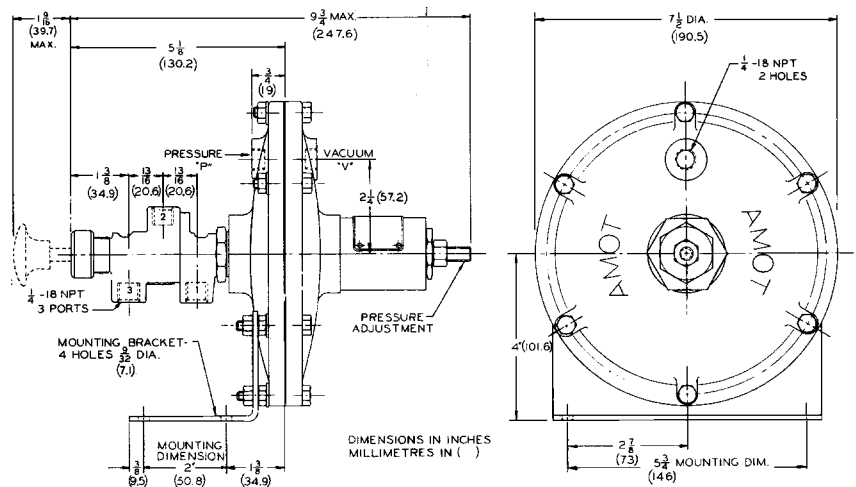




# Model 4047



## FEATURES

- 3-WAY VALVE HAS BALANCED FORCE DESIGN
- PRESSURE CAN BE APPLIED AT ANY PORT
- BUNA N "TADPOLE" SEALS ARE EASILY REPLACED
- BUBBLE-TIGHT SEALS WITH CENTER DEAD SPOT - NO PORT OVERLAP
- GULFPROOFING STANDARD

## APPLICATIONS

- SENSE LOW PRESSURE OR VACUUM OF WATER, AIR, NATURAL GAS, OIL, AND MORE...
- DETECTION OF OVERLOAD ON GAS ENGINES
- SENSING OF VACUUM IN INTAKE AIR MANIFOLD

**Model 4047** is used as a 2-way or 3-way high capacity, low pressure valve for settings from 0.1 psi falling to 11.2 psi rising over several ranges. Applications include sensing low pressure low pressure gas, water, fuel, oil, or for liquid level sensing and control. By piping to the vacuum port, the valve can be used to sense vacuum pressure from 0.1 psi falling. The 4047 can detect overload on gas engines by sensing the vacuum pressure in the intake manifold.

### VALVE OPERATION

#### 2-WAY Valve to open on rising pressure

Port 1 must be plugged. Rising pressure will open Port 2 to Port 3 above the trip point.

#### Valve to open on falling pressure

Port 3 must be plugged. Falling pressure will open Port 2 to Port 1 below the set trip point.

**3-WAY** Valve operation for 3-way action is identical with that for 2-way except that there will be no plugged ports. On valves set to trip on rising pressure, Port 1 will open to Port 2 until just below the trip point. Port 3 will open to Port 2 at the trip point. On falling pressure, Port 3 will close first. Then Port 1 will open to Port 2.

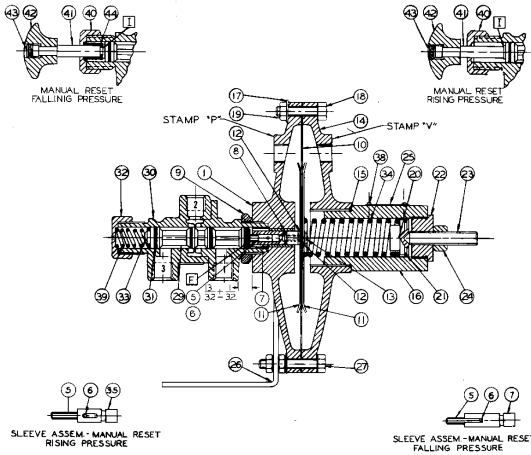
AMOT Model 4047 has a "dead spot" in the exact center position, which prevents the overlapping of Ports 1 and 3. Because of this, Ports 1 and 3 will not open and close simultaneously at the trip point.

## ADJUSTMENT

The trip adjustment is made by turning Screw (23) one way or the other from the original position after loosening Locknut (24). Turning clockwise will compress Loading Spring (34) and raise the point at which Control Plunger (29) will move to the right on an increase in pressure. Fine adjustment may be made by turning Screw (33) only on the unit with automatic reset

AMOT designs and tests all products to ensure that high quality standards are met. This product should last for many years. For good product life, carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to the equipment being protected.

# INSTALLATION



The Model 4047 valve can be mounted in any position but it is best applied horizontally as shown. When manual reset on falling pressure is included, the control can be mounted with the reset knob down. When manual reset on rising pressure is included, the control can be mounted with the reset knob up. (See illustration above) It is important that these instructions be followed. It is only the frictional force of the seal rings that holds Valve Spool (29) in position and machine vibration can cause the valve to reset if it is not mounted properly.

Control pressure and sensed pressure sources and interconnecting tubing must be free of dirt, chips, rust and other contaminants. Apply a quality thread sealant such as Loctite Pipe Sealant to pipe connections. Maximum continuous control pressure and the proof pressure on the diaphragm must be kept within the specifications limits or the warranty will be void.

### OPERATING RANGES (See table A of the Model Coding)

1. When manual reset is used the lower end of range will be raised approximately 0.2 psi.
- \*\* 2. Differential pressure will be less at the lower end of the range.
- \*\* 3. Differential pressure is the change in sensed pressure above or below the trip point, to move the 3-way valve and cause an AMOT 2400D Indicating Relay to change from red to green with 60 psi control pressure in the valve and system.

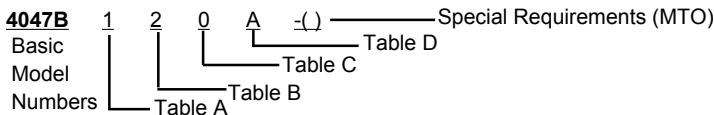


Table A Pressure Range Code Number				Table B Thread & Finish Code Number			Table C Reset Type Code Number		Table D Seal Material Code Number	
Code No.	Tripping Pressure Range		Reset Differential Pressure**	Code No.	Thread	Finish	Code No.	Description	Code No.	Seal Material
	Rising psi	Falling psi								
1	0.4 - 1.3 (2.8-9.0)	1.0 - 1.0 (.69 - 6.9)	.2 - .3 (1.4 - 2.0)				0	Automatic Reset		
2	0.8 - 7.0 (5.6-48.0)	0.4 - 6.2 (2.8 - 43.0)	.4 - .8 (2.8 - 5.6)	2	NPT	Gulfproof	1	Manual Reset (falling pressure)	A	Buna N (Standard)
3	2.5 - 11.2 (17.0-77.0)	2.0 - 10.0 (13.8 - 69.0)	.5 - 1.2 (3.4 - 8.3)				2	Manual Reset (rising pressure)	B	Viton

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When disassembling the unit to replace the seals and diaphragm, it is important to mark the position of the housings and take a measurement from Diaphragm Body Boss (1) and end of Valve Body (30) so they may be reassembled to the same position and maintain the valve port positioning. It is also important to keep Spool (29) from turning during disassembly and reassembly.

Service Kit No. 9169X002 Viton				Service Kit No. 9169X002 Viton			
Ref.	Qty.	Description	Part	Ref.	Qty.	Description	Part
8	1	O-Ring	1625	8	1	O-Ring	1625L001
10	1	Diaphragm	293	10	1	Diaphragm	2931L002
12	2	Seal	714L002	12	2	Seal	714L002
15	1	O-Ring	516	15	1	O-Ring	516
21	1	O-Ring	270	21	1	O-Ring	270
31	4	Seal Ring	7896L002	31	4	Seal Ring	7896L002

## SPECIFICATIONS

Valve Body and Diaphragm Housing Gulfproofed Aluminum  
 Valve Spool ..... Glass Reinforced Ryton  
 Standard Seals and Diaphragm ..... Buna N  
 Maximum Operating  
 Pressures at Ports 1, 2, and 3 ..... 125 psi (860 kPa)  
 Maximum Continuous Control  
 Pressure at Diaphragm ..... 20 psi (138 kPa)  
 Proof Pressure - Diaphragm ..... 30 psi (207 kPa)  
 Maximum Temperature ..... 150°F (66°C)  
 Valve Free Flow Area Equivalent  
 to 9/32" Diameter Port ..... C = 1.2  
 Net Weight ..... 5 lbs. (2.26 kg)

## MAINTENANCE

Properly applied and installed, Model 4047 requires minimal maintenance. Unless leakage or other problems are noticed sooner, an inspection of the units at yearly intervals is adequate to detect and make provision for normal wear and preventative maintenance. It is recommended that the valve be checked monthly if possible for proper functioning by simulating an unsafe condition. When installing Diaphragm (10) it is necessary to keep the bolt holes lined up to avoid any binding action of Pin (6) against the sides of the slot of Sleeve (7). This binding action would increase the frictional forces which would affect the trip action pressure setting. Prior to reassembly, clean all parts thoroughly. Fill spool grooves with Dow Corning No. 33 Grease (AMOT No. 911L001). Install new seal rings by first inserting the thin tail section of the ring into one side of the groove. Then work around the ring until it is uniformly positioned. Remove excess grease. Also coat the metal surfaces that contact the diaphragm with grease before installing it.



# Mode 4143

## Differential Pressure Valve



### APPLICATION

Protection of engines and other industrial equipment in case of water circulation slow down or failure.

### SENSES

- COOLANT LOSS
- EXCESSIVE AERATION
- WORN PUMP IMPELLER BLADES
- WATER PUMP FAILURE
- LOSS OF PUMP PRIMING PRESSURE

### How to Order

Specify Model No. 4143A001.  
Adjustments are made at installation.

AMOT Designs and tests all products to ensure that high quality standards are met. Carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to equipment being protected.

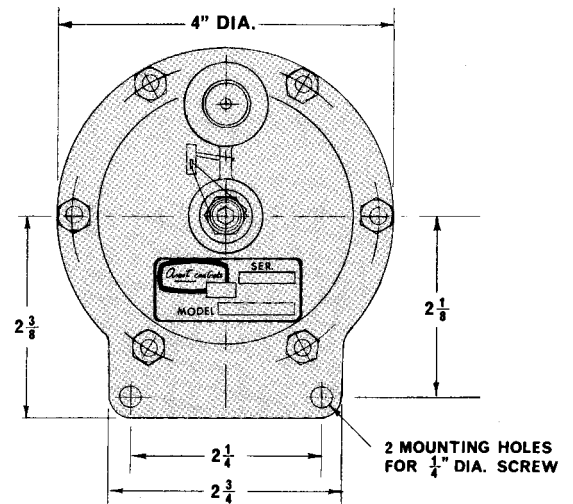
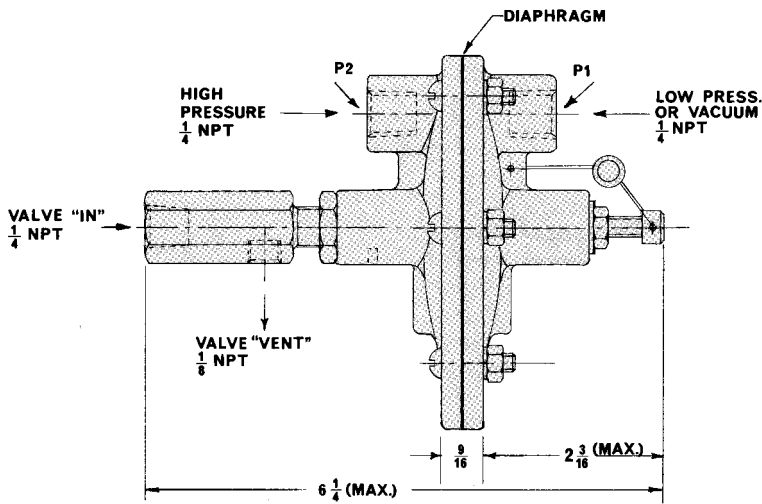
This valve is used for sensing loss of coolant due to hose breakage, poor water flow due to excessive cavitation or worn pump impeller blades. It senses the pressure difference between each side of the water pump as shown on the piping diagram on the other side of this page. Upon a dangerous condition, the pressure differential will decrease, causing the valve to vent the lubricating oil pressure supply line to the AMOT 2800 Master Safety Control, causing it to trip and shutdown the engine. When the valve is used for sensing loss of pump priming pressure, run a line from the pressure outlet of the pump to Valve Port P2, and allow Port P1 to be vented to atmosphere. This Valve is "Gulfproofed" (corrosion protection for seacoast atmospheres).

### INSTALLATION AND ADJUSTMENT

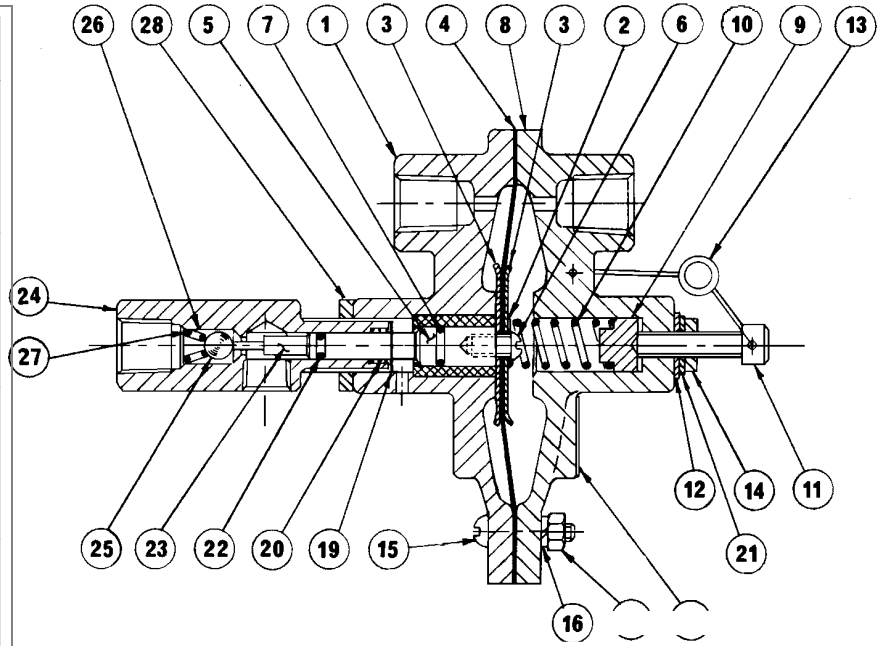
The installation should be made according to the piping diagram on the other side of this page. Two mounting holes are provided on the Valve as shown on the dimensional drawing.

To adjust the Valve, remove the Seal Wire going through the adjusting screw and turn it clockwise until the engine shuts down, with the engine running at low idle speed. Then turn the screw counterclockwise about one-half turn. Start the engine and run it several times. When it is determined that the setting is right, install the Seal Wire and squeeze the seal with pliers to lock the seal. One turn of the adjusting screw changes the setting approximately 1 psi.

**CAUTION:** Do not turn or move Valve Body, Ref. No. 24, as this setting. If Valve Body must be removed, readjust as follows. Turn Adjusting Screw (11) in half way. With air pressure at the Valve Body IN port, screw the Valve Body in until it just starts to vent. Screw in 1 full turn and tighten lock nut (28). Functionally test to assure that the valve vents with no pressure at P2 and seals when there is pressure at P2.



Ref. No.	No. Req'd.	Description	Part No.
1	1	Diaphragm Housing Assy.	7426X
2	1	Seal	853L010
3	2	Diaphragm Follower	7427
4	1	Diaphragm	7784
5	1	Piston	7429
6	1	Screw	851L001
7	1	O-Ring	1625
8	1	Diaphragm Cover	7431
9	1	Spring Seat	7432
10	1	Spring	6612L034
11	1	Adjustable Screw	852L001
12	1	Seal	714L003
13	1	Wire Seal	209
14	1	Nut	85
15	6	Maching Screw	71L005
16	6	Lockwasher	101
17	6	Nut	518
18	1	Nameplate	7433
19	1	Retaining Ring	903L025
20	1	Spring	6612L029
21	1	Flat Washer	1521
22	1	O-Ring	251
23	1	Pushrod	7434
24	1	Valve Body	7435
25	1	Ball	687
26	1	Spring	6561
27	1	Retaining Ring	361L002
28	1	Nut	3605

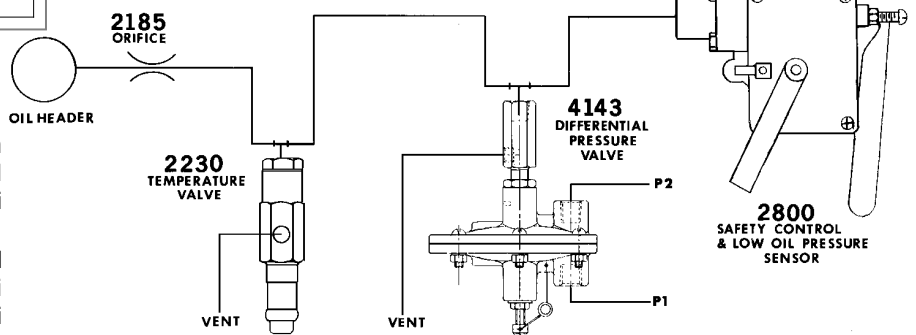


This parts list effective with Valve Serial No. B711.

## SPECIFICATIONS

Housing Material ..... Aluminum  
 Diaphragm Material ..... Buna N  
 Maximum Pressure on Diaphragm ..... 60 psi  
 Adjustable Differential  
 Pressure Range 0.5 to 3.6 psid @ 10 psi Nominal  
 Reset Differential ..... 0.6 ± 0.1 psi  
 Maximum Pressure at Valve "In" Port ..... 90 psi  
 Net Weight ..... 1-1/4 lb

When communicating with AMOT regarding operation of a control, always give the Model Number and Serial No. If ordering parts, also include the Description, Part No. and quantity desired.



4143 Valve Port Stamped P2 is piped to water pump discharge. Port stamped P1 is piped to water pump suction. The 4143 Valve is to be mounted at the highest practical point in the water system, preferably above the water line to prevent contaminants from entering the valve.

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# Model 1672

## Pressure Sensing Valve

### FEATURES

- EASY FIELD ADJUSTMENT
- COMPATIBLE IN HYDRAULIC OR GAS SYSTEMS
- FACTORY SET
- GULFPROOFED FINISH & VITON SEALS
- PNEUMATIC LOCKOUT AVAILABLE

### APPLICATIONS

#### PRESSURE SENSING APPLICATIONS ON ENGINES AND OTHER INDUSTRIAL EQUIPMENT

- COMPRESSOR SUCTION OR DISCHARGE
- LUBRICATING OIL
- COOLING WATER
- COMBUSTION AIR
- CONTROL AIR
- FUEL OIL
- FUEL GAS
- STARTING AIR



AMOT Model 1672 Pressure Valves are 2-way normally open sensors (closed under satisfied operating conditions) which are opened by the sensed pressure decreasing or increasing past the trip point. Dual purpose construction (trip on rising or falling pressure) provides a wide latitude of applications and permits easy field adjustment or change-over from trip on falling to trip on rising pressure. The valve is snap-acting and suitable for hydraulic or gas control systems with up to 80 psi maximum control pressure.

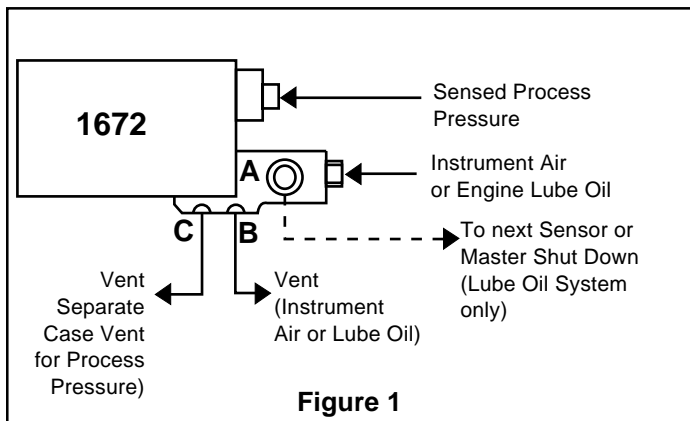
#### Pressure Ranges 1, 2, & 3 (Diaphragm Sensor):

- Adjustable ranges from 5 - 315 psi.
- Easy to service/replace diaphragm.
- Pneumatic lockout available for Range 1 (See description under "Operation").

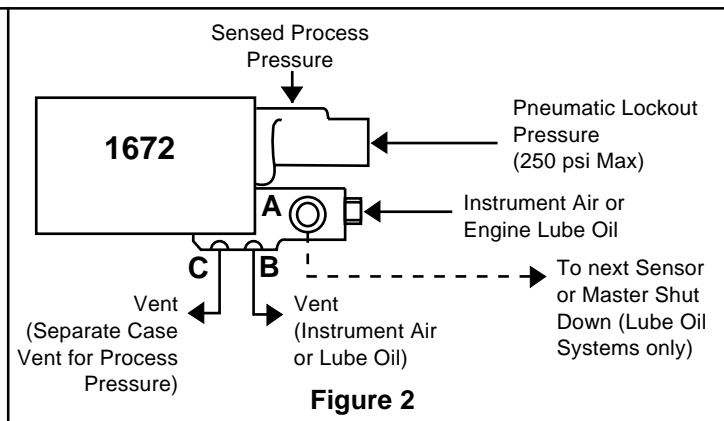
#### Pressure Ranges 4, 5, 6, & 7 (Piston Sensor):

- Adjustable ranges from 15 - 3600 psi.
- Corrosion resistant, stainless steel piston sensor.
- Easy to service/replace teflon piston seal.

With its sturdy but simple construction, the 1672 Pressure Valve provides reliable and economical pilot control for operating pneumatic indicating relays such as AMOT Model 2400 and 4400, or for directly controlling master shutdown devices such as AMOT 1476, 2800, or 4112 Safety Controls or AMOT 4057 3-Way Valves.



**Figure 1**



**Figure 2**

## OPERATION

The operation of the 1672 Pressure Valve is simple and straightforward. The sensed pressure moves the diaphragm or piston operator against the larger adjusting spring. The motion is transmitted to the valve through a lever and fulcrum pin which operates the valve pushrod. Location of the pin in one of two holes in the case determines the rising or falling pressure trip function. See Parts List cutaway on the back page and Figure 1 above.

Pneumatic Lockout is an optional feature which can eliminate the need for a separate blocking valve. For a tripping pressure of 16 psi falling, a 100 psi lockout pressure is required. 200 psi is required to override a 30 psi trip setting. The maximum lockout pressure is 250 psi. This feature is available only on models in Pressure Range 1. See Figure 2 above.

## ADJUSTMENT (Refer to Cross Sectional on back)

The trip-point setting is changed by turning adjusting nut (4) clockwise to raise the trip pressure on either a rising or falling pressure setting.

The small screw (25) which operates the valve pushrod is for factory adjustment and is not to be used to change the trip-point setting. It may, however, require minor adjustment when the trip action is changed from rising to falling if the valve leaks slightly with full pressure at the sensing port.

## INSTALLATION

For easy mounting, two 3/8"-16NC tapped holes run through the back of the valve's case. Bolts can be threaded into the case from the back, or 1/4" bolts can be installed from the valve's inside and threaded into a mounting plate behind the valve.

Normally, the unit is installed with the vent connection (C) on the bottom, however, it will operate in any position. Care should be taken to prevent dirt from entering Ports B & C when they are not pointed downward. The valve should not be supported by piping unless it is secured against vibration.

## CONNECTIONS

All valve connections are made with 1/4" pipe thread fittings. Apply a quality thread sealant such as Loctite™ Pipe

Sealant to pipe thread connections. This sealant must not enter the valve passages. Teflon thread sealing tape may be used but must be applied such that shreds of the tape do not enter the valve. 1/4" O.D. tubing is the minimum size recommended for air or gas. 5/16" O.D. is the recommended minimum for short lengths of lube oil, especially in cold weather operation. Be sure that all scale, dirt, tubing chips, etc. are removed from fittings and tubing before they are connected to the valve.

**Important:** The 1672 has an auxiliary inlet port (A) cast into the housing. The connection must be used on lube oil pressured systems. Do not connect the inlet port to the end of a branch run or tubing off a main header, as the falling pressure signal will not be properly transmitted to the Master Safety Control.

When using the valve on a gas pressured system, the valve outlet (B) should be connected to an outside vent line of large capacity. In such an application, the valve outlet (B) should be run to a vent line separate from the case vent (C) to prevent mixing potentially volatile fluids.

When sensing diesel fuel or other fluids that transmit medium to high frequency pulsations to the 1672 diaphragm, an AMOT 2185L001 or equal orifice should be ordered and installed at the diaphragm bonnet.

When checking an oil pressured system, be sure all trapped air is bled from the connecting tubing. To do this, start at the first connection after the restricting orifice, and bleed each one until all air is purged. The most critical point is at the master safety control.

## SPECIFICATIONS

Housing .....	Cast Aluminum
Coating .....	Gulfproofed
Internal Parts .....	Aluminum & Plated Steel
Control Valve .....	Aluminum & Stainless Steel
Standard Valve Seat & O-Ring Seal .....	Viton
Standard Diaphragm (Ranges 1-3) .....	Buna N
Piston & Cylinder (Ranges 4-7) .....	Stainless Steel
Piston Seal (Ranges 4-7) .....	Teflon
Flow Coefficient .....	Cv=0.3
Maximum Valve Operating Pressure .....	80 psi (551 kPa)
Net Weight for; Ranges 1-3 .....	4.5 lbs (2.0kg)
Range 1 w/Lockout .....	5.5 lbs (2.5 kg)
Ranges 4 - 7 .....	5.0 lbs (2.3 kg)

	Differential* psi (kPa)	Proof psi (kPa)
Range 1	3.5 (24)	350 (2413)
Range 2	5-10 (35-68)	350 (2413)
Range 3	10-15 (69-103)	350 (2413)
Range 4	10-27 (69-186)	1000 (6895)
Range 5	8-40 (56-275)	1000 (6895)
Range 6	30-60 (207-413)	4000 (27579)
Range 7	30-140 (207-965)	4000 (27579)

\* Differential is the change in sensed pressure above or below the trip point that is required to open the valve and cause an AMOT Pneumatic Indicating Relay to change from red to green with a 50 psi air pressure supply. The lower differential pressures shown are at the low end of the ranges and the higher pressures are for the higher end of the ranges.

## HOW TO ORDER

When ordering please specify the following:

1. Basic model number
2. Tripping pressure
3. Tripping Action:
  - a) To trip on rising pressure
  - b) To trip on falling pressure
4. Pressure Range from Model Code Table A. If this number is not specified, a unit in which the specified pressure falls nearest the middle of the range will be furnished.
5. Any of the following special features if required:
  - a) Pneumatic Lockout (available on Range 1 only .)
  - b) BSP Parallel Port Threads (instead of NPT.)  
Available from U.K. factory only.

The unit may be ordered using the full description as shown above or by constructing a Model No. using the Model Code System. The complete Model No. for a unit with Range 1, gulfproofed, NPT threads, Viton seals and a 20 psi falling pressure setting is "1672E1F1 set at 20 psi falling."

## MODEL CODE SYSTEM

**1672E** 1 F 1 = ( )  
 Basic Model No.      Special Requirements Made-To-Order (M.T.O.)

= Non-Standard, special charge may apply.

\* Available in U.K. only.

DESCRIPTION – Sensed Pressure kPa in ( )	TABLE A Spring Code No.	TABLE B Thread, Finish & Seal Code No.		TABLE C Process Sensing Seal Code No.	
		Gulfproof Finish, Viton Seals, NPT	Gulfproof Finish, Viton Seals, BSP(PL)*	Buna N	Viton
Range 1    8–33 psi    (56–227)    rising 5–30 psi    (35–206)    falling	1	F	M	1	4
Range 1 with Pneumatic Lockout 8–33 psi    (56–227)    rising 5–30 psi    (35–206)    falling	1	H	S	7	8
Range 2    25–160 psi    (173–1103)    rising 20–150 psi    (138–1034)    falling	2	F	M	1	4
Range 3    60–315 psi    (414–2171)    rising 50–300 psi    (345–2068)    falling	3	F	M	1	4
Range 4    35–250 psi    (242–1723)    rising 15–230 psi    (104–1585)    falling	2	E	N		3
Range 5    90–650 psi    (621–4481)    rising 50–560 psi    (345–3861)    falling	3	E	N		3
Range 6    210–1400 psi    (1448–9652)    rising 175–1250 psi    (1207–8618)    falling	2	C	P		3
Range 7    350–3600 psi    (2414–24821)    rising 250– 3300 psi    (1724– 22752)falling	3	C	P		3

**NOTE:** Letters or numbers in the MTO space, other than nothing, A1 or AA, indicate the unit is built to special requirements and some of the other code numbers may not be valid. Check with the factory for full specification of such models.

**Pressure settings are not part of this Model Code. The desired setting and whether it is to trip on rising or falling pressure must be specified separately and will appear on the nameplate.**

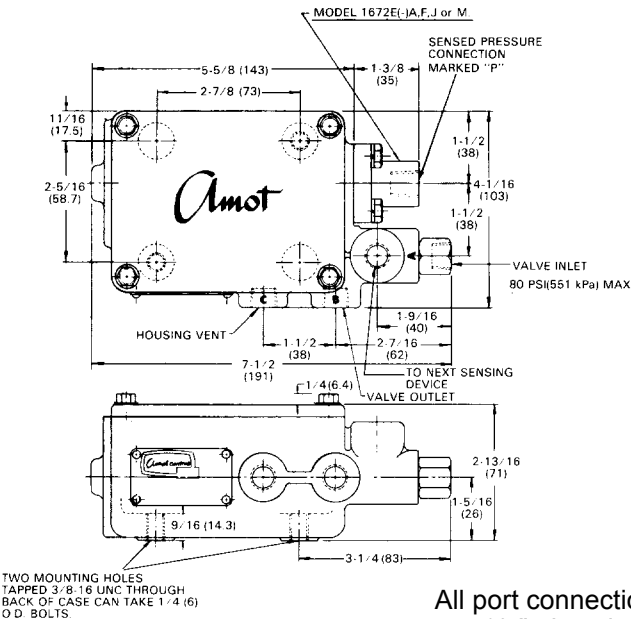
## MAINTENANCE

Properly applied and installed, Model 1672 Series Valves require minimal maintenance. An inspection of the unit at yearly intervals is adequate to detect and make provision for normal wear. The diaphragm seals and o-rings should be checked for wear, damage, and hardness and replaced as necessary. Lightly coat the diaphragm seals and o-rings with Dow Corning No. 33 Grease (AMOT Part No. 911L001) before installing them. Other internal parts should be inspected for excessive wear or damage or replaced as necessary.

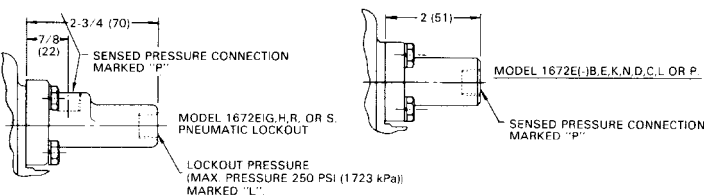
Use caution on assembly of seal (Ranges 4 – 7) so the edge is not damaged. Cycle the valve about 12 times before making the final trip setting.

It is recommended that the valve should be checked monthly if possible, for proper function by simulating an unsafe condition.

## DIMENSIONS



All port connections are 1/4" pipe size.



AMOT designs and tests all its products to ensure that high quality standards are met. For good product life, carefully follow AMOT's installation and maintenance instruction; failure to do so could result in damage to the equipment being protected or controlled.

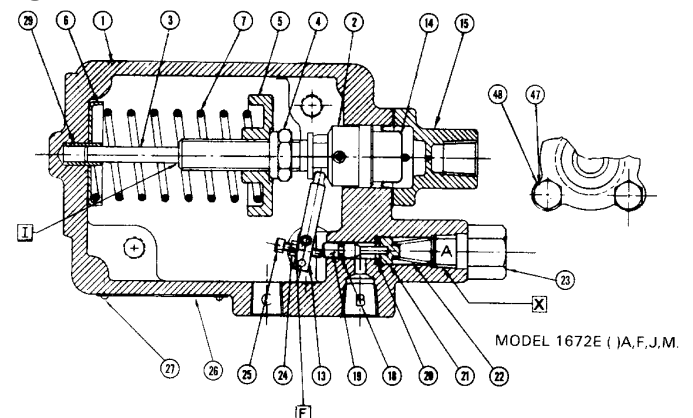
When communicating with AMOT regarding operation of a control always give the Model No. If ordering service parts, also include the description, Part No., and quantity desired. If any parts are ordered by Reference No. only, please also include the Form No., Revision No., and date of this brochure.

## SERVICE KITS

Ref. No.	Part No.	Qty.	Description
<b>for Model 1672E-F1, M1</b>			<b>Service Kit 9118X</b>
14	7818	1	Diaphragm - Buna N
18	251	1	O-ring - Buna N
20	3644	1	Valve Seat - Buna N
51	7543	1	Gasket
<b>for Model 1672E-F4, M4</b>			<b>Service Kit 9118X001</b>
14	7818L002	1	Diaphragm - Viton
18	251L001	1	O-ring - Viton
20	3644L001	1	Valve Seat - Viton
51	7543	1	Gasket
<b>for Model 1672E-H7, S7</b>			<b>Service Kit 9118X002</b>
--	9118X	1	Service Kit No. 9118X
45	207	2	O-ring - Buna N
<b>for Model 1672E-H8, S8</b>			<b>Service Kit 9118X003</b>
--	9118X001	1	Service Kit 9118X001
45	207L001	2	O-ring - Viton
<b>for Model 1672E-E3, N3</b>			<b>Service Kit 9112X001</b>
18	251L001	1	O-ring - Viton
20	3644L001	1	Valve Seat - Viton
32	831L016	1	Seal
51	7543	1	Gasket
<b>for Model 1672E-C3, P3</b>			<b>Service Kit 9119X001</b>
18	251L001	1	O-ring - Viton
20	3644L001	1	Valve Seat - Viton
32	831L008	1	Seal
51	7543	1	Gasket

Parts List is effective with Valve Serial No. B721.

## CUT AWAY VIEW



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# Model 4023

## 3-Way Pressure Sensing Valve



### FEATURES

- SETTINGS TO 7600 PSI
- 2 OR 3-WAY ACTION
- BALANCED 3-WAY VALVE  
– PRESSURE CAN BE APPLIED TO ANY PORT
- 3-WAY VALVE SUITABLE FOR LP GASES, NATURAL GAS, OIL, AIR, ETC.
- BUBBLE-TIGHT SEALS WITH CENTER DEAD SPOT (NO PORT OVERLAP)
- FIELD ADJUSTABLE – RISING OR FALLING
- GULFPROOFED FINISH STANDARD
- ADJUSTABLE SETPOINT

### APPLICATIONS

- WELL HEAD CONTROL
- ACTUATOR PILOTING VALVE ACTUATOR
- SUCTION/ DISCHARGE PRESSURE

AMOT Model 4023 3-Way Pressure Sensing Valve can be used as a 2 or 3-way capacity, pressure sensing valve. This valve is ideal for applications that require compressor suction and discharge pressure sensing at high pressure levels. Dual purpose construction provides a wide latitude of applications and permits easy field adjustment or changeover from trip on falling to trip on rising pressure by changing the port piping and re-adjusting the setting. Trip settings are adjustable in eight ranges from 18 psi falling to 7600 psi rising pressure. The 4023 valve is suitable for use on air, hydraulic, or gas control systems with control system pressure up to 125 psi.

The 3-way valve has a pressure-actuated, spring-return operator. Without pressure applied to the sensed pressure port, Port 3 is open to Port 2. With pressure applied to the sensed pressure port, Port 3 closes before Port 1 opens to Port 2. A small dead spot on the center of the stroke prevents valve port overlap. The valve is normally set at the factory so that Port 1 just opens to Port 2 on a pressure rise to the specified tripping pressure setting. The valve is converted to 2-way action by plugging Port 1 or Port 3.

A manual reset feature is available to reset the valve after tripping. Pull out the reset knob to reset after trip on falling pressure. Push in the reset knob to reset after trip on rising pressure.

Units with Pressure Range Code Numbers 1 and 2 use a diaphragm with a gulfproofed aluminum housing to sense pressure. Units with a higher Pressure Range use a Teflon Lip-Type Seal on a stainless steel piston inside a stainless steel cylinder to sense pressure.

## HOW TO ORDER

When ordering please specify the following:

1. AMOT Model 4023.
2. Pressure Range Code No. from Table A.
3. Tripping Pressure.
4. Tripping Action:
  - a. To trip on rising pressure.
  - b. To trip on falling pressure.
5. Any of the following special features if required:
  - a. Viton Seals (instead of Buna N Ranges 1 & 2).
  - b. Manual Reset (instead of automatic).
  - c. BSP Parallel Port Thread (instead of NPT). Available from UK factory only.

This unit may be ordered using the full description as shown above or by constructing a Model No. using the Model Code System. The complete Model No. for a standard unit with NPT threads, viton seals and automatic reset, set for a tripping pressure of 300 psi rising on Pressure Range No. 3 is 4023E340D set at 300 psi rising.

## INSTALLATION

Model 4023 can be mounted in any position. Use two 1/4" diameter screws through the holes in the back of the case, or two 3/8-16 screws into the case through a mounting plate on the back side. When manual reset (trip on falling pressure) is included, the valve should be mounted with the reset knob down. With manual reset (trip on rising pressure), the valve should be mounted with the reset knob up. Frictional force of the seal rings holds Valve Spool (20) in position. Machine vibration can cause the valve to reset if not mounted as instructed.

If a 4023 Valve with Pressure Code Range Numbers 3 or higher have been in stock without being used for a long period of time, the Teflon Seal may leak slightly. It is recommended that this Seal be exercised by running the sensed pressure up and down its complete range about six times to overcome any leakage problems.

Control pressure, sensed pressure sources and inter-connecting tubing must be free of dirt, chips, rust and other contaminants. Apply a quality thread sealant such as Loctite™ Pipe Sealant to pipe thread connections. Avoid applying excessive torque on fittings at Ports 1, 2, and 3.

## ADJUSTMENT

If adjustment is necessary, turn Adjusting Nut (11) clockwise to raise the setting or counter-clockwise to lower it. See cross section drawing on the next page.

## MODEL CODE SYSTEM

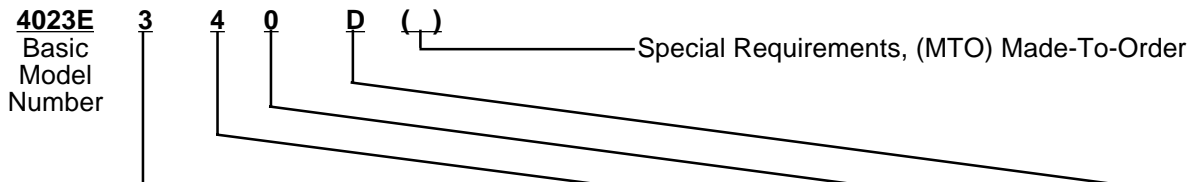


TABLE A PRESSURE RANGE CODE NO.					TABLE B PORT THREADS & FINISH CODE NO.			TABLE C RESET TYPE CODE NO.		TABLE D SEAL MATERIAL CODE NO.		
Code No.	Rising (psi)	Falling (psi)	Differential Pressure (psi)	Proof (psi)	Code No.	Threads	Finish	Code No.	Reset	Code No.	Material	For Pressure Range No.
1	20 - 50	18 - 50	4 - 7	350	2	BSP(PL)*	Standard	0	Automatic	A	Buna N	1 & 2
2	30 - 125	25 - 115	7 - 12	350	3	BSP(PL)*	Gulfproof	1	Manual	C	Viton	1 & 2
3	130 - 400	100 - 370	35 - 50	1500	4	NPT	Gulfproof (Standard)	3†	Pneumatic (Special Order)	D	Viton	3 through 8
4	250 - 800	200 - 700	46 - 60	1500								
5	400 - 1100	275 - 900	100 - 145	3500								
6	650 - 2250	500 - 2000	120 - 170	3500								
7	1000 - 3500	750 - 3000	300 - 400	10,000								
8	1450 - 7600	1000 - 7000	400 - 600	10,000								

\* Available from U.K. factory only.

\*\* The differential pressures shown are based on 3-way operation of the valve piloting opposed 2400D Indicating Relays at Port 1 and Port 3, and operating at a level of 50 psi air pressure in the valve. For 2-way valve operation controlling a 2400D Relay, the differential will be slightly less than shown.

**NOTE:** Letters or numbers in the MTO space, other than nothing, AI or AA, indicate the unit is built to special requirements and some of the other code numbers may not be valid. Check with the factory for full specification of such models.

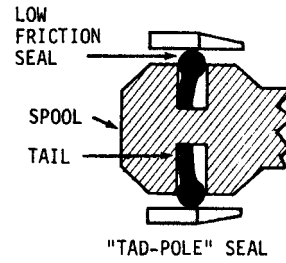
† Only available on rising pressure

☐ = Non Standard Product, special charges may apply.

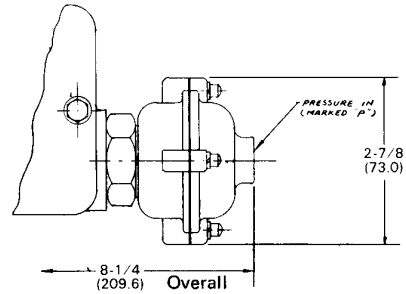
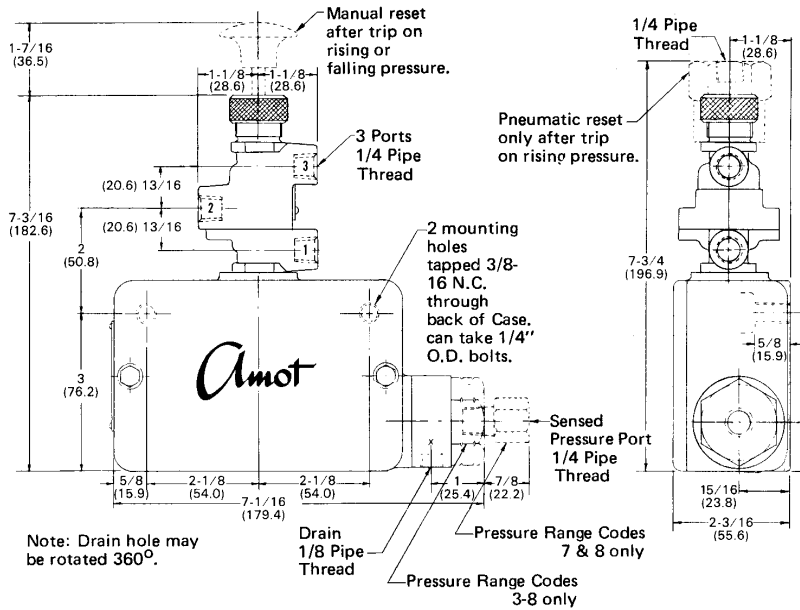
# SPECIFICATIONS

Maximum Operating Pressure	
at Ports 1, 2, and 3 .....	125 psi (860 kPa)
Maximum Temperature .....	150°F (66°C)
Valve Free Flow Area	
Equivalent to 9/32 Diameter Port .....	Cv = 1.2
Housings .....	Anodized Aluminum
Piston and Cylinder .....	Stainless Steel
3-Way Valve Spool .....	Glass Reinforced Ryton
Standard Seals and Diaphragm .....	Buna N
Piston Seal .....	Teflon
Net Weight .....	4 lbs. (1.81 Kg)
Shipping Weight .....	5 lbs. (2.26 Kg)

This valve makes use of AMOT's patented "Tadpole" Seal which provides for lower friction and longer cycle life than conventional O-rings (U.S. Pat. No. 3,926,444).

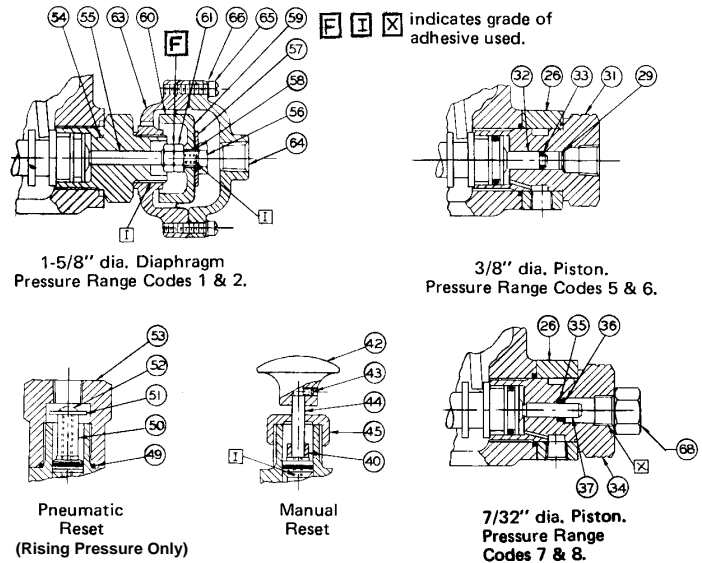
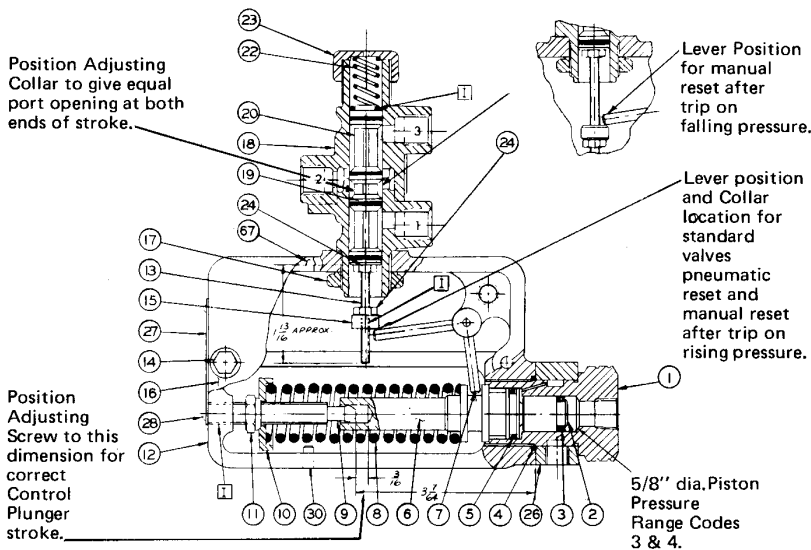


# DIMENSIONS



Dimensions with Diaphragm Operator. Pressure Range Codes 1 & 2

# CUTAWAY



When communicating with AMOT regarding operation of a control, always give the model number and the Serial No. If ordering Service Parts, also include the Description, Part No. and quantity desired. If any parts are ordered by Reference No. only, please also include the Form No. and Revision No. and date of this brochure.

# MAINTENANCE

Properly applied and installed 4023 valves require minimal maintenance. Unless leakage or other problems are noticed earlier, an inspection of the units at yearly intervals is adequate to detect and make provision for normal wear and preventive maintenance. Lubrication of Seal Rings (19) in addition to other O-rings and seals may be the only maintenance required. To remove Spool (20) with seal rings from the 3-way valve, first unscrew Cap (23). Remove the spool carefully from the valve to avoid damaging the bore. Clean the valve and spool. Wash out the old grease and inspect the seals for wear, damage, or hardness. If only lubrication is required, apply a coating of Dow-Corning No. 33 (AMOT No. 911L001) Grease. If tadpole seal ring (19) replacement is necessary, clean out the spool grooves and fill them with grease. Install the seal rings by first inserting the thin tail section of seal ring into one side of the groove. Work around the ring until it is uniformly positioned. Remove excess grease and re-install the spool. Exercise the same care in cleaning, lubricating and/or replacing the piston seals, diaphragm and O-rings.

When installing Teflon Seals, (3, 33, 35) place the lip toward the pressure side so that pressure will expand the lip toward the bore. After installing Teflon seals, they should be exercised in the bore to prevent leakage

by running the sensed pressure up and down the complete range about 6 times. This exercise operation can be performed on the machine while it is running. It is recommended that Model 4023 be checked monthly for proper functioning by simulating an unsafe condition.

AMOT designs and tests all products to ensure that high quality standards are met. This product should last for many years. For good product life, carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to the equipment being protected.

## SERVICE KITS

Service Kit 9132X				
Model 4023E1--A 4023E2--A				
Ref No.	Qty.	Description	Part No.	
19	4	Seal Ring, Buna N	7896L001	
58	1	O-ring, Buna N	143	
59	1	Diaphragm, Buna N	2254	
67	1	Gasket	7544	

Service Kit 9132X001				
Model 4023E1--C 4023E2--C				
Ref No.	Qty.	Description	Part No.	
19	4	Seal Ring, Viton	7896L002	
58	1	O-ring, Viton	143L001	
59	1	Diaphragm, Viton	2254L002	
67	1	Gasket	7544	

Service Kit 9155X001				
Model 4023E3--D 4023E4--D				
Ref No.	Qty.	Description	Part No.	
3	1	Seal, Teflon	831L014	
4	1	O-ring, Buna N	743	
5	1	O-ring, Viton	142L001	
19	4	Seal Ring, Viton	7896L002	
67	1	Gasket	7544	

Service Kit 9155X003				
Model 4023E5--D 4023E6--D				
Ref No.	Qty.	Description	Part No.	
4	1	O-ring, Buna N	743	
5	1	O-ring, Viton	142L001	
19	4	Seal Ring, Viton	7896L002	
33	1	Seal, Teflon	831L010	
67	1	Gasket	7544	

This Parts List is effective with Valve Serial No. C771.

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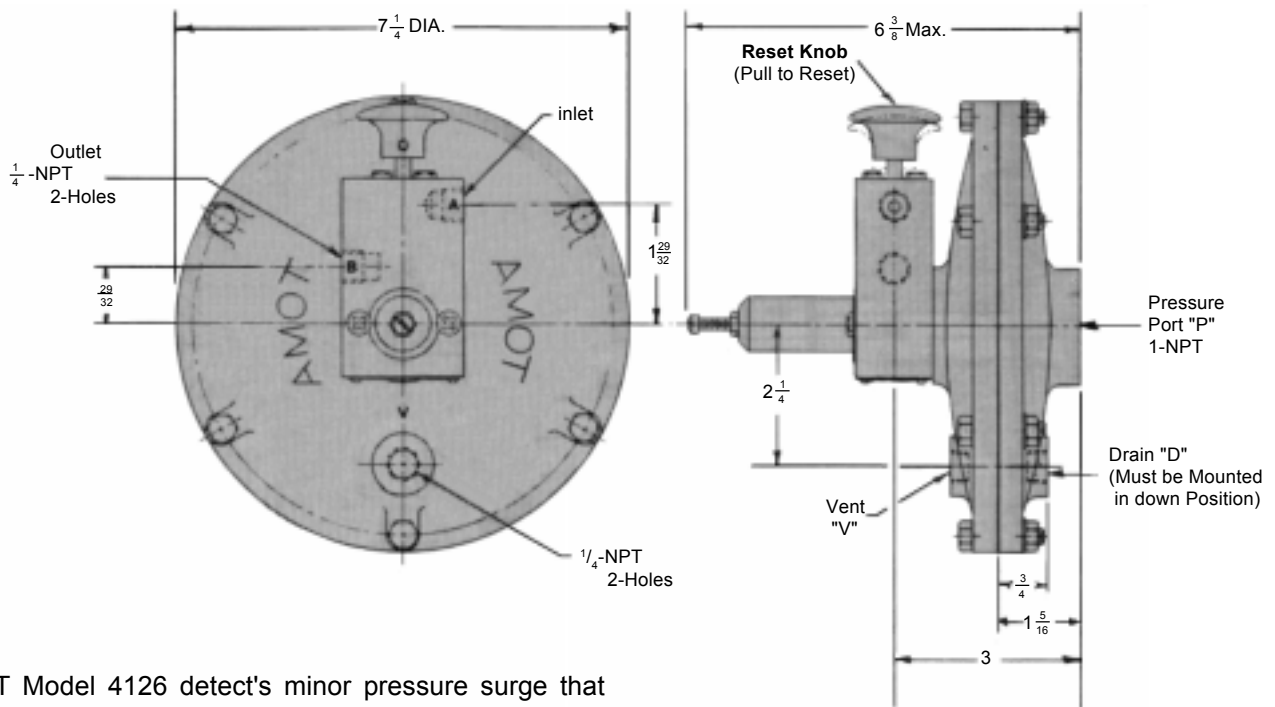
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# Model 4126



AMOT Model 4126 detects minor pressure surge that usually precedes a major crankcase explosion. It will detect the smallest pressure buildup caused by worn packing or by excessive blow-by caused by a piston and liner just beginning to scuff. This high sensitivity provides instant warning or shutdown before major damage occurs. Since the unit will not reset itself automatically.

This model is a 2-way valve and is for use primarily with AMOT Safety Control Systems using components which vent pressure on an unsafe condition. Model 4126 is suitable for air, gas, or oil systems. The unit is shipped in the unset condition with the standard spring having an adjustable range of 0.25 to 0.50 psi. If a higher range is desired, the auxiliary spring shipped loose with the unit must be installed.

## INSTALLATION

The Pressure Sensing Port has a 1" female pipe tap. It is suggested that the unit be supported by means of a 1" pipe nipple from the engine crankcase door or frame. Install with the drain hole down and the pipe back to crankcase so any oil which collects in the diaphragm chamber will drain off. If the unit is supported horizontally by a nipple and elbow with the pressure sensing port pointing down, plug the drain hole because excess oil will drain back down the supporting pipe. The control system pressure is connected to valve inlet port "A". When the unit trips, port "B" will vent. The unit is reset after tripping by pulling the Reset Knob.

## SPECIFICATIONS

Housing Material .....	Cast Aluminum
Internal Parts .....	Plated Steel & Stainless Steel
Valve Seals .....	Buna N
Diaphragm Material .....	Buna N
Maximum Sensed Pressure (proof) .....	30 psi
Maximum Valve Pressure (Port A) .....	125 psi
Net Weight .....	3-3/4 lbs.
Shipping Weight .....	5 lbs.

## PRESSURE RANGES

Standard Range	0.25 - 0.50 psi
With Auxiliary Spring	0.50 - 1.0 psi

Auxiliary Spring is Furnished Loose with Each Unit

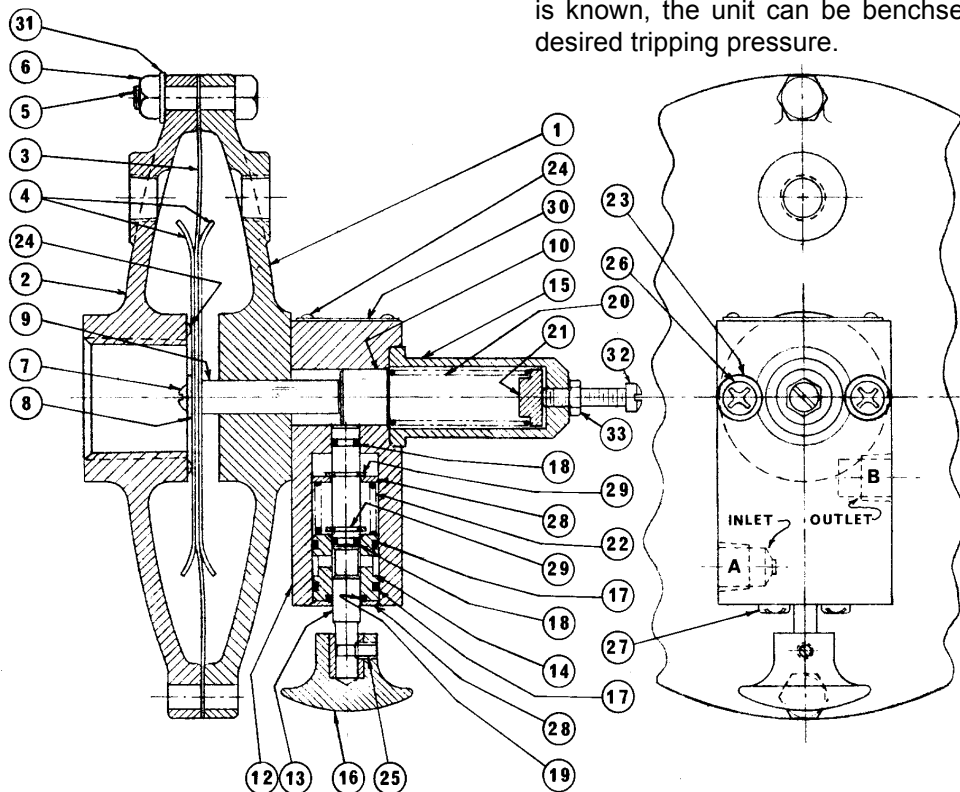
## HOW TO ORDER

Order this model simply by its model number - Model 4126A and specify whether seals are to be Buna N or Viton. Since it is shipped unset, it is not necessary to furnish any pressure setting with the order.

## ADJUSTMENT

Adjustment is made by turning Adjusting Screw (32) and locking with Nut (33). If the heavier auxiliary spring is required, it can be installed by loosening Screws (26) and removing Spring Housing (15).

The unit can be adjusted on the engine when it is running normally by turning the Adjusting Screw counter-clockwise until the unit just trips and then making the final adjustment by turning the Screw clockwise 2 or 3 turns until a stable setting is found. If the normal crankcase pressure is known, the unit can be benchset by the user to the desired tripping pressure.



Ref No.	Qty.	Description	Part No.	Ref. No.	Qty.	Distribution	Part No.
1	1	Body Assembly	7174X010	18	2	O-Ring	1392
2	1	Diaphragm Cover	7175L010	19	1	O-Ring	143
3	1	Diaphragm	2931	20	See Table	Main Spring	See Table
4	2	Diaphragm Plate	2932	21	1	Adjustment Spring Guild	7198
5	6	Capscrew	784L004	22	1	Return Spring	6612L027
6	6	Nut	957	23	2	Washer	897L010
7	1	Machine Screw	74L002	24	7	Drive Screw	705L001
8	1	Thread Seal	714L002	25	1	Set Screw	690L002
9	1	Pushrod	7202	26	2	Machine Screw	491L175
10	1	Piston	7180	27	2	Machine Screw	915L025
12	1	Body	7197L001	28	2	Washer (Special)	7183
13	1	Stem	7177	29	2	Retaining Ring	480
14	1	Spool	7178	30	1	Nameplate	6642
15	1	Spring Housing	7179L001	31	6	Lockwasher	473
16	1	Knob	681	32	1	Adjusting Screw	491L002
17	2	O-Ring	353	33	1	Lock Nut (For Adj. Screw)	913L010
				34	2	Lockwasher	11209L008

Qty.	Part No.	PSI	Remarks
1	6612L030	.25 to .5	Light - Installed Heavy - Shipped Loose
1	6612L023	.5 to 1.	Wire to Valve

AMOT designs and tests all products to ensure that high quality standards are met. Carefully follow AMOT's installation and maintenance instructions: failure to do so could result in damage to equipment being protected.

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# Model 4064

## Differential Pressure Sensing Valve

### Features

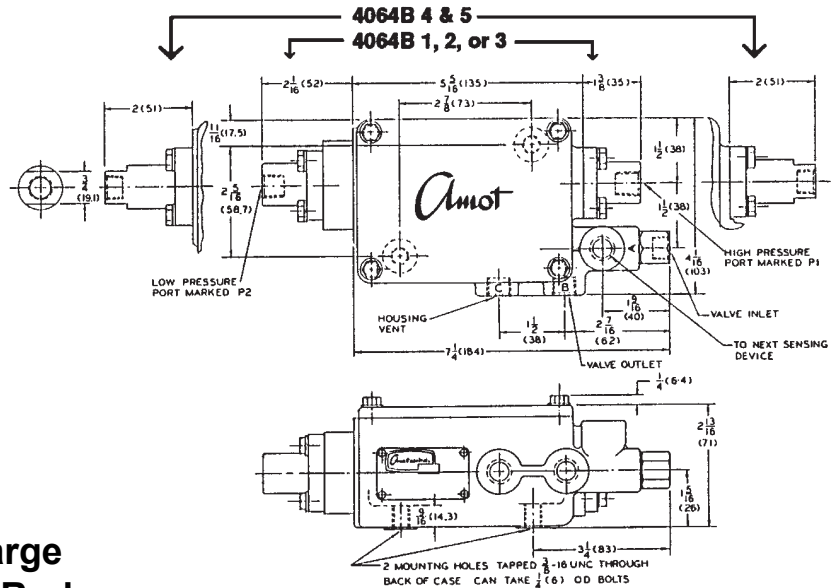
- Settings from 8 - 3500 psi
- Gulfproofed, Anodized Aluminum Construction
- Accepts Hydraulic or Pneumatic Signals

### Applications / Benefits

- Compressor Suction / Discharge Pressure Sensing, Detecting Rod Overload
- Detecting Clogs Across Filters, Separators, Scrubbers, and Membranes
- Pump Differential Pressures, Detecting Pump Cavitation, Fluid Leakage, Damage

### Operation / Application

Model 4064 is used is used for sensing limits of increasing or decreasing differentials. At the set differential, safety control system pressure coming into port A will vent out of port B. A typical application would be on a gas compressor installation. The gas discharge line would be connected to port P1, and the suction pressure line would be connected to port P2. If the pressure at P1 exceeded that of port P2 by the set amount, (indicating compressor connecting rod overloading), port A would vent and shut down the engine. Another application would be to sense excessive pressure drop through a filter, indicating filter clogging.



### Specifications

Housing Material (Gulfproofed, Anodized)	Cast Aluminum
Internal Parts	Steel & Aluminum
Valve Seat and Seals	Viton
Diaphragm Mat'l. (When Used)	Buna N; Viton Optional
Piston Mat'l.	Stainless Steel
Piston Seals	Teflon
Max. Valve Press. Port A	80 psi
Net Weight (Approximate)	5.5 lb
Shipping Weight (Approximate)	6.5 lb

Model 4064 is furnished by the factory with the differential pressure setting compatible for a specific working pressure level. If this working pressure level changes, the unit must be readjusted if the same differential pressure setting is required. For example, Model 4064B52E might be furnished by the factory so that with a pressure of 500 psi on port P2 the unit would trip when the pressure at port P1 reached 750 psi (250 psi differential). If the pressure level at port P2 increases to 600 psi, the unit will no longer trip at the same 250 psi differential, which would be at 850 psi. If this tripping point of 850 psi is required, then the unit must be readjusted. In the Pressure Range Table, the columns under Differential Pressure To Reset show the sensitivity of the various models. Figures shown do not vary proportionally with the setting of the trip points, but more with the pressure level.

# Installation

Two 3/8"-16 tapped holes in the back of Model 4064's case can be used to mount the valve. The unit can be mounted in any position, but is normally installed with the vent connection at the bottom. A quality thread sealant should be used when making piping connections, but must not be permitted to enter port passages. Minimum size tubing recommended for safety control system piping is 1/4" O.D. If the unit is to sense liquid pressures with pulsations present, an orifice or other dampening device should be used in the line to ports P1 and P2 to protect diaphragm models (Range 1, 2, and 3).

2. Specify Settings - Under normal operating conditions, port P1 or port P2 will be fixed, and the other port will either increase or decrease in pressure until the unit trips. Please specify:

- a. Port No. and Pressure of Fixed Port
- b. Port No. and Pressure at which Variable Port trips and whether on Increasing or Decreasing pressure.

3. Example of Ordering - With a pressure of 400 psi on one port, it is desired that the unit will trip when the other port increases to 550 psi (150 psi differential increasing).

I. Model No. is 4064B42B. (Model 4064B52B could have been chosen but, Model 4064B42B has an adjustable range of 50-250 increasing and would be more sensitive than 4064B52B having an adjustable range of 100-650.)

II. Settings:

- a. Pressure at fixed port P2 is 400 psi.
- b. Variable port P1 increases to 550 psi to trip the unit.

# How to Order

Since there are several variables in these units, it is requested that the exact operating characteristics be furnished by the customer. In order to see whether the desired differential is obtainable, proceed as follows (refer to the Model Code Table below):

1. Model No. Determination - From the Pressure Range Table, use the lowest "maximum working pressure" valve in the center column to meet the maximum pressure level encountered, then choose the Model No. from the "Adj. Differential Pressure Range" column desired.

# Model Code Table

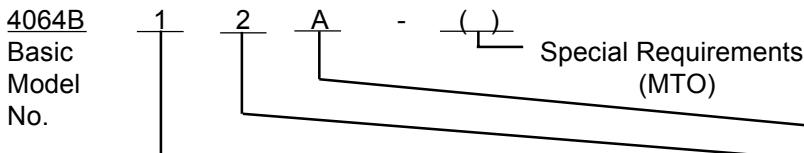


Table A Adj. Differential Pressure Range						Table B Thread and Finish			Table C Diaphragm Material (Ranges 1, 2 & 3 Only)		
Code No.	Decreasing (psi)	Max. Wkg. Increasing (psi)	Pressure	Decreasing	Increasing	Code No.	Thread	Finish	Code No.	Diaphragm Material	Range
1	8 - 35	8 - 35	350	3.5	3.5	2	NPT	Gulfproof	A	Buna	1, 2, 3
2	25 - 125	25 - 125	350	3 - 8	3 - 8	3*	BSP (PL)	Standard	D	Viton	1, 2, 3
3	90 - 285	90 - 285	350	10 - 15	10 - 15	4*	BSP (PL)	Gulfproof	E	Viton	4, 5
4	20 - 215	50 - 250	1000	14 - 40	12 - 40				F	Viton	6, 7
5	50 - 580	100 - 650	1000	20 - 60	18 - 60						
6	150 - 1000	300 - 1200	4000	40 - 180	30 - 150						
7	300 - 3300	500 - 3500	4000	90 - 180	80 - 160						

Indicates Special Order

\* Available from AMOT U.K. factory only

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