



Pneumatic Division North America
Richland, Michigan 49083

Installation Instructions: V-671BP

“MK” Series Air Control Valves
1/8" Inline & Subbase, 3/2 & 4/2

ISSUED: June, 2001
Supersedes: April, 2000

ECN# P28282

WARNING

To avoid unpredictable system behavior that can cause personal injury and property damage:

- Disconnect electrical supply (when necessary) before installation, servicing, or conversion.
- Disconnect supply and depressurize all air lines connected to this product before installation, servicing, or conversion.
- Operate within the manufacturer's specified pressure, temperature, and other conditions listed in these instructions.
- Medium must be moisture-free if ambient temperature is below freezing.
- Service according to procedures listed in these instructions.
- Installation, service, and conversion of these products must be performed by knowledgeable personnel who understand how pneumatic products are to be applied.
- After installation, servicing, or conversion, air and electrical supplies (when necessary) should be connected and the product tested for proper function and leakage. If audible leakage is present, or the product does not operate properly, do not put into use.
- Warnings and specifications on the product should not be covered by paint, etc. If masking is not possible, contact your local representative for replacement labels.

Introduction

Follow these instructions when installing or operating the product.
VALVE IS NOT DESIGNED FOR FIELD SERVICE

Application Limits

| Operating Pressure: | kPa | PSIG | bar |
|---------------------|-----|------|------|
| Maximum | 827 | 120 | 8.27 |
| Minimum | 0 | 0 | 0 |

Ambient Temperature Range: -15°C to 60°C (5°F to 140°F)

Voltage Range: 85-110% of rated voltage. These limits should not be exceeded.

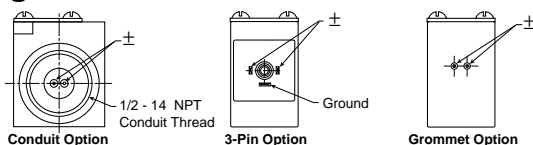
EXCEPTION: The 47 and 48 voltage code rated Valves may be operated at 70-125% of the rated voltage (3/2 valves only).

CAUTION: An interruption of 10 milliseconds or greater to the power supplied to the solenoid of a solenoid operated valve may cause the valve to shift. Provision must be made to prevent power interruption of this duration to avoid unintended, potentially hazardous, consequences.

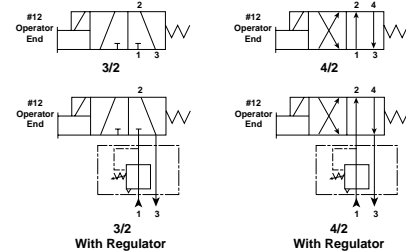
CAUTION: This valve contains solid state components that can be damaged by transient voltage spikes, over-voltage or high temperature. To protect against premature solenoid failure, please read and adhere to the following:

If this solenoid operated valve is used in a circuit with other inductive loads, the solenoid should be electrically protected with a voltage suppression device (e.g. transient voltage suppressor or varistor) that has a minimum rating of 1.6 times the rated voltage of the solenoid valve and sufficient capacity to dissipate the energy of other inductive loads.

Wiring Detail



Symbols



| 3-Way Options | Port No. | | |
|------------------------|----------|-------|-------|
| | 1 | 2 | 3 |
| 3-Way, Normally Closed | Inlet | Cyl | Exh |
| 3-Way, Normally Open | Exh | Cyl | Inlet |
| 2-Way, Normally Closed | Inlet | Cyl | Plug |
| 2-Way, Normally Open | Plug | Cyl | Inlet |
| Selector | Inlet | Cyl | Inlet |
| Diverter | Cyl | Inlet | Cyl |

| 4-Way Options | Port No. | | | |
|-------------------------|----------|----------|---------|----------|
| | 1 | 2 | 3 | 4 |
| Normal Function | Inlet | Cylinder | Exhaust | Cylinder |
| 4-Way used as 3-Way, NC | Inlet | Plug | Exhaust | Cylinder |
| 4-Way used as 3-Way, NO | Inlet | Cylinder | Exhaust | Plug |

Subbase Valve Assembly

1. Install the Selector Plate (Item 2) on top of the manifold and push the projections into their appropriate holes.
2. Place the valve on the selector plate. Install the two Socket Head Cap Screws (Item 1) provided and tighten to .7 to 1.1 Nm (6 to 10 in-lb) torque using a 2.5mm hex wrench.
3. When DIN Rail Mounting Bracket is provided: install Screws (Item 9) through the Manifold and secure the DIN Rail Connecting Bracket (Item 10) on both ends of the Manifold.
4. When Regulator Kit is provided: Install the two O-rings provided (Item 3) into the slots on the Regulator Housing (Item 4). Install the Regulator Housing (Item 4) using the two Mounting Screws (Item 5) and tighten to .7 to 1.1 Nm (6 to 10 in-lb) torque using a 2.5mm hex wrench. Install the Regulator (Item 6) into the Housing (Item 4) and torque to 1.7 to 2.3 Nm (15 to 20 in-lb).

WARNING

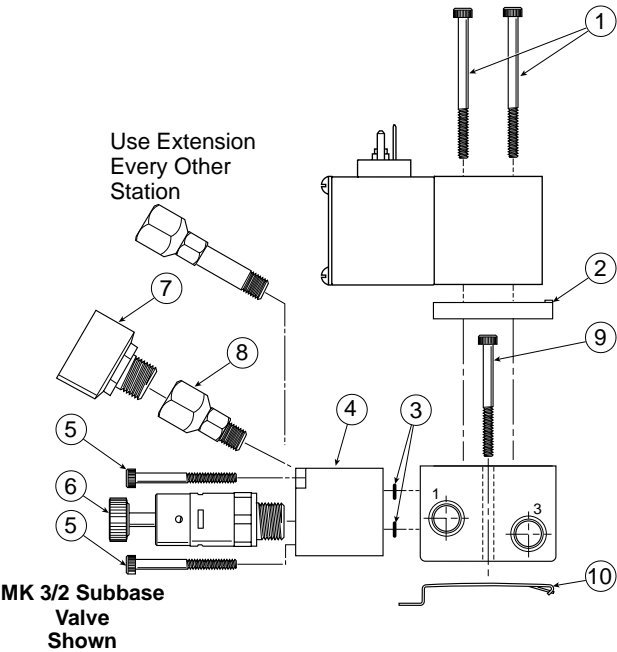
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- When Gauge Kit is provided: Install the appropriate Pipe Fitting (Item 8) into the Regulator Housing (Item 4) Install the Gauge (Item 7) on to the Pipe Fitting.
- Test valve for functional operation and for internal and external leakage. If leakage is audible (likely indicating improper assembly) do not operate – conduct assembly again.



Recommended Lubricant

If in-service lubricant is used, F442 oil is recommended. F442 is specially formulated to promote maximum service life of air operated equipment. Other compatible lubricants should be of straight paraffin base mineral oil having a viscosity of 100-200 SSU @ 100°F and an Aniline Point greater than 200°F.

CAUTION: Do not use synthetic, reconstituted, or oils with alcohol content or detergent additives.

Subbase Kits Available

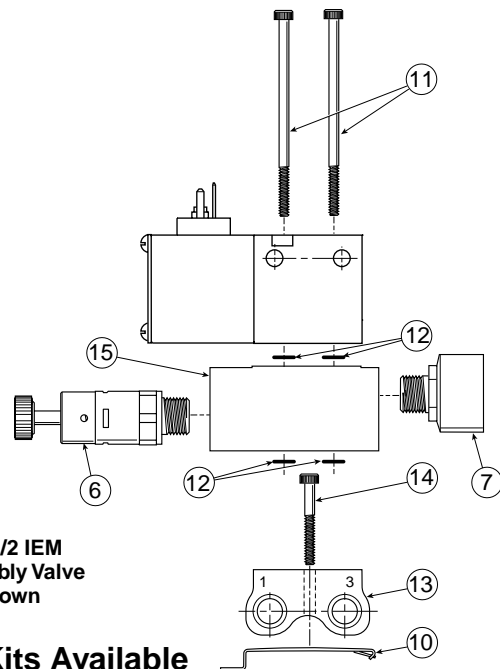
| Kit No. | Description |
|------------|--|
| PS2105P | 3/2 NC Selector Plate Kit |
| PS2106P | 3/2 NO Selector Plate Kit |
| PS2109P | Regulator Blanking Plate Kit |
| PS2131122P | Regulator Kit Without Gauge, 2-60 PSI |
| PS2131133P | Regulator Kit Without Gauge, 5-125 PSI |
| PS2131155P | Regulator Kit With Gauge, 2-60 PSI |
| PS2131166P | Regulator Kit With Gauge, 5-125 PSI |
| PS2188P | Valve to Subbase Bolt Kit |
| PS2194P | 3/2 Subbase Blanking Plate Kit |
| PS219401P | 4/2 Subbase Blanking Plate Kit |
| PS2195P | 10-32 Extension Kit (10 / Kit) |
| PS2196P | Swivel Adapter Kit (5 / Kit) |

Instructions for Converting NC to NO - 3/2 Valves Only

Selector Plates (Item 2) can be changed to convert function. Remove the Valve Body Assembly from the Base by removing the two Body / Manifold Screws (Item 1). Remove the existing Selector Plate (Item 2). Place the new Selector Plate with the appropriate function on the Subbase. The function can be read on this Selector Plate when viewed from the side opposite the Solenoid. Replace the Valve Assembly on the Selector Plate. Reinstall the two Screws (Item 1) and tighten .7 to 1.1 Nm (6 to 10 in-lb) torque. Turn on air pressure and electrical power source. Test valve for proper functional operation and for internal and external leakage.

Inline Valve on Inlet / Exhaust Manifold Assembly

- Install two of the four O-rings (Item 12) in the counterbores on top of the Manifold.
- Place the Valve on the Manifold. For normally closed operation (3/2 Valves), line up the Solenoid end of the Valve with the Port 1 on the Manifold. For normally open operation (3/2 valves only), line up the Solenoid end of the Valve with the Port 3 on the manifold. Install the two Socket Head Cap Screws (Item 11) provided and tighten to 1.5 to 1.9 Nm (13 to 17 in-lb) torque using a 2.5mm hex wrench. For 4/2 valves, the Solenoid end on the Valve must always line up with Port 1 of the Manifold.
- When DIN Rail Mounting Bracket is provided, install Screws (Item 14) through the Manifold and secure the DIN Rail Connecting Bracket (Item 10) on both ends of the Manifold.
- When Sandwich Regulator Kit is provided: Install the Sandwich (Item 15) on top of the Manifold (Item 13). Line up Port 1 on the Manifold with the Regulator end of the Sandwich. Install the remaining two of the four O-rings provided (Item 12) into the slots on top of the Sandwich. Install the two Mounting Screws (Item 11) and tighten to 1.5 to 1.9 Nm (13 to 17 in-lb) torque using a 2.5mm hex wrench. The 3-Way valve can be oriented as described in paragraph (2) for NO or NC operation. Install the Regulator (Item 6) into the Sandwich (Item 15) and torque to 1.7 to 2.3 Nm (15 to 20 in-lb).
- When Gauge is provided: Install the Gauge (Item 7) directly into the Sandwich Regulator Housing (Item 15), or install Pipe Nipples (Item 8) (Items not shown) to Gauge port then to Gauge. Gauge diameter is larger than Regulator width, so Gauge mounting must be staggered.
- Test valve for functional operation and for internal and external leakage. If leakage is audible (most likely indicating improper assembly) do not operate – conduct assembly again.
- When Selector Sandwich is required, install similar to Item 15. The Selector Sandwich allows selective isolation of either the inlet or exhaust or both, when Sandwich is between valve and IEM.



IEM Kits Available

| Kit No. | Description |
|------------|---|
| PS2130122P | Regulator Kit Without Gauge, 2-60 PSI |
| PS2130133P | Regulator Kit Without Gauge, 5-125 PSI |
| PS2130155P | Regulator Kit With Gauge, 2-60 PSI |
| PS2130166P | Regulator Kit With Gauge, 5-125 PSI |
| PS2144P | Selector Sandwich Kit |
| PS2166P | 3/2 or 4/2 IEM NPT Ported Blanking Plate Kit |
| PS2169P | 3/2 or 4/2 IEM Blanking Plate Kit |
| PS2184P | 3/2 or 4/2 Valve to IEM O-Ring Kit (10 / Kit) |
| PS2187P | 3/2 or 4/2 Valve to IEM Bolt Kit (10 / Kit) |
| PS2190P | Din Rail Mounting Kit, Subbase & IEM |