UNITED FIRE SYSTEMS

PREACTION PAC® SPRINKLER VALVE ASSEMBLY

with Potter PFC-4410-RC Releasing Control Panel

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

Serial Number _____

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

FM APPROVED

UNITED Fire Systems
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Manual Part Number 10-500001-00A
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HAZARD IDENTIFICATION

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

DANGER

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

WARNING

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

CAUTION

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

IMPORTANT

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

FOREWORD

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

IMPORTANT

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

IMPORTANT

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

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

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

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

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

LIMITED WARRANTY
PREACTION-PAC™

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

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

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

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

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

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

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

= OR =

Your
Trained
Distributor

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

LIMITED WARRANTY
PREACTION-PAC™

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

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

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

UFS-113 Rev. 2.01 Nov 2020

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

1. GENERAL

1.1. Introduction. The **UNITED Fire Systems** **PREACTION-PAC™** is a fully assembled and factory tested preaction fire suppression system, including preaction valve, trim, and control panel providing one complete zone of preaction water sprinkler fire protection. All components are contained in two steel enclosures assembled one above the other. The system pressure gauges and the required manual release handle are mounted on the front of the lower enclosure. The system detection and control panel is mounted behind a door in the upper enclosure with a clear polycarbonate window allowing visual access to the system indicators. Lockable latches on both doors permit authorized access to all system components. Both enclosures are finished in powder-coat red paint. Gasketing provides sealing of the enclosure doors. Knockouts permit easy attachment of external electrical conduits.

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

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

1.1.3. Control Panel. A Potter 4410-RC releasing control panel is factory-installed in the upper enclosure. Programming for a basic preaction system is factory programmed and tested. Additional programming may be necessary after installation to suit field conditions. This manual provides complete instructions for additional programming. All necessary internal wiring connections are factory-installed and tested.

1.1.4. Wiring. All wiring from the integral control panel to the valve solenoid and all switches is factory installed and tested. Where applicable, wiring for compressor power and control is also factory installed and tested. All field wiring for control panel power, compressor power, detection circuits, notification appliance circuits, and circuits requiring contact closure is connected to terminal strips in the upper enclosure. No access to the lower enclosure is necessary to complete the wiring installation.

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

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

1.2. Features

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

1.2.2. Easy-to-see gauges on front of enclosure. Three pressure gauges are mounted on the front of the lower enclosure, and are visible at all times. These gauges monitor the air pressure in the system

piping, the water supply pressure up to the preaction valve, and the water pressure keeping the valve clapper piston closed.

1.2.3. Easy access to manual release valve. The emergency manual release ball valve is located behind a small unlocked door on the front of the lower enclosure. Operation of this ball valve opens the preaction valve, filling the system piping with water. No power is necessary to accomplish this operation. The key for the lower enclosure main door does not have to be available to accomplish this operation.

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

1.2.5. Easy-to-follow instructions on enclosure front. System instructions, mounted behind clear plastic, are located on the front of the upper enclosure.

1.2.6. 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.

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

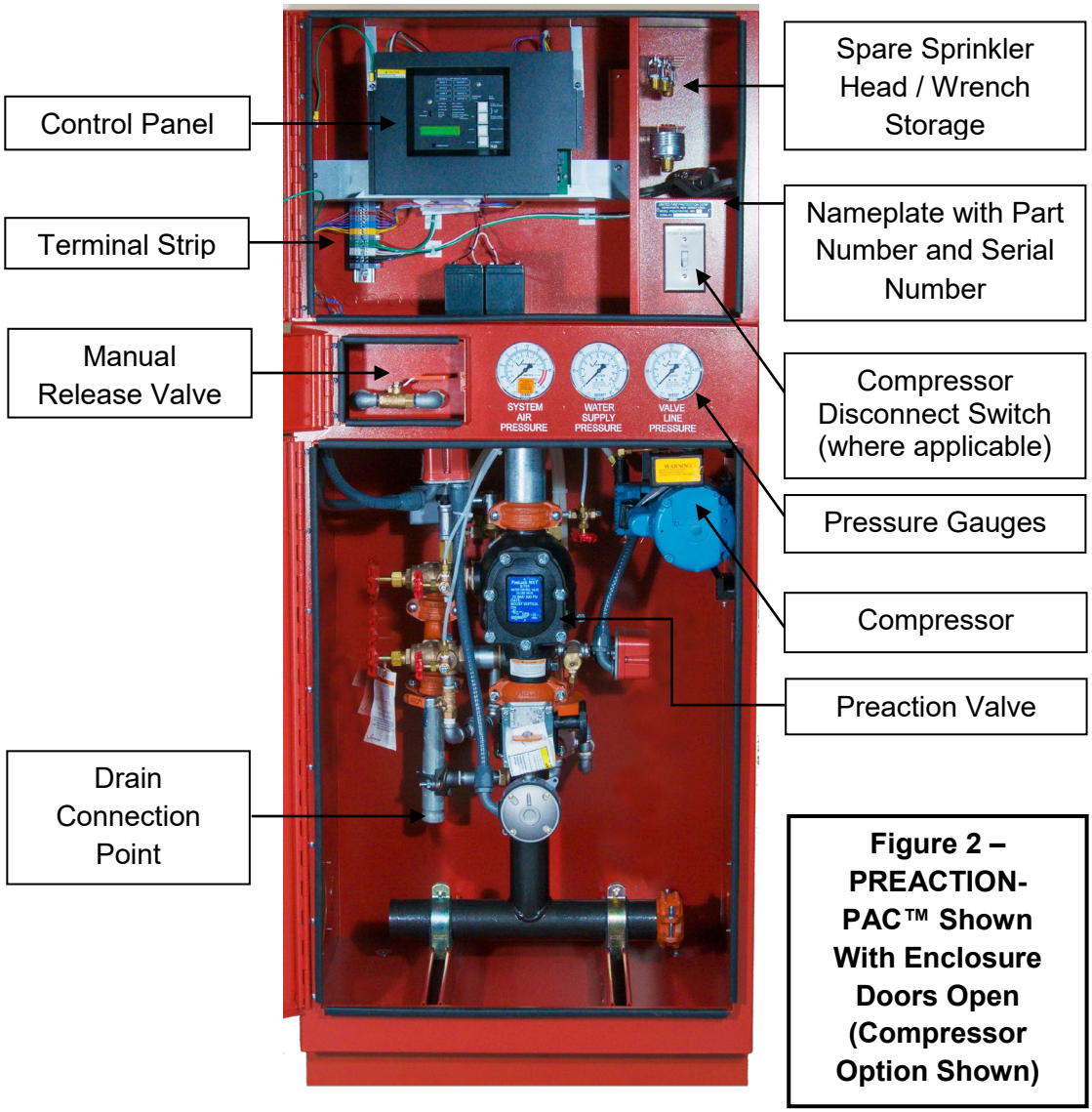


Figure 2 – PREACTION-PAC™ Shown With Enclosure Doors Open (Compressor Option Shown)

Figure 3a – Diagram - Functional Description with Compressor

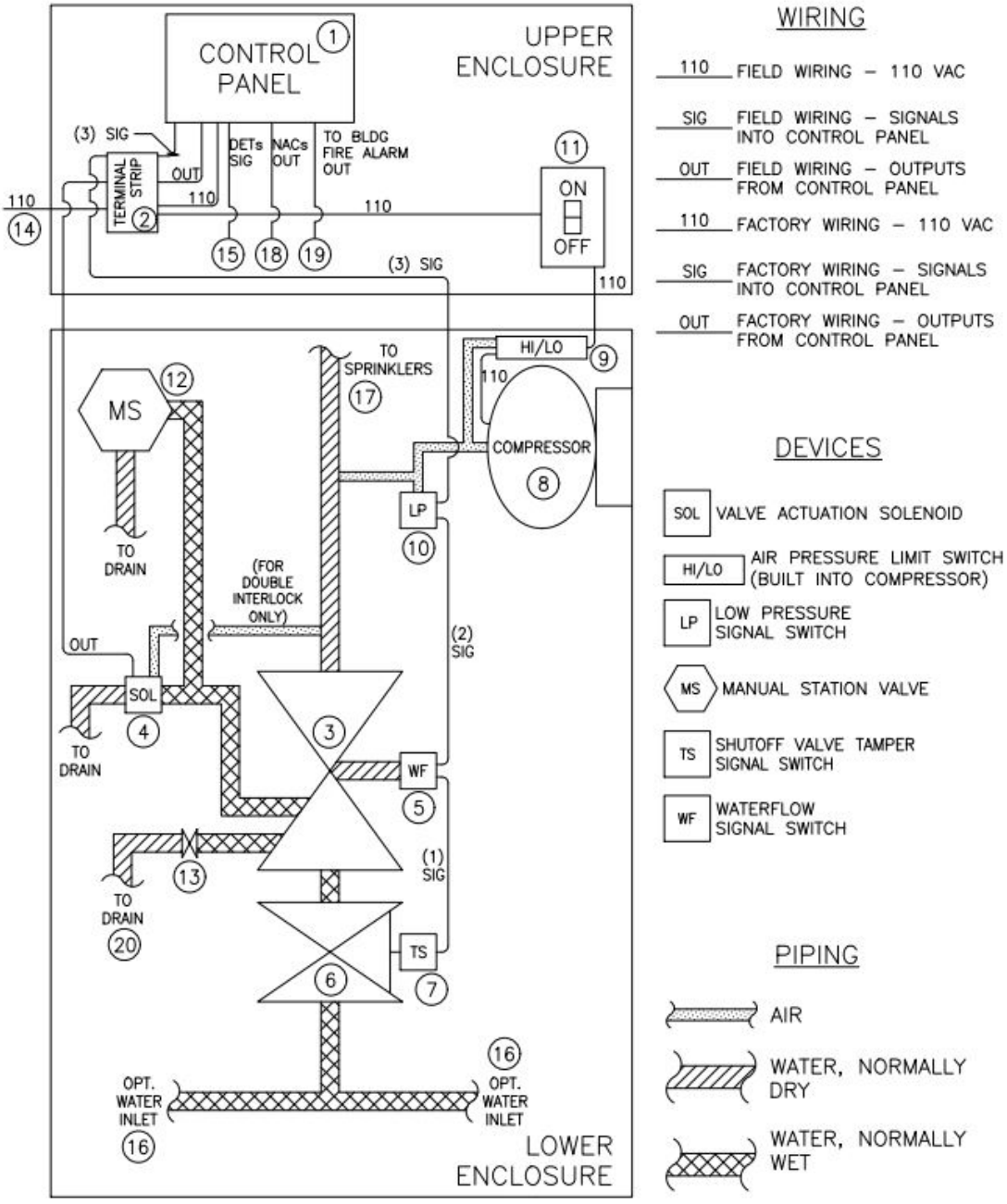
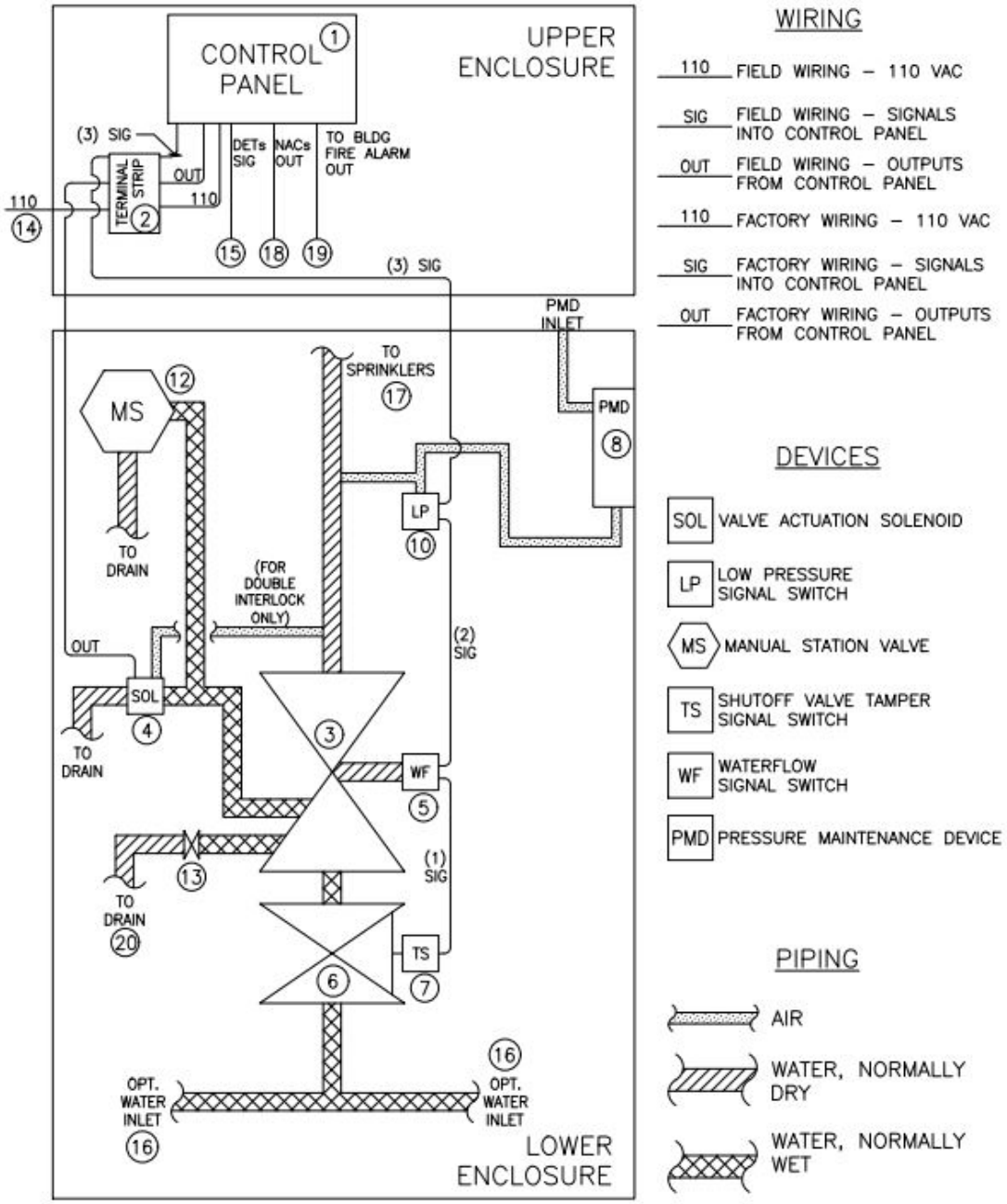


Figure 3b – Diagram - Functional Description with Pressure Maintenance Device



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

1.3.1. Control panel (1). The control panel receives signals from fire detectors located in the protected space, as well as signals from various switches within the assembly. The panel processes the input signals per a pre-determined sequence of operation, and operates outputs for external audible / visual devices and building fire alarm signaling, as well as the signal to open the preaction valve within the assembly. Refer to the control panel instruction manual in Section 5 for details on the panel and the sequence of operation.

1.3.2. Terminal strip (2). The terminal strip provides a convenient point for landing some of the required field wiring, and also serves as the interface point between the control panel (1) and the various connections in the lower enclosure.

1.3.3. Preaction valve (3). The preaction valve is the heart of the assembly. The valve holds back the sprinkler water until the control panel (1) reacts to the signal from the fire detectors and sends a signal to the valve actuation solenoid (4). In single-interlock assemblies, actuation of the valve actuation solenoid (4) sends water into the sprinkler pipe. In double-interlock assemblies, fusing of a sprinkler head from heat is required, along with valve actuation solenoid (4) actuation, to send water into the sprinkler pipe. Refer to Manual I-769N in Section 2 for more detailed information on the preaction valve.

1.3.4. Valve actuation solenoid (4). The valve actuation solenoid receives the signal from the control panel (1), and actuates the preaction valve (3). The solenoid is the Victaulic Series 753-E, and is rated at 24VDC, 0.364 amps, 8.7 watts, 66 ohms. The solenoid is FM Approved under Group I (as in India). Refer to Manual I-769N in Section 2 for more detailed information.

1.3.5. Waterflow signal switch (5). The waterflow signal switch responds to waterflow in the pipe downstream of the preaction valve (3). The switch contains Quantity 2, SPDT switches, rated at 10A-125/250VAC, 1/2HP, 2.5A-6/12/24VDC. Contacts transfer when waterflow begins after preaction valve opens. Contacts automatically restore when waterflow ceases. One contact is factory-wired to send a signal to the control panel (1). Refer to the control panel instruction manual in Section 5 for details on the response of the panel to the waterflow signal switch.

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

1.3.7. Shutoff valve tamper signal switch (7). The shutoff valve tamper signal switch sends a supervisory signal to the control panel (1) 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. One contact is factory-wired to send a signal to the control panel (1). Refer to the control panel instruction manual in Section 5 for details on the response of the panel to the shutoff valve tamper signal switch.

1.3.8. Compressor (8). The compressor supplies supervisory air pressure to fill the sprinkler pipe downstream of the preaction valve (3). The sprinkler pipe is pressurized to 13 PSIG minimum and 18 PSIG maximum by the compressor (8). Loss of this pressure, from damage to the pipe or a sprinkler head, results in a supervisory signal at the control panel (1).

1.3.9. Pressure Maintenance Device (8). The pressure maintenance device supplies supervisory gas pressure, from either a tank-mounted air compressor or nitrogen generator, to fill the sprinkler pipe downstream of the preaction valve (3). The sprinkler pipe is pressurized to 15 PSIG by the pressure maintenance device (8). Loss of this pressure, from damage to the pipe or a sprinkler head, results in a supervisory signal at the control panel (1).

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

1.3.11. Low pressure signal switch (10). The low pressure signal switch sends the supervisory signal for low pressure to the control panel (1). 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. One contact

is factory-wired to send a signal to the control panel (1). Refer to the control panel instruction manual in Section 5 for details on the response of the panel to the low pressure signal switch.

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

1.3.13. Manual station valve (12). The manual station valve is located behind a separate door on the front of the lower enclosure. No key is needed to open this door. To manually open the preaction valve (3), open the door and pull the lever on the manual station valve forward. The preaction valve (3) will open, and the sprinkler pipe will fill with water. No power is needed to manually open the preaction valve (3) in this manner.

IMPORTANT

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

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

1.3.15. Input connection for 110 VAC power (14). 110VAC is required to power the assembly. This power shall come from a source in compliance with all applicable codes and standards. Internal wiring (factory assembled) takes this power to the control panel (1) and, if equipped, the compressor (8). If local codes require individual 110VAC power sources for the control panel (1) and the compressor (8), jumpers may be removed from the terminal strip (2) permitting this. Refer to Section 1.10 for additional information on this connection.

1.3.16. Input connection for automatic fire detectors (15). Automatic fire detectors are required to provide the signal for opening the preaction valve (3). These detectors are field-connected to this connection. See Section 1.10, and refer to the control panel instruction manual in Section 4 for details on these detectors and this connection.

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.

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

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

1.3.19. Notification appliance output connection (18). Notification appliances are required by code to alert occupants that a fire has been detected. These appliances are field-connected to this connection. Refer to the control panel instruction manual in Section 5 for details on this connection.

1.3.20. Output connection to building fire alarm system (19). Most codes require a fire protection sub-system to signal the building fire alarm system. This signal is field-connected to this connection. Refer to the control panel instruction manual in Section 5 for details on this connection.

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

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

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

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

1.4.3. Supervisory gas sources:

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

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

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

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

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

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

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

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

1.4.4. Control panel: A Potter 4410-RC conventional detection control panel is factory-installed in the upper enclosure.

1.5. Options – None at this time.

1.6. Approvals. **UNITED Fire Systems** **PREACTION-PAC™** sprinkler valve assemblies, as listed in this Manual, are Approved by FM Approvals under the heading "Automatic Water Control Valves." See pages 9 and 10 for Approved assemblies. NOTE: Although most **PREACTION-PAC™** assemblies are FM Approved, custom-built units are supplied from time to time upon request. Various components within these custom assemblies maintain their individual approvals, but these custom assemblies are not FM Approved as a unit.

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

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

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

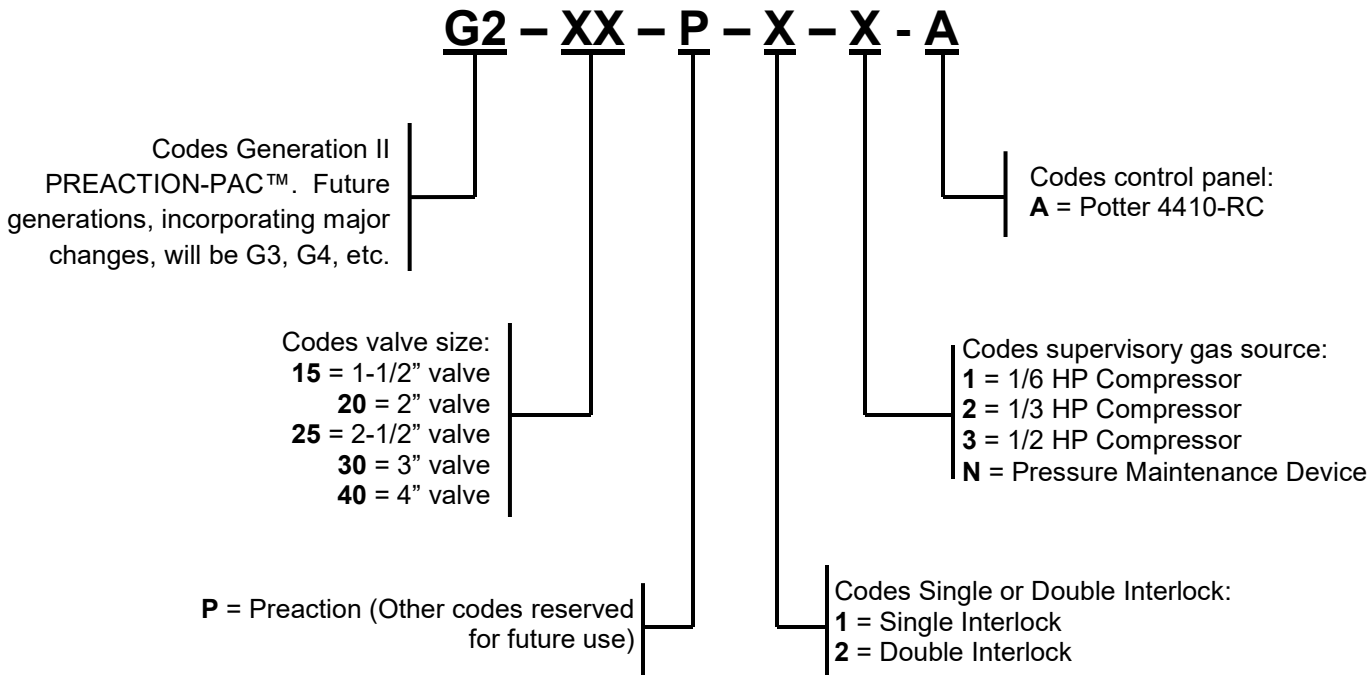
1.7.3. National Fire Protection Association No. 70, "National Electrical Code®".

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

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

1.9 FM Approved Assemblies

Part Number Coding:



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

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

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

Table 1.9 – Approved PREACTION-PAC™ Assemblies with Potter 4410-RC Control Panel

Part Number	Valve Size, in.	Valve Type	Supervisory Gas Source	Control Panel
G215P11A	1-1/2”	Single Interlock	1/6 HP Compressor	Potter 4410-RC
G215P1NA	1-1/2”	Single Interlock	Pressure Maintenance Device	Potter 4410-RC
G215P21A	1-1/2”	Double Interlock	1/6 HP Compressor	Potter 4410-RC
G215P2NA	1-1/2”	Double Interlock	Pressure Maintenance Device	Potter 4410-RC
G220P11A	2”	Single Interlock	1/6 HP Compressor	Potter 4410-RC
G220P1NA	2”	Single Interlock	Pressure Maintenance Device	Potter 4410-RC
G220P21A	2”	Double Interlock	1/6 HP Compressor	Potter 4410-RC
G220P2NA	2”	Double Interlock	Pressure Maintenance Device	Potter 4410-RC
G225P11A	2-1/2”	Single Interlock	1/6 HP Compressor	Potter 4410-RC
G225P12A	2-1/2”	Single Interlock	1/3 HP Compressor	Potter 4410-RC
G225P1NA	2-1/2”	Single Interlock	Pressure Maintenance Device	Potter 4410-RC
G225P21A	2-1/2”	Double Interlock	1/6 HP Compressor	Potter 4410-RC
G225P22A	2-1/2”	Double Interlock	1/3 HP Compressor	Potter 4410-RC
G225P2NA	2-1/2”	Double Interlock	Pressure Maintenance Device	Potter 4410-RC
G230P11A	3”	Single Interlock	1/6 HP Compressor	Potter 4410-RC
G230P12A	3”	Single Interlock	1/3 HP Compressor	Potter 4410-RC
G230P13A	3”	Single Interlock	1/2 HP Compressor	Potter 4410-RC
G230P1NA	3”	Single Interlock	Pressure Maintenance Device	Potter 4410-RC
G230P21A	3”	Double Interlock	1/6 HP Compressor	Potter 4410-RC
G230P22A	3”	Double Interlock	1/3 HP Compressor	Potter 4410-RC
G230P23A	3”	Double Interlock	1/2 HP Compressor	Potter 4410-RC
G230P2NA	3”	Double Interlock	Pressure Maintenance Device	Potter 4410-RC
G240P11A	4”	Single Interlock	1/6 HP Compressor	Potter 4410-RC
G240P12A	4”	Single Interlock	1/3 HP Compressor	Potter 4410-RC
G240P13A	4”	Single Interlock	1/2 HP Compressor	Potter 4410-RC
G240P1NA	4”	Single Interlock	Pressure Maintenance Device	Potter 4410-RC
G240P21A	4”	Double Interlock	1/6 HP Compressor	Potter 4410-RC
G240P22A	4”	Double Interlock	1/3 HP Compressor	Potter 4410-RC
G240P23A	4”	Double Interlock	1/2 HP Compressor	Potter 4410-RC
G240P2NA	4”	Double Interlock	Pressure Maintenance Device	Potter 4410-RC

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.

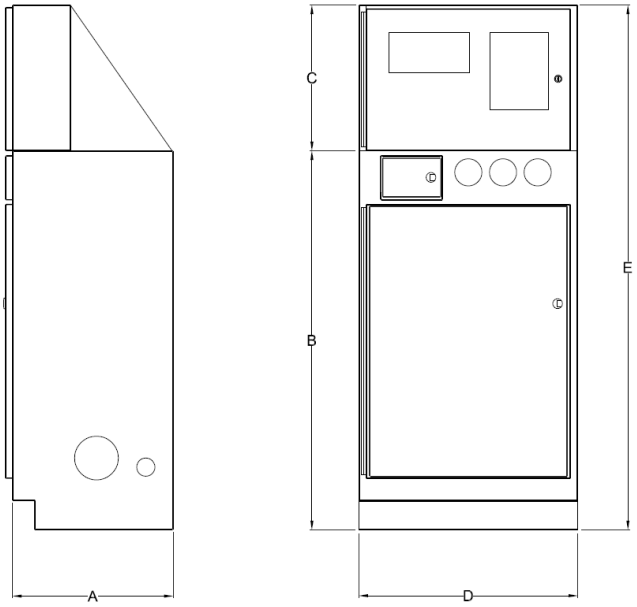
1.10.2.4. Close the lower enclosure door. Remove the unit from the pallet, and place in the intended installation location.

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.



SIDE VIEW **FRONT VIEW**

Dimension	Assemblies with 1-1/2” thru 3” Preaction Valves	Assemblies with 4” Preaction Valves
A	22.00	24.00
B	52.00	52.00
C	20.00	20.00
D	30.00	30.00
E	72.00	72.00
NOTE: All units are in inches.		

Figure 4 – Diagram - Overall Dimensions

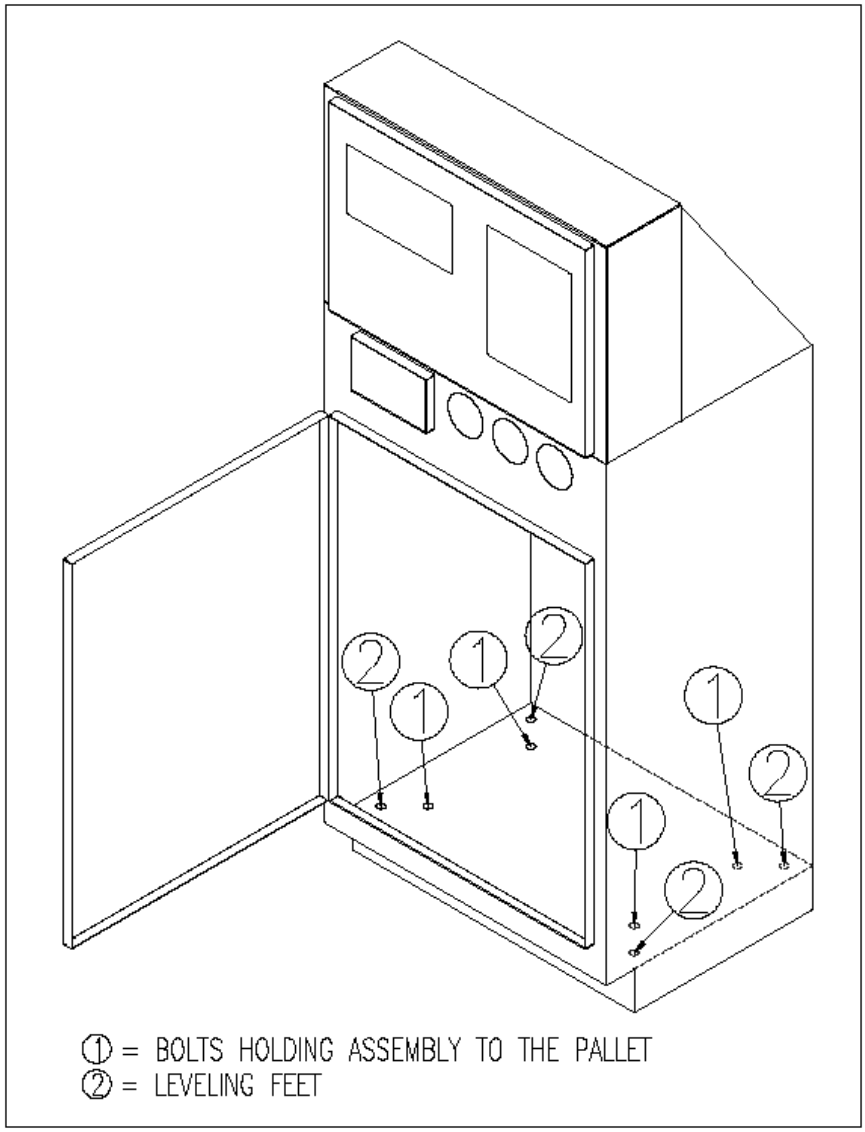
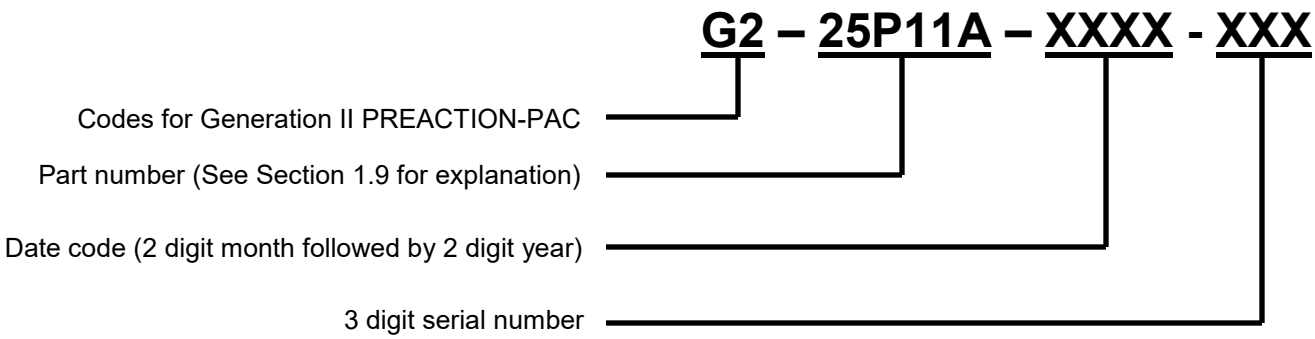


Figure 5 – Diagram - Location of Pallet Bolts and Leveling Feet

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



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

1.10.4. External Attachments.

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

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

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

CAUTION

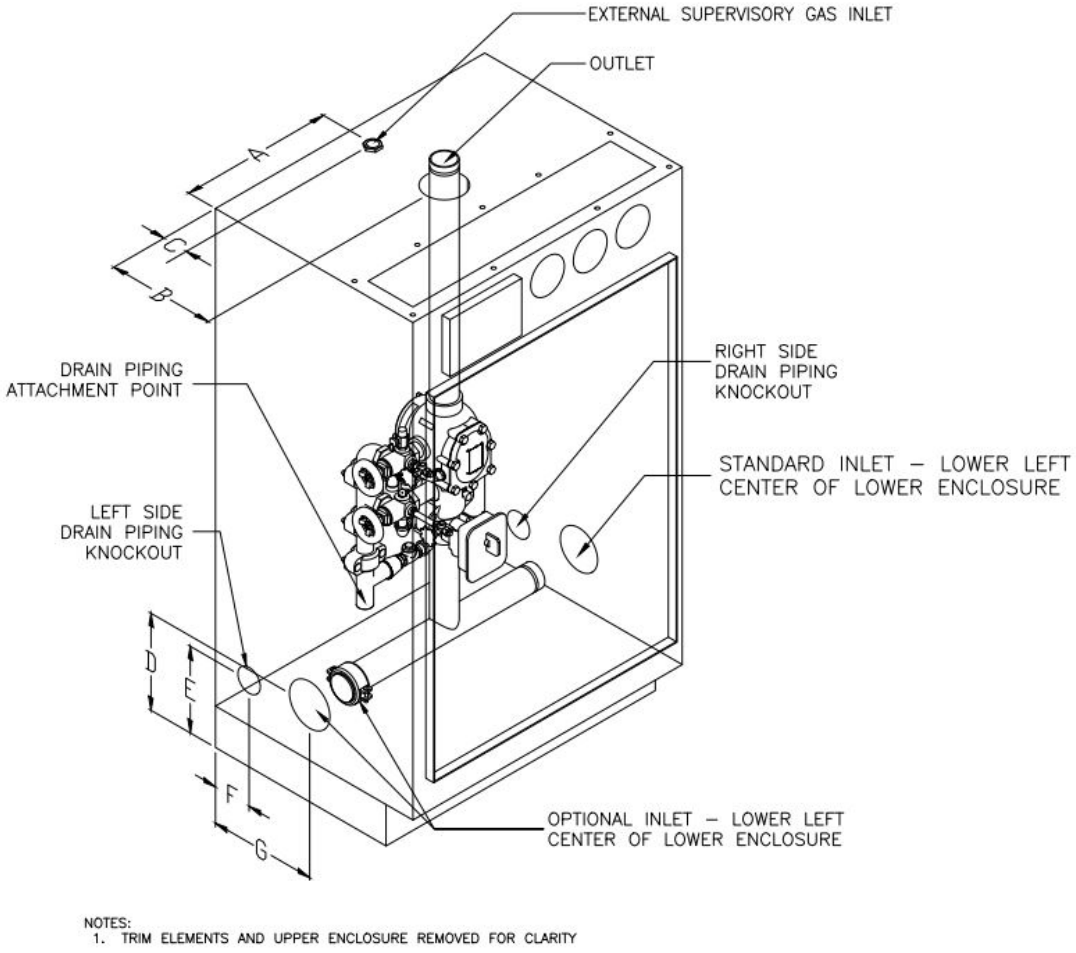
Failure to assemble the steel cap to the lower right center inlet will result in property damage due to water escaping from the lower right center inlet.

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

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

1.10.4.1.4. External Supervisory Gas Inlet. External supervisory gas inlet piping is attached to the **PREACTION-PAC™** in one location: the back center of the top surface of the lower enclosure. The connection point is a ½ NPT female bulkhead (through-wall) fitting. Make the field

connection by removing the red plastic plug and plumbing to the location with ½ inch pipe, typically either steel or copper. PLEASE NOTE: This inlet option is only present on configurations with a pressure maintenance device.



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

Figure 6 – Diagram - Piping Attachment Details

1.10.4.2. Terminal Strip and Control Panel. See Figure 7a and Figure 7b for information on connection to the terminal strip in the upper enclosure. Use Section 5 – Potter manual 5403550 to guide the installation of connections to the control panel. Terminals for 110VAC power accept qty. (1) 10 ga. max. conductor. NOTE: All conductors used for field wiring must comply with NFPA 70 – National Electrical Code, and control panel manufacturer's instructions (see Section 5). See Section 5 for information on power-limited conductor runs.

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 control panel. **UNITED Fire Systems** will not be responsible for warranty adjustment of damaged control panels when these instructions are not followed.

CAUTION

This assembly contains static-sensitive components. ALWAYS ground yourself with a proper wrist strap before handling any electronic components or circuits. Failure to do so can lead to equipment damage from static electricity.

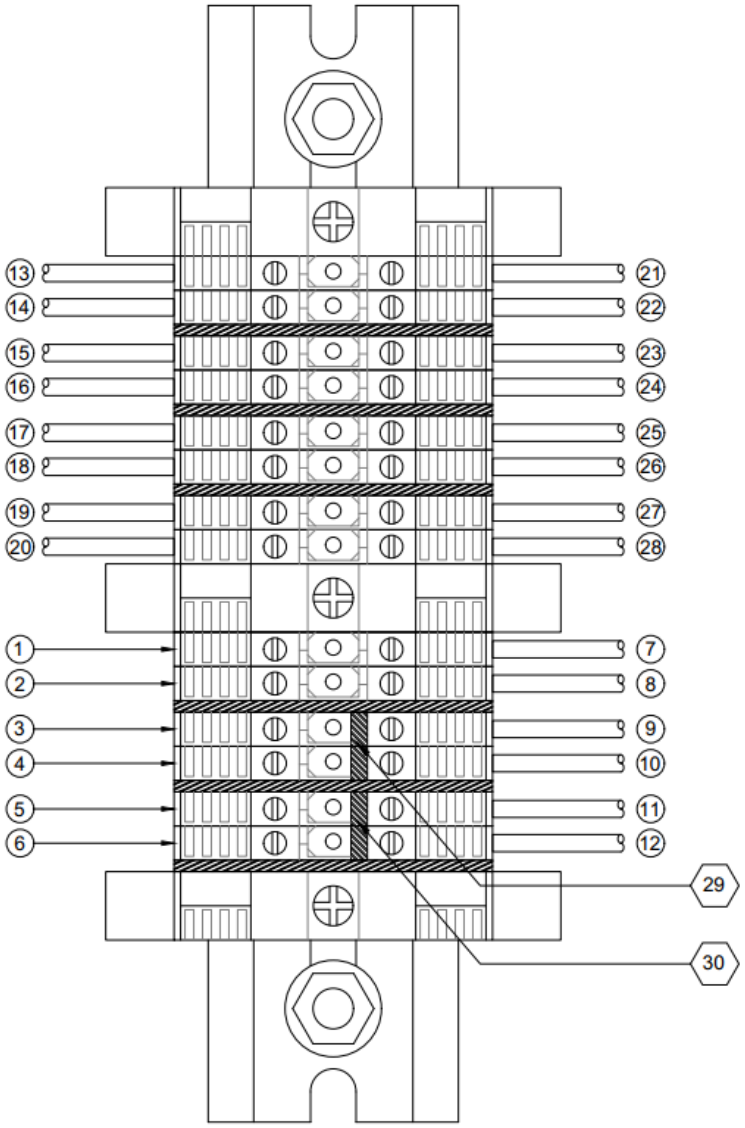


Figure 7a – Diagram –

Terminal Strip with Compressor Wiring Detail

LEGEND			
FIELD WIRING			
	NO JUMPER USED		**COLOR OF TERMINAL BLOCK**
1	DEDICATED 110 VAC GROUND FOR CONTROL PANEL (COMPRESSOR WILL ALSO BE GROUNDED THROUGH THIS TERMINAL)		GREEN/YELLOW
2	DEDICATED 110 VAC GROUND FOR AIR COMPRESSOR (USE ONLY IF REQUIRED BY AHJ)		GREEN/YELLOW
	WITH JUMPER 29 IN PLACE	**WITH JUMPER 29 REMOVED**	
3	110 VAC NEUTRAL FOR CONTROL PANEL AND COMPRESSOR	110 VAC NEUTRAL FOR CONTROL PANEL ONLY	WHITE
4	DO NOT USE	110 VAC NEUTRAL FOR COMPRESSOR ONLY	WHITE
	WITH JUMPER 30 IN PLACE	**WITH JUMPER 30 REMOVED**	
5	110 VAC HOT FOR CONTROL PANEL AND COMPRESSOR	110 VAC HOT FOR CONTROL PANEL ONLY	BLACK
6	DO NOT USE	110 VAC HOT FOR COMPRESSOR ONLY	BLACK
FACTORY WIRING			
7	110 VAC GROUND TO CONTROL PANEL		GREEN/YELLOW
8	110 VAC GROUND TO AIR COMPRESSOR		GREEN/YELLOW
9	110 VAC NEUTRALTO CONTROL PANEL		WHITE
10	110 VAC NEUTRAL TO AIR COMPRESSOR		WHITE
11	110 VAC HOT TO CONTROL PANEL		BLACK
12	110 VAC HOT TO AIR COMPRESSOR		BLACK
13	PREACTION SOLENOID WIRING (-) FROM LOWER ENCLOSURE		GRAY
14	PREACTION SOLENOID WIRING (+) FROM LOWER ENCLOSURE		RED
15	LOW AIR SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE		GRAY
16	LOW AIR SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE		GRAY
17	WATERFLOW SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE		BLUE
18	WATERFLOW SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE		BLUE
19	TAMPER SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE		YELLOW
20	TAMPER SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE		YELLOW
21	PREACTION SOLENOID WIRING (-) TO CONTROL PANEL		GRAY
22	PREACTION SOLENOID WIRING (+) TO CONTROL PANEL		RED
23	LOW AIR SIGNAL SWITCH WIRING (NO) TO CONTROL PANEL		GRAY
24	LOW AIR SIGNAL SWITCH WIRING (COM) TO CONTROL PANEL		GRAY
25	WATERFLOW SIGNAL SWITCH WIRING (NO) TO CONTROL PANEL		BLUE
26	WATERFLOW SIGNAL SWITCH WIRING (COM) TO CONTROL PANEL		BLUE
27	TAMPER SIGNAL SWITCH WIRING (NO) TO CONTROL PANEL		YELLOW
28	TAMPER SIGNAL SWITCH WIRING (COM) TO CONTROL PANEL		YELLOW
JUMPERS			
29	CONNECTS CONTROL PANEL & COMPRESSOR 110 VAC NEUTRAL CONDUCTORS - REMOVE TO SEPARATE		
30	CONNECTS CONTROL PANEL & COMPRESSOR 110 VAC HOT CONDUCTORS - REMOVE TO SEPARATE		

Legend for Figure 7a

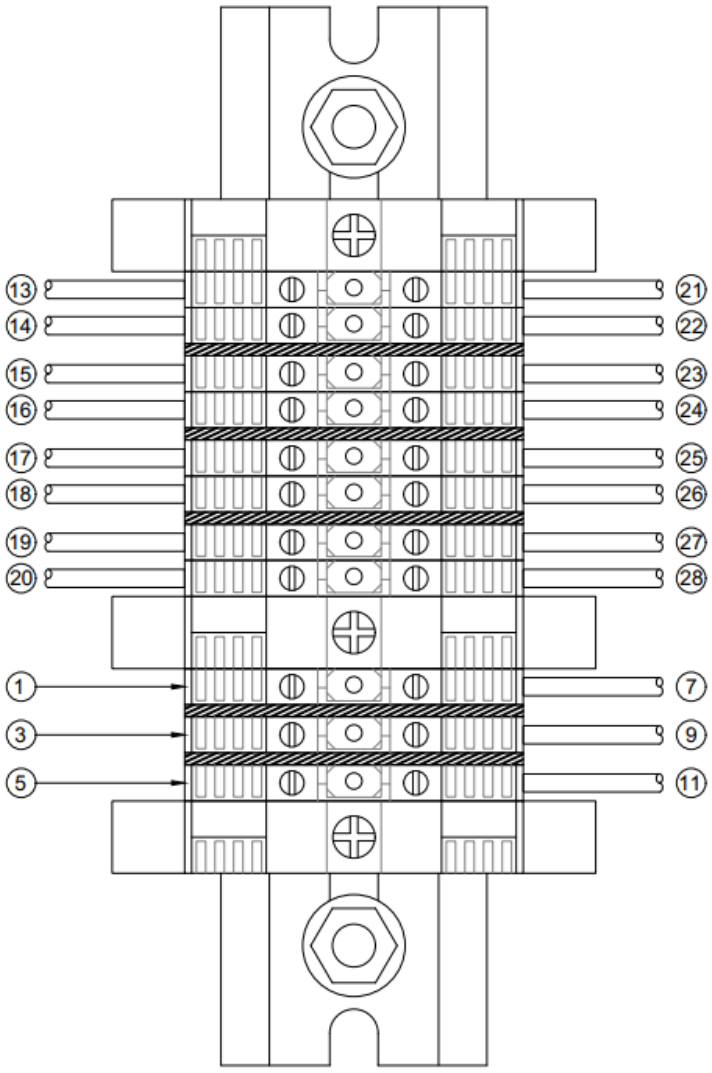


Figure 7b – Diagram –

Terminal Strip with Pressure Maintenance Device Wiring Detail

LEGEND		
FIELD WIRING		
		COLOR OF TERMINAL BLOCK
1	110 VAC GROUND FOR CONTROL PANEL	GREEN/YELLOW
3	110 VAC NEUTRAL FOR CONTROL PANEL	WHITE
5	110 VAC HOT FOR CONTROL PANEL	BLACK
FACTORY WIRING		
7	110 VAC GROUND TO CONTROL PANEL	GREEN/YELLOW
9	110 VAC NEUTRALTO CONTROL PANEL	WHITE
11	110 VAC HOT TO CONTROL PANEL	BLACK
13	PREACTION SOLENOID WIRING (-) FROM LOWER ENCLOSURE	GRAY
14	PREACTION SOLENOID WIRING (+) FROM LOWER ENCLOSURE	RED
15	LOW AIR SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	GRAY
16	LOW AIR SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	GRAY
17	WATERFLOW SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	BLUE
18	WATERFLOW SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	BLUE
19	TAMPER SIGNAL SWITCH WIRING (NO) FROM LOWER ENCLOSURE	YELLOW
20	TAMPER SIGNAL SWITCH WIRING (COM) FROM LOWER ENCLOSURE	YELLOW
21	PREACTION SOLENOID WIRING (-) TO CONTROL PANEL	GRAY
22	PREACTION SOLENOID WIRING (+) TO CONTROL PANEL	RED
23	LOW AIR SIGNAL SWITCH WIRING (NO) TO CONTROL PANEL	GRAY
24	LOW AIR SIGNAL SWITCH WIRING (COM) TO CONTROL PANEL	GRAY
25	WATERFLOW SIGNAL SWITCH WIRING (NO) TO CONTROL PANEL	BLUE
26	WATERFLOW SIGNAL SWITCH WIRING (COM) TO CONTROL PANEL	BLUE
27	TAMPER SIGNAL SWITCH WIRING (NO) TO CONTROL PANEL	YELLOW
28	TAMPER SIGNAL SWITCH WIRING (COM) TO CONTROL PANEL	YELLOW

Legend for Figure 7b

1.10.4.2.1. Power. 110VAC, 3-wire, single-phase power is attached to the terminal strip in the upper enclosure. See Figure 7. Terminals for 110VAC power accept qty.(1) 10 ga. max. conductor. Current draw: With 1/6HP compressor = 9.0 amps; with 1/3HP compressor = 9.0 amps; with 1/2HP compressor = 10.4 amps; with pressure maintenance device = 2.4 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.

1.10.4.2.2. Backup Batteries. Calculate backup battery requirements, and connect backup batteries, per Section 5 – Potter manual 5403550. The upper enclosure is capable of holding batteries up to 26 A-h. If larger batteries are needed, use an external battery enclosure per Section 5 – Potter manual 5403550. The maximum battery capacity for this control panel is 18 A-h.

1.10.4.2.3. Fire Detectors (Initiating Devices). Fire detectors (initiating devices), located in the area protected by the sprinklers connected to the **PREACTION-PAC™**, are necessary to provide the signal to open the preaction valve. Refer to NFPA 72 for information on the number, type, and spacing of fire detectors. Install detectors, wiring, and panel connections per Section 5 – Potter manual 5403550. All FM Approved systems / installations must be configured as Class A for Deluge and Preaction Releasing Service. The Potter Class A Module is factory-installed on the control panel.

1.10.4.2.4. Audible / Visual Appliances (Indicating Devices). Audible / visual appliances (indicating devices), located in and around the area protected by the sprinklers connected to the **PREACTION-PAC™**, are necessary to warn occupants that a fire has been detected. Refer to NFPA 72 for information on the number, type, and spacing of audible / visual appliances. Install audible / visual devices, wiring, and panel connections per Section 5 – Potter manual 5403550.

1.10.4.2.5. Building Fire Alarm Systems. In buildings with fire alarm systems separate from the **PREACTION-PAC™** detection system, most national and local codes and authorities having jurisdiction require the **PREACTION-PAC™** to provide signals to the building fire alarm system. The Potter control panel installed in the **PREACTION-PAC™** contains dry contacts capable of providing the necessary signals. Install audible / visual devices, wiring, and panel connections per Section 5 – Potter manual 5403550.

1.10.4.2.6. Other Connections. From time to time, additional signals from the **PREACTION-PAC™** control panel may be required. Such signals can be associated with building management systems, equipment shutdown, or security notification. Additional dry contacts may be needed to satisfy all of these requirements.

1.10.4.3. Compressor. Where applicable. See Figure 7a. 110VAC, 3-wire, single-phase power is attached to the terminal strip in the upper enclosure. The compressor power is factory-wired to the terminal strip in the upper enclosure. 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. Use Section 5 – Potter manual 5403550 to perform all preliminary tests on the control panel, field wiring, and field devices.

1.10.5.4. Use Section 2 – Victaulic manual I-769N to perform all preliminary tests on the preaction valve, trim, and sprinkler piping.

1.10.5.5. Perform all tests required to be witnessed by the authority having jurisdiction. Obtain AHJ approval of the installation.

1.10.6. Placing In Service.

1.10.6.1. Verify that the control panel is indicating POWER ON, with no alarm or trouble indicators illuminated, and no error messages on the display.

1.10.6.2. Verify that the water supply is on.

1.10.6.3. Using Section 2 – Victaulic manual I-769N, verify that all valves are in the proper position for in-service status. Verify that the three pressure gauges on the front of the lower enclosure are indicating expected values within expected limits.

1.10.6.4. Ensure that the owner of the system has received adequate introductory training.

1.10.6.5. 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 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. Refer to Section 5 – Potter manual 5403550 for information on signals.

IMPORTANT

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

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

IMPORTANT

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

1.11.3. Restoring To Service. After automatic or manual system operation, follow instructions in Section 2 – Victaulic manual I-769N and Section 5 – Potter manual 5403550 to restore the individual parts of the **PREACTION-PAC™** to service.

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

IMPORTANT

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

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

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

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

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

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

1.12.5.1. Victaulic Manual I-769N.

1.12.5.2. General Air Products Manual OILLESSINST.

1.12.5.3. United Fire Systems Instruction Sheet UFS-710.

1.12.5.4. Potter Manual 5403550.

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

1.12.5.6. National Fire Protection Association No. 72, “National Fire Alarm Code®”

SECTION 2

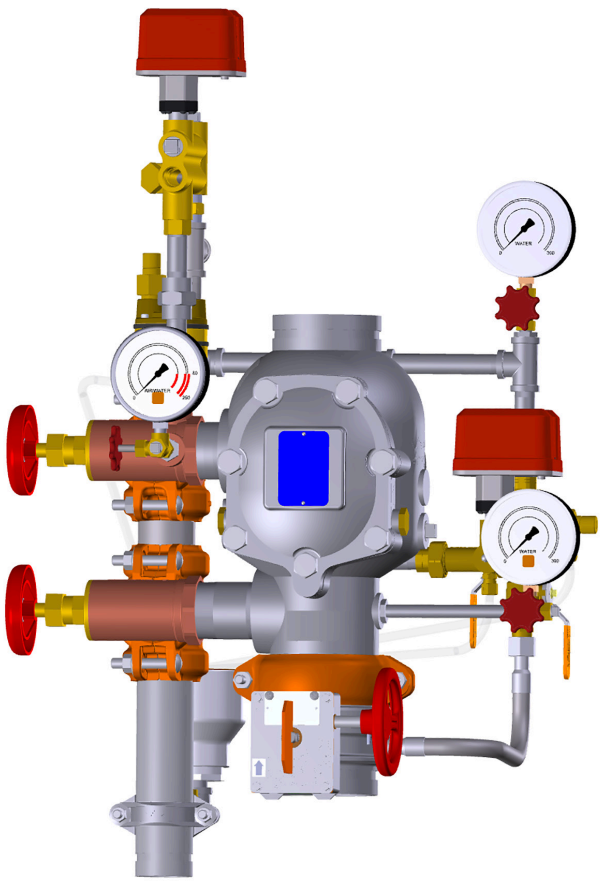
Victaulic Manual I-769N

Firelock NXT Preaction Valve

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

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

KEEP THESE INSTRUCTIONS WITH THE INSTALLED VALVE FOR FUTURE REFERENCE



Single-Interlocked Pneumatic Release Trim Shown

⚠ WARNING

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

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

SERIES 769N FIRELOCK NXT™ ACTUATED VALVE WITH PREACTION TRIM

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

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

INITIAL SYSTEM SETUP

NOTICE

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

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

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

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

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

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

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

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

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

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

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

Step 7:
Open the water supply main drain valve.

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

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

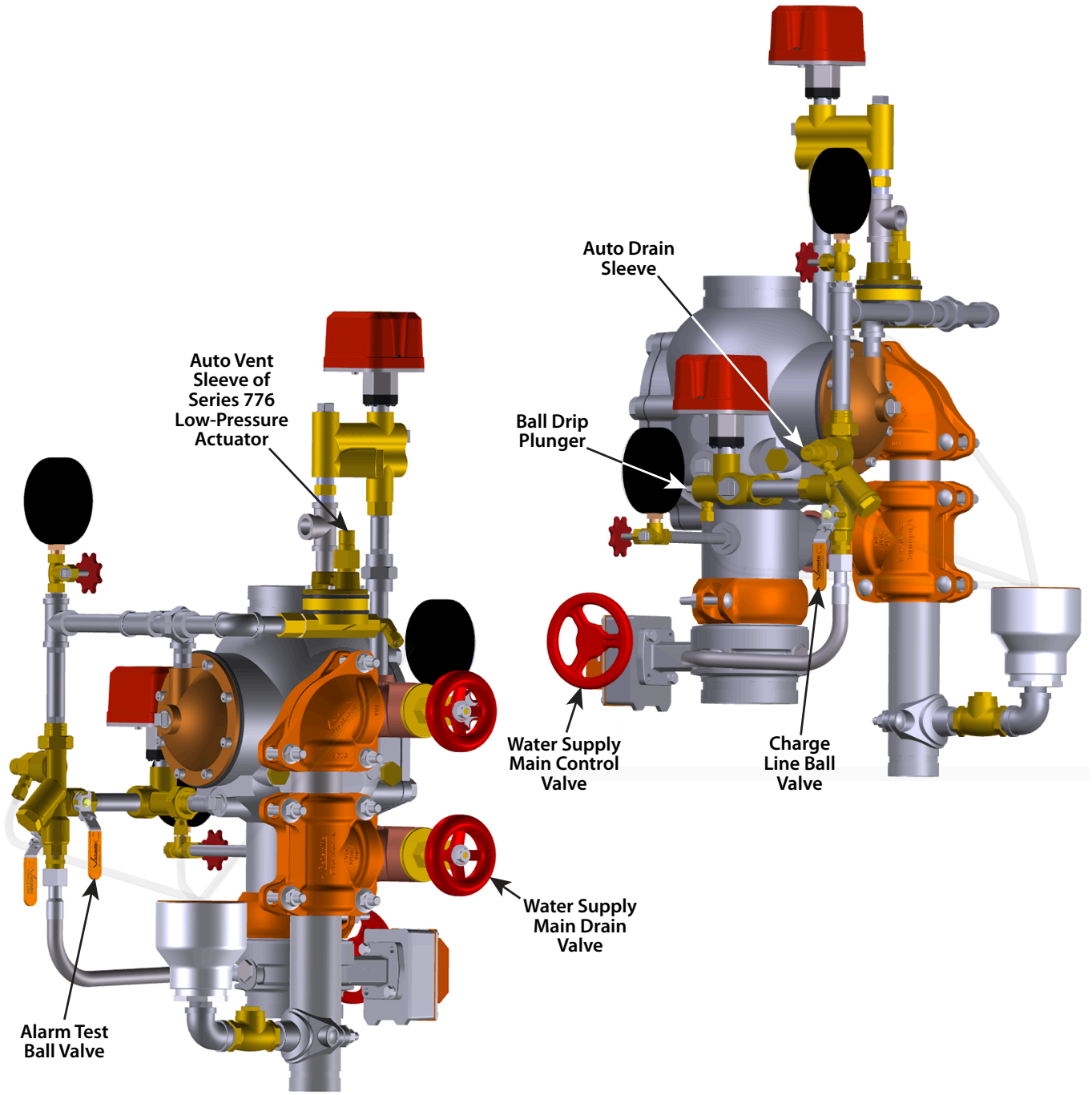
Step 10:
Open the water supply main control valve fully.

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

NORMAL OPERATING POSITIONS FOR VALVES

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

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



Single-Interlocked Pneumatic Release Trim Shown

WATER FLOW ALARM TEST

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

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

TABLE OF CONTENTS

HAZARD IDENTIFICATION

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

INSTALLER SAFETY INFORMATION

⚠ WARNING


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

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

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

IMPORTANT INSTALLATION INFORMATION

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

HYDROSTATIC TESTING

⚠ WARNING

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

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

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

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

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

RECEIVING THE SHIPMENT

NOTICE

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

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

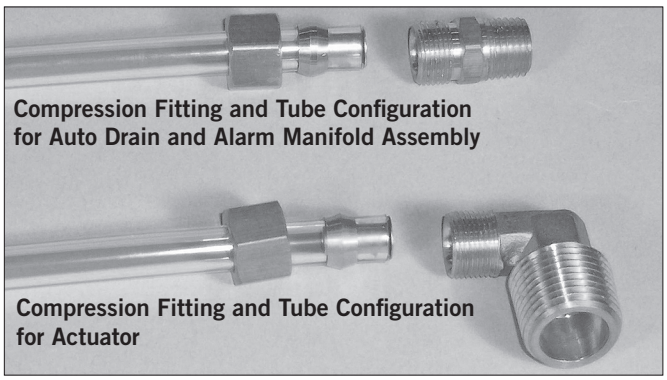
1. Ensure that all components are included in the shipment and that all necessary tools are available for installation. Verify that the provided trim drawing matches the system's requirements.
2. Remove all plastic caps and foam spacers from the valve.

⚠ CAUTION

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

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

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



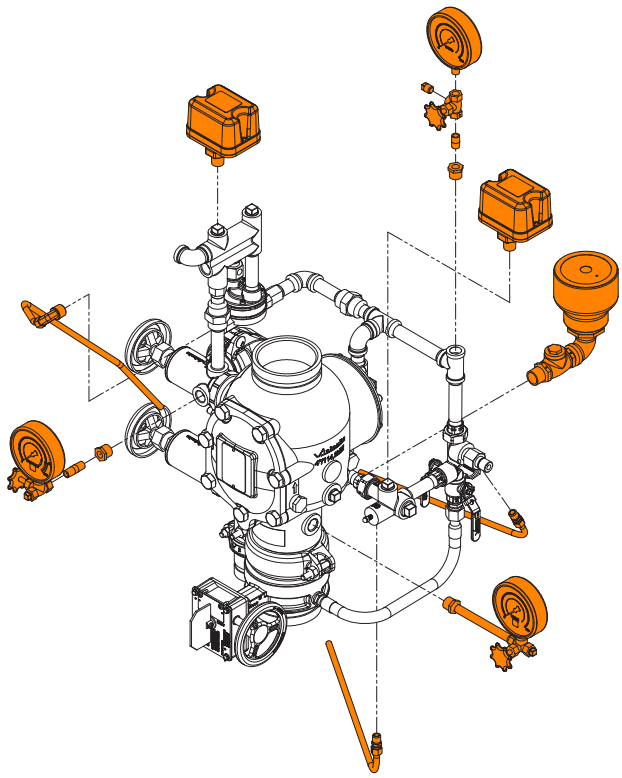
Compression Fitting and Tube Configuration for Auto Drain and Alarm Manifold Assembly

Compression Fitting and Tube Configuration for Actuator

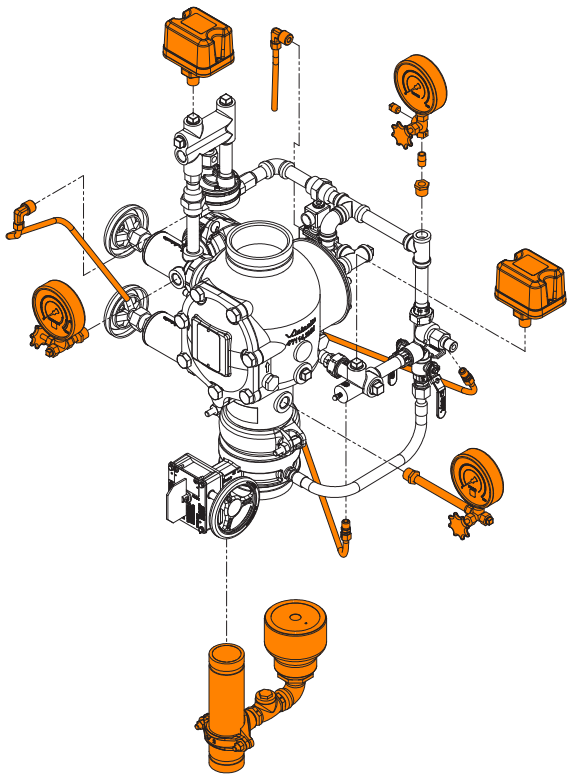
5. Compression fittings and tubes are provided for connection from the outlet of the auto drain, alarm manifold assembly, and actuator to the drip cup or drain. Install the compression fittings in accordance with the trim drawing provided. **NEVER INSERT A PLUG INTO THE OUTLET OF THE AUTO DRAIN, ALARM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

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

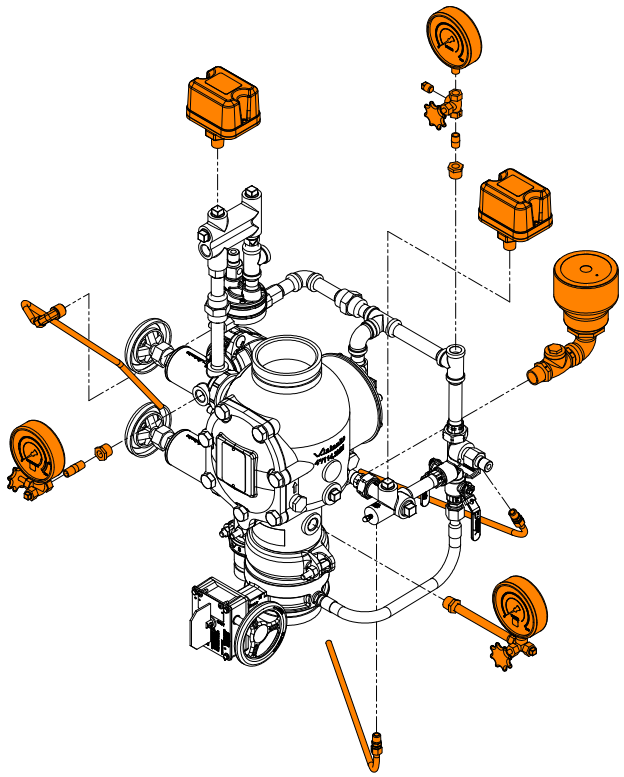
Non-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator



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

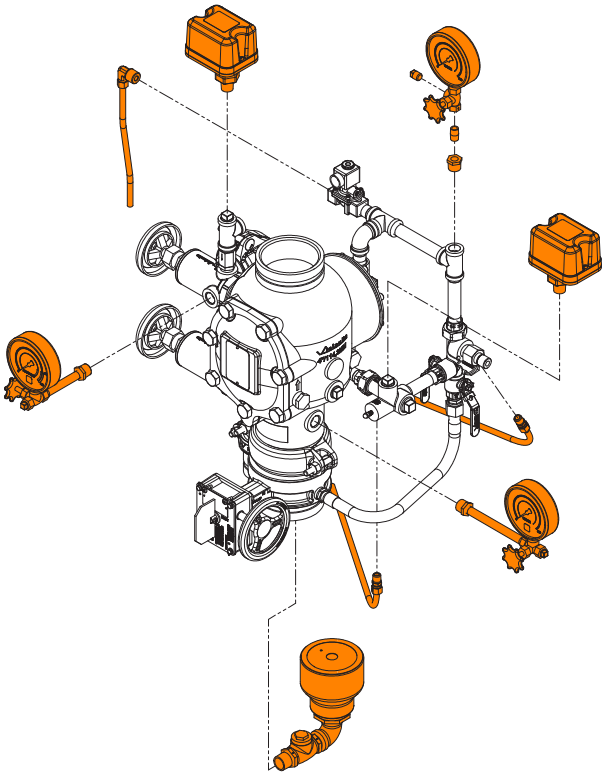


Single-Interlocked Pneumatic Release with Series 776 Low-Pressure Actuator

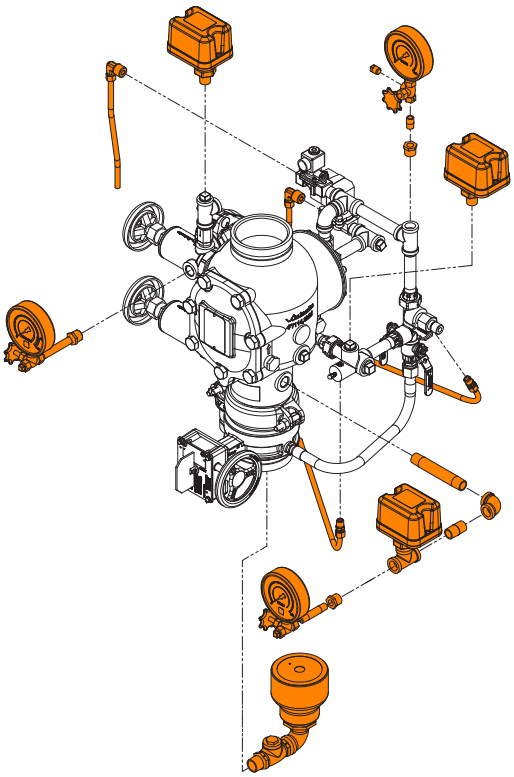


The components shaded in orange below are shipped separate from the valve and must be installed in accordance with the trim drawing provided.
NOTE: The Vic-Quick Riser (VQR) assembly is shown.

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

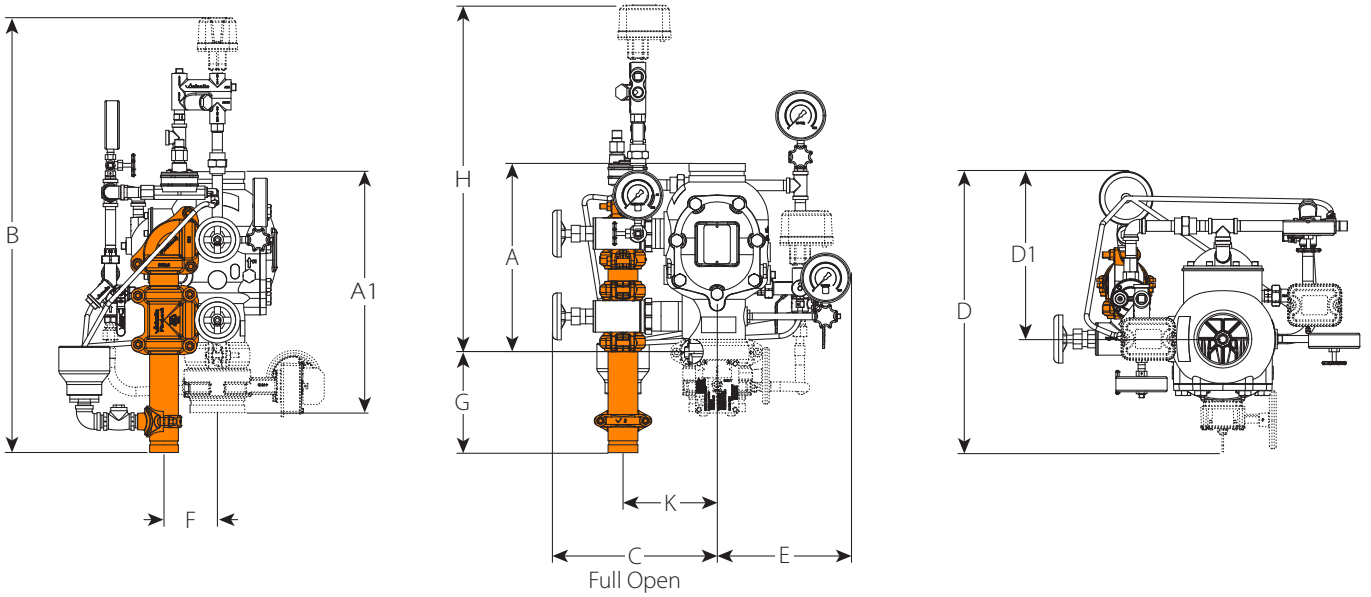


Electric Release with Series 753-E Solenoid Valve and Redundant Solenoid Valve LPCB



TRIM DIMENSIONS

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



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

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

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

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

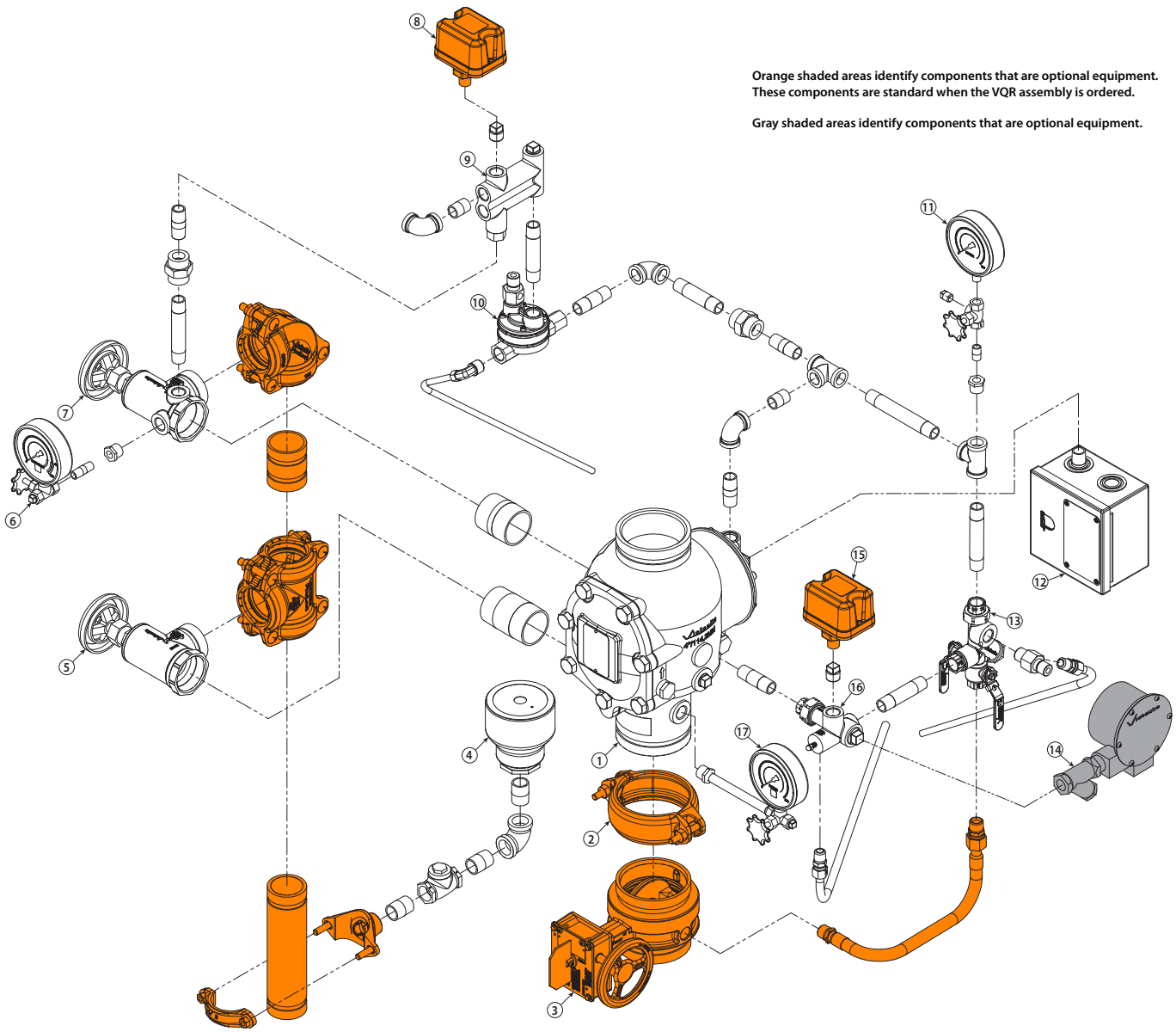
The "D" and "D1" dimensions are not fixed measurements. The drip cup can be rotated to provide more clearance at the back of the trim.

Components shown as dotted lines denote optional equipment.

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

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

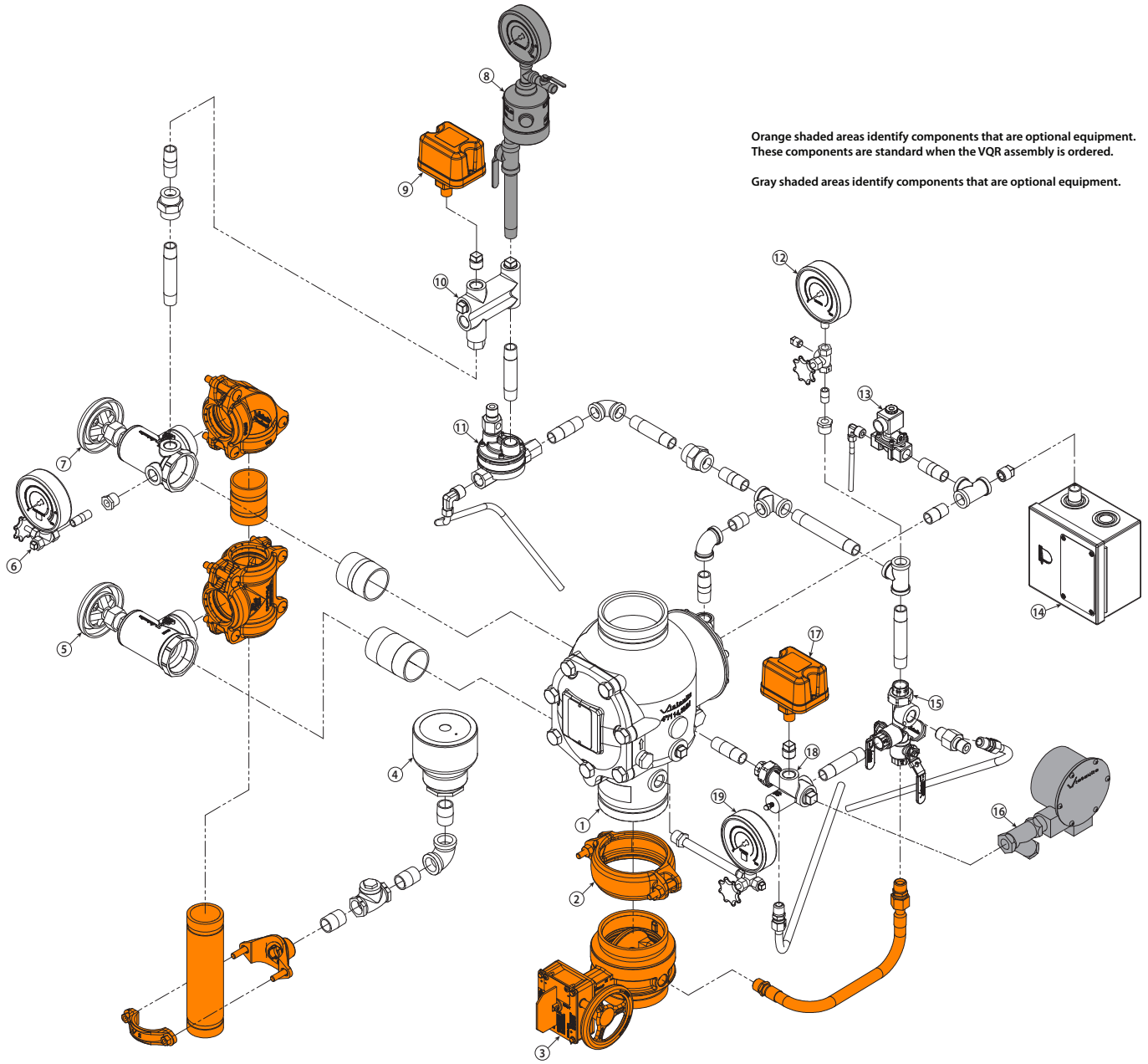
TRIM COMPONENTS – EXPLODED VIEW DRAWING
Series 769N FireLock NXT Actuated Valve - Non-Interlocked Pneumatic Release Preaction Trim with Series 776 Low-Pressure Actuator



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

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

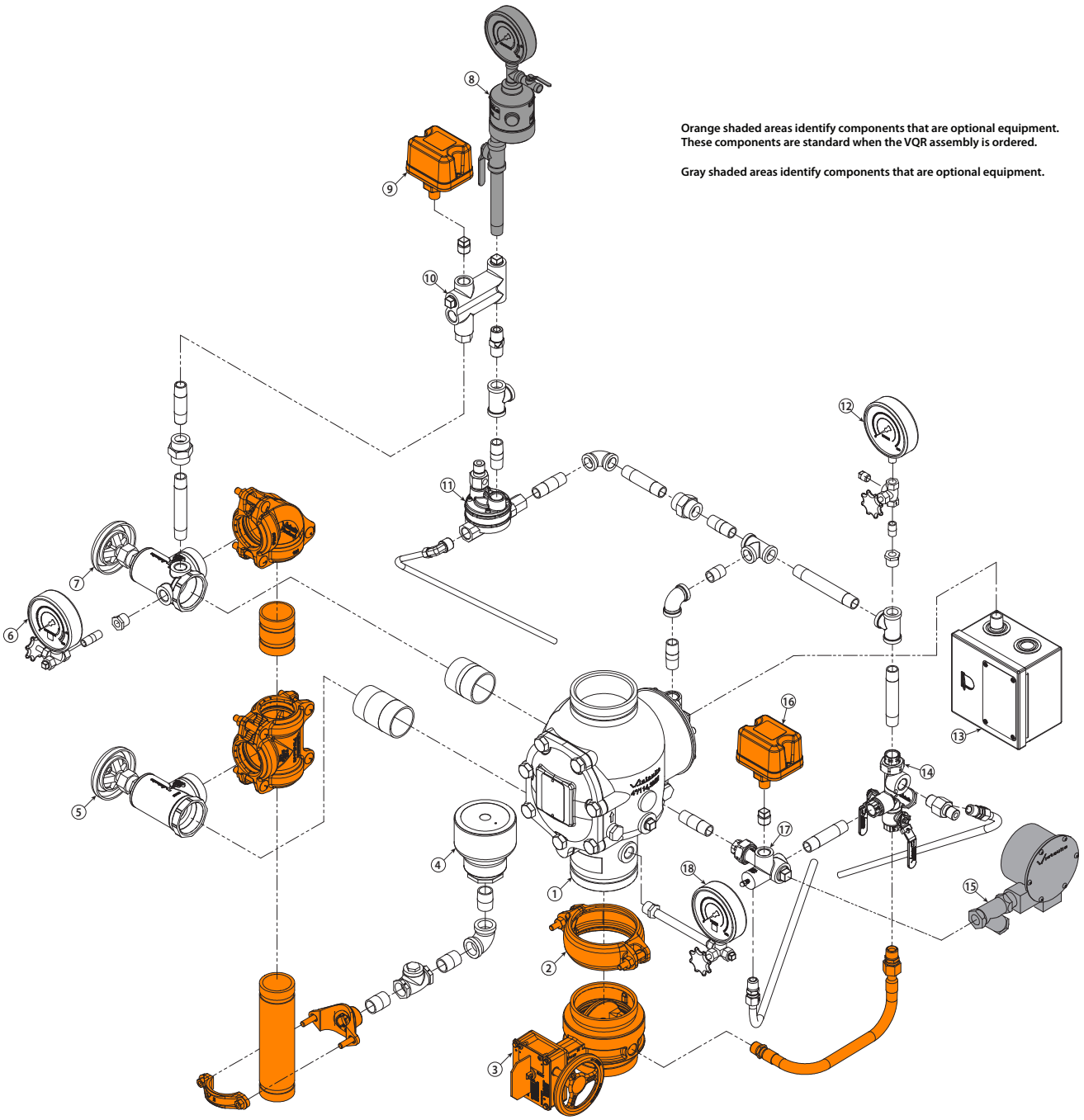
TRIM COMPONENTS – EXPLODED VIEW DRAWING
Series 769N FireLock NXT Actuated Valve - Non-Interlocked Pneumatic/Electric Release Preaction Trim with Series 776 Low-Pressure Actuator and Series 753-E Solenoid Valve



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

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

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



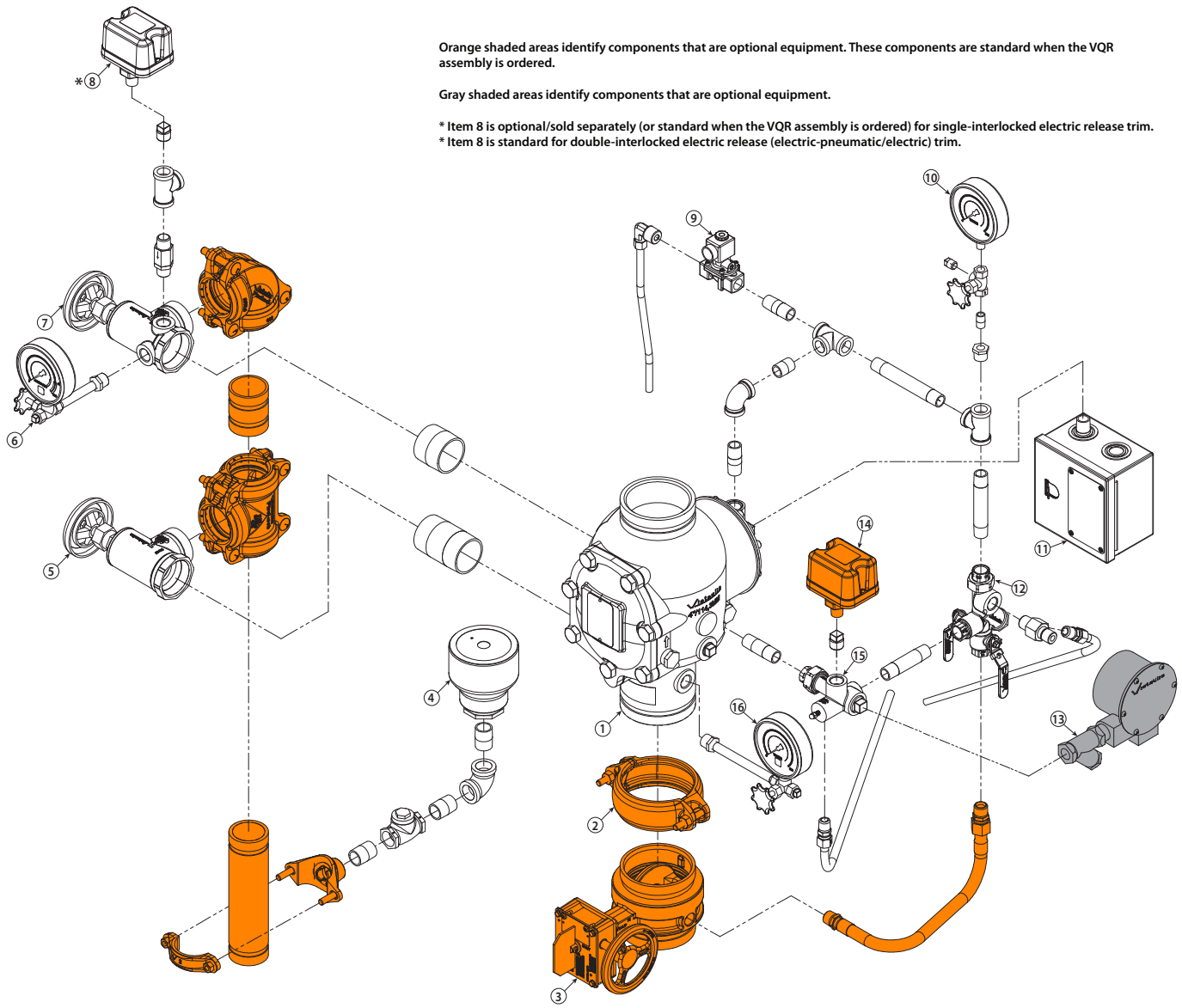
Orange shaded areas identify components that are optional equipment. These components are standard when the VQR assembly is ordered.

Gray shaded areas identify components that are optional equipment.

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

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

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



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

Gray shaded areas identify components that are optional equipment.

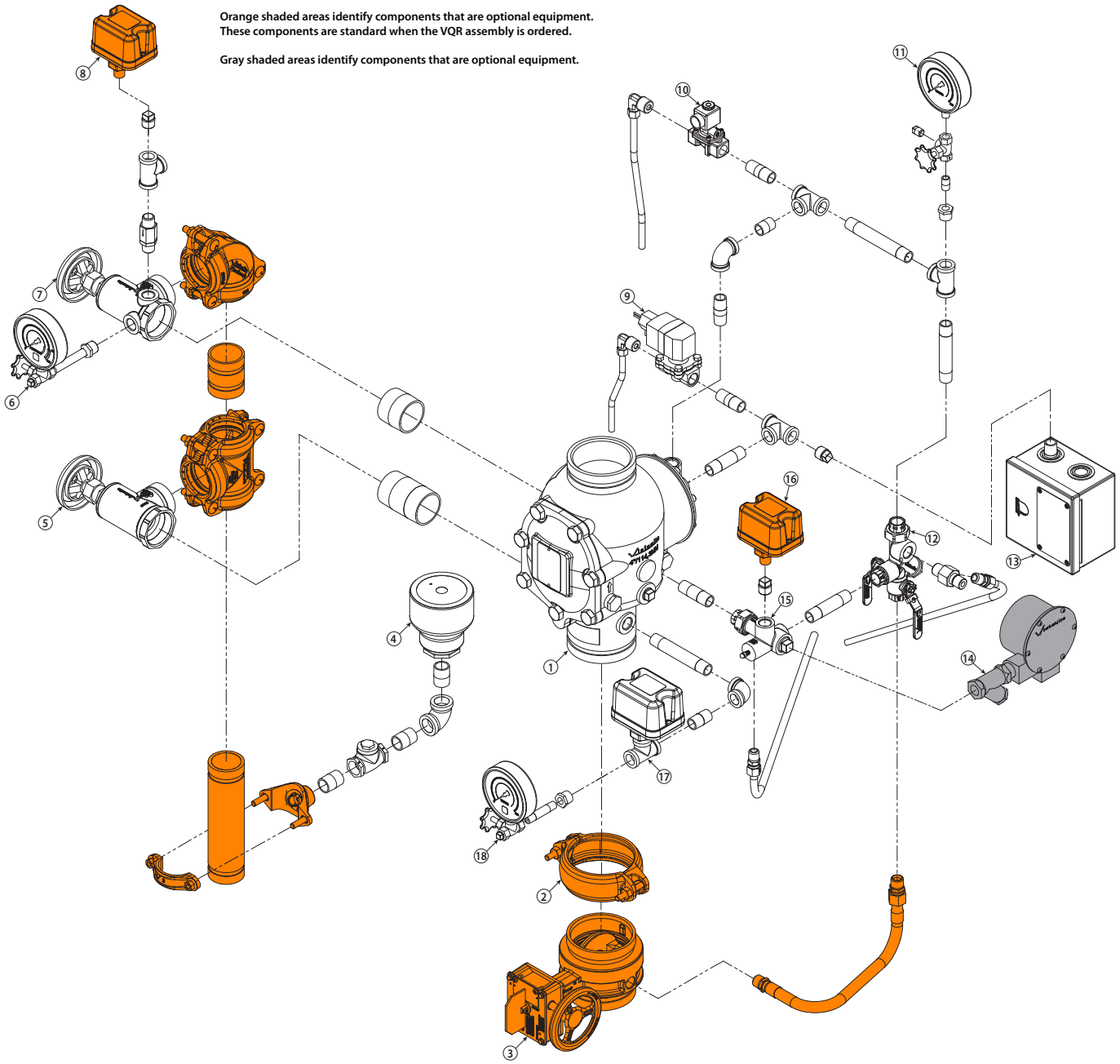
*** Item 8 is optional/sold separately (or standard when the VQR assembly is ordered) for single-interlocked electric release trim.**
*** Item 8 is standard for double-interlocked electric release (electric-pneumatic/electric) trim.**

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

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

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

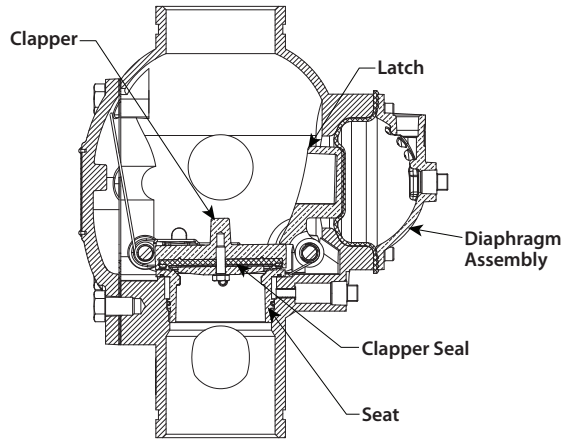
LPCB



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

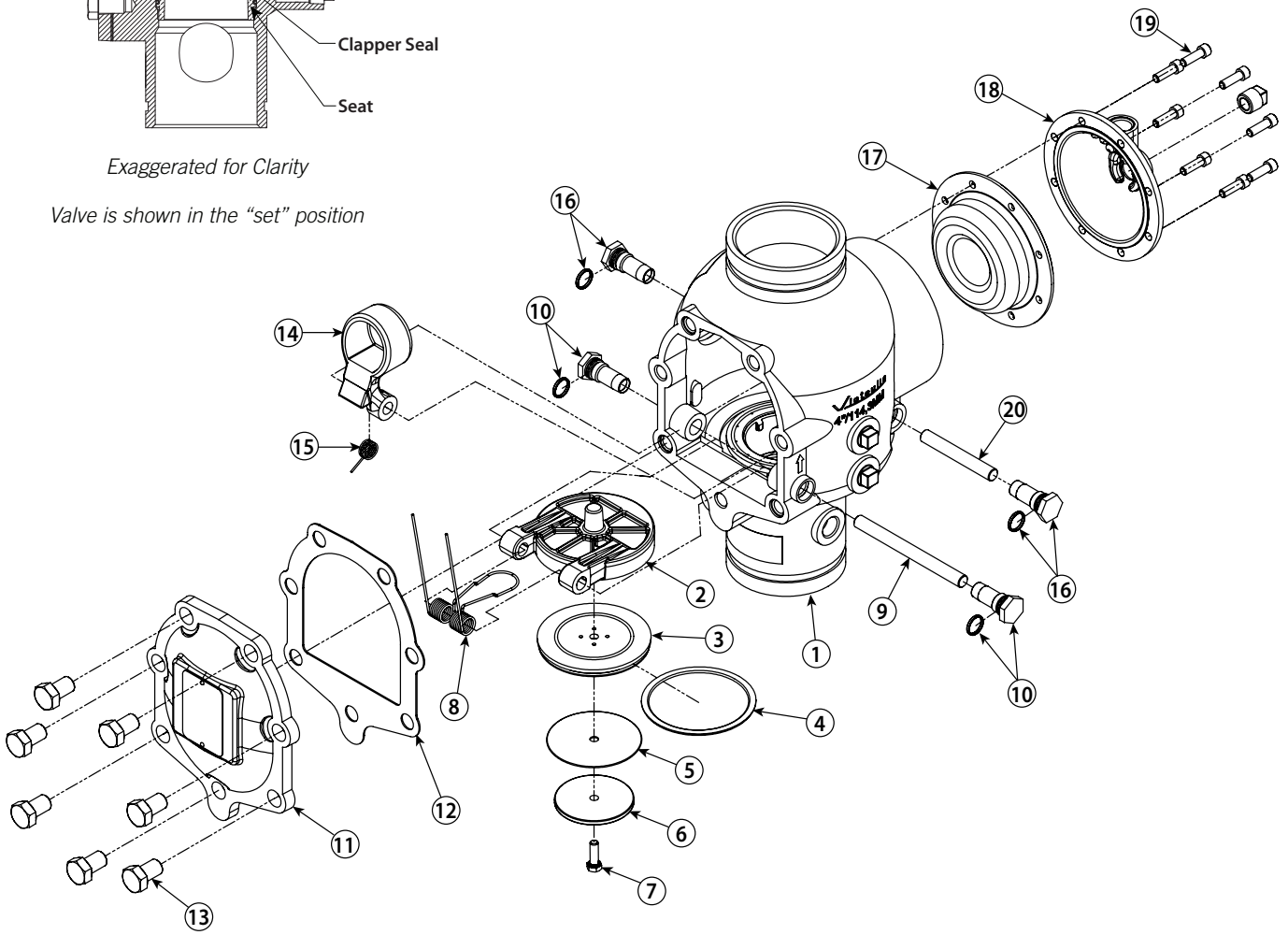
Item	Description
10	Series 753-E Solenoid Valve
11	Charge Line Pressure Gauge/Gauge Valve Assembly
12	Priming Manifold Assembly
13	Series 755 Manual Pull Station
14	Series 760 Water Motor Alarm Assembly
15	Alarm Manifold Assembly
16	Alarm Pressure Switch
17	Low Water Pressure Switch
18	Water Supply Pressure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

INTERNAL VALVE COMPONENTS – SECTION VIEW AND EXPLODED VIEW DRAWINGS



Exaggerated for Clarity

Valve is shown in the "set" position



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

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

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

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

AIR SUPPLY REQUIREMENTS

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

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

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

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

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

BASE- OR RISER-MOUNTED AIR COMPRESSORS

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

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

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

SHOP AIR OR TANK-MOUNTED AIR COMPRESSORS

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

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

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

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

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

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

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

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

SETTINGS FOR AIR SUPERVISORY PRESSURE SWITCHES AND ALARM PRESSURE SWITCHES

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

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

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

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

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

SECTION I

- **Initial System Setup**

INITIAL SYSTEM SETUP

NOTICE

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

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

Step 1:

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

Step 2:

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

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

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

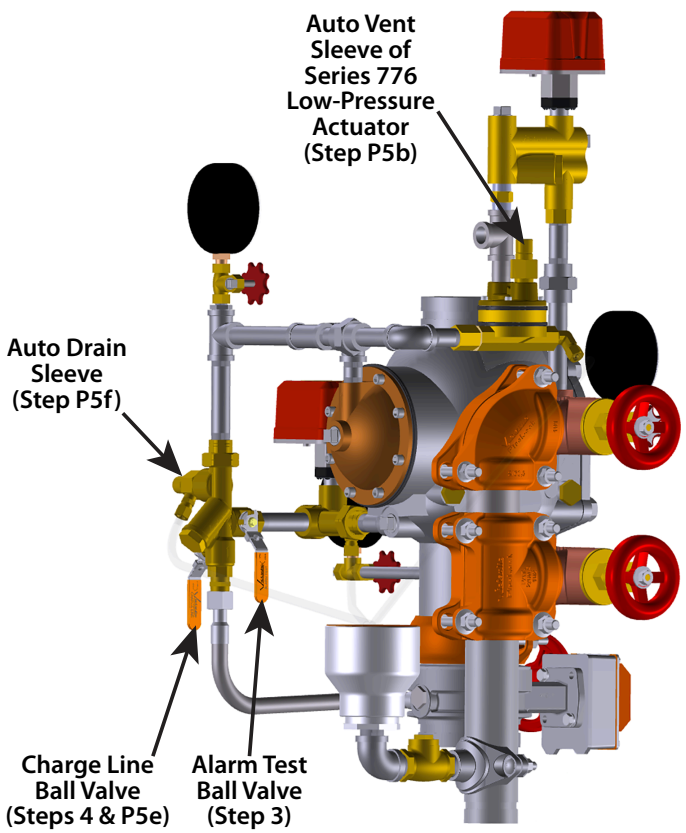
Step 3:

Confirm that the alarm test ball valve is closed.

Step 4:

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

Single-Interlocked Pneumatic Release Trim Shown



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

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

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

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

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

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

Step P5f: Pull up on the auto drain sleeve.

FOR TRIM EQUIPPED WITH A SOLENOID VALVE:

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

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

Step 6:

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

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

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

INITIAL SYSTEM SETUP (CONTINUED)

Step 7:

Open the water supply main drain valve.

Step 8:

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

Step 9:

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

Step 10:

Open the water supply main control valve fully.

Step 11:

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

Step 12:

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

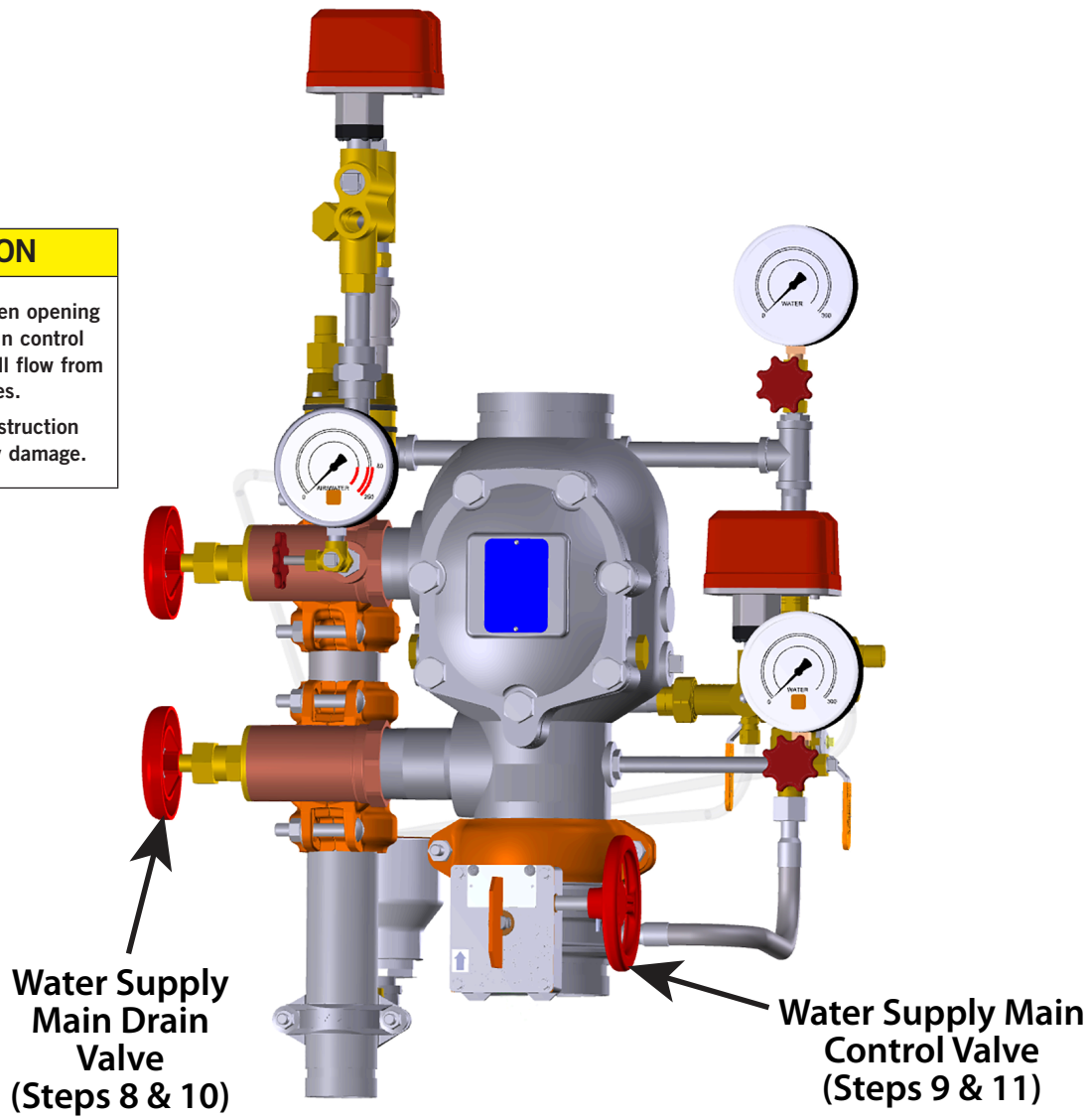
Valve	Normal Operating Position
Water Supply Main Control Valve	Open
Water Supply Main Drain Valve	Closed
System Main Drain Valve	Closed
Charge Line Ball Valve of the Priming Manifold Assembly	Open
Alarm Test Ball Valve of the Priming Manifold Assembly	Closed
Slow-Fill Ball Valve of the Victaulic AMTA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

⚠ CAUTION

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

Failure to follow this instruction could result in property damage.

Single-Interlocked Pneumatic Release Trim Shown



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SECTION II

- **Resetting the System**

RESETTING THE SYSTEM

Step 1:

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

Step 2:

Close the water supply main control valve.

Step 3:

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

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

Step 4:

Close the system main drain valve.

Step 5:

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

Step 6:

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

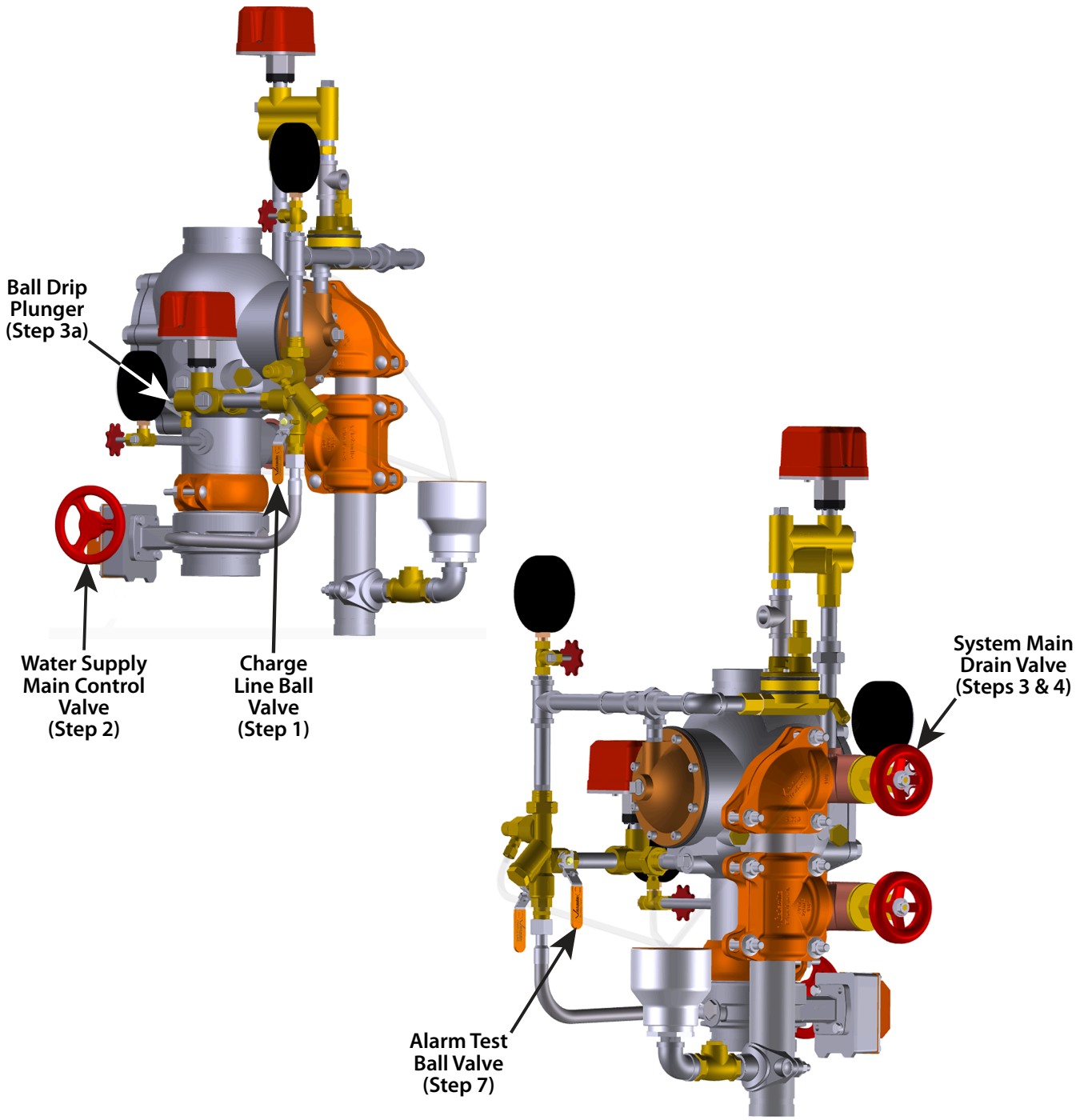
Step 7:

Confirm that the alarm test ball valve is closed.

Step 8:

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

Single-Interlocked Pneumatic Release Trim Shown



SECTION III

- Weekly External Inspection
- Monthly External Inspection

⚠ WARNING

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

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

WEEKLY EXTERNAL INSPECTION

⚠ CAUTION

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

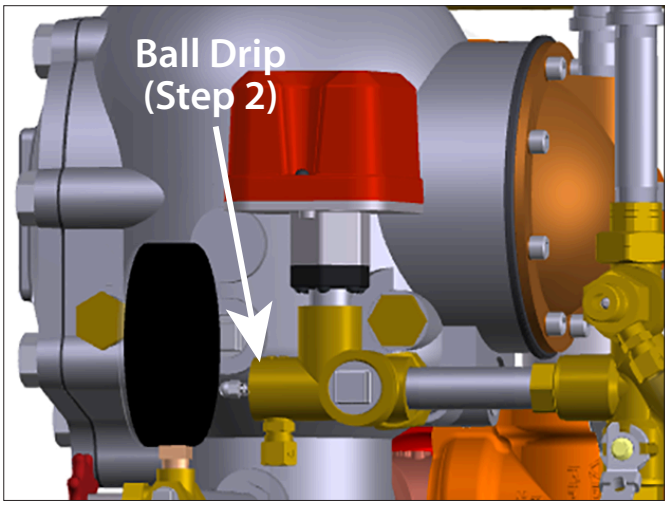
Failure to perform weekly inspections may result in damage to the valve and trim.

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

MONTHLY EXTERNAL INSPECTION

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

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



SECTION IV

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

⚠ WARNING

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

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

NOTICE

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

REQUIRED MAIN DRAIN TEST

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

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

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

⚠ CAUTION

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

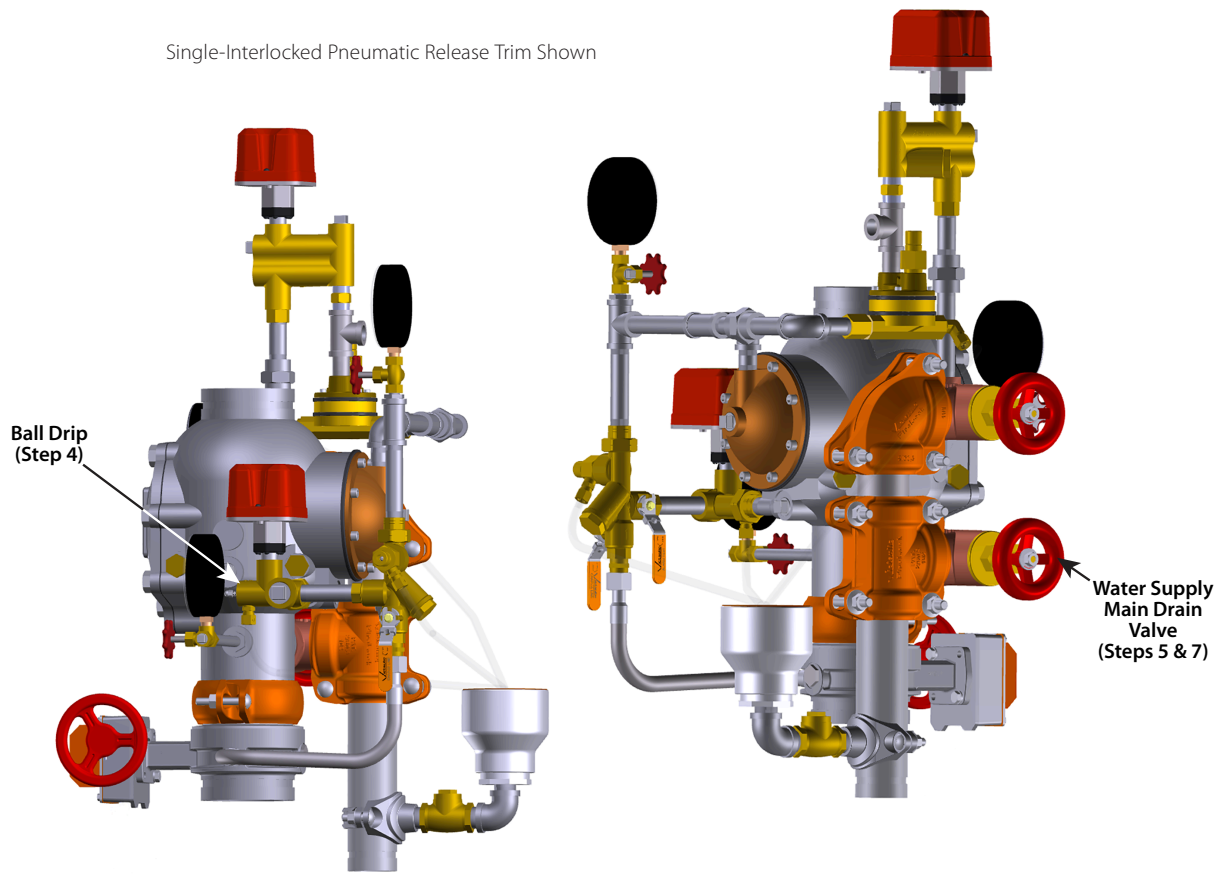
Failure to pipe the system main drain valve to a proper wastewater drain will result in property damage.

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

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

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

Single-Interlocked Pneumatic Release Trim Shown



REQUIRED WATER FLOW ALARM TEST

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

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

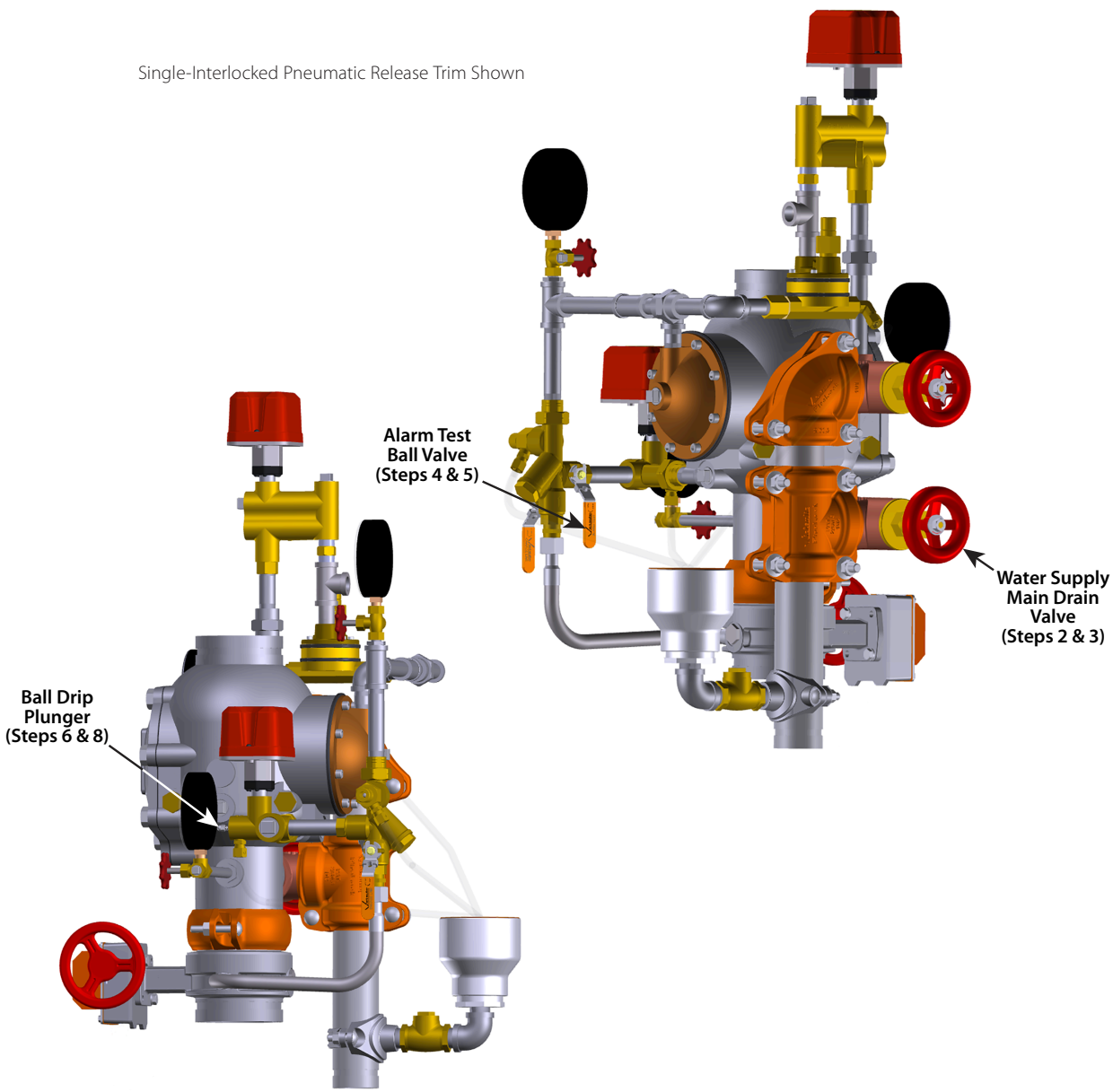
⚠ CAUTION

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

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

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

Single-Interlocked Pneumatic Release Trim Shown



REQUIRED WATER LEVEL AND LOW AIR ALARM TESTS

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

NOTICE

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

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

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

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

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

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

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

⚠ CAUTION

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

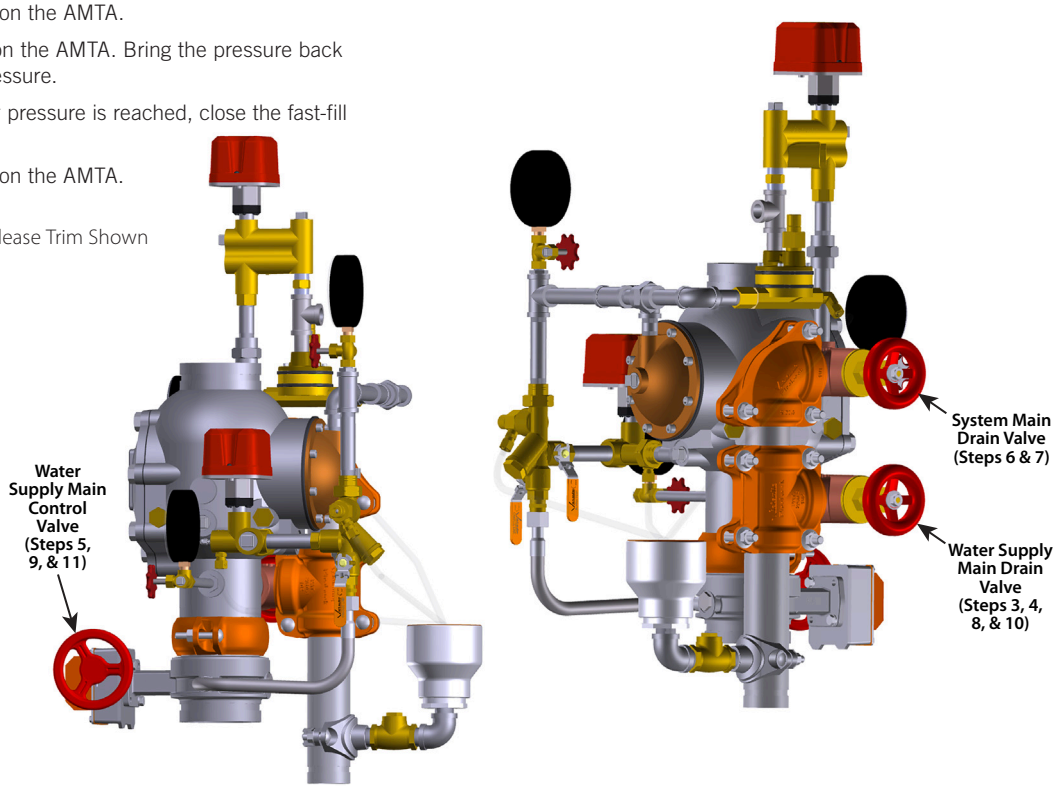
Failure to follow this instruction could result in property damage.

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

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

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

Single-Interlocked Pneumatic Release Trim Shown



LOW WATER ALARM TEST LPCB

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

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

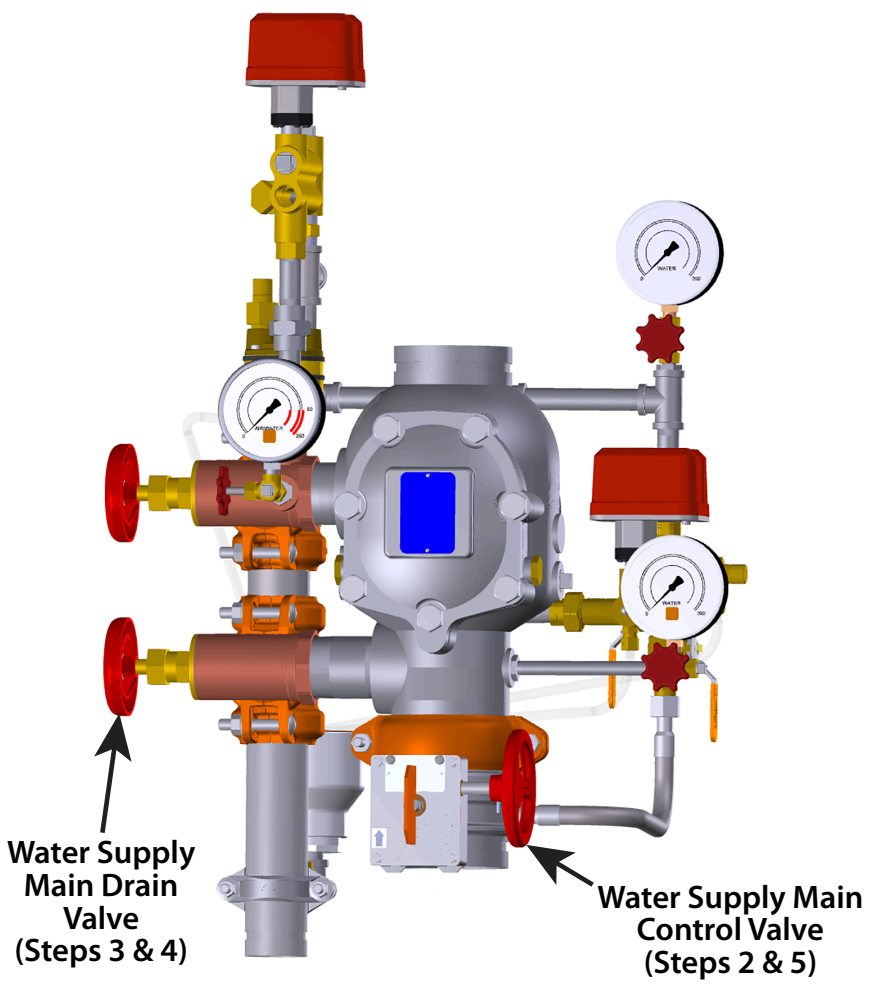
2a. Verify that the water pressure is above 1.4 Bar/20 psi.

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

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

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

Single-Interlocked Pneumatic Release Trim Shown

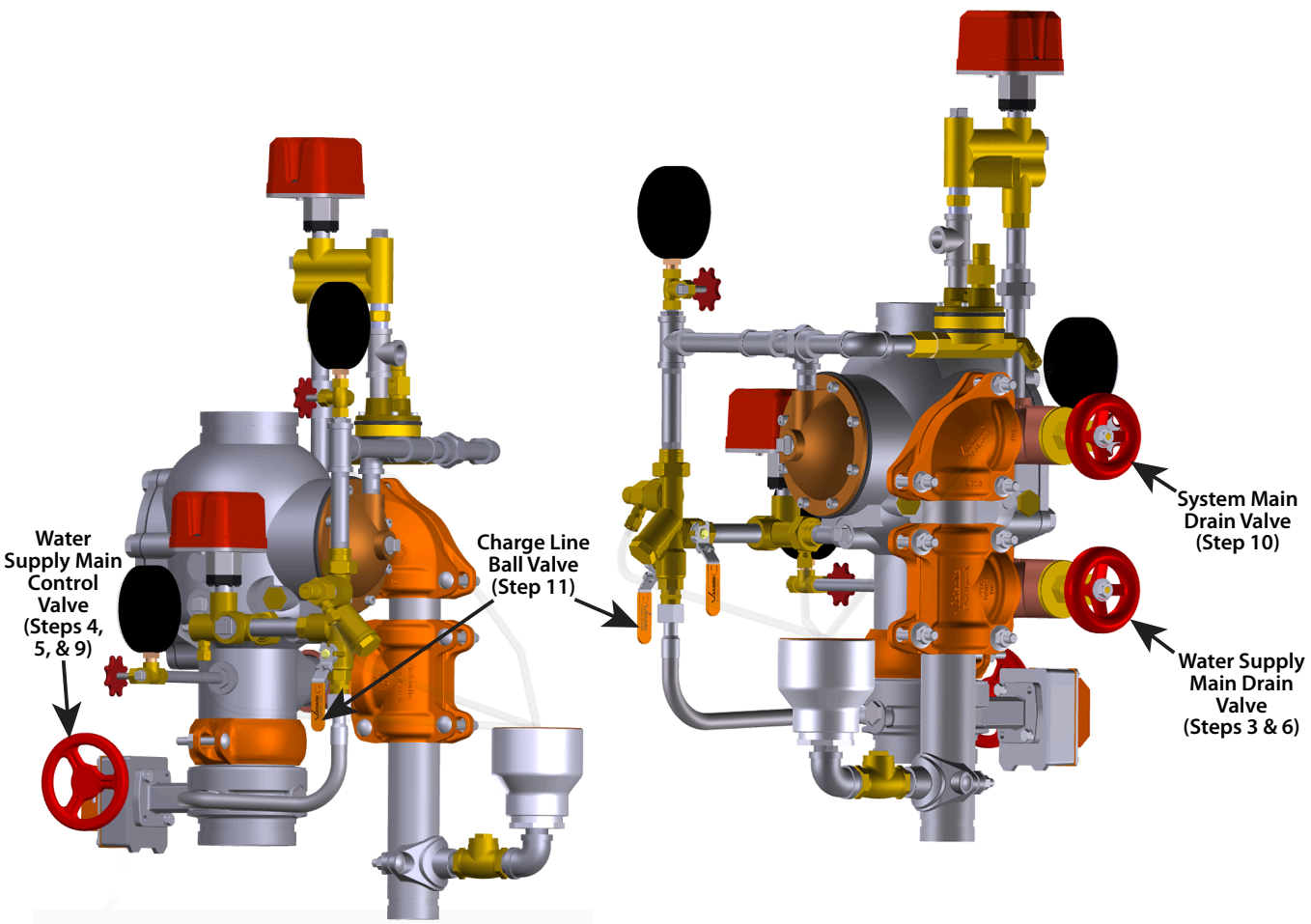


REQUIRED PARTIAL OPERATIONAL TRIP TEST

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

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

Single-Interlocked Pneumatic Release Trim Shown

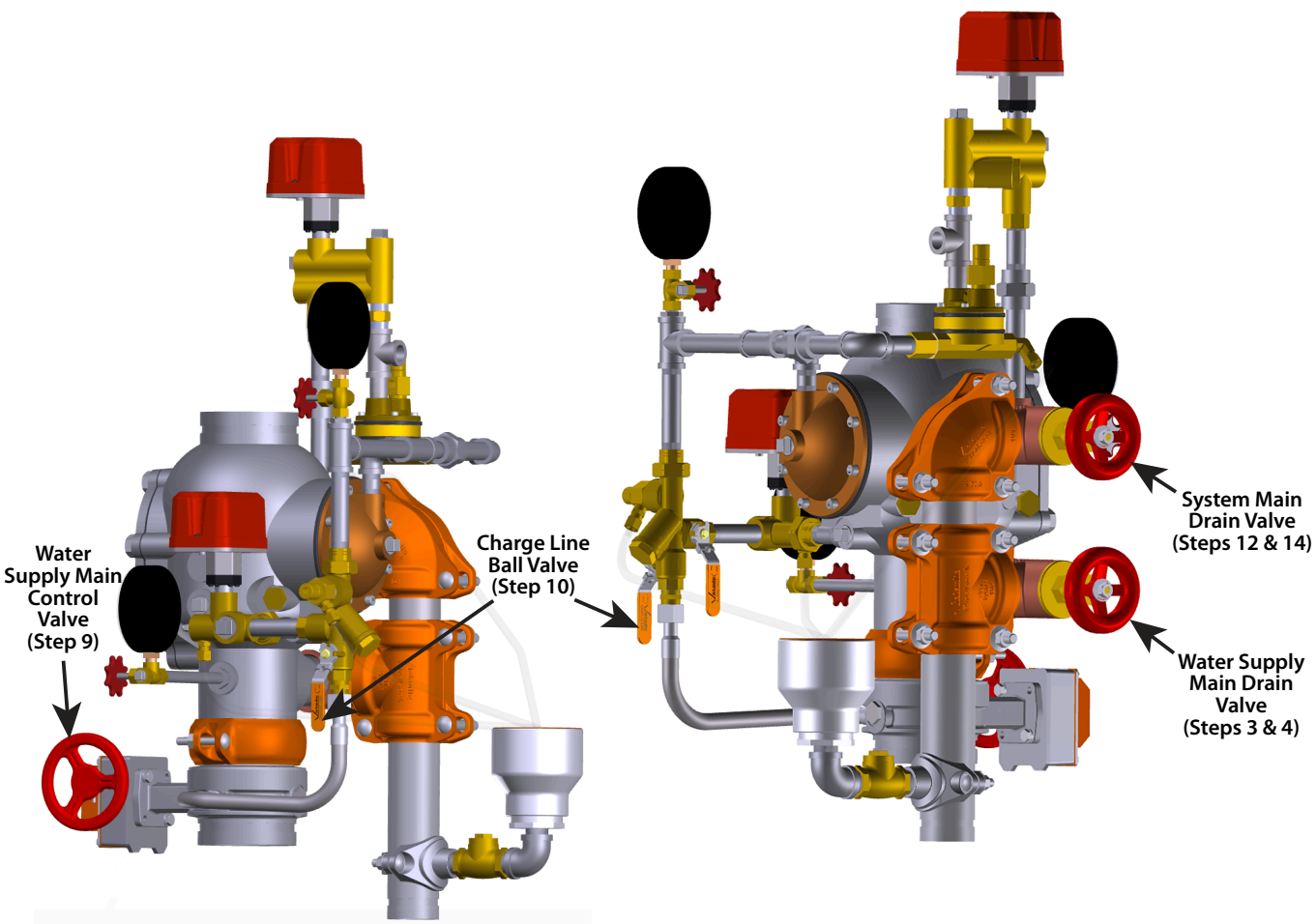


REQUIRED FULL OPERATIONAL TRIP TEST

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

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

Single-Interlocked Pneumatic Release Trim Shown



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SECTION V

• Required Internal Inspection

⚠ WARNING

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

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

REQUIRED INTERNAL INSPECTION

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

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

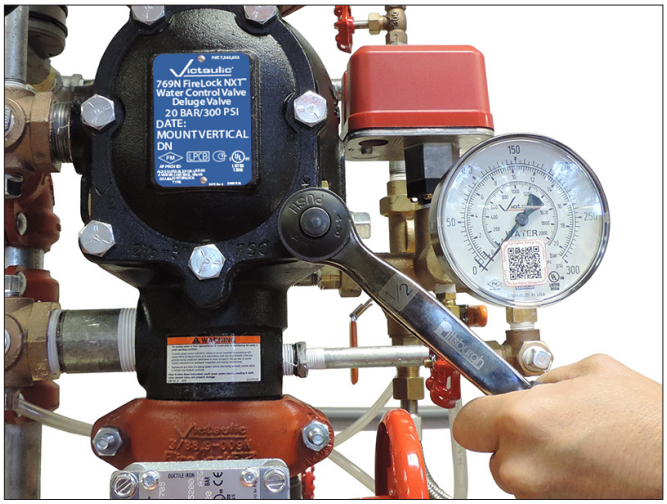
   NOTE: If the system has operated, open the remote system test valve (inspector's test connection) and any auxiliary drain valves.

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

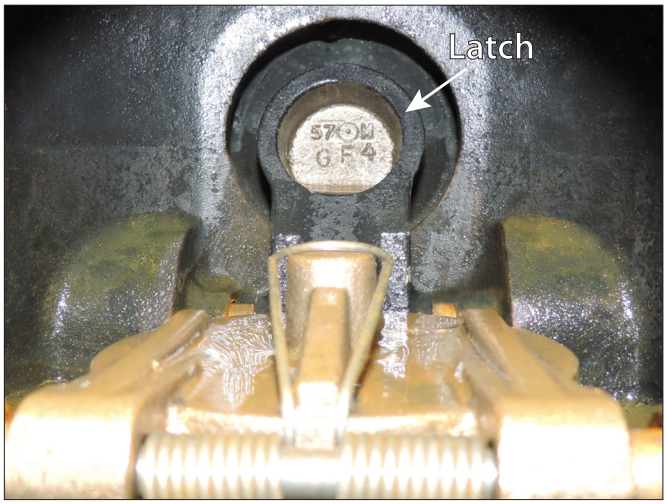
⚠ WARNING

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

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



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

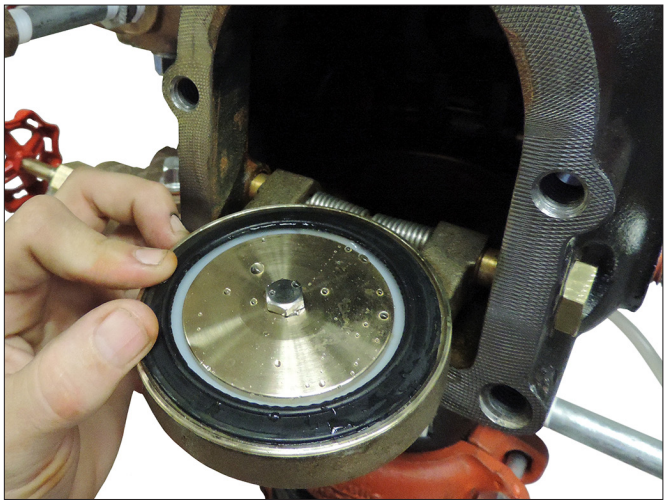


13. Push the latch back (toward the diaphragm).

⚠ CAUTION

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

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



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

SECTION VI

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

⚠ WARNING

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

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

REMOVING AND REPLACING THE CLAPPER SEAL

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

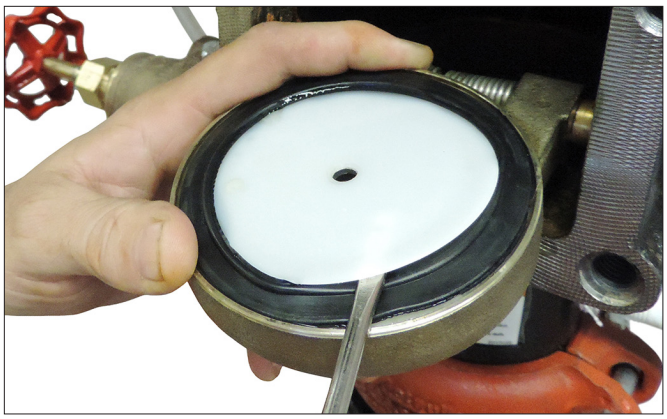
2. Remove the seal assembly bolt/bolt seal from the clapper seal.

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

⚠ CAUTION

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

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



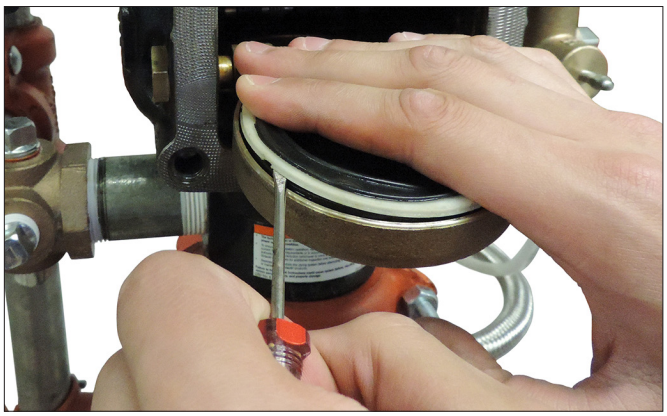
4. Pry the edge of the seal washer from inside the clapper seal, as shown above. **DO NOT PRY THE SEAL WASHER OUT FROM THE INNER HOLE.**

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

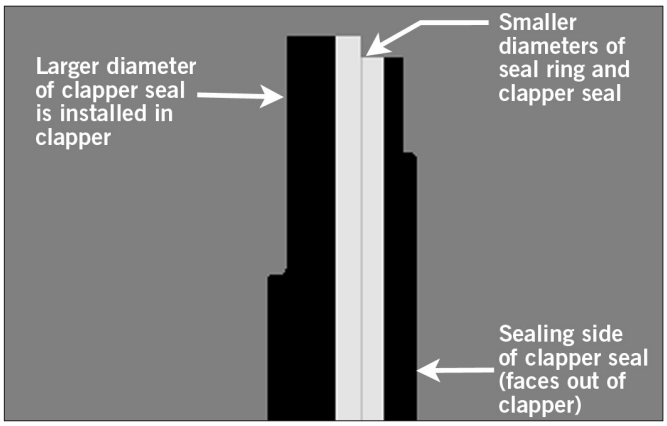
⚠ CAUTION

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

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



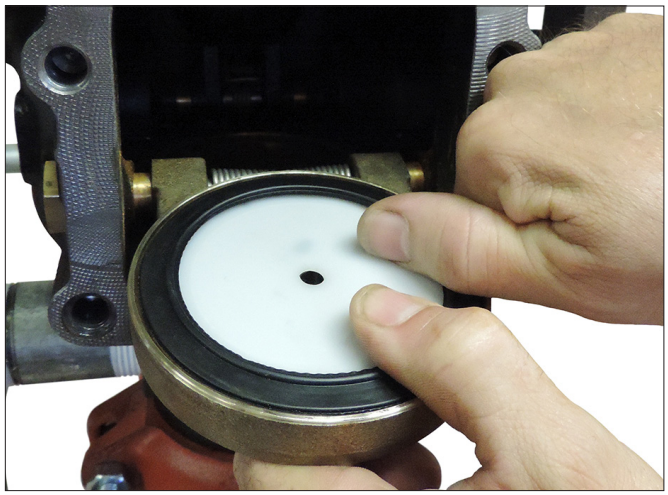
6. Pry the clapper seal, along with the seal ring, out of the clapper. Inspect the clapper seal. If the clapper seal is torn or worn, replace it with a new, Victaulic-supplied clapper seal. If replacing the clapper seal assembly with a new assembly, skip to step 7.



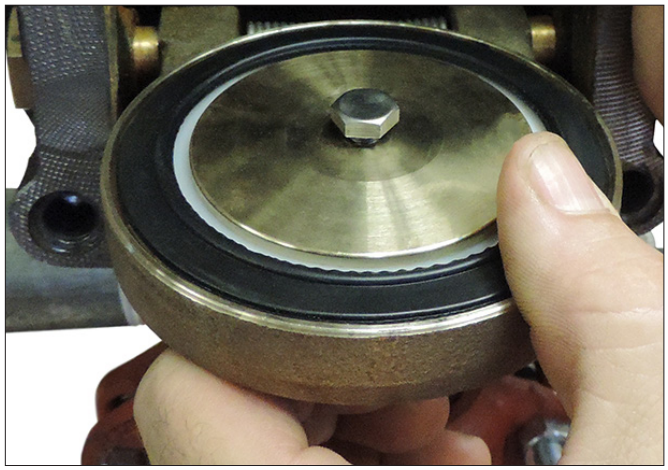
6a. If using the same clapper seal assembly and the seal ring was removed from the clapper seal in the previous step: Re-insert the seal ring carefully underneath the outer lip of the clapper seal. Ensure that the smaller diameter of the seal ring is toward the sealing surface of the clapper seal.

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

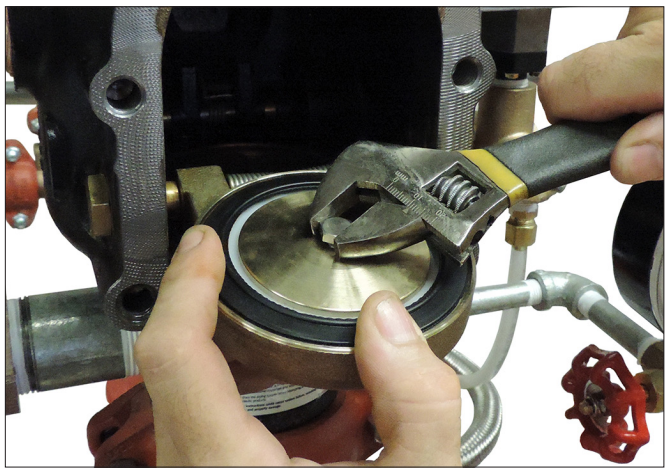
8. Remove any debris from the clapper. Inspect the clapper for damage that may affect the sealing capabilities of the new clapper seal. Contact Victaulic of the clapper requires replacement.



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



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



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

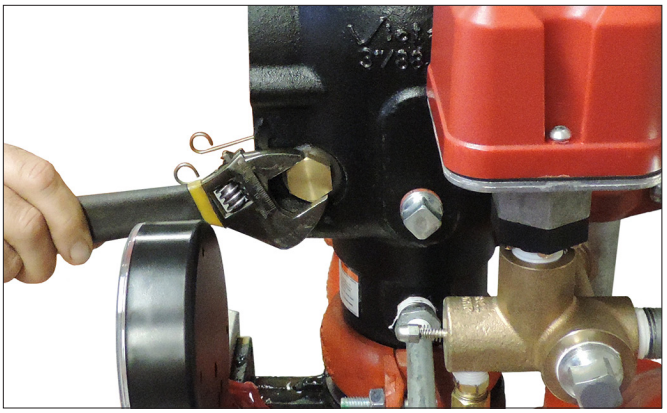
REQUIRED SEAL ASSEMBLY BOLT/BOLT SEAL TORQUES

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

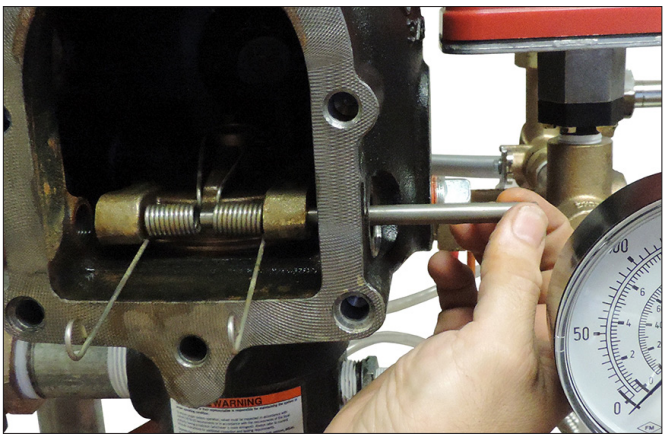
12. Replace the cover plate by following the “Installing the Cover Plate Gasket and Cover Plate” section.
13. Place the system back in service by following the “Resetting the System” section.

REMOVING AND REPLACING THE CLAPPER ASSEMBLY

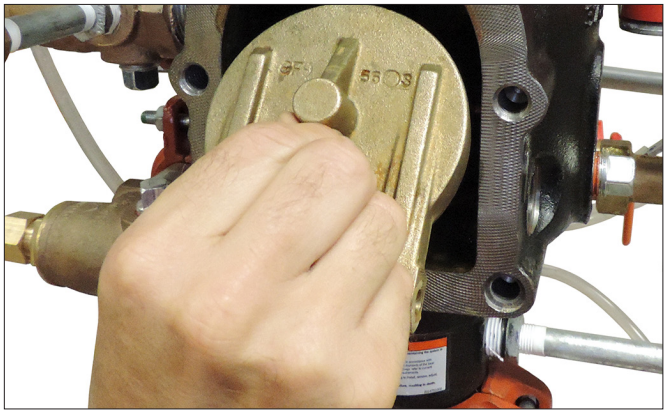
1. Perform steps 1 – 13 of the “Required Internal Inspection” section.



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



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

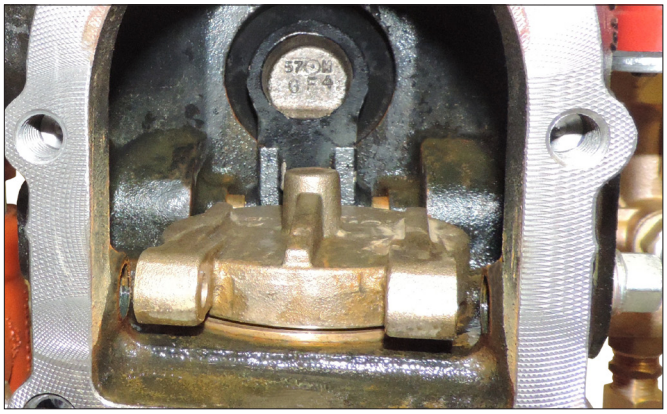


4. Remove the clapper assembly from the valve body seat ring. Clean the valve body seat ring.

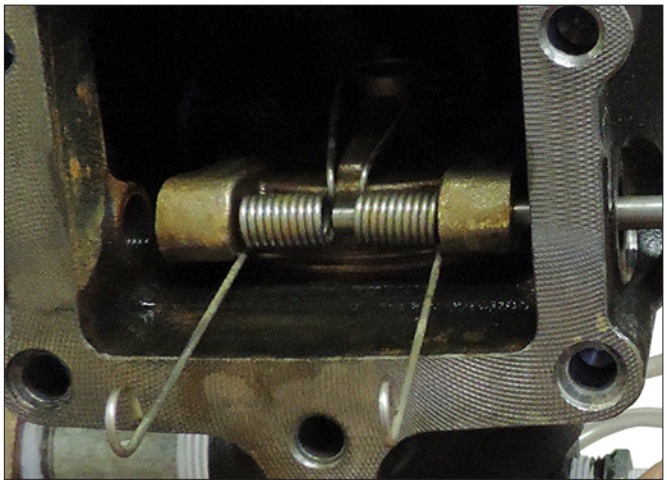
⚠ CAUTION

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

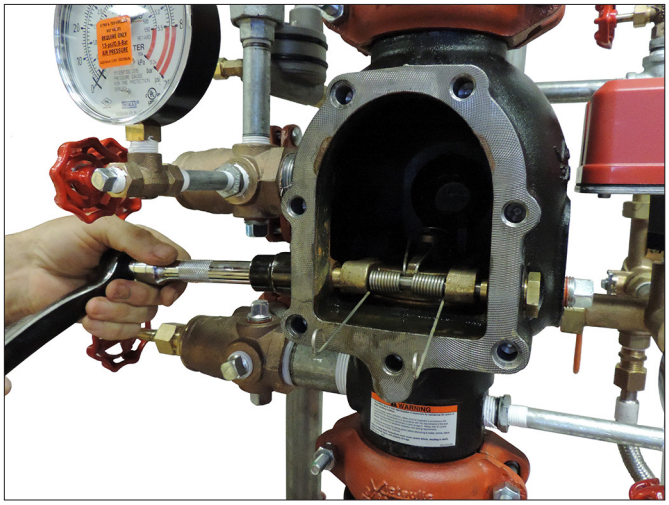
Failure to follow this instruction could cause improper valve operation, resulting in property damage.



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



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



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

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

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

9c. Check the clapper for freedom of movement.

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

INSTALLING THE COVER PLATE GASKET AND COVER PLATE

⚠ CAUTION

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

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

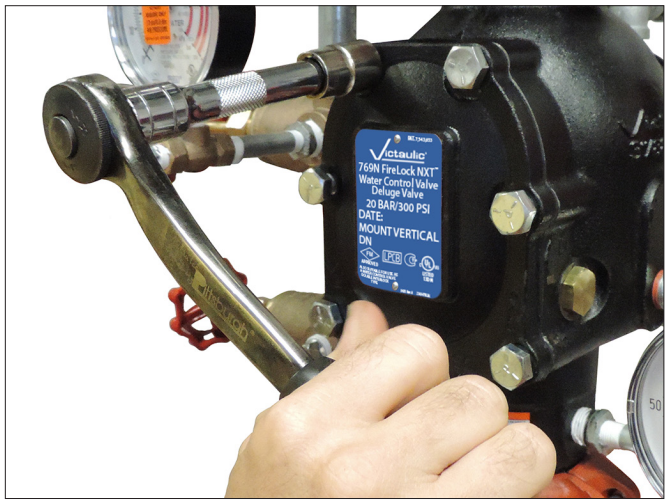
1. Verify that the cover plate gasket is in good condition. If the gasket is torn or worn, replace it with a new, Victaulic-supplied gasket.

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

⚠ CAUTION

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

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



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

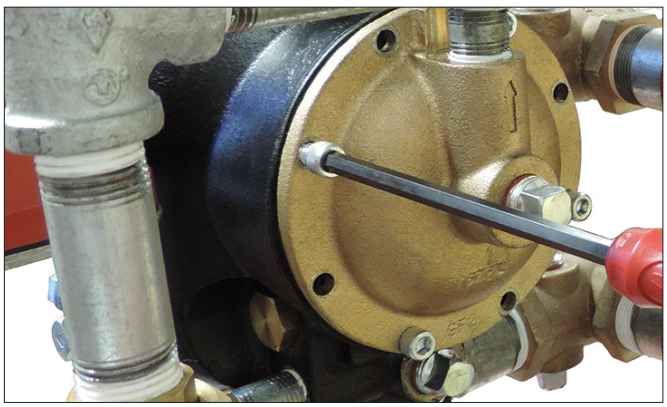
REQUIRED COVER PLATE BOLT TORQUES

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

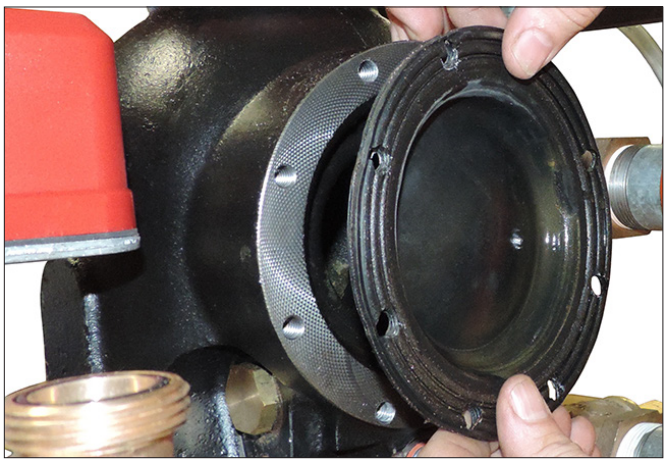
6. Place the system back in service by following the "Resetting the System" section.

REMOVING AND REPLACING THE DIAPHRAGM

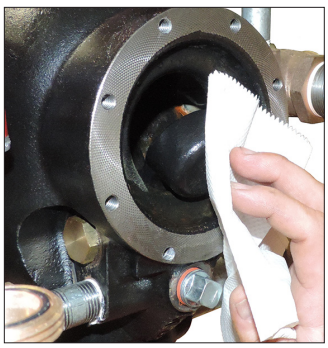
1. Remove the system from service by following steps 1 – 10 of the "Required Internal Inspection" section.
2. Break the unions that connect the trim to the diaphragm cover. Refer to the applicable trim drawing for details.



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



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



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

5a. Clean the inside of the diaphragm cover.

⚠ CAUTION

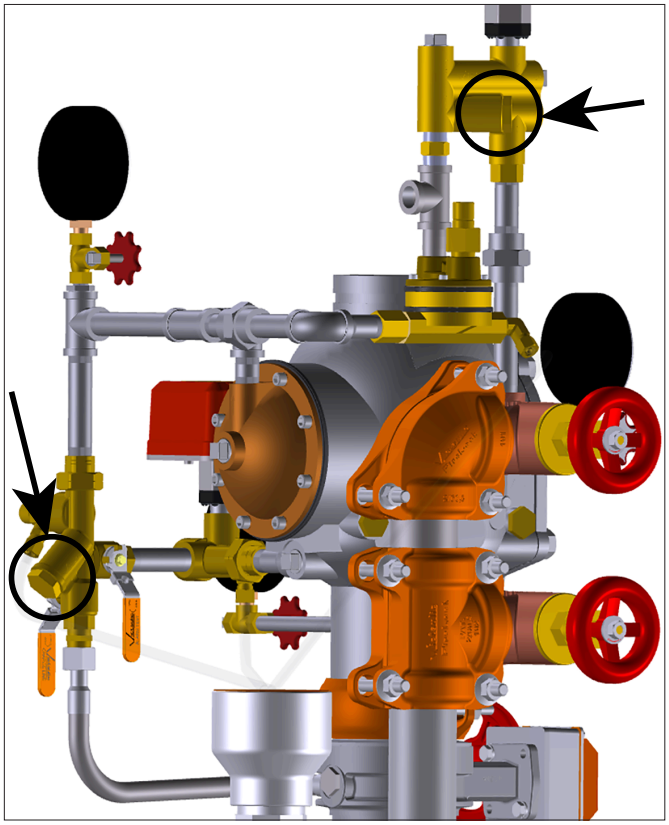
- **Use caution when installing a new diaphragm into the valve body.**

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

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

CLEANING THE CARTRIDGE IN THE AIR AND PRIMING MANIFOLD ASSEMBLIES

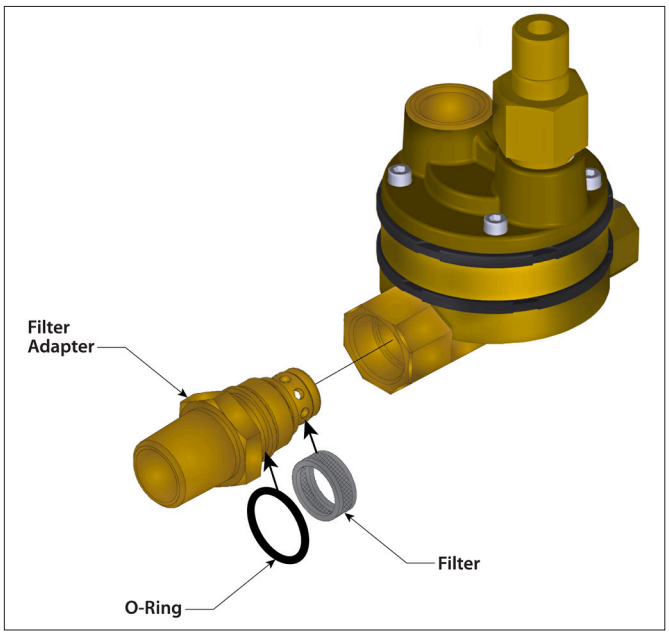
1. Remove the system from service by following steps 1 – 10 of the "Required Internal Inspection" section.



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

REPLACING THE FILTER IN SERIES 776 LOW-PRESSURE ACTUATORS

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



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

⚠ CAUTION

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

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

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

SECTION VII

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

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

TROUBLESHOOTING – SYSTEM

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

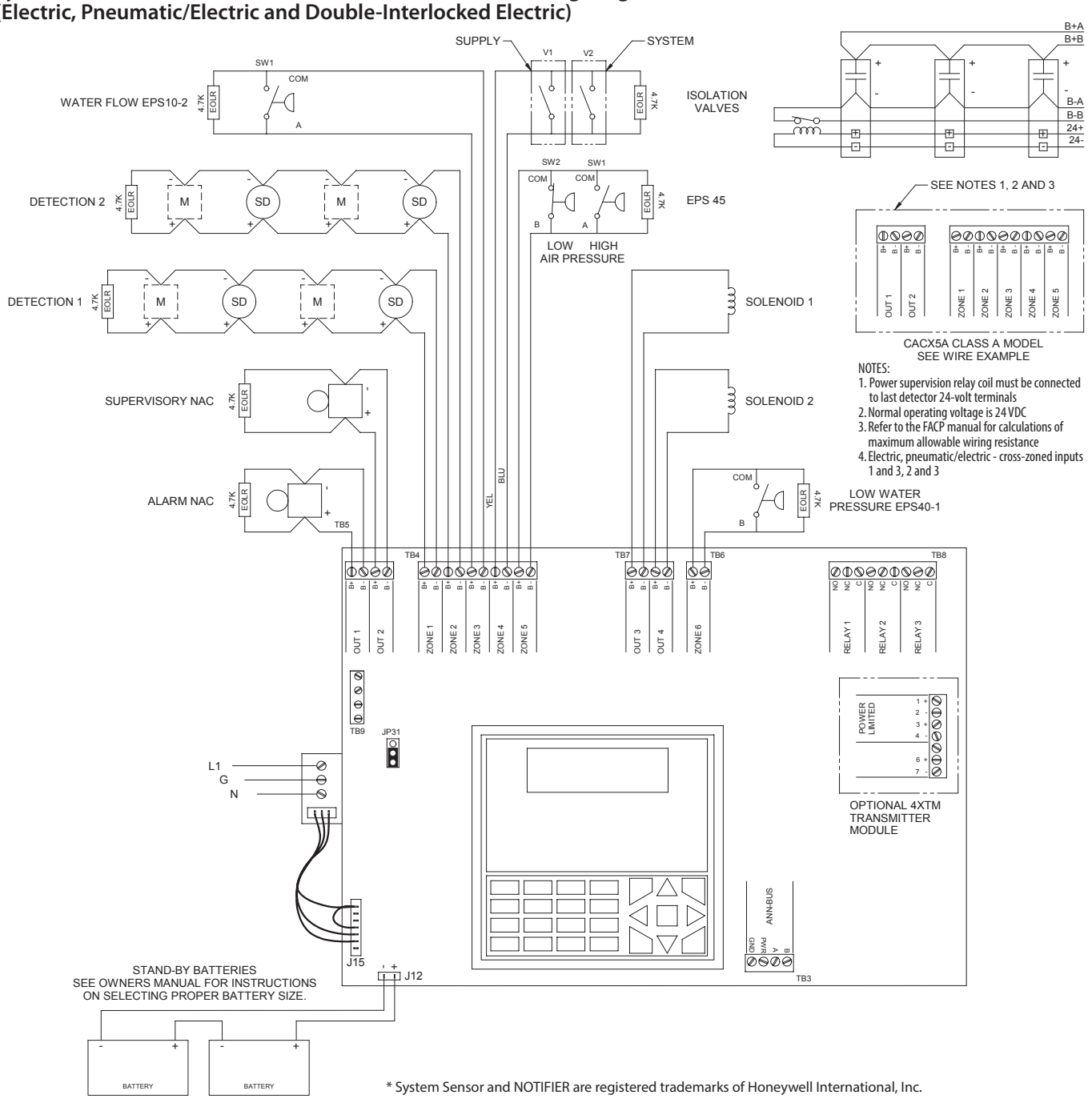
TROUBLESHOOTING – SERIES 776 LOW-PRESSURE ACTUATOR

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

TROUBLESHOOTING – SERIES 753-E SOLENOID VALVE

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

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



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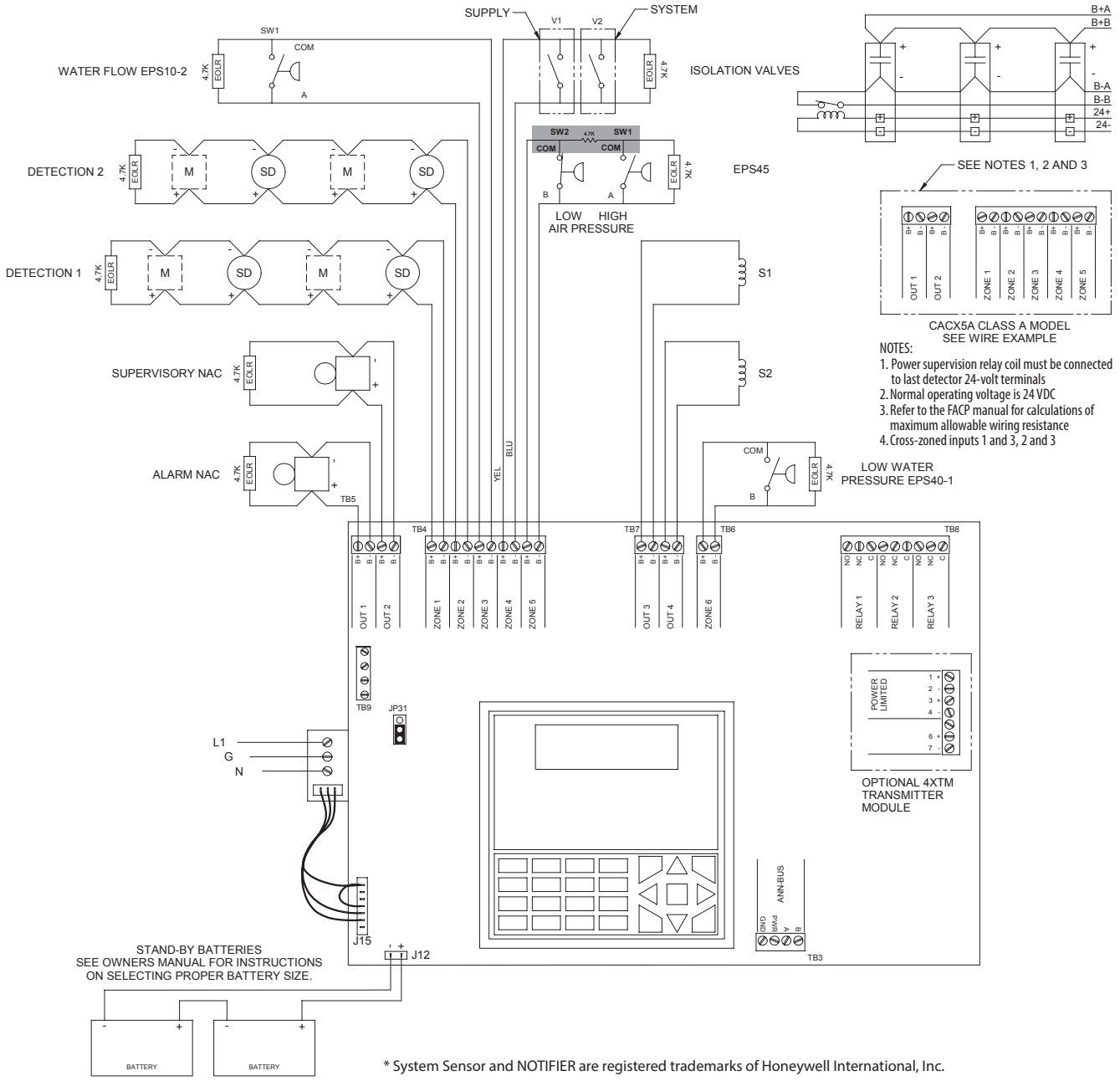
System Sensor* PDRP-2001 or NOTIFIER* RP-2001 Field Wiring Diagram (Double-Interlocked Electric-Pneumatic/Electric, Cross-Zoned with Low-Air Switch)



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

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

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

SYSTEM SETUP

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

Select Template 9

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

Make the Following Changes

Edit Zone 4

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

Edit Zone 5

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

1.2K Ohm Resistor Must be Placed

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

Edit Zone 6

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

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

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

Zone Selection

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

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DOUBLE KNOCK/CROSS ZONE DETECTION AND LOW AIR PRESSURE

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

Zone Selection-Z1+Z5=RELEASE

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

Zone Selection-Z2+Z5=RELEASE

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

INPUT/OUTPUT DIAGRAMS

DUAL OR SINGLE HAZARD

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

ELECTRIC-PNEUMATIC/ELECTRIC

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

CROSS ZONE/DOUBLE KNOCK SINGLE HAZARD

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

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

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

SECTION 3

General Air Products Manual

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

GENERAL AIR PRODUCTS

OL *Plus*
& OLT *Plus* Series

Riser and Tank Mounted Oilless Air Compressors

Installation, Operation and Maintenance Manual

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

version 2.3
07-2019

Table of Contents

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

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

Section 1 - Safety & Warnings

1.1 Safety Guidelines

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

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

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

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

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

1.2 General Information

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

1.3 General Safety Information

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

1.4 Safety Notes

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

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

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

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

Section 2 - Receiving

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

WARNING

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

Section 3 - Installation Location

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

Section 4 - Mounting

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

Section 5 - Lubrication

NOTICE

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

Section 6 - Piping

6.1 Piping Instructions

WARNING

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

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

NOTICE

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

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

NOTICE

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

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

WARNING

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

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

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

NOTICE

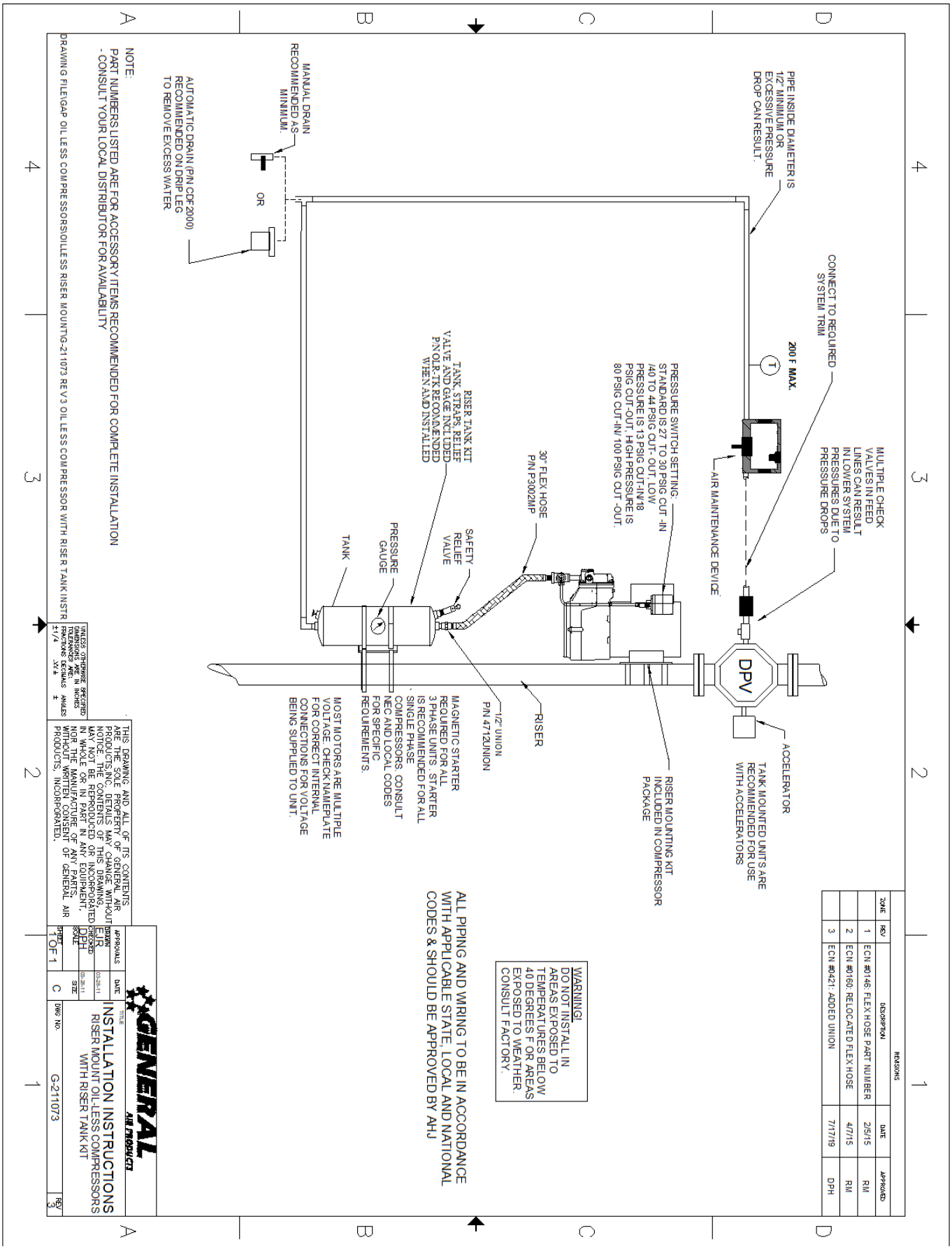
- Accumulation of condensed water in the system can cause corrosion of components and reduction of system capacity.

NOTICE

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

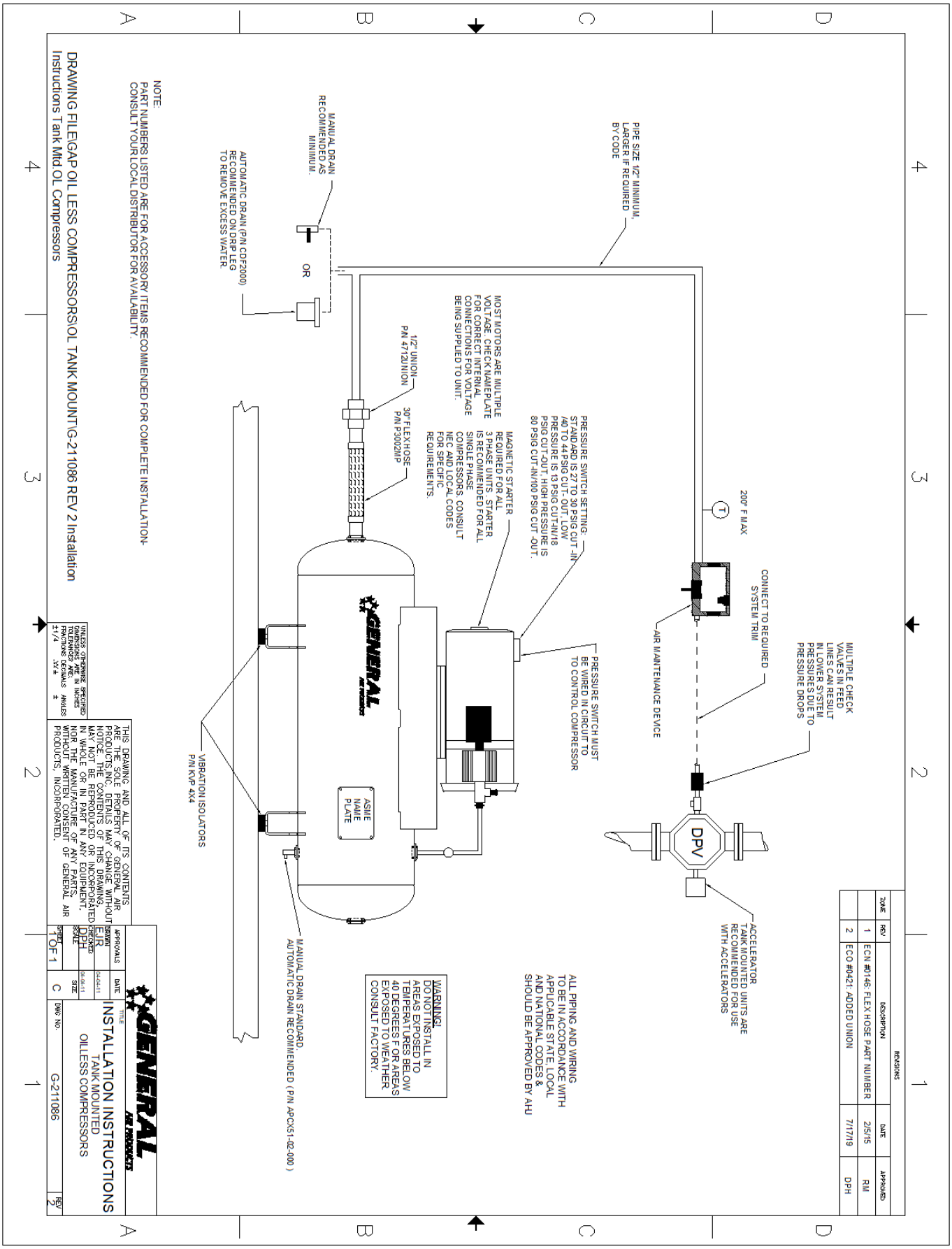
Section 6 - Piping

6.2 OL Plus Series Riser Mounted Oilless Air Compressor Installation Drawing



Section 6 - Piping

6.3 OLT Plus Series Tank Mounted Oilless Air Compressor Installation Drawing



Section 7 - Wiring

7.1 Wiring Instructions

WARNING

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

CAUTION

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

NOTICE

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

NOTICE

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

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

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

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

NOTICE

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

WARNING

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

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

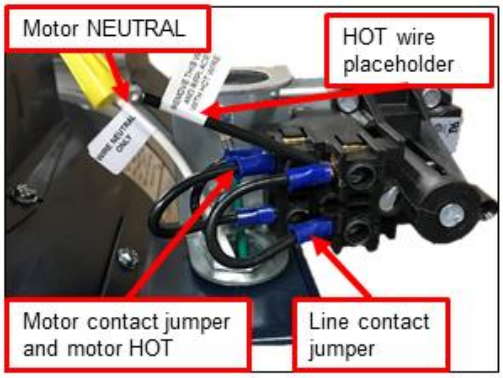
On three-phase compressors, the motor is not pre-wired to the pressure switch. Refer to the three phase wiring instruction drawing for recommended wiring. **A motor starter is required, for all three phase models, to protect the motor from overload conditions to meet NEC, NFPA70, Article 430. A motor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

NOTICE

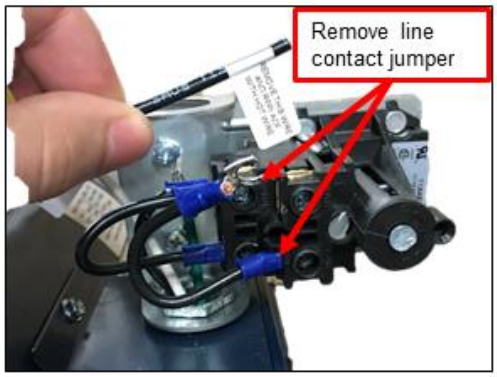
- Do not run two phases of a three phase supply through the pressure switch. Serious damage can result. Warranty is voided if connected this way.

Section 7 - Wiring

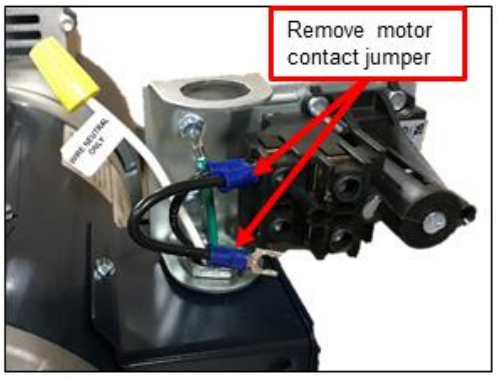
Convert Pressure Switch from 115V to 230V



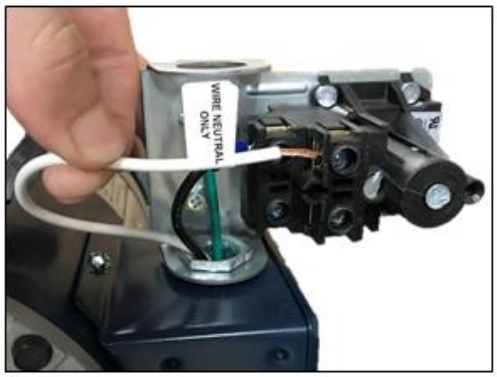
1. Identification of wires.



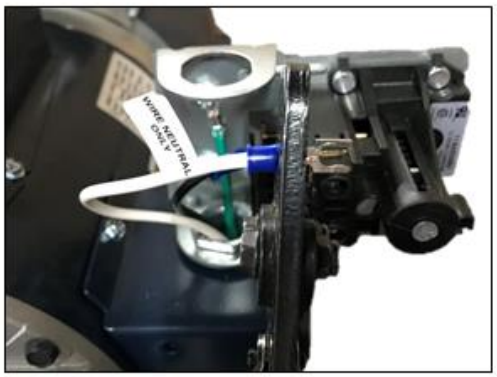
2. Remove line contact jumper and HOT wire placeholder.



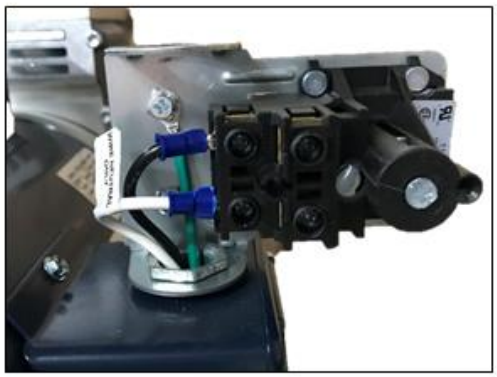
3. Remove motor contact jumper, leaving motor HOT in terminal. Retighten motor HOT wire in terminal.



4. Remove yellow wire nut from motor NEUTRAL.



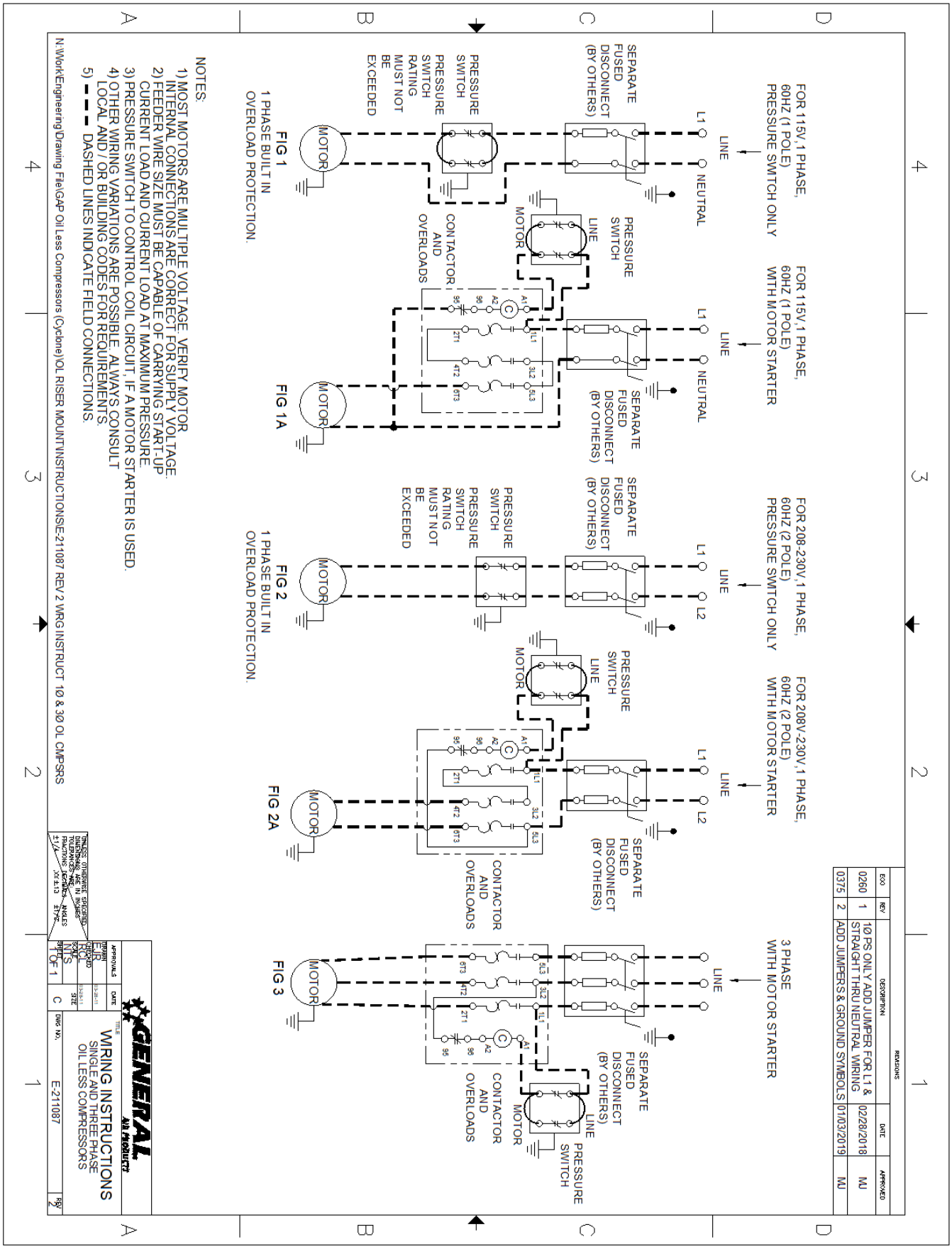
5. Crimp a spade connector onto NEUTRAL wire.



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

Section 7 - Wiring

7.2 Oilless Air Compressor Single & 3 Phase Wiring Drawing



Section 8 - Maintenance Instructions

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

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

Weekly:

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

Monthly:

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

Quarterly:

- Change filters

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

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

Section 9 - Troubleshooting Guide

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

Section 10 - Warranty Policy

GENERAL PROVISIONS & LIMITATIONS

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

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

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

WARRANTY PERIOD

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

COMPONENTS

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

LABOR TRANSPORTATION & INSPECTION

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

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

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

DISCLAIMER

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

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

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

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

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

PROMPT DISPOSITION & RETURNS POLICY

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

PRODUCT SUITABILITY

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

REV: 4/22/11

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SECTION 4

United Fire Systems UFS-710

NAMD-1 Instruction Sheet

INSTRUCTION SHEET

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

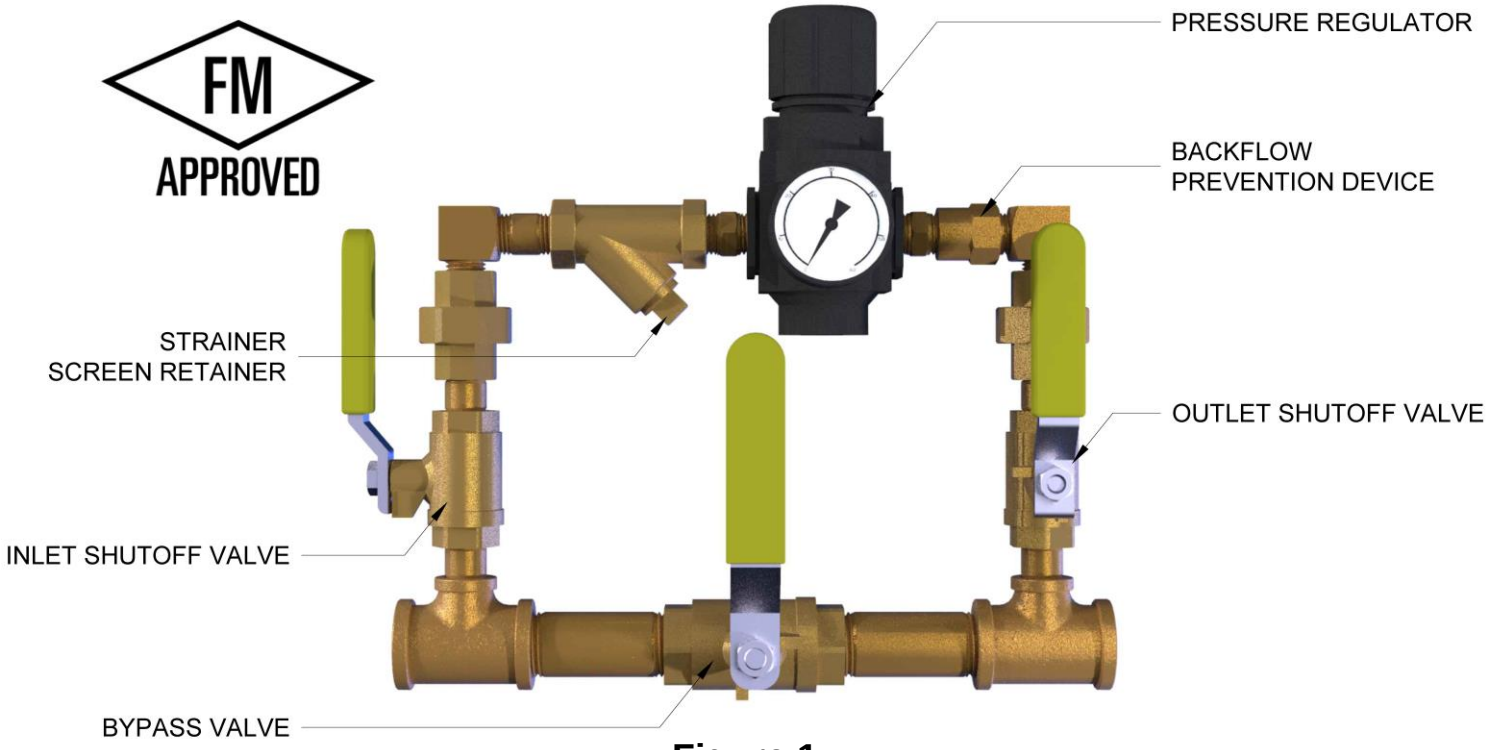

Figure 1

DESCRIPTION

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

SPECIFICATIONS

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

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INSTRUCTION SHEET

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

1. INSTALLATION INSTRUCTIONS – READ AND UNDERSTAND BEFORE INSTALLATION

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

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

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

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

2. COMMISSIONING

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

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

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

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

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2. COMMISSIONING (continued)

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

3. OPERATION

Table 1 – Valve Positions

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

4. INSPECTION AND MAINTENANCE

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

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

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

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

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4. INSPECTION AND MAINTENANCE (Continued)

4.2 Annual (Continued)

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

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SECTION 5

Potter Manual 5403550

PFC-4410-RC Control Panel Installation, Operation, and Instruction Manual

PFC-4410RC
Installation, Operation, and Instruction Manual

Releasing Panel for Water and Agent Extinguishing Systems

(All specifications subject to revision.)

POTTER
The Symbol of Protection

St. Louis, MO
(866) 956-0988
www.pottersignal.com

Manual #5403550 - Rev U
3/19

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WARRANTY INFORMATION

The essential purpose of any sale or contract for sale of any of the products listed in the POTTER catalog or price list is the furnishing of that product. It is expressly understood that in furnishing said product, POTTER does not agree to insure the Purchaser against any losses the Purchaser may incur, even if resulting from the malfunction of said product.

POTTER warrants that the equipment herein shall conform to said descriptions as to all affirmation of fact and shall be free from defects of manufacture, labeling and packaging for a period of one (1), one and one half (1.5), three (3), or five (5) year'(s), depending on the product, from the invoice date to the original purchaser, provided that representative samples are returned to POTTER for inspection. The product warranty period is stated on the exterior of the product package. Upon a determination by POTTER that a product is not as warranted, POTTER shall, at its exclusive option, replace or repair said defective product or parts thereof at its own expense except that Purchaser shall pay all shipping, insurance and similar charges incurred in connection with the replacement of the defective product or parts thereof. This Warranty is void in the case of abuse, misuse, abnormal usage, faulty installation or repair by unauthorized persons, or if for any other reason POTTER determines that said product is not operating properly as a result of causes other than defective manufacture, labeling or packaging.

The Aforesaid Warranty Is Expressly Made In Lieu Of Any Other Warranties, Expressed Or Implied, It Being Understood That All Such Other Warranties, Expressed Or Implied, Including The Warranties Of Merchantability And Fitness For Particular Purpose Are Hereby Expressly Excluded. In No Event Shall Potter Be Liable To Purchaser For Any Direct, Collateral, Incidental Or Consequential Damages In Connection With Purchaser's Use Of Any Of The Products Listed Herein, Or For Any Other Cause Whatsoever Relating To The Said Products. Neither Potter Nor Its Representatives Shall Be Liable To The Purchaser Or Anyone Else For Any Liability, Claim, Loss, Damage Or Expense Of Any Kind, Or Direct Collateral, Incidental Or Consequential Damages Relative To Or Arising From Or Caused Directly Or Indirectly By Said Products Or The Use Thereof Or Any Deficiency, Defect Or Inadequacy Of The Said Products. It Is Expressly Agreed That Purchaser's Exclusive Remedy For Any Cause Of Action Relating To The Purchase And/or Use Of Any Of The Products Listed Herein From Potter Shall Be For Damages, And Potter's Liability For Any And All Losses Or Damages Resulting From Any Cause Whatsoever, Including Negligence, Or Other Fault, Shall In No Event Exceed The Purchase Price Of The Product In Respect To Which The Claim Is Made, Or At The Election Of Potter, The Restoration Or Replacement Or Repair Of Such Product.

Potter Electric Signal Company, LLC
St. Louis, MO • (866) 956-0988

Contents

Installation Precautions

This is the safety alert system. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

WARNING

The detection and suppression system employing this release panel must be designed by people trained and competent in the design and layout of fire alarm and/or suppression systems for special hazard locations. The system shall be designed and installed in accordance with all local and national codes and ordinances as well as the approval of the Authority Having Jurisdiction. Only trained, qualified and competent individuals should install, program and/or service the PFC-4410RC. Competent people would be aware of these warnings, limitations, and requirements.

The abort circuit will not abort the release or stop the predischarge timer activated by zones programmed as MANUAL RELEASE. If it is desired to have the abort circuit stop the release activated from a manual release zone, program that zone as a DETECTION zone instead. Zones programmed as DETECTION containing manual release stations shall not be a part of a cross zone function and shall have a maximum 30 second pre-discharge time delay.

High voltage electrocution hazard. Do not handle live AC wiring or work on the device while AC power is active.

This manual is designed to help with the specification, installation, and programming of the PFC-4410RC Release Panel. It is imperative that this manual be completely read and understood before the installation or programming of the panel. Save this manual for future reference.

Zones programmed as MANUAL RELEASE will override any cross zoning features. If it is desired to not have a manual station override the cross zoning, program the zone as DETECTION and map accordingly. That detection zone shall have a maximum 30 second pre-discharge time delay

Per ULC requirements; if this equipment is running on battery power only, it will shut off and cease to operate when the battery voltage reaches approximately 19-20 volts.

CAUTION

Locate the panel and all system components in the following nominal environment:
* Temperature 32-120°F, Humidity 93% non-condensing.
* Verify that the wire sizes are adequate for all initiating, notification, and release circuits.
* Make certain the panel is properly grounded.
* Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible make all cable entries from the sides, bottom, or rear of the cabinet. Verify that they will not interfere with the batteries or other components.
* The panel and system must be tested and maintained in accordance with all local and national codes and ordinances.

NOTICE

Operating Instructions Form

Fill in the name, address and telephone number of the servicing agency on the instruction sheet provided and frame and place adjacent to control panel at eye level.

The following documentation shall be delivered to the owner or their representative upon final acceptance of the system:
An owners manual and installation instructions covering all system equipment.
Wiring diagrams
A detailed description of the programming and operating sequence of the system

⚠ WARNING

Fire Alarm System Limitations

Smoke detectors may not detect smoke when the smoke does not reach the detector. Such as smoke within walls, on the other side of walls, on other floors, behind closed doors, explosions, etc. Smoke detectors will not operate if they are not properly connected to the fire/release panel. The detectors and bases must be UL listed as being compatible with the panel. The detectors have a visible flashing light that indicates power is supplied to the detectors.

Notification appliances may not alert people if the people are not able to hear or see the appliances such as if they are in separate areas of the building or room.

A fire alarm/release panel will not operate without electrical power. The panel must have sufficient backup battery capability to power the panel for a specified amount of time in the event of an AC power failure. The batteries and release panel shall be tested and maintained in accordance with the testing and maintenance requirements of NFPA 72.
In order for emergency forces, (Fire departments, etc.), to respond to events associated with this panel, the panel must transmit trouble, supervisory, and alarm signals to a monitoring facility either directly or through a main building fire panel.

A problem in an audible or visual device may not be apparent when the panel is in a normal condition.

Design Guidelines

People trained in the design of special hazard systems shall determine the selection and placement of the initiating devices and notification appliances connected to the PFC-4410RC. This responsible party shall also be familiar with the premises being protected.

The equipment shall be installed in accordance with the manufacturers instructions, the applicable version of NFPA 72 and all local codes and ordinances. For systems employing cross zoning of two smoke detectors for the activation of the release circuit, this can include but is not limited to the installation of photoelectric and ionization types of detectors on separate zones. One of each type of detector on separate zones shall be installed in the coverage area selected for a single detector (not to exceed 0.7 times the linear spacing). The detectors would be installed in close proximity to each other.
The responsible party shall also determine the theory of operation regarding the programming sequence.

NOTICE TO ALL USERS, INSTALLERS, AHJ'S, AND OTHER INVOLVED PARTIES			
This product incorporates field programmable software. In order to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all, as indicated below.			
Program Feature or Option	Permitted in UL 864	Possible Settings	Settings Permitted in UL 864
NY Abort (Mode 3)	No	Mode 1, 2, 3, or 4	Modes 1 and 2
30-Second Abort (Mode 4)	No	Mode 1, 2, 3, or 4	
Abort on Pre-action or Deluge Systems	No	Supervisory, Tamper, Low air, High Air, Abort	Supervisory, Tamper, Low Air, High Air

General Description

The Model PFC-4410RC is a listed and approved, microprocessor based fire control/releasing panel. It is primarily designed for use as a releasing panel for pre-action and deluge, water based extinguishing systems or for agent extinguishing systems. The PFC-4410RC may also be used as a stand alone fire control panel. This unit complies with NFPA-12, NFPA-12A, NFPA-13, NFPA-15, NFPA -16, NFPA-17, NFPA-17A, NFPA-72, NFPA-750, NFPA-2001.
The PFC-4410RC complies with UL Standard 864, ULC S527, Canadian Electrical Code Part 1 C22.1., ULC S524, FM, CSFM, NYMEA and is RoHS Compliant.

System Features

• Four Class B Initiating zones. Each initiating zone can be set up for any of the following:

- **Alarm Zones**
- Detection alarm zone
- Waterflow
- Linear Heat Detection (700 ohms per zone.)
- Manual Release

- **Supervisory Zones**
- Supervisory
- Tamper
- Low Air Supervisory
- High Air
- Low Air Alarm

NOTE: Only zones programmed as Detection, Waterflow, Linear Heat, Manual Release, and Low Air Alarm can be mapped to outputs programed as release.

- Remote Annunciator Output for connection to RA-4410RC:
  - RS-485 communication, (2-wire shielded cable required)
  - Regulated 24VDC annunciator power

- Two Supervisory Zones, Class B. This zone can be set up for any of the following:
  - Supervisory
  - Tamper
  - Low Air Supervisory
  - High Air
  - * Abort (Supervisory zone 1 only)

  NOTE: * Abort on a water-based extinguishing system is not a UL Listed function.

- Four Class B Output circuits. Each output can be set up for any of the following:
  - Notification Appliance circuit, (First or Second alarm notification in chemical extinguishing mode)
  - Releasing circuit
  - Pulse Releasing circuit (called eAEROSOL, 1/16th sec on 15/16th sec off. Chemical mode only, will cycle 200 times before turning off)
  - Supervisory Bell circuit
  - Trouble Bell circuit

- One Abort Circuit (Available in Chemical Mode only) Programmable for four different operating modes
  - ULI – Stops the pre-discharge timer at 10 seconds
  - IRI – Abort must be activated before the second alarm is received
  - NYC (not UL listed) A one time operation that adds 90 seconds to the remaining predischarge time
  - * 30 Second Abort (stops or reverts the pre-discharge timer at 30 seconds)

  NOTE: * Not a UL Listed function

⚠ CAUTION

An eAEROSOL output shall only be used with Aerosol Generators (listed on page 90). Using a standard releasing circuit for an Aerosol Generator can prevent the Aerosol agent from being released.

⚠ CAUTION

Abort does not function and has no effect on panel operation from zones programmed as MANUAL RELEASE.

- Fifteen Standard Programs for water based systems or custom program capability
- Nine Standard Programs for Chemical based systems or custom program capability
- User selectable between Water Based or Chemical Extinguishing
- Releasing Zones can be set up for either normal or cross zoning operation
- Discharge time is user selectable for either 7, 8, 9, 10, 20 minutes or continuous in the custom program
- All circuits inherently power limited per NEC 760 and UL 864 Section 14.4
- Initiating Circuit Disable feature
- Output Disable feature*
- One-Man Walktest feature with automatic 30 minute restoration and releasing circuit disable
- Class B Abort circuit available in Chemical mode. Four Abort modes available
- Pre-Discharge timer from 0-60 seconds available in Chemical mode only
- Manual Release 0-30 seconds predischarge timer in Chemical Mode only

⚠ WARNING

*NFPA 72 prohibits the use of a software disconnect for RELEASE CIRCUITS. A physical means of disconnecting a RELEASE CIRCUIT shall be used, such as the Potter RCDS-1.

- Notification Appliance Circuits can be programmed to operate upon 1st or 2nd alarm in Chemical Mode for pre-discharge signal
- Diagnostic Indicators
- Signal Silence button
- Manual event scroll buttons
- Automatic resound of silenced Alarm/Trouble/Supervisory signals after 24 hours
- Built-in Trouble buzzer
- Common Contacts for Alarm/Trouble/Supervisory/Waterflow
- 32 Character Liquid Crystal Display (LCD)
- 34 LED display
- User Generated Banner Message
- User Generated Zone Labeling
- 24 or 90 hour Battery Standby available (Where required by FM and Others)
- 24 Hour Clock
- Password Protection
- Remote annunciator output
- 4-Wire resettable smoke detector power

Options *See Appendix B of the manual for product data sheets.*

1. CAM - Module to convert one Class B Indicating Appliance Circuit to one Class A circuit.
2. CA2Z - Module to convert two Class B Initiating Device Circuits to two Class A circuits.
3. ARM-1 - Module to provide non-supervised 4PDT Relay designed to be activated by 24VDC Indicating and/or Releasing, polarity reversing circuits.
4. ARM-2 - Module to provide two Form C contacts activated by Indicating or Releasing, polarity reversing circuits.
5. ARM-44 - Module to provide 8 Form C contacts activated by corresponding initiating zones and outputs. Contact manufacture for data sheet 5401202.
6. RA-4410RC – Remote annunciator provides 34 LED's for each zone in alarm supervisory or trouble, each output activated or in trouble, Power On, Power trouble, System trouble, Earth fault, Supervisory, Supervisory trouble, Alarm, Signal Silence and Pre-discharge/Discharging. The annunciator also has a lamp test switch. Contact manufacture for data sheet 5401175.
7. Abort switch. Contact manufacture for data sheet 5401136.
8. RCDS-1 - Releasing Circuit Disable Switch Contact manufacture for data sheet 5401214.

Ordering Information

Model No.	Description	Stock No.
RA-4410RC	Remote annunciator	3006400
BB-RA-44R	Surface mount back box for RA-4410RC	3006401
EOLP-R	End of Line Plate f/Resistor	3002182
EOLP-D	End of Line Plate f/Diode Assy	3002181
P32-1T	Manual release station	1000447
	Abort Switch-Red	3001000
	Abort Switch-Blue	3001004
PFC-TW	Bezel for semi-flush mounting (white)	5090157
PFC-TR	Bezel for semi-flush mounting (red)	5090155
BT80	Battery, for 24 hour standby, 12V, 8.0AH (2 req'd)	5130084
BT120	Battery, for 90 hour standby, 12V, 18.0AH (2 req'd)	5130086
CA2Z	2-Zone Class A initiating module	3006013
CAM	Class A indicating circuit module	3005300
ARM-1	Auxiliary Relay Module 4 Pole	3004726
ARM-2	Auxiliary Relay Module	3004725
ARM-44	8 Relay Module	3006221
RCDS-1	Releasing Circuit Disable Switch	3001002
Spare or Replacement Parts		
EOL Resistor		5080593
EOL Resistor and Diode Assembly for releasing circuit		3005012
EOL Resistor with 6" wire leads		3005013
eMatch Protection Assembly for eAEROSOL circuit		3005014
Main Circuit Board Module		3006230

⚠ WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Specifications

PFC-4410RC
Type - 18 gauge sheet steel with hinged, removable, locked door
Size - 18 1/2" x 14 1/4" x 4 3/4"
Finish - Off-white or red cabinet with red on black logo.
Knockouts - 1/2" and 3/4", one of each on left side, two 3/4" and one 1/2" on right side, four 1/2", two 3/4" on top, and two 1/2" and one 3/4" on the back
Option - Bezel for semi-flush mounting

PFC-4410RC Visual Indicators

LED Indicators (red = alarm)
32 Character Alpha-Numeric Liquid Crystal Display (LCD)

LCD

A 2 line 32 character alpha-numeric liquid crystal display shows the condition, status and circuit for all Alarm, Supervisory and Trouble conditions.

CONDITION	STATUS	CIRCUIT
Alarm	Silenced	<user Defined Message> (Up To 10 Characters)
Trouble	Disabled	Output #1
Supervisory	Acknowledged	Output #2
Tamper		Output #3
Low Air		Output #4
High Air		Battery
Aborted		A.C.
Pre-discharging		Supervisory
Releasing		Zone #1
Released		Zone #2
		Zone #3
		Zone #4
		Ground

PFC-4410RC Visual Indicators

In accordance with ULC S527 option B:
LED Annunciator Module

Red LED's: Initiating Device Circuits Active (4),
Notification/Release Circuits Active (4)
Pre-Discharge/Discharge
Common Alarm (1)

Green LED: Power on

Yellow LED's: Initiating Device Circuits Troubles (4),
Output Circuits Troubles (4)
Supervisory Initiating Zone (4)
Supervisory Bell Output Active (4)
Supervisory 1/Abort (1) each: , Supervisory 2, Power Trouble, Supervisory Abort Trouble, System Trouble, Earth Fault, Signal Silenced

CONDITION	STATUS	LED State
Trouble	Non-Silenced	Flashing
Trouble	Silenced	Steady ON
Alarm	Non-Silenced	Flashing
Alarm	Silenced	Steady ON
Supervisory	Non-Silenced	Flashing
Supervisory	Silenced	Steady ON
Pre-discharge		Flashing
Discharging		Steady ON

Control Buttons

- Alarm Signal Activation - Simultaneously press SCROLL-UP and SIGNAL SILENCE to sound or re-sound the Alarm Indicators.
- Releasing Service Signal Silence - Simultaneously press SCROLL-DOWN and SIGNAL SILENCE to Silence Outputs designated as 2nd Alarm.
- Signal Silence - Momentary, silences signaling circuits, (except those activated by zones programmed as WATERFLOW)
- System Reset - Momentary, resets all alarm circuits if condition has been corrected, removes power from initiating device circuits.
- Scroll Up - Scrolls LCD display to most recent events
- Scroll Down - Scrolls LCD display to previous events

NOTE: TBL/SUP ACKNOWLEDGE is accomplished by scrolling through all events.

Circuit Parameters (All voltages regulated DC) - Initiating Device Circuits

Initiating Device Zones: For connection of dry contact initiating devices and compatible 2 wire smoke detectors. (All values nominal)

- 4 Class B (Class A module available)
- Power limited, current limited to protect 2 wire smoke detectors
- Maximum 2 wire 24VDC smoke detector load per zone - 2.5 mA (Use only detectors that are listed in compatibility list.)
- Maximum Line resistance - 100 ohms (Except linear heat detection cable, 700 ohms per zone)
- End-of-Line Resistance - 5.1K ohm
- Normal standby current - approximately 4.0 mA
- Standby voltage - 25VDC maximum, 13.4 minimum
- Maximum short circuit current - approximately 36mA
- Maximum Impedance for Alarm - 1400 ohms
- Normal supervisory current - approximately 4mA
- Low current trouble activation - approximately 3.3mA
- Alarm activation current - approximately 10mA
- Ripple voltage - .4VDC
- Maximum operating voltage range: 22.5 - 25.9VDC
- Frequency - continuous

Dedicated Supervisory Zone

- For dry contact supervisory devices such as tamper, low air, or high air switches
- 2 Class B circuit, latching or non-latching
- Power limited, current limited
- End-of-Line resistance - 5.1K ohms
- Ripple Voltage - .1VDC
- Frequency - continuous
- Maximum voltage - 25VDC
- Maximum short circuit current - approximately 36mA
- Maximum line resistance - 100 ohms
- Normal supervisory current - approximately 4mA
- Low current trouble activation - approximately 3.3mA
- Supervisory current condition - approximately 10mA

Notification/Release Circuits

The indicating circuits of the PFC-4410RC are Non-coded. This allows the use of visual and audible appliances on the same circuit. If temporal notification appliances are required for evacuation, selectable tone appliances such as the Potter EH24 horn or HS24 Series strobe/horns or a temporal module such as Potter AVSM or equivalents shall be used.

The notification outputs do not provide synchronization. The notification appliances shall be compatible with the sync module selected. The sync' module shall be installed as per manufacturers instructions. Synchronization is limited to only one circuit and not between circuits. Systems intended for the release of Halon 1301 as described in NFPA 12A, or clean agents as described in NFPA 2001, shall have provision for a pre-discharge notification circuit. If the signal is required to be separate and/or distinct from the evacuation signal, two notification circuits are required. One shall be programmed as FIRST ALARM. It will provide a steady output upon activation of any initiating zone programmed as an alarm zone. This is the evacuation signal. If a temporal signal is required, notification appliances such as Potter model EH24 or others that can produce a temporal tone shall be used. This allows the use of strobes and horns on the same circuit. The other notification circuit shall be programmed as SECOND ALARM. It will provide a steady output upon activation of a second initiating zone programmed as an alarm zone. This is when

the pre-discharge timer would start and would be the pre-discharge signal. If a temporal or other type of signal is required, notification appliances such as Potter model EH24 or equivalent shall be used. This allows the use of strobes and horns on the same circuit. If a separate signal for discharge were required, a third notification circuit would be used that would be programmed to operate whenever the release circuit is activated.

Zones programmed as MANUAL RELEASE will activate outputs programmed as SECOND ALARM, even if the MANUAL RELEASE zone is the first alarm zone activated. SECOND ALARM is intended to be used as a pre-discharge signal for cross zone applications. Refer to page 52 for a complete description of first and second alarm requirements and operation.

- 4 Class B (Class A module available for notification)
- Reverse polarity upon activation
- Power limited, Current limited
- Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, rated 1 Amp each, 2.5 Amps total for all 4 circuits.
- End-of-Line-Resistor - 5.1k ohms
- Frequency - continuous
- Maximum voltage - 27VDC
- Ripple voltage - .3VDC
- Maximum impedance: 3 divided by NAC current draw
- Maximum resistance for outputs programmed as RELEASING: 1 divided by the current draw of the solenoid when activated
- Normal standby supervisory current - approximately .38mA
- Low current trouble activation - .11mA
- High current trouble activation - .63mA

Release Abort Circuit

- Available chemical mode only
- 1 momentary non-latching Class B circuit
- Power limited, current limited
- Maximum loop resistance - 100 ohms
- End-of-Line-resistance - 5.1k ohms
- Frequency - continuous
- Normal supervisory current - approximately 4mA
- Low current trouble activation - approximately 3.3mA
- Abort current condition - approximately 10mA
- Maximum voltage - 23VDC

NOTE: Mode 3 is not UL Listed

Mode 1 – (ULI) Activation of the abort circuit stops the pre-discharge timer at 10 seconds. If there is less than 10 seconds remaining, the time goes back to 10 seconds. Releasing the abort switch starts the timer at 10 seconds.

Mode 2 – (IRI) Operates the same as the ULI mode except the abort circuit only functions if the abort button is pressed before the second alarm is received by the panel. The panel must be programmed for cross zoning for the IRI mode to function.

Mode 3 – (NYC) This mode is not UL listed. Activation of the abort circuit during the pre-discharge countdown adds 90 seconds to the original pre-discharge time. This is a one-time feature. Repeated pressing of the abort button has no effect. The pre-discharge timer resumes when the abort button is released.

Mode 4 – (30-Second Abort) This mode is not UL listed. Activation of the abort circuit stops the pre-discharge timer at 30 seconds. If there is less than 30 seconds remaining, the timer goes back to 30 seconds. Releasing the abort switch starts the timer at 30 seconds.

⚠ CAUTION

Zones programmed as Manual Release cannot be aborted. If it is necessary to abort a manual station zone, program that zone as Detection. Zones programmed as DETECTION containing manual release stations shall not be a part of a cross zone function and shall have a maximum 30 second pre-discharge time delay.

If the pre-discharge timer is set at 0 the abort circuit will not stop the release circuit.

NFPA 12 prohibits the use of abort circuits on Suppression Systems employing carbon dioxide.

Low/Missing Battery

Causes battery and system trouble if battery falls below 22 volts. Battery circuit is fused and reverse polarity protection is provided.

Input Power

- Universal Input 120VAC, (60 Hz, 165VA) or 220VAC, (50/60 Hz, 185VA) 15 Amp Branch Line over current protection required
- Power On indicator on LED annunciator module goes off on AC power loss (supervised)
- System trouble is also generated if voltage drops below 102V
- Supervised

Backup Power Requirements
- PFC-4410RC - Standby 121 mA, alarm 274 mA at 24VDC, supervised

Service Use
NFPA 12 – Carbon Dioxide systems
NFPA 12A – Halon 1301 fire systems
NFPA 13 - Automatic Sprinkler
NFPA 15 - Water Spray Fixed System
NFPA 16 - Foam Water Sprinkler and Foam Water Spray
NFPA 17 - Dry Chemical
NFPA 17A - Wet Chemical
NFPA 72 - National Fire Alarm Code
- Local
- Remote Station (protected premise unit)
- Central Station (protected premise unit)

NFPA 750 - Water Mist
NFPA 2001 - Clean Agent Fire Extinguishing System

Listings and Approvals
PFC-4410RC - UL Standard 864, ULC Standard S527, FM, CSFM, NYMEA, CE Marked and RoHS Compliant.

Terminals
- All terminals capable of #22 - #14 AWG wire
- All terminations have transient protection
- All four initiating device circuit terminals capable of handling linear heat detection.

Relay Outputs
- Common system alarm contacts SPDT rated 3 Amps, 30VDC resistive
- Common supervisory contacts SPST, N.O. rated 3 Amps, 30VDC resistive
- Common system trouble contacts SPDT rated 3 Amps, 30VDC resistive
- Common waterflow contacts, SPST, N.O. rated 3 Amps, 30VDC resistive
- Circuits connected to relays should be connected within the same room\

Auxiliary Power
- Auxiliary Power - 24VDC Special Application. Rated 200 mA max. Power limited, current limited, non-supervised
- Resettable for 4-wire smoke detectors, see Annex A. Not to be used with CA2Z for 4-wire smoke detectors unless approved by local AHJ.

Annunciator Connection
- Auxiliary Power - 24VDC regulated. Rated 200 mA max. Power limited, current limited, supervised for RA-4410RC Annunciator
- RS-485 For connection to RA-4410RC remote annunciator
- Maximum 2000' with 22 AWG, 4000' with 20 AWG wire

Optional Accessories
CA2Z MODULE (Class A initiating device circuit):
Converts two Class B initiating device circuits to two Class A circuits. Not to be used for 4-wire smoke detectors unless approved by local AHJ.

CAM Module (Class A Notification Appliance Circuit):
Converts indicating appliance circuit from Class B to Class A. One model CAM (Class A Module) is required for each circuit. (Do not use this on an output programmed as “Trouble Bell”.)

ARM-1/ARM-2 Module (Auxiliary Relay Module)
Activated by 24VDC Indicating and/or Releasing, polarity reversing circuits. The module provides a non-supervised DPDT Relay that can be used for fan shutdown, door release, elevator recall, etc.

RA-4410RC (Remote Annunciator)
Connects to RS-485 & 24VDC terminals. Provides 34 LED’s for each zone in alarm supervisory, or trouble, each output activated or in trouble, Power On, Power trouble, System trouble, Earth fault, Supervisory, Supervisory trouble, Alarm, Signal silence and Pre-discharge/Discharging.
The annunciator also has a lamp test switch.

ARM-44 (Relay Module) - Relay installs in a cabinet and provides 8 relays. 4 relays mapped to inputs and 4 relays mapped to the outputs in a 1 to 1 relationship selectable disable switch.

RCDS-1 (Release Circuit Disconnect Switch)
Provides physical means of disconnecting release circuits in compliance with NFPA 72.

Basic Operation

In addition to the following events, the panel also provides an output via the RS-485 terminals to the RA-4410RC remote annunciator to light the appropriate indicators. See remote annunciator operations, page 16.
Initiating Device Circuits Alarm Condition:
An increase of current on any alarm initiating device circuit to approximately 10 mA or greater will result in the following:
ALARM, (Except zones programmed as LOW AIR ALARM):

1. Activation of the alarm relay contacts.
2. Activation of the output circuit(s) which are mapped to the initiating device circuit(s). Providing all zone(s) necessary for the activation of those circuits is in alarm
3. “ALARM” and zone # displayed on LCD.
4. “PRE-DISCHARGE” displayed on LCD if zone(s) in alarm activated pre-discharge timer (In chemical mode only).
5. Activation of red ZONE indicator(s) on LED display for the initiating device circuit(s).
6. Activation of red ALARM indicator on LED display.
7. Activation of red OUTPUT indicator(s) on LED display module for the output circuit(s) which are mapped to the initiating device circuit(s).
8. Activation of flashing red PRE-DISCHARGE indicator on LED display if in chemical mode and pre-discharge timer was activated by zone(s) in alarm. Providing all zone(s) necessary for the activation of those circuits is in alarm.

⚠ CAUTION

When in CHEMICAL EXTINGUISHING mode, the release circuit(s), are not activated until the pre-discharge timer expires, if a pre-discharge time was programmed. The predischarge time defaults to 30 seconds for Manual Release and 60 seconds for all other alarm zones.

Low Air Alarm

1. Operation of supervisory relay contacts and local buzzer.
2. Activation of the notification appliance circuit(s) or releasing circuit(s) which are mapped to the initiating device circuit(s). Providing all zone(s) necessary for the activation of those circuits is in alarm.
3. LOW AIR ALARM and <CIRCUIT #> displayed on LCD.
4. Activation of yellow ZONE indicator on LED annunciator module for the initiating device circuit.
5. Activation of yellow ZONE indicator(s) on LED annunciator module for the initiating device circuit(s) described as “LOW AIR ALARM”.
6. Activation of yellow OUTPUT indicator(s) on LED annunciator module for the output circuit(s) which are mapped to the zone. Providing all zone(s) necessary for the activation of those circuits is in alarm.
7. Activation of the amber supervisory LED in a flashing mode. **NOTE**: The supervisory LED will continue to flash until all events in the SUPERVISORY queue are viewed. This is accomplished by scrolling through all of the events by use of the scroll up and scroll down buttons. The LED will go steady after all alarm events have been viewed.

Supervisory

An increase of current to approximately 8 mA or greater on the supervisory initiating device circuit(s) or disabling an output programmed as releasing will result in the following:

1. Operation of supervisory relay contacts and local buzzer.
2. Operation of any output circuits that have been described as SUPERVISORY BELL.
3. “SUPERVISORY”, “TAMPER”, “LOW AIR”, or “HIGH AIR” and <CIRCUIT> displayed on LCD.
4. Activation of yellow SUPERVISORY indicator on LED display.
5. Activation of yellow ZONE indicator(s) on LED display for the initiating device circuit(s) described as “SUPERVISORY”, “TAMPER”, “LOW AIR SUPERVISORY”, or “HIGH AIR”.
6. Activation of yellow OUTPUT indicator(s) on LED display for the Notification appliance circuit(s) described as SUPERVISORY BELL.
7. Activation of the amber SUPERVISORY LED in a flashing modes well as the corresponding zone LED. **NOTE**: The SUPERVISORY LED will continue to flash until all events in the SUPERVISORY queue are viewed. This is accomplished by scrolling through all of the events by use of the scroll up and scroll down buttons. The LED will go steady after all supervisory events have been viewed.

Trouble Conditions

In custom program mode, failure to map at least 1 zone to every output or only mapping 1 zone to a release output programmed as cross zoned will cause a system trouble. The display will read: TROUBLE NO OUTPUTS.

Initiating Device Circuits

A decrease of current to approximately 3.3 mA or programming the zone as disabled on any initiating device circuit will result in the following:

1. Activation of trouble relay contacts, trouble LED and local buzzer.
2. Operation of any output circuits which have been described as TROUBLE BELL.
3. "TROUBLE" and <CIRCUIT> displayed on LCD.
4. Activation of yellow ZONE indicator(s) on LED annunciator module for the initiating device circuit(s).
5. Activation of yellow SYSTEM TROUBLE indicator on LED annunciator module.
6. Activation of yellow OUTPUT indicator(s) on LED annunciator module of any output circuit(s) which have been described as TROUBLE BELL.
7. Activation of the amber TROUBLE LED in a flashing mode. NOTE: The TROUBLE LED will continue to flash until all events in the TROUBLE queue are viewed. This is accomplished by scrolling through all of the events by use of the scroll up and scroll down buttons. The LED will go steady after all trouble events have been viewed.

NOTE: When the circuits are operated in the Class A mode any trouble condition will require manual operation of the reset switch to restore the panel to normal after the fault has been removed.

A complete loss of power will result in the transfer of the common system trouble relay contacts.

Notification Appliance/Releasing Circuits

An increase of current to approximately 0.63 mA or a decrease in current to approximately 0.11 mA on any output circuit or connecting an indicating appliance backwards, or disabling an output will result in the following:

1. Activation of trouble relay contacts, trouble LED and local buzzer.
2. Operation of any output circuits which have been described as TROUBLE BELL. If this output is in trouble, a TROUBLE BELL on this output may not function correctly, depending on the type of trouble.
3. "TROUBLE" and "OUTPUT #" <CIRCUIT NO.> displayed on LCD.
4. Activation of yellow OUTPUT indicator(s) on LED display for the notification appliance(s).
5. Activation of yellow SYSTEM TROUBLE indicator on LED display.
6. Activation of yellow OUTPUT indicator(s) on LED display of any output circuit(s) which have been described as TROUBLE BELL.

NOTE: A current in excess of 1.4 Amps, when the panel is in the alarm condition, will result in that output being disabled and a trouble as described above.

⚠ CAUTION

A problem in an audible or visual device may not be apparent when the panel is in a normal condition. If the circuit indicates a trouble condition when the panel is in an alarm condition the problem must be located and corrected.

Earth Fault

A short between any circuit and earth ground will result in the following:

1. Activation of trouble relay contacts, trouble and EARTH FAULT LEDs in a flashing mode, and local buzzer.
2. Operation of any output circuits which have been described as TROUBLE BELL.
3. "TROUBLE" and "GROUND" displayed on LCD.
4. Activation of the amber TROUBLE LED in a flashing mode. NOTE: The TROUBLE LED will continue to flash until all events in the TROUBLE queue are viewed. This is accomplished by scrolling through all of the events by use of the scroll up and scroll down buttons. The LED will go steady after all trouble events have been viewed.

Loss or Reduction of Power On

A reduction in the AC input voltage will result in the following:

1. Trouble LED and local buzzer will sound 1½ hour delay of trouble relay.
2. Operation of any output circuits which have been described as TROUBLE BELL.
3. "TROUBLE" and "A.C." displayed on LCD.
4. LCD Backlight will be extinguished.
5. Green Power On indicator on LED display will be extinguished.
6. Activation of yellow POWER TROUBLE indicator on LED display.
7. Activation of yellow SYSTEM TROUBLE indicator on LED display.

8. Activation of yellow OUTPUT indicator(s) on LED display of any output circuit(s) which have been described as TROUBLE BELL.

Low Battery Voltage

Loss of or reduction of battery voltage to 22 volts will result in the following:

1. Activation of trouble relay contacts, trouble LED and local buzzer.
2. Operation of any output circuits that have been described as TROUBLE BELL.
3. "TROUBLE" and "BATTERY" displayed on LCD.
4. Activation of yellow POWER TROUBLE indicator on LED display.
5. Activation of yellow SYSTEM TROUBLE indicator on LED display.
6. Activation of yellow OUTPUT indicator(s) on LED display of any output circuit(s) which have been described as TROUBLE BELL.

Loss Of Auxiliary Power Output

Loss of output of the auxiliary power will result in the following:

1. Activation of trouble relay contacts, trouble LED and local buzzer.
2. Operation of any output circuits that have been described as TROUBLE BELL.
3. "TROUBLE" and "AUX LOW" displayed on LCD.
4. Activation of yellow POWER TROUBLE indicator on LED annunciator module.
5. Activation of yellow SYSTEM TROUBLE indicator on LED annunciator module.
6. Activation of yellow OUTPUT indicator(s) on LED annunciator module of any output circuit(s) which have been described as TROUBLE BELL.
7. The remote annunciator RA-4410RC will not function if problem exists on non-resettable 24VDC.

To Silence the Buzzer (or outputs that have been described as trouble or supervisory bell)

Press the scroll up or scroll down buttons. Once all events in the trouble or supervisory queue have been viewed, the buzzer and appropriate outputs will silence. The applicable system TROUBLE or SUPERVISORY LED will change from flashing to steady. NOTE: Any continuous trouble/supervisory conditions that have been silenced automatically resound 24 hours after the first trouble/supervisory condition was silenced.

To Silence a Signaling Appliance

Press the SIGNAL SILENCE button. All silenceable outputs will de-activate. A trouble condition will be created. The Amber Alarm Silence LED will light.

⚠ CAUTION

Where audible and/or visual indicators are being used as an evacuation signal, do not silence an alarm condition without investigating and determining that an emergency condition does not exist.

NOTES:

1. Alarms initiated from zones that are in the waterflow mode cannot be silenced. The panel must be reset to silence audible alarm devices.
2. If silenceable waterflow indication is desired it must be programmed as detection and annunciated on the zone identification portion of the LCD.

To Reset an Alarm or Supervisory Condition

1. Determine the cause of the alarm condition and if necessary remove the cause.
2. Press the reset button.

NOTE: Supervisory signals require manual reset (LATCHING) when the supervisory condition is removed. To require automatic reset of a supervisory signal (NON-LATCHING), use the custom program mode.

To Reset A Trouble Condition

1. Determine the cause of the trouble condition and remove the cause.
2. This circuit is self-restoring. When all trouble conditions are removed all indications will return to normal.

NOTE: When an initiating device zone is operated in a Class A mode any trouble condition will require manual operation of the reset switch to restore the panel to normal after the fault has been corrected.

Lamp Test

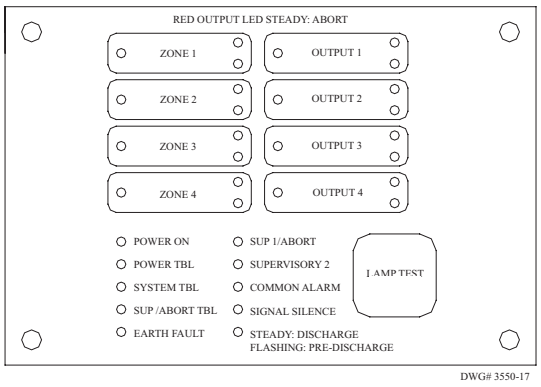
When the panel is in a Normal Condition, pushing the SCROLL-UP and SCROLL-DOWN buttons together will illuminate all of the LED's and display for approximately one second.

Remote Annunciator Model RA-4410RC Operation

Red LED's: Initiating Device Circuits Active (4)
Notification/Release Circuits Active (4)
Common Alarm (1)
Pre-Discharge/Discharge

Green LED's: Power on

Yellow LED's: Initiating Device Circuits troubles (4)
Output Circuit Troubles (4)
Supervisory Initiating Zone (4)
Supervisory Bell Output Active (4)
(1) each: Sup 1/Abort, Supervisory 2, Power Trouble, Supervisory/Abort Trouble, System Trouble, Earth Fault, Signal Silenced



The appropriate LED flashes to indicate a change of status on the panel. A trouble or supervisory condition will flash the appropriate Yellow LED indicating the location of the condition. If any outputs are programmed as TROUBLE or SUPERVISORY BELL, that Yellow output LED will flash indicating the output is activated. Pressing the TBL/SUP ACKNOWLEDGE button on the panel changes the flashing zone Amber LED to steady on and turns the flashing Yellow output LED off.
An alarm condition will flash a Red LED indicating the zone in alarm and any outputs mapped to that zone that have activated. Pressing the SIGNAL SILENCE button changes the flashing Red Zone LED to steady on and the flashing Red Output LED mapped to that zone off unless the output is programmed as RELEASE. In addition, the Yellow SIGNAL SILENCE LED will light.
Any zone programmed as WATERFLOW is considered non-silenceable so the SIGNAL SILENCE button will have no effect on the flashing zone and output LED's. A buzzer on the annunciator sounds for any trouble condition. Pressing the LAMP TEST button can be used to test the LED's.
The release panel supervises and communicates with the annunciator via separate connections for the RS-485 communication and 24VDC power requirements of the RA-4410RC. Separate cables should be used for power and communication. Shielded cable shall be used for the communication line. Up to four annunciators can be connected to one panel. A rotary switch is provided on the panel to indicate how many annunciators are connected. Another rotary switch is on the annunciator to set the address. The annunciators must be addressed consecutively. See page 90 for wiring information. Refer to bulletin #8840024 for installation instructions and maximum wire run.

Test Procedure

The system should be inspected, tested and maintained in accordance with NFPA-72 National Fire Alarm Code and any other requirements of the local authority having jurisdiction.

Test Procedure (Canada)

The system should be inspected, tested and maintained in accordance with ULC Standard CAN/ULC-S536 and any other requirements of the local authority having jurisdiction.

Testing should be done as a minimum as described below

1. Notify the fire department or other receiving station if alarm, supervisory and/or trouble signals are transmitted.
2. Notify the proper building personnel so that audible and/or visual signals can be ignored.
3. If the release panel is monitored by a building fire alarm panel, take appropriate action to eliminate any unwanted events.
4. Momentarily open each of the following circuits.
   - Each initiating device zone
   - Supervisory circuit
   - Notification Appliance/Releasing circuit - observe that this results in a trouble condition and all indicators operate as described in the appropriate preceding section for the particular circuit that is faulted.

5. Move the PROGRAM switch down. The LCD should respond: “LOOK AT HISTORY?”. Press the FUNCTION button until the display reads: "PASSWORD=000". Press the SET button three times. Press the FUNCTION button until the LCD reads "SYSTEM MODE: NORMAL”. Press the SELECT button. The LCD will read “SYSTEM MODE: ONE MAN WALKTEST”. Press the SET button then move the PROGRAM switch up. The panel will respond with “ONE MAN WALKTEST” and the time. The trouble LED will light. Any output described as “RELEASING” will automatically be disabled.

Note: The RCDS-1, Release Circuit Disconnect Switch, shall be used to provide physical means of disconnecting the release circuit in compliance with NFPA 72.

WARNING

Failure to enter the walktest mode and subsequent operation of initiating zones may result in a release.

After 30 minutes of no activity in the walk test mode the panel automatically reverts to normal operation.

6. Operate each initiating device on all zones. All audible and visual alarm devices should operate for about 3 seconds. Then the system will automatically reset allowing the user to go to the next initiating device.
7. Operate each initiating device on the supervisory circuit. Observe that all the indications described in the section on supervisory conditions occur.
8. Move the PROGRAM switch down again. The LCD should respond: “LOOK AT HISTORY?” Press the FUNCTION button until the LCD reads: PASSWORD=000, enter the password. Press the FUNCTION button until the display reads: “SYSTEM MODE: ONE MAN WALKTEST” Press the SELECT button. The LCD will read: “SYSTEM MODE: NORMAL” Press the SET button then restore the PROGRAM switch to the up position. The LCD will show the normal banner message.
9. All audible and visual indicators should be off.
10. Notify all building, fire department, and/or other receiving station personnel that the test has concluded.

Maintenance

Test batteries per local and national standards. At a minimum replace batteries every four (4) years or sooner depending on test results. The date of purchase shall be marked on all batteries.

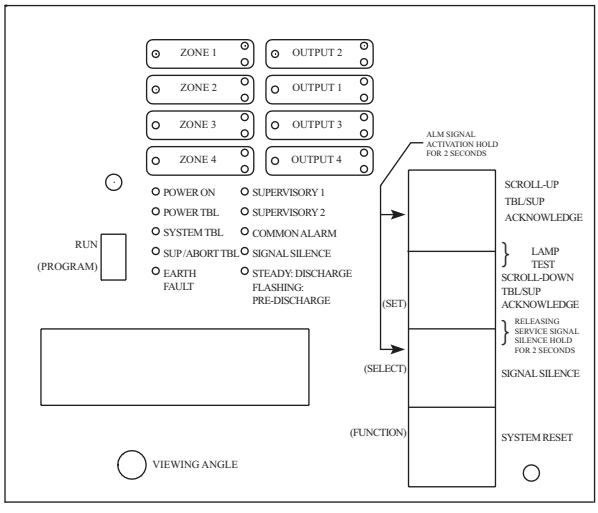
Programming Mode Instructions

To use the Programming Mode push the program switch to down (see drawing below).

Panel Visual Display

As a general rule, the following applies on the Programming Mode buttons:

The SET button sets the message on the display into the memory.
The SELECT button scrolls through the selections available for the function displayed.
The FUNCTION button allows the user to skip the function without changing the program.



WARNING

After 30 minutes of no activity, the panel will automatically exit Program Mode and revert to run mode.

To program, push the Program Switch down.

There is no capability to back up screens in the program mode. If a mistake was made during programming, move the program switch back up, then move it down and start from the beginning.

To exit the program mode at any time, move the Program Switch to the left.

When the programming switch is down (see Panel Visual Display) the following will appear in the display window:

L	O	O	K		A	T									
H	I	S	T	O	R	Y	?								

History

To examine the HISTORY press the SET button, the display window will show the time and date of the last event or action. To skip to the next function or to exit history, press the FUNCTION button.

SET  Press the SET button to discover the time and date of the last event or action and to scroll forward.

SELECT  To scroll back, press the SELECT button.

FUNCTION  To exit or skip HISTORY, press the FUNCTION button.

After pressing the FUNCTION button the following will appear in the display window:

S	E	T		T	I	M	E	?							

Date and Time

SELECT  To change the time, press the SELECT button.

FUNCTION  To exit to the next function, press the FUNCTION button.

If the SELECT button is pushed, the date and time will appear in the display window:

						0	1	/	0	5	/	2	0	0	7
M	I	N	U	T	E	S		0	5	:	1	9	:	3	5

The date is shown at the top and the time at the bottom of the display window. “MINUTES” indicates that the user can now change the minutes.

SET  Pressing the SET button will decrease the minutes.

SELECT  Pressing the SELECT button will increase the minutes.

FUNCTION  When finished setting the minutes, Press the FUNCTION button. The minutes will change to hours.

Continue this process and change the DAY, MONTH and YEAR. When you have finished changing the year, press the FUNCTION button. A display similar to the following will appear:

P	A	S	S	W	O	R	D	=	0	0	0				
									^						

Password

This display prevents unauthorized programming of the panel by requiring the user to enter the proper password. To select the appropriate number for the space indicated by the ^ symbol, press the SELECT button. When the proper number is displayed press the SET button to set the number and move to the next space. If the wrong password is entered, the panel will automatically return to a normal condition. All panels are shipped from the factory with a password of 000. If the password is lost contact Potter.

SET After selecting the desired number, press the SET button to set and move to the next number.

SELECT Press the SELECT button to scroll through the numbers.

FUNCTION Pressing the FUNCTION button will have no effect.

After entering the correct password, a display similar to the following will appear:

I	N	I	T		Z	O	N	E		#	1				
E	N	A	B	L	E	D									

Zone Disabled/Enabled

This display allows the user to ENABLE or DISABLE Initiating zones. This display window shows that initiating ZONE #1 is enabled. To toggle from ENABLED to DISABLED or vicw versa, press the SELECT button.

SET After selecting ENABLED or DISABLED, press the SET button to set and move to the next zone.

SELECT Press the SELECT button to toggle between ENABLED or DISABLED.

FUNCTION To skip to the next function, press the FUNCTION button.

After selecting all four zones or pressing the FUNCTION button, the following will appear in the display window:

O	U	T	P	U	T	#	1								
E	N	A	B	L	E	D									

Output Enable/Disable

This display allows the user to ENABLE or DISABLE any of the output circuits. NFPA 72 prohibits the use of a software disconnect for RELEASE CIRCUITS. A physical means of disconnecting a RELEASE CIRCUIT shall be used, such as the Potter RCDS-1.

SET After selecting ENABLED or DISABLED, press the SET button to set and move to the next output.

SELECT Press the SELECT button to toggle between ENABLED or DISABLED.

FUNCTION To skip to the next function, press the FUNCTION button.

After selecting all four outputs or pressing the FUNCTION button, the following will appear in the display window:

NOTICE Disabling any input or outputs will create a trouble condition on the panel.

S	Y	S	T	E	M		M	O	D	E	:				
N	O	R	M	A	L										

One Man Walktest

This display allows the user to select system mode NORMAL or ONE MAN WALKTEST by pressing the SELECT button to toggle back and forth from NORMAL to ONE MAN WALKTEST. When the desired mode is displayed, press the SET button. If ONE MAN WALKTEST is selected for test purposes, the display must be restored to the NORMAL setting after the test is completed by toggling to it using the SELECT button.

WARNING

After 30 minutes of no activity the panel automatically reverts to normal.

Note: NFPA 72 requires a physical means of disconnecting release circuits. The Potter Model, RCDS-1, complies with those requirements.

SET  After selecting NORMAL or ONE MAN WALKTEST, press the SET button to set that mode.

SELECT  Press the SELECT button to toggle between NORMAL and CROSS ZONED.

FUNCTION  Press the FUNCTION button to skip to the next function.

After selecting the operating mode or pressing the FUNCTION button a display similar to the following will appear in the display window:

P	R	O	G	R	A	M		#	0						

PFC-4410RC Standard Program Information

The PFC-4410RC has 24 standard programs which are detailed in the following pages. Selecting one of these programs will automatically program every function of the panel except the custom banner and zone message functions.
NOTES:
The release discharge time is continuous for all 24 programs.
In the chemical extinguishing programs the pre-discharge timer defaults to 60 seconds, manual release pre-discharge timer defaults to 30 seconds, the abort mode defaults to UL.

The following is an explanation of how the various programs operate and information about the types of devices that are to be connected to the input and output zones.
If none of the standard programs are acceptable for the installation required, select the custom program #0 then press the SET button. This will allow the user to custom program the panel. Turn to page 72 for custom program information.

	Type	Description
Alarm Zones	Detection	Smoke Detectors, Spot Type Heat Detectors
	Waterflow	PS10 Pressure Switch
	Linear Heat	Cable Type Heat Detectors
	Manual Release	Pull Stations
Supervisory Zones	Supervisory	Valve Tamper, Low Air, High Air, Room Temperature
	Low Air supervisory	Low Air Switch
	High Air	High Air Switch
	Tamper	Valve Tamper Switch
	Low Air Alarm *	PS10, PS40
Outputs	Alarm	24VDC Bells, Horns, Strobes, to indicate an alarm condition.
	Release	Solenoid Valve, Squib, Releasing Mechanism
	eAEROSOL	Aerosol Generator
	Supervisory	24VDC Bells, Horns, Strobes, to indicate a supervisory condition.
	Trouble	24VDC Bells, Horns, Strobes, to indicate a trouble condition.

To program the PFC-4410RC to operate with one of the following 24 standard programs:
The water based extinguishing programs are numbered 1-15. The chemical extinguishing programs are numbered 20-28. A description, theory of operation, and wiring diagrams for all standard programs start on the next page.

1. Press SELECT button to scroll to the program number (#1 through #15, #20 through #28) you desire.
2. Press SET button.
3. Turn to page 81 to program the banner message and to finish programming the panel.

SET  After selecting the proper program number, press the SET button to set the program and move to the next function.

SELECT  Press the SELECT button to scroll through the programs.

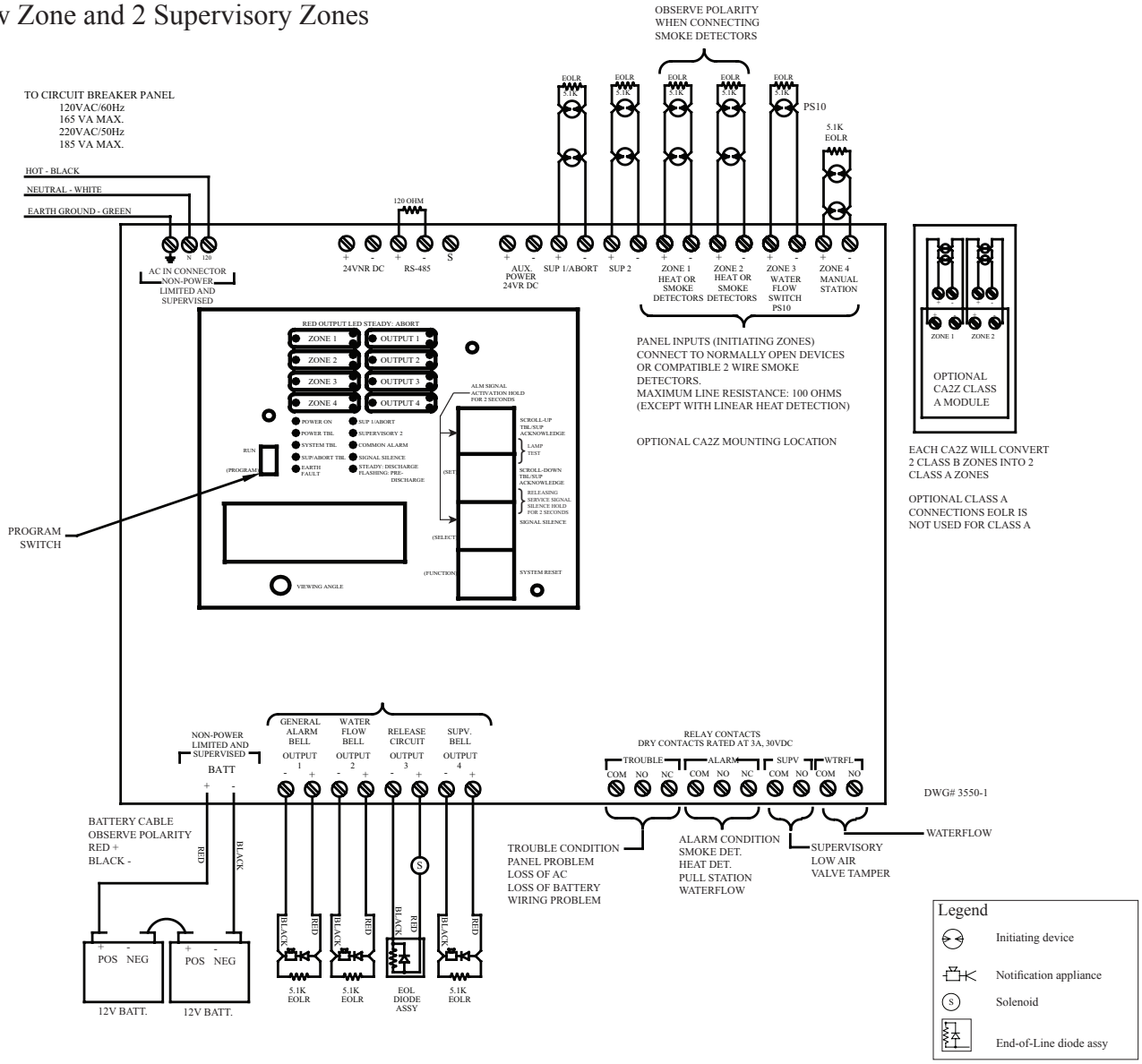
FUNCTION  Press the FUNCTION button to skip to the next function.

NOTICE

After selecting the desired program number with the SELECT button, SET button **must** be pressed to set the program.

***Not available on Supervisory Zones: Sup 1 or Sup 2.**

Wiring Diagram Program #1
Single Hazard, 3 Alarm Zones with 1 Waterflow Zone and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33 VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #1 Mode

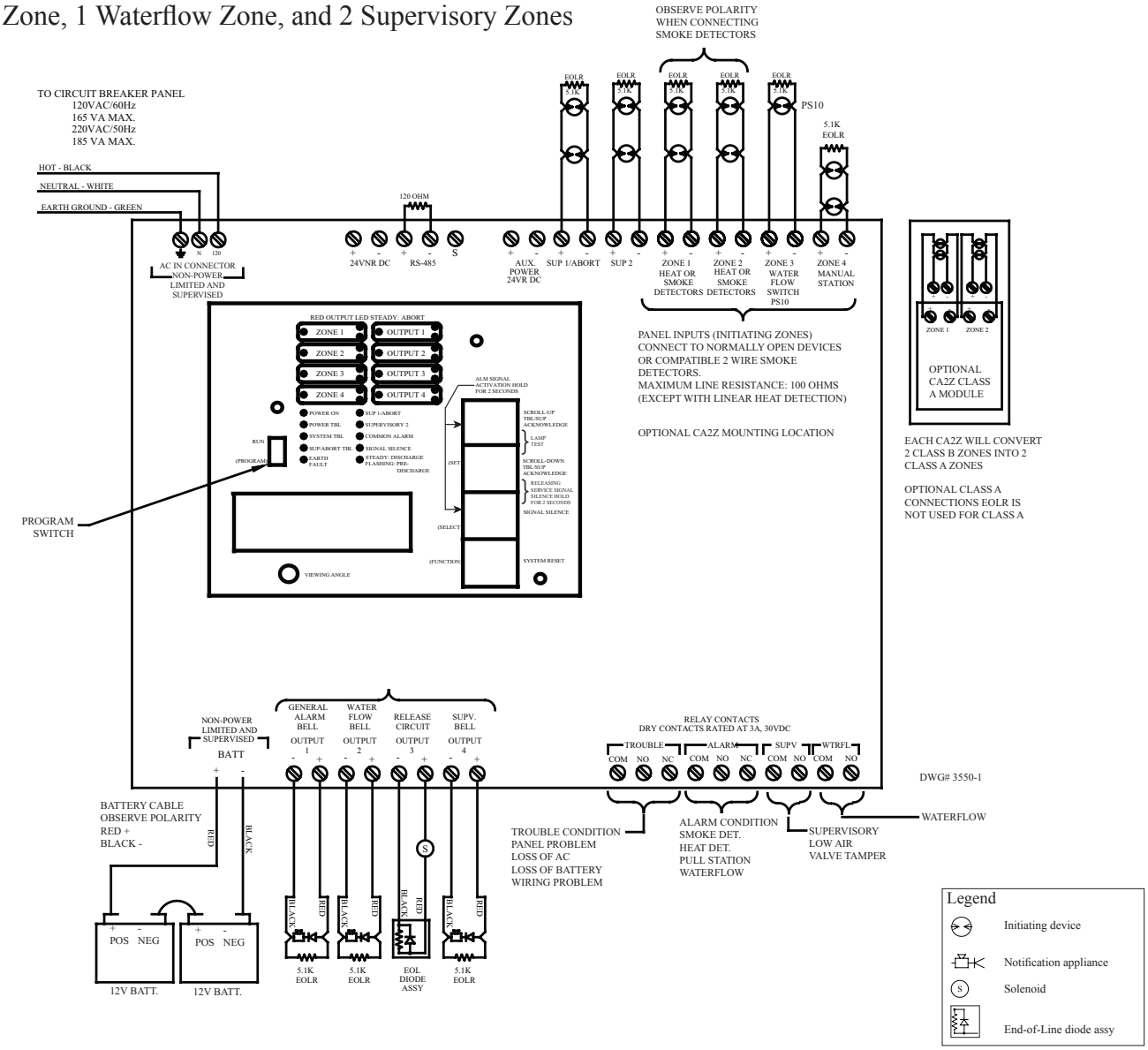
1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #1”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #1						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Waterflow	Manual Release
#1 ALARM INDICATING			X	X		X
#2 ALARM INDICATING					X	
#3 RELEASE			X	X		X
#4 SUPERVISORY	X	X				

Description: Single hazard - 3 zone
Inputs: 2 detection zones, 1 waterflow zone, 1 manual release zone, 2 supervisory zones
Outputs: 1 general alarm bell, 1 waterflow bell, 1 solenoid release circuit, 1 supervisory bell
Operation: Activation of either detection zone or the manual release zone will operate the release circuit and general alarm output.
Activation of the waterflow zone will operate the waterflow bell output.
Activation of the supervisory zone will operate the supervisory bell output.

When either zone 1, 2 or 4 is in alarm - output #1 (general alarm) and output #3 (solenoid release) will operate.
When zone 3 is in alarm - output #2 will operate (waterflow bell).
When the supervisory zone is activated - output #4 will operate (supervisory bell).

Wiring Diagram Program #2
Single Hazard, 2 Alarm Zones (Cross-Zoned), 1 Manual Station Zone, 1 Waterflow Zone, and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #2 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #2”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch up.

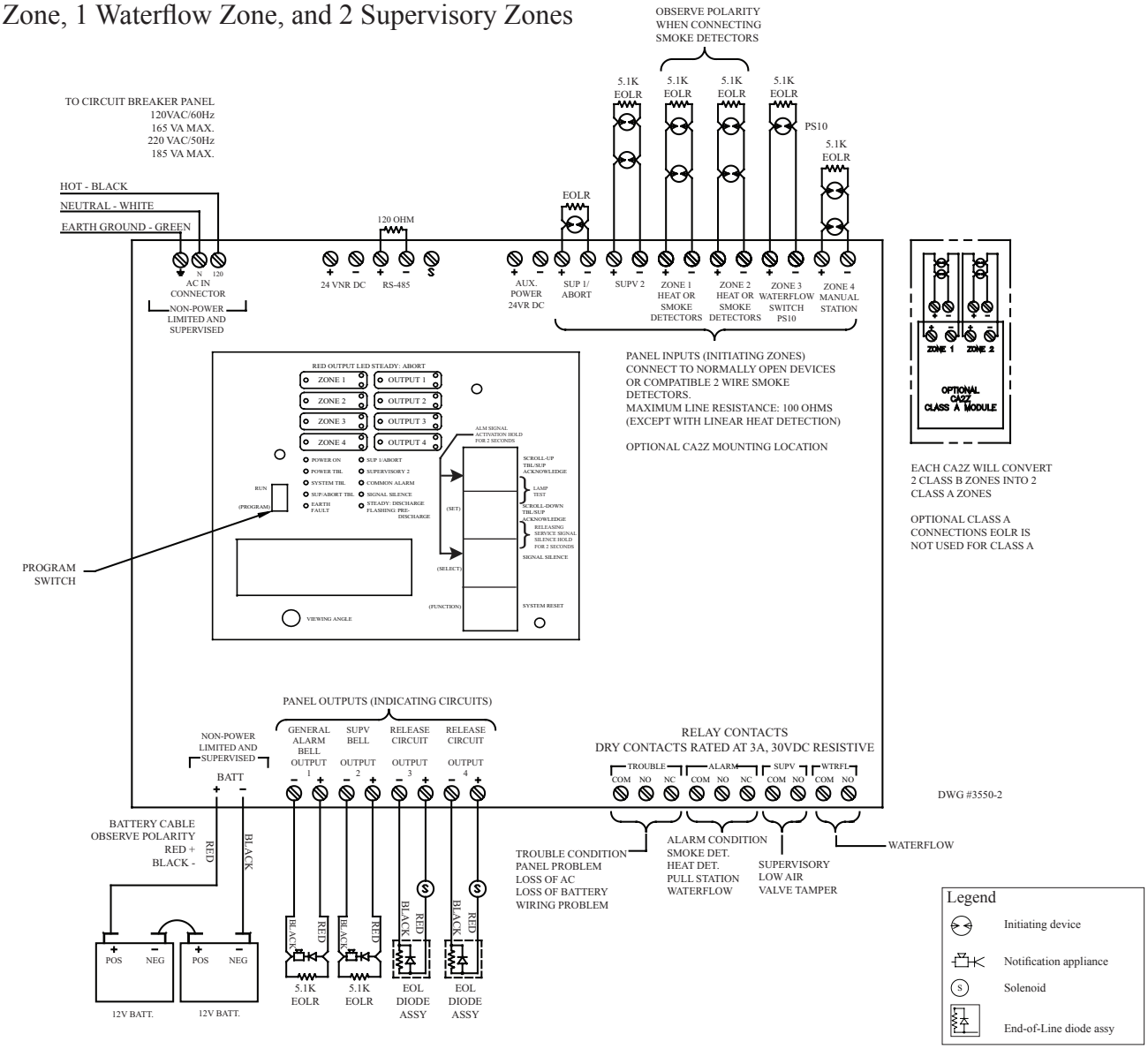
PROGRAM #2						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Waterflow	Manual Release
#1 ALARM INDICATING			X	X		X
#2 ALARM INDICATING					X	
#3 RELEASE			XX	XX		X
#4 SUPERVISORY	X	X				

XX = Cross-Zoned

Description: Single hazard, cross zone with manual station override.
Inputs: 2 detection zones (cross zoned), 1 waterflow zone, 1 manual release zone, 2 supervisory zones
Outputs: 1 general alarm bell, 1 waterflow bell, 1 solenoid release circuit, 1 supervisory bell
Operation: Activation of both detection zones at the same time, or activation of the manual release zone will operate the release output and the general alarm output.
Activation of one detection zone will operate the general alarm output.
Activation of the waterflow zone will operate the waterflow bell output.
Activation of the supervisory zone will operate the supervisory bell output.

When zone 1, 2 or 4 is in alarm - output #1 will operate (general alarm bell).
When zone 3 is in alarm - output #2 will operate (waterflow bell).
When both zones 1 and 2 are in alarm at the same time - output #3 will operate (solenoid release).
When zone 4 is in alarm - outputs #3 (solenoid release) and #1 (general alarm) will operate.

Wiring Diagram Program #3
Dual Hazard, Combined Release - 2 Alarm Zones, 1 Manual Station Zone, 1 Waterflow Zone, and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #3 Mode

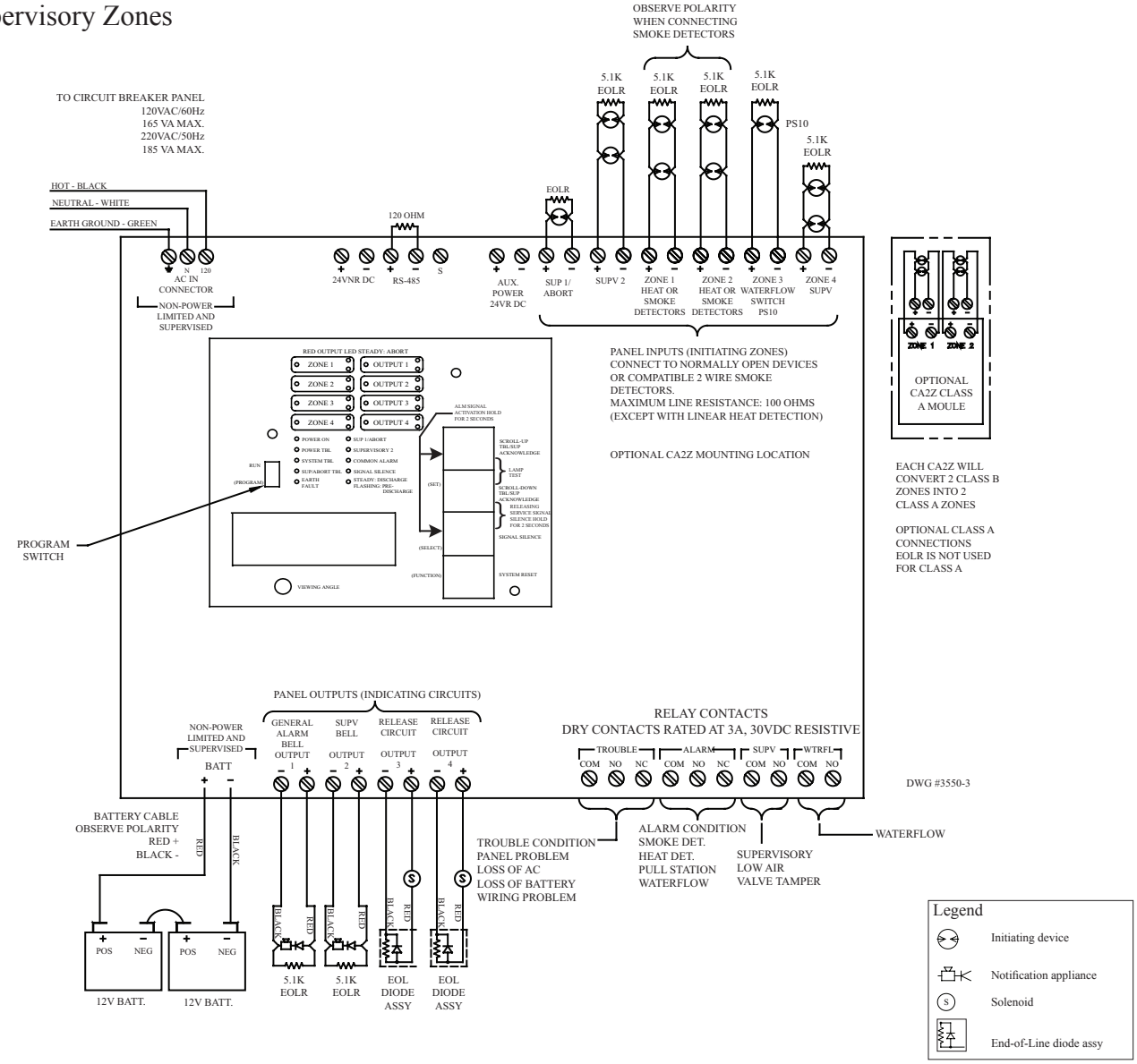
1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #3”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #3						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Waterflow	Manual Release
#1 ALARM INDICATING			X	X	X	X
#2 SUPERVISORY	X	X				
#3 RELEASE			X	X		X
#4 RELEASE			X	X		X

Description: Dual hazard, combined release.
Inputs: 2 detection zones, 1 waterflow zone, 1 manual release zone, 2 supervisory zones
Outputs: 1 general alarm bell, 1 supervisory bell, 2 solenoid release circuits
Operation: Activation of either detection zone or the manual release zone will activate both solenoid release outputs and the general alarm bell.
Activation of the waterflow zone will operate the general alarm bell.
Activation of the supervisory zone will operate the supervisory bell output.

When either zone 1, 2 or 4 is in alarm - outputs #1 (general alarm), #3 and #4 (solenoid release) will operate.
When zone 3 is in alarm - output #1 (general alarm) will operate.
When the supervisory zone is activated - output #2 (supervisory bell) will operate.

Wiring Diagram Program #4
Dual Hazard, Split-Release - 2 Alarm Zones, 1 Waterflow Zone, and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #4 Mode

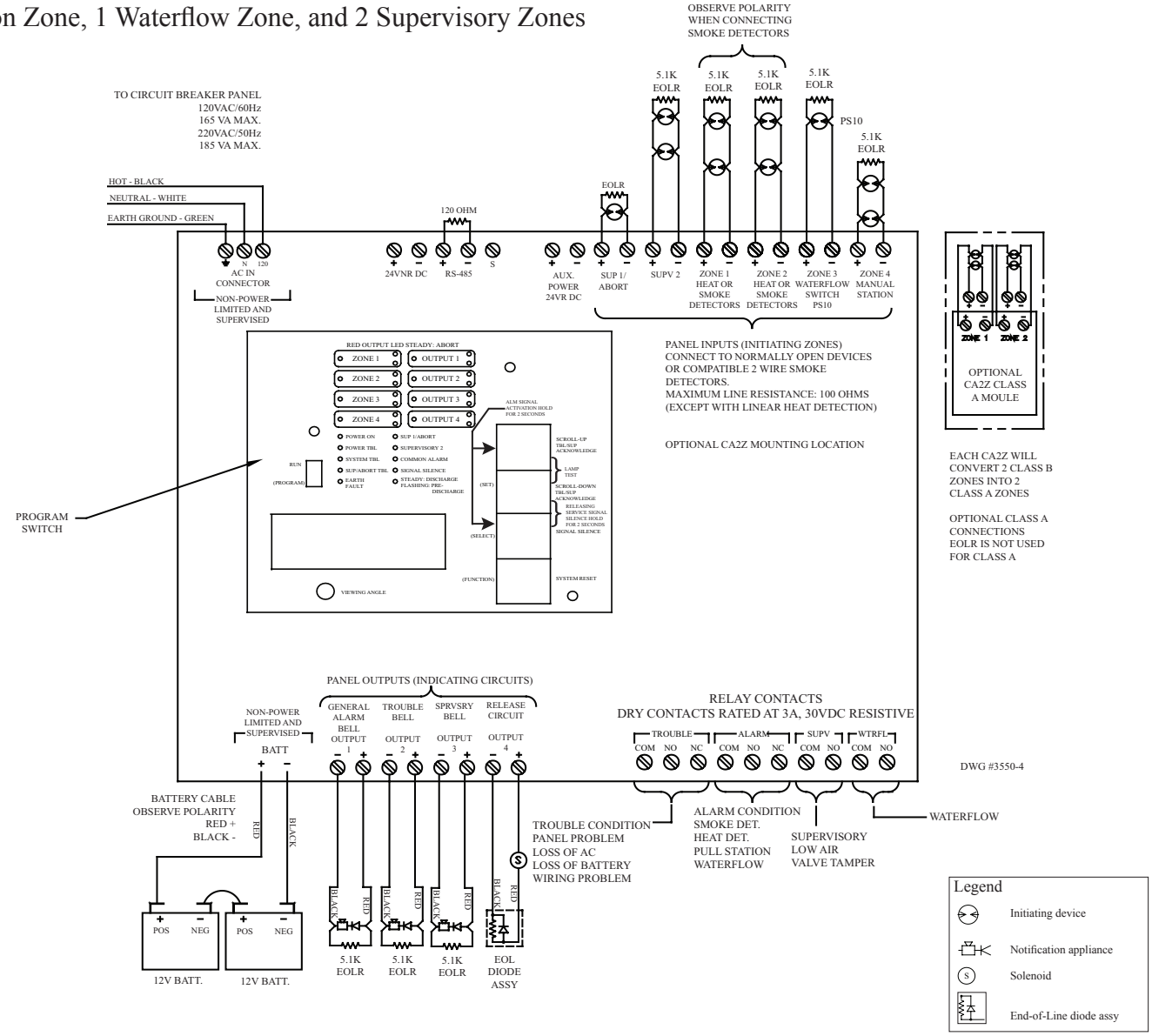
1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #4”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch up.

PROGRAM #4						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Waterflow	Supervisory
#1 ALARM INDICATING			X	X	X	
#2 SUPERVISORY	X	X				X
#3 RELEASE			X			
#4 RELEASE				X		

Description: Dual hazard, split release.
Inputs: 2 detection zones, 1 waterflow zone, 3 supervisory zones
Outputs: 1 general alarm bell, 1 supervisory bell, 2 solenoid release circuits
Operation: Activation of detection zone #1 will operate solenoid release circuit #1 (output #3) and the general alarm bell.
Activation of detection zone #2 will operate solenoid release circuit #2 (output #4) and the general alarm bell.
Activation of zone #3 (Waterflow) will operate output #1 (General Alarm).
Activation of either supervisory zone will operate the supervisory bell.

When zone 1 is in alarm - output #1 (general alarm) and output #3 (solenoid release #1) will operate.
When zone 2 is in alarm - output #1 (general alarm) and output #4 (solenoid release #2) will operate.
When either zone 4 or the supervisory zones are activated - output #2 (supervisory bell) will operate.

Wiring Diagram Program #5
Single Hazard with Trouble Bell - 2 Alarm Zones, 1 Manual Station Zone, 1 Waterflow Zone, and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #5 Mode

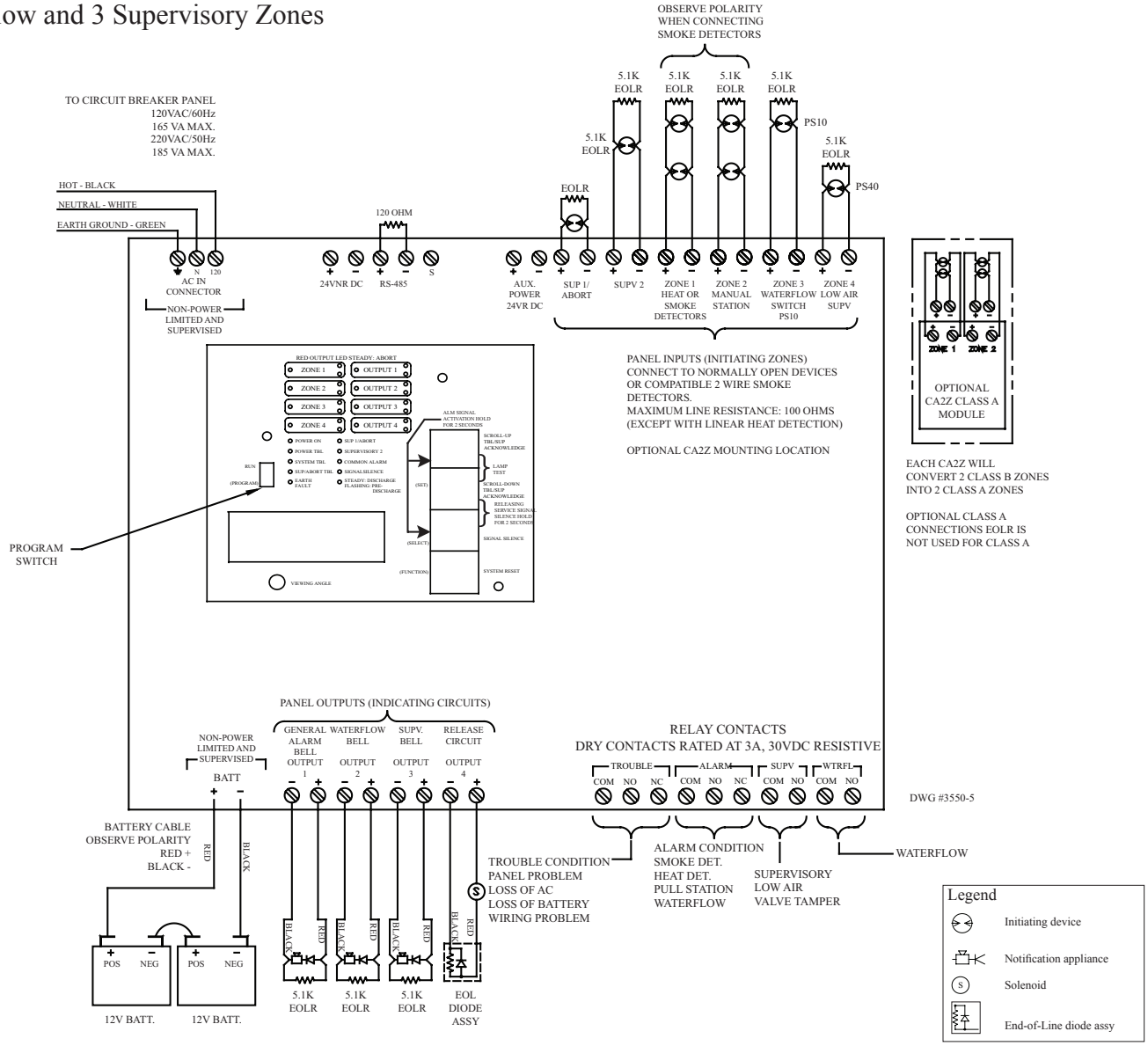
1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #5”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch up.

PROGRAM #5						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Waterflow	Manual Release
#1 ALARM INDICATING			X	X	X	X
#2 TROUBLE						
#3 SUPERVISORY	X	X				
#4 RELEASE			X	X		X

Description: Single hazard, 3 zone with trouble bell.
Inputs: 2 detection zones, 1 waterflow zone, 1 manual release zone, 2 supervisory zones
Outputs: 1 general alarm bell, 1 trouble bell, 1 supervisory bell, 1 solenoid release circuit
Operation: Activation of either detection zone or the manual release zone will operate the solenoid release circuit and the general alarm bell.
Activation of the waterflow zone will operate the general alarm bell.
Activation of the supervisory zone will operate the supervisory bell.
A trouble condition (low battery, wire problem, etc.) will operate the trouble bell.

When either zone 1, 2 or 4 is in alarm - outputs #1 (general alarm) and #4 (solenoid release) will operate.
When zone 3 is in alarm - output #1 (general alarm) will operate.
When the supervisory zone is activated - output #3 (supervisory bell) will operate.
When the panel is in a trouble condition - output #2 (trouble bell) will operate.

Wiring Diagram Program #6
Single Hazard, 2 Alarm Zones with 1 Waterflow and 3 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #6 Mode

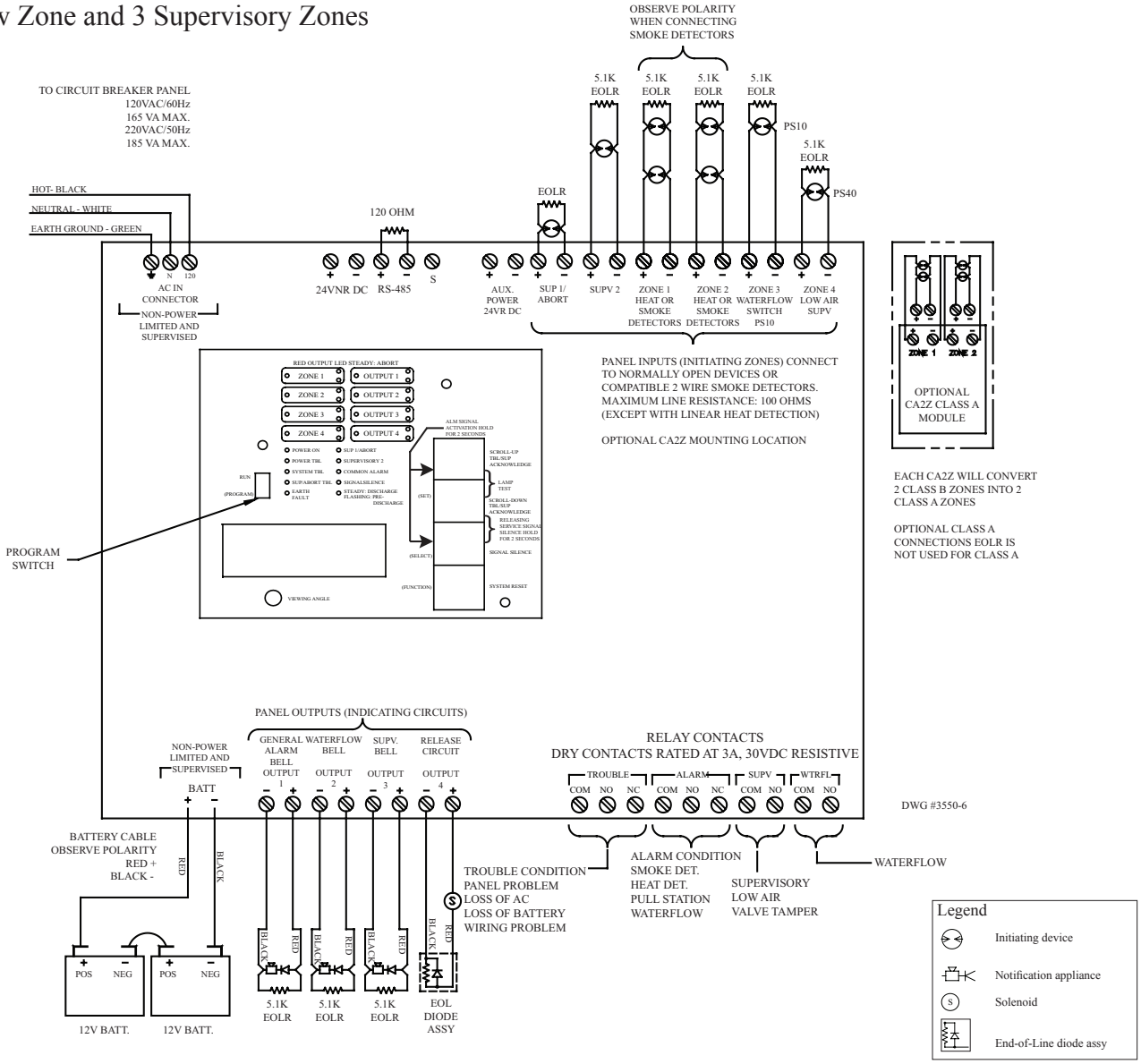
1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #6”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch up.

PROGRAM #6						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Manual Release	Waterflow	Low Air Supervisory
#1 ALARM INDICATING			X	X		
#2 ALARM INDICATING					X	
#3 SUPERVISORY	X	X				X
#4 RELEASE			X	X		

Description: Single hazard, 2 zones and 2 supervisory zones.
Inputs: 1 detection zone, 1 manual release zone, 1 waterflow zone, 1 low air zone, 2 supervisory zones
Outputs: 1 general alarm bell, 1 waterflow bell, 1 supervisory bell, 1 solenoid release circuit
Operation: Activation of either the detection zone or the manual release zone will operate the solenoid release circuit and the general alarm bell.
Activation of the waterflow zone will operate the waterflow bell.
Activation of either the low air zone or the supervisory zone will operate the supervisory bell.

When either zone 1 or 2 is in alarm - output #1 (general alarm) and output #4 (solenoid release) will operate.
When zone 3 is in alarm - output #2 (waterflow bell) will operate.
When either zone 4 or the supervisory zone is activated - output #3 (supervisory bell) will operate.

Wiring Diagram Program #7
Single Hazard Cross-Zoned, 2 Alarm Zones, 1 Waterflow Zone and 3 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #7 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #7”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch up.

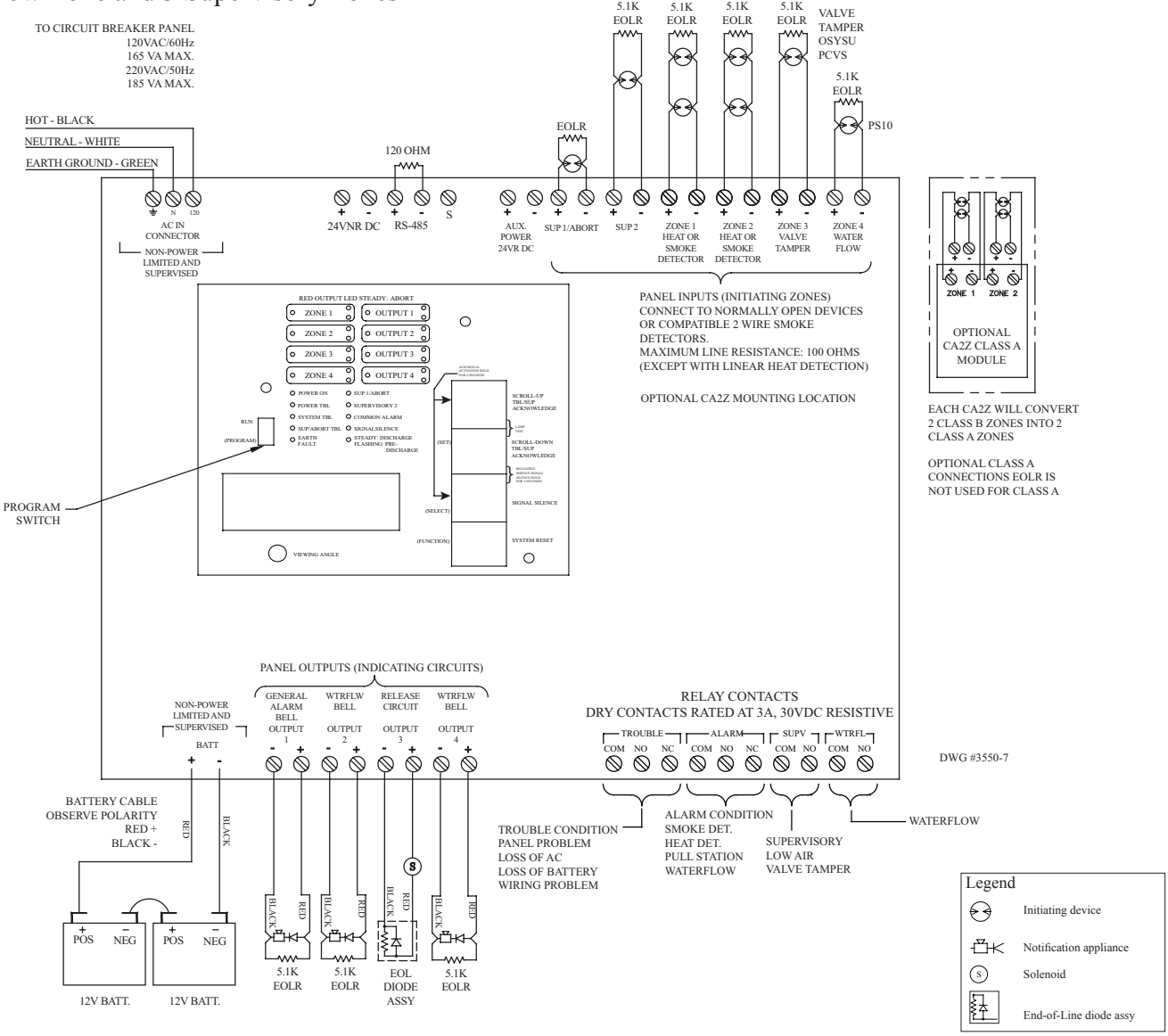
PROGRAM #7						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Waterflow	Low Air Supervisory
#1 ALARM INDICATING			X	X		
#2 ALARM INDICATING					X	
#3 SUPERVISORY	X	X				X
#4 RELEASE			XX	XX		

XX = Cross-Zoned

Description: Single hazard, 2 zones and cross zoned with 2 supervisory zones.
Inputs: 2 detection zones (cross zoned), 1 waterflow zone, 1 low air zone, 2 supervisory zones
Outputs: 1 general alarm bell, 1 waterflow bell, 1 supervisory bell, 1 solenoid release circuit
Operation: Activation of both detection zones at the same time will operate the solenoid release circuit and the general alarm bell.
Activation of either detection zone will operate the general alarm bell.
Activation of the waterflow zone will operate the waterflow bell.
Activation of either the low air zone or the supervisory zone will operate the supervisory bell.

When either zone 1 or 2 is in alarm - output #1 (general alarm) will operate.
When zones 1 and 2 are in alarm at the same time - output #4 (solenoid release) and output #1 (general alarm) will operate.
When zone 3 is in alarm - output #2 (waterflow bell) will operate.
When either zone 4 or the supervisory zone is activated - output #3 (supervisory bell) will operate.

Wiring Diagram Program #8
Single Hazard Two Detection Zones with 1 Waterflow Zone and 3 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #8 Mode

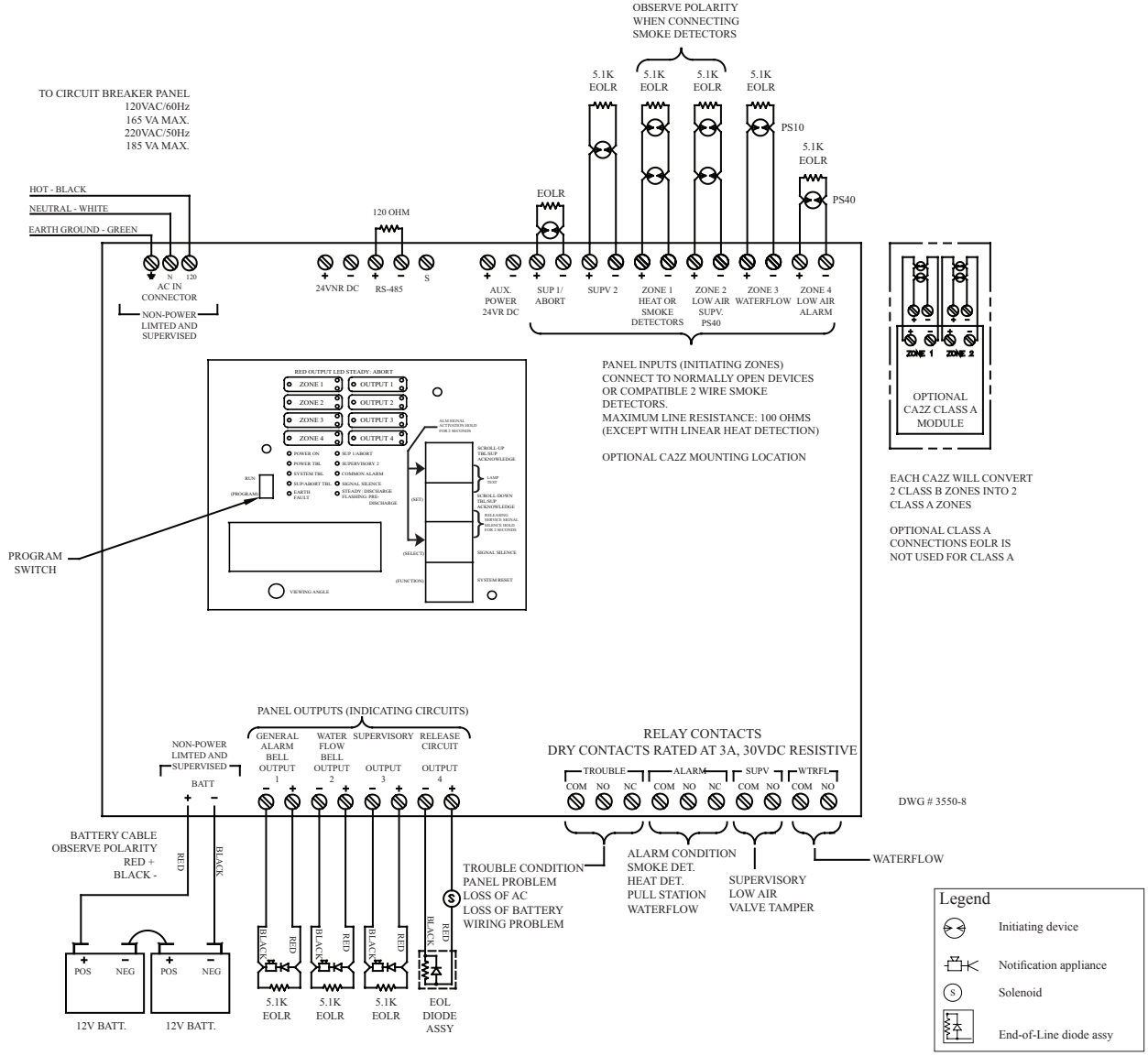
1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change. (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #8”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch up.

PROGRAM #8						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Low Air Supervisory	Detection	Detection	Valve Tamper	Waterflow
#1 ALARM INDICATING			X	X		X
#2 ALARM INDICATING						X
#3 RELEASE			X	X		
#4 ALARM						X

Description: Single hazard, dual zone.
Inputs: 1 supervisory zone, 1 low air supervisory zone, 2 detection zones, 1 tamper switch zone, 1 waterflow zone
Outputs: 1 general alarm output, 2 waterflow outputs, 1 solenoid release circuit
Operation: Activation of either detection zone will operate the general alarm bell and the solenoid release circuit. Activation of the waterflow zone will operate the general alarm bell and both of the waterflow bell outputs.

When zone 1 or zone 2 is in alarm - output #1 (general alarm) and output #3 (solenoid release) will operate.
When either zone 3 or the supervisory zone is activated - the panel will be in a supervisory condition, no outputs will be activated.
When zone 4 is in alarm - output #1 (general alarm) and outputs #2 and #4 (both waterflow bells) will operate.

Wiring Diagram Program #9
Single Hazard Cross-Zoned, 1 Detection Zone with Low Air Alarm Zone, 1 Waterflow, 1 Low Air Supervisory, and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #9 Mode

1. Apply power to panel.
2. Move the program down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #9”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch up.

PROGRAM #9						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Low Air Supervisory	Waterflow	Low Air Alarm
#1 ALARM INDICATING			X			
#2 ALARM INDICATING					X	
#3 SUPERVISORY	X	X		X		X
#4 RELEASE			XX			XX

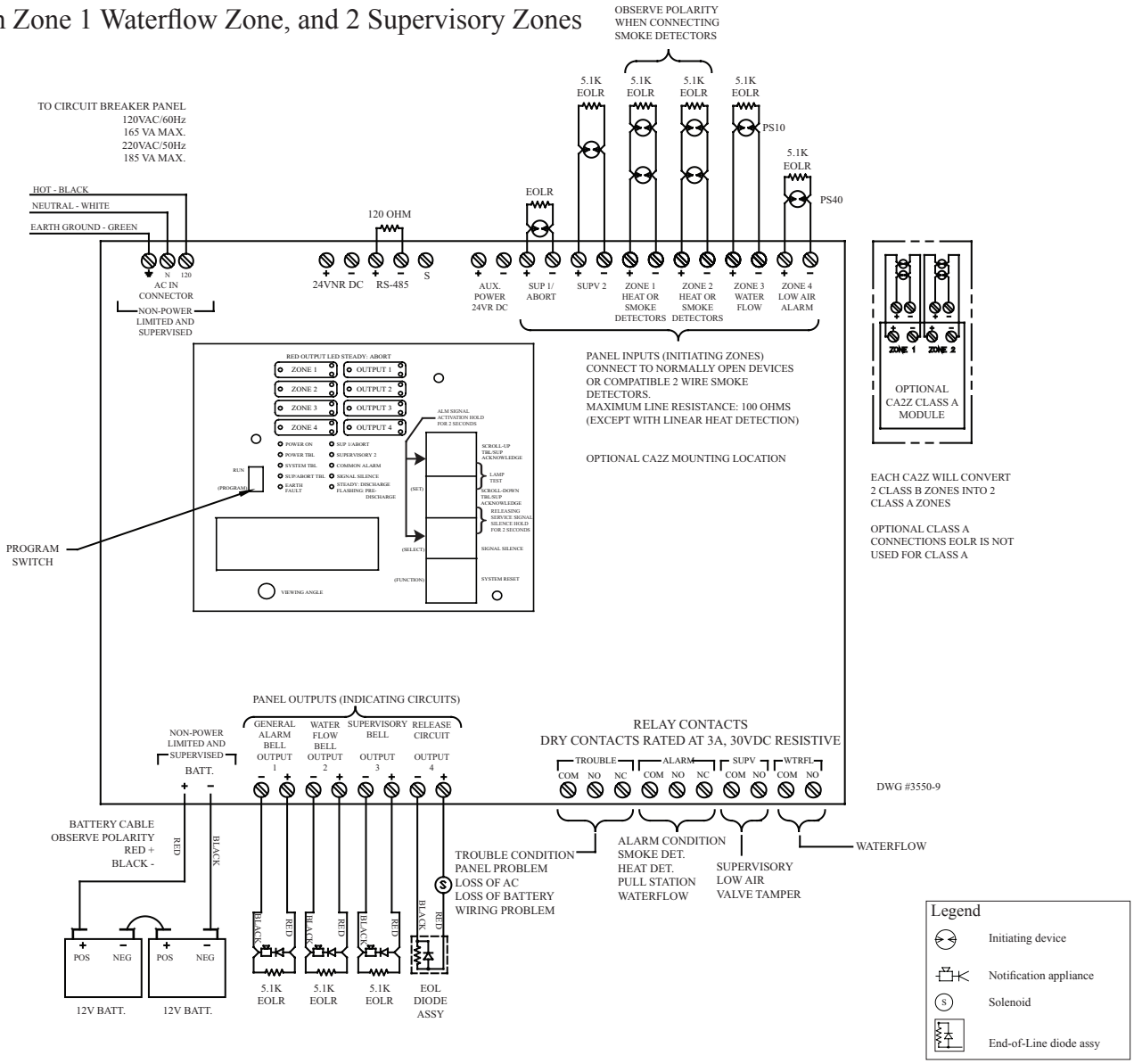
XX = Cross-Zoned

Description: Single Hazard, detection and low air alarm zones cross-zoned*.
Inputs: 2 supervisory zones, 1 detection zone, 1 low air supervisory zone, 1 waterflow zone, 1 low air alarm zone.
Outputs: 1 general alarm, 1 supervisory, 1 waterflow, 1 solenoid release circuit
Operation: Activation of the detection zone and the low air alarm zone at the same time will operate the solenoid release circuit and the general alarm bell.
Activation of the detection zone only will operate the general alarm output
Activation of the low air supervisory zone will operate the supervisory bell output.
Activation of the waterflow zone will operate the waterflow bell output
Activation of the low air alarm zone will operate the supervisory bell output. It will not operate the alarm relay

When zone 1 is in alarm, output 1 will operate
When zone 2 is activated, output 3 will operate
When zone 3 is in alarm, output 2 will operate
When zone 4 is activated, output 3 will operate. This will create a supervisory condition not an alarm condition. The alarm relay will not operate, the supervisory relay will.
When both zones 1 & 4 are activated at the same time, the solenoid release circuit will operate.

*Cross Zoning acceptable for NFPA 13, 15, and 16 type extinguishing systems.

Wiring Diagram Program #10
Single Hazard Cross-Zoned, 2 Detection Zones with 1 Low Air Alarm Zone 1 Waterflow Zone, and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #10 Mode

1. Apply power to panel.
2. Move the program down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #10”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #10						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Waterflow	Low Air Alarm
#1 ALARM INDICATING			X	X		
#2 ALARM INDICATING					X	
#3 SUPERVISORY	X	X				X
#4 RELEASE			XX	XX		XX

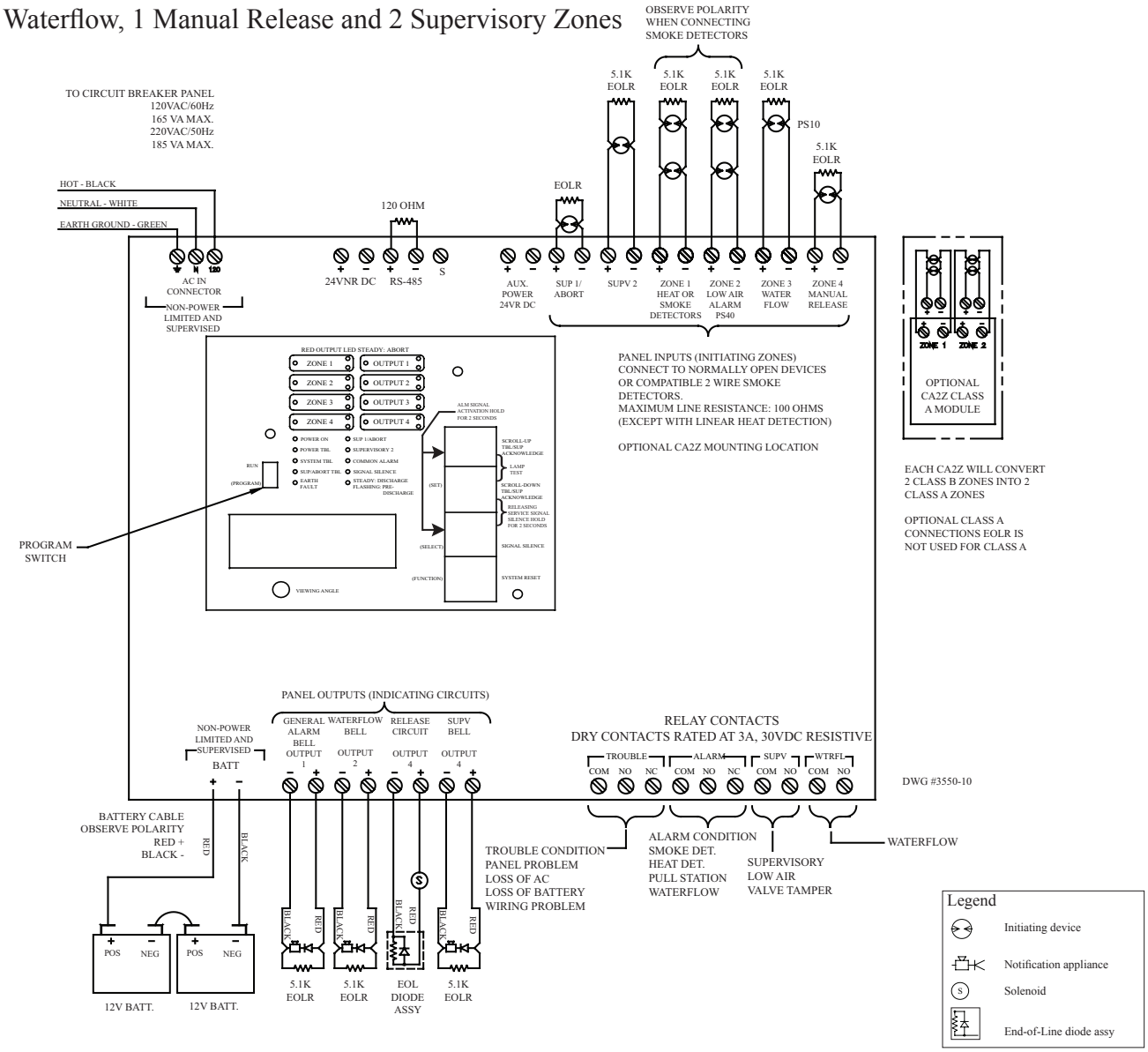
XX = Cross-Zoned

Description: Single Hazard, 2 detection and low air alarm zones cross-zoned*.
Inputs: 2 supervisory zones, 2 detection zone, 1 waterflow zone, 1 low air alarm zone.
Outputs: 1 general alarm, 1 supervisory, 1 waterflow, 1 solenoid release circuit
Operation: Activation of both detection zones and the low air alarm zone at the same time will operate the solenoid release circuit and the general alarm bell.
Activation of either detection zone only will operate the general alarm output
Activation of the waterflow zone will operate the waterflow bell output
Activation of the low air alarm zone will operate the supervisory bell output. It will not operate the alarm relay

When either zone 1 or 2 is in alarm, output 1 will operate
When zone 3 is in alarm, output 2 will operate
When zone 4 is activated, output 3 will operate. This will create a supervisory condition not an alarm condition. The alarm relay will not operate, the supervisory relay will.
When zones 1, 2 & 4 are activated at the same time, the solenoid release circuit will operate.

*Cross Zoning acceptable for NFPA 13, 15, and 16 type extinguishing systems.

Wiring Diagram Program #11
Single Hazard Cross-Zoned, 1 Detection Zone with Low Air Alarm
Zone 1 Waterflow, 1 Manual Release and 2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #11 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #11”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #11						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Low Air Alarm	Waterflow	Manual Release
#1 ALARM INDICATING			X			X
#2 ALARM INDICATING					X	
#3 RELEASE			XX	XX		X
#4 SUPERVISORY	X	X		X		

XX = Cross-Zoned

Description: Single Hazard, detection and low air alarm zones cross-zoned*. Also 1 waterflow and 1 manual release zone. Manual release overrides cross zoning.

Inputs: 2 supervisory zones, 1 detection zone, 1 low air alarm zone, 1 waterflow zone, 1 manual release zone.

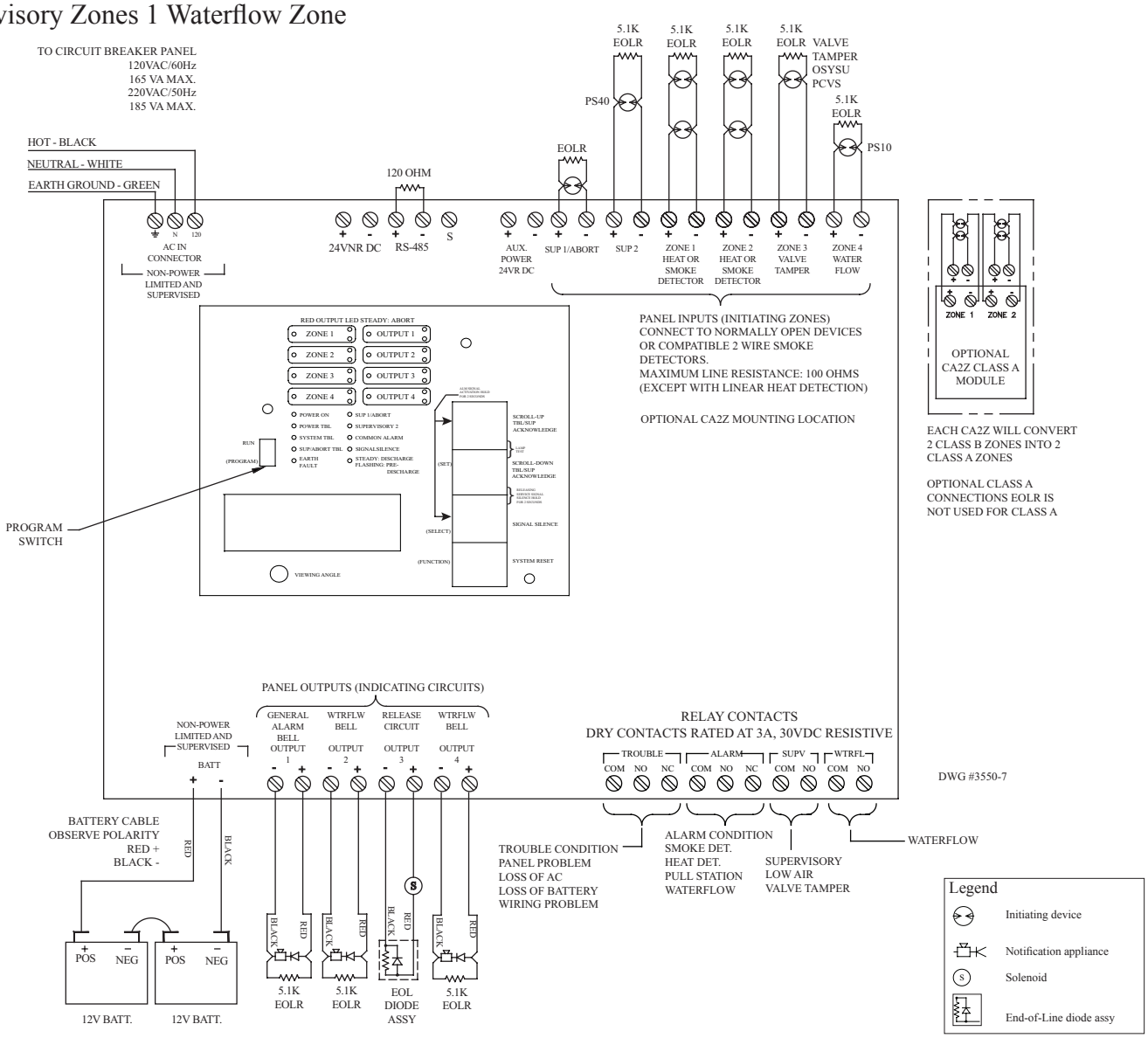
Outputs: 1 general alarm, 1 supervisory, 1 waterflow, 1 solenoid release circuit

Operation: Activation of the detection zone and the low air alarm zone at the same time will operate the solenoid release circuit and the general alarm bell.
Activation of the waterflow zone will operate the waterflow bell output
Activation of the low air alarm zone will operate the supervisory bell output. It will not operate the alarm relay.

When zone 1 is in alarm, output 1 will operate
When zone 2 is activated, output 4 will operate. This will create a supervisory condition not an alarm condition. The alarm relay will not operate, the supervisory relay will.
When zone 3 is in alarm, output 2 will operate
When zone 4 is in alarm, outputs 1 & 3 will operate
When both zones 1 & 2 are activated at the same time, the solenoid release circuit, output 3, will operate.

*Cross Zoning acceptable for NFPA 13, 15, and 16 type extinguishing systems.

Wiring Diagram Program #12
Single Hazard, 2 Detection Zones, 3 Supervisory Zones 1 Waterflow Zone



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #12 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION (button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

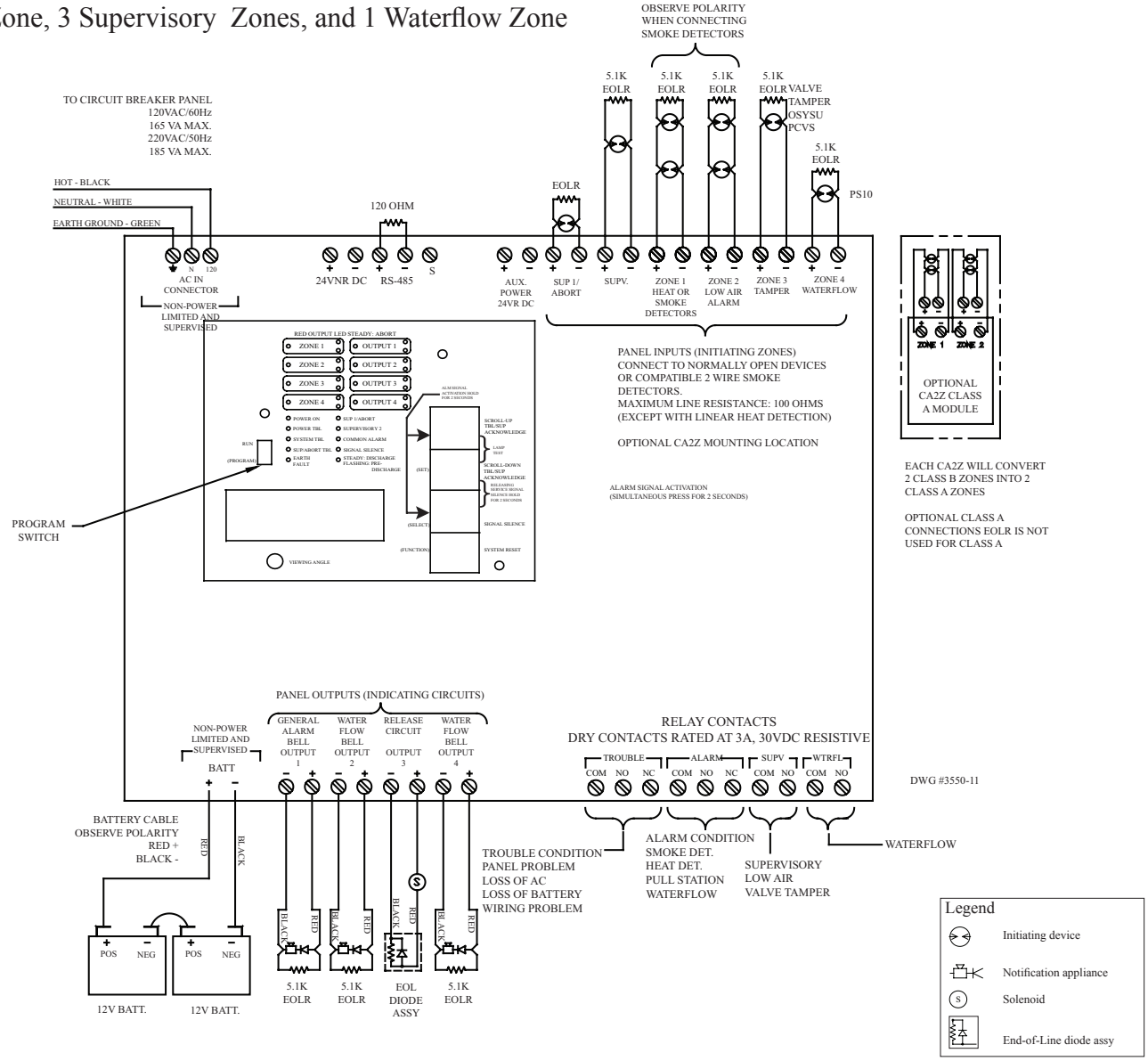
   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #12”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #12						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Low Air Supervisory	Detection	Detection	Tamper	Waterflow
#1 ALARM INDICATING			X	X		X
#2 ALARM INDICATING						X
#3 RELEASE			X	X		
#4 ALARM INDICATING						X

Description: Single Hazard, 2 detection zones,1 waterflow, and 3 supervisory zones.
Inputs: 1 supervisory zone, 1 low air supervisory zone, 2 detection zone, 1 waterflow zone, 1 tamper switch zone.
Outputs: 2 general alarm, 1 waterflow, 1 solenoid release circuit
Operation: Activation of either detection zone will operate the release and the general alarm bell outputs. Activation of the waterflow zone will operate the waterflow and both general alarm bell outputs. Activation of either the tamper or supervisory zones will operate the supervisory relay only.

When either zone 1 or 2 is in alarm, outputs 1 & 3 will operate
When zone 3 or the supervisory zone is activated, only the supervisory relay operates
When zone 4 is in alarm, outputs 1, 2 & 4 will operate

Wiring Diagram Program #13
Single Hazard Cross-Zoned, 1 Detection Zone with Low Air Alarm Zone, 3 Supervisory Zones, and 1 Waterflow Zone



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #13 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #13”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #13						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Low Air Alarm	Tamper	Waterflow
#1 ALARM INDICATING			X			X
#2 ALARM INDICATING						X
#3 RELEASE			XX	XX		
#4 ALARM INDICATING						X

XX = Cross-Zoned

Description: Single Hazard, detection and low air alarm zones cross-zoned. Also 1 waterflow, 1 tamper and 1 supervisory zone

Inputs: 2 supervisory zones, 1 detection zone, 1 low air alarm zone, 1 tamper switch zone, 1 waterflow zone,

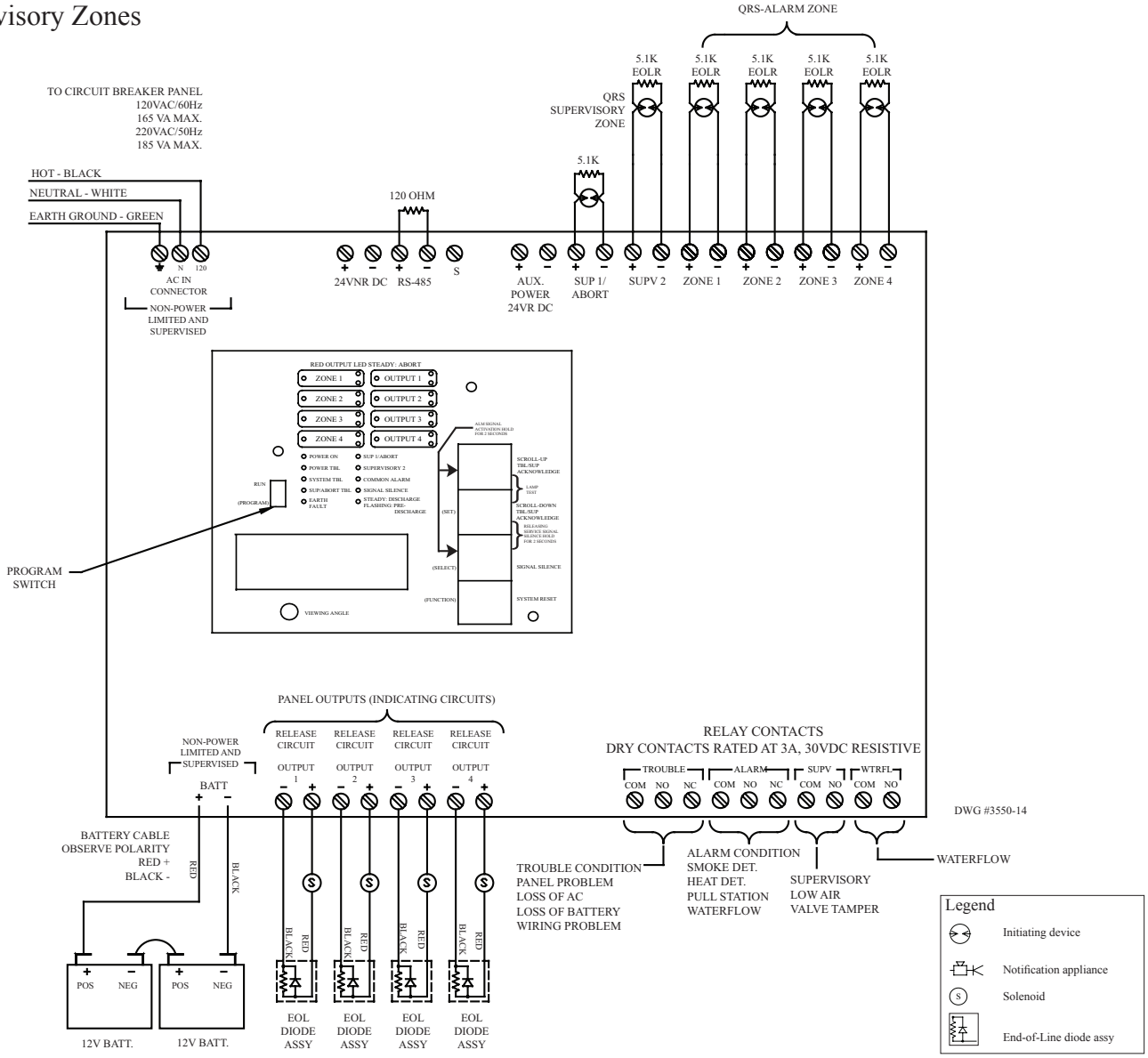
Outputs: 1 general alarm, 2 waterflow, 1 solenoid release circuit

Operation: Activation of the detection zone and the low air alarm zone at the same time will operate the solenoid release circuit and the general alarm bell.
Activation of the waterflow zone will operate both waterflow bell outputs
Activation of the low air alarm zone will not operate the alarm relay, only the supervisory relay.

When zone 1 is in alarm, output 1 will operate
When zone 2 is activated, it will create a supervisory condition not an alarm condition. The alarm relay will not operate, the supervisory relay will.
When zone 3 is activated, only the supervisory relay will operate.
When zone 4 is in alarm, outputs 1, 2 & 4 will operate.
When both zones 1 & 2 are activated at the same time, the solenoid release circuit, output 3, will operate.

*Cross Zoning acceptable for NFPA 13, 15, and 16 type extinguishing systems.

Wiring Diagram Program #14
4 Alarm Zones and 4 Release Circuits mapped 1 to 1.
2 Supervisory Zones



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #14 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #14”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #14						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Detection	Detection	Detection
#1 RELEASE			X			
#2 RELEASE				X		
#3 RELEASE					X	
#4 RELEASE						X

Description: QRS System 4 Manual Station zones and 4 Release Outputs mapped 1 to 1
Inputs: 4 Manual Station zones, 2 Supervisory zones
Outputs: 4 release circuits
Operation: Activation of detection zone 1 will activate release output #1
Activation of detection zone 2 will activate release output #2
Activation of detection zone 3 will activate release output #3
Activation of detection zone 4 will activate release output #4

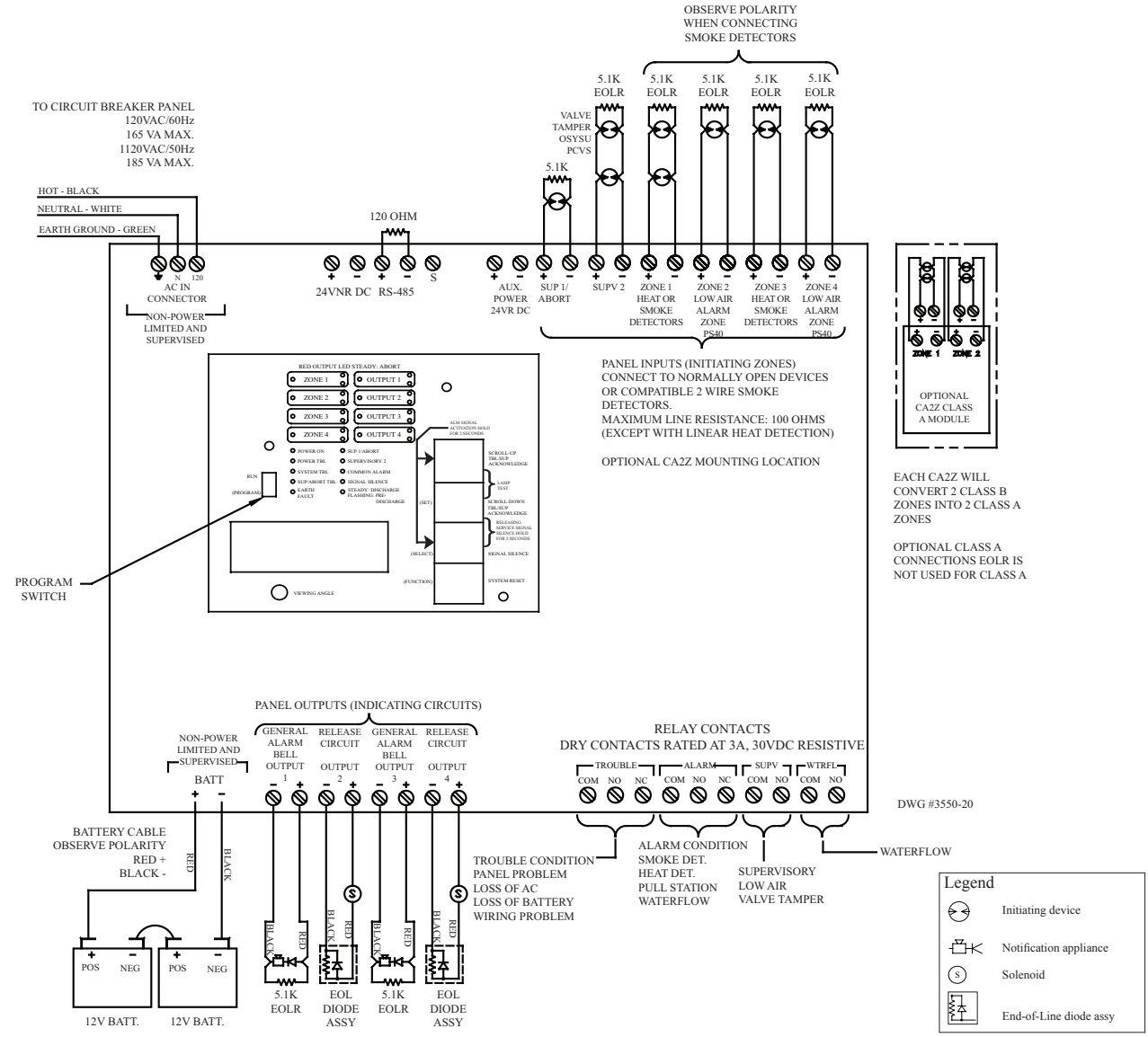
NOTE:
After initially setting the PFC-4410RC to program 14 and returning the program switch to the normal UP position:
When setting or resetting the QRS, slide the program switch down. The display will read: OK TO CHARGE SYSTEM. Charge the system to normal operating pressure. After the system reaches normal operating pressure, press the SET button and slide the program switch back up.
Remember to wait 60 seconds after the system reaches normal operating pressure before testing the QRS.

⚠ CAUTION

When the program switch is in the down position, the panel is inoperative. None of the outputs or inputs will operate. No QRS will operate. The sprinkler system will operate as a regular dry pipe system.

Wiring Diagram Program #15

Dual Hazard, 1 Detection Zone and 1 Low Air Alarm Zone Cross-Zoned to 1 Release Circuit, 1 Other Detection and 1 other Low Air Alarm Zone Cross-Zoned to a Separate Release Circuit, and Supervisory Zones.



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #15 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #15”.
7. Press the SET button.
8. The panel is completely programmed except for the custom banner and zone messages Move the program switch back up.

PROGRAM #15						
	ZONES					
	SUP 1	SUP 2	#1	#2	#3	#4
OUTPUTS	Supervisory		Detection	Low Air Alarm	Detection	Low Air Alarm
#1 ALARM INDICATING			X	X		
#2 RELEASE			XX	XX		
#3 ALARM INDICATING					X	X
#4 RELEASE					XX	XX

XX = Cross-Zoned

Description: Dual Hazard, 2 detection zones cross-zoned* to 1 release circuit and 2 other detection zones cross zoned to another release circuit

Inputs: 2 supervisory zones, 4 detection zones

Outputs: 2 general alarm, 2 release circuit

Operation: Activation of either detection zones 1 and 2 will activate the alarm output #1
Activation of both detection circuits at the same time will release circuit output #2 as well as activate the alarm output #1
Activation of either detection zones 3 and 4 will activate the alarm output #3
Activation of both detection circuits at the same time will release circuit output #4 as well as activate the alarm output #3

When either zone 1 or 2 is in alarm, output 1 will operate
When both zones 1 and 2 are in alarm at the same time, output #2 will operate
When either zone 3 or 4 is in alarm, output 3 will operate
When both zones 3 and 4 are in alarm at the same time, output #4 will operate

*Cross Zoning acceptable for NFPA 13, 15, and 16 type extinguishing systems.

NOTICE

The following programs are for chemical or gas extinguishing systems. Selecting the CHEMICAL mode allows the use of a pre-discharge timer and an abort circuit. The timer defaults to 60 seconds for all alarm zones programmed as other than MANUAL RELEASE. The MANUAL RELEASE default timer is 30 seconds. The system offers the programmer the ability to change the default timers to shorter times.

Systems intended for the release of Halon 1301 as described in NFPA 12A, or clean agents as described in NFPA 2001, shall have provision for a pre-discharge notification circuit. If this signal is required to be separate and/or distinct from the evacuation signal, two notification circuits are required. One shall be programmed as FIRST ALARM. It will provide a steady output upon activation of any initiating zone programmed as an alarm zone. This is the evacuation signal. If a temporal signal is required, notification appliances such as Potter model EH24 or others that can produce a temporal tone shall be used. This allows the use of strobes and horns on the same circuit. The other notification circuit shall be programmed as SECOND ALARM. It will provide a steady output upon activation of a second initiating zone programmed as an alarm zone. This is when the pre-discharge timer would start and would be the pre-discharge signal. If a temporal signal is required, notification appliances such as Potter model EH24 or others that can produce a temporal tone shall be used. This allows the use of strobes and horns on the same circuit. If a separate signal for discharge were required, a third notification circuit would be used that would be programmed to operate whenever the release circuit is activated.

Zones programmed as MANUAL RELEASE will activate outputs programmed as SECOND ALARM, even if the MANUAL RELEASE zone is the first alarm zone activated. SECOND ALARM is intended to be used as a pre-discharge signal for cross zone applications. Refer to page 79 for a complete description of first and second alarm requirements and operation.

⚠ CAUTION

ZONES PROGRAMMED AS MANUAL RELEASE CANNOT BE ABORTED. IF IT IS NECESSARY TO ABORT A MANUAL RELEASE ZONE, THAT ZONE MUST BE PROGRAMMED AS DETECTION. IF THE PREDISCHARGE TIMER IS SET AT 0, THE ABORT CIRCUIT WILL NOT STOP THE RELEASE.

NFPA 12 prohibits the use of abort circuits on suppression systems deploying carbon dioxide.

Systems designed and installed in accordance with NFPA 2001 shall be provided with a mechanical manual release system.

NOTE:

On programs 20-28, the SUP 1/Abort zone defaults to Abort.

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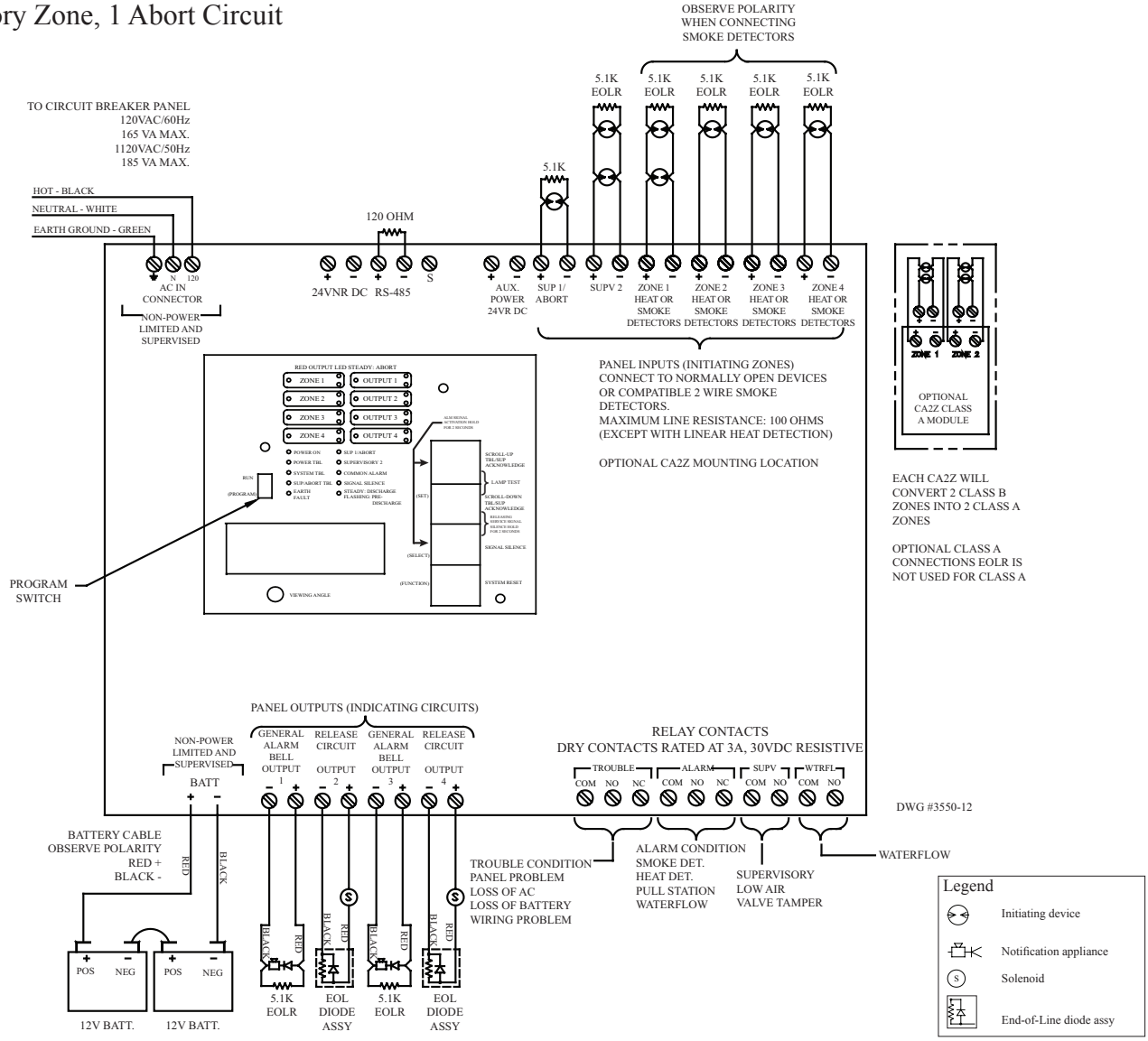
Wiring Diagram Program #20
Dual Hazard, 2 Detection Zones Cross-Zoned to 1 Release Circuit, 2 Other Detection Zones Cross-Zoned to A Separate Release Circuit, 1 Supervisory Zone, 1 Abort Circuit



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #20 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #20”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Press the SELECT button to change the abort mode. See page 11 for abort mode selections.
11. Press the SET button to enter the abort mode displayed.
12. The panel is completely programmed except for the custom banner and zone messages Move the program switch back up.

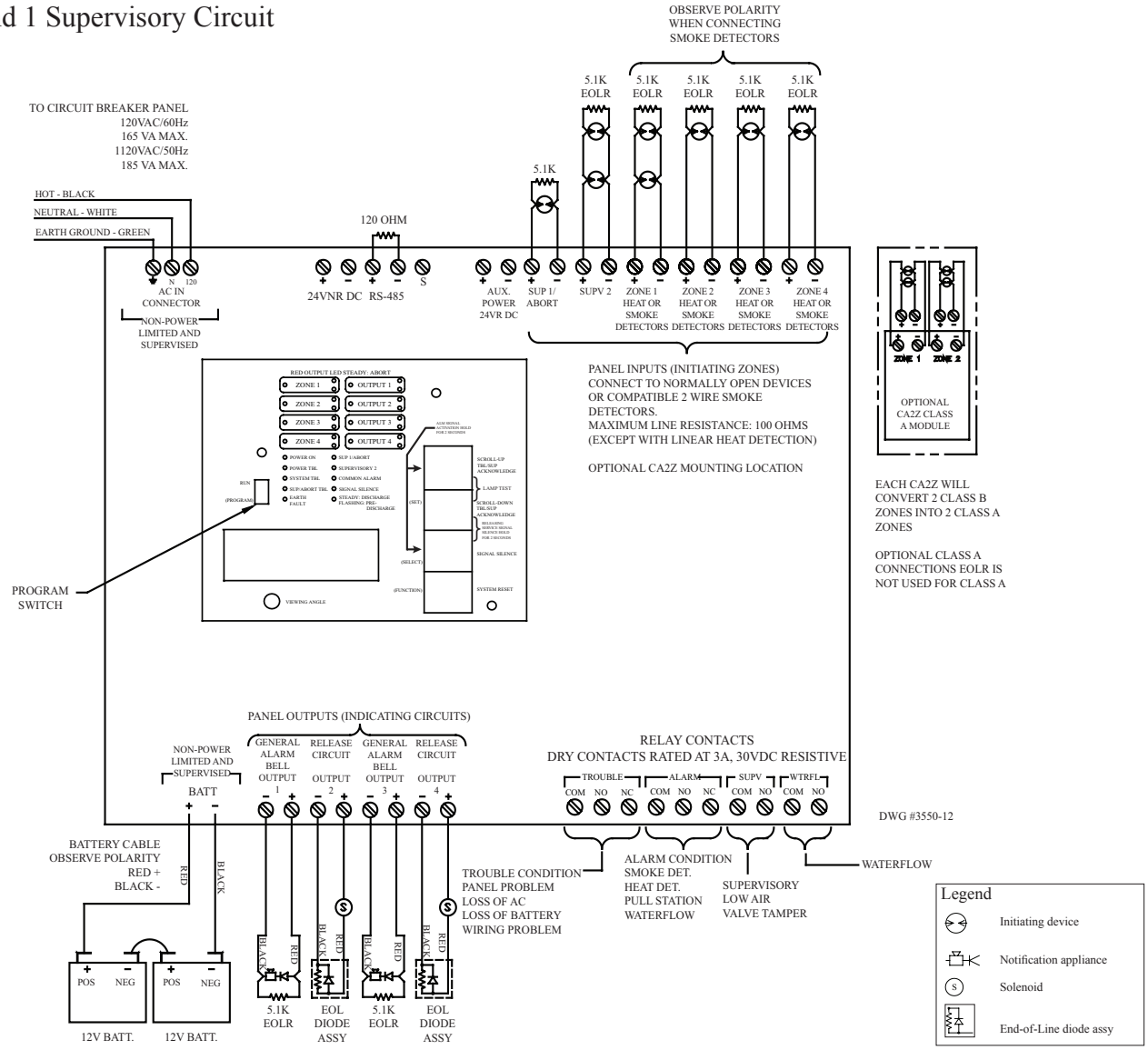
PROGRAM #20					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Detection	Detection
#1 ALARM INDICATING		X	X		
#2 RELEASE		XX	XX		
#3 ALARM INDICATING				X	X
#4 RELEASE				XX	XX

SUP 1 defaults to abort
XX = Cross-Zoned

Description: Dual Hazard, 2 detection zones cross-zoned to 1 release circuit and 2 other detection zones cross zoned to another release circuit
Inputs: 1 supervisory zone, 4 detection zones, 1 abort circuit
Outputs: 2 general alarm, 2 release circuit
Operation: Activation of either detection zones 1 and 2 will activate the alarm output #1
Activation of both detection circuits at the same time will start the pre-discharge timer for release circuit output #2 as well as activate the alarm output #1
Activation of either detection zones 3 and 4 will activate the alarm output #3
Activation of both detection circuits at the same time will start the pre-discharge timer for release circuit output #4 as well as activate the alarm output #3

When either zone 1 or 2 is in alarm, output 1 will operate
When both zones 1 and 2 are in alarm at the same time, the pre-discharge timer for output #2 will operate
When either zone 3 or 4 is in alarm, output 3 will operate
When both zones 3 and 4 are in alarm at the same time, the pre-discharge timer for output #4 will operate

Wiring Diagram Program #21
Dual Hazard, 2 Detection Zones Mapped to 1 Release Circuit and 2 Other Detection Zones Mapped to A Separate Circuit, 1 Abort Circuit, and 1 Supervisory Circuit



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #21 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #21”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Press the SELECT button to change the abort mode. See page 11 for abort mode selections.
11. Press the SET button to enter the abort mode displayed.
12. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #21					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Detection	Detection
#1 ALARM INDICATING		X	X		
#2 RELEASE		X	X		
#3 ALARM INDICATING				X	X
#4 RELEASE				X	X

SUP 1 defaults to abort

Description: Dual Hazard, 2 detection zones mapped to 1 release circuit and 2 other detection zones mapped to another release circuit

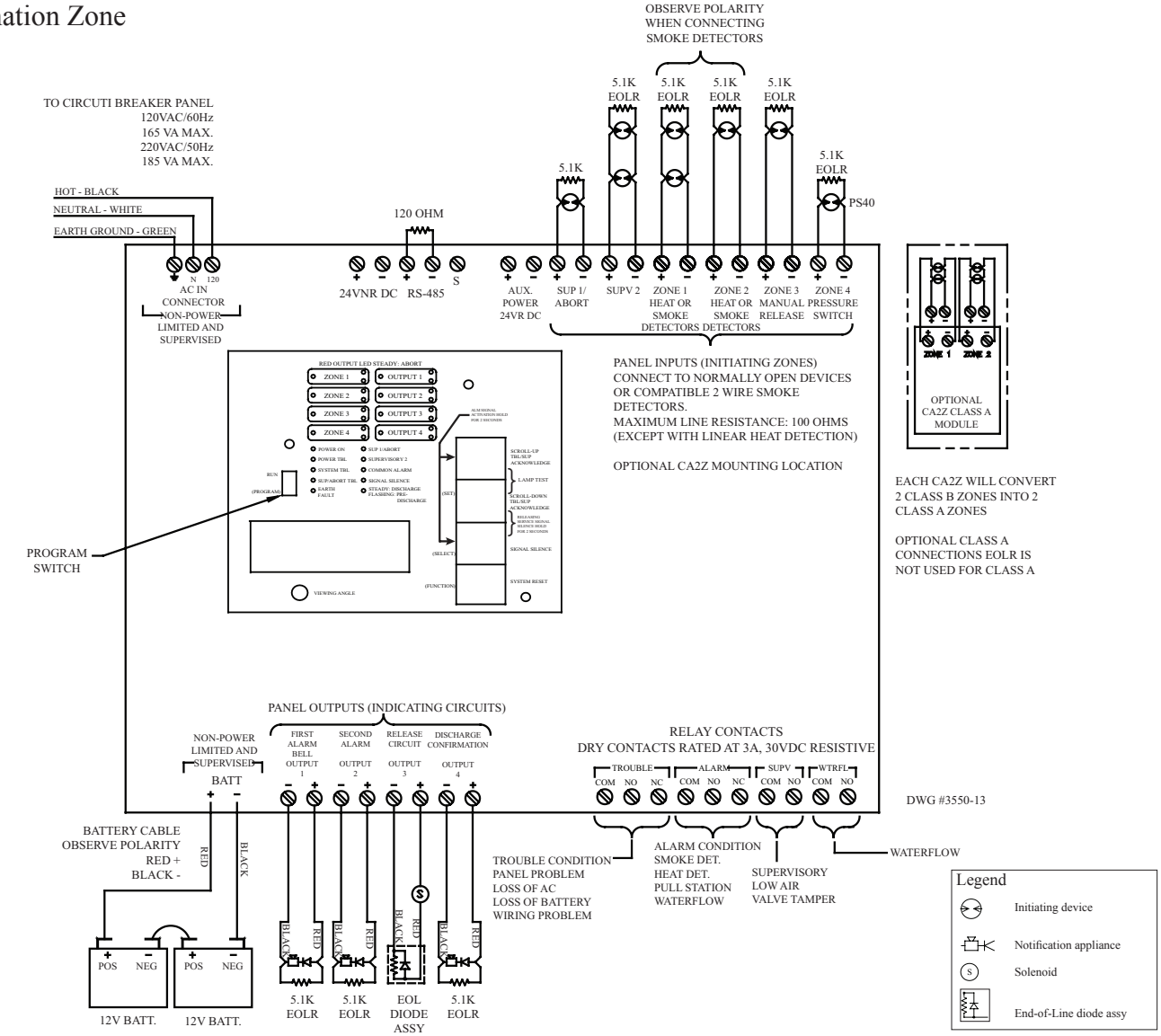
Inputs: 1 supervisory zone, 4 detection zones, 1 abort circuit

Outputs: 2 general alarm, 2 release circuit

Operation: Activation of either detection zone 1 or 2 will activate the alarm output #1 and start the pre-discharge timer for the release circuit output #2
Activation of either detection zone 3 or 4 will activate the alarm output #3 and start the pre-discharge timer for the release circuit output #2

When either zone 1 or 2 is in alarm, outputs 1 & 2 will operate
When either zone 3 or 4 is in alarm, outputs 3 & 4 will operate

Wiring Diagram Program #22
Single Hazard, 2 Detection Zones Cross-zoned to 1Release Circuit, 1 Manual Station and A Discharge Confirmation Zone



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #22 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #22”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Preset the SELECT button to change the manual release pre-discharge time. See page 11 for abort mode selections.
11. Press the SET button to enter the manual release pre-discharge time displayed.
12. Press the SELECT button to change the abort mode.
13. Press the SET button to enter the abort mode displayed.
14. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

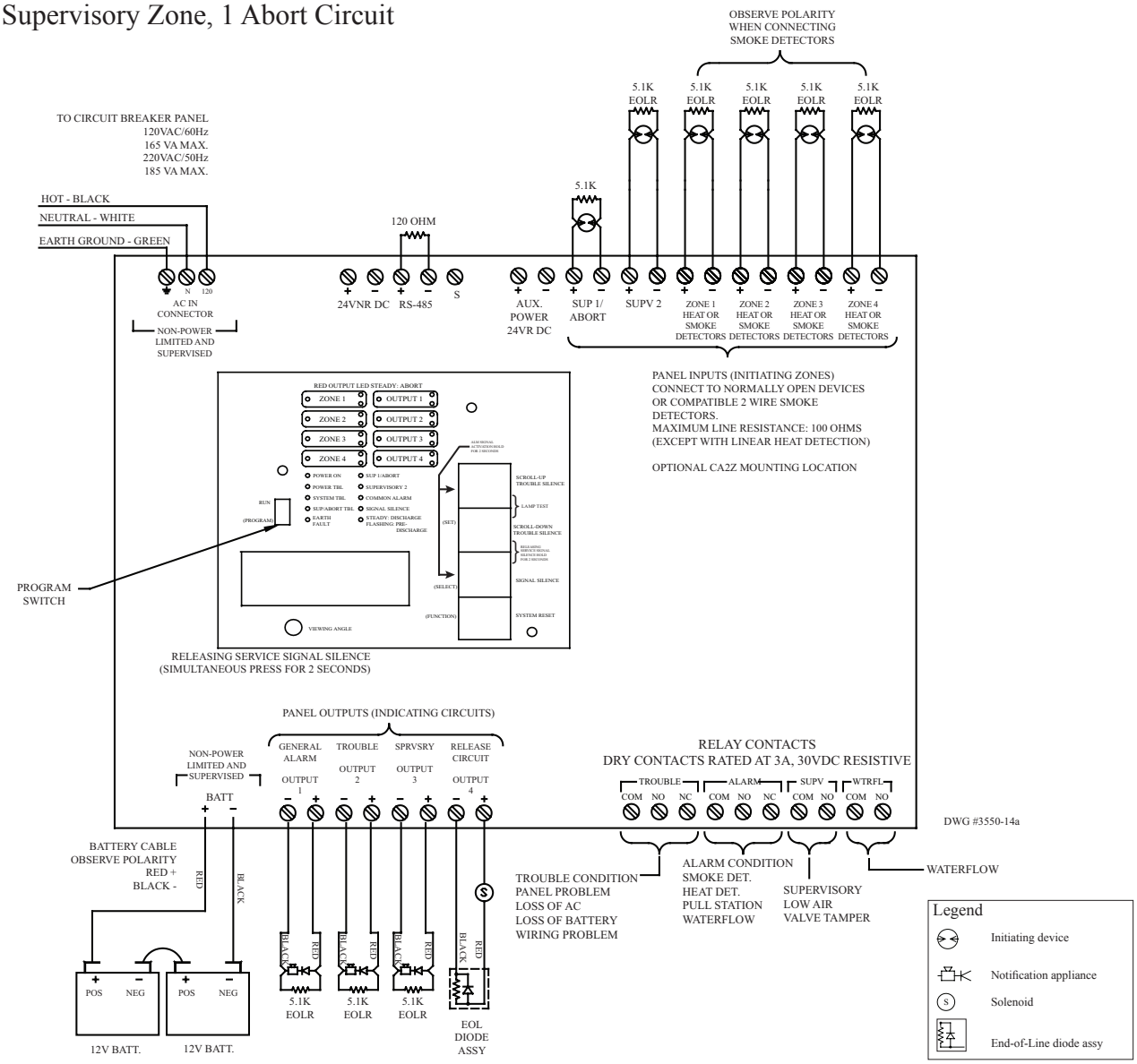
PROGRAM #22					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Manual Release	Detection
#1 FIRST ALARM		X	X		
#2 SECOND ALARM		X	X	X	
#3 RELEASE		XX	XX	X	
#4 ALARM INDICATING					X

SUP 1 defaults to abort
XX = Cross-Zoned

Description: Single Hazard, 2 detection zones cross-zoned to 1 release circuit. A manual station zone and a discharge confirmation zone. Also first and second alarm notification circuits.
Inputs: 1 supervisory zone, 3 detection zones, 1 manual station zone, 1 abort circuit
Outputs: 3 general alarm, 1 release circuit
Operation: Activation of either detection zones 1 or 2 will activate the alarm output #1
Activation of both detection circuits at the same time will activate the alarm outputs #1, #2 and start the pre-discharge timer for the release circuit output #3
Activation of the manual release zone #3 will activate the alarm output #2 and start the manual release pre-discharge timer for release circuit output #3
Activation of zone 4 will operate output #4

When either zone 1 or 2 is in alarm, output 1 will operate
When both zones 1 and 2 are in alarm at the same time, outputs #1,2 will operate and the pre-discharge timer for output #3 will start
When zone 3 is in alarm, output 2 will operate and the manual release pre-discharge timer for output #3 will start
When zone 4 is in alarm, output #4 will operate

Wiring Diagram Program #23
Single Hazard, 4 Detection Zones Mapped to 1 Release Circuit, 1 Supervisory Zone, 1 Abort Circuit



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #23 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #23”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Press the SELECT button to change the abort mode. See page 11 for abort selections.
11. Press the SET button to enter the abort mode displayed.
12. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

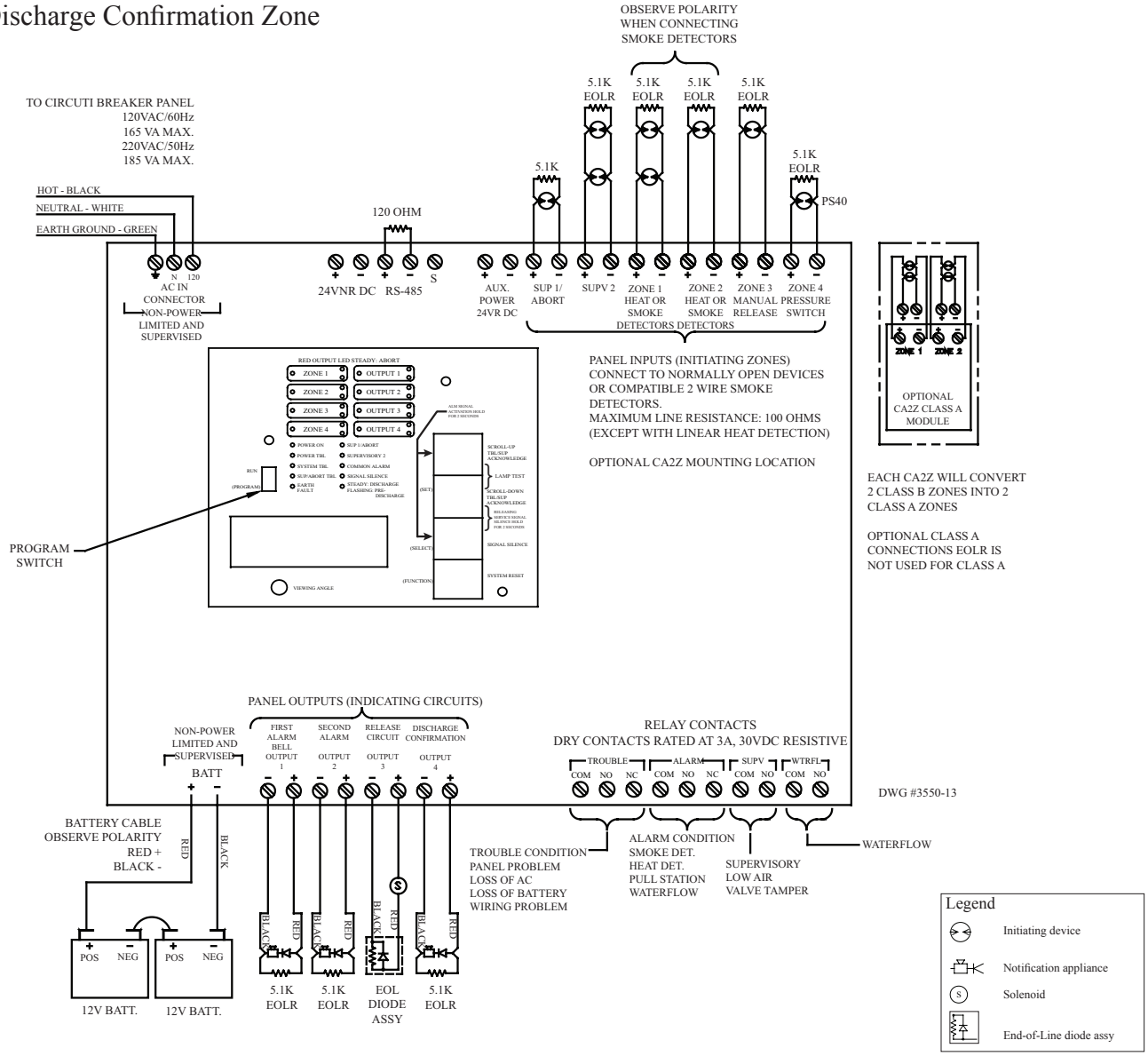
PROGRAM #23					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Detection	Detection
#1 ALARM INDICATING		X	X	X	X
#2 TROUBLE					
#3 SUPERVISORY	X				
#4 RELEASE		X	X	X	X

SUP 1 defaults to abort

Description: Single Hazard, 4 detection zones mapped to 1 release
Inputs: 1 supervisory zone, 4 detection zones, 1 abort circuit
Outputs: 1 general alarm, 1 trouble, 1 supervisory, 1 release circuit
Operation: Activation of any detection zone will activate the alarm output #1 and start the pre-discharge timer for the release circuit output #4.
Activation of the supervisory zone will operate the supervisory bell.
A trouble condition (low battery, wire problem, etc.) will operate the trouble bell.

When either zone 1, 2, 3, or 4 is in alarm, outputs 1 & 4 will operate
When the supervisory zone is activated - output #3 (supervisory bell) will operate.
When the panel is in a trouble condition - output #2 (trouble bell) will operate.

Wiring Diagram Program #24
Single Hazard, 2 Detection Zones 1 Manual Station Zone and A Discharge Confirmation Zone



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with solenoid on release circuit
3. Leave EOLR (provided) on all unused circuits.
4 Polarity is shown on indicating circuits in an activated (off-normal) condition.
5. Polarity reverses when output is activated.
6. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
7. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
8. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
9. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
10. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
11. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #24 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #24”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Press the SELECT button to change the manual release pre-discharge time. See page 11 for abort selections.
11. Press the SET button to enter the manual release pre-discharge time selected.
12. Press the SELECT button to change the abort mode.
13. Press the SET button to enter the abort mode displayed.
14. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

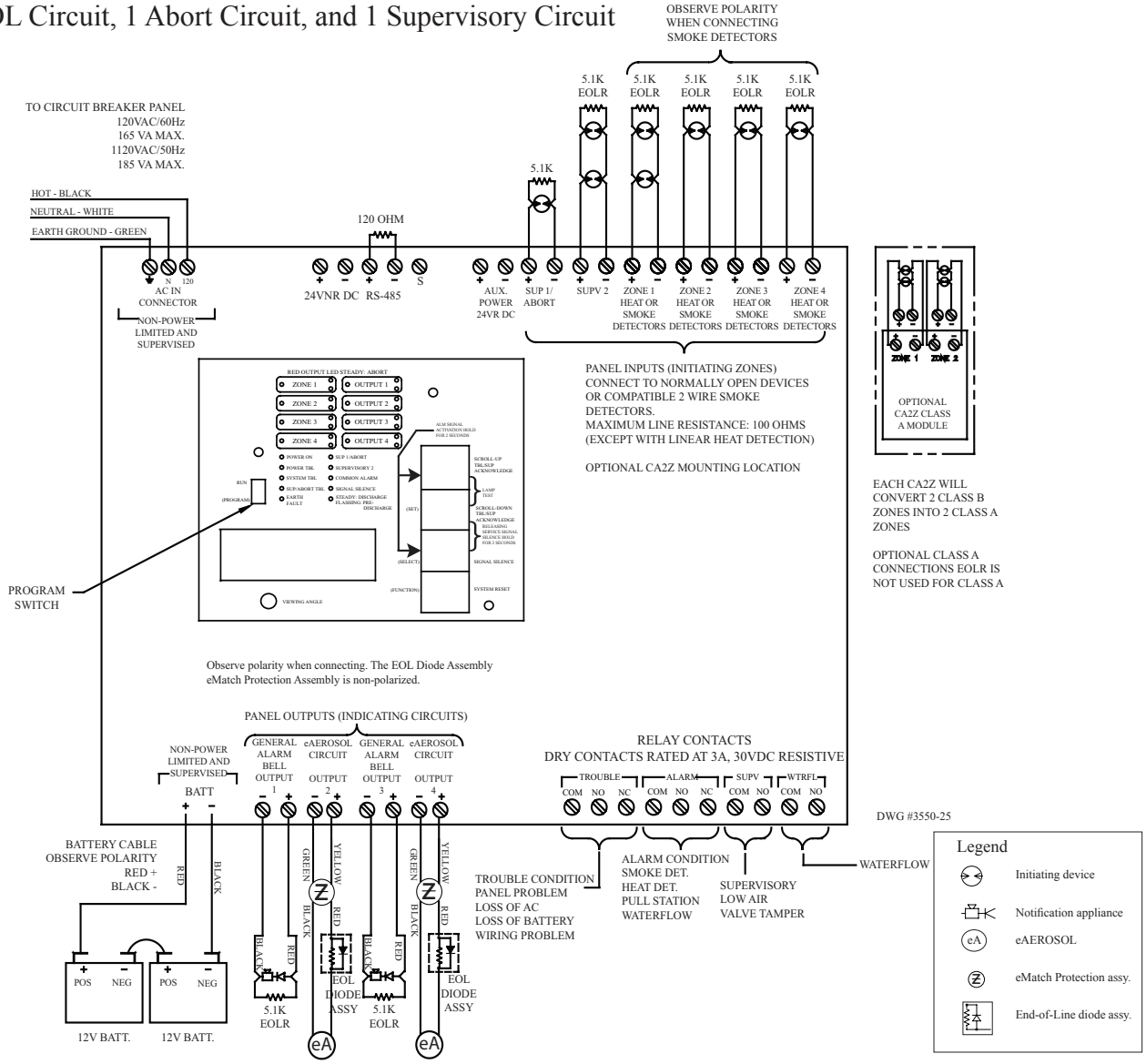
PROGRAM #24					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Manual Release	Low Air
#1 ALARM INDICATING		X	X		
#2 ALARM INDICATING				X	
#3 RELEASE		X	X	X	
#4 SUPERVISORY	X				X

SUP 1 defaults to abort

Description: Single Hazard, 2 detection zones, a manual station zone and a discharge confirmation zone.
Inputs: 1 supervisory zone, 1 low air zone, 2 detection zones, 1 manual station zone, 1 abort circuit
Outputs: 2 general alarm, 1 release circuit, 1 supervisory
Operation: Activation of either detection zones 1 or 2 will activate the alarm output #1 and start the pre-discharge timer for the release circuit output #3
Activation of the manual release zone #3 will activate the alarm output #2 and start the manual release pre-discharge timer for release circuit output #3
Activation of zone 4 will operate output #4

When either zone 1 or 2 is in alarm, output 1 will operate and the pre-discharge timer for output #3 will start
When zone 3 is in alarm, output 2 will operate and the manual release pre-discharge timer for output #3 will start.
When zone 4 is activated, output #4 will operate

Wiring Diagram Program #25
Dual Hazard, 2 Detection Zones Cross-Zoned to 1 eAEROSOL Circuit and 2 Other Detection Zones Cross-Zoned to a Separate eAEROSOL Circuit, 1 Abort Circuit, and 1 Supervisory Circuit



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with aerosol on eAEROSOL circuit.
3. Connect eMatch Protection IN PARALLEL with aerosol on eAEROSOL circuit.
4. Leave EOLR (provided) on all unused circuits.
5 Polarity is shown on indicating circuits in an activated (off-normal) condition.
6. Polarity reverses when output is activated.
7. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
8. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
9. All initiating and NAC/eAEROSOL circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
10. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
11. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
12. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #25 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #25”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Press the SELECT button to change the abort mode. See page 11 for abort mode selections.
11. Press the SET button to enter the abort mode displayed.
12. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #25					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Detection	Detection
#1 ALARM INDICATING		X	X		
#2 eAEROSOL		XX	XX		
#3 ALARM INDICATING				X	X
#4 eAEROSOL				XX	XX

SUP 1 defaults to abort
XX = Cross-Zoned

Description: Dual Hazard, 2 detection zones cross-zoned to 1 eAEROSOL circuit and 2 other detection zones cross-zoned to another eAEROSOL circuit

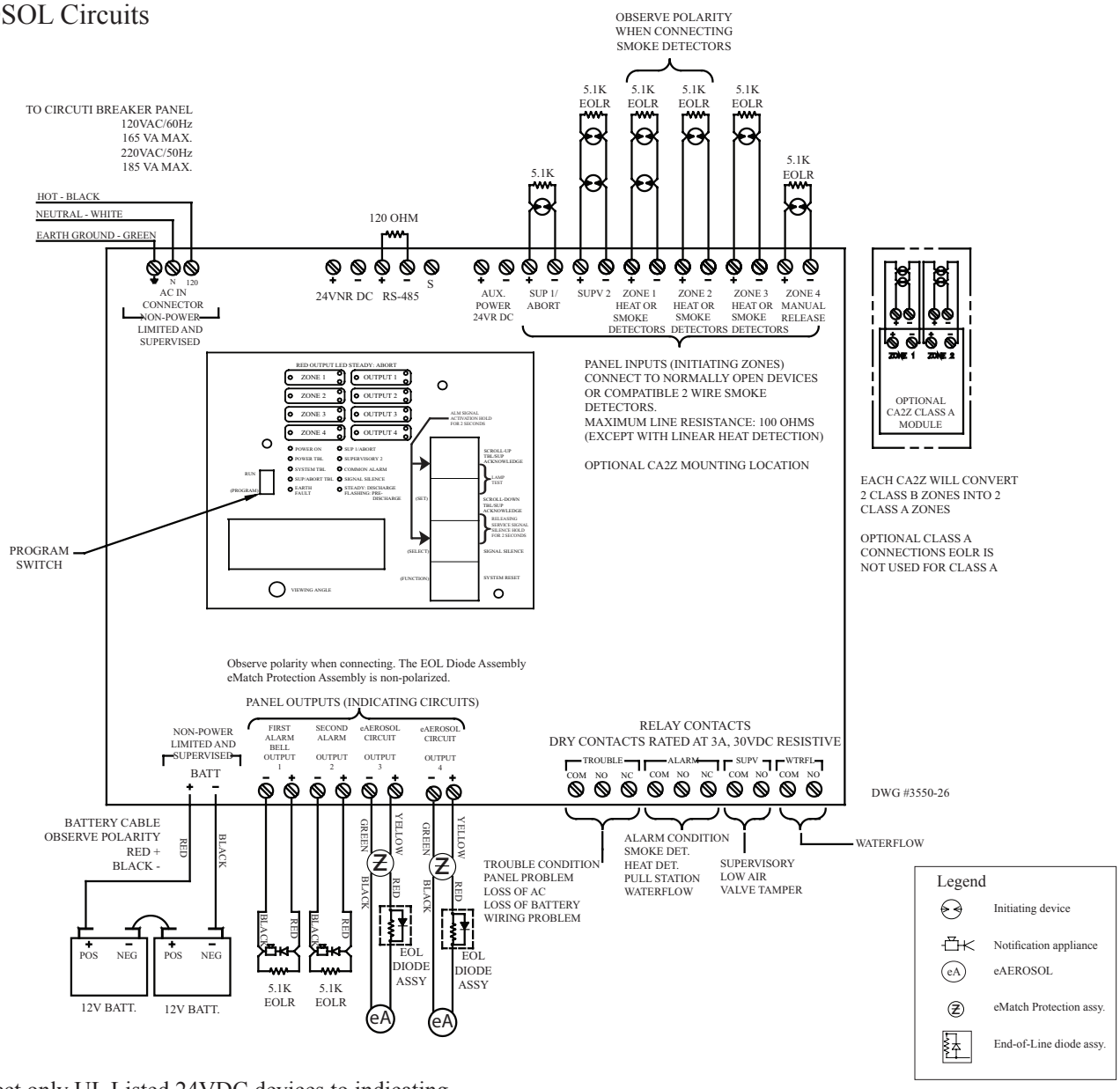
Inputs: 1 supervisory zone, 4 detection zones, 1 abort circuit

Outputs: 2 general alarms, 2 eAEROSOL circuits

Operation: Activation of either detection zone 1 or 2 will activate the alarm output #1.
Activation of both Zones 1 and 2 simultaneously will activate the alarm output #1 and start the pre-discharge timer for the eAEROSOL circuit output #2.
Activation of either detection zone 3 or 4 will activate the alarm output #3.
Activation of both Zones 3 and 4 simultaneously will activate the alarm output #3 and start the pre-discharge timer for the eAEROSOL circuit output #4.

When either zone 1 or 2 is in alarm, output 1 will operate.
When both zones 1 or 2 are in alarm simultaneously, the pre-discharge timer to output 2 will operate.
When either zone 3 or 4 is in alarm, output 3 will operate.
When both zones 3 or 4 are in alarm simultaneously, the pre-discharge timer to output 4 will operate.

Wiring Diagram Program #26
Single Hazard, 2 Detection Zones Cross-zoned to 2 eAEROSOL Circuits



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with aerosol on eAEROSOL circuit.
3. Connect eMatch Protection IN PARALLEL with aerosol on eAEROSOL circuit.
4. Leave EOLR (provided) on all unused circuits.
5. Polarity is shown on indicating circuits in an activated (off-normal) condition.
6. Polarity reverses when output is activated.
7. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
8. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
9. All initiating and NAC/eAEROSOL circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
10. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
11. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
12. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #26 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #26”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Preset the SELECT button to change the manual release pre-discharge time. See page 11 for abort mode selections.
11. Press the SET button to enter the manual release pre-discharge time displayed.
12. Press the SELECT button to change the abort mode.
13. Press the SET button to enter the abort mode displayed.
14. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #26					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Detection	Manual Release
#1 FIRST ALARM		X	X	X	
#2 SECOND ALARM		X	X		X
#3 eAEROSOL		XX	XX		X
#4 eAEROSOL		XX	XX		X

SUP 1 defaults to abort
XX = Cross-Zoned

Description: Single Hazard, 2 detection zones cross-zoned to 2 release circuits. A manual station zone. Also first and second alarm notification circuits.

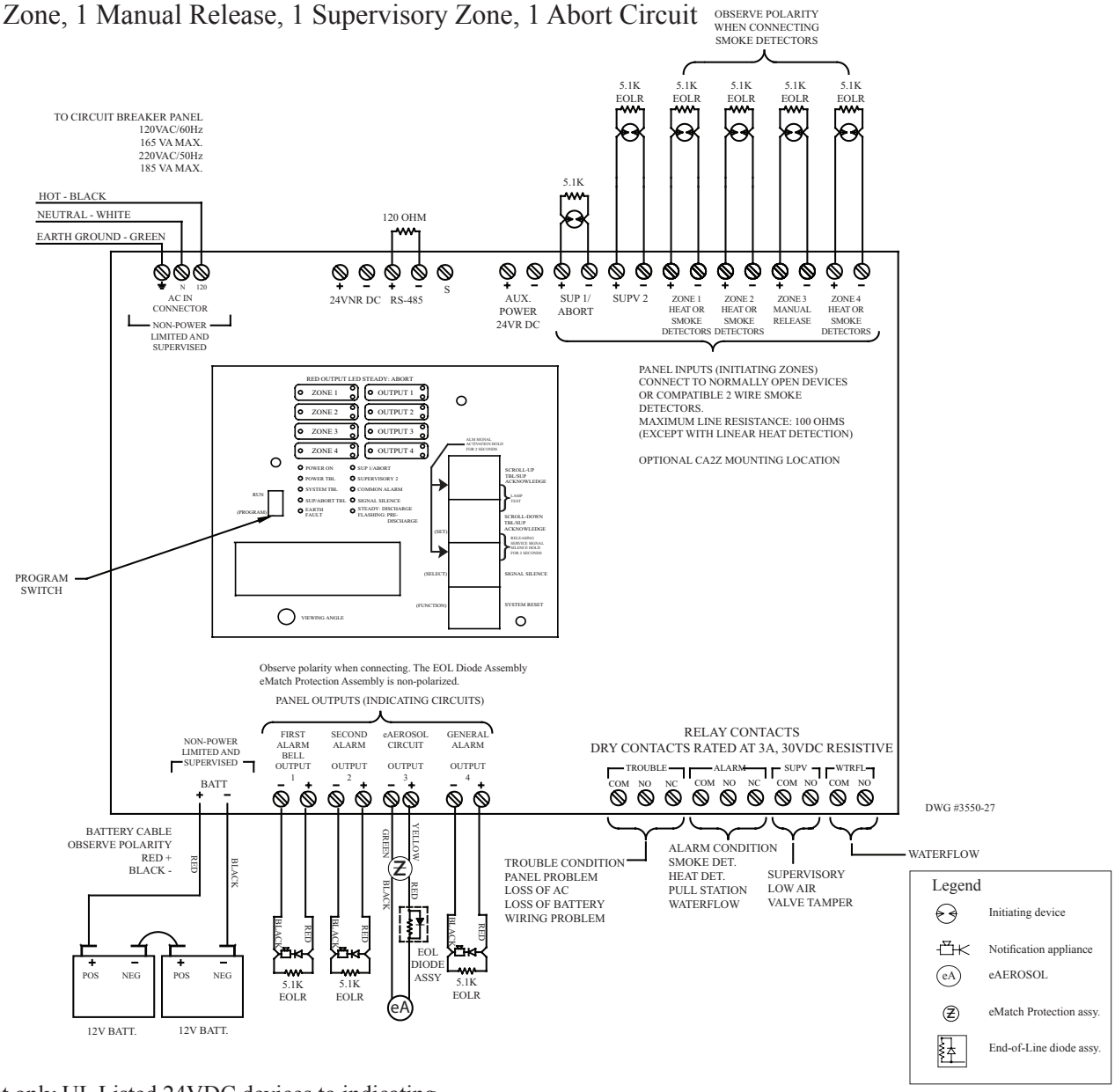
Inputs: 1 supervisory zone, 3 detection zones, 1 manual station zone, 1 abort circuit

Outputs: 2 general alarm, 2 eAEROSOL circuits

Operation: Activation of either detection zones 1 or 2 will activate the alarm output #1
Activation of both detection circuits at the same time will activate the alarm outputs #1, #2 and start the pre-discharge timer for the eAEROSOL circuits output #3 and #4
Activation of zone 3 will operate output #1
Activation of the manual release Zones 4 will operate output #2 and start the pre-discharge timer for the eAEROSOL circuits output #3 and #4.

When either zone 1 or 2 is in alarm, output 1 will operate
When both zones 1 and 2 are in alarm at the same time, outputs #1,2 will operate and the pre-discharge timer for outputs #3 and #4 will start
When zone 3 is in alarm, output #1 will operate
When zone 4 is in alarm, output 2 will operate and the manual release pre-discharge timer for outputs #3 and #4 will start

Wiring Diagram Program #27
Single Hazard, 2 Detection Zones Cross-Zoned to 1 eAEROSOL Circuit and an additional Detection Zone, 1 Manual Release, 1 Supervisory Zone, 1 Abort Circuit



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with aerosol on eAEROSOL circuit.
3. Connect eMatch Protection IN PARALLEL with aerosol on eAEROSOL circuit.
4. Leave EOLR (provided) on all unused circuits.
5. Polarity is shown on indicating circuits in an activated (off-normal) condition.
6. Polarity reverses when output is activated.
7. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
8. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
9. All initiating and NAC/eAEROSOL circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
10. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
11. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
12. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC table Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #27 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #27”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Press the SELECT button to change the abort mode. See page 11 for abort selections.
11. Press the SET button to enter the abort mode displayed.
12. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

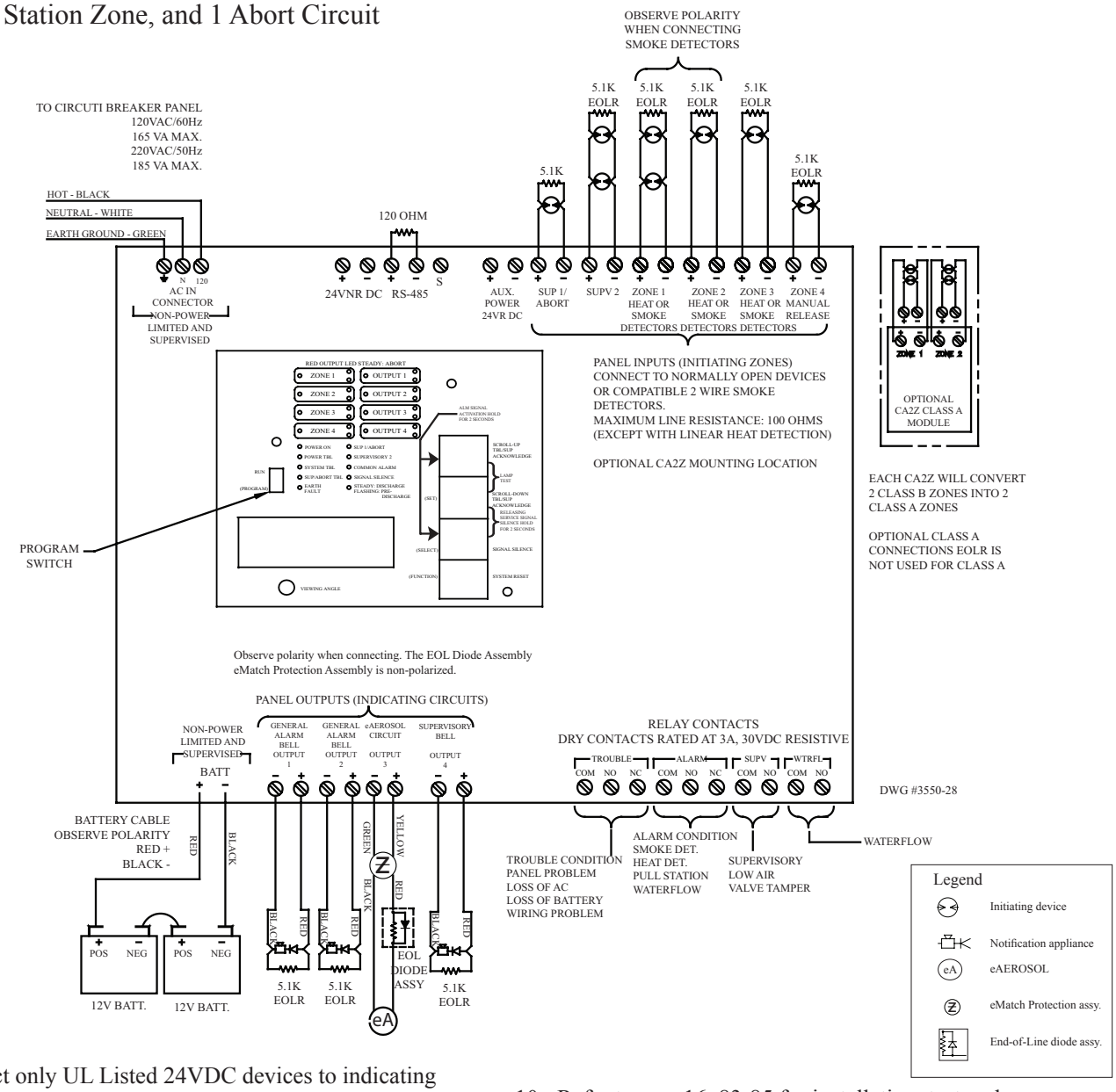
PROGRAM #27					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Manual Release	Detection
#1 FIRST ALARM		X	X		
#2 SECOND ALARM		X	X	X	
#3 eAEROSOL		XX	XX	X	
#4 ALARM INDICATING					X

SUP 1 defaults to abort
XX = Cross-Zoned

Description: Single Hazard, 2 detection zones cross-zoned to 1 eAEROSOL
Inputs: 1 supervisory zone, 3 detection zones, 1 abort circuit, a manual station zone
Outputs: 3 general alarm, 1 eAEROSOL circuit
Operation: Activation of either detection zones 1 or 2 will activate the alarm output #1
Activation of both detection circuits at the same time will activate the alarm outputs #1, #2 and start the pre-discharge timer for the eAEROSOL circuit output #3
Activation of the manual release zone 3 will activate the alarm output #2 and start the manual release pre-discharge timer for the eAEROSOL circuit output #3
Activation of zone 4 will operate output #4

When either zone 1 or 2 is in alarm, output 1 will operate
When both zones 1 and 2 are in alarm at the same time, outputs #1,2 will operate and the pre-discharge timer for output #3 will start
When zone 3 is in alarm, output #2 will operate and the manual release pre-discharge timer for output #3 will start.
When zone 4 is in activated, output #4 will operate.

Wiring Diagram Program #28
Single Hazard, 2 Detection Zones mapped to 1 eAEROSOL Circuit, 1 Supervisory Zone, 1 Manual Station Zone, and 1 Abort Circuit



NOTES:

1. Connect only UL Listed 24VDC devices to indicating circuits.
2. Connect EOL Diode assembly IN SERIES with aerosol on eAEROSOL circuit.
3. Connect eMatch Protection IN PARALLEL with aerosol on eAEROSOL circuit.
4. Leave EOLR (provided) on all unused circuits.
5. Polarity is shown on indicating circuits in an activated (off-normal) condition.
6. Polarity reverses when output is activated.
7. Maximum current per output is 1 Amp. Maximum voltage is 33VDC.
8. Outputs identified as Release are Special Application. All other outputs are Regulated 24 VDC, Rated 1 Amp each, 2.5 Amp total for all 4 circuits.
9. All initiating and NAC/Release circuits are supervised and power limited. See note 3 on page 90 for power limited wire routing instructions. All frequencies are continuous.
10. Refer to pgs. 16, 83-85 for installation, test and maintenance information.
11. Maximum resistance on outputs is 10 ohms. Maximum resistance on outputs programmed as releasing, is 1 divided by current requirements of solenoid.
12. Notification outputs do not provide synchronization. If synchronization is needed, refer to the NAC Compatibility Document, 5403592. Synchronization is only on one circuit and not between circuits. The maximum cannot exceed 1 amp or whatever the maximum that the sync' module can support, whichever is lower.

See page 89 for smoke detector compatibility data.

See page 85 for battery information.

Program #28 Mode

1. Apply power to panel.
2. Move the program switch down.
3. Press the FUNCTION button until the display reads “PASSWORD = 000”.
4. To enter a password, press the SELECT button until the proper number is displayed above the ^ symbol, then press the SET button to move to the next digit. After entering the third number the display will change.

   (All panels are shipped with a 000 password.)
5. Press the FUNCTION button until the display reads “PROGRAM #0”.
6. Press the SELECT button until the display reads “PROGRAM #28”.
7. Press the SET button.
8. Press the SELECT button to change the pre-discharge time.
9. Press the SET button to enter the pre-discharge time displayed.
10. Press the SELECT button to change the manual release pre-discharge time. See page 11 for abort selections.
11. Press the SET button to enter the manual release pre-discharge time selected.
12. Press the SELECT button to change the abort mode.
13. Press the SET button to enter the abort mode displayed.
14. The panel is completely programmed except for the custom banner and zone messages. Move the program switch back up.

PROGRAM #28					
	ZONES				
	SUPERVISORY 2	#1	#2	#3	#4
OUTPUTS	Supervisory	Detection	Detection	Detection	Manual Release
#1 ALARM INDICATING		X	X	X	X
#2 ALARM INDICATING		X	X	X	X
#3 eAEROSOL		X	X	X	X
#4 SUPERVISORY	X				

SUP 1 defaults to abort

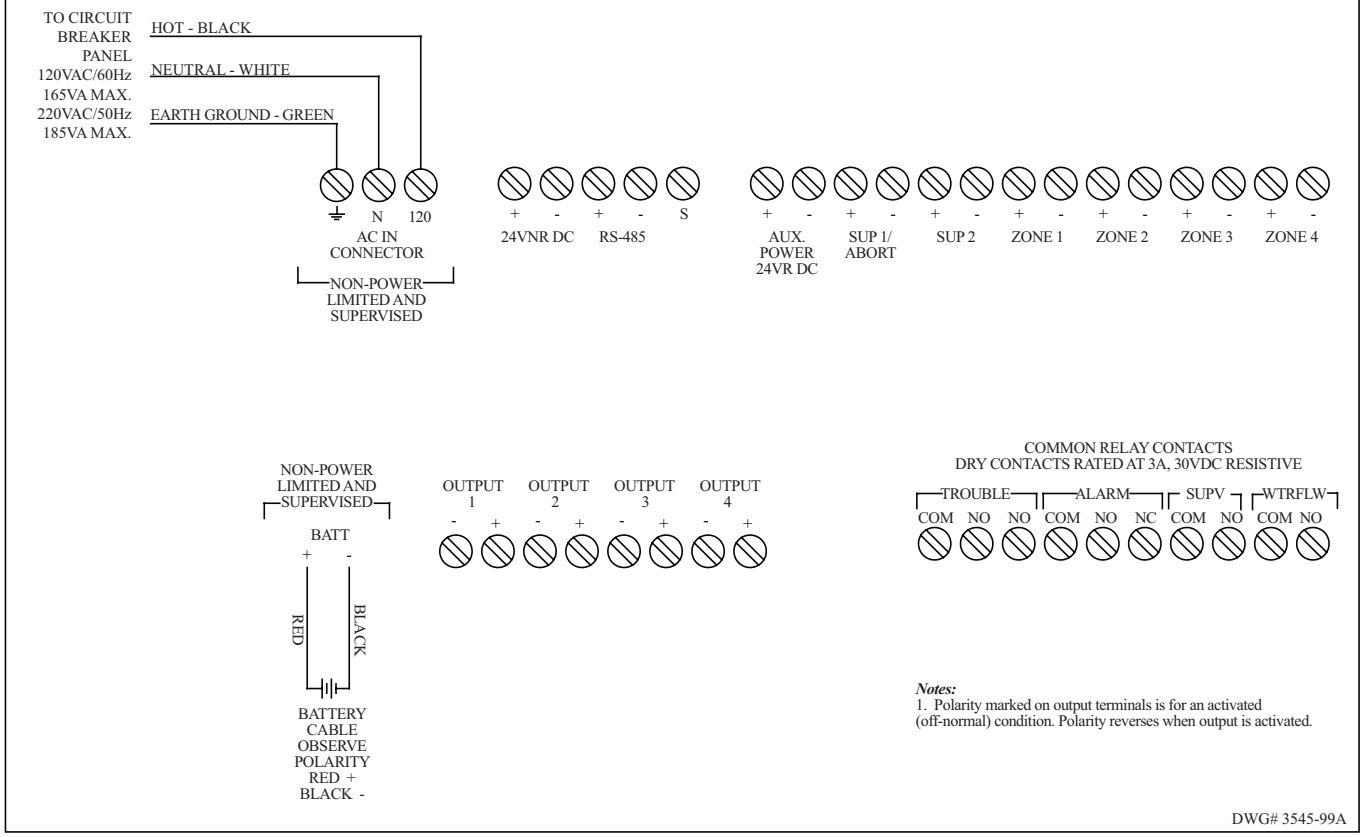
Description: Single Hazard, 3 detection zones, and a manual station zone
Inputs: 1 supervisory zone, 3 detection zones, 1 manual station zone, 1 abort circuit
Outputs: 2 general alarm, 1 eAEROSOL circuit, 1 supervisory
Operation: Activation of either detection zones 1, 2, or 3 will activate the alarm output #1 and #2 and start the pre-discharge timer for the eAEROSOL circuit output #3
Activation of the manual release zone #4 will activate the alarm outputs #1 and #2 and start the manual release pre-discharge timer for eAEROSOL circuit output #3.
Activation of Supervisory 2 will activate output #4.

When either zone 1, 2, or 3 is in alarm, outputs #1 and #2 will operate and the pre-discharge timer for output #3 will start
When zone 4 is in alarm, outputs #1 and #2 will operate and the manual release pre-discharge timer for output #3 will start.

CUSTOM PROGRAM						
	ZONES					
	SUP 1/ABORT	SUP 2	#1	#2	#3	#4
OUTPUTS	*Supervisory or Abort	Supervisory				
#1						
#2						
#3						
#4						

* If SUP 1/Abort zone is programmed as abort, activation of that zone will not operate any output circuits.

Wiring Diagram Custom Program



PFC-4410RC Custom Program Information for Water Based Extinguishing Systems

If the user has selected program # 0 for a custom configuration of the panel the following will appear in the display window.

P	R	O	G	R	A	M		T	Y	P	E	:		
W	A	T	E	R		B	A	S	E	D				

This display allows the user to select functions for either water or chemical based extinguishing systems. This window is for water based, to toggle from water based to chemical based or vice versa, press the SELECT button

SET Press the SET button to set the description displayed into the panels program

SELECT Press the SELECT button to scroll between water or chemical based modes

FUNCTION Press the FUNCTION button to skip to the next function

After setting the WATER BASED mode or pressing FUNCTION, the following will appear in the display:

I	N	I	T		Z	O	N	E	#	1				
D	E	T	E	C	T	I	O	N						

Initiating Zone Description

This allows the user to describe the initiating zones. Nine different descriptions are available. They are:

1) DETECTION - These include smoke detectors, pull stations, heat detectors and other devices put on a conventional zone.
2) WATERFLOW - Alarms from waterflow zones are non-silenceable
3) LINEAR HEAT DETECTION - These use a special wire with a fuseable insulation
4) MANUAL RELEASE - Used to override cross zoning and cause instant release
5) LOW AIR ALARM – This is for a low air switch used in a double interlock system. Usually cross zoned with a smoke or heat detector. Activation of this zone creates a supervisory condition on the panel but can still operate the release circuit.
6) SUPERVISORY - For monitoring any supervisory function as assigned
7) TAMPER - For control valve monitoring
8) LOW AIR - Used to detect low air pressure
9) HIGH AIR - Used to detect high air pressure

The first four descriptions (DETECTION, WATERFLOW, LINEAR HEAT DETECTION and MANUAL RELEASE) are Alarm Zones. When activated, they will put the panel into alarm and operate the appropriate output as well as operating the alarm relay.

The 5th description (LOW AIR ALARM) creates a supervisory condition on the panel but can be used to activate the release circuit. This activates the Supervisory relay not the Alarm relay.

The last four descriptions (SUPERVISORY, TAMPER, LOW AIR and HIGH AIR) are Supervisory Zones. When activated, they will put the panel in a supervisory condition and activate any output described as “SUPERVISORY BELL”. They cannot activate the release circuit

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the nine descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

After describing all initiating zones or skipping to the next function, the following will appear in the display window:

S	U	P	E	R	V	S	R	Y		1		Z	O	N	E
S	U	P	E	R	V	I	S	R	Y						

Supervisory 1 is a supervisory or abort zone and can only be described as SUPERVISORY, TAMPER, LOW AIR or HIGH AIR, or ABORT.

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the four supervisory and abort descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

After describing what the supervisory zone is to be or skipping to the next function, the following will appear in the display window:

S	U	P	E	R	V	S	R	Y		2		Z	O	N	E
S	U	P	E	R	V	I	S	R	Y						

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the four supervisory and abort descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

After describing what the supervisory zone is to be or skipping to the next function, the following will appear in the display window:

O	U	T	P	U	T		#	1							
I	N	D	I	C	A	T	I	N	G						

Output Description

This allows the user to describe the functions of the output circuits. Four descriptions are available:

1) ALARM INDICATING - Indicating appliances include bells, horns, strobes and other appliances used to indicate an alarm.
2) RELEASING - Releasing appliances include solenoids and other electrically compatible devices.
3) eAEROSOL – To be used with Aerosol Generators only. Pulse Releasing Output, 1/16th sec on, 15/16th sec off. Available only with chemical programs. Will turn off after 200 pulses (200 seconds).
4) SUPERVISORY BELL - Appliances on this circuit are used to indicate the presence of a supervisory condition. Any zone programmed as LOW AIR ALARM, SUPERVISORY, TAMPER, HI AIR or LOW AIR is automatically mapped to this output.
5) TROUBLE BELL - Appliances on this circuit are used to indicate the presence of a trouble condition. The user should describe each output circuit in the same manner as the initiating circuit was described by pressing the SELECT button to select and the SET button to set the desired function.

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

After selecting all four outputs or pressing FUNCTION, the following will be displayed if any outputs have been described as RELEASING:

O	U	T	P	U	T		#	<	a	>					
N	O	R	M	A	L										

Where "<a>" is the number of the releasing circuit output.

Normal/Cross-Zoning

Each releasing circuit can be set up for the normal or cross zoned operation. In NORMAL operation, any alarm initiating zone including LOW AIR ALARM mapped to a releasing output must be in alarm before the output is activated. In cross zoned operation **ALL** initiating zones mapped to the releasing circuit must be in alarm before the output is activated. An initiating zone previously described as "MANUAL RELEASE" will override the cross zoning feature.

SET Press the SET button to set the operation displayed.

SELECT Press the SELECT button to toggle between NORMAL and CROSS ZONED.

FUNCTION Press the FUNCTION button to skip to the next function.

After selecting normal or cross zone operation the next function will be displayed as follows:

D	I	S	C	H	A	R	G	E		T	I	M	E		
C	O	N	T	I	N	U	O	U	S						

Releasing Output Time

This allows the user to determine how long the releasing circuit is energized upon alarm. The available times are 7, 8, 9, 10 and 20 minutes and continuous (Potter recommends Continuous). Use the SELECT button to scroll through the possible options and the SET button to set that option. Press the FUNCTION button to skip to the next function.

SET Press the SET button to set the time displayed.

SELECT Press the SELECT button to scroll through the available time.

FUNCTION Press the FUNCTION button to skip to the next function.

After choosing the discharge time, a display similar to the following will appear:

Z	O	N	E		1			V							
O	U	T	P	U	T	S	:		1		2		3		4

This display is where the outputs are mapped to the initiating zones. Any output that was previously described as "RELEASING" or "ALARM INDICATING" can be mapped to any initiating zones that were described as alarm zones, including zones programmed as LOW AIR ALARM.

Any initiating zone that was described as supervisory will automatically be mapped to outputs described as "SUPERVISORY BELL", including zones programmed as LOW AIR ALARM. The "v" is pointing to the first available output for the zone indicated on the display. If the output number is displayed, it is turned on for that zone. If the number is not displayed, it is turned off. If an output is not available for that zone, i.e. "SUPERVISORY BELL", the "v" will skip to the next available output.

SET Press the SET button to set the output to the zone displayed and move to the next available output.

SELECT Press the SELECT button to turn the output either on or off (the output number will be displayed when turned on).

FUNCTION Press the FUNCTION button to skip to the next function.

After all available outputs for the zone displayed are mapped, the display will automatically change to the next zone.
After mapping the last zone or skipping to the next function, the following will appear in the display window:

B	A	N	N	E	R		M	E	S	S	A	G	E	?	

Custom Message

To change the banner message, press the SELECT button. If you don't want to change the banner message press the FUNCTION button.

SET

SELECT Press the SELECT button to change banner message.

FUNCTION Press the FUNCTION button to skip to the next function.

If the SELECT button was pressed, the following will appear in the display window:

^															

The "^" is pointing to the first character on the top line. Press the SET button to scroll one direction through the character set, or press the SELECT button to scroll the other direction. The entire alphabet, numbers and punctuation are included.

SET Press the SET button to scroll through the character set in one direction.

SELECT Press the SELECT button to scroll in the opposite direction.

FUNCTION Press the FUNCTION button to enter the character displayed and to move to the next position.

After programming the top line (maximum 10 characters), continue this process for the bottom line and the initiating zones. To keep the initiating zones as "ZONE 1", etc., press the FUNCTION button when they are displayed.
When finished with the last zone, the following will appear in the display window:

N	E	W		P	A	S	S	W	O	R	D	=	0	0	0
													^		

This allows the user to change the password. All panels are shipped from the factory with a password of 000.

SET Press the SET button to set the displayed number and move to the next space.

SELECT Press the SELECT button to scroll through the numbers.

FUNCTION Press the FUNCTION button to skip this function.

When finished with this section, the following will appear in the display window:

P	U	S	H		P	R	O	G	R	A	M	M	I	N	G
S	W	I	T	C	H		B	A	C	K		U	P		

Quit by returning the programming switch to the left position. The system is now ready for operation.

PFC-4410RC Custom Program Information For Chemical Based Extinguishing Systems

If the user has selected program # 0 for a custom configuration of the panel the following will appear in the display window.

P	R	O	G	R	A	M		T	Y	P	E	:			
W	A	T	E	R		B	A	S	E	D					

This display allows the user to select functions for either water or chemical based extinguishing systems. This window is for water based, to toggle from water based to chemical based or vice versa, press the SELECT button

SET Press the SET button to set the description displayed into the panels program

SELECT Press the SELECT button to scroll between water or chemical based modes

FUNCTION Press the FUNCTION button to skip to the next function

After setting the CHEMICAL BASED mode or pressing FUNCTION, the following will appear in the display:

I	N	I	T		Z	O	N	E		#	1				
D	E	T	E	C	T	I	O	N							

Initiating Zone Description

This allows the user to describe the initiating zones. Nine different descriptions are available. They are:
1) DETECTION - These include smoke detectors, pull stations, heat detectors and other devices put on a conventional zone.
2) WATERFLOW - Alarms from waterflow zones are non-silenceable
3) LINEAR HEAT DETECTION - These use a special wire with a fuseable insulation
4) MANUAL RELEASE - Used to override cross zoning and cause instant release
5) LOW AIR ALARM – This is for a low air switch used in a double interlock system. Usually cross zoned with a smoke or heat detector. Activation of this zone creates a supervisory condition on the panel but can still operate the release circuit.
6) SUPERVISORY - For monitoring any supervisory function as assigned
7) TAMPER - For control valve monitoring
8) LOW AIR - Used to detect low air pressure
9) HIGH AIR - Used to detect high air pressure

The first four descriptions (DETECTION, WATERFLOW, LINEAR HEAT DETECTION and MANUAL RELEASE) are Alarm Zones. When activated, they will put the panel into alarm and operate the appropriate output as well as operating the alarm relay.
The 5th description (LOW AIR ALARM) creates a supervisory condition on the panel but can be used to activate the release circuit, this activates the Supervisory relay not the Alarm relay.
The last four descriptions (SUPERVISORY, TAMPER, LOW AIR and HIGH AIR) are Supervisory Zones. When activated, they will put the panel in a supervisory condition and activate any output described as “SUPERVISORY BELL”. They cannot activate the release circuit

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the nine descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

After describing all initiating zones or skipping to the next function, the following will appear in the display window:

S	U	P	E	R	V	S	R	Y		1		Z	O	N	E
A	B	O	R	T											

Zone 5 is a supervisory or abort zone and can only be described as SUPERVISORY, TAMPER, LOW AIR or HIGH AIR, or ABORT.

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the four supervisory and abort descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

S	U	P	E	R	V	S	R	Y		2		Z	O	N	E
S	U	P	E	R	V	I	S	R	Y						

Zone 6 is a supervisory zone and can only be described as SUPERVISORY, TAMPER, LOW AIR or HIGH AIR.

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the four supervisory and abort descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

After describing what the supervisory zone is to be or skipping to the next function, the following will appear in the display window:

O	U	T	P	U	T		#	1							
I	N	D	I	C	A	T	I	N	G						

Output Description

This allows the user to describe the functions of the output circuits and whether they indicate first or second alarm, or release activated. Four descriptions are available:

1) ALARM INDICATING - Indicating appliances include bells, horns, strobes and other appliances used to indicate an alarm. These outputs are also programmable as first or second alarm when in chemical mode. The outputs programmed as first alarm will activate continuously upon activation of any alarm zone mapped to that output. Outputs programmed as second alarm will continue to operate in a continuous mode.
2) RELEASING - Releasing appliances include solenoids and other electrically compatible devices.
3) eAEROSOL – To be used with Aerosol Generators only. Pulse Releasing Output, 1/16th sec on, 15/16th sec off. Available only with chemical programs. Will turn off after 200 pulses (200 seconds).
4) SUPERVISORY BELL - Appliances on this circuit are used to indicate the presence of a supervisory condition. Any zone programmed as LOW AIR ALARM, SUPERVISORY, TAMPER, HIGH AIR or LOW AIR is automatically mapped to this output.
5) TROUBLE BELL - Appliances on this circuit are used to indicate the presence of a trouble condition. The user should describe each output circuit in the same manner as the initiating circuit was described by pressing the SELECT button to select and the SET button to set the desired function.

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll through the descriptions.

FUNCTION Press the FUNCTION button to skip to the next function.

After selecting an output as INDICATING, a display similar to the following will appear:

O	U	T	P	U	T		#	<	a	>		I	N	D	
N	O	R	M	A	L										

Where "<a>" is the number of the indicating circuit output.

First Or Second Alarm

Each output programmed as INDICATING can be designated to operate on first or second alarm. First alarm is identified as NORMAL, second alarm is identified as 2ND ALARM. Any outputs programmed as INDICATING & NORMAL will operate when the zone they are mapped to is activated. Any output programmed as INDICATING & 2ND ALARM will operate when two or more zones mapped to it are activated. These outputs will operate in a continuous pattern even after the release circuit activates.

Zones programmed as MANUAL RELEASE will activate outputs programmed as SECOND ALARM, even if the MANUAL RELEASE zone is the first alarm zone activated. SECOND ALARM is intended to be used as a pre-discharge signal for cross zone applications. Refer to page 50 for a complete description of first and second alarm requirements and operation.

⚠ CAUTION

An output programmed as INDICATING & 2nd ALARM that has only one initiating zone mapped to it will never operate. Likewise, if multiple zones are mapped to that output and only one zone activates, that output will not operate until another zone mapped to it activates.

SET Press the SET button to set the description displayed.

SELECT Press the SELECT button to scroll between NORMAL & 2ND ALARM

FUNCTION Press the FUNCTION button to skip to the next function.

After selecting all four outputs or pressing FUNCTION, the following will be displayed if any outputs have been described as RELEASING:

O	U	T	P	U	T		#	<	a	>					
N	O	R	M	A	L										

Where "<a>" is the number of the releasing circuit output.

Normal/Cross-Zoning

Each releasing circuit can be set up for the normal or cross zoned operation. In NORMAL operation, any alarm initiating zone including LOW AIR ALARM mapped to a releasing output must be in alarm before the output is activated. In cross zoned operation **ALL** initiating zones mapped to the releasing circuit must be in alarm before the output is activated. An initiating zone previously described as "MANUAL RELEASE" will override the cross zoning feature.

SET Press the SET button to set the operation displayed.

SELECT Press the SELECT button to toggle between NORMAL and CROSS ZONED.

FUNCTION Press the FUNCTION button to skip to the next function.

After selecting normal or cross zone operation the next function will be displayed as follows:

A	L		P	R	E	-	D	I	S	C	H	A	R	G	E
	0		S	E	C	O	N	D	S						

Pre-discharge Timer for Alarm Zones

A time delay of 0-60 seconds can be entered to delay the activation of the release circuit. The pre-discharge timer starts when all of the zones necessary for the operation of the release circuit have been activated. Pressing the SELECT button increases the time delay by one second. Pressing the SELECT button after 60 seconds is displayed will start the timer over at 0.

SET Press the SET button to set the time displayed.

SELECT Press the SELECT button to increase the time by one second.

FUNCTION Press the FUNCTION button to skip to the next function.

If a zone has not been programmed as MANUAL RELEASE, skip to the next programming step.

If a zone has been programmed as MANUAL RELEASE, the following will appear in the display window after choosing an alarm zone pre-discharge time:

M	R		P	R	E	-	D	I	S	C	H	A	R	G	E
	1		S	E	C	O	N	D	S						

Pre-Discharge timer for MANUAL RELEASE zones

A time delay of 0-30 seconds can be entered to delay the activation of the release circuit. The pre-discharge timer starts when the manual release zone has been activated. Pressing the SELECT button increases the time delay by one second. Pressing the SELECT button after 30 seconds is displayed will start the timer over at 0.

SET Press the SET button to set the time displayed.

SELECT Press the SELECT button to increase the time by one second.

FUNCTION Press the FUNCTION button to skip to the next function.

After choosing an alarm zone pre-discharge time, the following will appear in the display window:

A	B	O	R	T		T	Y	P	E	:				
U	L	I												

Abort Modes

The abort function is used to stop the release circuit from activating. Activation of the abort circuit will create a trouble condition.

URI – Activation of the abort circuit stops the pre-discharge timer at 10 seconds. If there is less than 10 seconds remaining, the timer goes back to 10 seconds. Releasing the abort button restarts the timer at 10 seconds. Activate again to repeat.

IRI – This mode, only functions if the release circuit is cross zoned. The IRI mode has the same functions as the ULI mode except the abort button must be pressed and held before the second zone necessary for the activation of the release circuit goes into alarm. Activation of the abort after the second alarm is received will have no effect. If the release circuit is not cross zoned, operation of the abort circuit in the IRI mode will not stop the release circuit.

NYC – This mode is not UL listed. This is a one shot function. Activation of the abort circuit will add 90 seconds to the original pre-discharge time. The countdown with the additional 90 seconds will begin when the abort button is released. Pressing the abort button again will have no effect.

30-Second Abort – Activation of the abort circuit will stop the pre-discharge timer at 30 seconds. If there is less than 30 seconds remaining, the timer goes back to 30 seconds. Releasing the abort button re-starts the timer. Activate again to repeat.

⚠ WARNING

*The abort zone is a non-latching zone. In order for the abort function to operate, the abort button must be pressed and held continuously. Releasing the abort button will continue the pre-discharge timer.
*The abort function will not prevent the activation of the release circuit if a zone programmed as MANUAL RELEASE has been activated. MANUAL RELEASE always overrides the abort function.
*The abort function will not prevent the activation of the release circuit if there is no pre-discharge time set or if the pre-discharge time is 1 second or less when the abort button is pressed.

The next function will be displayed as follows:

D	I	S	C	H	A	R	G	E		T	I	M	E		
C	O	N	T	I	N	U	O	U	S						

Releasing Output Time

This allows the user to determine how long the releasing circuit is energized upon alarm. The available times are 7, 8, 9, 10, 20 minutes and continuous. Use the SELECT button to scroll through the possible options and the SET button to set that option. Press the FUNCTION button to skip to the next function.

SET  Press the SET button to set the time displayed.

SELECT  Press the SELECT button to scroll through the available time.

FUNCTION  Press the FUNCTION button to skip to the next function.

After a discharge time is entered, a display similar to the following will appear:

Z	O	N	E		1			V							
O	U	T	P	U	T	S	:		1		2		3		4

This display is where the outputs are mapped to the initiating zones. Any output that was previously described as “RELEASING” or “ALARM INDICATING” can be mapped to any initiating zones that were described as alarm zones, including zones programmed as LOW AIR ALARM. Any initiating zone that was described as supervisory will automatically be mapped to outputs described as “SUPERVISORY BELL”, including zones programmed as LOW AIR ALARM. The “v” is pointing to the first available output for the zone indicated on the display. If the output number is displayed, it is turned on for that zone. If the number is not displayed, it is turned off. If an output is not available for that zone, i.e. “SUPERVISORY BELL”, the “v” will skip to the next available output.

SET  Press the SET button to set the output to the zone displayed and move to the next available output.

SELECT  Press the SELECT button to turn the output either on or off (the output number will be displayed when turned on).

FUNCTION  Press the FUNCTION button to skip to the next function.

After all available outputs for the zone displayed are mapped, the display will automatically change to the next zone. After mapping the last zone or skipping to the next function, the following will appear in the display window:

B	A	N	N	E	R		M	E	S	S	A	G	E	?	
C	U	S	T	O	M		M	E	S	S	A	G	E		

To change the banner message, press the SET or SELECT buttons. If you don't want to change the banner message press the FUNCTION button.
If the SET or SELECT button was pressed, the following will appear in the display window:

^														

The "^" is pointing to the first character on the top line. Press the SET button to scroll one direction through the character set, or press the SELECT button to scroll the other direction. The entire alphabet, numbers and punctuation are included.

SET Press the SET button to scroll through the character set in one direction.

SELECT Press the SELECT button to scroll in the opposite direction.

FUNCTION Press the FUNCTION button to enter the character displayed and to move to the next position.

After programming the top line (maximum 10 characters), continue this process for the bottom line and the initiating zones. To keep the initiating zones as "ZONE 1", etc., press the FUNCTION button when they are displayed.

When finished with the last zone, the following will appear in the display window:

N	E	W		P	A	S	S	W	O	R	D	=	0	0	0
													^		

This allows the user to change the password. All panels are shipped from the factory with a password of 000.

SET Press the SET button to set the displayed number and move to the next space.

SELECT Press the SELECT button to scroll through the numbers.

FUNCTION Press the FUNCTION button to skip this function.

When finished with this section, the following will appear in the display window:

P	U	S	H		P	R	O	G	R	A	M	M	I	N	G
S	W	I	T	C	H		B	A	C	K		U	P		

Quit by returning the programming switch to the left position. The panel is now ready for operation.

Programming Summary

- Examine History Buffer
- Set Time
- Enter Password
- Enable/Disable Initiating Zones
- Enable/Disable Output Zones
- System Mode - Normal/One Man Walktest
- Select Program - #0 thru #25

Custom Program (#0 only)

- Describe Initiating Zones 1 - 4

Alarm Zones	Supervisory Zones
Detection	Supervisory
Waterflow	Tamper
Linear Heat Detection	Low Air
Manual Release	Hi Air
	Low Air Alarm

- Describe Initiating Zone 5 (dedicated supervisory)
  - Supervisory
  - Tamper
  - Low Air
  - Hi Air
  - Abort
- Describe Initiating Zone 6
  - Supervisory
  - Tamper
  - Low Air
- Describe Output Zones
  - Alarm Indicating
  - Releasing
  - eAEROSOL
  - Supervisory Bell
  - Trouble Bell
    1) Releasing circuits: normal/cross-zoned
    2) Discharge time: 7, 8, 9, 10, 20 minutes or continuous
- Map Alarm Inputs to Outputs
- Put in Banner Message
- Put in Banner Message Bottom Line
- Put Zone Description for Each Initiating Zone
- Change Password
- Finished

Installation Instructions

Read the entire manual before attempting to install this panel

NOTICE This panel wiring should be installed and maintained in accordance with section 760 (Fire Protection Signaling Systems) and all other applicable sections of the National Electrical Code, all other applicable NFPA Code and Standards, local code and the authority having jurisdiction. Review the circuit parameters listed below before installing the panel.

Canada Installations

⚠ CAUTION

This panel wiring should be installed and maintained in accordance with CAN/ULC-S524M, (Standard for the Installation of Fire Alarm Systems), and all other applicable sections of the Canadian Electrical Code, all other applicable NFPA Code and Standards, local code and the authority having jurisdiction. Review the circuit parameters listed below before installing the panel.

NOTICE All wiring terminals support 14 to 22 AWG wire sizes. 18 AWG stranded or solid copper wire, (or wire size rated for the current carrying capacity of the input and output circuit application), with 300V, 85°C insulation is recommended.

Wire checkout

With all initiating devices and notification appliances installed and with the EOLR's in place, check the wires with an ohmmeter. Meter readings outside of the following will prevent normal operation.
From any wire to ground – more than 100K ohms.
Across the 2 wires on each Initiating zone – between 1.8K ohms and 5.4K ohms.
Across the 2 wires on each notification circuit – between 1.8K ohms and 23.9K ohms.

Mounting Instructions

1) The unit should be mounted in a convenient location, approximately 5 ft. from the floor where it will be accessible for testing and servicing.

⚠ WARNING

Removal of this false front exposes electrical components at potentially hazardous voltages and should be performed by qualified personnel only.

2) The main circuit board module should be removed before attempting to mount the cabinet. Disconnect the AC power from TB201. To remove the module, remove the two screws holding the chassis to the cabinet. Lift the module upwards, approximately 1/2", in order to clear the cross-beam of the cabinet on which the module rests. Remove the module and set aside.

3) The PFC unit may be surface mounted or semi-flush mounted using the optional trim bezel. (See drawing for installation of bezel on page 92). For semi-flush installations mount the housing so that the front edge protrudes 1" from the finished wall surface. After all conduits and wiring are in place and the wall surface is completely finished, slide the trim bezel in place and fasten with 4 #6-32 x 1/4" machine screws and nuts.

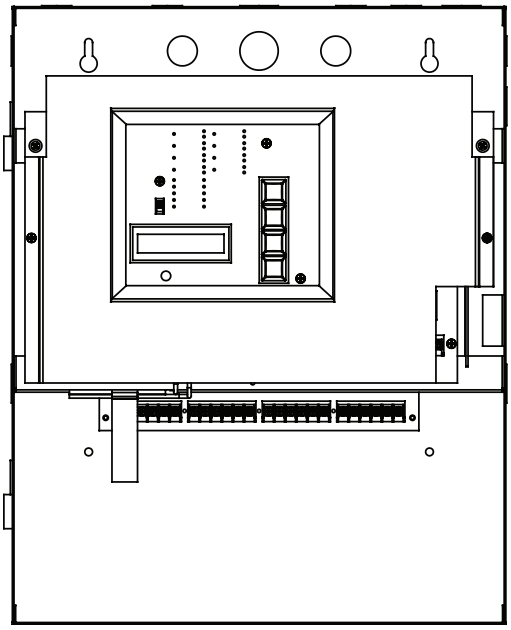
4) Install all required conduits, external wiring and devices and make all connections that are external to the panel. Replace the module. With the AC power still turned off at the circuit breaker panel, connect the AC hot, neutral and ground wires to the terminal block TB201 as shown on the connection drawing. (See connection drawings on page 88)

5) Connect all the other wiring to the terminals as shown in the connection drawings. Turn the AC power on and connect the standby batteries with the cable provided, polarity must be observed.

6) Replace false front panel and secure with mounting screws, taking care to not damage LED annunciator module cable.

7) The operation of the complete system should be verified as outlined in the test procedure section.

PFC-4410RC False Front Removal/Assembly Drawing



DWG# 3550-15

Inactive Circuits
All inactive initiating device circuits and indicating appliance circuits must have the end-of-line resistor on the panel terminal.

Operating Instructions Form
Fill in the name, address and telephone number of the servicing agency on the appropriate instruction sheet provided and frame and place adjacent to control panel at eye level.

Battery Size Calculations
To use Calculation Table:

1) List in column #1 all devices used in the system, include all modules, bells, horns, door holders, and smoke detectors (see table #1 or manufacturers specifications).
2) List in column #2 the quantity of each device.
3) List in column #3 the standby current of each device (exclude all alarm signal indicating devices).
4) List in column #5 the alarm current of each device.
5) For each line, multiply the figure in column #2 by the figure in column #3 and enter the product in column #4. Then multiply the figure in column #2 by the figure in column #5 and enter the product in column #6.
6) Add the figures in columns #3 and #6, enter the sums in the appropriate Total mA box.
7) Convert these figures from milliamperes to amperes by multiplying by 0.001, enter the product in the appropriate Total A box.
8) Multiply the standby total amperes by required time in hours from table 2.
9) Divide the alarm total amperes by 12 (5 mins.).
10) Add the standby AH and the alarm AH and divide this sum by 0.80 (efficiency factor). Select a battery that has an AH rating above this figure but not less than 6.5AH.

Battery Size Requirements And Maintenance
These panels require a 24 volt gel-cell battery for proper operation. 24 hours of standby power is required for Local Systems and Central Station (NFPA-72).

The chart below will assist you in selecting the proper size battery: (Does not include LED Annunciator)

No. of Smoke Detectors	No. of Bells (100mA each)	Auxiliary Power Requirements	Standby Hours Required	Battery Size/Part No. (2 Req.)
0-100	0-10	0-25mA	24	8AH/5130084/BT 80
0-100	0-10	0-30mA	90	18AH/5130086/BT 180

NOTICE

Maximum required battery size for UL Listings is 12AH. FM and others may require more than 90 hours of standby time and may use larger batteries. Batteries rated above 18AH require a separate battery cabinet (Potter stock number 1000015). Mark the purchase date on the batteries. Test the batteries at least semi annually according to the battery test methods in NFPA72 or the battery manufacturers' instructions. Replace the batteries if they either fail the test or after four years of use.

Current Requirements: Table 1

Module/Device	Standby mA*	Alarm mA*
PFC-4410RC	121	274
RA-4410RC	11	13

*Add 23 mA plus current requirement of all devices connected for each output programmed as Trouble Bell
**Includes one zone short circuit current.

Secondary Power Supply Requirements: Table 2

Service Use	**Standby Time**	**Alarm Time**
NFPA 72		
• Central Station (PPU)	24 hrs.	5 mins.
• Local	24 hrs.	5 mins.
FMRC 1011 and 1012, Deluge and Pre-action Systems	90 hrs.	10 mins.
Where requested by FM or others.		
90 Hours is not a UL requirement.		

Calculation Table

1	2	3	4	5	6
Module/Device	Quantity	Standby mA Per Unit	Total Standby Current	Alarm mA Per Unit	Total Alarm Current

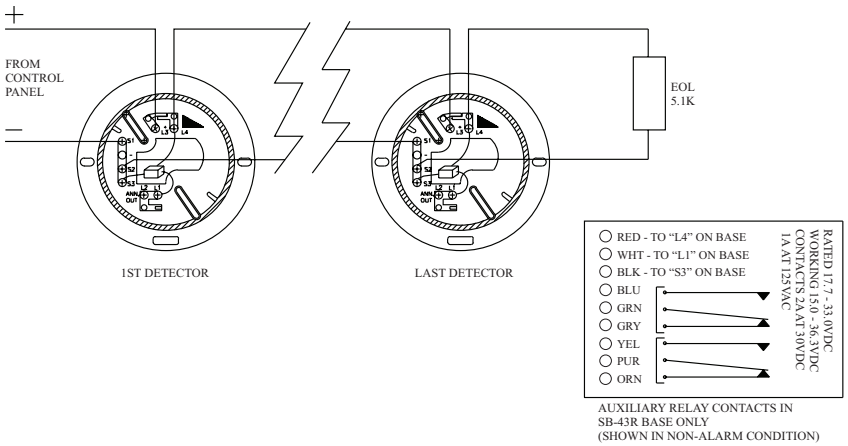
Total mA		Total mA	
Convert to A	x 0.001	Convert to A	x 0.001
Total A		Total A	
Multiply by hours from table 2	x ___	5 min/12 or 10 min/6	÷ ___
Total Standby AH		Total Alarm AH	
		+ Total Standby AH	
		Total AH	
		Efficiency Factor	÷ 0.80
		Required AH	

Use a battery with a higher AH rating than Required AH

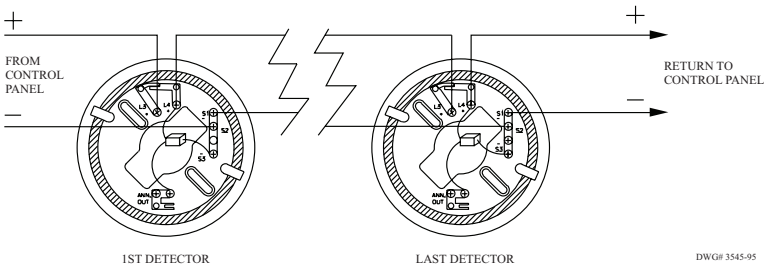
Typical 2 Wire Detector Connection Drawing

Base wiring for Potter model PS-24 and CPS-24 Photoelectric Detectors.

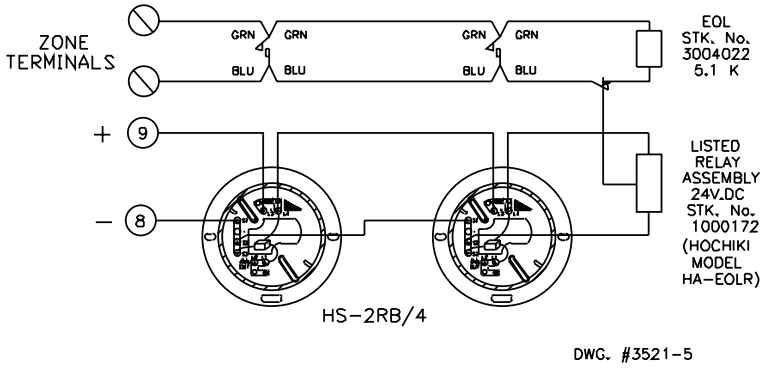
Typical Class B Wiring Using SB-46 Base



Typical Class A Wiring



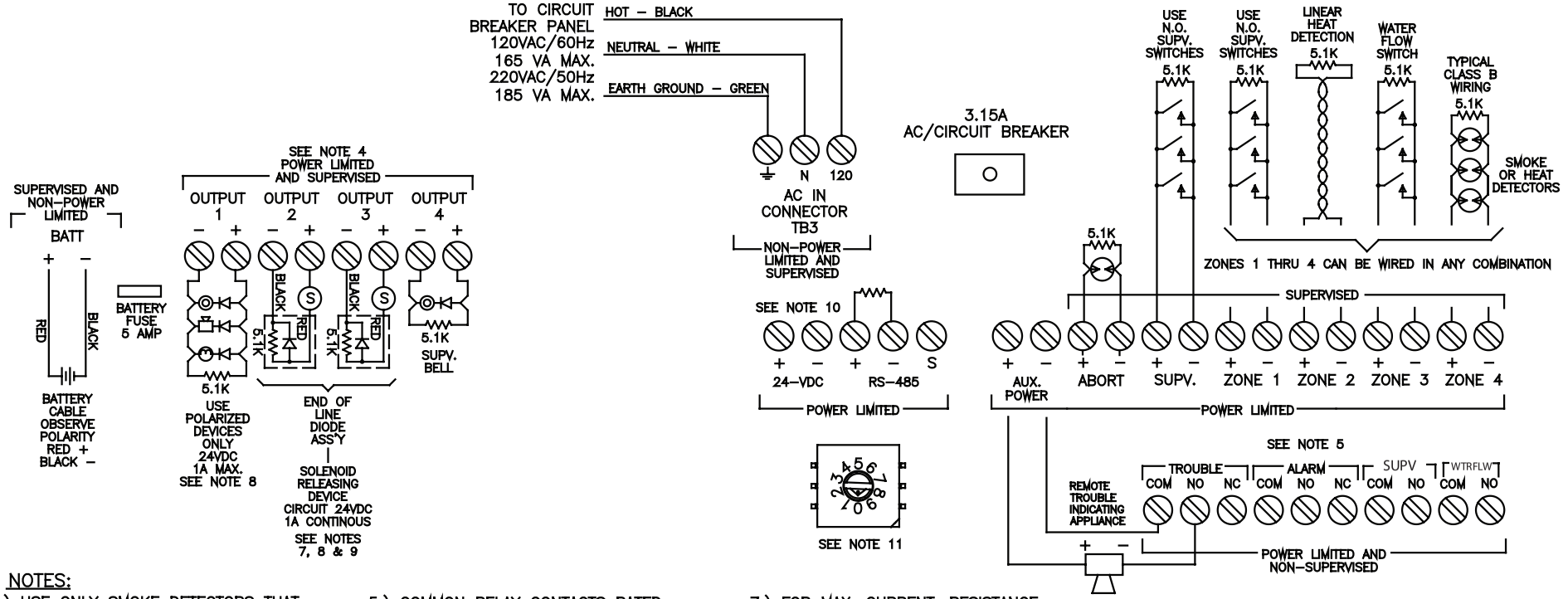
Typical 4-Wire Wiring



PFC-4410RC Connection Drawing

For additional information see text in this manual

Identifier A



NOTES:

1.) USE ONLY SMOKE DETECTORS THAT ARE LISTED IN COMPATIBILITY LIST, ON INSIDE OF DOOR.

2.) LEAVE END OF LINE RESISTORS ON INACTIVE CIRCUITS.

3.) ALL CIRCUITS POWERED BY THIS CONTROL PANEL ARE SUPERVISED AND POWER LIMITED.

4.) COMBINED LOAD OF ALL EXTERNAL DEVICES INCLUDING INDICATING AND RELEASING APPLIANCES IS NOT TO EXCEED 2.5 AMPS. REGULATED 24VDC MAXIMUM RMS VOLTAGE RANGE LIMIT, 16–33 VDC.

5.) COMMON RELAY CONTACTS RATED 3A 30VDC RESISTIVE. COMMON RELAY CONTACTS ARE SHOWN IN THE NORMAL CONDITION. NOT TO BE USED FOR MOTOR LOADS OR PILOT DUTY APPLICATION.

6.) AUXILIARY POWER

FOR LIMITATIONS, SEE SECTION "BATTERY SIZE REQUIREMENTS"

COMBINED LOAD ON THESE TERMINALS NOT TO EXCEED 200mA MAX.

SEE SECTION ON "COMPATIBILITY DATA".

7.) FOR MAX. CURRENT, RESISTANCE, AND MIN. BATTERY VOLTAGE, SEE SECTION ON "RELEASING CIRCUIT".

FOR LIST OF COMPATIBLE SOLENOIDS AND VALVES, SEE SECTION ON "EXTINGUISHING AGENT CONTROL VALVE COMPATIBILITY DATA".

8.) POLARITY SHOWN ON BELL AND RELEASING CIRCUITS IS FOR ACTIVE ALARM CONDITION

9.) END OF LINE DIODE ASSEMBLY (PART #3005012) MUST BE LOCATED AT SOLENOID VALVE LOCATION.

10.) POWER AND COMMUNICATION FOR RA–4410–RC ANNUNCIATOR. SHIELDED CABLE MUST USED FOR THE RS–485 CONNECTION. MAXIMUM 2000' WITH 22 AWG OR 4000' WITH 20 AWG WIRE. REMOVE 120 OHM RESISTOR FROM PANEL AND PLACE ON LAST ANNUNCIATOR.

11.) ROTARY SWITCH FOR REMOTE ANNUNCIATOR. SET SWITCH TO NUMBER OF ANNUNCIATORS CONNECTEI (4 MAX).

12.) RESETTABLE POWER FOR 4–WIRE SMOKE DETEC SPECIAL APPLICATION 24VDC 200 mA

13.) WATERFLOW RELAY ONLY TRANSFERS UPON ACTIVATION OF ZONES PROGRAMMED AS WATERF

DWG. #3545–98

2-Wire Smoke Detector Compatibility Data

Smoke Detector Compatibility Identifier "A"

System Sensor (Brk) (Max. No. Of Detectors Per Zone Is 20)

Det. Model	Identifier	Base Model	Identifier
1400*	A	N/A	N/A
2400*	A	N/A	N/A
2400TH*	A	N/A	N/A
2W-B	A	N/A	N/A
2WT-B	A	N/A	N/A
2WTR-B	A	N/A	N/A
C2W-BA (ULC Listed Only)	A	N/A	N/A
C2WT-BA (ULC Listed Only)	A	N/A	N/A

Detection Systems (Max. No. Of Detectors Per Zone Is 25)

Det. Model	Identifier	Base Model	Identifier
DS250	A	MB2W/MB2WL	A
DS250TH	A	MB2W/MB2WL	A
DS250HD	A	MB2W/MB2WL	A

Esl (Max. No. Of Detectors Per Zone Is 25)

Det. Model	Identifier	Base Model	Identifier
611U	S10	601U	S00
611UD	S10	601U	S00
611UT	S10	601U	S00
612U	S10	601U	S00
612UD	S10	601U	S00
613U5	S10	601U	S00
611UD	S10	609U10	S00
612UD	S10	609U10	S00
425C	S10	N/A	N/A
425CT	S10	N/A	N/A

Hochiki (Max. No. Of Detectors Per Zone Is 25)

Det. Model	Identifier	Base Model	Identifier
SLR-24*	HD-3	HSC-221R	HB-71
		HSB-221	HB-54
		HSB-221N	HB-54
		NS6-221	
		NS4-221	
		NS6-220	HB-3
SLR-24H*	HD-3	HSC-221R	HB-71
		HSB-221	HB-54
		HSB-221N	HB-54
		NS6-221	
		NS4-221	
SIJ-24*	HD-3	HSC-221R	HB-71
		HSB-221	HB-54
		HSB-221N	HB-54
		NS6-221	
		NS4-221	

Hochiki (Max. No. Of Detectors Per Zone Is 30)

Det. Model	Identifier	Base Model	Identifier
SOC-24V*	HD-3	HSB-221	HB-54
		NS6-221	
		NS4-221	
SOC-24VN*	HD-3	HSB-221	HB-54
		NS6-221	
		NS4-221	

Fenwal (Max. No. Of Detectors Per Zone Is 25)

Det. Model	Identifier	Base Model	Identifier
CPD-7051*	I51FE1	2-WIRE	FE51A
PSD-7155*	P55FE1	2WRLT	FE52A
PSD-7156*	P56FE1	2WRB	FE55A

All of the above Fenwal detectors and bases can be used in any combination

Retrofit Base Adaptor 70-501000-003, Identifier MAFE1 (for series 70-201000 Bases, Models -001, -002, -003 and -005)
Duct Housing with Detector Base DH-51, Identifier DH22FE5 (for CPD-7051 and PSD-7155 detectors only)

Potter (Max. No. Of Detectors Per Zone Is 25)

Det. Model	Identifier	Base Model	Identifier
PS-24*	HD-3(HOCHIKI)	SB-46	HB-71(HOCHIKI)
			HB-54(HOCHIKI)
		SB-93	HB-3 (HOCHIKI
PS-24H	HD-3(HOCHIKI)	SB-46	HB-71(HOCHIKI)
			HB-54(HOCHIKI)

Potter (Max. No. Of Detectors Per Zone Is 30)

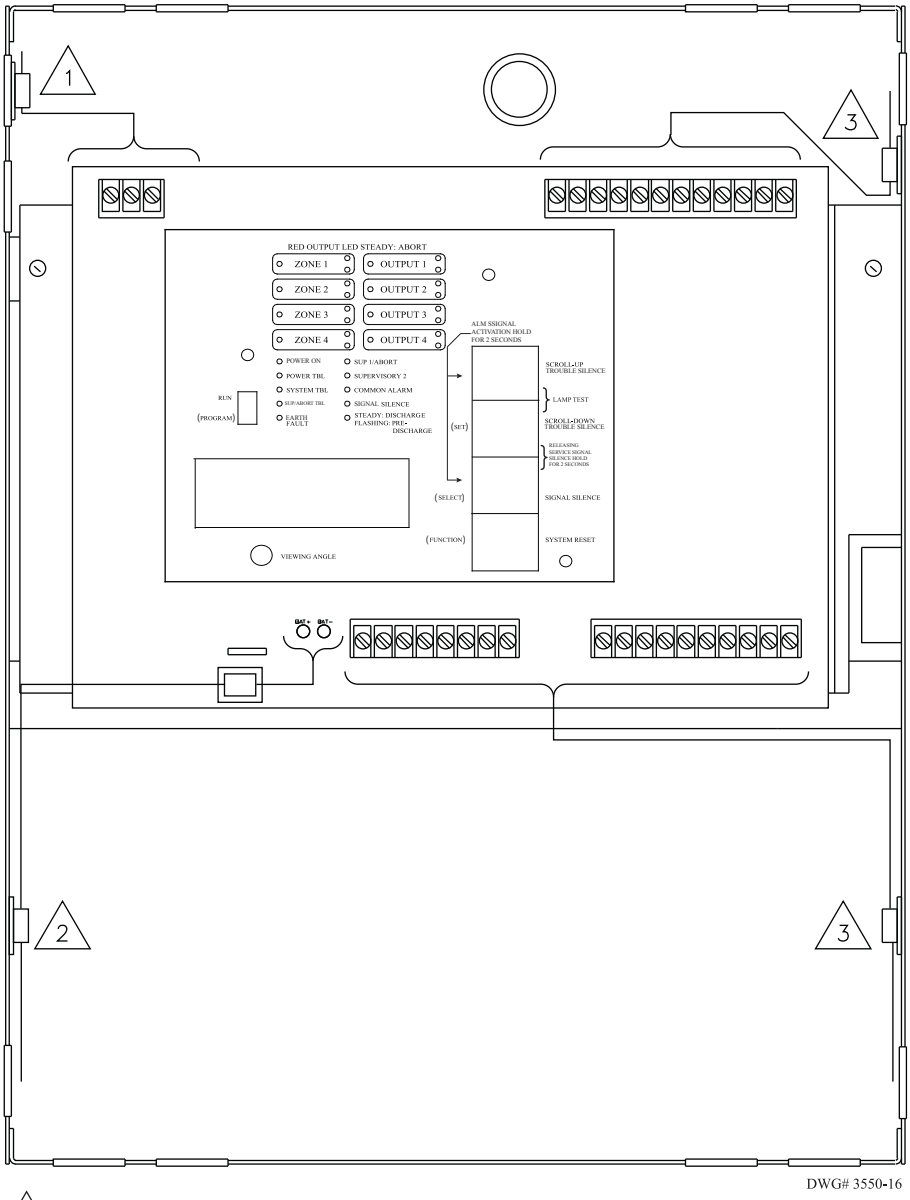
Det. Model	Identifier	Base Model	Identifier
CPS-24	HD-3(HOCHIKI)	SB-46	HB-54(HOCHIKI)
CPS-24N	HD-3(HOCHIKI)	SB-46	HB-54(HOCHIKI)

NOTICE Only one detector can be supported in alarm per zone.

If using a mix of System Sensor and other smoke detectors, a maximum of 20 detectors shall be permitted.
Sync Module Compatibility - Panel is compatible with the following synchronization modules:
Amseco #SMD10-3A, Gentex #AVSM, System Sensor #MDL, Wheelock #DSM12/24

*UL and ULC Listed

Wire Routing for PFC-4410RC
(*Shown with false front removed)



DWG# 3550-16

1 Power inputs

2 Battery leads

3 Using the cable clamps provided, route all other wiring away from power input wiring.

NOTICE

All field installed wiring connected to this panel must maintain a spacing of 1/4" between all electric light, power, class 1 or non-power limited fire protective signaling conductors.

NOTICE

NEC Section 760-54
Installation of Conductors and Equipment.

(a) Separation from Electric Light, Power, Class 1, and NPLFA Circuit Conductors.
(1) In Cables, Compartments, Enclosures, Outlet Boxes, or Raceways. Power-limited circuit conductors shall not be placed in any cable, compartment, enclosure, outlet box, raceway, or similar fitting containing conductors of electric light, power, Class 1, or nonpower-limited fire alarm circuit conductors.

Exception No. 1: Where the conductors of electric light, power, Class 1, or nonpower-limited fire alarm circuit conductors are separated by a barrier from the power-limited fire alarm circuits. In enclosures, power-limited fire alarm circuits shall be permitted to be installed in a raceway within the enclosure to separate them from Class 1, electric light, power, and non power-limited fire alarm circuits.

Exception No. 2: Conductors in compartments, enclosures, device boxes, outlet boxes, or similar fittings, where electric light, power, Class 1, or nonpower-limited fire alarm circuit conductors are introduced solely to connect to the equipment connected to power-limited circuits to which the other conductors are connected, and

a. The electric light, power, Class 1, and nonpower-limited fire alarm circuit conductors are routed to maintain a minimum of 0.25 in. (6,35mm) separation from the conductors and cables of power-limited fire alarm circuits, or
b. The circuit conductors operate at 150 volts or less to ground and also comply with one of the following:

1. The fire alarm power-limited circuits are installed using Types FPL, FPLR, FPLP or permitted substitute cables, provided these power-limited cable conductors extending beyond the jacket are separated by a minimum of 0.25 in. (6,35mm) or by a nonconductive sleeve or nonconductive barrier from all other conductors, or

2. The fire alarm power-limited circuit conductors are installed as nonpower-limited fire alarm circuits in accordance with Section 760-25.

Exception No. 3: Conductors entering compartments, enclosures, device boxes, outlet boxes, or similar fittings, where electric light, power, Class 1, or nonpower-limited fire alarm circuit conductors are introduced solely to connect to the equipment connected to power-limited fire alarm circuits or to other circuits controlled by the fire alarm system to which the other conductors in the enclosure are connected. If the conductors must enter an enclosure that is provided with a single opening, they shall be permitted to enter through a single fitting (such as a tee) provided the conductors are separated from the conductors of the other circuits by a continuous and firmly fixed nonconductor, such as flexible tubing.

Connection Procedure for Battery Charging Current and Voltage

1) To measure the battery charging voltage:
Place a voltmeter across the battery terminals as shown in FIG. 4

2) To measure the battery charging current:
Place a current meter in series with the battery terminals as shown in FIG. 5.

Fig. 4

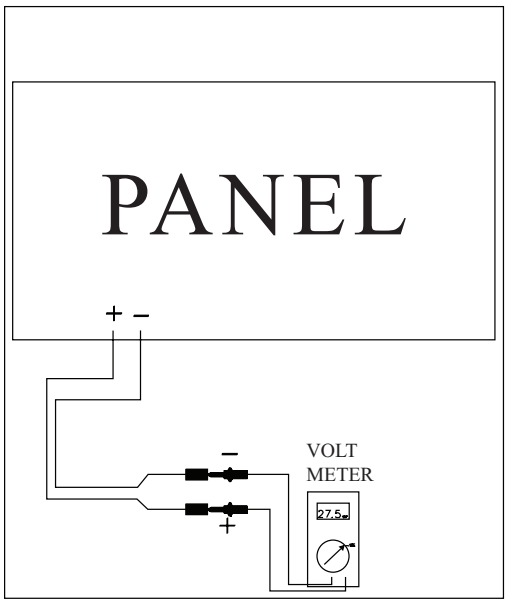
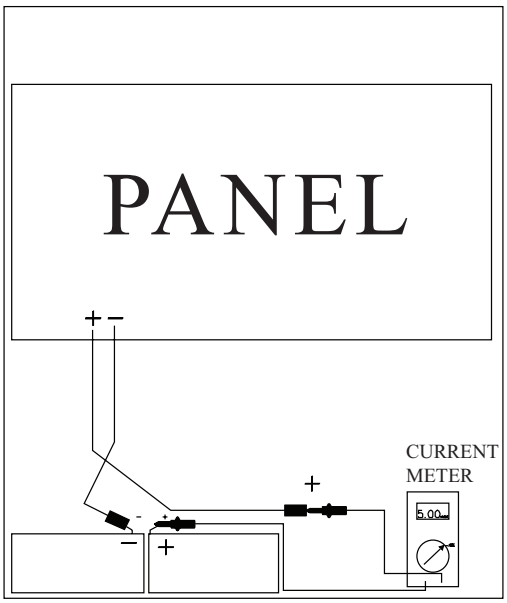
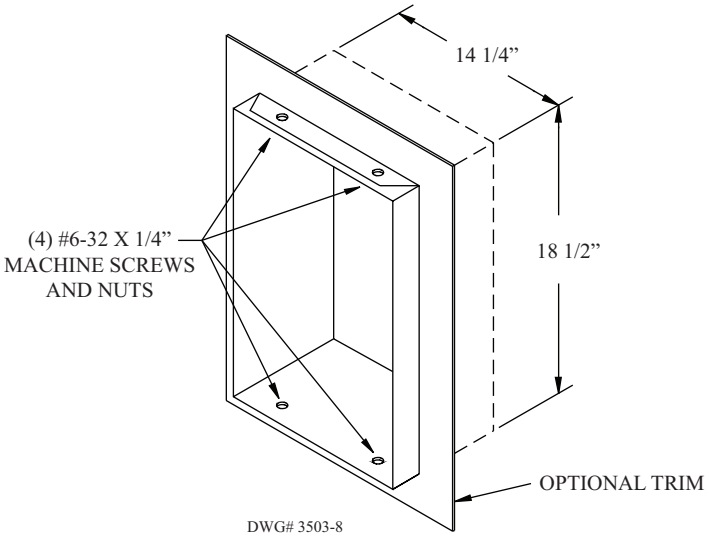


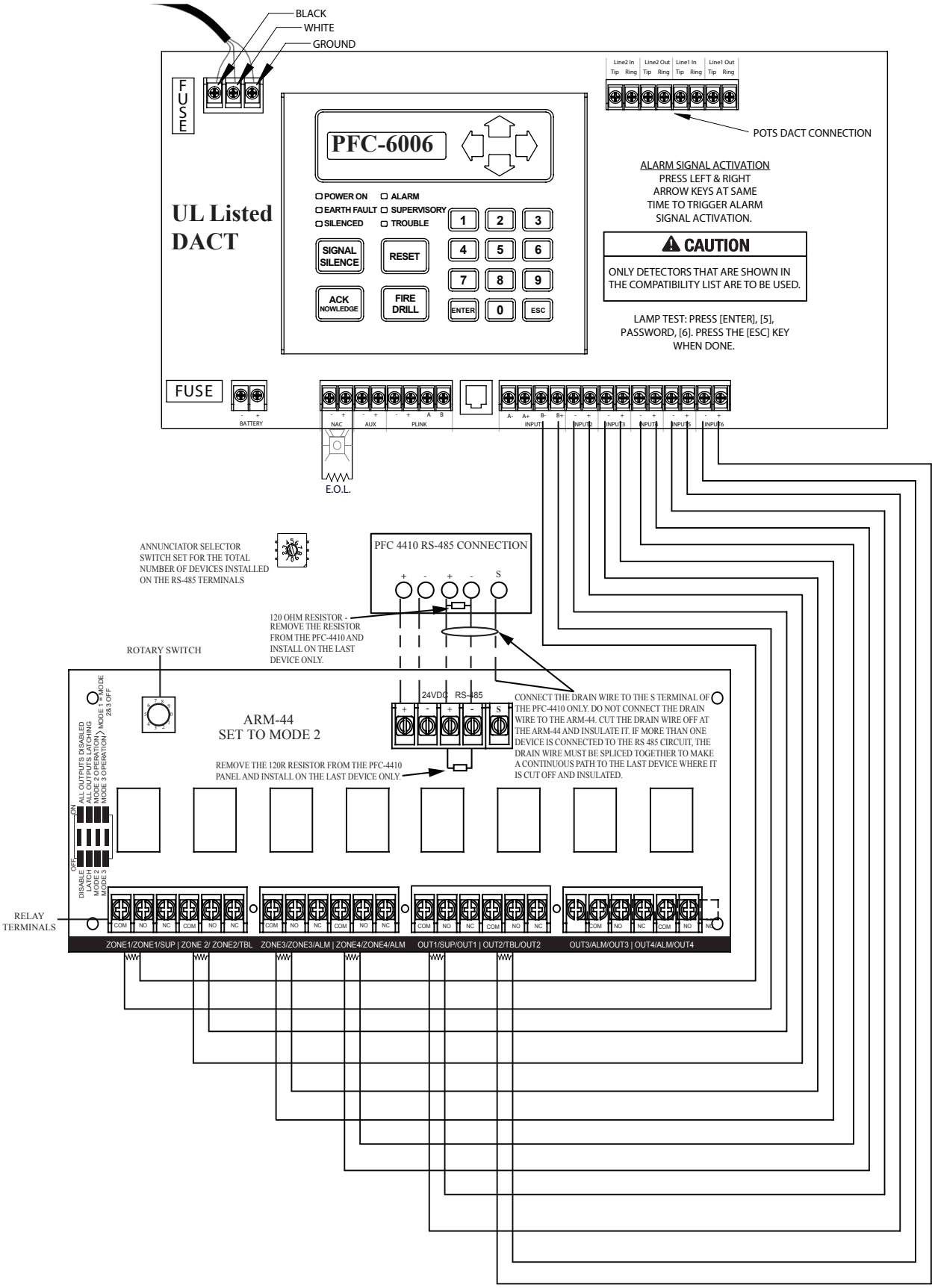
Fig. 5



Installation Of Bezel For Semi-flush Installations



Connection Drawing for Central Station and Remote Station Operation of PFC-4410RC to any UL listed Digital Alarm Communicator Transmitter (DACT)



Annex A: 4-Wire Smoke Detectors/Devices

Smoke Detector	Detector Type	Standby Current (mA)	Alarm Current (mA)
Potter PS-24*	Photoelectric	.045	150
Potter PS-24H*	Photoelectric/Heat	.045	150
DSD-P	Photoelectric Duct	.390	8
Hochiki SLR-835*	Photoelectric	.055	150
Hochiki SLR-835H	Photoelectric/Heat	.045	150
Hochiki SLR-24V*	Photoelectric	.045	150
Hochiki SLR-24VN*	Photoelectric	.045	150
Hochiki SIJ-24*	Ionization	.040	150
Hochiki DCD-135/190	Heat	.040	150
Hochiki DH-98	Photoelectric Duct	.390	8
Hochiki SPB-24	Beam	.25	**
Fenwal CPD-7021 (w/70-201000-005 base)	Ionization	0.10	**
Fenwal PSD-7125	Photoelectric	0.10	**
Fenwal PSD-7126 (w/70-201000-005 base)	Photoelectric	0.10	**
Gentex 824	Photoelectric	0.50	**
Gentex 824T	Photoelectric	0.50	**
Gentex 824CP	Photoelectric	0.50	**
Gentex 824CPT	Photoelectric	0.50	**
System Sensor B112LP	Base	0.12	36
System Sensor B114LP	Base	**	**
System Sensor B404B	Base	**	**
System Sensor DH100ACDC	Photoelectric	0.15	0.70
System Sensor DH100ACDCLP	Photoelectric	0.15	0.70
System Sensor DH100ACDCLWP	Photoelectric	0.15	0.70
System Sensor DH400ACDCI	Ionization Duct	25	95
System Sensor DH400ACDCP	Photoelectric Duct	25	95
System Sensor 1112/24/D	Ionization	0.05	50
System Sensor 1424	Ionization	0.10	41
System Sensor 1451 (w/B402B base)	Ionization	0.10	39
System Sensor 2112/24ATR	Photoelectric	0.50	60/70
System Sensor 2112/24AITR	Photoelectric	0.50	60/70
System Sensor 2112/24/D	Photoelectric	0.05	50
System Sensor 2112/24R	Photoelectric	0.50	60/70
System Sensor 2112/24TR	Photoelectric	0.50	60/70
System Sensor 2112/24T/D	Photoelectric w/135° thermal	0.05	50
System Sensor 2112/24TSRB	Photoelectric w/135° thermal	15	45
System Sensor 2312/24TB	Photoelectric	0.12	50
System Sensor 2424	Photoelectric	0.10	41
System Sensor 2424TH	Photoelectric	0.10	41
System Sensor 2451	Photoelectric	0.10	39
System Sensor 2451TH (w/B402B base)	Photoelectric	0.10	39

System Sensor 2W-MOD	Loop test/maint. mod.	30	50
System Sensor 4W-B (12/24V)	Photoelectric	.05	23
System Sensor 4WT-B (12/24V)	Photoelectric I w/therm	.05	23
System Sensor 4WTA-B (12/24V)	I Photo w/therm/sounder	.05	35
System Sensor 4WTR-B (12/24V)	I Photo w/therm/relay	.05	35
System Sensor 4WTAR-B (12/24V)	I Photo w/therm/sounder/relay	.05	50
System Sensor 4WITAR-B (12/24V)	I Photo w/isolated therm/sounder/relay	.05	50
System Sensor 2WMOD2	I Loop test/maint. mod.	.05	**
System Sensor RRS-MOD	I Reversing relay/sync module	.05	**
System Sensor 6424	Projected beam	10	28.4
System Sensor Beam 1224(S)	Projected beam	17	38.5
* Using Hochiki base HSC-4R			
**NOTE: Contact manufacturer for current draws			

Annex B: Product Datasheets of Optional Equipment

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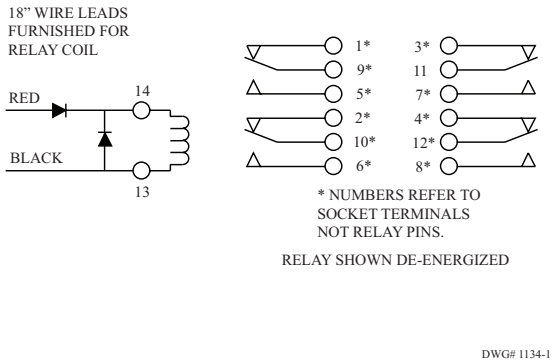
ARM-1
AUXILIARY RELAY MODULE

UL Listed: For use with the PFC-4410RC Series
Dimensions: 3 1/4" X 3 1/4" X 4"
Weight: .315 lb.
Assembly: Socketed relay in plastic mounting track
Power Requirements: 40mA at 24VDC
Contact Ratings:
Each relay has 4PDT contacts,
Rated at 10 amps resistive,
24VDC

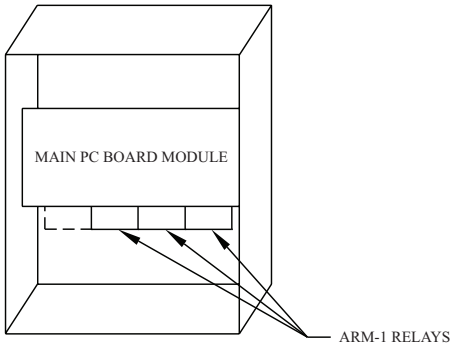
Stock number: 3004726

When the ARM-1 is used the additional power required for this relay module must be subtracted from the total circuit current available. The ARM-1 Auxiliary Relay Module is a non-supervised 4PDT Relay designed to be activated by 24VDC Indicating and/or Releasing, polarity reversing circuits. The module can be used for fan shutdown, door release, elevator recall, etc.

Wiring

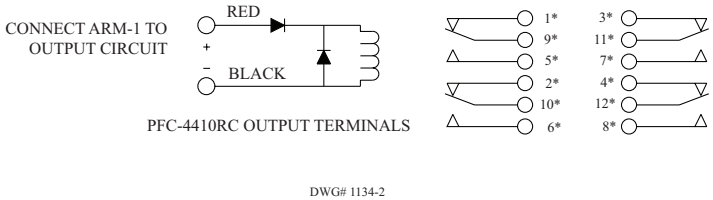


Placement In PFC-4410RC Series Control Unit



ARM-1/PFC-4410RC Installation Hook-Up Diagram

All relays shown in non-activated condition



Notes:

1. * Numbers refer to socket terminals not relay pins.
2. Auxiliary relay operation is determined by programming of the PFC-4410RC panel. Consult the appropriate manual for further information.

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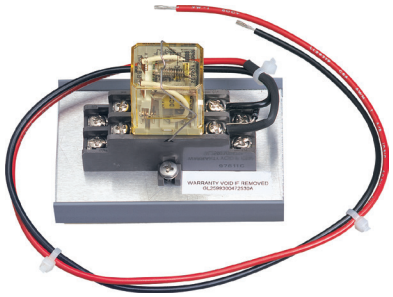
ARM-2
AUXILIARY RELAY MODULE

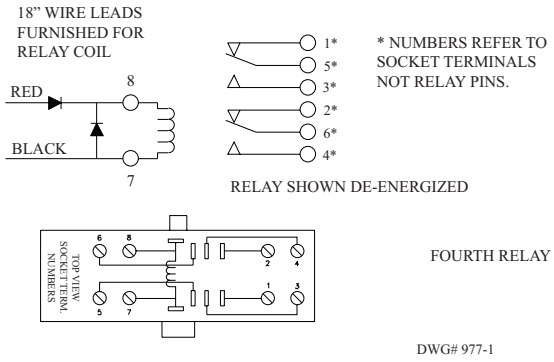


UL Listed: For use with the PFC-4410RC Series
Dimensions: 2 1/4" x 3 1/2" x 3"
Weight: .315 lb.
Assembly: Socketed relay in plastic mounting track
Power Requirements: 40mA at 24VDC
Contact Ratings:
Each relay has DPDT contacts,
Rated at 7.5 amps resistive,
120VAC, 30VDC

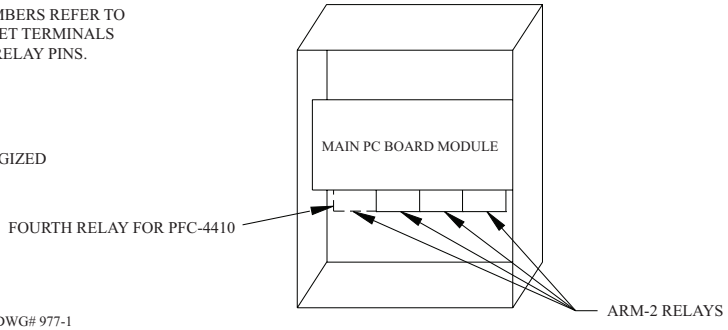
Stock number: 3004725

The ARM-2 Auxiliary Relay Module is a UL listed option when factory installed in the Potter PFC-4410RC Series.
When the ARM-2 is used the additional power required for this relay module must be subtracted from the total circuit current available. See PFC-4410RC Manual #5403550. The ARM-2 Auxiliary Relay Module is a non-supervised DPDT Relay designed to be activated by 24VDC Indicating and/or Releasing, polarity reversing circuits. The module can be used for fan shutdown, door release, elevator recall, etc.
***Note**: One to four ARM-2 modules in the PFC-4410RC series may be utilized to provide multiple auxiliary functions.*

Wiring

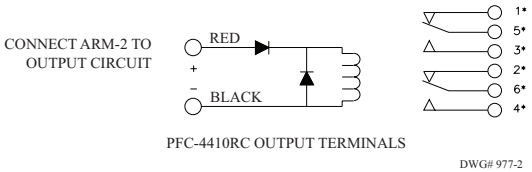


Placement In PFC-4410RC Series Control Unit



ARM-2/PFC-4410RC Installation Hook-Up Diagram

All relays shown in non-activated condition



Notes:

1. * Numbers refer to socket terminals not relay pins.
2. Auxiliary relay operation is determined by programming of the PFC-4410RC Series panel. Consult the appropriate manual for further information.

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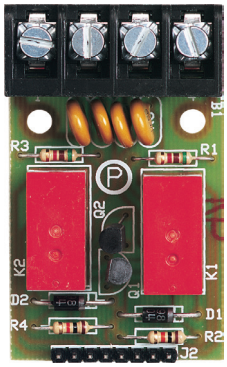
CA2Z
CLASS A INITIATING DEVICE MODULE

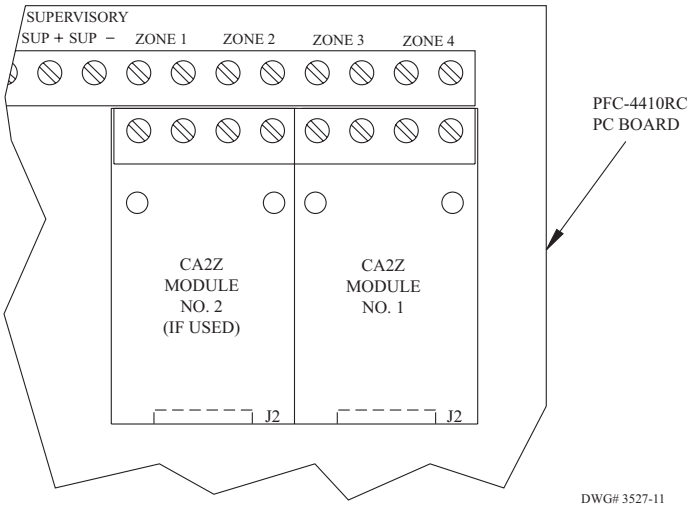


UL Listed: Option for use with the PFC-4410RC Series
Transient Protected
Built In 5.1k End Of Line Resistor
PC Board Assembly: Mounts to PFC-4410RC Panel stand-offs
Stock No. 3006013

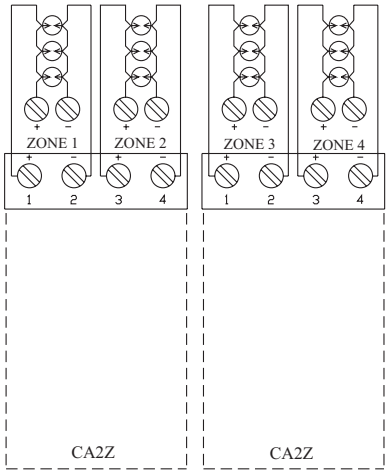
The Model CA2Z Class A Module is designed to be used with the PFC-4410RC Fire Control Releasing Panel to convert from two (Class B) initiating device circuits to two (Class A) circuits.

The module is to be mounted in the upper right hand corner of the panel. Connection to the panel is made via the 8 pin header mounted on the back side of the CA2Z.

Mounting



Typical Wiring



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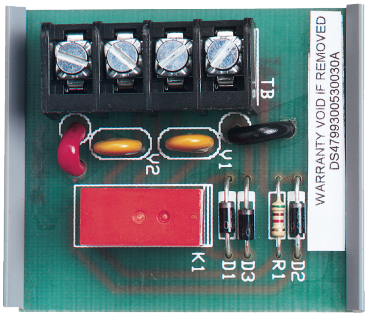
CAM
CLASS A INDICATING APPLIANCE CIRCUIT MODULE

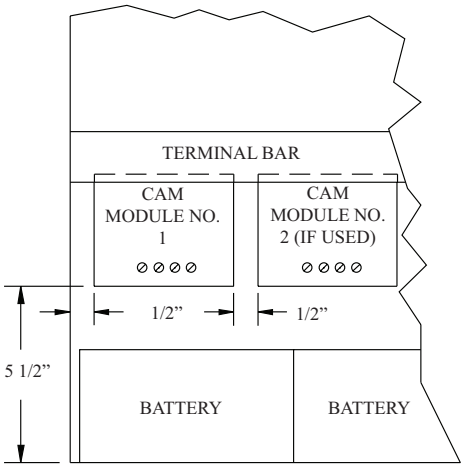


UL LISTED: OPTION FOR USE WITH THE PFC-4410RC SERIES
TRANSIENT PROTECTED
POWER REQUIREMENTS IN ALARM:
APPROXIMATELY 25 MA AT 24VDC FROM CONTROL PANEL INDICATING APPLIANCE CIRCUIT.
BUILT IN, POLARIZED, 5.1K END OF LINE RESISTOR

Stock number**:** 3005300

The Model CAM Class A Module is designed to be used with the PFC-4410RC Fire Control Releasing Panel to convert a single (Class B) indicating appliance circuit to a (Class A) circuit (one module is required for each indicating appliance circuit). After installing the CAM, the indicating circuit should be activated to ensure proper operation and connections.
The module is provided with double sided foam tape and should be mounted in the area below the main circuit module so that the terminals are accessible.

Mounting



Typical Wiring