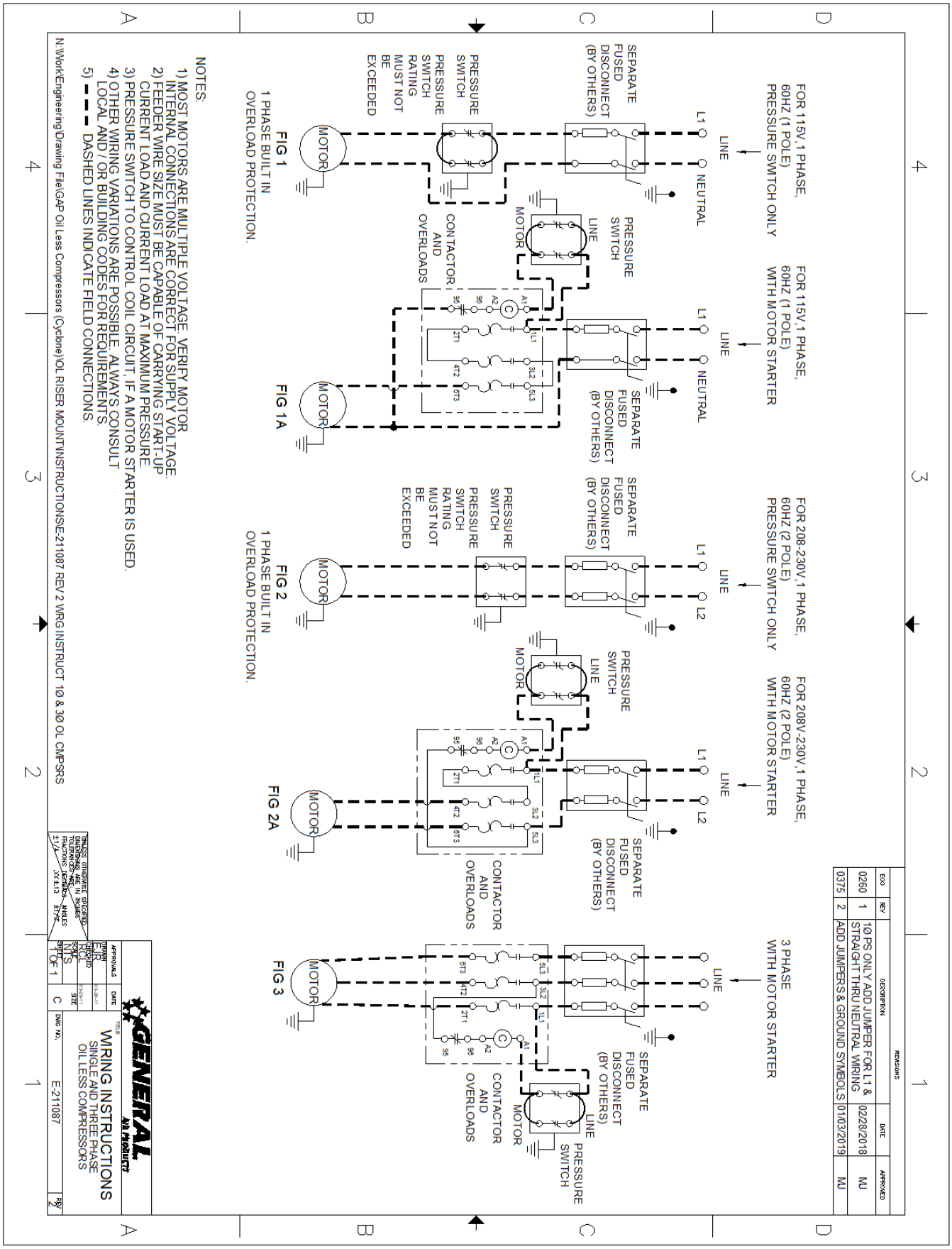
5. Crimp a spade connector onto NEUTRAL wire.



6. Insert spade connector into other motor terminal. Use wiring diagram on side of motor to wire it for 230V.
7. Wire supply line 1 and line 2 to line contacts of pressure switch.

Section 7 - Wiring

7.2 Oilless Air Compressor Single & 3 Phase Wiring Drawing



Section 8 - Maintenance Instructions

WARNING - Disconnect, tag, and lock out power source then release all pressure from the system before attempting to install, service, relocate, or perform any service.

The following instructions are based on normal operation. If the compressor is in an excessively dusty area, increase frequency of maintenance checks.

Weekly:

- Drain condensate from receiver and traps
- Check for unusual noise or vibration
- Clean air filters (only with non-petroleum based products)
- Clean all external parts of the compressor and motor

Monthly:

- Manually test safety relief valve
- Inspect air system for leaks
- Tighten fitting, nuts, and screws as required

Quarterly:

- Change filters

Warranty can be voided if modifications or adjustments are made without consultation and approval from factory personnel.

If there are any questions regarding installation, operation, or maintenance of this compressor, please call 800-345-8207

Section 9 - Troubleshooting Guide

Symptom	Possible Cause(s)	Corrective Action
Motor hums and runs slowly or not at all.	1. Low or no voltage 2. Shorted or open motor winding 3. Defective check valve 4. Defective pressure switch - contacts will not close	1. Check voltage during start. Voltage must be within +/- 10% of nominal voltage to start motor. Increase wire size if necessary, to lower voltage drop. 2. Replace compressor 3. Replace check valve 4. Repair or replace pressure switch
Reset mechanism cuts out or fuses blow repeatedly	1. Insufficient voltage to motor 2. Pressure switch set too high 3. Wrong fuse size 4. Piping too restrictive 5. Defective motor	1. Check voltage during start. Voltage must be within +/- 10% of nominal voltage to start motor. Increase wire size if necessary, to lower voltage drop. 2. Consult factory, adjust or replace 3. Be sure fuses, heaters and/or overloads are properly rated or set 4. Add receiver vessel or increase pipe volume after compressor 5. Consult factory
Unit short cycles repeatedly	1. Piping too restrictive 2. Air leaks	1. Add receiver vessel or increase pipe volume after compressor 2. Repair leaks
Compressor overheating	1. Dirty intake filter 2. Wrong motor rotation 3. Air flow to fan blocked	1. Clean intake filter 2. Correct rotation 3. Clean air flow to fan or relocate unit
Excessive noise in operation	1. Damaged bearings 2. Worn piston cup 3. Broken valves 4. Loose fan 5. Damaged fan guard	Contact General Air Products for technical support by calling 1-800-345-8207
System pressure builds slowly	1. Compressor sized incorrectly 2. Leaks or restrictions in piping 3. Dirty intake filter	1. Check system size and compressor sizing 2. Correct leaks and remove restrictions 3. Clean intake filter

Section 10 - Warranty Policy

GENERAL PROVISIONS & LIMITATIONS

General Air Products, Inc. (the "Company") warrants to each original purchaser ("Purchaser") of its new products from the Company or its Authorized Distributor that such products are, at the time of delivery to the Purchaser, made with good materials and workman- ship. No warranty is made with respect to:

1. Any product, which has been repaired or altered in such a way, in the Companies judgment, as to affect the product adversely.
2. Any product, which has, in the Companies judgment been subjected to negligence, accident, improper storage, improper installation or application.
3. Any product, which has not been operated or maintained in accordance with the recommendations of the Company.
4. Components or accessories manufactured, warranted and serviced by others.
5. Any reconditioned or prior owned product.

Claims for items described in 4. above should be submitted directly to the manufacturer.

WARRANTY PERIOD

The Company's obligation under this Warranty is limited to repair or, at its option, replacing during normal business hours at the designated facility of the Company, any part that in its judgment proved not to be as warranted within the applicable Warranty Period as follows.

COMPONENTS

All non-consumable components are warranted for 12 months from the date of purchase. Consumables are not covered under warranty. The unit must have been installed by either a factory authorized distributor or agent in accordance with the factory recommendations taking into account all other local site conditions not originally noted to the factory. The unit must be operated and maintained in accordance with the Factory recommendations and original design conditions. Failure to provide such proof of the above may void warranty.

LABOR TRANSPORTATION & INSPECTION

The Company will repair or replace any product or part thereof which in the Companies judgment is proved to be not as warrant- ed. Labor costs are not covered under warranty.

All costs of transportation of product, labor or parts claimed not to be as warranted and, of repaired or replaced parts to or from factory shall be borne by purchaser. The Company may require the return of any part claimed not to be as warranted to one of its facilities as designated by the Company, transportation prepaid by Purchaser, to establish a claim under this warranty.

Replacement parts provided under the terms of the warranty are warranted for the remainder of the Warranty Period of the product upon which installed to the same extent as if such parts were original components.

DISCLAIMER

THE FOREGOING WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY AGREED THAT, EXCEPT AS TO TITLE, THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY.

THE REMEDY PROVIDED UNDER THIS WARRANTY SHALL BE THE SOLE, EXCLUSIVE AND ONLY REMEDY AVAILABLE TO THE PURCHASER AND IN NO CASE SHALL THE COMPANY BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES. UNDER NO CIRCUMSTANCES SHALL THE COMPANY BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOSSES OR DELAYS HOWSOEVER CAUSED.

No statement, representation, agreement, or understanding, oral or written, made by any agent, distributor, representative or employee of the Company which is not contained in this Warranty will be binding upon the company unless made in writing and executed by an officer of the Company.

This warranty shall not be effective as to any claim which is not presented within 30 days after the date upon which the product is claimed not to have been as warranted. Any action for breach of this warranty must be commenced within one year after the date upon which the cause of action occurred.

Any adjustment made pursuant to this warranty shall not be construed as an admission by the Company that any product was not as warranted.

PROMPT DISPOSITION & RETURNS POLICY

The Company will make a good faith effort for prompt correction or other adjustment with respect to any product, which proves to be defective within the warranty period. Before returning any product, write or call the distributor, agent or authorized company from which the product was purchased, describing defect and giving date and number of original invoice, as well as proof of Factory supplied consumables and proof of scheduled maintenance. No products will be accepted for return without the Company issuing a “Returned Goods Authorization” (RGA) to the Purchaser and unless accompanied by a properly authorized RGA request form initiated by the Purchaser. Return freight must be prepaid and each returned product must have the RGA number clearly marked on the product. Title and risk of loss pass to buyer upon delivery to the common carrier.

PRODUCT SUITABILITY

Many States, Localities and Countries have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While General Air Products, Inc. attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used? Before purchase and use of a product, please review the product application, and national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

REV: 4/22/11

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SECTION 4

United Fire Systems UFS-710

NAMD-1 Instruction Sheet

INSTRUCTION SHEET

Nitrogen / Air Maintenance Device for Fire Sprinkler Systems
Model **NAMD-1**

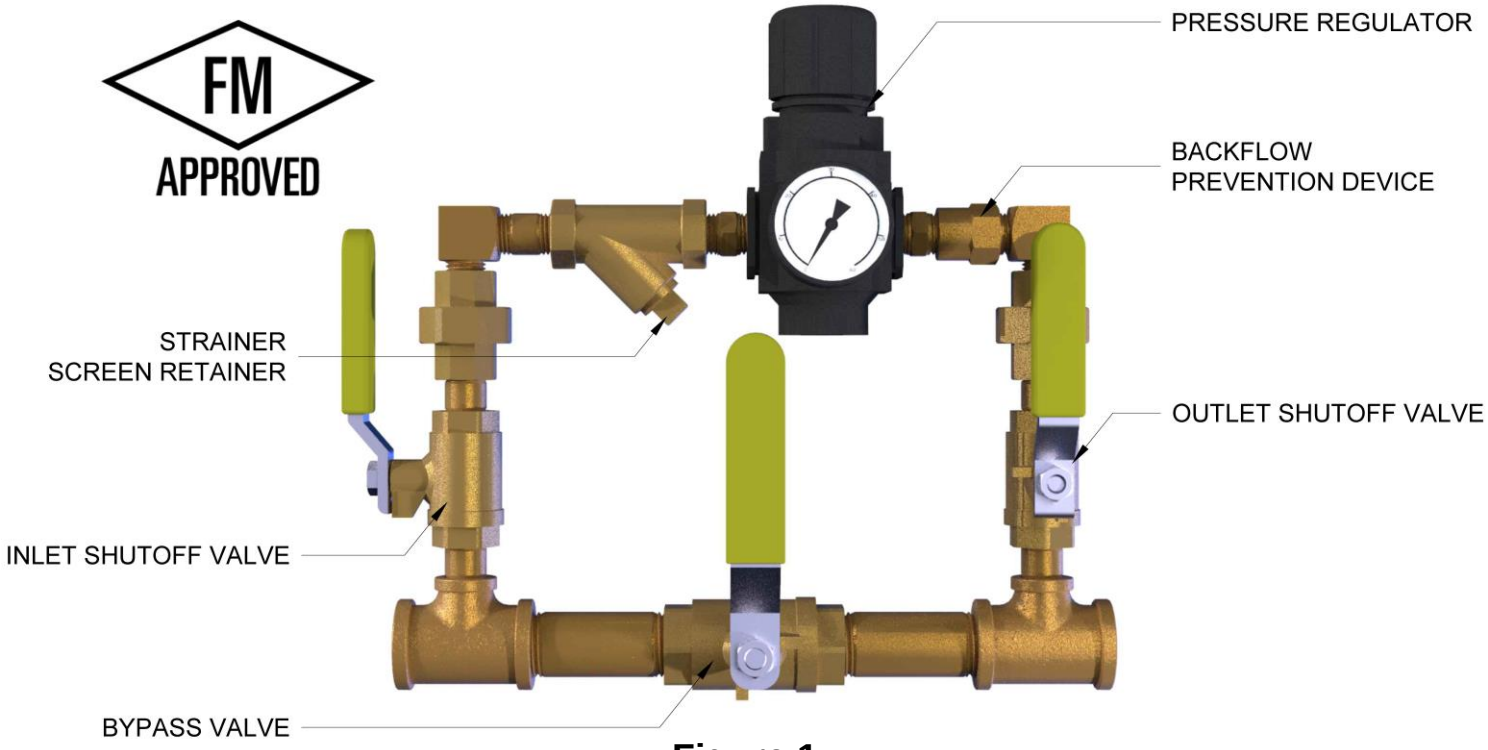

Figure 1

DESCRIPTION

The **UNITED Fire Systems** **Model NAMD-1** is an FM Approved device for controlling the nitrogen and / or air pressure in preaction and dry-pipe fire sprinkler piping. The device is equipped with a high-precision pressure regulator capable of providing accurate regulation over a wide range of inlet pressures and gas flows. This is especially important for sprinkler corrosion inhibiting systems supplying nitrogen to the sprinkler system, since most nitrogen systems provide less gas flow that a conventional air compressor.

SPECIFICATIONS

Model No.:	NAMD-1
Material (other than regulator):	Brass
Material (regulator body):	Zinc
Inlet:	1/2” NPT Female
Outlet:	1/2” NPT Female
Inlet Pressure Range:	0-175 PSIG (0-1200 kPa gauge)
Outlet Pressure Range:	15-60 PSIG (100-410 kPa gauge)
Maximum Pressure:	175 PSIG (1200 kPa)
Temperature Range:	-30°F to +150°F (-34°C to +65°C)
Dimensions (approx.):	9.75” L x 8.25” H (248 mm x 210 mm)
Weight (approx.):	7 lbs. (3.2 kg)

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INSTRUCTION SHEET

Nitrogen / Air Maintenance Device for Fire Sprinkler Systems
Model **NAMD-1**

1. INSTALLATION INSTRUCTIONS – READ AND UNDERSTAND BEFORE INSTALLATION

IMPORTANT
DO NOT disassemble the **Model NAMD-1** device!

1.1. Install the **Model NAMD-1** device in the nitrogen / air pressure supply line to the sprinkler valve trim.
1.2. **UNITED Fire Systems** highly recommends installing one (1) **Model NAMD-1** device for each sprinkler valve.
1.3. The device may be installed in any orientation.
1.4. Install the device as close as possible to the sprinkler valve receiving the pressure.
1.5. Locate the device in as a convenient place as possible, where the ball valves may be easily operated and the pressure gauge observed.
1.6. If the rigidity of the inlet and outlet piping is sufficient, no additional bracketing should be necessary. Otherwise, use standard split ring hangers and hardware to attach the device to the wall or other solid mounting location.

IMPORTANT
The **Model NAMD-1** device is designed to operate in one direction only. Refer to **Figure 1** to positively identify the **INLET** and **OUTLET** ports of the device.

1.7. Attach the piping from the pressure source to the **INLET** of the device. Piping shall be 1/2" nominal pipe size minimum. Use Teflon tape on the male pipe threads of the pipe only. DO NOT permit pipe thread sealant to enter the device.
1.8. Attach the piping from the **OUTLET** of the device to the proper connection point on the sprinkler valve trim. Piping shall be 1/2" nominal pipe size minimum. Use Teflon tape on the male threads of the pipe only. DO NOT permit pipe thread sealant to enter the device.
1.9. Proceed to the **COMMISSIONING** instructions below.

2. COMMISSIONING

2.1. Ensure all three (3) ball valves on the **Model NAMD-1** device are **CLOSED**.
2.2. Determine proper supervisory pressure for the sprinkler valve which the device is connected to.
2.3. Pull pressure regulator adjustment knob UP.
2.4. Turn pressure regulator adjustment knob COUNTERCLOCKWISE to remove all force from the regulating spring.
2.5. Apply nitrogen pressure from sprinkler corrosion inhibiting system to the device inlet.
2.6. Leak check the piping from the pressure source to the Model NAMD-1 device. Piping should be as leak-free as possible. Correct all leaks before proceeding.
2.7. Gradually open inlet shutoff valve. Pressure gauge on the device pressure regulator should indicate pressure.

IMPORTANT
When adjusting pressure regulator, always approach the desired adjustment from a LOWER to a HIGHER pressure.

A. If pressure adjustment (as indicated on device pressure gauge) is LOW, turn pressure regulator adjustment knob CLOCKWISE to increase pressure to desired setting.

B. If pressure adjustment (as indicated on the device pressure gauge) is HIGH, turn pressure regulator adjustment knob COUNTERCLOCKWISE to reduce pressure 3-5 PSIG below desired setting, then turn knob CLOCKWISE to increase pressure to desired setting.

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2. COMMISSIONING (continued)

2.8. Turn pressure regulator adjustment knob clockwise until pressure gauge indicates 2-3 PSIG above the desired supervisory pressure determined in step 2.2.
2.9. Gradually open outlet shutoff valve. Nitrogen pressure will reach the sprinkler valve trim.
2.10. Leak check the piping from the **Model NAMD-1** device to the sprinkler valve trim. Piping should be as leak-free as possible. Correct all leaks before proceeding.
2.11 Check that pressure gauge continues to indicate 2-3 PSIG above supervisory pressure. Adjust if necessary.
2.12. Push pressure regulator adjustment knob DOWN.

3. OPERATION

Table 1 – Valve Positions

MODE	INLET Shutoff Valve	OUTLET Shutoff Valve	BYPASS Valve
No Gas Supply To Sprinkler Valve	Closed	Closed	Closed
Initial-Fill With Air	Closed	Closed	**OPEN**
Supply System With Nitrogen	**OPEN**	**OPEN**	Closed
DO NOT Operate	**OPEN**	**OPEN**	**OPEN**

4. INSPECTION AND MAINTENANCE

4.1 Monthly
4.1.1 Inspect the **Model NAMD-1** device valve position. Use Table 1 to verify that valve position is in accordance with desired MODE.
4.1.2 Inspect the pressure gauge. Verify that indicated pressure is 2-3 PSI above the desired supervisory pressure of the connected sprinkler valve. Refer to **2. COMMISSIONING** if regulator adjustment is required.

4.2 Annual At least annually, inspect and clean the device strainer screen.

DANGER
Ensure that **Model NAMD-1** device is completely depressurized before inspecting and cleaning the strainer screen. Failure to do so can result in death or serious personal injury!

IMPORTANT
When ball valves have been CLOSED, the nitrogen / air supply is not available to pressurize the sprinkler system piping. Take required precautions to prevent inadvertent sprinkler valve operation. Notify applicable personnel of possible “low air” signals.

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4. INSPECTION AND MAINTENANCE (Continued)

4.2 Annual (Continued)

4.2.1 Ensure there is no pressure present in the **Model NAMD-1** device.
4.2.2 Hold device so that torque applied to strainer screen retainer does not move the device.
4.2.3 Refer to **Figure 1.** Apply suitable wrench to HEX on strainer screen retainer. Do NOT remove square plug.
4.2.4 Remove strainer screen retainer. Retain for replacement.
4.2.5 Examine rubber seal on strainer screen retainer. If damaged during removal, leakage may occur.
4.2.6 Remove strainer. Empty any loose material, and then flush with clean water. If necessary, use a wire brush to remove trapped particles. Dry strainer screen thoroughly before replacement.
4.2.7 If strainer screen is damaged, replace with new strainer screen UFS P/N 30-500003-401.
4.2.8 Insert strainer screen.
4.2.9 Replace strainer screen retainer, tightening wrench-tight.
4.2.10 See 2. COMMISSIONING to return Model NAMD-1 device to service.
4.2.11 Leak check the strainer screen retainer / strainer body connection. Correct leak if necessary.

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