

3-Way Pilot Valves

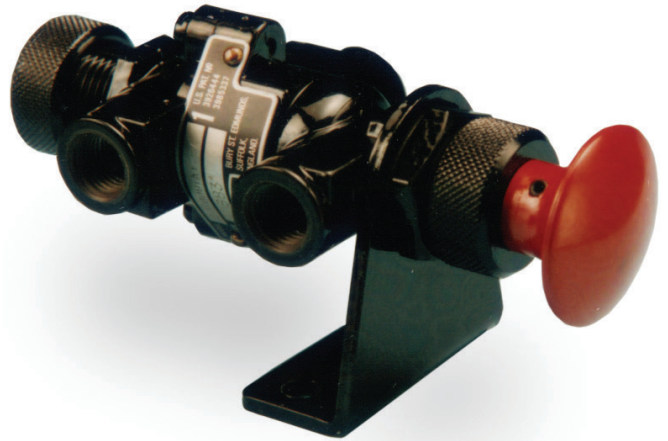
Models 4057D & 4457A

Typical applications

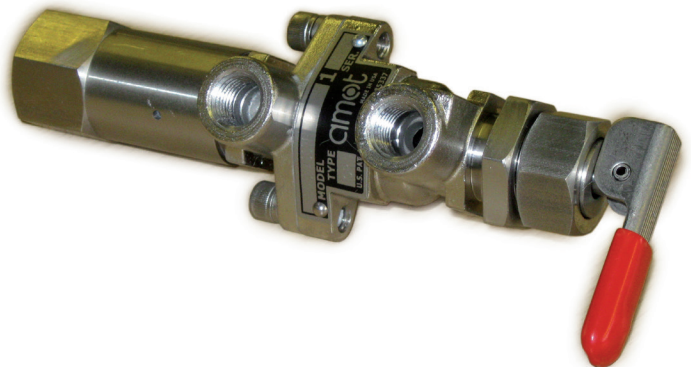
- Developed for use in manual and automatic control systems:
 - Hydraulic fluid control
 - Actuator control
 - Pneumatic panel systems
 - Safety control systems

Key features and benefits

- Suitable for use on many types of fluids:
 - Clean air
 - Natural gas
 - LP gases
 - Petroleum base lubricants
 - Hydraulic oils
 - Many other fluids
- Balanced force design
 - Pressure can be applied to any port
 - Simplified system design
- Can be panel or bracket mounted
 - Simple, flexible and low cost installation
- Uses the AMOT patented "Tad Pole" seal
 - Provides lower friction and longer cycle life than conventional o-ring seals




**Model 4057D
(Aluminum)**



**Model 4457A
(Stainless steel)**

Accreditations available

- PED Suitable for Group 1 & 2 liquids & gases (Ensure materials are compatible)
- ATEX  II 3G TX X
- CE 4057D Complies with all relevant EU directives

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3-Way Pilot Valves - Models 4057D/4457A

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3-Way Pilot Valves - Models 4057D/4457A

Overview

AMOT Models 4057 and 4457 3-way valves have been developed for use in manual and automatic hydraulic or pneumatic control systems.

They offer versatility in operating requirements and allowable pressure limits. For a ¼" size control valve, they offer exceptional flow capacity.

Operation

The 3-way pilot valves feature modular construction and incorporate a sliding spool. The standard spool has a small center dead spot position and no valve port overlap. With the spool fully to the left (rest position), Port 2 is open to Port 3 and Port 1 is closed. With the spool moved to the right (actuated position), Port 2 is open to Port 1 and Port 3 is closed.

The valves are available with a variety of manual and pressure operators and with manual, pressure or spring returns. See the valve types table below for the standard variations which are available.

Installation

- All connections are made with ¼" pipe thread fittings.
- Apply a quality thread sealant such as Loctite™ Pipe Sealant to pipe thread connections, but do not permit it to enter the valve passages.
- Teflon thread sealing tape may be used but must be applied so that shreds of the tape do not enter the valve.
- Avoid over-tightening fittings on the valve port bosses as they may be cracked, especially when Teflon thread sealing tape is used.
- All 4057D/4457A valves may be bracket mounted; most are also suitable for panel mounting.

Valve Characteristics

Operator, finish and thread

Operator, finish and thread (B) ¹		Valve type (see page 6)	Description
4057D Gulf-proofed NPT	4457A Stainless steel NPT		
019F	001F	CA	Manual operated - 2.2 kg (5 lbs) force required
020F	002F	CB	Manual pull spring return - 6.8 kg (15 lbs) force required
022H	004H	CD	Manual or pressure operated manual return - 0.69 bar (10 psi) pressure or 2.72 kg (6 lbs) force required
023H	005H	CE	Manual or pressure operated spring return - 1.79 bar (26 psi) pressure or 7.27 kg (16 lbs) force required
032J	014J	CF	Double pilot operated - 0.69 bar (10 psi) pressure required
031H	013H	CG	Pressure operated spring return - 1.79 bar (26 psi) pressure required
025H	007H	CP	Manual latch or pressure operated spring return when released - 1.8 bar (26 psi) pressure required
029K	-	CT	Adjustable pressure operated spring return - Adjustable from 0.3 - 1.03 bar (5 - 15 psi) pressure required
035J	-	C2	Double pilot operated spring return in one direction - 0.69 bar (10 psi) and 1.79 bar (26 psi) pressure required
027K	-	SB	Manual latch or pressure operated spring return when released - 0.9 bar (13 psi) pressure required

NOTES:

¹ If your operator, finish and thread code does not correspond with the given values, please contact the facility to confirm your operator, finish and thread code.

3-Way Pilot Valves - Models 4057D/4457A

Valve Characteristics Continued

Options


- All valves may be bracket mounted; most are also suitable for panel mounting.
- A satin chrome nut, part number: 3496L001 is available as an option, and it substitutes for the standard nut to improve the appearance for the front of a panel mounting.
- Red knob: part number 681L001 is available for types CA, CB, CD or CE as a substitute for the standard black knob.

How to Order

Use the table below to select the unique specification of your 4057/4457 3-Way Pilot Valves.

Examples	4057D	019F	1	-AA	Code description	Comments
	4457A	001F	1	-AA		
Basic model (A)						
Basic model (A)	4057D				Anodized aluminum	
	4457A				Stainless steel	
Operator, Finish & Thread (B)						
Operator, finish and thread (B)		*			For operator, finish and threads available, refer to the operator, finish and thread table on page 3.	
Spool (C)						
Spool (C)			1		Standard center dead spot	ALL valve types EXCEPT SB
			2		Valve port overlap	
			5		Standard center dead spot	4057D - SB ONLY
			6		Valve port overlap	
Customer special requirements (D)						
Customer special requirements (D)				-AA	Standard	May be omitted
				-***	Customer special code	

Specification

	4057D		4457A	
	Metric units	English units	Metric units	English units
Body material	Anodized aluminum		Stainless steel	
Standard spool and internal materials	Anodized aluminum		Anodized aluminum	
Standard seal materials	Viton		Viton	
Maximum temperature	120°C	248°F	120°C	248°F
Flow coefficient	Kv = 1.04	Cv = 1.2	Kv = 1.04	Cv = 1.2
Maximum pressure at ports 1, 2 or 3	8.62 bar	125 psi	8.62 bar	125 psi
Maximum pressure at ports A or B	10.3 bar	150 psi	10.3 bar	150 psi
Maximum pressure at port C (types CT & SB ONLY)	8.62 bar	125 psi	Not available	
Net weight	0.3-0.9 kg	0.6-2 lbs	0.8-2.6 kg	1.7-5.7 lbs
Accreditations available	PED		Suitable for Group 1 & 2 liquids & gases (Ensure materials are compatible)	
	ATEX		 II 3G TX X	
	CE		4057D Complies with all relevant EU directives	

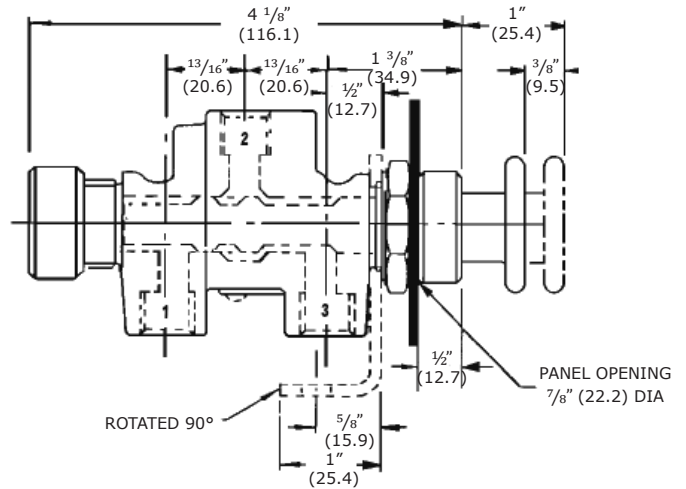
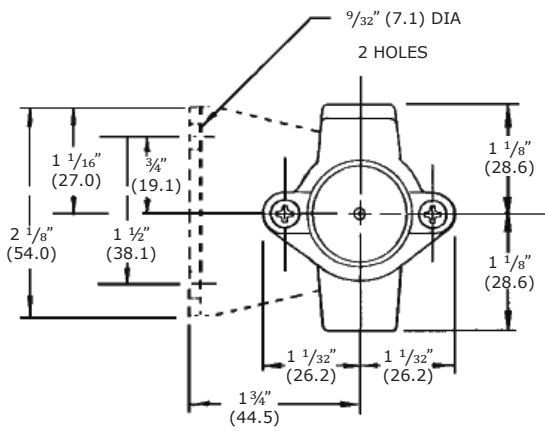
3-Way Pilot Valves - Models 4057D/4457A

Dimensions

Type CA: Manual operated - 2.27 kg (5 lbs) force required

Type CB: Manual pull spring return - 6.8 kg (15 lbs) force required

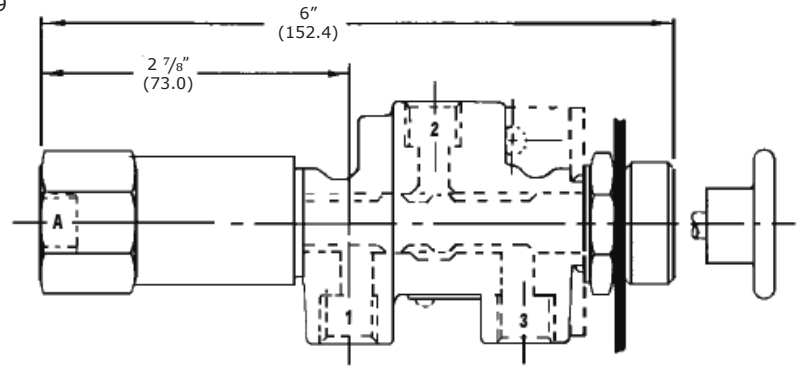
Dimensions - inches (mm)



Type CD: Manual or pressure operated manual return - 0.69 bar (10 psi) pressure or 2.72 kg (6 lbs) force required

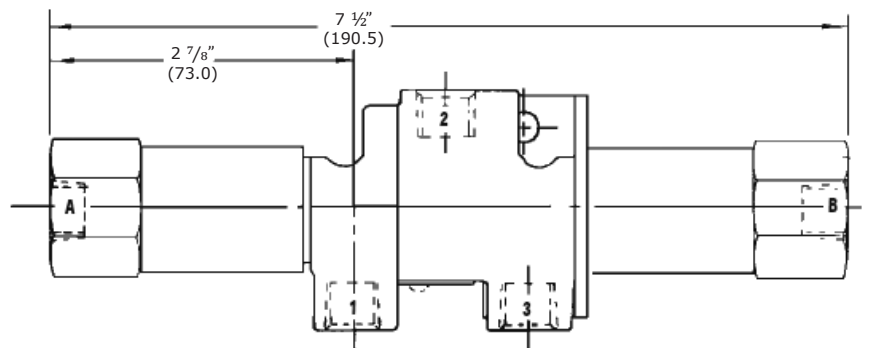
Type CE: Manual or pressure operated spring return - 1.79 bar (26 psi) pressure or 7.26 kg (16 lbs) force required

Type CG: Pressure operated spring return - 1.79 bar (26 psi) pressure required



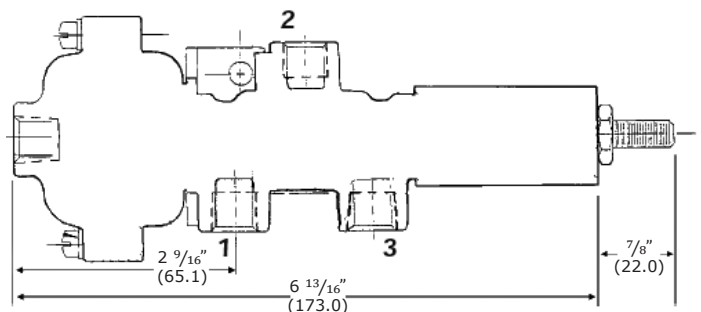
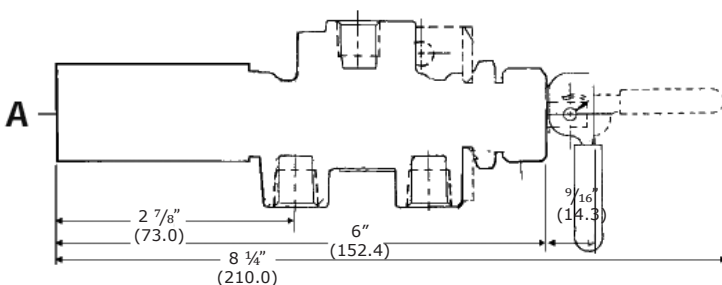
Type CF: Double pilot operated - 0.69 bar (10 psi) pressure required

Type C2: Double pilot operated spring return in one direction - 0.69 bar (10 psi) and 1.79 bar (26 psi) pressure required



Type CP: Manual latch or pressure operated spring return when released - 1.8 bar (26 psi) pressure required

Type CT: Adjustable pressure operated spring return - Adjustable from 0.3 to 1.03 bar (5 to 15 psi) pressure required

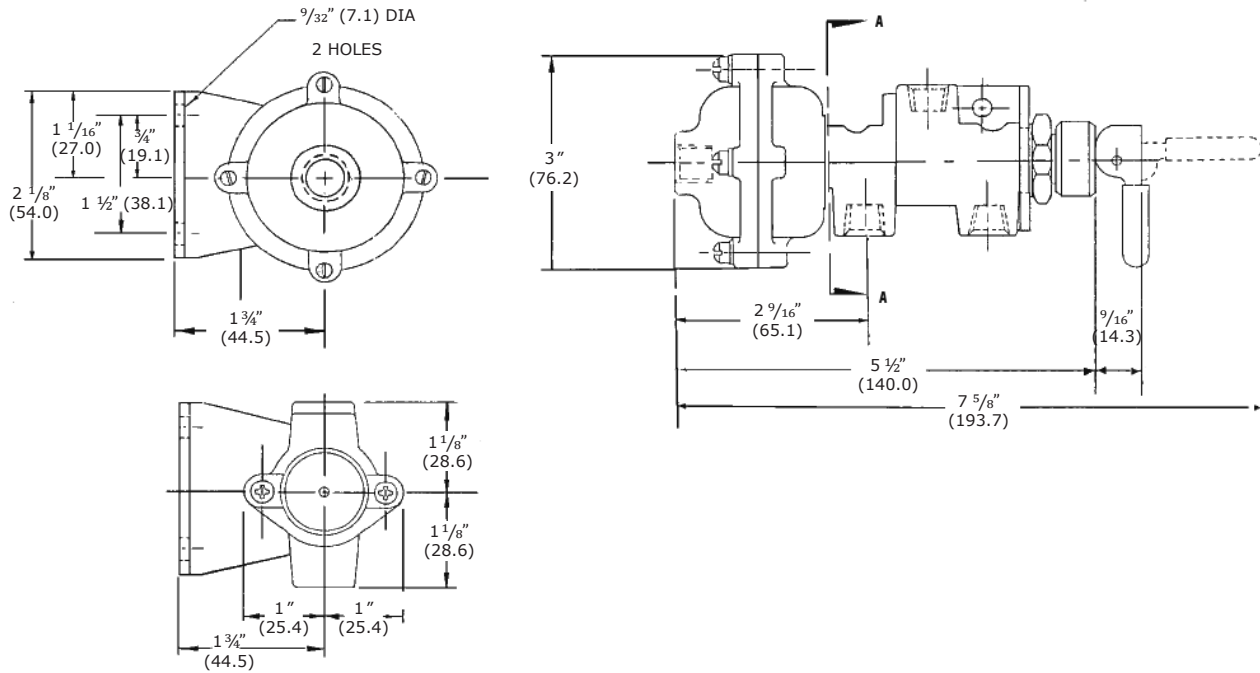


3-Way Pilot Valves - Models 4057D/4457A

Dimensions Continued

Dimensions - inches (mm)

Type SB: Manual latch or pressure operated spring return when released - 0.9 bar (13 psi) pressure required



Maintenance and Service Parts

Over time, exposure to foreign chemicals and particulate matter as well as prolonged operation at extreme conditions may reduce the effectiveness of the valve. At such time, AMOT Pilot Valves can be restored to original performance simply by installing an AMOT pilot valve service kit. Service kits include all new seals and diaphragm required for normal maintenance.

When these valves are used in safety control systems, it is recommended that the system be checked MONTHLY for proper functioning. The unit must be kept clean and free of dust. The end cap is to be regularly inspected for signs of damage or rust and replaced if necessary.

How to order service kits

Service kits are available with seals and diaphragm required to service the valve. Order service kits by the service kit model number which is identified by the basic valve model and operator, finish and thread code found in the AMOT valve part number.

Ensure that regular inspections of the valve and end cap are carried out to ensure that it is kept clean and free from wear, damage or rust. If the valve shows signs of process fluid leakage, examine the seals. If the valve is subjected to prolonged periods of high vibration at low temperatures, it is possible that wear may occur to the disc assembly and it is recommended that the valve is isolated and safely removed from the system, and returned to AMOT for examination.

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 instructions; failure to do so could result in damage to the equipment being protected or controlled.

Refer to the AMOT valve part number printed on the valve nameplate and the AMOT valve part number structure in the how to order section on page 4.

3-Way Pilot Valves - Models 4057D/4457A

Maintenance and Service Parts Continued

Service kit model number structure

- 1) Identify the basic valve model, located in the Basic model (A) section of the AMOT valve part number.
- 2) Identify the operator, finish and thread code, located in the Operator, finish and thread (B) section of the AMOT valve part number.
- 3) Use those codes in the service kit identification table below to identify the proper service kit needed to service the valve. Two examples are shown in the table below.

Service kit identification				
Basic model (A)	Operator, finish and thread (B) ¹			Service kit model number
4457A	001F			9113X001
	002F			
	004H			
	005H			
	007H			
	013H			
	014J			
4057D	019F			
	020F			
	022H			
	023H			
	025H			
	031H			
	032J			
	035J			
	027K			
	029K			9128X001
Examples				
Valve part number			Service kit model number	
4057D	029K	2		9128X001
4457A	001F	1	-AA	9113X001

Service parts *(refer to diagrams on page 8)*

Ref no.	Service kit parts		Description
	Qty. ²		
	9113X001	9128X001	
3	4	4	Spool seals
4	2	-	Piston seals
47	-	1	Diaphragm
48	-	1	Thread seal

NOTES:

¹ If your operator, finish and thread code does not correspond with the given values, please contact the facility to confirm your operator, finish and thread code.

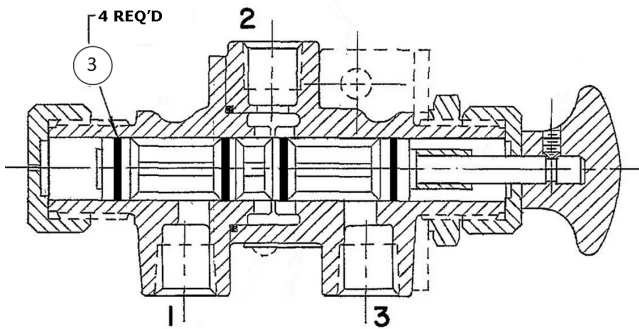
² Service kit 9113X001 contains extra parts when used with valve types CA, CB, CD, CE, CG and CP. Please discard of any extra parts.

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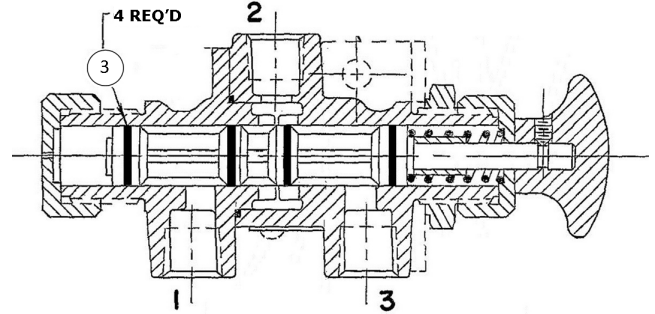
Maintenance and Service Parts Continued

Service parts continued

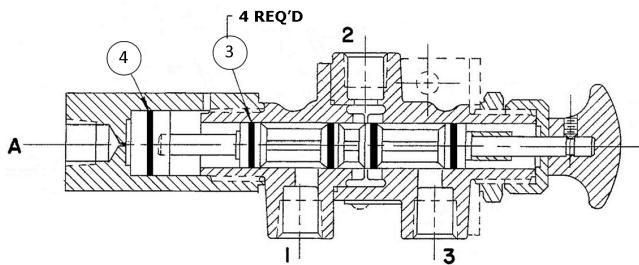
Type CA



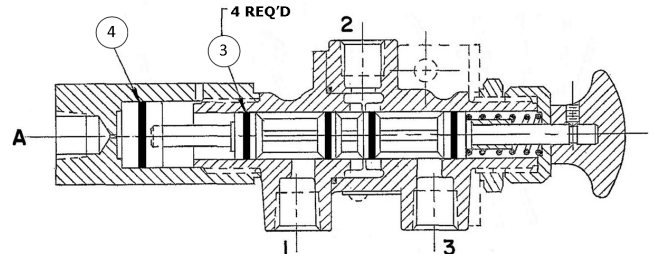
Type CB



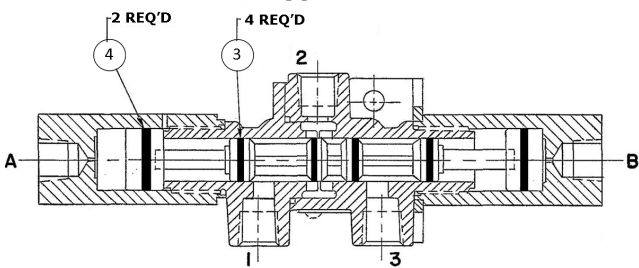
Type CD



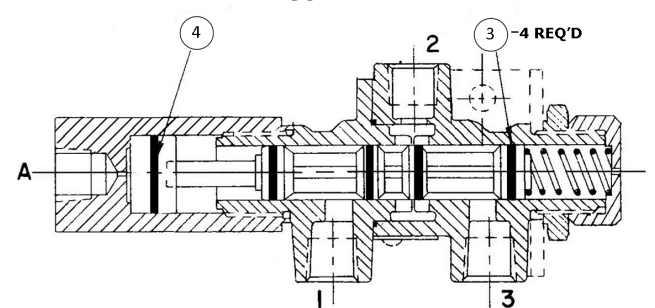
Type CE



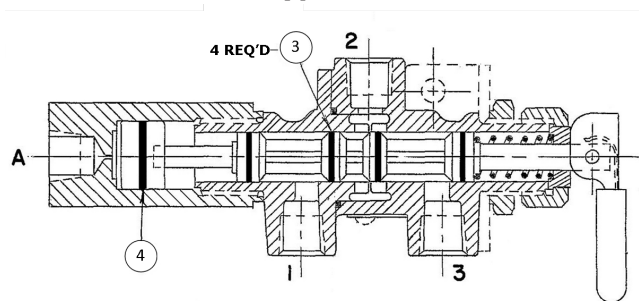
Type CF



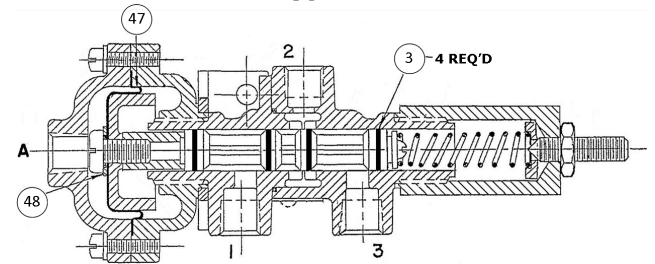
Type CG



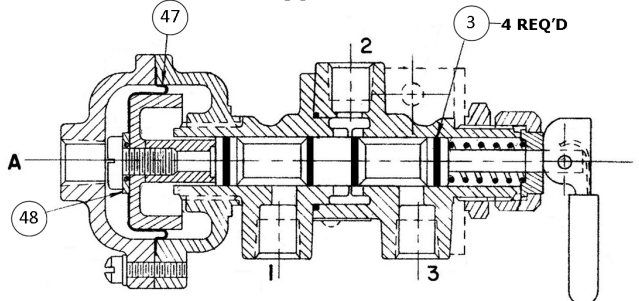
Type CP



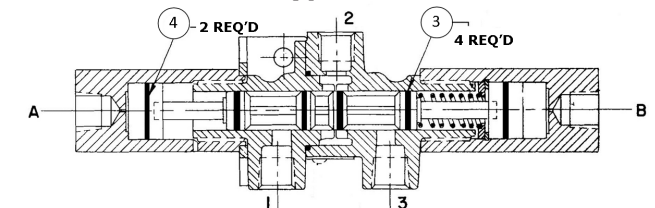
Type CT



Type SB



Type C2



3-Way Pilot Valves - Models 4057D/4457A

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WARNING

This product can expose you to chemicals including Lead, which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.