

# Series 7C7 Air Maintenance/Compressor Assembly

**⚠ WARNING**








- Read and understand all instructions before attempting to install any Victaulic piping products.
- Depressurize and drain the piping system before attempting to install, remove, adjust, or perform maintenance on any Victaulic products.
- Wear safety glasses, hardhat, and foot protection when working with Victaulic piping products.
- Any activities that require taking the valve out of service may eliminate the fire protection provided by the system. Before removing the valve from service, notify the authority having jurisdiction. Consideration of a fire patrol should be given for the affected areas.

Failure to follow these instructions could result in serious personal injury and/or property damage.

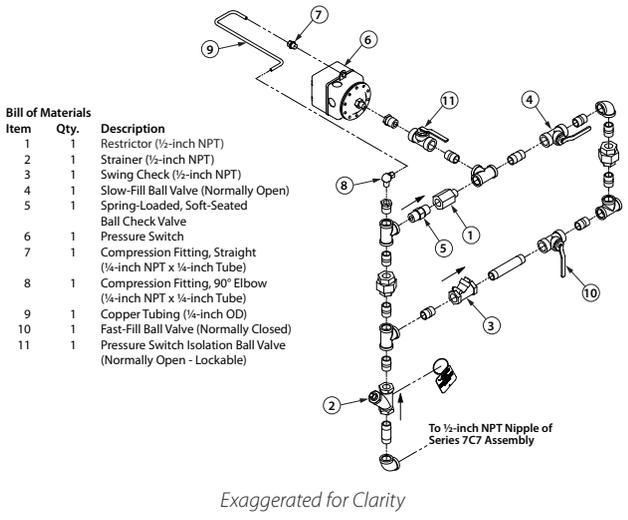
**EXPLODED VIEW DRAWING AND DESCRIPTION – AIR MAINTENANCE TRIM OF THE SERIES 7C7**  
 The Series 7C7 Air Maintenance/Compressor Assembly is comprised of air maintenance trim and a 1/8-Hp, 1/8-Hp, 1/2-Hp, or 3/4-Hp (for international use only) air compressor. This assembly is designed to control system air pressure for Series 768 FireLock NXT™ Dry Valves, Series 764 FireLock NXT Alternate Wet/Dry Valves, and Series 769 FireLock NXT Deluge and Preaction Valves (pneumatic systems).

A decrease in air pressure will close the pressure switch. When the pressure switch closes, the air compressor turns on to restore air pressure. When air pressure is restored, the air compressor turns off, and pressure in the compressor automatically bleeds off through the release valve of the pressure switch. The release valve protects the air compressor from startup overload.

The Series 7C7 Air Maintenance/Compressor Assembly **MUST NOT** be used on a Series 768 or Series 769 FireLock NXT Valve installed with a Series 746 or Series 746-LPA Dry Accelerator, unless a tank and air regulator are added.

- ELECTRICAL REQUIREMENTS**
- 1/8-Hp compressor is available for 110-volt AC/60 Hz operation
  - The 1/8-Hp compressor is available standard for low-voltage, 110-volt AC/60 Hz operation. In addition, high-voltage, 220-volt, single-phase AC/50 - 60 Hz operation for international use is available.
  - 1/2-Hp compressor is available for 110-volt AC/50 - 60 Hz operation
  - The 3/4-Hp compressor is available for international use only. A 220-volt, single-phase AC/50 Hz option or a 220-volt, single-phase AC/60 Hz option is available.

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



Item	Qty.	Description
1	1	Restrictor (1/2-inch NPT)
2	1	Strainer (1/2-inch NPT)
3	1	Swing Check (1/2-inch NPT)
4	1	Slow-Fill Ball Valve (Normally Open)
5	1	Spring-Loaded, Soft-Seated Ball Check Valve
6	1	Pressure Switch
7	1	Compression Fitting, Straight (1/4-inch NPT x 1/4-inch Tube)
8	1	Compression Fitting, 90° Elbow (1/4-inch NPT x 1/4-inch Tube)
9	1	Copper Tubing (1/4-inch OD)
10	1	Fast-Fill Ball Valve (Normally Closed)
11	1	Pressure Switch Isolation Ball Valve (Normally Open - Lockable)

**NOTICE**

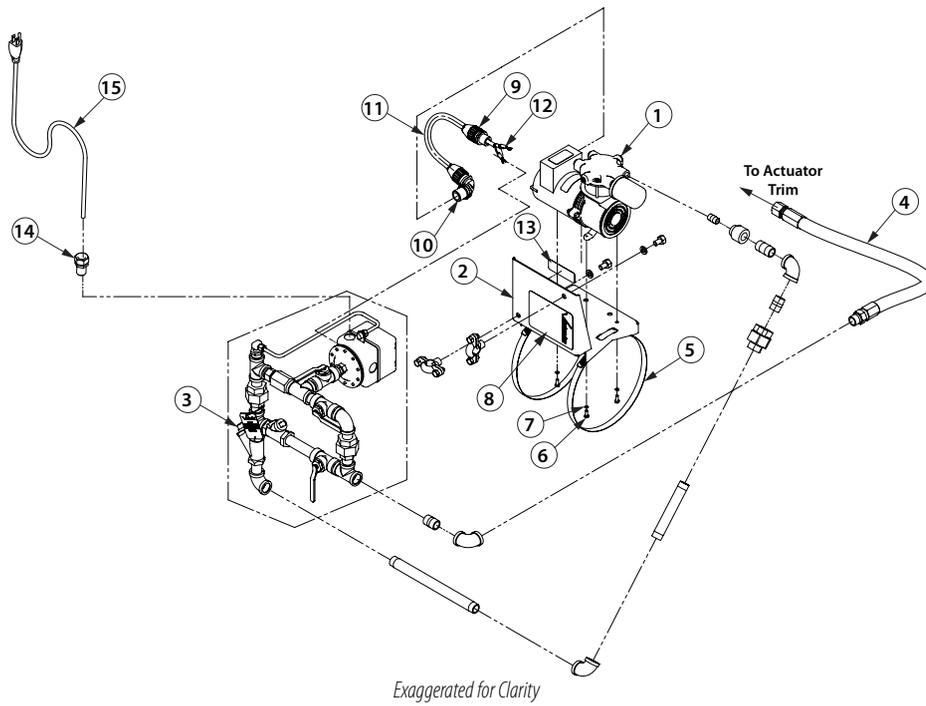
- ONLY ONE SYSTEM IS ALLOWED PER SERIES 7C7 AIR MAINTENANCE/COMPRESSOR ASSEMBLY.**

**AIR SUPPLY REQUIREMENTS**  
 The required air pressure for Series 768 FireLock NXT Dry Valves, Series 764 FireLock NXT Alternate Wet/Dry Valves, and Series 769 FireLock NXT Deluge and Preaction Valves is 13 psi/0.9 Bar minimum, regardless of the system supply water pressure. Normal air pressure should not exceed 18 psi/1.2 Bar. Victaulic presets the Series 7C7 Air Maintenance/Compressor Assembly to the recommended air pressure of 13 psi/0.9 Bar as the “on” or “low” pressure setting for the compressor and 18 psi/1.2 Bar as the “off” or “high” pressure setting. Failure to maintain air pressure within the 13-psi/0.9-Bar to 18-psi/1.2-Bar range could delay system operation response time.

Hp	Nominal AC Voltage/ Hz (+/- 10%)	Pressure psi/Bar	Time Minutes	Capacity WITH Auto Vent gallons/m <sup>3</sup>	Capacity WITHOUT Auto Vent gallons/m <sup>3</sup>	Amp Draw
1/8	110/60	18	30	175	275	2.1 Amps
		1.2		0.7	1.1	
1/8	110/60	18	30	375	525	3.6 Amps
		1.2		1.4	2.0	
1/8	220/50	18	30	160	235	1.8 Amps
		1.2		0.6	0.9	
1/8	220/50	18	60	450	660	
		1.2		1.7	2.5	
1/8	220/60	18	30	370	400	
		1.2		1.4	1.5	
1/2	110/50	18	30	660	670	6.6 Amps
		1.2		2.5	2.5	
1/2	110/60	18	30	780	830	
		1.2		3.0	3.1	
3/4	220/50	18	30	600	675	3.8 Amps
		1.2		2.3	2.5	
3/4	220/60	18	30	700	775	
		1.2		2.7	2.9	
3/4	220/50	18	60	1200	1350	
		1.2		4.5	5.0	
3/4	220/60	18	60	1375	1525	
		1.2		5.2	5.8	

**NOTE:** Refer to the charts on the following pages for minimum required fill capacities to 13 psi/0.9 Bar. Low air alarms will clear at 13 psi/0.9 Bar. In addition, these charts contain higher capacities to 18 psi/1.2 Bar that are not shown in the table above.

## EXPLODED VIEW DRAWING - SERIES 7C7 AIR MAINTENANCE COMPRESSOR ASSEMBLY WITH 1/6-HP COMPRESSOR

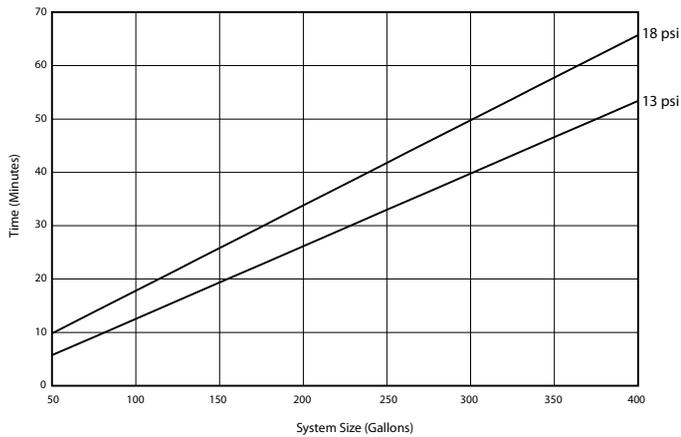


### Bill of Materials

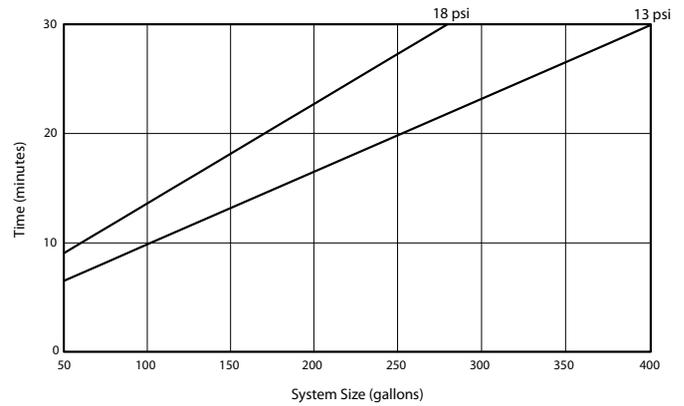
Item	Qty.	Description
1	1	Compressor
2	1	Mounting Bracket
3	1	Series 757P Air Maintenance Trim Assembly with Pressure Switch
4	1	Stainless Steel Braided Flex Hose
5	2	Hose Clamp
6	3	Hex-Head Bolt
7	3	Lock Washer
8	1	Identification Tag
9	1	Straight Connector, Flexible Cord
10	1	Connector, Flexible Cord
11	1	Liquid-Tight Conduit
12	3	#8 U-Style Wire Connector
13	1	Identification Label*
14	1	Strain Relief Connector*
15	1	14 AWG Grounded Cord with Plug*

\* NOTE: Items 13 - 15 apply only to the CSA version

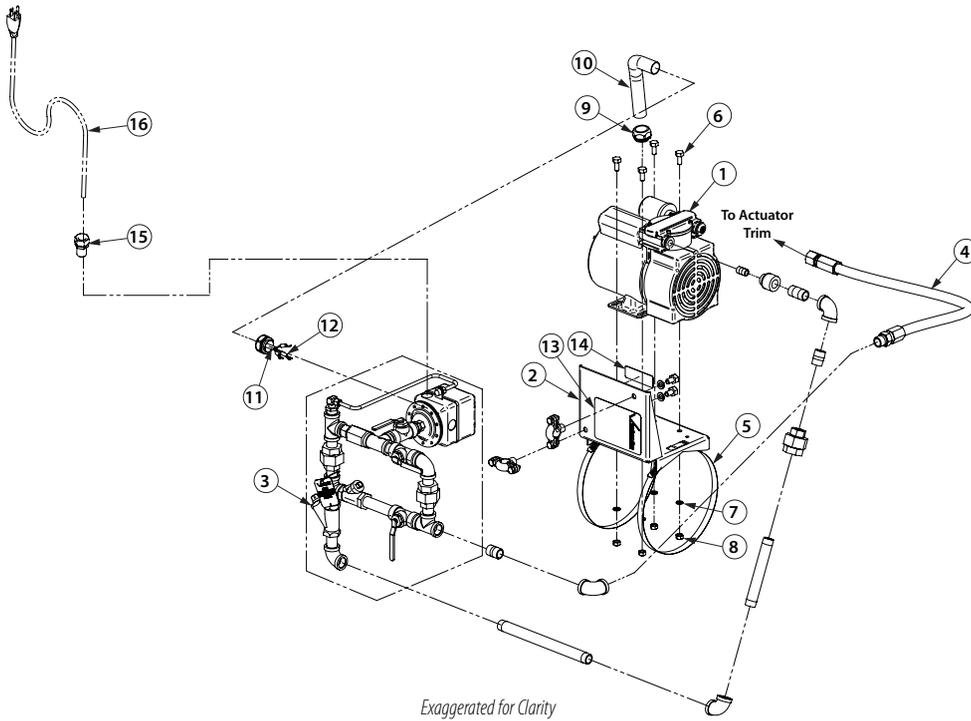
Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/6-hp (110 VAC) Compressor and Auto Vent



Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/6-hp (110 VAC) Compressor and No AutoVent



**EXPLODED VIEW DRAWING -  
SERIES 7C7 AIR MAINTENANCE COMPRESSOR ASSEMBLY WITH 1/3-HP COMPRESSOR**

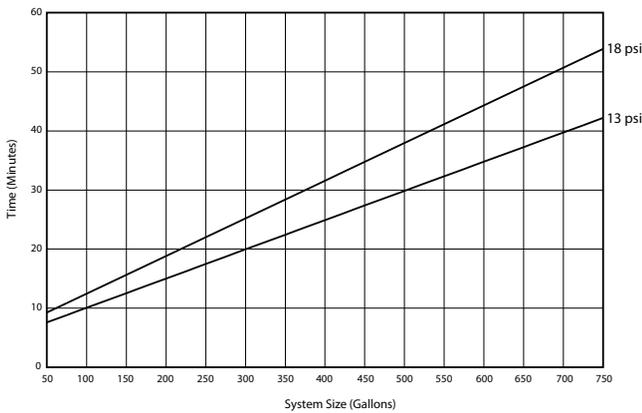


**Bill of Materials**

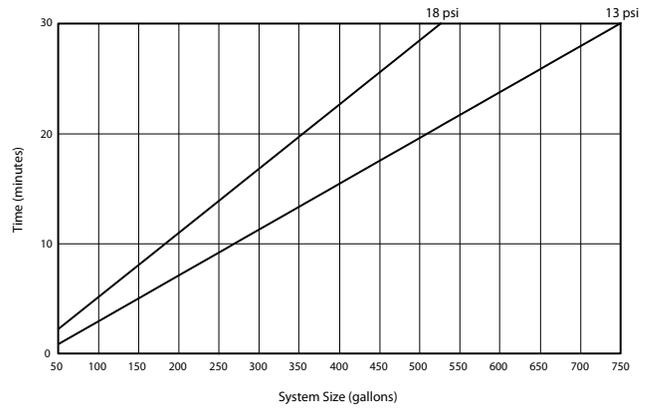
Item	Qty.	Description
1	1	Compressor
2	1	Mounting Bracket
3	1	Series 757P Air Maintenance Trim Assembly with Pressure Switch
4	1	Stainless Steel Braided Flex Hose
5	2	Hose Clamp
6	4	Hex-Head Bolt
7	4	Lock Washer
8	4	Hex Nut
9	2	Straight Conduit Connector
10	1	Liquid-Tight Conduit
11	2	14 AWG, 3-Strand Cable
12	3	#8 U-Style Wire Connector
13	1	Identification Tag
14	1	Identification Label*
15	1	Strain Relief Connector*
16	1	14 AWG Grounded Cord with Plug*

\* NOTE: Items 14 - 16 apply only to the CSA version

**Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/3-hp (110 VAC) Compressor and Auto Vent**



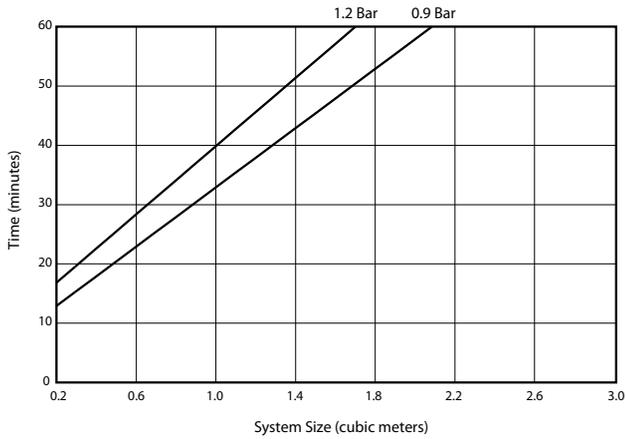
**Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/3-hp (110 VAC) Compressor and No Auto Vent**



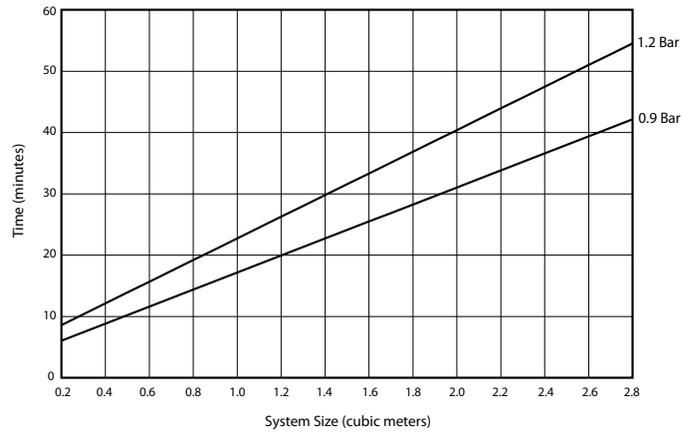
**NOTE:** Refer to the following page for charts reflecting the 220-volt 1/3-hp option.

### CHARTS FOR THE 1/3-HP COMPRESSOR, 220-VOLT OPTION

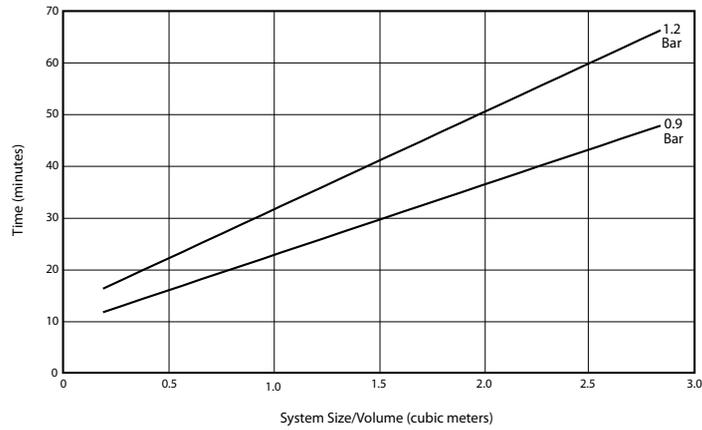
**Estimated Time to Reach Various Pressures - 220-volt Option**  
 Series 7C7 with 1/3-hp (220-240 VAC, 50-Hz) Compressor and Auto Vent



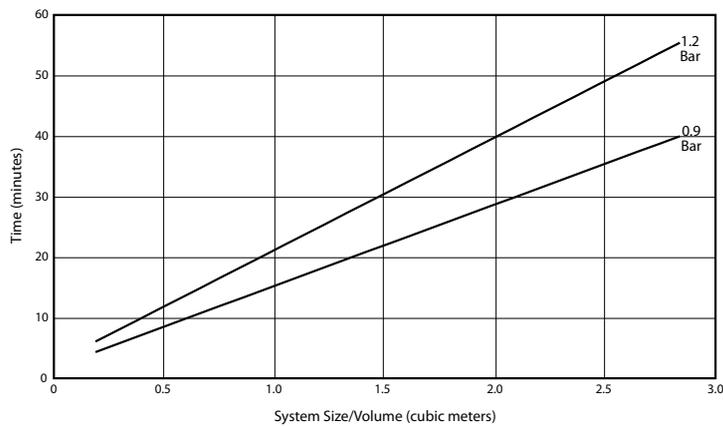
**Estimated Time to Reach Various Pressures - 220-volt Option**  
 Series 7C7 with 1/3-hp (220-240 VAC, 60-Hz) Compressor and Auto Vent



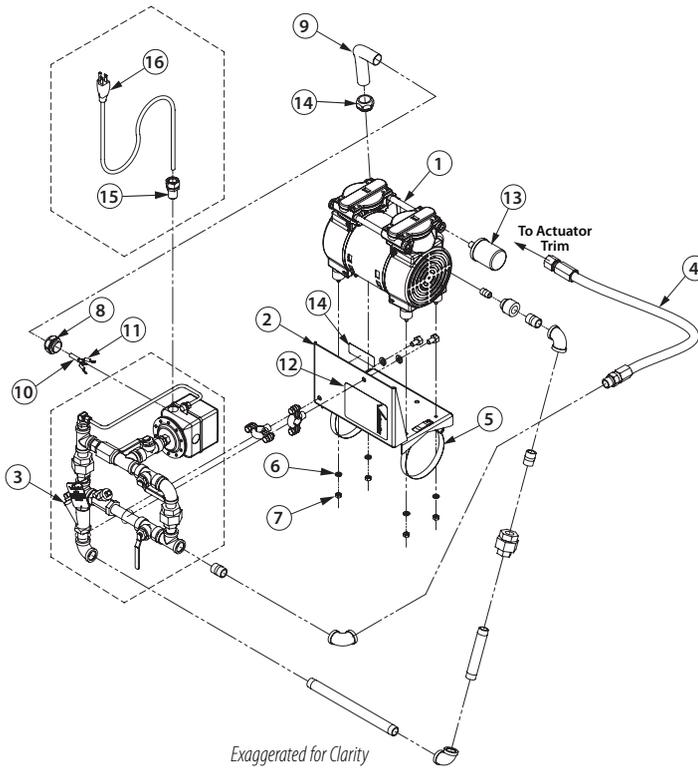
**Estimated Time to Reach Various Pressures - 220-volt Option**  
 Series 7C7 with 1/3-hp (220 - 240 VAC, 50 Hz) Compressor and No AutoVent



**Estimated Time to Reach Various Pressures - 220-volt Option**  
 Series 7C7 with 1/3-hp (220 - 240 VAC, 60 Hz) Compressor and No Auto Vent



## EXPLODED VIEW DRAWING - SERIES 7C7 AIR MAINTENANCE COMPRESSOR ASSEMBLY WITH 1/2-HP COMPRESSOR

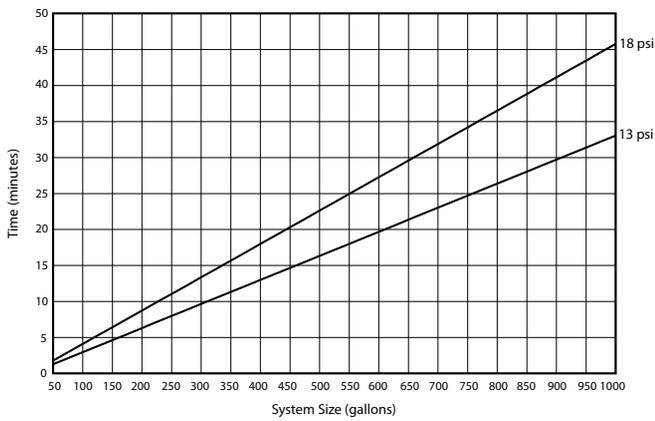


### Bill of Materials

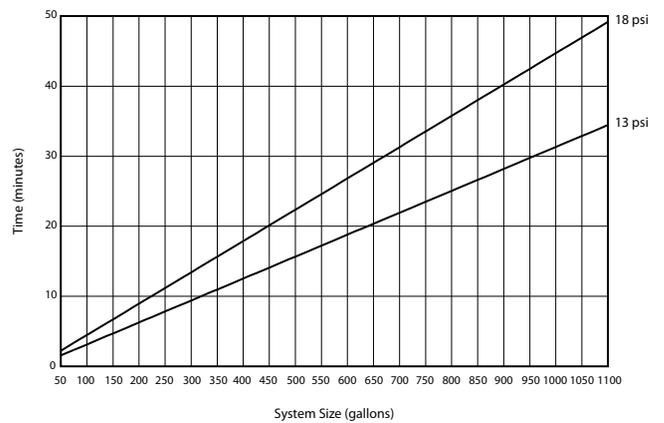
Item	Qty.	Description
1	1	Compressor
2	1	Mounting Bracket
3	1	Series 757P Air Maintenance Trim Assembly with Pressure Switch
4	1	Stainless Steel Braided Flex Hose
5	2	Hose Clamp
6	4	Lock Washer
7	4	Hex Nut
8	2	Straight Conduit Connector
9	1	Liquid-Tight Conduit
10	1	14 AWG, 3-Strand Cable
11	3	#8 U-Style Wire Connector
12	1	Identification Tag
13	1	Compressor Air Intake Filter
14	1	Identification Label*
15	1	Strain Relief Connector*
16	1	14 AWG Grounded Cord with Plug*

\* NOTE: Items 14 - 16 apply only to the CSA version

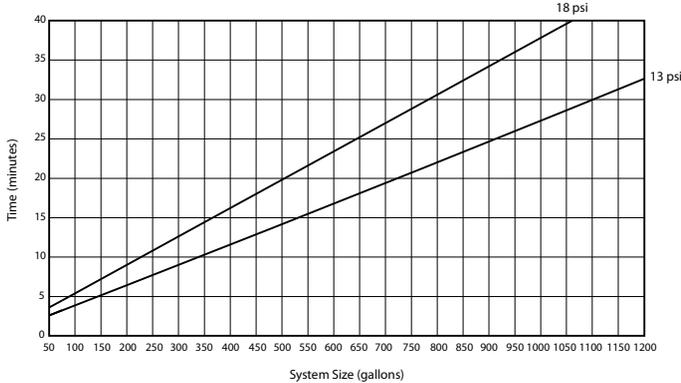
Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/2-hp (110 VAC, 50 Hz) Compressor and Auto Vent



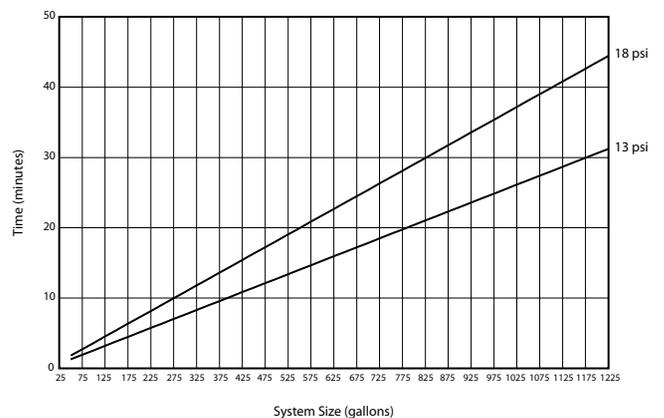
Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/2-hp (110 VAC, 50 Hz) Compressor and No Auto Vent



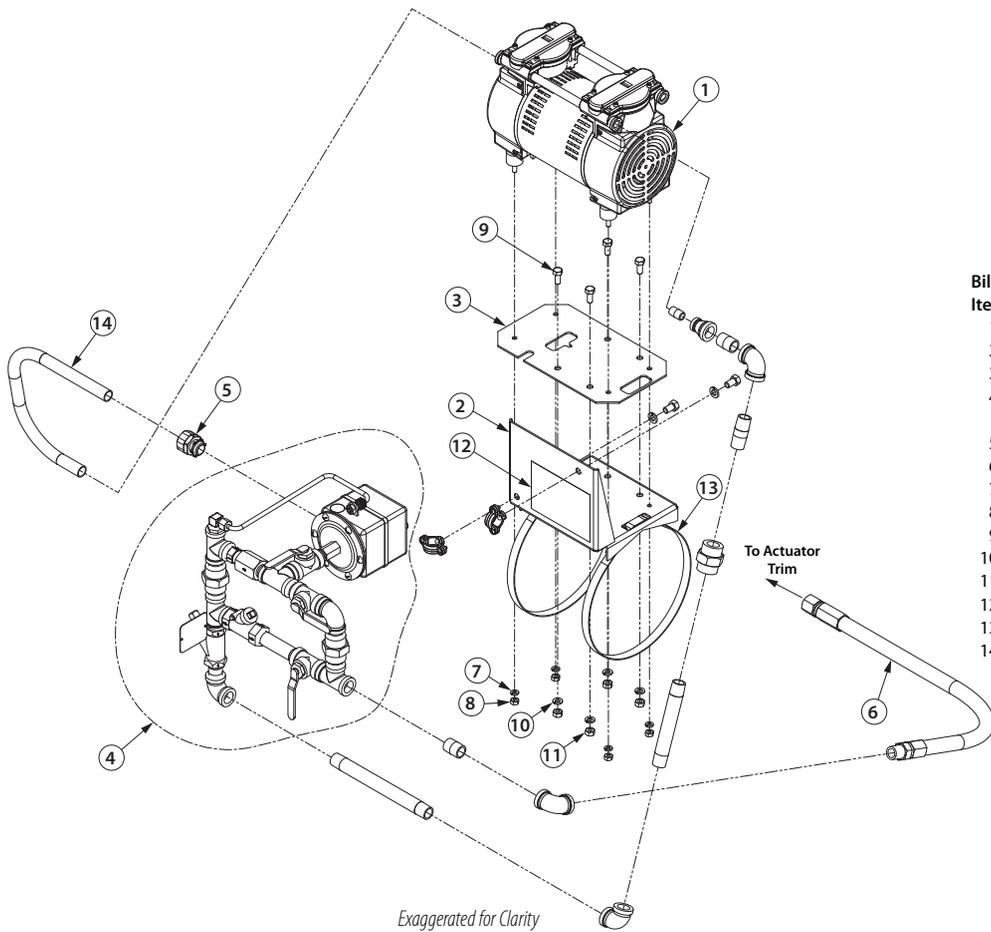
Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/2-hp (110 VAC, 60-Hz) Compressor and Auto Vent



Estimated Time to Reach Various Pressures -  
Series 7C7 with 1/2-hp (110 VAC, 60 Hz) Compressor and No Auto Vent



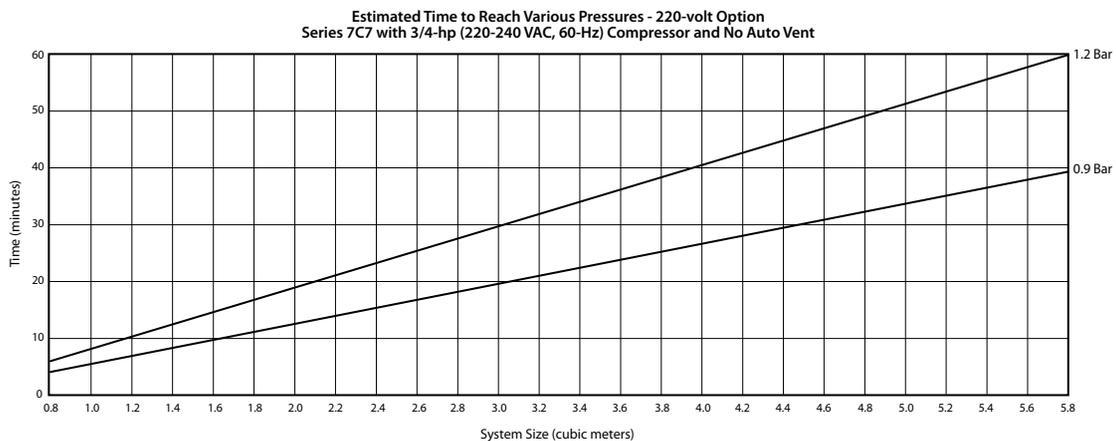
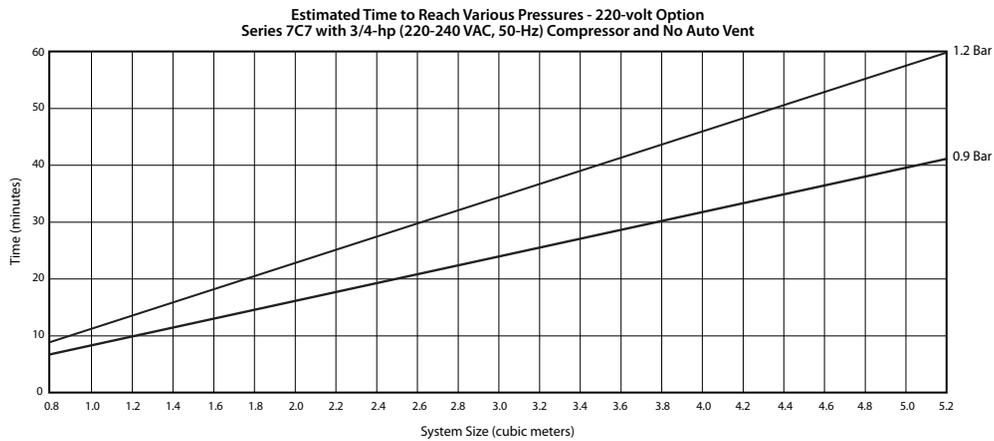
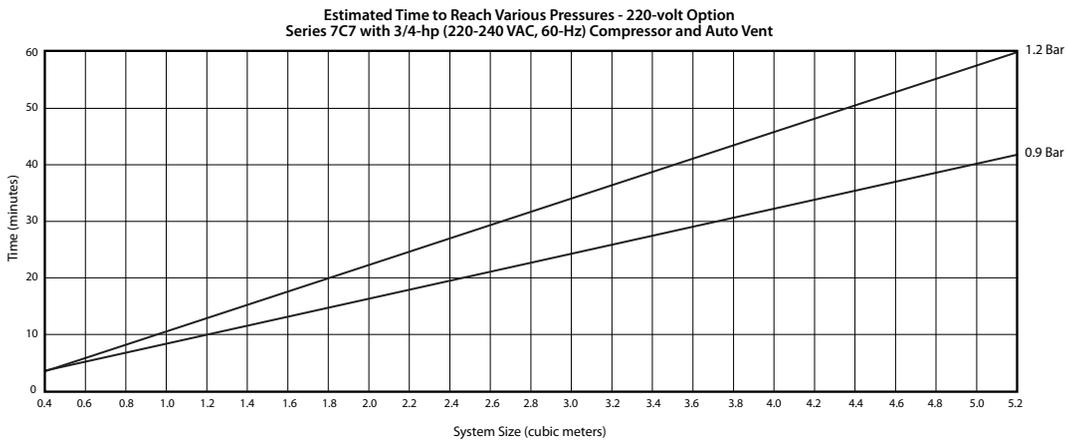
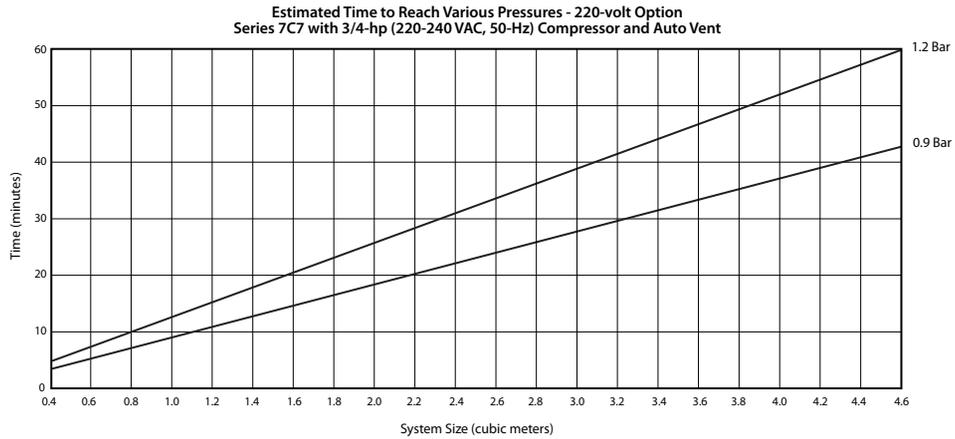
**EXPLODED VIEW DRAWING -  
SERIES 7C7 AIR MAINTENANCE COMPRESSOR ASSEMBLY WITH 3/4-HP COMPRESSOR**



**Bill of Materials**

Item	Qty.	Description
1	1	Compressor
2	1	Mounting Bracket
3	1	Adapter Plate
4	1	Series 757P Air Maintenance Trim Assembly with Pressure Switch
5	1	Liquid-Tight Connector, Conduit
6	1	Stainless Steel Braided Flexible Hose
7	4	Helical Spring-Lock Washer
8	4	Hex Nut
9	4	Hex Bolt
10	4	Helical Spring-Lock Washer
11	4	Hex Nut
12	1	Identification Label
13	2	Hose Clamp
14	1	Liquid-Tight Flexible Conduit

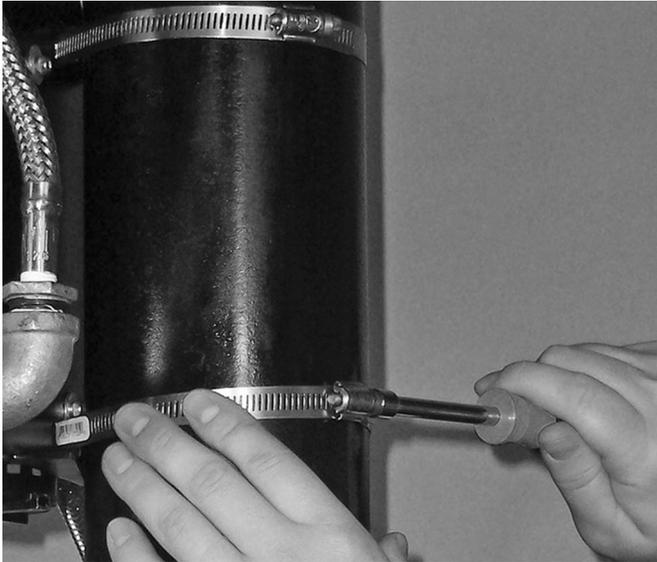
## CHARTS FOR THE 3/4-HP COMPRESSOR, 220-VOLT OPTION



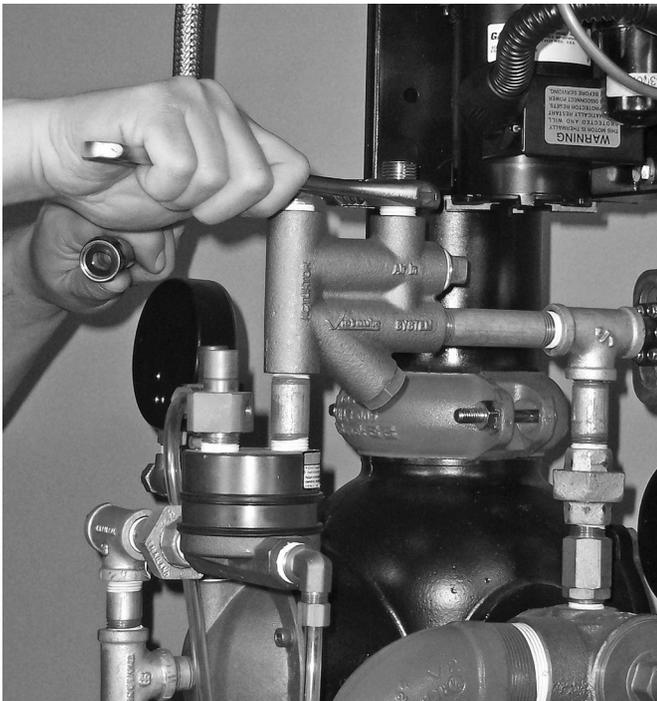
## INSTALLATION OF THE SERIES 7C7 AIR MAINTENANCE/COMPRESSOR ASSEMBLY

### NOTICE

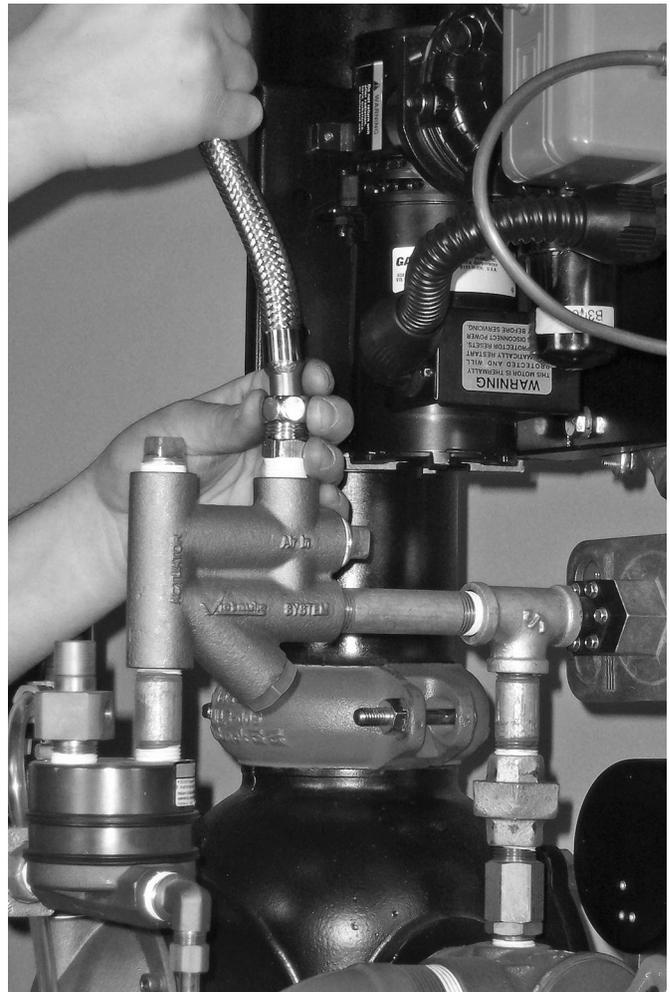
- Two people are required to install the Series 7C7 properly and safely.
- Make sure the Series 7C7 is mounted in the correct orientation.
- Due to the swing check valve in the air maintenance trim, the compressor can be mounted vertically or horizontally.



1. Mount the Series 7C7 Air Maintenance/Compressor Assembly on the riser with the hose clamps provided. When mounting the assembly on the riser, take into account the 26-inch/660-mm length of stainless steel braided flex hose that will be installed from the elbow in the air maintenance trim into the air manifold in the actuator trim. Make sure the hardware is tightened completely.



2. Install the fitting from the 1/2-inch/13-mm stainless steel braided flex hose into the air manifold in the actuator trim, as shown above.



3. Connect the 1/2-inch/13-mm stainless steel braided flex hose to the fitting in the air manifold, as indicated in the trim drawings. **NOTE:** Ensure the rubber washer is captured in the hose nut to prevent air leakage.

**ELECTRICAL CONNECTIONS**

**⚠ DANGER**

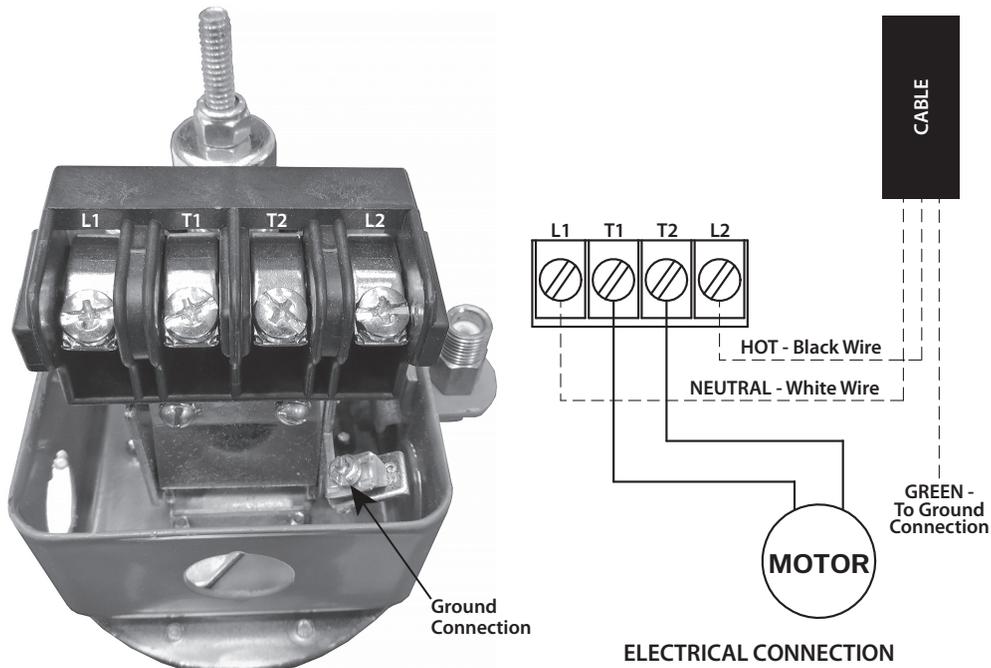


- Only qualified electricians should connect incoming power to the Series 7C7 Air Maintenance/Compressor Assembly.
- To reduce the risk of electric shock, check the electrical source for proper grounding.

Failure to follow these instructions could result in death or serious personal injury.

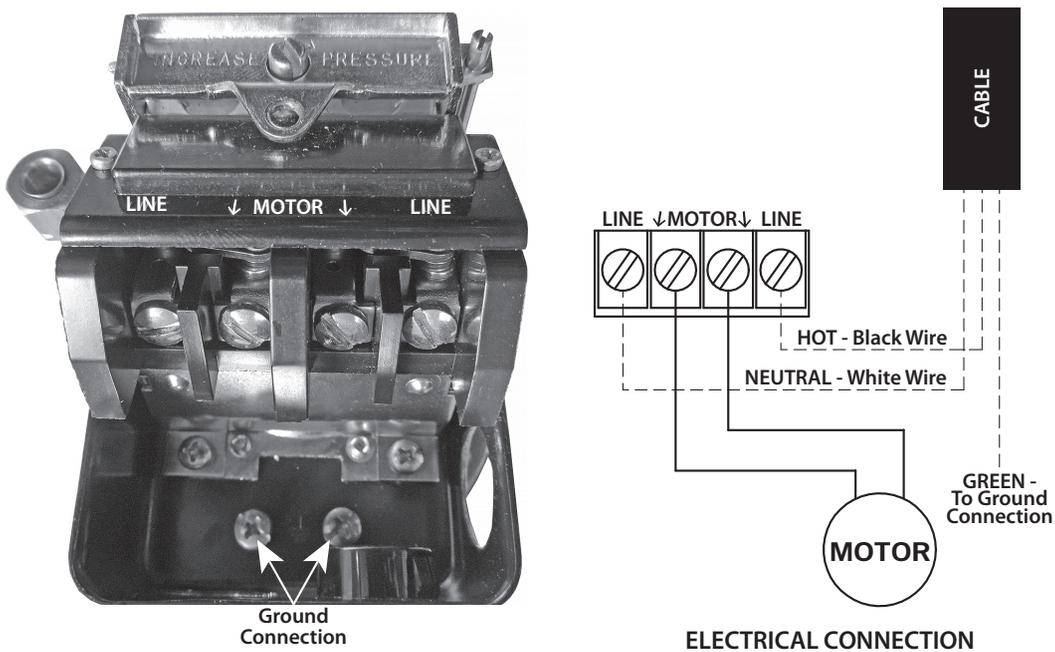
Only qualified electricians should connect incoming power to the Series 7C7 Air Maintenance/Compressor Assembly. All wiring shall be completed in accordance with requirements of the local authority having jurisdiction and any applicable electrical codes.

**PRESSURE SWITCH – VERSION “A”**



NEMA 1 Enclosure - Intended Only for Indoor Use

**PRESSURE SWITCH – VERSION “B”**



NEMA 1 Enclosure - Intended Only for Indoor Use

## ADJUSTMENT OF PRESSURE SWITCH – VERSION “A”



Follow the instructions in this section if the internal components of the pressure switch match the above photo.

### **⚠ DANGER**

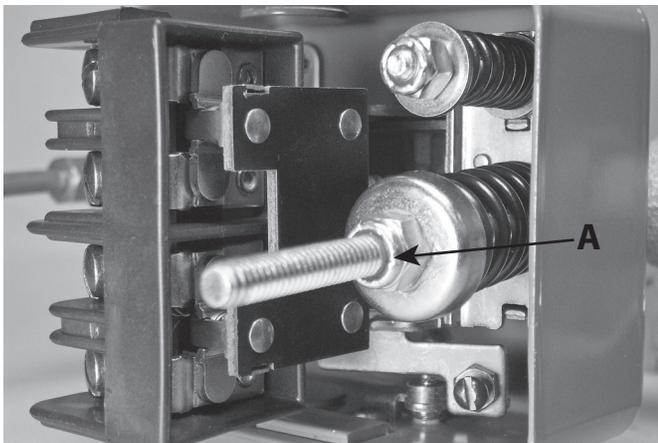


- **Disconnect and lock-out the electrical supply before attempting to remove the pressure switch cover.**

**Failure to follow this instruction could result in serious personal injury.**

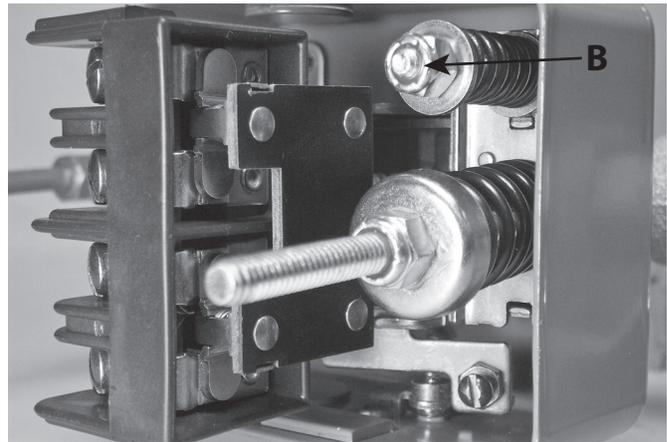
The pressure switch is factory set for typical system air pressures (13 - 18 psi/0.9 - 1.2 Bar). **NOTE:** Any adjustment made may affect correct operation and increase the cut-off time. Higher air pressure may slow down the system response time. Refer to the system air pressure gauge when making any adjustments.

### PRESSURE RANGE



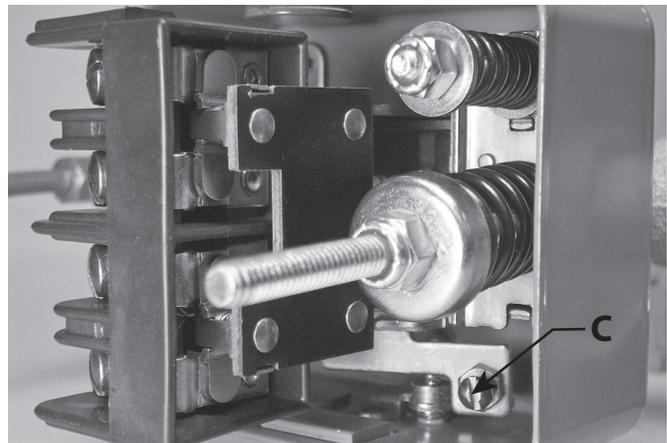
Adjust the range spring nut (A) first, until the desired operating point on the falling pressure is obtained. **NOTE:** Turning the range spring nut clockwise will increase the setting. This adjustment changes both the cut-in and cut-out operating points but should be adjusted only for the cut-in point.

### DIFFERENTIAL ADJUSTMENT



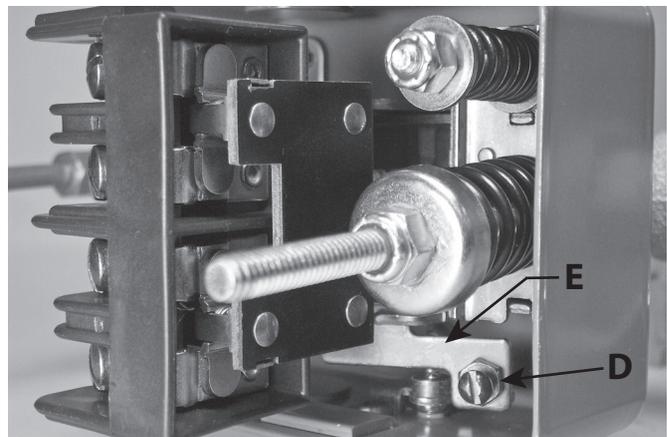
Set the operating point on the rising pressure by adjusting the differential spring nut (B). **NOTE:** Turning the differential spring nut clockwise will increase the pressure difference between the cut-in and cut-out operating points by increasing the cut-out point only.

### RELEASE VALVE



The release valve is factory installed. If the release valve is replaced or the release valve screw (C) requires adjustment, complete the following steps:

1. Loosen the lock nut.
2. With air pressure applied to the valve and the switch contacts open, turn the release valve screw (C) clockwise until the release valve just begins to release air.
3. Turn the release valve screw (C) clockwise an additional 1½ turns.



4. Lock the jam nut (D) against the bearing-plate lever (E).

## ADJUSTMENT OF PRESSURE SWITCH – VERSION “B”



Follow the instructions in this section if the internal components of the pressure switch match the above photo.

### DANGER

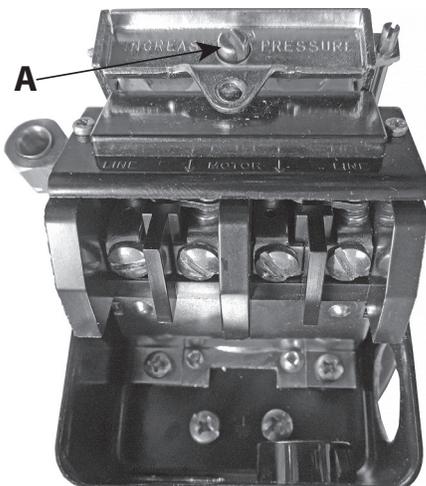


- **Disconnect and lock-out the electrical supply before attempting to remove the pressure switch cover.**

**Failure to follow this instruction could result in serious personal injury.**

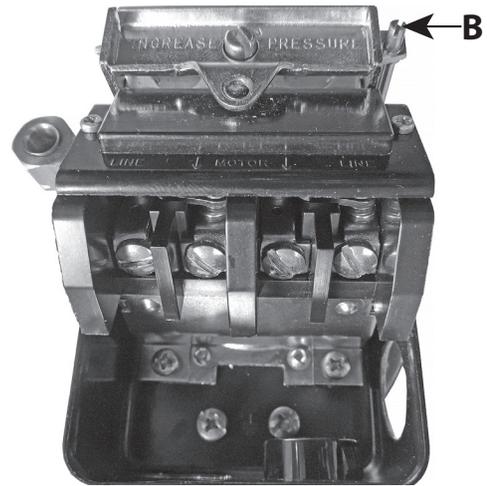
The pressure switch is factory set for typical system air pressures (13 - 18 psi/0.9 - 1.2 Bar). **NOTE:** Any adjustment made may affect correct operation and increase the cut-off time. Higher air pressure may slow down the system response time. Refer to the system air pressure gauge when making any adjustments.

### PRESSURE RANGE



Adjust the pressure range screw (A) first, until the desired operating point on the falling pressure is obtained. **NOTE:** Turning the pressure range screw clockwise will increase the setting. This adjustment changes both the cut-in and cut-out operating points but should be adjusted only for the cut-in point.

### DIFFERENTIAL ADJUSTMENT

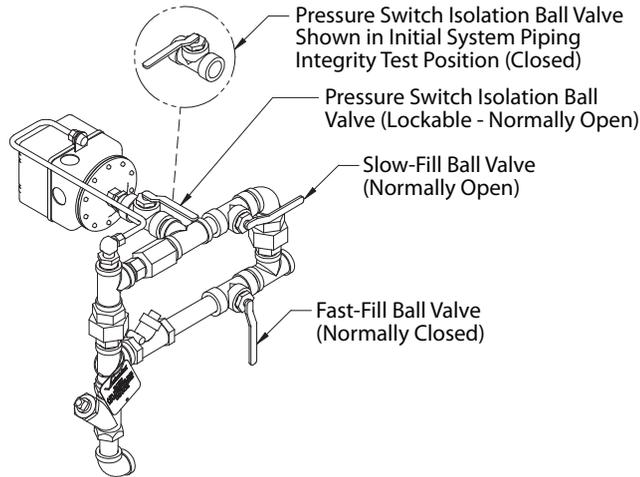


Set the operating point on the rising pressure by using the differential adjustment screw (B). **NOTE:** Turning the differential adjustment screw clockwise will increase the pressure difference between the cut-in and cut-out operating points by increasing the cut-out point only.

# Series 7C7 Air Maintenance/Compressor Assembly

## FAST-FILL BALL VALVE, SLOW-FILL BALL VALVE, AND PRESSURE SWITCH ISOLATION BALL VALVE INFORMATION

The following information describes the function of the fast-fill ball valve, the slow-fill ball valve, and the pressure switch isolation ball valve of the air maintenance trim. Always refer to the installation, maintenance, and testing manual for the FireLock NXT valve for complete setup information.



## SYSTEM PIPING INTEGRITY TEST

- To perform the one-time initial system piping integrity test (per NFPA requirements), close the pressure switch isolation ball valve to allow the compressor to charge the system pressure above the cut-out pressure. Upon completion of the test, open the pressure switch isolation ball valve. Manually bleed the system pressure down to 18 psi/1.2 Bar by opening the system main drain valve. Lock the pressure switch isolation ball valve in the “open” position.

- Open the slow-fill ball valve and fast-fill ball valve to charge the system. **NOTE:** The slow-fill ball valve’s normal operating position is “open.” 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.
- Ensure the pressure switch isolation ball valve is open.
- When system air pressure is established, close the fast-fill ball valve. The fast-fill ball valve’s normal operating position is “closed.”

## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Valve operates without sprinkler activation	Loss of air pressure in the system or trim	Check for any leaks in the system and trim. Confirm that the air maintenance trim is operating properly. Consider installing a low-air supervisory switch.
	Pressure switch is set too low, or the compressor is not operating properly	Increase the “ON” setting of the pressure switch, and check the air compressor for proper operation.
Compressor short cycles/chatters	Manual pull station has operated	Close the manual pull station, then reset the fire protection system by referencing the applicable installation, maintenance, and testing manual for the specific valve.
	Pressure switch is out of adjustment	Refer to the “Pressure Switch Adjustment” section to readjust pressure and differential.
	Slow-fill and fast-fill ball valves were closed at the same time, creating back pressure at the compressor	Relieve pressure at the motor by opening the slow-fill ball valve and pushing the relief valve at the pressure switch.

For complete contact information, visit [victaulic.com](http://victaulic.com)

I-7C7 4803 REV F UPDATED 07/2014 Z0007C7000

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY AND/OR ITS AFFILIATED ENTITIES IN THE UNITED STATES AND/OR OTHER COUNTRIES.  
© 2014 VICTAULIC COMPANY. ALL RIGHTS RESERVED.

