

Operating Pressure

Internal Pilot – Solenoid Valves 3/8" & 3/4" Body

- 20 to 140 PSIG (standard)

1-1/4" Body

- 25 to 140 PSIG (200 PSIG option available)

Internal Pilot – Remote Pilot Valve

| Air Pressure Thru Valve | Operating Pressure Limitations | | |
|----------------------------|--------------------------------|------------|--------------|
| | Remote Pilot Pressure (PSI) | | |
| | 3/8" Basic | 3/4" Basic | 1-1/4" Basic |
| 25 PSI | 30-250 | 30-250 | 30-250 |
| 50 PSI | 50-250 | 50-250 | 50-250 |
| 75 PSI | 70-250 | 75-250 | 70-250 |
| 100 PSI | 95-250 | 95-250 | 90-250 |
| 150 PSI | 140-250 | 145-250 | 130-250 |
| 200 PSI | 175-250 | 185-250 | 175-250 |
| 250 PSI | 215-250 | 230-250 | 205-250 |

Solenoid Valves: External Supply

3/8" & 3/4" Basic

| Air Pressure Thru Valve (PSI) | External Pilot Pressure Required (PSI)* | |
|----------------------------------|---|------------|
| | 3/8" Basic | 3/4" Basic |
| 25 PSI | 35-200 | 35-200 |
| 50 PSI | 45-200 | 40-200 |
| 75 PSI | 55-200 | 50-200 |
| 100 PSI | 65-200 | 65-200 |

Vacuum up to 1" HG, less than a perfect vacuum.

* With 200 PSI option.

Do not exceed 140 PSI with standard pilots.



3/8" & 3/4" Body
**Single Solenoid External Pilot
 Normally Closed**



3/8" & 3/4" Body
**Single Solenoid External Pilot
 Normally Open**



3/8" & 3/4" Body
**Remote Operated External Return
 Normally Closed**



1-1/4" Body



3/8" & 3/4" Body

**Remote Operated External Return
 Normally Open**



1-1/4" Body

External Pilot supply should be used when the main valve needs to operate below the Minimum Operating Pressure or at Vacuum. A Selector function can also be achieved (pressurizing the IN and EXHAUST ports) with an External Pilot Supply. Refer to charts for required external pilot pressure.

Flow

| Basic Valve Size | Inlet Port Size | Exhaust Port Size | Cv Inlet to Cylinder | Cv Cylinder to Exhaust |
|------------------------------|-----------------|-------------------|----------------------|------------------------|
| 3/8" 3-Way Normally Closed | 3/8" Pipe | 1/2" Pipe | 3.6 | 4.2 |
| | 1/2" Pipe | 1/2" Pipe | 3.8 | 4.3 |
| 3/8" 3-Way Normally Open | 3/8" Pipe | 1/2" Pipe | 3.6 | 4.1 |
| | 1/2" Pipe | 1/2" Pipe | 3.9 | 4.5 |
| 3/4" 3-Way Normally Closed | 1/2" Pipe | 3/4" Pipe | 8.2 | 9.2 |
| | 3/4" Pipe | 1" Pipe | 9.3 | 10.8 |
| 3/4" 3-Way Normally Open | 1/2" Pipe | 3/4" Pipe | 7.7 | 6.6 |
| | 3/4" Pipe | 1" Pipe | 9.6 | 11.4 |
| 1-1/4" 3-Way Normally Closed | 1" Pipe | 1-1/4" Pipe | 19.5 | 23.5 |
| | 1-1/4" Pipe | 1-1/2" Pipe | 23.3 | 26.9 |
| | 1-1/2" Pipe | 1-1/2" Pipe | 23.3 | 26.9 |
| 1-1/4" 3-Way Normally Open | 1" Pipe | 1-1/4" Pipe | 20.4 | 24.8 |
| | 1-1/4" Pipe | 1-1/2" Pipe | 25.0 | 29.1 |
| | 1-1/2" Pipe | 1-1/2" Pipe | 26.7 | 29.9 |

Temperature Rating

Operating Temperature Range:

| Operator Type | Duty Cycle* | Minimum Ambient Temperature | Maximum Ambient Temperature |
|------------------|----------------|-----------------------------|-----------------------------|
| Standard Service | Intermittent | 0°F (-18°C) | 125°F (52°C) |
| Solenoid | Continuous | 0°F (-18°C) | 100°F (38°C) |
| Special Service | Intermittent | 0°F (-18°C) | 125°F (52°C) |
| Solenoid | Continuous | 0°F (-18°C) | 125°F (52°C) |
| Remote Pilot | Not Applicable | 0°F (-18°C) | 200°F (93°C) |

* Applications with pilot valves energized for ten (10) minutes or longer with a duty cycle greater than 70% are considered to be continuously energized.

$$\text{Duty cycle} = \frac{\text{Time energized}}{\text{Time energized} + \text{time off}} \times 100\% = \% \text{ Duty Cycle}$$

Materials of Construction

Valve BodyCast Aluminum
Poppet Assembly..... Aluminum and Stainless Steel
Pilot Valve.....Zinc, Stainless Steel, Brass, Copper, Zinc Plated Steel
SealsNitrile

Selection

Although reasonable safety factors are designed into each speed poppet valve, it is important that application requirements do not exceed the rated limitation of the valve. This precaution insures a sufficient safety factor.

Life Expectancy

Normal multimillion cycle life expectancy of high speed poppet series valves is based on the use of properly filtered and lubricated air at room temperature. In actual laboratory tests, the high speed poppet valves provide maintenance-free service life in excess of 20,000,000 cycles.

Lubrication

The high speed poppet valves are pre-lubricated to permit use with non-lubricated air. However, air should be lubricated to assure maximum seal life.

F442 lubricating oil is recommended. This oil is specially formulated to provide peak performance and maximum service life from air-operated equipment.

Other good air line lubricating oils may be used provided they atomize readily and are of the medium aniline type. Aniline point range must be between 180°F - 220°F. Viscosity SUS @ 100°F of 140-170. High aniline oils will shrink seals; low aniline oils will swell seals, reducing operating life and expectancy.

Installation

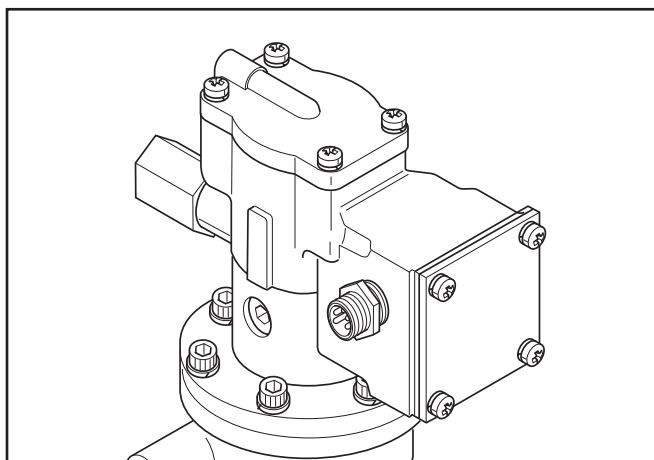
Valves should be installed with reasonable accessibility for service whenever possible. Care should be taken to hold piping length to a minimum and to protect valves from exposure to extreme heat, dirt and moisture. Piping should be clean and clear of dirt and chips. Threads should be the correct size and undamaged. Pipe joint compound should be used sparingly and only on pipe threads, never in the valve body. Care should be taken in installation to avoid undue strain on valve.

For the small port size options, it is recommended that an air reservoir is located close to the valve inlet as to not starve the valve of air pressure.



CAUTION: DO NOT RESTRICT THE INLET TO POPPET VALVES

Restriction of the inlet can starve the air supply to the pilot section of internally piloted poppet valves and result in slow shifting or failure of the valve to shift properly. Always connect the supply line directly to the inlet of the valve using the full pipe size of the valve inlet. Never use a quick coupling to connect a poppet valve to the air supply. On valves with a small inlet port, use of an upstream surge tank may be required at lower operating pressures to insure an adequate air supply and proper operation.



Automotive Connections

- 3-Pin & 5-Pin "Mini" (7/8 UNF Thread)
- 4-Pin "Micro" (M12 Thread)

Solenoid Configurations

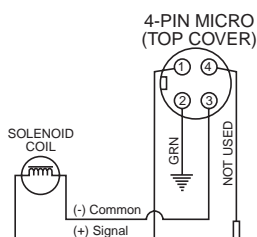
"E", "J", "N"

D

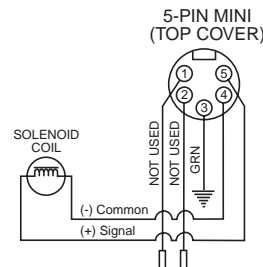
Wiring Connections

Chrysler Connection

4-Pin Male/Single Solenoid
 (Encl. Option J, Wiring Option C)

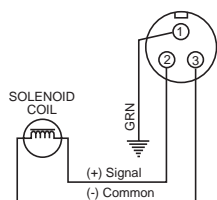


5-Pin Male/Single Solenoid
 (Encl. Option N, Wiring Option C)

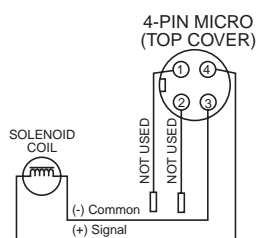


Ford Connection

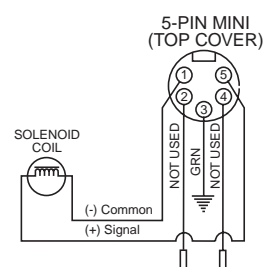
3-Pin Male/Single Solenoid
 (Encl. Option E, Wiring Option F)



4-Pin Male/Single Solenoid
 (Encl. Option J, Wiring Option F)

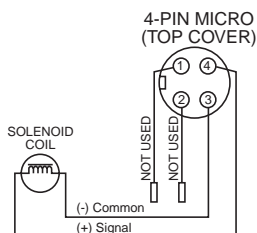


5-Pin Male/Single Solenoid
 (Encl. Option N, Wiring Option F)

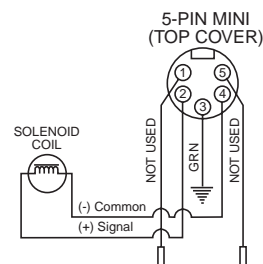


GM Connection

4-Pin Male/Single Solenoid
 (Encl. Option J, Wiring Option G)



5-Pin Male/Single Solenoid
 (Encl. Option N, Wiring Option G)



Solenoid Characteristics Chart

Voltage Range +10/-15% of Nominal

| 3/8" & 3/4" Basic – L-Pilot | | | | | |
|-----------------------------|----------------|-----------------|--------------------|-------|---------------------|
| Voltage/ Cycles | Amps Inrush | Amps Holding | Resistance Ohms | Watts | Insulation Class |
| 120/60VAC | .29 | .18 | 122 | 12 | B |
| 110/50VAC | .21 | .14 | 122 | 12 | B |
| 240/60VAC | .18 | .12 | 610 | 12 | B |
| 24/60VAC | 1.6 | 1.0 | 4.5 | 9.5 | B |
| 24/50VAC | 1.2 | .75 | 6.4 | 9.5 | B |
| 6VDC | – | 1.4 | 4.5 | 7.6 | B |
| 12VDC | – | .66 | 17.7 | 9 | B |
| 24VDC | – | .32 | 71 | 9 | B |
| 48VDC | – | .22 | 216 | 11 | B |

| 1-1/4" Basic – P-Pilot | | | | | |
|------------------------|----------------|-----------------|--------------------|-------|---------------------|
| Voltage/ Cycles | Amps Inrush | Amps Holding | Resistance Ohms | Watts | Insulation Class |
| 120/60VAC | .46 | .25 | 35 | 18.5 | B |
| 110/50VAC | .36 | .19 | 48 | 12 | B |
| 230/60VAC | .26 | .15 | 125 | 19.5 | B |
| 220/50VAC | .20 | .11 | 191 | 15 | B |
| 24/60VAC | 2.3 | 1.4 | 1.3 | 20 | B |
| 24/50VAC | 1.6 | .9 | 2.1 | 12 | B |
| 12VDC | – | .7 | 17 | 8 | B |
| 24VDC | – | .33 | 68 | 8 | B |
| 48VDC | – | .16 | 275 | 7.5 | B |

NOTE: Continuous duty type service is for applications where pilot valve is energized more than ten (10) minutes.

Hazardous Duty Solenoid Listing

Valves with solenoid operators designed for hazardous locations are UL & CSA Approved as follows:

| National Electric Code | Ambient Conditions | NEMA Classification |
|-------------------------|--|---------------------|
| Class I Div. 1 Group C | Ethyl, Ether, Etc. Gases & Vapors | VII (7) |
| Class I Div. 1 Group D | Gasoline, Etc. Gases & Vapors | VII (7) |
| Class I Div. 2 Group B | Butadiene, Etc., Liquid, Fluid or Vapor Normally Contained, or Atmosphere Ventilated | VII (7) |
| Class II Div. 1 Group E | Metal Dust | IX (9) |
| Class II Div. 1 Group F | Coal, Coke, Carbon Black Dust | IX (9) |
| Class II Div. 1 Group G | Flour, Starch, Grain Dust | IX (9) |

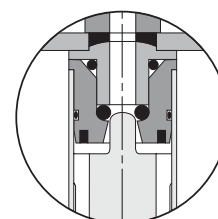
See Article 500 – Hazardous (Classified) Locations, National Electric Code.

Continuous Duty Pilots

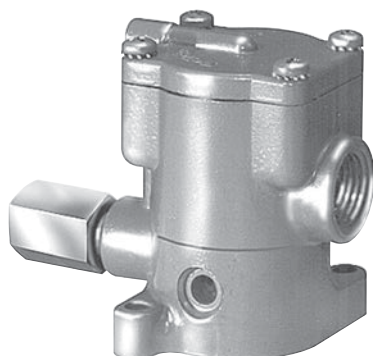
Continuous duty pilots are designed for applications where cycling is infrequent and the pilot is to be energized for indefinite periods of time . . . hours, days or weeks. Typical uses include fail-safe or emergency shutdown circuits where the pilot is to be energized and the valve open as long as the main control is "live" in order to shut off air to equipment in the event of power failure.

The Continuous duty pilot operates satisfactorily in ambient temperatures up to 125°F, even when continuously energized and without the benefit of the cooling air which normally flows through the pilot during frequent cycling. Under certain conditions, satisfactory operation may be obtained at ambient temperatures above 125°F. **CONSULT FACTORY.**

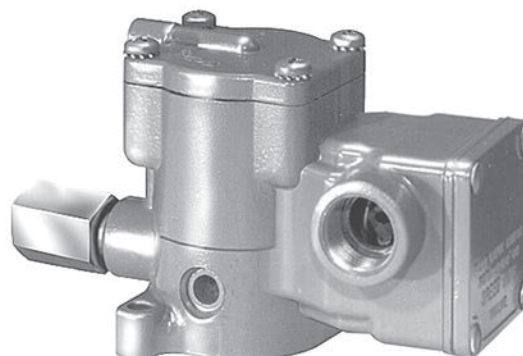
Incorporating the performance-proven design features of the standard L-Pilot, the continuous duty pilot utilizes a bullet-shaped stem on the upper end of the plunger. This bullet-shaped stem, seating in a high-temperature rubber o-ring, provides both a bubble-tight seal and positive release.



Continuous Duty Pilot



Basic L-Pilot

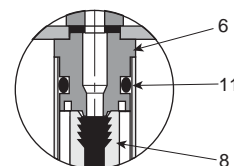
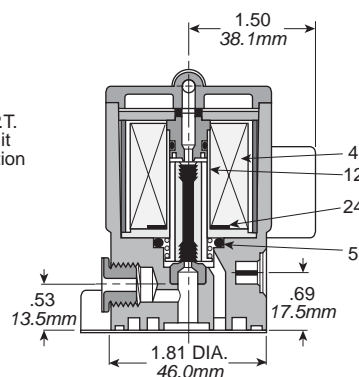
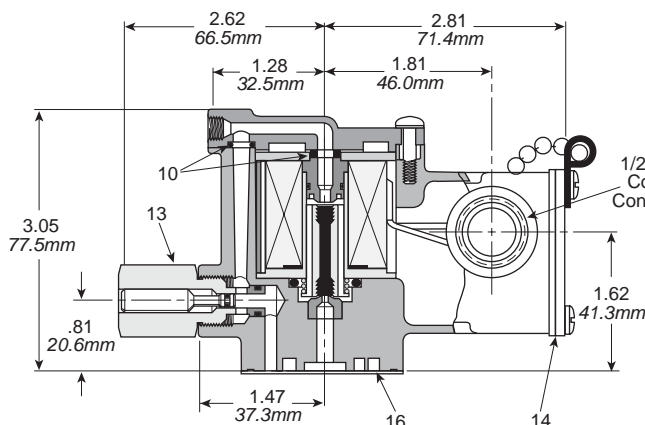


Junction Box L-Pilot

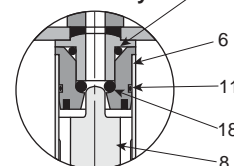
Replacement Pilots

| Description | Standard L-Pilot | | Continuous Duty L-Pilot | |
|---|------------------|-------------|-------------------------|-------------|
| | Locking | Non-Locking | Locking | Non-Locking |
| Basic with Override | K0653035** | K0652035** | K0853025** | K0852025** |
| JIC with Junction Box & Override | K0656035** | K0655035** | K0856025** | K0855025** |
| JIC Pilot with Junction Box & Override & Indicator Lights (120VAC Only) | K0659035** | K0658035** | K0859025** | K0858025** |

** Voltage Code - (Reference Model Index for Availability)



Standard Duty Pilot Only



Continuous Duty Pilot Only

Parts List

| Item No. | Part Number | Description |
|----------|-------------|----------------------------|
| 4 | K593025 | Coil 120V 60Hz / 110V 50Hz |
| | K593035 | Coil 240V 60Hz / 220V 50Hz |
| | K593003 | Coil 6VDC / 24V 60Hz |
| | K593010 | Coil 12VDC |
| | K593014 | Coil 24VDC |
| | K593041 | Coil 120VDC |
| 5 | H14213 | Seal |
| 6 | K423006 | Top Seat |
| | K423010 | Top Seat (Continuous Duty) |
| 8 | K343002 | Plunger (STD. Service) |
| | K343001 | Plunger (Continuous Duty) |
| 10* | H14201 | Seal |
| 11* | K41RB72011 | O-Ring (STD. Service) |
| | H24969 | O-Ring (Continuous Duty) |

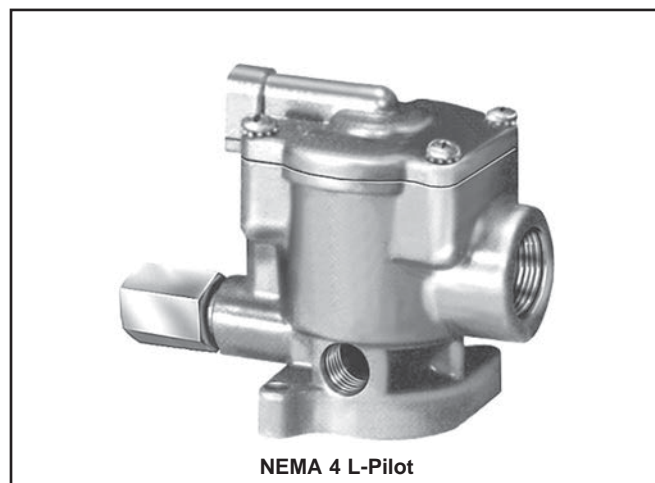
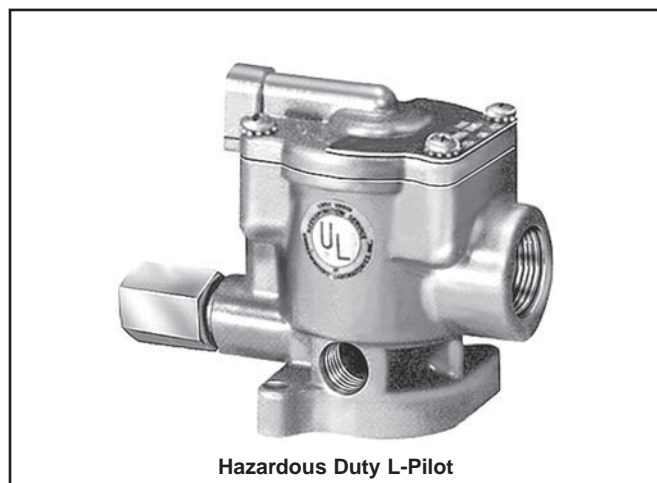
| Item No. | Part Number | Description |
|----------|-------------|-------------------------------|
| 12 | K272004 | Plunger Guide |
| 13 | K152003 | Override Assembly |
| 14 | K183047 | Cover Gasket |
| 16* | K183001 | Gasket |
| 18* | H13473 | O-Ring |
| 20* | H13413 | O-Ring |
| 22 | H19102 | 120 AC Only – Indicator Light |
| 24 | K183108 | Gasket |

Coil leads are 19" long.

* Parts included in Service Kit.

Continuous Duty Kit K352 366

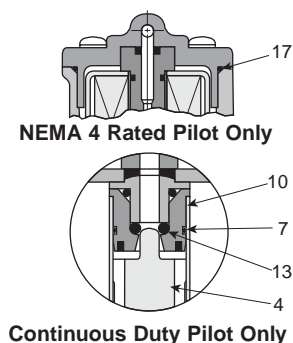
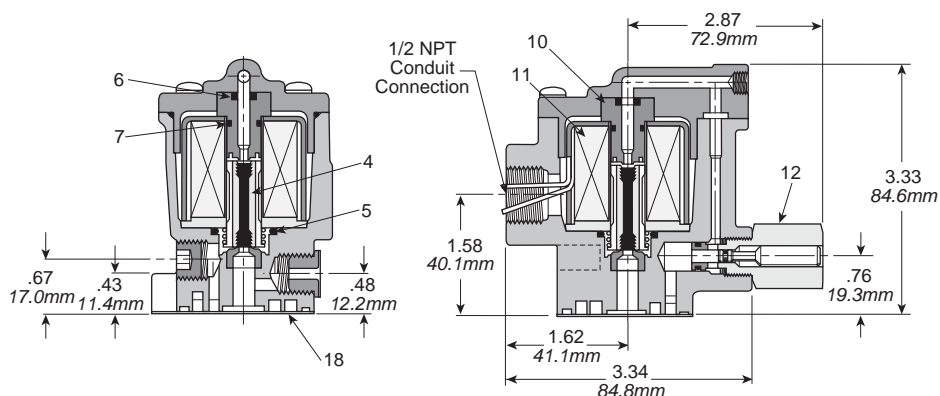
Standard Service Kit K352 166



Replacement Pilots

| Description | Continuous Duty L-Pilot | |
|-----------------------------------|-------------------------|-------------|
| Hazardous Duty L-Pilot - UL & CSA | K0451025** | — |
| Override Type | Locking | Non-Locking |
| Hazardous Duty with Override | K0453025** | K0452025** |
| NEMA 4 with Override | K2553025** | K255202549 |

** Voltage Code - 49 & 53



Parts List

| Item No. | Part Number | Description |
|----------|-------------|----------------------------|
| 4* | K343002 | Plunger (STD. Service) |
| | K343001 | Plunger (Continuous Duty) |
| 5* | K14213 | Seal |
| 6* | K41RB72009 | O-Ring |
| | K41RB72008 | O-Ring (STD. Service) |
| 7* | K41RB72011 | O-Ring (STD. Service) |
| | H24969 | O-Ring (Continuous Duty) |
| 10 | K423001 | Top Seat |
| | K423002 | Top Seat (Continuous Duty) |
| 11 | K593025 | Coil 120V 60Hz / 110V 50Hz |
| | K593035 | Coil 240V 60Hz / 220V 50Hz |
| | K593003 | Coil 6VDC / 24V 60Hz |
| | K593010 | Coil 12VDC |
| | K593014 | Coil 24VDC |
| | K593041 | Coil 120VDC |

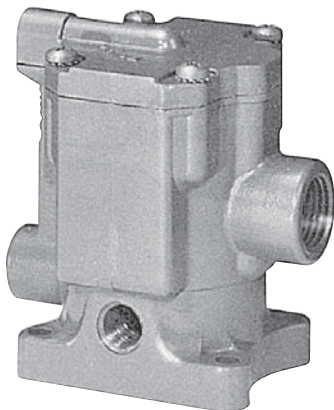
| Item No. | Part Number | Description |
|----------|-------------|----------------------------------|
| 12 | K152003 | Override Assembly |
| 13* | H13473 | O-Ring |
| 17* | H13716 | Gasket (NEMA 4 Rated Pilot Only) |
| 18* | K183001 | Gasket |

Coil leads are 19" long.

* Parts included in Service Kit.

Continuous Duty Kit K352 366

Standard Service Kit K352 166



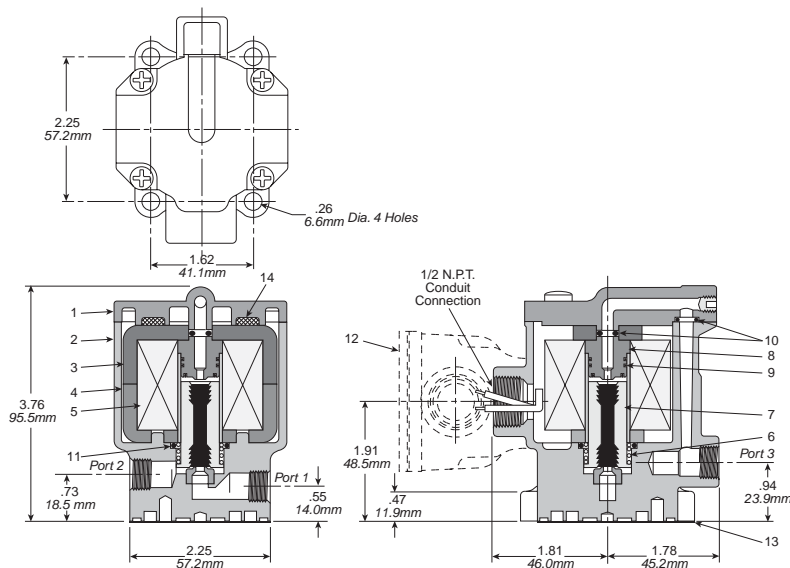
Heavy Duty P-Pilot

D

Replacement Pilots

| Description | Standard P-Pilot | | |
|---|------------------|-------------|------------|
| Override Type | No Override | Non-Locking | Locking |
| Basic with Override | K1351045** | N/A | N/A |
| JIC with Junction Box & Override | N/A | K1355045** | K1356045** |
| JIC Pilot with Junction Box & Override & Indicator Lights (120VAC Only) | N/A | K135804553 | K135904553 |

** Voltage Code - 49 & 53



Parts List

| Item No. | Part Number | Description |
|----------|-------------|-------------------------------------|
| 1 | K062005 | Cover Assy |
| 2 | K112045 | Body, Man. Mtd. (1/8" Bottom Seal) |
| | K112046 | Body, Man. Mtd. (3/16" Bottom Seal) |
| 3 | K013001 | Magnet Bar |
| 4 | K272002 | Sleeve Sub Assy |
| 5* | K593108 | Coil (115V 60Hz) |
| | K593112 | Coil (230V 60Hz) |
| | K593097 | Coil 24VDC |
| | K593107 | Coil 115VDC |

| Item No. | Part Number | Description |
|----------|-------------|--------------------------|
| 6 | K473010 | Spring N.O. Valve |
| | K473011 | Spring N.C. Valve |
| • 7 | K343042 | Plunger |
| 8 | K423020 | Top Seat (1/8" Orifice) |
| | K423022 | Top Seat (3/16" Orifice) |
| • 9 | H13436 | Seal |
| • 10 | H14202 | Seal |
| • 11 | H14215 | Seal |
| 12 | K322004 | Junction Box Kit |
| • 13 | K183012 | Gasket |

* Coil leads are 19" long.

• Parts included in Seal Kit K352 064.



Coils for L-Pilot Operated Valves

| Voltage Code ** | Voltage | | | Coil | |
|-----------------|---------|------|---------------------|-----------|-----------|
| | 60Hz | 50Hz | DC | 19" Leads | 72" Leads |
| 40 | 12 | — | — | K593007 | — |
| 41,42 | 24 | — | 6 | K593003 | — |
| 45* | — | — | 12 | K593010 | — |
| 49* | — | — | 24 (Standard) | K593014 | — |
| 79 | — | — | 24 (Arc Suppressed) | K593271 | — |
| 51* | — | — | 48 | — | K593185 |
| 53* | 120 | 110 | — | K593025 | — |
| 57* | 240 | 240 | — | K593035 | — |
| 60 | 240 | 220 | — | K593035 | — |
| 61 | — | — | 120 | K593041 | — |

* Indicates voltages approved for solenoid operators designed for use in hazardous locations.

Coils for P-Pilot Operated Valves

| Voltage Code ** | Voltage | | | Coil | |
|-----------------|---------|------|----|-----------|-----------|
| | 60Hz | 50Hz | DC | 19" Leads | 72" Leads |
| 42 | 24 | — | — | K593099 | — |
| 43 | — | 24 | — | K593098 | — |
| 45 | — | — | 12 | K593094 | — |
| 49 | — | — | 24 | K593097 | — |
| 51 | — | — | 48 | — | K593254 |
| 53 | 115 | — | — | K593108 | — |
| 58 | — | 230 | — | K593111 | — |

N * * Voltage Code

D

EZ

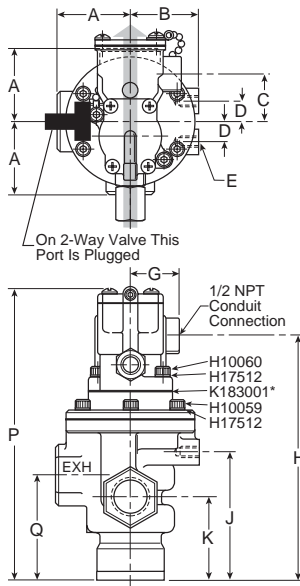
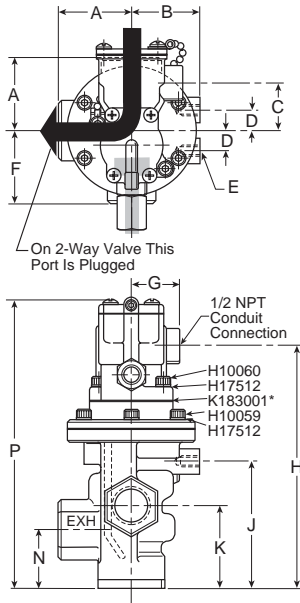
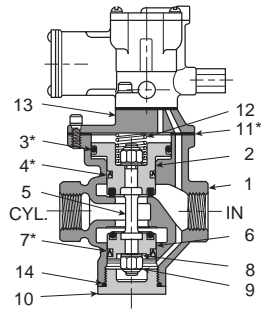
B

Viking
Xtreme

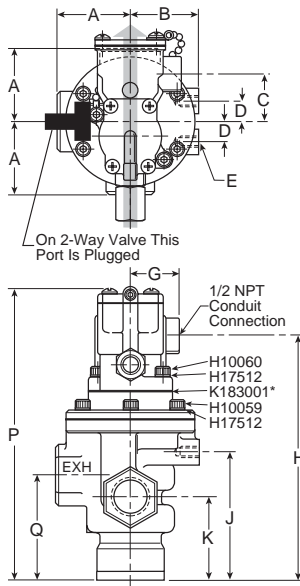
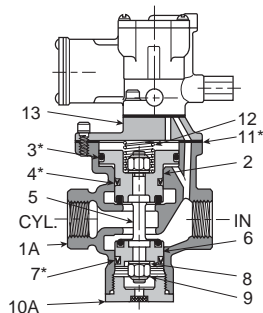
ADEX

N

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

| Key | 3/8" Body | | 3/4" Body | |
|-----|-------------------------|-----|-------------------------|-----|
| | Inch | mm | Inch | mm |
| A | 1.56 | 40 | 2.13 | 54 |
| B | 1.50 | 38 | 1.94 | 49 |
| C | 1.81 | 46 | 1.34 | 34 |
| D | .56 | 14 | .56 | 14 |
| E | 3/8-16UNC 7/16" deep | | 3/8-16UNC 9/16" deep | |
| F | 1.75 | 44 | 2.25 | 57 |
| G | 1.50 | 38 | 1.50 | 38 |
| H | 5.92 | 150 | 7.14 | 181 |
| J | 3.19 | 81 | 3.75 | 95 |
| K | 1.88 | 47 | 2.44 | 62 |
| N | 1.44 | 37 | 1.78 | 45 |
| P | 7.36 | 196 | 8.58 | 218 |
| Q | 2.31 | 59 | 3.09 | 84 |

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve with standard service L-Pilots.....**K352076**

3/8" Basic Valve with continuous duty L-Pilots**K352276**

3/4" Basic Valve with standard service L-Pilots.....**K352077**

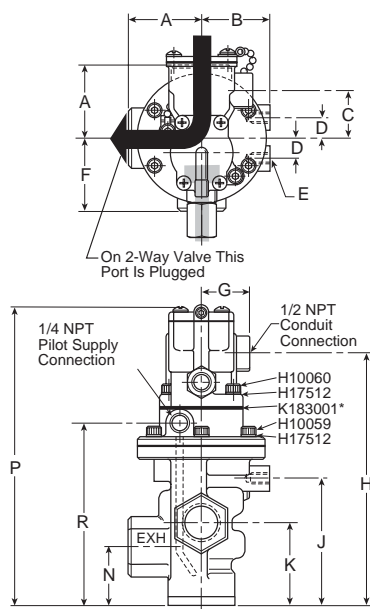
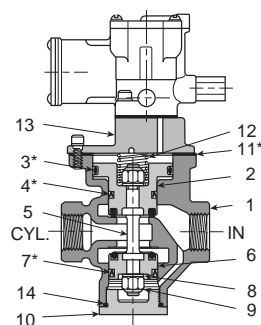
3/4" Basic Valve with continuous duty L-Pilots**K352277**

| Key | 3/8" Valve | 3/4" Valve | Description |
|-----|---------------------|---------------------|---------------------------|
| 1 | — | 1/2" Tap K053075 | Body (N.C.) |
| | 3/8" Tap K053022 | 3/4" Tap K053076 | |
| | 1/2" Tap K053023 | 1" Tap K053220 | |
| 1A | — | 3/4" Tap K053077 | Body (N.O.) |
| | 3/8" Tap K053025 | 3/4" Tap K053078 | |
| | 1/2" Tap K053026 | 1" Tap K053218 | |
| 2 | K212001 | K212002 | Upper Piston Assy |
| 3* | H13648 | H13728 | Seal |
| 4* | H14510 | H13676 | U-Cup (3/8), O-Ring (3/4) |

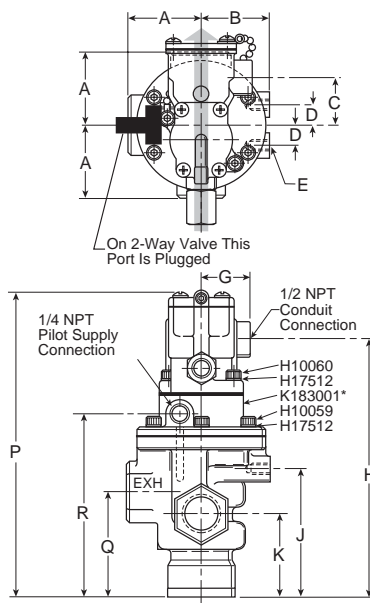
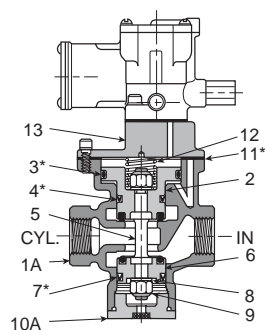
| Key | 3/8" Valve | 3/4" Valve | Description |
|-----|------------|------------|---------------------------|
| 5 | K493002 | K493009 | Stem |
| 6 | K202001 | K202002 | Lower Piston Assy. |
| 7* | H14509 | H13676 | U-Cup (3/8), O-Ring (3/4) |
| 8 | H17811 | H17813 | Washer (2) |
| 9 | H06326 | H06332 | Stop Nut (2) |
| 10 | K103035 | K103053 | Bottom Cap (N.C.) |
| 10A | K092020 | K092034 | Bottom Cap Assy. (N.O.) |
| 11* | K183049 | K183057 | Gasket |
| 12 | K473014 | K473015 | Spring |
| 13 | K563015 | K563017 | Adapter |
| 14* | K41RB72121 | K41RB72221 | O-Ring |

* Parts included in seal kit

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

| Key | 3/8" Body | | 3/4" Body | |
|-----|-------------------------|-----|-------------------------|-----|
| | Inch | mm | Inch | mm |
| A | 1.56 | 40 | 2.13 | 54 |
| B | 1.50 | 38 | 1.94 | 49 |
| C | 1.81 | 46 | 1.34 | 34 |
| D | .56 | 14 | .56 | 14 |
| E | 3/8-16UNC 7/16" deep | | 3/8-16UNC 9/16" deep | |
| F | 1.75 | 44 | 2.25 | 57 |
| G | 1.50 | 38 | 1.50 | 38 |
| H | 6.42 | 163 | 7.45 | 189 |
| J | 3.19 | 81 | 3.75 | 95 |
| K | 1.88 | 47 | 2.44 | 62 |
| N | 1.44 | 37 | 1.78 | 45 |
| P | 7.86 | 200 | 8.89 | 226 |
| Q | 2.31 | 59 | 3.09 | 84 |
| R | 4.34 | 110 | 5.38 | 137 |

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve with standard service L-Pilots.....**K352076**

3/8" Basic Valve with continuous duty L-Pilots**K352276**

3/4" Basic Valve with standard service L-Pilots.....**K352077**

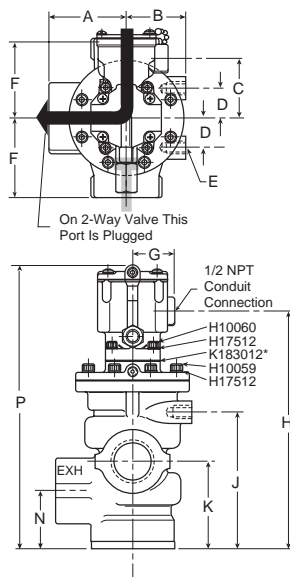
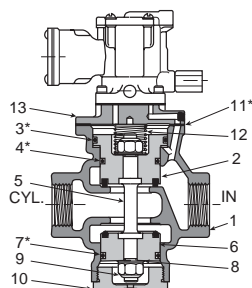
3/4" Basic Valve with continuous duty L-Pilots**K352277**

| Key | 3/8" Valve | 3/4" Valve | Description |
|-----|---------------------|---------------------|-------------------|
| 1 | — | 1/2" Tap K053067 | Body (N.C.) |
| | 3/8" Tap K053019 | 3/4" Tap K053069 | |
| | 1/2" Tap K053157 | 1" Tap K053221 | |
| 1A | — | 3/4" Tap K053065 | Body (N.O.) |
| | 3/8" Tap K053018 | 3/4" Tap K053070 | |
| | 1/2" Tap K053064 | 1" Tap K053219 | |
| 2 | K212001 | K212002 | Upper Piston Assy |
| 3* | H13648 | H13728 | Seal |
| 4* | K41RB72211 | H13676 | O-Ring |

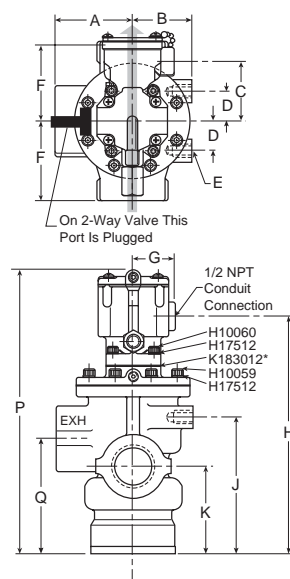
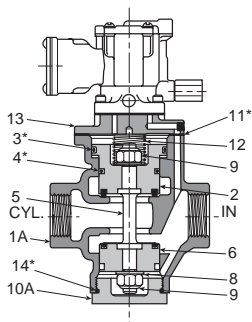
| Key | 3/8" Valve | 3/4" Valve | Description |
|-----|------------|------------|-------------------------|
| 5 | K493002 | K493009 | Stem |
| 6 | K202001 | K202002 | Lower Piston Assy. |
| 7* | K41RB72210 | H13676 | O-Ring |
| 8 | H17811 | H17813 | Washer (2) |
| 9 | H06326 | H06332 | Stop Nut (2) |
| 10 | K103035 | K103053 | Bottom Cap (N.C.) |
| 10A | K092020 | K092034 | Bottom Cap Assy. (N.O.) |
| 11 | K473014 | K473015 | Spring |
| 12* | K183049 | K183057 | Gasket |
| 13 | K563016 | K563021 | Adapter |
| 14* | K41RB72121 | K41RB72221 | O-Ring |

* Parts included in seal kit

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

| Key | 1-1/4" Body | |
|-----|-------------|-----|
| | Inch | mm |
| H | 9.30 | 236 |
| J | 5.34 | 136 |
| K | 3.44 | 87 |
| N | 2.31 | 59 |
| P | 11.14 | 283 |
| Q | 4.56 | 116 |

Service Kits

Include all parts normally required for in-service maintenance:

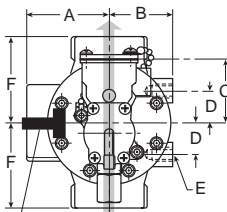
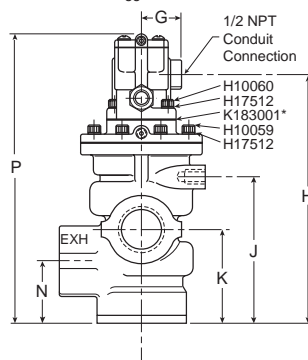
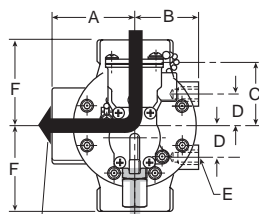
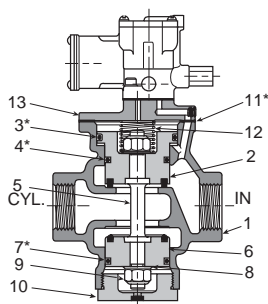
1-1/4" Basic Valve with standard service P-Pilot **K352078**

| Key | 1-1/4" Valve | Description |
|-----|--------------------|-------------------|
| 1 | 1" Tap K053111 | Body (N.C.) |
| | 1-1/4" Tap K053112 | |
| | 1-1/2" Tap K053113 | |
| 1A | 1" Tap K053114 | Body (N.O.) |
| | 1-1/4" Tap K053115 | |
| | 1-1/2" Tap K053116 | |
| 2 | K313029 | Upper Piston Assy |
| 3* | H13752 | O-Ring |
| 4* | H13728 | Seal |

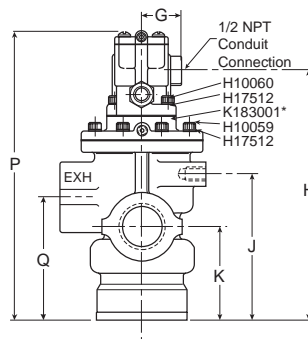
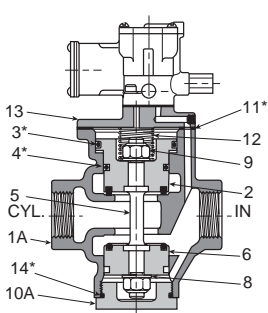
| Key | 1-1/4" Valve | Description |
|-----|--------------|-------------------|
| 5 | K493016 | Stem |
| 6 | K313028 | Lower Piston |
| 7* | H13728 | Seal |
| 8 | H17817 | Washer |
| 9 | H06338 | Stop Nut |
| 10 | K092046 | Bottom Cap (N.C.) |
| 10A | K103061 | Bottom Cap (N.O.) |
| 11* | K183058 | Gasket |
| 12 | K473016 | Spring |
| 13 | K012003 | Adapter |
| 14* | K41RB72143 | O-Ring |

* Parts included in seal kit

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve with coil de-energized.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

| Key | 1-1/4" Body | |
|-----|------------------------|-----|
| | Inch | mm |
| A | 3.00 | 76 |
| B | 2.25 | 57 |
| C | 1.34 | 34 |
| D | 1.19 | 30 |
| E | 1/2-13 UNC 3/4 Deep | |
| F | 3.13 | 80 |
| G | 1.50 | 38 |
| H | 9.02 | 229 |
| J | 5.34 | 136 |
| K | 3.44 | 87 |
| N | 2.31 | 59 |
| P | 10.45 | 265 |
| Q | 4.56 | 116 |

Service Kits

Include all parts normally required for in-service maintenance:

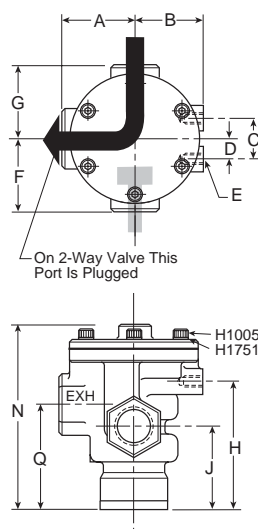
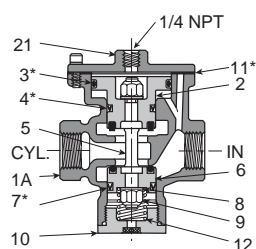
1-1/4" Basic Valve with continuous duty L-Pilot.....**K352080**

| Key | 1-1/4" Valve | Description |
|-----|-----------------------|-------------------|
| 1 | 1" Tap K053111 | Body (N.C.) |
| | 1-1/4" Tap K053112 | |
| | 1-1/2" Tap K053113 | |
| 1A | 1" Tap K053114 | Body (N.O.) |
| | 1-1/4" Tap K053115 | |
| | 1-1/2" Tap K053116 | |
| 2 | K313029 | Upper Piston Assy |
| 3* | H13752 | O-Ring |
| 4* | H13728 | Seal |

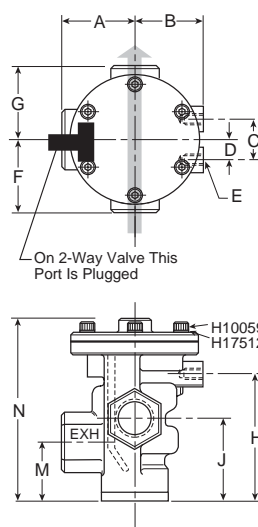
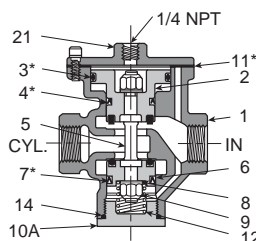
| Key | 1-1/4" Valve | Description |
|-----|--------------|-------------------|
| 5 | K493016 | Stem |
| 6 | K313028 | Lower Piston |
| 7* | H13728 | Seal |
| 8 | H17817 | Washer |
| 9 | H06338 | Stop Nut |
| 10 | K092046 | Bottom Cap (N.C.) |
| 10A | K103061 | Bottom Cap (N.O.) |
| 11* | K183058 | Gasket |
| 12 | K473016 | Spring |
| 13 | K012003 | Adapter |
| 14* | K41RB72143 | O-Ring |

* Parts included in seal kit

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

| Key | 3/8" Body | | 3/4" Body | | 1-1/4" Body | |
|-----|-----------|-----|-----------|-----|-------------|-----|
| | Inch | mm | Inch | mm | Inch | mm |
| H | 3.19 | 81 | 3.75 | 95 | 5.34 | 136 |
| J | 1.88 | 48 | 2.44 | 62 | 3.44 | 87 |
| M | 1.44 | 37 | 1.78 | 45 | 2.66 | 67 |
| N | 4.22 | 107 | 5.31 | 135 | 7.19 | 183 |
| Q | 2.31 | 59 | 3.09 | 78 | 4.56 | 116 |

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve **K352073**

3/4" Basic Valve **K352074**

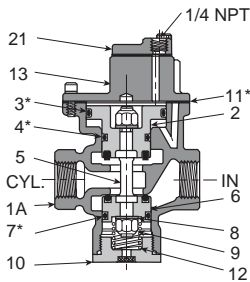
1-1/4" Basic Valve **K352075**

| Key | 3/8" Valve | 3/4" Valve | 1-1/4" Valve | Description |
|-----|---------------------|---------------------|-----------------------|-------------------|
| 1 | — | 1/2" Tap K053075 | 1" Tap K053111 | Body (N.O.) |
| | 3/8" Tap K053022 | 3/4" Tap K053076 | 1-1/4" Tap K053112 | |
| | 1/2" Tap K053023 | 1" Tap K053220 | 1-1/2" Tap K053113 | |
| 1A | — | 1/2" Tap K053077 | 1" Tap K053114 | Body (N.C.) |
| | 3/8" Tap K053025 | 3/4" Tap K053078 | 1-1/4" Tap K053115 | |
| | 1/2" Tap K053026 | 1" Tap K053218 | 1-1/2" Tap K053116 | |
| 2 | K212001 | K212002 | K313029 | Upper Piston Assy |
| 3* | H13648 | H13728 | H13752 | Seal |
| 4* | H14510 | H13676 | H13728 | Seal |

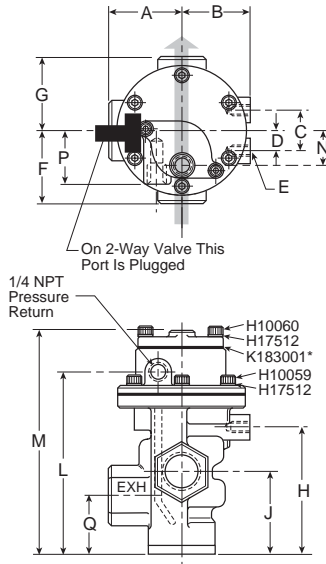
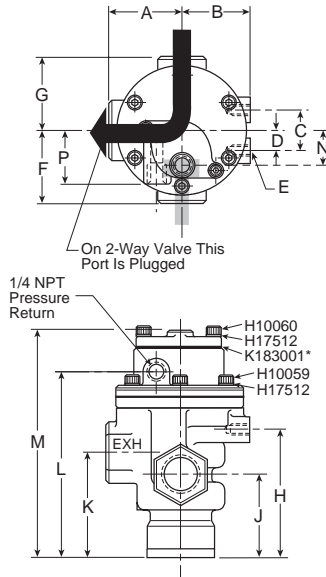
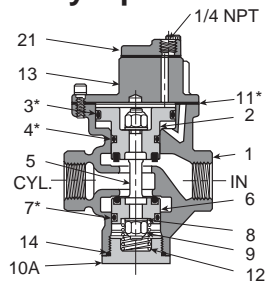
| Key | 3/8" Valve | 3/4" Valve | 1-1/4" Valve | Description |
|-----|------------|------------|--------------|--------------------|
| 5 | K493002 | K493009 | K493016 | Stem |
| 6 | K202001 | K202002 | K313028 | Lower Piston Assy. |
| 7* | H13499 | H13676 | H13728 | Seal |
| 8 | H17811 | H17813 | H17817 | Washer (2) |
| 9 | H06326 | H06332 | H06338 | Stop Nut (2) |
| 10 | K092020 | K092034 | K092046 | Bottom Cap (N.C.) |
| 10A | K103035 | K103053 | K103061 | Bottom Cap (N.O.) |
| 11* | K183049 | K183057 | K183058 | Gasket |
| 12 | K473014 | K473015 | K473016 | Spring |
| 14* | K41RB72121 | K41RB72221 | K41RB72143 | O-Ring |
| 21 | K123018 | K123021 | K123024 | Cover |

* Parts included in seal kit

Normally Closed



Normally Open



Exhaust
Pressure

Top view indicates flow through 3-Way valve.

NOTE: For normal valve operation, override must be in "out" position.

Dimensions

| | 3/8" Body | | 3/4" Body | | 1-1/4" Body | |
|-----|-------------------------|-----|-------------------------|-----|------------------------|-----|
| Key | Inch | mm | Inch | mm | Inch | mm |
| A | 1.56 | 40 | 2.13 | 54 | 3.00 | 76 |
| B | 1.50 | 38 | 1.94 | 49 | 2.25 | 57 |
| C | 1.13 | 29 | 1.13 | 29 | 2.38 | 60 |
| D | .56 | 14 | .56 | 14 | 1.19 | 30 |
| E | 3/8-16UNC 7/16" deep | | 3/8-16UNC 9/16" deep | | 1/2-13UNC 3/4" deep | |
| F | 1.75 | 44 | 2.25 | 57 | 3.13 | 79 |
| G | 1.56 | 40 | 2.13 | 54 | 3.13 | 79 |
| H | 3.19 | 81 | 3.75 | 95 | 5.34 | 136 |
| J | 1.88 | 48 | 2.44 | 62 | 3.44 | 87 |
| K | 2.31 | 59 | 3.09 | 78 | 4.56 | 116 |
| L | 4.34 | 110 | 5.38 | 137 | 7.31 | 186 |
| M | 5.31 | 135 | 6.34 | 161 | 7.88 | 200 |
| N | Left of center .53 | | On center 1.00 | | On center 2.31 | |
| Q | 1.44 | 37 | 1.78 | 45 | 2.31 | 59 |

Service Kits

Include all parts normally required for in-service maintenance:

3/8" Basic Valve **K352031**

3/4" Basic Valve **K352056**

1-1/4" Basic Valve **K352083**

| Key | 3/8" Valve | 3/4" Valve | 1-1/4" Valve | Description |
|-----|---------------------|---------------------|-----------------------|-------------------|
| 1 | 1/4" Tap K053011 | 1/2" Tap K053067 | 1" Tap K053143 | Body (N.O.) |
| | — | 3/4" Tap K053069 | 1-1/4" Tap K053110 | |
| | 1/2" Tap K053157 | 1" Tap K053221 | 1-1/2" Tap K053146 | |
| 1A | 1/4" Tap K053010 | 1/2" Tap K053065 | 1" Tap K053159 | Body (N.C.) |
| | — | 3/4" Tap K053070 | 1-1/4" Tap K053144 | |
| | 1/2" Tap K053064 | 1" Tap K053219 | 1-1/2" Tap K053145 | |
| 2 | K212001 | K212002 | K313029 | Upper Piston Assy |
| 3* | H13648 | H13728 | H13752 | Seal |
| 4* | H13529 | H13676 | H13728 | Seal |

| Key | 3/8" Valve | 3/4" Valve | 1-1/4" Valve | Part |
|-----|------------|------------|--------------|-------------------------|
| 5 | K493002 | K493009 | K493016 | Stem |
| 6 | K202001 | K202002 | K313028 | Lower Piston Assy. |
| 7* | H13499 | H13676 | H13728 | Seal |
| 8 | H17811 | H17813 | H17817 | Washer (2) |
| 9 | H06326 | H06332 | H06338 | Stop Nut (2) |
| 10 | K092020 | K092034 | K092046 | Bottom Cap Assy. (N.C.) |
| 10A | K103035 | K103053 | K103061 | Bottom Cap (N.O.) |
| 11* | K183049 | K183057 | K183058 | Gasket |
| 12 | K473014 | K473015 | K473016 | Spring |
| 13 | K563016 | K563021 | K563027 | Adapter |
| 14* | K41RB72121 | K41RB72221 | K41RB72143 | O-Ring |
| 21 | K323027 | K323027 | Not used | Cover |

* Parts included in seal kit