with no built-in releasing control panel

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

Serial Number ____________________________________________________

Date of Installation ___________ Date of Commissioning ___________

UNITED Fire Protection Corporation
1 Mark Road
Kenilworth, NJ USA 07033
908-688-0300
www.unitedfireprotection.com

Manual Part Number 10-500001-00N
Version 1.1
July 2011
## INDEX

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td></td>
<td>i</td>
</tr>
<tr>
<td>List of Figures</td>
<td></td>
<td>ii</td>
</tr>
<tr>
<td>List Of Tables</td>
<td></td>
<td>iii</td>
</tr>
<tr>
<td>Hazard Identification</td>
<td></td>
<td>iv</td>
</tr>
<tr>
<td>Foreword</td>
<td></td>
<td>v</td>
</tr>
<tr>
<td>1</td>
<td>General</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>1.2</td>
<td>Features</td>
<td>2</td>
</tr>
<tr>
<td>1.3</td>
<td>Functional Description</td>
<td>5</td>
</tr>
<tr>
<td>1.4</td>
<td>Configurations</td>
<td>7</td>
</tr>
<tr>
<td>1.5</td>
<td>Options</td>
<td>7</td>
</tr>
<tr>
<td>1.6</td>
<td>Approvals</td>
<td>7</td>
</tr>
<tr>
<td>1.7</td>
<td>Applicable Standards</td>
<td>7</td>
</tr>
<tr>
<td>1.8</td>
<td>Applicable Manuals</td>
<td>7</td>
</tr>
<tr>
<td>1.9</td>
<td>FM Approved Assemblies</td>
<td>10</td>
</tr>
<tr>
<td>1.10</td>
<td>Installation</td>
<td></td>
</tr>
<tr>
<td>1.10.1</td>
<td>Location</td>
<td>12</td>
</tr>
<tr>
<td>1.10.2</td>
<td>Unpacking, Placement, and Leveling</td>
<td>12</td>
</tr>
<tr>
<td>1.10.3</td>
<td>Serial Number</td>
<td>14</td>
</tr>
<tr>
<td>1.10.4</td>
<td>External Attachments</td>
<td>14</td>
</tr>
<tr>
<td>1.10.5</td>
<td>Prior To Placing In Service</td>
<td>19</td>
</tr>
<tr>
<td>1.10.6</td>
<td>Placing In Service</td>
<td>19</td>
</tr>
<tr>
<td>1.11</td>
<td>Operation</td>
<td></td>
</tr>
<tr>
<td>1.11.1</td>
<td>Automatic</td>
<td>19</td>
</tr>
<tr>
<td>1.11.2</td>
<td>Manual</td>
<td>19</td>
</tr>
<tr>
<td>1.11.3</td>
<td>Restoring To Service</td>
<td>20</td>
</tr>
<tr>
<td>1.12</td>
<td>Inspection, Testing, and Maintenance</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Victaulic Manual I-769P – Firelock NXT Preaction Valve</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>General Air Products Manual OILLESSINST – Compressor</td>
<td></td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Illustration - PREACTION-PAC Shown With Enclosure Doors Closed</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Illustration - PREACTION-PAC Shown With Enclosure Doors Open</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Diagram - Functional Description</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Diagram – Overall Dimensions</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>Diagram - Location of Pallet Bolts and Leveling Feet</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Diagram - Piping Attachment Details</td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>Diagram - Terminal Strip Wiring Detail</td>
<td>16</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8.1</td>
<td>Items Applicable and Not Applicable in Section 2 – Victaulic Manual</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>1769P – Firelock NXT Preaction Valve</td>
<td></td>
</tr>
<tr>
<td>1.8.2</td>
<td>Items Applicable and Not Applicable in Section 3 – General Air Products</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Manual OILLESSINST - Compressor</td>
<td></td>
</tr>
</tbody>
</table>
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 Protection PREACTION-PAC sprinkler valve assemblies. The manual contains installation, operation, and maintenance information for these assemblies.

IMPORTANT

United Fire Protection 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 Protection 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 Protection 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 Protection 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 Protection strongly recommends that all owners of PREACTION-PACs 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 Protection 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 10-500001-00D.
- National Fire Protection Association No. 70, “National Electrical Code®”.

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

United Fire Protection Corporation
1 Mark Road
Kenilworth, NJ USA 07033
908-688-0300
www.unitedfireprotection.com
Figure 1 – PREACTION-PAC Shown With Enclosure Doors Closed
1. GENERAL

1.1. Introduction. The United Fire Protection PREACTION-PAC is a fully assembled and factory tested pre-action fire suppression system, including pre-action valve, and trim, providing one complete zone of pre-action water sprinkler fire protection. All components are contained in two steel enclosures assembled one above the other. The system pressure gages and the required manual release handle are mounted on the front of the lower enclosure. The system electrical connection terminal strip, compressor disconnect switch, 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. Pre-Action-Valve. The pre-action 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 and the upper right corner of the lower enclosure. (NOTE: Assemblies equipped with 1/2HP compressors do not have upper right corner inlet connection.) The unused inlets are 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. Wiring for compressor power and control is also factory installed and tested. All field wiring for compressor power, switch contacts, and the pre-action 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. The compressor for air pressurization of the pre-action sprinkler piping is pre-installed, wired and adjusted. 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.

1.2. 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 gage, while the upper enclosure is 14 gage. 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 gages on front of enclosure. Three pressure gages are mounted on the front of the lower enclosure, and are visible at all times. These gages monitor the air pressure in the system piping, the water supply pressure up to the pre-action 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 pre-action 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. Lower and upper water inlet connections. The water inlet piping may attach to the lower enclosure either near the bottom on either side, or to a pre-piped upper inlet at the top of the lower enclosure. (NOTE: Assemblies equipped with 1/2HP compressors do not have upper inlet connection.)
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 3 – Diagram - Functional Description
1.3. Functional Description. Refer to Figure 3 on page 4.

1.3.1. Terminal strip (1). The terminal strip provides a convenient point for landing the required field wiring.

1.3.2. Pre-action valve (2). The pre-action 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 (3). In single-interlock assemblies, actuation of the valve actuation solenoid (3) sends water into the sprinkler pipe. In double-interlock assemblies, fusing of a sprinkler head from heat is required, along with valve actuation solenoid (3) actuation, to send water into the sprinkler pipe. Refer to Manual I-769P in Section 2 for more detailed information on the pre-action valve.

1.3.3. Valve actuation solenoid (3). The valve actuation solenoid receives the signal from the field-installed control panel, and actuates the pre-action valve (2). 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-769P in Section 2 for more detailed information.

1.3.4. Waterflow signal switch (4). The waterfall signal switch responds to waterflow in the pipe downstream of the pre-action 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 pre-action 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 (5). The manual shutoff valve is used to shut off the flow of water after actuation of the pre-action valve (2). The normal position of this valve when the system is in service is open. Refer to Manual I-769P in Section 2 for more detailed information on the use of this valve.

1.3.6. Shutoff valve tamper signal switch (6). 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 (7). The compressor supplies supervisory air pressure to fill the sprinkler pipe downstream of the pre-action valve (2). The sprinkler pipe is pressurized to 13 PSIG minimum and 18 PSIG maximum by the compressor (7). 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. High / low air pressure limit switch (8). The high / low air pressure limit switch is built in to the compressor (7). When pressure in the pipe falls below 13 PSIG, the switch turns the compressor (7) on. When pressure in the pipe rises to 18 PSIG, the switch turns the compressor (7) off.

1.3.9. Low air pressure signal switch (9). The low air pressure signal switch sends the supervisory signal for low air 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.

1.3.10. Compressor disconnect switch (10). 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.

1.3.11. Manual station valve (11). 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 pre-action valve (2), open the door and pull the lever on the manual station valve forward. The pre-action valve (2) will open, and the sprinkler pipe will fill with water. No power is needed to manually open the pre-action valve (2) in this manner.
1.3.12. **Drain valve (12).** The drain valve is used to drain the sprinkler pipe after actuation of the pre-action valve (2). This valve is used only during inspection, maintenance, and resetting of the assembly. Only trained personnel should use this valve. Refer to Manual I-769P in Section 2 for more detailed information on this valve. The normal position of this valve is closed.

1.3.13. **Input connection for 110 VAC power (13).** 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 (7). Refer to Section 1.1.0 for additional information on this connection.

1.3.14. **Water inlet connection (14).** The sprinkler water supply is field-connected to this connection. One of three optional water inlet connections may be chosen. The first is at the upper right corner of the lower enclosure. Use this connection if it is desired to bring the pipe to the assembly from above. (NOTE: Assemblies equipped with 1/2HP compressors do not have upper right corner inlet connection.) If it is desired to bring the pipe to the assembly from a location close to the floor, the connection may be made on the lower left of the assembly, or by disconnecting the top inlet piping, the connection may be made on the lower right of the assembly. Refer to Section 1.10 and Section 2 – Victaulic manual I-769P for more detailed information on this connection.

1.3.15. **Outlet connection to fire sprinklers (15).** 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 1.11 and Section 2 – Victaulic manual I-769P for more detailed information on this connection.

1.3.16. **Drain connection (16).** 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 1.1.0 and Section 2 – Victaulic manual I-769P for more detailed information on this connection.

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

1.3.17.1. **Valve actuation solenoid (3).** 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.

1.3.17.2. **Waterflow signal switch (4).** Quantity 2, SPDT switches, rated at 10A-125/250VAC, 1/2HP, 2.5A-6/12/24VDC. Contacts transfer when waterflow begins after pre-action-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.

1.3.17.3. **Shutoff valve tamper signal switch (6).** 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.

1.3.17.4. **Low air pressure signal switch (9).** Quantity 2, SPDT switches, rated at 10A-125/250VAC, 1/2HP, 2.5A-6/12/24VDC. Contacts transfer when air pressure less than 13 PSIG is sensed in the sprinkler pipe. Contacts automatically restore when compressor restores air 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 Protection PREACTION-PAC sprinkler valve assemblies are available in the following configurations:

1.4.1. **Valve sizes:** 1-1/2” through 4”.

---

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

1.4.3. **Compressor sizes:**

1.4.3.1. For 1-1/2” and 2” valves: 1/6HP compressor only.
1.4.3.2. For 2-1/2” valves: 1/6HP and 1/3HP compressors available.
1.4.3.3. For 3” and 4” valves: 1/6HP, 1/3HP, and 1/2HP compressors available.
1.4.3.4. Compressors 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.

1.5. **Options** - None at this time.

1.6. **Approvals.** United Fire Protection 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 Protection PREACTION-PAC sprinkler valve assemblies are to be installed and maintained by qualified, trained personnel in accordance with:

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

1.8. **Applicable Manuals.** Manuals supplied by the manufacturers of components used in United Fire Protection 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.
Table 1.8.1 – Items Applicable and Not Applicable in Section 2 – Victaulic Manual
I769P – Firelock NXT Preaction Valve

<table>
<thead>
<tr>
<th>Page No.</th>
<th>X Indicates Page IS Applicable</th>
<th>X Indicates Page IS NOT Applicable</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 2</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - 6</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 - 17</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 - 19</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 - 21</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 - 28</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29 - 33</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 - 37</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable valve sizes are 1-1/2” through 4”.</td>
</tr>
<tr>
<td>Item 10 – Series 760 Water Motor Alarm is NOT applicable.</td>
</tr>
<tr>
<td>Series 776 Low Pressure Actuator is applicable to Double Interlock only.</td>
</tr>
<tr>
<td>Series 757 Regulated AMTA is NOT applicable.</td>
</tr>
<tr>
<td>Series 757P Regulated AMTA is NOT applicable.</td>
</tr>
<tr>
<td>It is NOT necessary to remove foam spacer from valve – operation performed at UFP factory.</td>
</tr>
<tr>
<td>Compression fittings and tubes installed at UFP factory.</td>
</tr>
<tr>
<td>Series 746-LPA Dry Accelerator NOT installed.</td>
</tr>
<tr>
<td>1. Series 776 Low Pressure Actuator is applicable to Double Interlock only.</td>
</tr>
<tr>
<td>2. Step 11 – Ball valves on AMTA are NOT applicable.</td>
</tr>
<tr>
<td>Series 746-LPA Dry Accelerator is NOT applicable.</td>
</tr>
<tr>
<td>AMTA and Dry Accelerator ball valves are NOT applicable.</td>
</tr>
<tr>
<td>AMTA and Dry Accelerator ball valves are NOT applicable.</td>
</tr>
<tr>
<td>AMTA ball valves are NOT applicable.</td>
</tr>
<tr>
<td>AMTA and Dry Accelerator ball valves are NOT applicable.</td>
</tr>
<tr>
<td>AMTA ball valves are NOT applicable.</td>
</tr>
<tr>
<td>Applicable valve sizes are 1-1/2” through 4”.</td>
</tr>
<tr>
<td>Applicable valve sizes are 1-1/2” through 4”.</td>
</tr>
<tr>
<td>Series 776 Low Pressure Actuator is applicable to Double Interlock only.</td>
</tr>
<tr>
<td>1. Series 776 Low Pressure Actuator is applicable to Double Interlock only.</td>
</tr>
<tr>
<td>2. Series 746-LPA Dry Accelerator is NOT applicable.</td>
</tr>
<tr>
<td>AMTA is not applicable.</td>
</tr>
</tbody>
</table>
Table 1.8.2 – Items Applicable and Not Applicable in Section 3 – General Air Products
Manual OILLESSINST – Compressor

<table>
<thead>
<tr>
<th>Page No.</th>
<th>X Indicates Page IS Applicable</th>
<th>X Indicates Page IS NOT Applicable</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 1        | X                              |                                   | 1. For assistance, please contact United Fire Protection.  
2. The sections on “Receiving” and “Mounting” are not applicable, since the compressor has been unpacked, mounted in the assembly, and tested by UFP. |
| 2        | X                              |                                   | 1. The AMD-1 is not applicable.  
2. Applicable units are OL11016, OL21533, and OL33550. All other units are not applicable. |
| 3        | X                              |                                   | 1. Applicable pressure switch setting is 13 PSIG cut-in and 18 PSIG cut-out.  
2. Compressors used by UFP are single-phase models. Three-phase information is not applicable.  
3. Warranty is supplied by United Fire Protection Corporation. Warranty information on this page is not applicable. |
| 4        | X                              |                                   | For excessive noise in operation, contact United Fire Protection. General Air Products contact note is not applicable. |
| 5 - 6    | X                              |                                   | |
| 7        | X                              |                                   | Figure 1 is applicable. Figure 2 is not applicable. |
| 8        | X                              |                                   | |
1.9 FM Approved Assemblies

Part Number Coding:

PREACTION-PAC. Future generations, incorporating major changes, will be G3, G4, etc.

Codes valve size:
- 15 = 1-1/2” valve
- 20 = 2” valve
- 25 = 2-1/2” valve
- 30 = 3” valve
- 40 = 4” valve

Codes compressor size:
- 1 = 1/6HP
- 2 = 1/3HP
- 3 = 1/2HP

Codes control panel:
- N = None built-in to assembly

Codes Single or Double Interlock:
- 1 = Single Interlock
- 2 = Double Interlock

P = Preaction (Other codes reserved for future use)

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 1.9.1 – Approved PREACTION-PAC Assemblies with no built-in Control Panel

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Valve Size, in.</th>
<th>Valve Type</th>
<th>Compressor Size, HP</th>
<th>Control Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>G215P11N</td>
<td>1-1/2”</td>
<td>Single Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G215P21N</td>
<td>1-1/2”</td>
<td>Double Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G220P11N</td>
<td>2”</td>
<td>Single Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G220P21N</td>
<td>2”</td>
<td>Double Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G225P11N</td>
<td>2-1/2”</td>
<td>Single Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G225P21N</td>
<td>2-1/2”</td>
<td>Double Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G225P22N</td>
<td>2-1/2”</td>
<td>Double Interlock</td>
<td>1/3</td>
<td>No Panel</td>
</tr>
<tr>
<td>G230P11N</td>
<td>3”</td>
<td>Single Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G230P12N</td>
<td>3”</td>
<td>Single Interlock</td>
<td>1/3</td>
<td>No Panel</td>
</tr>
<tr>
<td>G230P13N</td>
<td>3”</td>
<td>Single Interlock</td>
<td>1/2</td>
<td>No Panel</td>
</tr>
<tr>
<td>G230P21N</td>
<td>3”</td>
<td>Double Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G230P22N</td>
<td>3”</td>
<td>Double Interlock</td>
<td>1/3</td>
<td>No Panel</td>
</tr>
<tr>
<td>G230P23N</td>
<td>3”</td>
<td>Double Interlock</td>
<td>1/2</td>
<td>No Panel</td>
</tr>
<tr>
<td>G240P11N</td>
<td>4”</td>
<td>Single Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G240P12N</td>
<td>4”</td>
<td>Single Interlock</td>
<td>1/3</td>
<td>No Panel</td>
</tr>
<tr>
<td>G240P13N</td>
<td>4”</td>
<td>Single Interlock</td>
<td>1/2</td>
<td>No Panel</td>
</tr>
<tr>
<td>G240P21N</td>
<td>4”</td>
<td>Double Interlock</td>
<td>1/6</td>
<td>No Panel</td>
</tr>
<tr>
<td>G240P22N</td>
<td>4”</td>
<td>Double Interlock</td>
<td>1/3</td>
<td>No Panel</td>
</tr>
<tr>
<td>G240P23N</td>
<td>4”</td>
<td>Double Interlock</td>
<td>1/2</td>
<td>No Panel</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Assemblies with 1-1/2” thru 3” Pre-Action Valves</th>
<th>Assemblies with 4” Pre-Action Valves</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>22.00</td>
<td>24.00</td>
</tr>
<tr>
<td>B</td>
<td>52.00</td>
<td>52.00</td>
</tr>
<tr>
<td>C</td>
<td>10.00</td>
<td>10.00</td>
</tr>
<tr>
<td>D</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>E</td>
<td>62.00</td>
<td>62.00</td>
</tr>
</tbody>
</table>

NOTE: All units are in inches.

Figure 4 – Diagram - Overall Dimensions
Figure 5 – Diagram - Location of Pallet Bolts and Leveling Feet

① = BOLTS HOLDING ASSEMBLY TO THE PALLET
② = 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:

```
G2 – 25P11N – XXXX - XXX
```

- Codes for Generation II PREACTION-PAC
- Part number (See Section 1.9 for explanation)
- Date code (2 digit month followed by 2 digit year)
- 3 digit serial number

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. **Pre-Action Valve.** Use Section 2 - Victaulic manual I-769P 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 three locations:

- The standard connection is at the upper right corner of the lower enclosure. The assembly is pre-piped to accept inlet piping at this location. This location is labeled INLET. (NOTE: Assemblies equipped with 1/2HP compressors do not have upper right corner inlet connection. Use either lower left center or lower right center connection as described below.) 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 top inlet connection, and assemble the steel cap removed from the tee to the top inlet 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.
```

- An optional connection at the lower right center of the lower enclosure. Remove the precut knockout from the lower right center of the lower enclosure. Remove the two grooved couplings from the elbow attached to the right side of the tee. (The elbow and one coupling may be discarded.) Attach the inlet piping to the right side of the tee using one of the grooved couplings. DO NOT attempt to remove any of the rest of the top inlet piping.

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.
1.10.4.2. 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 7 – Diagram - Terminal Strip Wiring Detail
### LEGEND

#### FIELD WIRING

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>COLOR OF TERMINAL BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 110 VAC GROUND FOR COMPRESSOR</td>
<td>GREEN/YELLOW</td>
</tr>
<tr>
<td>2 110 VAC NEUTRAL FOR COMPRESSOR</td>
<td>WHITE</td>
</tr>
<tr>
<td>3 110 VAC HOT FOR COMPRESSOR</td>
<td>BLACK</td>
</tr>
<tr>
<td>4 PREACTION SOLENOID (--)</td>
<td>GRAY</td>
</tr>
<tr>
<td>5 PREACTION SOLENOID (+)</td>
<td>RED</td>
</tr>
<tr>
<td>6 LOW AIR SIGNAL SWITCH WIRING (NO)</td>
<td>GRAY</td>
</tr>
<tr>
<td>7 LOW AIR SIGNAL SWITCH WIRING (COM)</td>
<td>GRAY</td>
</tr>
<tr>
<td>8 WATERFLOW SIGNAL SWITCH WIRING (NO)</td>
<td>BLUE</td>
</tr>
<tr>
<td>9 WATERFLOW SIGNAL SWITCH WIRING (COM)</td>
<td>BLUE</td>
</tr>
<tr>
<td>10 TAMPER SIGNAL SWITCH WIRING (NO)</td>
<td>YELLOW</td>
</tr>
<tr>
<td>11 TAMPER SIGNAL SWITCH WIRING (COM)</td>
<td>YELLOW</td>
</tr>
</tbody>
</table>

#### FACTORY WIRING

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>COLOR OF TERMINAL BLOCK</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 110 VAC GROUND TO AIR COMPRESSOR</td>
<td>GREEN/YELLOW</td>
</tr>
<tr>
<td>13 110 VAC NEUTRAL TO AIR COMPRESSOR</td>
<td>WHITE</td>
</tr>
<tr>
<td>14 110 VAC HOT TO AIR COMPRESSOR</td>
<td>BLACK</td>
</tr>
<tr>
<td>15 PREACTION SOLENOID WIRING (--) FROM LOWER ENCLOSURE</td>
<td>GRAY</td>
</tr>
<tr>
<td>16 PREACTION SOLENOID WIRING (+) FROM LOWER ENCLOSURE</td>
<td>RED</td>
</tr>
<tr>
<td>17 LOW AIR SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE</td>
<td>GRAY</td>
</tr>
<tr>
<td>18 LOW AIR SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE</td>
<td>GRAY</td>
</tr>
<tr>
<td>19 WATERFLOW SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE</td>
<td>BLUE</td>
</tr>
<tr>
<td>20 WATERFLOW SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE</td>
<td>BLUE</td>
</tr>
<tr>
<td>21 TAMPER SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE</td>
<td>YELLOW</td>
</tr>
<tr>
<td>22 TAMPER SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE</td>
<td>YELLOW</td>
</tr>
</tbody>
</table>

Legend for Figure 7
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.

![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.** See Figure 7. 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. In the default configuration, the same 110VAC source used for the control panel serves for the compressor. If the local authority having jurisdiction requires separate power sources for the control panel and the compressor, jumpers can be removed from the terminal strip. 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-769P to perform all preliminary tests on the pre-action 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-769P, 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 pre-action 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 pre-action valve in this manner. The door may not be closed until the lever is restored to its normal position.
1.11.3. **Restoring To Service.** After automatic or manual system operation, follow instructions in Section 2 – Victaulic manual I-769P 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 Protection 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 Protection strongly recommends that all owners of PREACTION-PACs 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-769P.

1.12.5.2. General Air Products Manual OILLESSINST.


SECTION 2

Victaulic Manual I-769P

Firelock NXT Preaction Valve
FireLock NXT™ Preaction Valve

SERIES 769
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

WARNING

- Failure to follow instructions and warnings can cause product failure, resulting in serious personal injury and property damage.
- Read and understand all instructions before attempting to install any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.
- Save this installation, maintenance, and testing manual for future reference.

If you need additional copies of any literature, or if you have any questions concerning the safe installation and operation of this product, contact Victaulic, P.O. Box 31, Easton, PA 18044-0031, USA, Telephone: 1-800 PICK VIC, e-mail: pickvic@victaulic.com.

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2007 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

REV_D
# FireLock NXT™ Preaction Valve

**SERIES 769**

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Identification</td>
<td>1</td>
</tr>
<tr>
<td>Installer Safety Instructions</td>
<td>2</td>
</tr>
<tr>
<td>General</td>
<td>2</td>
</tr>
<tr>
<td>Maintenance and Testing</td>
<td>3</td>
</tr>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Trim Dimensions</td>
<td>3</td>
</tr>
<tr>
<td>Exploded View Drawing – Trim Components</td>
<td>4</td>
</tr>
<tr>
<td>Exploded View Drawing – Trim Components</td>
<td>5</td>
</tr>
<tr>
<td>Exploded View Drawing – Trim Components</td>
<td>6</td>
</tr>
<tr>
<td>Exploded View Drawing – Trim Components</td>
<td>7</td>
</tr>
<tr>
<td>Exploded View Drawing – Internal Valve Components</td>
<td>8</td>
</tr>
<tr>
<td>Section View Drawing and Description – Series 776 Low-Pressure Actuator</td>
<td>9</td>
</tr>
<tr>
<td>Section View Drawing and Description – Victraulic Series 757P Air Maintenance Trim Assembly (AMTA) Option</td>
<td>11</td>
</tr>
<tr>
<td>Air Supply Requirements</td>
<td>10</td>
</tr>
<tr>
<td>Compressor Sizing</td>
<td>11</td>
</tr>
<tr>
<td>Base or Riser-Mounted Air Compressors</td>
<td>11</td>
</tr>
<tr>
<td>Shop Air or Tank-Mounted Air Compressors</td>
<td>11</td>
</tr>
<tr>
<td>Victraulic Series 757 Regulated Air Maintenance Trim Assembly</td>
<td>11</td>
</tr>
<tr>
<td>Trim Assembly (AMTA) Option</td>
<td>11</td>
</tr>
<tr>
<td>Victraulic Series 757P Air Maintenance Trim Assembly (AMTA) with Pressure Switch Option</td>
<td>12</td>
</tr>
<tr>
<td>Compressor Requirements and Settings for Series 746-LPA Dry Accelerators</td>
<td>12</td>
</tr>
<tr>
<td>Settings for Air Supervisory Pressure Switches</td>
<td>12</td>
</tr>
<tr>
<td>and Alarm Pressure Switches</td>
<td>12</td>
</tr>
<tr>
<td>Remote System Test Valve Requirements</td>
<td>12</td>
</tr>
<tr>
<td>Important Installation Information</td>
<td>13</td>
</tr>
<tr>
<td>Valve/Trim Installation</td>
<td>13</td>
</tr>
<tr>
<td>Compression Fitting and Tube Installation</td>
<td>14</td>
</tr>
<tr>
<td>Hydrostatic Testing</td>
<td>14</td>
</tr>
<tr>
<td>Placing the System in Service</td>
<td>15</td>
</tr>
<tr>
<td>External Inspection</td>
<td>21</td>
</tr>
<tr>
<td>Weekly Inspection</td>
<td>21</td>
</tr>
<tr>
<td>Monthly Inspection</td>
<td>21</td>
</tr>
<tr>
<td>Required Tests</td>
<td>22</td>
</tr>
<tr>
<td>Main Drain Test</td>
<td>22</td>
</tr>
<tr>
<td>Water Flow Alarm Test</td>
<td>24</td>
</tr>
<tr>
<td>Water Level and Low Air Alarm Tests</td>
<td>25</td>
</tr>
<tr>
<td>Required Operational (Trip) Tests</td>
<td>29</td>
</tr>
<tr>
<td>Partial Operational (Trip) Test</td>
<td>29</td>
</tr>
<tr>
<td>Full Operational (Trip) Test</td>
<td>31</td>
</tr>
<tr>
<td>Required Internal Inspection</td>
<td>33</td>
</tr>
<tr>
<td>Maintenance</td>
<td>36</td>
</tr>
<tr>
<td>Removing and Replacing the Clapper Seal</td>
<td>36</td>
</tr>
<tr>
<td>Removing and Replacing the Clapper Assembly</td>
<td>38</td>
</tr>
<tr>
<td>Installing the Cover Plate Gasket and Cover Plate</td>
<td>40</td>
</tr>
<tr>
<td>Removing and Replacing the Diaphragm Assembly</td>
<td>41</td>
</tr>
<tr>
<td>Replacing the Strainer Screen for</td>
<td></td>
</tr>
<tr>
<td>Series 776 Low-Pressure Actuators</td>
<td>42</td>
</tr>
<tr>
<td>Troubleshooting – Series 776 Low-Pressure Actuator</td>
<td>43</td>
</tr>
<tr>
<td>Troubleshooting – Series 753-E Solenoid Valve</td>
<td>43</td>
</tr>
<tr>
<td>Troubleshooting – Series 746-LPA Dry Accelerator</td>
<td>43</td>
</tr>
<tr>
<td>Troubleshooting – System</td>
<td>44</td>
</tr>
</tbody>
</table>

## 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 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 and product or property damage if instructions, including recommended precautions, are not followed.

### NOTICE

- The use of the word “NOTICE” identifies special instructions that are important but not related to hazards.
INSTALLER SAFETY INSTRUCTIONS

**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 serious personal injury and/or property damage.

**GENERAL**

1. Read and understand all instructions and refer to the trim diagrams before proceeding with the installation, maintenance, and testing of this Victaulic Series 769 FireLock NXT Preaction Valve.
2. Inspect the shipment. Make sure all components are included in the shipment and that all necessary tools are available for installation.
3. Use only recommended accessories. Accessories and equipment that are not approved for use with this valve may cause improper system operation.
4. Wear safety glasses, hardhat, foot protection, and hearing protection. Wear hearing protection if you are exposed to long periods of noisy job-site operations.
5. Prevent back injury. Larger and pre-trimmed valves are heavy and require more than one person or mechanical lifting equipment to position and install the assembly. Always practice proper lifting techniques.
6. Avoid using electrically powered tools in dangerous environments. When using electrically powered tools for installation, make sure the area is moisture-free. Keep the work area well lit, and allow enough space to accommodate proper installation of the valve, trim, and accessories.
7. Watch for pinch points. Do not place fingers under the valve body where they could be pinched by the weight of the valve. Use caution around spring-loaded components (i.e. clapper assembly).
8. Keep work areas clean. Cluttered areas, benches, and slippery floors can create hazardous working conditions.
9. PROTECT THE SYSTEM FROM FREEZING CONDITIONS. THE VALVE AND SUPPLY PIPING MUST BE PROTECTED FROM FREEZING TEMPERATURES AND MECHANICAL DAMAGE.
10. IF THE INLET WATER SUPPLY IS INTERRUPTED FOR ANY REASON, AND SYSTEM SUPPLY PRESSURE TO THE VALVE DECREASES, MAKE SURE THE DIAPHRAGM CHARGE LINE IS FULLY PRESSURIZED BEFORE PLACING THE SYSTEM BACK IN SERVICE.

**MAINTENANCE AND TESTING**

1. Notify the authority having jurisdiction. Always notify the authority having jurisdiction before performing any maintenance that eliminates the fire protection provided by the system.
2. Follow NFPA requirements for system testing and inspection schedules. The building owner or their representative is responsible for inspecting the system in accordance with current NFPA-25 requirements or in accordance with the requirements of the local authority having jurisdiction (whichever is more stringent).
3. Depressurize and drain the system completely before performing any maintenance. Water under pressure can cause the cover plate to blow off during removal if the system is not depressurized and drained completely.
4. Protect the valve from freezing temperatures, foreign matter, and corrosive atmospheres. Any condition that might degrade the system or affect system performance must be avoided.
INTRODUCTION

The following instructions are a guide for proper installation of Victaulic Series 769 FireLock NXT Preaction Valves. These instructions involve pipe that is properly prepared and grooved in accordance with current Victaulic specifications.

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.

TRIM DIMENSIONS

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 single-interlocked, pneumatic release; non-interlocked, pneumatic/electric release; single-interlocked, electric release; and double-interlocked, electric (electric-pneumatic/electric) release trim.

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 single-interlocked, pneumatic release; non-interlocked, pneumatic/electric release; single-interlocked, electric release; and double-interlocked, electric (electric-pneumatic/electric) release trim.

The "A" dimension coupling is not shown for clarity.

Components shown as dotted lines denote optional equipment

* Measurements denoted with an asterisk take optional equipment into account

Optional drain connection kit is shown for reference and takeout dimensions.

www.victaulic.com

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2007 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

REV. D
FireLock NXT™ Preaction Valve

SERIES 769

EXPLODED VIEW DRAWING – TRIM COMPONENTS

SERIES 769 FIRELOCK NXT PREACTION VALVE – NON-INTERLOCKED, PNEUMATIC RELEASE TRIM

(OPTIONAL ACCESSORIES ALSO SHOWN)

Bill of Materials

1. Series 769 FireLock NXT Preaction Valve
2. FireLock Rigid Coupling (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
3. Water Supply Main Control Valve (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
4. Drain Swing Check Valve
5. Drip Cup with Cap
6. Alarm Pressure Switch (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
7. Series 729 Drip Check Valve
8. Diaphragm-Charge-Line Ball Valve (Normally Open)
9. 3-in-1 Strainer/Check/Restrictor Assembly
10. Series 760 Water Motor Alarm (Optional/Sold Separately)
11. Alarm Test Ball Valve
12. Diaphragm-Charge-Line Pressure Gauge (0-300 psi/0-2068 kPa/0-20.7 Bar)
13. Series 749 Auto Drain
14. Series 776 Low-Pressure Actuator
15. Air Manifold
16. Air Supervisory Pressure Switch (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
17. System Pressure Gauge (0-80 psi/0-552 kPa/0-5.5 Bar with Retard)
18. Water Supply Main Drain Valve - Flow Test
19. Water Supply Pressure Gauge (0-300 psi/0-2068 kPa/0-20.7 Bar)
20. Drain Connection Kit (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
21. Gauge Valve
22. System Main Drain Valve
24. Series 748 Ball Check Valve

NOTE 1: Connection point for the Series 75D Water Column Device Kit

For information regarding installation of the Series 75B Supplemental Alarm Device or the Series 7C7 Air Maintenance/Compressor Assembly (not shown), refer to the instructions supplied with the product.
**FireLock NXT™ Preaction Valve**

**SERIES 769**

---

**EXPLODED VIEW DRAWING – TRIM COMPONENTS**

**SERIES 769 FIRELOCK NXT PREACTION VALVE – NON-INTERLOCKED, PNEUMATIC/ELECTRIC RELEASE TRIM**

(/**OPTIONAL ACCESSORIES ALSO SHOWN/**)

**Bill of Materials**

1. Series 769 FireLock NXT Preaction Valve
2. FireLock Rigid Coupling (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
3. Water Supply Main Control Valve (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
4. Drain Swing Check Valve
5. Drip Cup with Cap
6. Alarm Pressure Switch (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
7. Series 729 Drip Check Valve
8. Diaphragm-Charge-Line Ball Valve (Normally Open)
9. 3-in-1 Strainer/Check/Restrictor Assembly
10. Series 760 Water Motor Alarm (Optional/Sold Separately)
11. Alarm Test Ball Valve
12. Diaphragm-Charge-Line Pressure Gauge (0-300 psi/0-2068 kPa/0-20.7 Bar)
13. Series 749 Auto Drain
14. Series 776 Low-Pressure Actuator
15. Air Manifold
16. Air Supervisory Pressure Switch (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
17. System Pressure Gauge (0-80 psi/0-552 kPa/0-5.5 Bar with Retard)
18. Water Supply Main Drain Valve - Flow Test
19. Water Supply Pressure Switch (0-300 psi/0-2068 kPa/0-20.7 Bar)
20. Drain Connection Kit (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
21. Gauge Valve
22. System Main Drain Valve
24. Series 748 Ball Check Valve
25. Series 753-E Solenoid Valve
26. Series 746-LPA Dry Accelerator (Optional/Sold Separately)

---

**NOTE 1:** Connection point for the Series 75D Water Column Device Kit

For information regarding installation of the Series 75B Supplemental Alarm Device or the Series 7C7 Air Maintenance/Compressor Assembly (not shown), refer to the instructions supplied with the product.
Bill of Materials
1. Series 769 FireLock NXT Preaction Valve
2. FireLock Rigid Coupling (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
3. Water Supply Main Control Valve (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
4. Drain Swing Check Valve
5. Drip Cup with Cap
6. Alarm Pressure Switch (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
7. Series 729 Drip Check Valve
8. Diaphragm-Charge-Line Ball Valve (Normally Open)
9. 3-in-1 Strainer/Check/Restrictor Assembly
10. Series 760 Water Motor Alarm (Optional/Sold Separately)
11. Alarm Test Ball Valve
12. Diaphragm-Charge-Line Pressure Gauge (0-300 psi/0-2068 kPa/0-20.7 Bar)
13. Series 749 Auto Drain
14. Series 776 Low-Pressure Actuator
15. Air Manifold
16. Air Supervisory Pressure Switch (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
17. System Pressure Gauge (0-80 psi/0-552 kPa/0-5.5 Bar with Retard)
18. Water Supply Main Drain Valve – Flow Test
19. Water Supply Pressure Gauge (0-300 psi/0-2068 kPa/0-20.7 Bar)
20. Drain Connection Kit (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
21. Gauge Valve
22. System Main Drain Valve
24. Series 748 Ball Check Valve
25. Series 746-LPA Dry Accelerator (Optional/Sold Separately)

**NOTE 1:** Connection point for the Series 75D Water Column Device Kit
For information regarding installation of the Series 75B Supplemental Alarm Device or the Series 7C7 Air Maintenance/Compressor Assembly (not shown), refer to the instructions supplied with the product.
EXPLODED VIEW DRAWING – TRIM COMPONENTS
SERIES 769 FIRELOCK NXT PREACTION VALVE – SINGLE-INTERLOCKED, ELECTRIC RELEASE TRIM
SERIES 769 FIRELOCK NXT PREACTION VALVE – DOUBLE-INTERLOCKED, ELECTRIC RELEASE (ELECTRIC-PNEUMATIC/ELECTRIC) TRIM

(OPTIONAL ACCESSORIES ALSO SHOWN)

Bill of Materials

1. Series 769 FireLock NXT Preaction Valve
2. FireLock Rigid Coupling (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
3. Water Supply Main Control Valve (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
4. Drain Swing Check Valve
5. Drip Cup with Cap
6. Alarm Pressure Switch (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
7. Series 729 Drip Check Valve
8. Diaphragm-Charge-Line Ball Valve (Normally Open)
9. 3-in-1 Strainer/Check/Restrictor Assembly
10. Series 760 Water Motor Alarm (Optional/Sold Separately)
11. Alarm Test Ball Valve
12. Diaphragm-Charge-Line Pressure Gauge (0-300 psi/0-2068 kPa/0-20.7 Bar)
13. Series 749 Auto Drain
14. Series 753-E Solenoid Valve
15. Air Supervisory Pressure Switch**
16. System Pressure Gauge (0-80 psi/0-552 kPa/0-5.5 Bar with Retard)
17. Water Supply Main Drain Valve - Flow Test
18. Water Supply Pressure Gauge (0-300 psi/0-2068 kPa/0-20.7 Bar)
19. Drain Connection Kit (Optional/Sold Separately – Comes Standard when VQR Assembly is Ordered)
20. Gauge Valve
21. System Main Drain Valve
22. Series 755 Manual Pull Station
23. Series 748 Ball Check Valve

**Item #15 is optional/sold separately (or standard when VQR assembly is ordered) for single-interlocked, electric release trim.

**Item #15 is standard for double-interlocked, electric release (electric-pneumatic/electric) trim.

NOTE 1: Connection point for the Series 75D Water Column Device Kit
For information regarding installation of the Series 75B Supplemental Alarm Device or the Series 7C7 Air Maintenance/Compressor Assembly (not shown), refer to the instructions supplied with the product.
FireLock NXT™ Preaction Valve
SERIES 769

EXPLODED VIEW DRAWING – INTERNAL VALVE COMPONENTS

NOTE: VALVE IS SHOWN ABOVE IN THE “SET” POSITION
Exaggerated for Clarity

Bill of Materials

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Valve Body</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Clapper</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Clapper Seal</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Seal Ring</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Seal Washer</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Seal Retaining Ring</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Seal Assembly Bolt</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Bolt Seal</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Clapper Spring</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Clapper Shaft</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Clapper Shaft Bushing and O-Ring (Qty. 2)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Cover Plate</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Cover Plate Gasket</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Cover Plate Bolts*</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Latch</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Latch Spring</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Latch Shaft Bushing and O-Ring (Qty. 2)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Diaphragm</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Diaphragm Cover</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Diaphragm Cover Cap Screws (Qty. 8)</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Latch Shaft</td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: The 1½-inch/48.3-mm and 2-inch/60.3-mm valve sizes contain washers under the heads of the cover plate bolts.
The Series 776 Low-Pressure Actuator is located in the trim of Series 769 FireLock NXT Preaction Valves and acts as the trigger for these systems.

Diaphragms separate the low-pressure actuator into three chambers. The upper air chamber controls activation, while the middle and lower chambers act as the water valve.

During setup, system air is applied to the upper chamber of the low-pressure actuator. When the Auto Vent Sleeve of the low-pressure actuator is pulled up, the upper chamber manually sets. Air pressure in the upper chamber holds the Auto Vent closed, while it exerts force on the water seal of the middle chamber.

When the diaphragm charge line is opened, water enters the lower chamber of the low-pressure actuator. Water that enters the low-pressure actuator flows to the middle chamber through the inlet eyelet, which is pressurized by system air pressure in the upper chamber.

Since the area of the lower diaphragm (exposed to water pressure in the middle chamber) is greater than the area of the lower chamber, the lower chamber seals off. Water does not flow to the outlet of the low-pressure actuator, and the supply water pressure creates the water seal. When system air pressure decays to 7 psi/48 kPa/0.5 Bar, the force exerted by the compression spring in the Auto Vent is greater than the force exerted by air in the upper chamber. The Auto Vent opens, and all air pressure in the upper chamber evacuates.

The upper diaphragm releases water pressure in the middle chamber of the low-pressure actuator, which allows the lower diaphragm to lift and water to flow from the inlet to the outlet. This flow of water releases pressure from the diaphragm charge line of the Series 769 FireLock NXT Preaction Valve, thus allowing the diaphragm to retract. The clapper opens, and water flows into the sprinkler system.

**Bill of Materials**

1. Auto Vent Sleeve
2. Auto Vent Screw
3. Auto Vent Assembly
4. Upper Chamber
5. Upper Diaphragm Wave Spring
6. Lower Diaphragm Wave Spring
7. Outlet Eyelet
8. Lower Chamber
9. Lower Diaphragm Assembly
10. Strainer Screen (Replaceable)
11. Strainer Assembly
12. Inlet Eyelet
13. Middle Chamber
14. Upper Diaphragm Assembly
15. Upper Diaphragm Assembly

Exaggerated for Clarity
The Series 746-LPA Dry Accelerator is a quick-opening device, which exhausts air from the Series 776 Low-Pressure Actuator to speed valve operation.

A diaphragm separates the Series 746-LPA Dry Accelerator into two chambers. The closing chamber contains a compression spring, which maintains the chamber in the closed position. The closed position is maintained as long as the pressure differential between the opening and closing chambers is less than 3 psi/21 kPa/0.2 Bar.

When the system introduces air pressure into the dry accelerator, air enters the closing chamber and passes through a check valve to the opening chamber. The check valve, which allows flow into the opening chamber, prevents pressure from escaping the opening chamber. Therefore, air can escape only through the restrictor.

When a rapid loss of system air pressure occurs, such as an open sprinkler, air escapes from the closing chamber faster than it escapes from the opening chamber. As the sprinkler system's pressure continues to decay, a differential pressure develops across the diaphragm. When this differential pressure reaches 3 – 5 psi/21 – 34 kPa/0.2 – 0.3 Bar, the opening chamber's pressure overcomes the compression spring's closing force, causing the closing chamber to open to the atmosphere. The closing chamber opens immediately and releases pressure from the actuator, resulting in valve operation.

**NOTE:** The Series 746-LPA Dry Accelerator must be used only on systems operating below 30 psi/206 kPa/2.1 Bar of air. If air pressure higher than 30 psi/206 kPa/2.1 Bar is required, the Series 746 Dry Accelerator should be used.
AIR SUPPLY REQUIREMENTS

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

Systems with air pressure higher than 18 psi/124 kPa/1.2 Bar may require the addition of a Series 746-LPA Dry Accelerator. **NOTE:** The Series 746-LPA Dry Accelerator must be used only on systems operating below 30 psi/138 kPa/2.1 Bar of air. If air pressure higher than 30 psi/138 kPa/2.1 Bar is required, the Series 746 Dry Accelerator should be used.

If multiple Series 769 FireLock NXT Preaction 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.

Set the air pressure to the required system air pressure. Air pressure differing from the required system air pressure could reduce system operation response time.

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 769 FireLock NXT Preaction 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 normally installed (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.

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.

VICTAULIC SERIES 757 REGULATED AIR MAINTENANCE TRIM ASSEMBLY (AMTA) OPTION

**NOTICE**

- Victaulic recommends a maximum of two Series 769 FireLock NXT Preaction Valves per Series 757 Regulated AMTA.

Bill of Materials
1. 1/4/3.2 mm Restrictor
2. Slow Fill Ball Valve (Normally Open)
3. Air Regulator
4. Strainer (100 Mesh)
5. Spring-Loaded, Soft-Seated Ball Check Valve
6. Fast Fill Ball Valve (Normally Closed)
VICTAULIC SERIES 757P AIR MAINTENANCE TRIM ASSEMBLY (AMTA) WITH PRESSURE SWITCH OPTION

NOTICE

- Victaulic recommends a maximum of two Series 769 FireLock NXT Preauction Valves per Series 757P AMTA with Pressure Switch.
- Refer to the I-757P Air Maintenance Trim Assembly with Pressure Switch Installation Instructions, supplied with the product, for complete installation, electrical, and pressure switch adjustment information.

Bill of Materials

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Restrictor (½-inch NPT)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Strainer (½-inch NPT)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Swing Check (½-inch NPT)</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Slow-Fill Ball Valve (Normally Open)</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>Spring-Loaded, Soft-Seated Check Valve</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Pressure Switch</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>Compression Fitting, Straight (¼-inch NPT x ¼-inch Tube)</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Copper Tubing (¼-inch OD)</td>
</tr>
<tr>
<td>9</td>
<td>11</td>
<td>Close Nipple (½-inch NPT x 1.13)</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>Nipple (½-inch NPT x 4.00)</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>Female Tee (½-inch NPT)</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>Union (½-inch NPT)</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>Reducing Bushing (½-inch x ½-inch (NPT))</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>Fast-Fill Ball Valve ( Normally Open)</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>Pressure Switch Isolation Ball Valve ( Normally Open - Lockable)</td>
</tr>
</tbody>
</table>

REMOTE SYSTEM TEST VALVE REQUIREMENTS

The remote system test valve (inspector’s test connection) should contain a UL Listed and/or FM Approved valve (normally closed), which can be opened to simulate the operation of a sprinkler.

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 769 FireLock NXT Preauction 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, the air regulator above the set point could cause premature operation of a valve installed with a Series 746-LPA Dry Accelerator.

**COMPRRESSOR REQUIREMENTS AND SETTINGS FOR SERIES 769 FIRELOCK NXT PREACTION VALVES INSTALLED WITH SERIES 746-LPA DRY ACCELERATORS**

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 769 FireLock NXT Preauction 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 769 FireLock NXT Preauction 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, the air regulator above the set point could cause premature operation of a valve installed with a Series 746-LPA Dry Accelerator.
FireLock NXT™ Preaction Valve
SERIES 769

IMPORTANT INSTALLATION INFORMATION

1. For proper operation and approval, the Series 769 FireLock NXT Preaction Valve must be installed in accordance with the specific trim diagrams included with the shipment. **NOTE:** Victaulic provides specific trim diagrams for installations involving a Series 746-LPA Dry Accelerator.

2. Before installing the Series 769 FireLock NXT Preaction Valve, flush the water supply piping thoroughly to remove all foreign material.

3. Series 769 FireLock NXT Preaction Valves MUST NOT be located in an area where the valve can be exposed to freezing temperatures. In addition, the Series 769 FireLock NXT Preaction Valve MUST NOT be located in an area where physical damage may occur.

4. It is the system designer’s responsibility to confirm material compatibility of the Series 769 FireLock NXT Preaction Valve, trim, and associated accessories when a corrosive environment or contaminated water is present.

5. **SERIES 769 FIRELOCK NXT PREACTION VALVES MUST BE INSTALLED ONLY IN THE VERTICAL POSITION WITH THE ARROW ON THE BODY POINTING UPWARD.**

6. Air or nitrogen supply to the dry piping system must be clean, dry, and oil-free.

7. Air supplies must be regulated, restricted, and continuous.

8. When an uninterruptible water flow alarm is required, Victaulic recommends the use of a low-pressure alarm installed on the diaphragm charge line downstream of the strainer/check restrictor. Another option is to install a Series 75B Supplemental Alarm Device.

9. 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.

VALVE/TRIM INSTALLATION

1. Make sure the trim drawing matches the system’s requirements.

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Make sure the foam spacer is removed from inside the valve body before attempting to install the valve. Failure to follow this instruction could cause improper valve operation, resulting in personal injury and/or property damage.</td>
</tr>
</tbody>
</table>

2. Remove all plastic caps and foam spacers from the valve.

3. Apply a small amount of pipe joint compound or Teflon* tape to the external threads of all threaded pipe connections. **DO NOT** get any tape, compound, or other foreign material into the valve body, pipe nipples, or valve openings.

4. Install the valve, trim, and accessories per the trim drawing.

5. **FOR VALVES INSTALLED WITH A SERIES 746-LPA DRY ACCELERATOR:** Make sure the Series 746-LPA Dry Accelerator is installed in accordance with the trim drawing provided. The end with the vent seal “button” must be installed facing down (toward the trim).

6. Supply pressure to the diaphragm charge line by providing an uninterrupted source of water from upstream of the main control valve.

---

* Teflon is a registered trademark of the DuPont Company
Compression fittings and tubes are provided for connection from the outlet of the auto drain, drip check, and actuator to the drip cup or drain. These compression fittings and tubes must be installed, in accordance with the trim drawing provided. **NEVER** insert a plug into the outlet of the auto drain, drip check, or actuator in place of the compression fitting/tube.

### Compression Fitting and Tube Installation

- **Compression Fitting and Tube Configuration for Auto Drain and Drip Check**
- **Compression Fitting and Tube Configuration for Actuator**

### 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 serious personal injury and/or property damage.

The Victaulic Series 769 FireLock NXT Preaction Valve is UL Listed and FM Approved for a maximum working pressure of 300 psi/2065 kPa/20.7 Bar and is factory tested to 600 psi/4135 kPa/41.4 Bar for 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.
FireLock NXT™ Preaction Valve
SERIES 769

PLACING THE SYSTEM IN SERVICE

- NON-INTER-LOCKED, PNEUMATIC RELEASE
- NON-INTER-LOCKED PNEUMATIC/ELECTRIC RELEASE
- SINGLE-INTER-LOCKED, PNEUMATIC RELEASE
- SINGLE-INTER-LOCKED, ELECTRIC RELEASE
- DOUBLE-INTER-LOCKED, ELECTRIC (ELECTRIC-PNEUMATIC/ ELECTRIC) RELEASE

CAUTION

- Make sure the Series 769 FireLock NXT Preaction Valve is properly heated and protected from freezing temperatures and physical damage.

Failure to follow this instruction could cause improper valve operation, resulting in personal injury and/or property damage.

NOTICE

- A non-interlocked, pneumatic release system is shown in the photos below.

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

2. Close the system main drain valve.

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

3a. Confirm that the system has been depressurized. The gauges should indicate zero pressure.

4. FOR SYSTEMS INSTALLED WITH A SERIES 746-LPA DRY ACCELERATOR: Confirm that the isolation ball valve to the accelerator is closed.

4a. FOR SYSTEMS INSTALLED WITH A SERIES 746-LPA DRY ACCELERATOR: Open the ¼-turn vent ball valve.
5. Open the diaphragm-charge-line ball valve.

6. Confirm that water is flowing steadily from the Auto Drain. Pull up on the Auto Drain Sleeve.

7. **FOR SYSTEMS INSTALLED WITH A SERIES 776 LOW-PRESSURE ACTUATOR:** Confirm that water is flowing through the Series 776 Low-Pressure Actuator after opening the diaphragm-charge-line ball valve and pulling up on the Auto Drain Sleeve.

8. **FOR SYSTEMS INSTALLED WITH A SERIES 753-E SOLENOID VALVE:** Make sure no water flows through the solenoid after opening the diaphragm-charge-line ball valve. Do NOT pull up on the Auto Drain Sleeve.


10. Confirm that the alarm test ball valve is closed.

11. Charge the system with air by turning on the compressor or by opening the fast-fill ball valve on the AMTA (fast-fill ball valve is shown above). Charge the system to 13 psi/90 kPa/0.9 Bar minimum. Refer to the "Air Supply Requirements" section.

12. Confirm that the system is charging by observing the air pressure gauge. If the gauge is not showing an increase in air pressure, there is a leak or an opening in the line. Repair any leaks or openings and restart the setup procedures.
13. FOR SYSTEMS INSTALLED WITH A SERIES 776 LOW-PRESSURE ACTUATOR: Confirm that no water is being exhausted from the Auto Vent of the Series 776 Low-Pressure Actuator. If water is being exhausted from the Auto Vent, continue to run air through the system in order to remove moisture from the upper chamber of the Series 776 Low-Pressure Actuator. If a Series 746-LPA Dry Accelerator is installed, make sure the accelerator is not flooded.

14. FOR SYSTEMS INSTALLED WITH A SERIES 776 LOW-PRESSURE ACTUATOR: 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.

15. FOR SYSTEMS INSTALLED WITH A SERIES 753-E SOLENOID VALVE: Confirm that the solenoid is closed.

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

17. 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.

18. Open the diaphragm-charge-line ball valve. Allow water to flow through the Auto Drain tube.

19. Open the manual pull station.
20. Close the manual pull station.

21. Pull up on the Auto Drain Sleeve until the screw is in the set ("UP") position. Verify that there is pressure on the gauge to the diaphragm charge line.

22. When the diaphragm charge line is pressurized, temporarily close the diaphragm-charge-line ball valve. Confirm that the diaphragm charge line is maintaining pressure by observing the diaphragm-charge-line pressure gauge.

22a. If pressure in the diaphragm charge line drops, the diaphragm must be replaced and/or any leaks in the diaphragm charge line must be corrected. Refer to the "Removing and Replacing the Diaphragm Assembly" section.

22b. If pressure in the diaphragm charge line does not drop, re-open the diaphragm-charge-line ball valve, and proceed to the following step.

23. FOR SYSTEMS INSTALLED WITH A SERIES 746-LPA DRY ACCELERATOR: Close the ¼-turn vent ball valve on the accelerator.
24. **FOR SYSTEMS INSTALLED WITH A SERIES 746-LPA DRY ACCELERATOR**: Open the isolation ball valve. This will set the accelerator.

25. 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/14-kPa/0.1-Bar leakage in 24 hours.

26. Open the water supply main drain valve.

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

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

29. Confirm that there is no leakage from the intermediate valve chamber. The drip check in the alarm line should not be leaking water or air.

---

**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.
30. If water is flowing from the drip check, close the water supply 30 control valve, and start over at step 1. Refer to the “Troubleshooting” section.

31. Open the water supply main control valve fully.

32. Record the system air pressure and the water supply pressure.

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

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

### Valve Operating Positions

<table>
<thead>
<tr>
<th>Valve</th>
<th>Normal Operating Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diaphragm-Charge-Line Ball Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Alarm Test Ball Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Water Supply Main Control Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Water Supply Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>System Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Closed</td>
</tr>
<tr>
<td>Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Closed</td>
</tr>
</tbody>
</table>

**ON A WEEKLY BASIS, 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. **NOTE:** The optional Series 75D Water Column Kit can be installed to automate this step.
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.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic products. Failure to follow these instructions could cause system failure, resulting in death, serious personal injury, and property damage.

**NOTICE**

- Any activities that require taking the valve out of service may eliminate the fire protection provided.
- Consideration of a fire patrol should be given for the affected areas.
- Before servicing or testing the system, notify the authority having jurisdiction.

**WEEKLY INSPECTION**

1. Perform a visual inspection on the valve and trim on a weekly basis. **NOTE:** 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.

**MONTHLY 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 drip check in the alarm line 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 preaction 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).

<table>
<thead>
<tr>
<th>Valve</th>
<th>Normal Operating Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diaphragm-Charge-Line Ball Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Alarm Test Ball Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Water Supply Main Control Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Water Supply Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>System Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Closed</td>
</tr>
<tr>
<td>Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Closed</td>
</tr>
</tbody>
</table>

6. If a Series 746-LPA Dry Accelerator is installed, record the pressure in the air chamber of the dry accelerator. The pressure in the air chamber should equal the system air pressure within the allowable tolerances of the gauges. If the air chamber’s pressure is below the system air pressure, follow the “Troubleshooting” section.
REQUIRED TESTS

**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.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic products. Failure to follow these instructions could cause system failure, resulting in death, serious personal injury, and property damage.

**NOTICE**

- Any activities that require taking the valve out of service may eliminate the fire protection provided.
- Consideration of a fire patrol should be given for the affected areas.
- Before servicing or testing the system, notify the authority having jurisdiction.

**CAUTION**

- Use caution to prevent opening the system main drain valve accidentally. Opening the system main drain valve will cause the valve to operate, resulting in property damage.

**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. Open the water supply main drain valve fully to flush the water supply of any contaminants.
5. While the water supply main drain valve is fully open, record the water supply pressure (from the water supply gauge) as the residual pressure.
8. Close the water supply main drain valve slowly.

9. Record the water pressure established after closing the water supply main drain valve.

10. Compare the residual pressure reading, taken above, 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.

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

<table>
<thead>
<tr>
<th>Valve</th>
<th>Normal Operating Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diaphragm-Charge-Line Ball Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Alarm Test Ball Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Water Supply Main Control Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Water Supply Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>System Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Closed</td>
</tr>
<tr>
<td>Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Closed</td>
</tr>
</tbody>
</table>

12. Confirm that there is no leakage from the intermediate valve chamber. The drip check in the alarm line should not be leaking water or air.

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

14. Provide test results to the authority having jurisdiction, if 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, resulting 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 plunger of the drip check to verify that there is no pressure in the alarm line.
FireLock NXT™ Preaction Valve
SERIES 769

7. Verify that all alarms stopped sounding, that the alarm line drained properly, and that remote station alarms reset properly.

8. Confirm that there is no leakage from the intermediate valve chamber. The drip check in the alarm line should not be 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.

10. Provide test results to the authority having jurisdiction, if 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, make sure 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 under the "Placing the System in Service" section.

7. Record the system air pressure at which the low air alarm activates.

8. Close the system main drain valve.

9. Close the slow-fill ball valve on the AMTA.

10. Open the fast-fill ball valve on the AMTA. Bring the pressure back up to the normal system pressure.
11. When the normal system air pressure is reached, close the fast-fill ball valve on the AMTA.

12. Open the slow-fill ball valve on the AMTA.

13. If a Series 746-LPA Dry Accelerator is installed, open the isolation ball valve.

14. 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.

15. Open the water supply main control valve slowly until water flows steadily from the open water supply main drain valve.
16. Close the water supply main drain valve when a steady flow of water occurs.

17. Open the water supply main control valve fully.

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

<table>
<thead>
<tr>
<th>Valve</th>
<th>Normal Operating Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diaphragm-Charge-Line Ball Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Alarm Test Ball Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Water Supply Main Control Valve</td>
<td>Open</td>
</tr>
<tr>
<td>Water Supply Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>System Main Drain Valve</td>
<td>Closed</td>
</tr>
<tr>
<td>Slow-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>Fast-Fill Ball Valve of the Victaulic AMTA (if applicable)</td>
<td>Closed</td>
</tr>
<tr>
<td>Isolation Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Open</td>
</tr>
<tr>
<td>¼-Turn Vent Ball Valve for Series 746-LPA Dry Accelerator (if applicable)</td>
<td>Closed</td>
</tr>
</tbody>
</table>

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

20. Provide test results to the authority having jurisdiction, if required.
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. Energize the solenoid valve
   b. Relieve the air pressure from the pilot line
   c. Open the manual pull station
8. Confirm that the diaphragm 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. **NOTE:** The system main drain valve is shown above.
11. **SHUT OFF THE AIR SUPPLY.**
**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.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic products. Failure to follow these instructions could cause system failure, resulting in death, serious personal injury, and property damage.

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. Energize the solenoid valve
   b. Relieve the air pressure from the pilot line
   c. Open the manual pull station
6. Record the following:
   a. Time between opening the remote system test valve (inspector’s test connection) to the operation of the preaction valve
   b. System air pressure when the valve operated
   c. Time from opening the remote system test valve (inspector’s test connection) to when water flows from the test connection’s outlet
   d. 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.

11. **SHUT OFF THE AIR SUPPLY.**

12. Open the system main drain valve to drain the system.

13. After the system is properly drained, close the remote system test valve (inspector’s test connection).

14. Close the system main drain valve.

15. Perform all steps in the “Placing the System in Service” section.
REQUIRED INTERNAL INSPECTION
Inspect internal components on a 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.

**WARNING**
- Depressurize and drain the piping system before attempting to remove the cover plate from the valve.
Failure to follow this instruction could result in serious personal injury and/or property damage.

**CAUTION**
- Any activities that require taking the valve out of service may eliminate the fire protection provided.
- Before servicing or testing the system, notify the authority having jurisdiction.
- Consideration of a fire patrol should be given in the affected areas.
Failure to follow these instructions could result in serious personal injury and/or property damage.

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 diaphragm-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.

9. Close the slow-fill ball valve on the AMTA.

**WARNING**
- Make sure the valve is depressurized and drained completely before the cover plate bolts are removed.
- The cover plate could blow off if the cover plate bolts are removed while the valve is pressurized, resulting in serious personal injury and/or property damage.

10. OPEN THE MANUAL PULL STATION.

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.

11a. Remove all cover plate bolts, along with the cover plate and cover plate gasket. **NOTE:** The 1½-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.

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

14. 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 Assembly” section.

15. Inspect the clapper for freedom of movement and physical damage. Replace any damaged or worn parts by following the applicable instructions in the “Maintenance” section.

16. Re-install the cover plate by following the “Installing the Cover Plate Gasket and Cover Plate” section.

17. Place the system back in service by following the “Placing the System in Service” section.
The following sections instruct on how to remove and replace internal valve components. Care must be taken to avoid damage to parts during removal and installation.

**WARNING**
- Depressurize and drain the piping system before attempting to remove the cover plate from the valve. Failure to follow this instruction could result in serious personal injury and/or property damage.

**CAUTION**
- Any activities that require taking the valve out of service may eliminate the fire protection provided.
- Before servicing or testing the system, notify the authority having jurisdiction.
- Consideration of a fire patrol should be given in the affected areas. Failure to follow these instructions could result in serious personal injury and/or property damage.

**REMOVING AND REPLACING THE CLAPPER SEAL**

1. Perform steps 1 – 12 of the “Required Internal Inspection” section.

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

3. Remove the seal-retaining ring.

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 that is under the seal washer and 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. Make sure 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 contaminants, dirt, and mineral deposits from the clapper.

9. Install the clapper seal into the clapper carefully. Make sure 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 below, to ensure a proper seal.

**REQUIRED SEAL-ASSEMBLY BOLT/BOLT SEAL TORQUES**

<table>
<thead>
<tr>
<th>Size</th>
<th>Actual Outside Diameter inches mm</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½</td>
<td>1.900 48.3</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>2.375 60.3</td>
<td>40</td>
</tr>
<tr>
<td>2½</td>
<td>2.875 73.0</td>
<td>90</td>
</tr>
<tr>
<td>76.1 mm</td>
<td>3.000 76.1</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>3.500 88.9</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>4.500 114.3</td>
<td>110</td>
</tr>
<tr>
<td>165.1 mm</td>
<td>6.500 165.1</td>
<td>160</td>
</tr>
<tr>
<td>6</td>
<td>6.625 168.3</td>
<td>160</td>
</tr>
<tr>
<td>8</td>
<td>8.625 219.1</td>
<td>160</td>
</tr>
</tbody>
</table>

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 “Placing the System in Service” section.

REMoving and replacing the clapper assembly

1. Perform steps 1 – 12 of the “Required Internal Inspection” section.

2. Remove the clapper shaft bushings from the valve body.

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

4. Remove the clapper from the valve body.
5. Place the new clapper assembly onto the valve-body seat ring. Make sure 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. Make sure the loop of the clapper spring is facing toward the clapper, as shown above.

8. Finish inserting the clapper shaft through the clapper arm and valve body.

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

10. Tighten the clapper shaft bushings until metal-to-metal contact occurs with the valve body.

11. Check the clapper for freedom of movement.

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 “Placing the System in Service” section.
FireLock NXT™ Preaction Valve
SERIES 769

INSTALLING THE COVER PLATE GASKET AND COVER PLATE

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.

4. Align the cover plate/cover plate gasket to the valve. Make sure 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.

6. Place the system back in service by following the “Placing the System in Service” section.

**REQUIRED COVER PLATE BOLT TORQUES**

<table>
<thead>
<tr>
<th>Nominal Size (inches)</th>
<th>Actual Outside Diameter (mm)</th>
<th>Foot-lbs (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ½</td>
<td>48.3</td>
<td>30 (41)</td>
</tr>
<tr>
<td>2</td>
<td>60.3</td>
<td>30 (41)</td>
</tr>
<tr>
<td>2½</td>
<td>73.0</td>
<td>60 (81)</td>
</tr>
<tr>
<td>3</td>
<td>76.1</td>
<td>60 (81)</td>
</tr>
<tr>
<td>4</td>
<td>88.9</td>
<td>60 (81)</td>
</tr>
<tr>
<td>6½</td>
<td>114.3</td>
<td>100 (136)</td>
</tr>
<tr>
<td>76.1 mm</td>
<td>165.1</td>
<td>115 (156)</td>
</tr>
<tr>
<td>6</td>
<td>168.3</td>
<td>115 (156)</td>
</tr>
<tr>
<td>8</td>
<td>219.1</td>
<td>100 (136)</td>
</tr>
</tbody>
</table>

**CAUTION**

- Use only Victaulic-supplied replacement parts. Failure to follow this instruction could cause improper valve operation, resulting in property damage.

- **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.
REM公ING AND REPLACING THE DIAPHRAGM ASSEMBLY

1. Remove the system from service by following steps 1 – 11 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.

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 to remove any foreign material.

6. Replace the diaphragm with a new Victaulic-supplied diaphragm. Align the holes in the diaphragm with the holes in the valve body. Be careful not to damage 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.

8. Re-attach the trim at the unions that were loosened in step 2. Refer to the applicable trim drawing for details. MAKE SURE ALL UNIONS THAT WERE LOOSEened TO PERMIT ACCESS TO THE DIAPHRAGM COVER ARE RE-TIGHTENED BEFORE ATTEMPTING TO PLACE THE SYSTEM BACK IN SERVICE.

9. Place the system back in service by following the “Placing the System in Service” section.
REPLACING THE STRAINER SCREEN FOR SERIES 776 LOW-PRESSURE ACTUATORS

1. Remove the system from service by following steps 1 – 11 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 the strainer assembly from the Series 776 Low-Pressure Actuator, as shown above. Discard the strainer screen only.

CAUTION

- DO NOT re-use strainer screens. After removal, the old strainer screen must be replaced with a new, Victaulic-supplied screen.

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

4. Use only a new, Victaulic-supplied strainer screen. Insert the strainer screen into the strainer assembly.
5. Install the strainer assembly into the Series 776 Low-Pressure Actuator carefully. Avoid damage to the o-ring seals.
6. Re-install the Series 776 Low-Pressure Actuator into the trim. Refer to the applicable trim drawing for details.
7. Place the system back in service by following the “Placing the System in Service” section.
## TROUBLESHOOTING – SERIES 776 LOW-PRESSURE ACTUATOR

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td>The Series 776 Low-Pressure Actuator is not receiving enough air.</td>
<td>Increase the air pressure going into the Series 776 Low-Pressure Actuator.</td>
</tr>
<tr>
<td></td>
<td>The Series 776 Low-Pressure Actuator has a broken seal.</td>
<td>If the above procedure does not work, contact Victaulic.</td>
</tr>
<tr>
<td>Water is leaking through the Series 776 Low-Pressure Actuator.</td>
<td>The air chamber of the Series 776 Low-Pressure Actuator is not set.</td>
<td>Make sure the vent seal of the Series 776 Low-Pressure Actuator is in the set position and the air chamber is pressurized.</td>
</tr>
<tr>
<td></td>
<td>The strainer on the Series 776 Low-Pressure Actuator is clogged.</td>
<td>Replace the strainer screen of the Series 776 Low-Pressure Actuator.</td>
</tr>
<tr>
<td></td>
<td>The Series 776 Low-Pressure Actuator has a ripped diaphragm.</td>
<td>If water still leaks through the Series 776 after performing the above procedures, contact Victaulic.</td>
</tr>
<tr>
<td>No water is passing through the Series 776 Low-Pressure Actuator.</td>
<td>The strainer on the diaphragm charge line is clogged.</td>
<td>Disassemble and clean the diaphragm charge line strainer. Refer to the applicable trim drawing for details.</td>
</tr>
</tbody>
</table>

## TROUBLESHOOTING – SERIES 753-E SOLENOID VALVE

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No water is passing through the Series 753-E Solenoid Valve.</td>
<td>No power is going to the solenoid.</td>
<td>Check all electrical connections to make sure power is being supplied to the solenoid.</td>
</tr>
<tr>
<td>The Series 776 Low Pressure Actuator does not open.</td>
<td>The strainer on the diaphragm charge line is clogged.</td>
<td>Disassemble and clean the diaphragm charge line strainer. Refer to the applicable trim drawing for details.</td>
</tr>
</tbody>
</table>

## TROUBLESHOOTING – SERIES 746-LPA DRY ACCELERATOR

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The valve operates without sprinkler activation.</td>
<td>There is a loss of air pressure in the lower inlet chamber of the Series 746-LPA Dry Accelerator.</td>
<td>Check for air loss at the lower chamber seal. If a leak is present, turn the adjustment nut counterclockwise to seal.</td>
</tr>
<tr>
<td></td>
<td>Check for any leaks in the system and trim. Confirm that the AMTA is operating properly.</td>
<td>Check for any leaks in the system and trim. Confirm that the AMTA is operating properly.</td>
</tr>
<tr>
<td>The Series 746-LPA Dry Accelerator does not operate within a 5 psi/34 kPa/0.3 Bar pressure drop in system air pressure.</td>
<td>There is a loss of air pressure in the upper air chamber of the Series 746-LPA Dry Accelerator.</td>
<td>Apply soapy water to all joints around the Series 746-LPA Dry Accelerator to check for leaks. Repair any leaks and re-test.</td>
</tr>
<tr>
<td></td>
<td>The air decay rate of the system is too slow.</td>
<td>Make sure there are no restrictions in the remote system test valve (inspector’s test connection).</td>
</tr>
<tr>
<td></td>
<td>If the above procedures do not work, contact Victaulic.</td>
<td>If the above procedures do not work, contact Victaulic.</td>
</tr>
<tr>
<td>The Series 746-LPA Dry Accelerator does not set up properly (constant pressure on the upper gauge, and the button pops up immediately when pressure is introduced).</td>
<td>The Series 746-LPA Dry Accelerator is installed upside-down.</td>
<td>Remove the Series 746-LPA Dry Accelerator from the trim, and turn the unit around so that the vent seal “button” is facing down (toward the Series 776 Low-Pressure Actuator).</td>
</tr>
</tbody>
</table>

---

www.victaulic.com

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2007 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

REV_D

I-769P_43
### FireLock NXT™ Preaction Valve

**SERIES 769**

#### TROUBLESHOOTING – SYSTEM

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The valve operates without sprinkler activation.</td>
<td>There is a loss of air pressure in the system or trim.</td>
<td>Check for any leaks in the system and trim. Confirm that the AMTA is operating properly. Consider installing a low-air supervisory switch.</td>
</tr>
<tr>
<td></td>
<td>The pressure switch on the air compressor is set too low, or the compressor is not operating properly.</td>
<td>Increase the “ON” setting of the air compressor’s pressure switch, and check the air compressor for proper operation.</td>
</tr>
<tr>
<td>Water is leaking from the drip check located in the alarm line.</td>
<td>Water is getting past the clapper seal and into the intermediate chamber of the valve.</td>
<td>Check the clapper seal and valve body seat ring for physical damage and foreign material.</td>
</tr>
<tr>
<td></td>
<td>Water is under the clapper seal.</td>
<td>Inspect the clapper seal to make sure 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.</td>
</tr>
<tr>
<td>Air is leaking from the drip check located in the alarm line.</td>
<td>Air is getting past the clapper seal and into the intermediate chamber of the valve.</td>
<td>Check the clapper seal and valve body seat ring for physical damage and foreign material.</td>
</tr>
<tr>
<td></td>
<td>Water is under the clapper seal.</td>
<td>Inspect the clapper seal to make sure 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.</td>
</tr>
<tr>
<td>The clapper will not latch closed.</td>
<td>There is no water pressure on the diaphragm.</td>
<td>Check the water pressure in the diaphragm charge line. Make sure the restrictor in the diaphragm charge line is clean.</td>
</tr>
<tr>
<td></td>
<td>The Auto Drain is not set.</td>
<td>Set the Auto Drain by pulling up on the Auto Drain Sleeve.</td>
</tr>
<tr>
<td>Water is leaking from the diaphragm assembly.</td>
<td>The diaphragm is damaged.</td>
<td>Contact Victaulic.</td>
</tr>
<tr>
<td>Air is leaking from the diaphragm assembly.</td>
<td>The diaphragm is damaged.</td>
<td>Contact Victaulic.</td>
</tr>
</tbody>
</table>
FireLock NXT™ Preaction Valve

SERIES 769
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
SECTION 3

General Air Products Manual OILLESSINST

Compressor
NOTE
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.

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 a flammable gas or vapor. Never operate or repair in or near a flammable gas or vapor. Never store flammable liquids or gases 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 gases 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. Do not connect compressor outlet to freezer rooms or systems exposed to temperatures below freezing. If system connects to a freezer room or area exposed to freezing temperatures, a Dry Air Pac™ should be used.

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. Damage may result in bursting and cause injury or property damage.

Location

NOTE: Do not connect compressor intake to freezer room. – CALL 1-800-345-8207.

Locate the compressor in a clean, well-ventilated area where the air is relatively cool, clean, and dry. A 110°F (35 C) maximum and 40°F (4.5 C) minimum temperature for surrounding and inlet air are recommended. Provide at least 12 to 18 inches from any wall or other obstruction that will interfere with airflow through the motor’s fan built into the motor. Blocking airflow through the fan may cause the compressor to over heat. Do not place the compressor in an area of excessive heat, such as near a boiler.

Mounting
Riser mounted compressors may be mounted to a firm level floor, wall or system riser. A mounting bracket and straps are provided. Tank mounted compressors should be bolted to the floor using the bolt holes provided in the tank legs. Always shim the unit level before bolting it to the floor. Vibration isolators (P/N KVP4X4) are recommended. When using isolator pads, do not draw bolts tight. Allow the pad to absorb vibrations. When isolators are used, a flexible hose (P/N P1202MP) should be installed between the compressor and service piping.

Lubrication

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

Piping (reference "Installation Instructions" drawings)

WARNING
Compressed air contains liquid water and is saturated with water vapor, which can freeze. Do not connect compressor outlet to freezer rooms or systems exposed to temperatures below freezing. If system connects to a freezer room or area exposed to freezing temperatures, a Dry Air Pac™ should be used.

Piping between the compressor, accessory items and the sprinkler system should 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. 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. When an AMD is used with riser mounted units, a riser mounted tank kit (p/n OLR-TK) should be installed to prevent short cycling the compressor. All oil-less compressors include a relief valve. For riser mounted models, the relief valve is installed on the compressor outlet. For tank mounted models, an ASME Code relief valve is mounted on the compressor’s tank. This valve will open at a preset value above the pressure switch setting to prevent excess tank pressure in the event of 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.

**NOTE:** Accumulation of condensed water in a system causes corrosion of components and reduces system capacity.

**NOTICE:** Warranty is void if a separate check valve is not installed to prevent water back flow.

**Wiring (reference “Wiring Instructions” drawings)**

**WARNING:** Have a qualified electrician wire the compressor to ensure that the supply line has the same characteristics (voltage, frequency and phasing) as the motor. Wiring must comply with all local and national codes.

---

### CAUTION

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

The supply wire must be of adequate size and no other equipment should be connected to the same line. The table below lists the recommended wire size for each model, based on a 100’ run. Consult factory for longer runs.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>1 PHASE</th>
<th>3 PHASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLI1016**</td>
<td>12</td>
<td>N/A</td>
</tr>
<tr>
<td>OLI21533**</td>
<td>10</td>
<td>N/A</td>
</tr>
<tr>
<td>OLI33550**</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>OLI42575**</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>OLI435V75**</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>OLI525100**</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>OLI610V100**</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>OLI675150**</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>OLI900V100**</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>OLI900V150**</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>OLI1200V200**</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

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 and ½ Hp and ¾ Hp single phase models, an arrow on the motor indicates the direction of rotation of the compressor. If the compressor rotates in the opposite direction, reverse the rotation of the motor. On single phase units, reverse motor rotation by interchanging the red and black motor leads. Interchanging any two incoming supply wires reverses rotation of three phase motors.

**NOTICE:** Single-phase oil-less compressors can not be operated at 208V. Operating the compressor at 208V voids the warranty.

**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 psig cut in and 40 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 magnetic starter is required, for all three phase models, to protect the motor from overload conditions. A magnetic 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.

| NOTE: Do not run two phases of a three phase supply through the pressure switch. Serious damage can result. |

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

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. – **NOTE**: Do not clean filters with petroleum based products.
- Clean all external parts of the compressor and motor.

**MONTHLY**
- Manually test safety relief valve.
- Inspect air system for leaks and tighten nuts and cap screws as required.

**QUARTERLY**
- Change filters.

**Limited Warranty**

General Air Products, Inc. warrants its products to be free of defects in material and workmanship under normal use and service for 12 months from date of purchase. Our warranty applies only when such defective parts are returned to us, or our Authorized Service Depot, transportation prepaid, and subject to our inspection and approval. Liability is limited to repair or replacement of material found defective, free of charge, FOB our plant. Unauthorized repairs or replacements will not be subject to factory warranty. This warranty is in lieu of all other warranties, expressed or implied.

**General Notes**

1) Warranty can be voided if modifications or adjustments are made without consultation and approval; from factory personnel.
2) If there are any questions regarding installation or operation of this compressor, please call the 800 number listed below.
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause(s)</th>
<th>Corrective Action</th>
</tr>
</thead>
</table>
| Motor hums and runs slowly or not at all  | 1. Low voltage 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 attempt to start. Voltage must be within +/-10% of nominal voltage to start motor. Increase wire size if necessary to lower voltage drop.  
2. Replace motor  
3. Replace check valve  
4. Repair or replace pressure switch |
| Reset mechanism cuts out repeatedly or fuses | 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 attempt to 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 and heaters are rated properly  
4. Add receiver vessel or increase pipe volume after compressor.  
5. Replace motor |
| Unit short cycles repeatedly               | 1. Piping too restrictive  
2. Leak in line before system check valve | 1. Add receiver vessel or increase pipe volume after compressor.  
2. Repair leaks(s) |
| Compressor Overheating                     | 1. Dirty intake filter  
2. Wrong motor rotation  
3. Air flow to fan on flywheel blocked | 1. Clean intake filter  
2. Correct rotation  
3. Clear air flow to fan or relocate unit |
| Excessive noise in operation               | 1. Damaged bearings  
2. Worn piston rings or skirts  
3. Broken valves  
4. Loose blower wheel  
1-(800)345-8207 |
| System pressure builds slowly              | 1. Compressor sized incorrectly  
2. Leaks or restrictions in piping  
3. Dirty intake filter  
4. Blown head gasket | 1. Check system size and compressor sizing  
2. Correct leaks and remove restrictions  
3. Clean intake filter  
4. Replace head gasket |
RISER MOUNT OIL-LESS COMPRESSORS WITH RISER TANK KIT
INSTALLATION INSTRUCTIONS

ALL PIPING AND WIRING TO BE IN ACCORDANCE WITH APPLICABLE STATE, LOCAL AND NATIONAL CODES & SHOULD BE APPROVED BY AHJ

CONNECT TO REQUIRED SYSTEM TRIM

MULTIPLE CHECK VALVES IN FEED LINES CAN RESULT IN LOWER SYSTEM PRESSURES DUE TO PRESSURE DROPS

IF SYSTEM IS FEEDING FREEZER ROOM OR AREA EXPOSED TO TEMPERATURES BELOW FREEZING.
(SEE DRY AIR PAC INFORMATION.)

1/2" MINIMUM, LARGER IF REQUIRED BY CODE.

ACCELERATOR

TANK MOUNTED UNITS ARE RECOMMENDED FOR USE WITH ACCELERATORS

200 F MAX.

FLEX HOSE
P/N P1202MP

SAFETY RELIEF VALVE
PRESSURE GAUGE
TANK
3.75 gal.

MAGNETIC STARTER REQUIRED FOR ALL 3-PHASE UNITS. STARTER IS RECOMMENDED FOR ALL SINGLE PHASE COMPRESSORS. CONSULT NEC AND LOCAL CODES FOR SPECIFIC REQUIREMENTS.

MOST MOTORS ARE MULTIPLE VOLTAGE. CHECK NAMEPLATE FOR CORRECT INTERNAL CONNECTIONS FOR VOLTAGE BEING SUPPLIED TO UNIT.

RISER MOUNTING KIT INCLUDED IN COMPRESSOR PACKAGE

PRESSURE SWITCH SETTING IS 27# CUT IN 40# CUT OUT; FOR HIGHER PRESSURES CONSULT FACTORY

WARNING!
DO NOT INSTALL IN AREAS EXPOSED TO TEMPERATURES BELOW 40 DEGREES F.
OR AREAS EXPOSED TO WEATHER. CONSULT FACTORY FOR WEATHERPROOF OPTIONS.

PART NUMBERS LISTED ARE FOR ACCESSORY ITEMS RECOMMENDED FOR COMPLETE INSTALLATION - CONSULT YOUR LOCAL DISTRIBUTOR FOR AVAILABILITY
TANK MOUNTED OIL-LESS COMPRESSORS
INSTALLATION INSTRUCTIONS

WARNING!
IF SYSTEM IS FEEDING FREEZER ROOM OR AREA EXPOSED TO TEMPERATURES BELOW FREEZING.

IN TAKES SHOULD NOT BE CONNECTED TO FREEZER ROOMS.
(SEE DRY AIR PAC INFORMATION)

MAGNETIC STARTER REQUIRED FOR ALL 3 PHASE UNITS. STARTER IS RECOMMENDED FOR ALL SINGLE PHASE COMPRESSORS. CONSULT NEC AND LOCAL CODES FOR SPECIFIC REQUIREMENTS.

MOST MOTORS ARE MULTIPLE VOLTAGE. CHECK NAMEPLATE FOR CORRECT INTERNAL CONNECTIONS FOR VOLTAGE BEING SUPPLIED TO UNIT.

PRESSURE SWITCH IS FACTORY SET 27# CUT IN 40# CUT OUT; HIGHER PRESSURE SETTINGS MAY REQUIRE A LARGER MOTOR ON THE COMPRESSOR. CONSULT FACTORY FOR DETAILS.

PRESSURE SWITCH MUST BE WIRED IN CIRCUIT TO CONTROL COMPRESSOR.

MANUAL DRAIN STANDARD. AUTOMATIC DRAIN (P/N DVA-2T) RECOMMENDED FOR HUMID AREAS.

AUTOMATIC DRAIN (P/N FD-1) RECOMMENDED ON D RIP LEG TO REMOVE EXCESS WATER ACCUMULATION.

GENERAL
AIR PRODUCTS, INC.

1/2" MINIMUM, LARGER IF REQUIRED BY CODE

MATERIALS TO BE IN ACCORDANCE WITH APPLICABLE STATE, LOCAL AND NATIONAL CODES & SHOULD BE APPROVED BY AHJ

ALL PIPING AND WIRING TO BE IN ACCORDANCE WITH APPLICABLE STATE, LOCAL AND NATIONAL CODES & SHOULD BE APPROVED BY AHJ

PART NUMBERS LISTED ARE FOR ACCESSORY ITEMS RECOMMENDED FOR COMPLETE INSTALLATION - CONSULT YOUR LOCAL DISTRIBUTOR FOR AVAILABILITY

TAKEOLIS (08/09/06)
**OIL-LESS COMPRESSOR**

**SINGLE PHASE WIRING INSTRUCTIONS**

**NOTE:** MOST MOTORS ARE MULTIPLE VOLTAGE. CHECK NAMEPLATE AND VERIFY CORRECT INTERNAL CONNECTIONS FOR VOLTAGE BEING SUPPLIED TO UNIT.

**FIG 1**

SINGLE PHASE BUILT IN OVERLOAD PROTECTION. (NOT TO EXCEED 3/4 HP).

FOR 115V ELIMINATE FUSE IN GROUND LEG.

PRESSURE SWITCH HP RATING MUST NOT BE EXCEEDED.

OTHER WIRING VARIATIONS POSSIBLE DEPENDING ON LOCAL CODES.

**FIG 2**

SINGLE PHASE WITH OR WITHOUT OVERLOAD PROTECTION.

FOR 115V ELIMINATE FUSE IN GROUND LEG.

PRESSURE SWITCH TO CONTROL PILOT CIRCUIT.

OTHER WIRING VARIATIONS POSSIBLE DEPENDING ON LOCAL CODES.

CONSULT MANUFACTURER'S INSTRUCTIONS ON STARTER FOR VARIATIONS ON DIAGRAM SHOWN.
OIL-LESS COMPRESSOR
THREE PHASE WIRING INSTRUCTIONS

NOTE: MOST MOTORS ARE MULTIPLE VOLTAGE. CHECK NAMEPLATE AND VERIFY CORRECT INTERNAL CONNECTIONS FOR VOLTAGE BEING SUPPLIED TO UNIT.

FEEDER WIRE SIZE MUST BE CAPABLE OF CARRYING CURRENT LOAD OF COMPRESSOR AT MAXIMUM PRESSURE.

LINE

FUSED DISCONNECT

PRESSURE SWITCH

MAGNETIC STARTER

M

THREE PHASE

OTHER WIRING VARIATIONS POSSIBLE DEPENDING ON LOCAL CODES

PRESSURE SWITCH TO CONTROL PILOT CIRCUIT

CONSULT MANUFACTURERS INSTRUCTIONS ON STARTER FOR VARIATIONS ON DIAGRAM SHOWN