CKD

SM-5172-A

INSTRUCTION MANUAL

4-WAY SOLENOID VALVE

SELEX VALVE
M4F4 ~ M4F7

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

CKD Corporation

For Safety Use

To use this product safely, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, read this instruction manual carefully for proper operation.

Observe the cautions on handling described in this manual, as well as the following instructions:

⚠ Precautions

- Do not touch electric wiring connections (exposed live parts) : this will cause an electric shock. During wiring, keep the power off. Also, do not touch these live parts with wet hands.

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M4F4 ~ 7
SELEX Valve
4Way Solenoid Valve
Manual No. SM-5172-A

NOTE : Letters & figures enclosed within Gothic style bracket (examples such as [C2-4PP07] · [V2-503-B] etc.) are editorial symbols being unrelated with contents of the book.

1. PRODUCTS

1.1 Specification

1) General Specification

Item	Specification
Working fluid	Compressed air
Max. operating pressure	1.0MPa
Ambient temperature	−10~60°C
Lubrication	Not required
Valve type and operation	Pilot (Soft spool)

2) Table of model number and related specification

Number of positions and solenoids	Series No. & model No.		Specification			
			Connecting port dia.			Effective sectional area (mm^2)
			Sup. port (S)	Cyl. port (C)	Exh. port (E) Pilot Exh. port (PE)	
2-position, single	M4F4	4F419	Rc3/8	Rc1/4	E : Rc3/8 (PE : Rc1/8)	32
2-position, double		4F429				
3-position, all ports blocked		4F439				21
3-position, ABR connection		4F449				22
3-position, PAB connection		4F459				
2-position, single	M4F5	4F519	Rc1/2	Rc3/8	E : Rc1/2 (PE : Rc1/8)	47
2-position, double		4F529				
3-position, all ports blocked		4F539				41
3-position, ABR connection		4F549				43
3-position, PAB connection		4F559				
2-position, single	M4F6	4F619	Rc3/4	Rc1/2	E : Rc3/4	90
2-position, double		4F629				
3-position, all ports blocked		4F639				80
3-position, ABR connection		4F649				
3-position, PAB connection		4F659				
2-position, single	M4F7	4F719	Rc 1	Rc3/4	E : Rc3/4	160
2-position, double		4F729				
3-position, all ports blocked		4F739				
3-position, ABR connection		4F749				
3-position, PAB connection		4F759				

Number of positions and solenoids	Series No. & model No.		Specification					
			Lubrication	Working pressure MPa	Fluid temperature(℃)	Ambient temperature(℃)	Wiring system	Max. frequency Times/min.
2-pos., single	M4F4	4F419	Not required (Use Turbine oil, class 1, ISO VG32, if Lub. is required.)	0.1~1.0	Compressed air 5~60	−10~60 (Not frozen)	DIN terminal box etc	120
2-pos., double		4F429						
3-pos., all ports blocked		4F439		0.15~1.0				60
3-pos., ABR connection		4F449						
3-pos., PAB connection		4F459						
2-pos., single	M4F5	4F519		0.1~1.0				
2-pos., double		4F529						
3-pos., all ports blocked		4F539		0.15~1.0				
3-pos., ABR connection		4F549						
3-pos., PAB connection		4F559						
2-pos., single	M4F6	4F619						
2-pos., double		4F629						
3-pos., all ports blocked		4F639						
3-pos., ABR connection		4F649						
3-pos., PAB connection		4F659						
2-pos., single	M4F7	4F719						
2-pos., double		4F729						
3-pos., all ports blocked		4F739						
3-pos., ABR connection		4F749						
3-pos., PAB connection		4F759						

3) Pilot valve specification

Item	Specification		
Series model No	4F2~4F7		
Rated voltage (V)	AC100V (50/60Hz)	AC200V (50/60Hz)	DC24V
Starting current (A)	0.17/0.14	0.09/0.07	0.25
Holding current (A)	0.10/0.08	0.05/0.04	
Power consumption (W)	5/4		6
Thermal class	B (Moulded coil)		

Manifold weight (Reference figure)

M4F4 Series

0.34n+0.5+(Unit weight×n)

Unit weight 4F419-00 : 0.81kg
4F429-00 : 1.05kg
4F439-00 : 1.45kg
4F449-00 : 1.45kg
4F459-00 : 1.45kg

M4F5 Series

0.43n+0.77+(Unit weight×n)

Unit weight 4F519-00 : 1.14kg
4F529-00 : 1.34kg
4F539-00 : 1.64kg
4F549-00 : 1.64kg
4F559-00 : 1.64kg

M4F6 Series (Together with Manifold base for FS4 model)

2.12n+1.48+(Unit weight×n)

Unit weight 4F619-00 : 1.62kg
4F629-00 : 1.92kg
4F639-00 : 2.42kg
4F649-00 : 2.42kg
4F659-00 : 2.42kg

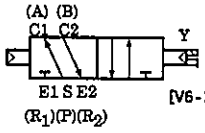
M4F7 Series (Together with Manifold base for FS5 model)

2.05 n+1.43+(Unit weight×n)

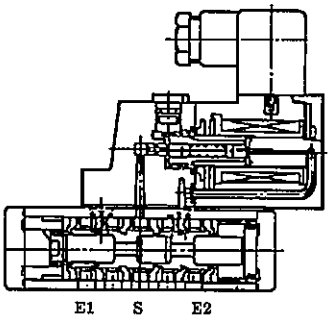
Unit weight 4F719-00 : 2.95kg
4F729-00 : 3.25kg
4F739-00 : 4.35kg
4F749-00 : 4.35kg
4F759-00 : 4.35kg

JIS Symbol

2-position, single

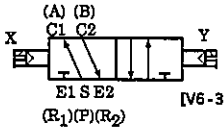


[V6-302-D]

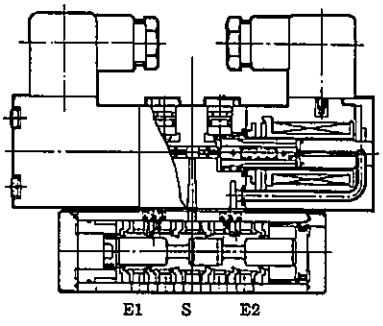


[V6-311-A]

2-position, double

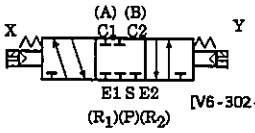


[V6-302-E]



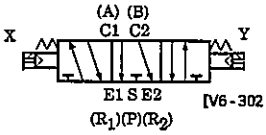
[V6-311-B]

3-position, All ports blocked



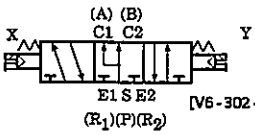
[V6-302-F]

3-position, ABR connection

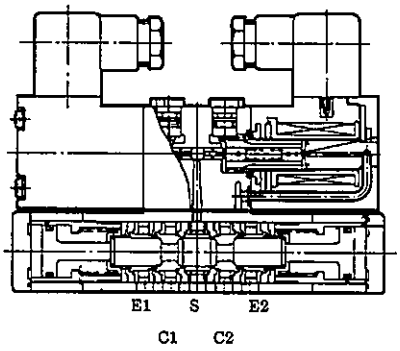


[V6-302-G]

3-position, PAB connection



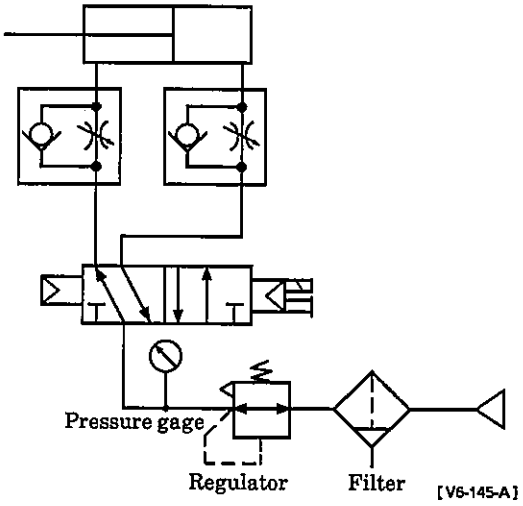
[V6-302-H]



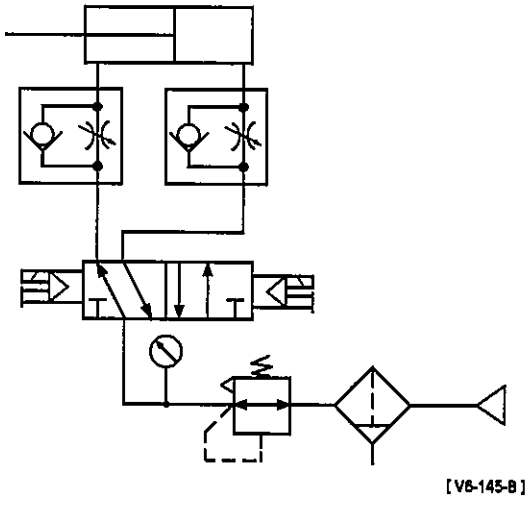
[V6-311-C]

1.2 Fundamental circuit diagram

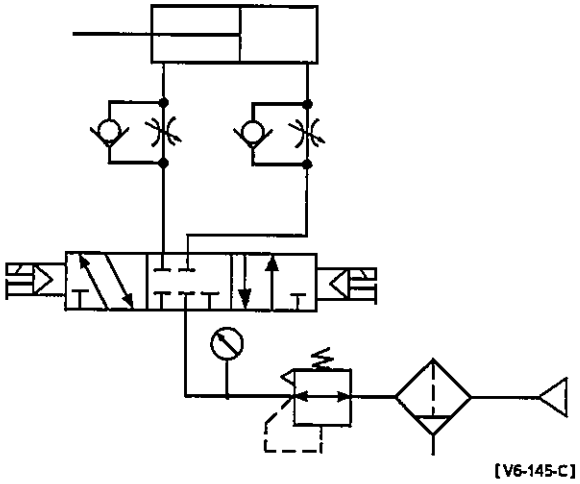
1) Single



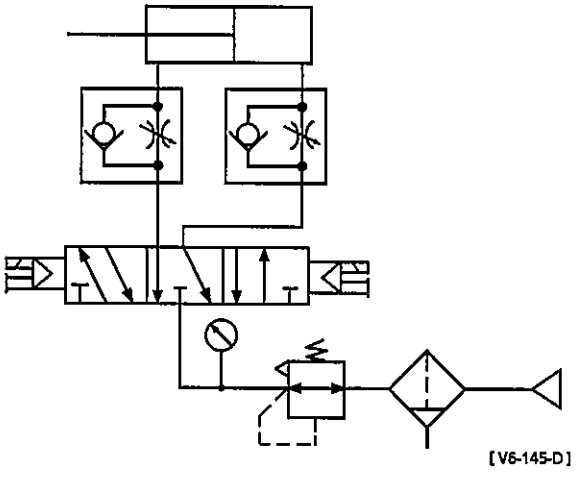
2) Double



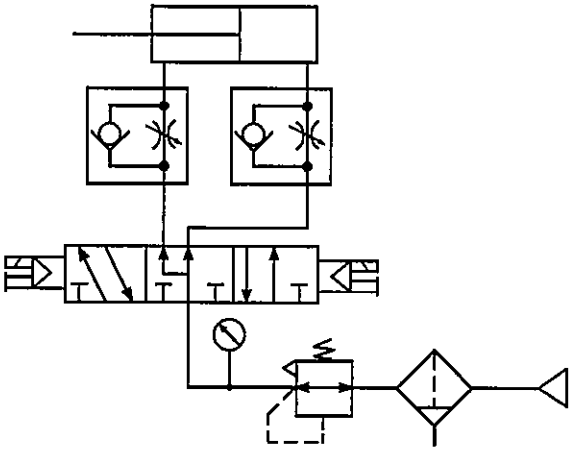
3) 3-position, all ports blocked



4) 3-position, ABR connection



5) 3position, PAB connection

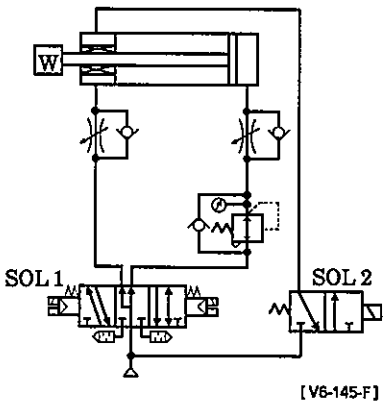


※ PAB connection is used for the purpose of letting either Rod-less cylinder or Seltop cylinder make intermediate stops.
Cirecuit diagrams for seltop cylinder application are as shown below.

(1) In case of horizontal load

The lay-out per Fig. 1 prevents the piston rod from popping out at the moment the brake system is released as equal pressure is delivered on both sides of piston when the cylinder motion is stopped by shifting the solenoid valve to its neutral position. Keep balancing by installing a regulator with a check valve to the circuit of cylinder head. side.

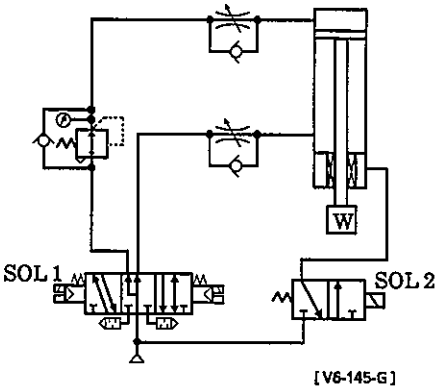
Fig1



(2) In case of perpendicular load

When the lay-out of circuit is as shown in Fig. 2, install a reducing valve with a check valve to the circuit of cylinder head side for the purpose of reducing the downward thrust of the rod and keeping a balance because the cylinder rod is apt to be suddenly pulled down due to the load at the moment the brake system is released.

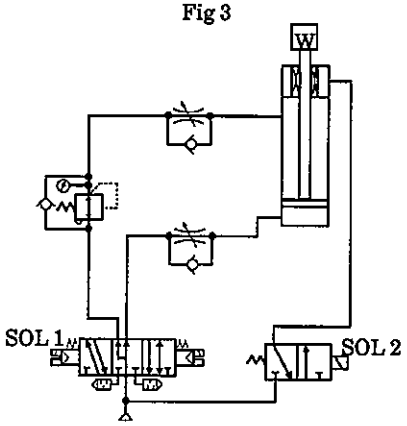
Fig 2



(3) In case of upward load

When the load is upward as shown in Fig. 3, install a reducing valve with a check acheck valve to the circuit of piston rod side for the purpose of reducing reversed thrust of the rod and keeping a balance because the cylinder rod is apt to be pushed backward due to the load at the moment the brake system is released.

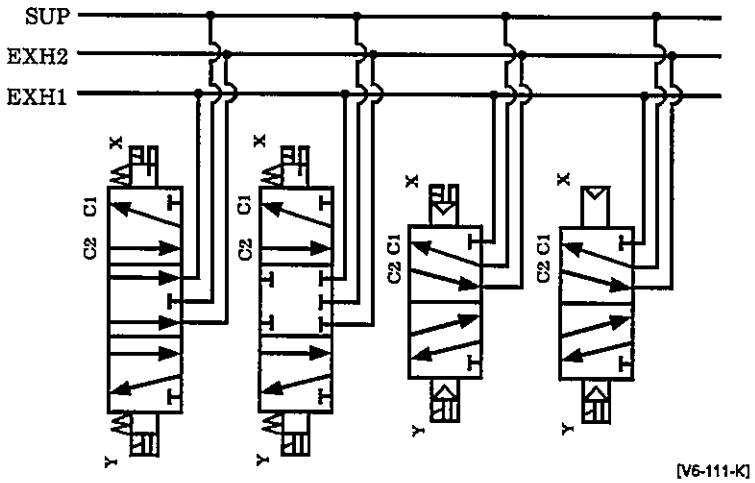
Fig 3



[V6-102-J]

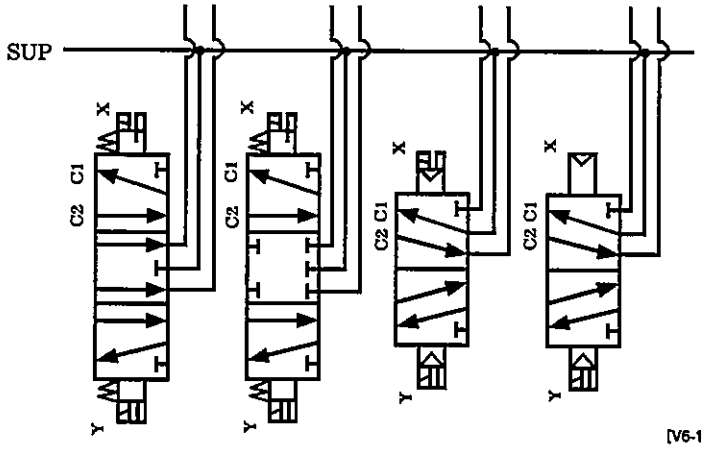
6) Fundamental Circuit diagram of Manifolds

(1) Centralized Air Supply and Centralized Exhaust



[V6-111-K]

(2) Centralized Supply Air and Individual Exhaust



[V6-111-L]

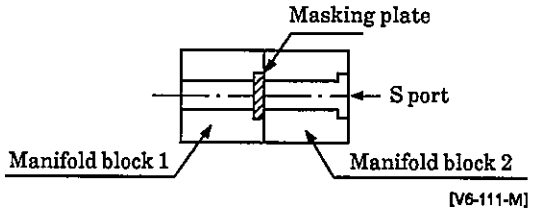
Individual exhaust port is to be on on rear side. (Order production)

The size for I type of 4F4 and 4F5 model differ from each other. Cope it mounting 4F on the Base of FS. (Order production)

NOTE : Port size becomes same to each other when it is to be exhausted from rear side.

7) Other application

Add partition board in S port when anticipate to connect two different pressure lines to one pile of manifold blocks.



Partition board

Series No.	Parts No.
M4F4	4F9-996
M4F5	4F9-997
M4F6	4F9-999
M4F7	4F9-999

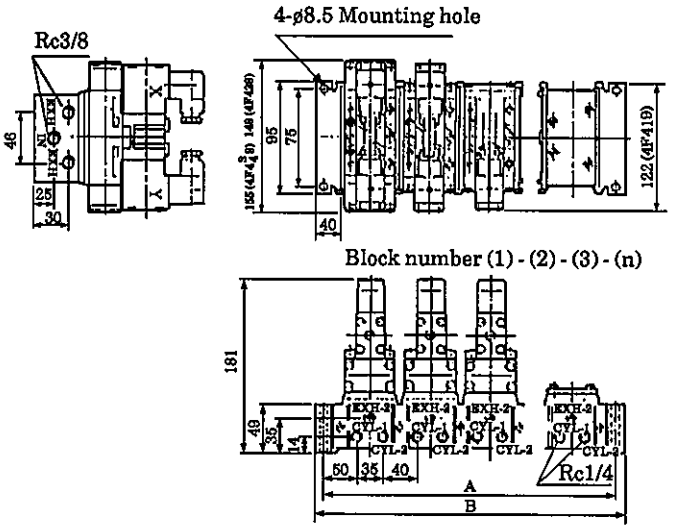
NOTE : Consult us when anticipate to connect with 3 or more different pressures (Order production component are 4F4 and 4F5 models only.)

8) Reference

Dimensions when mounted 4F4 and 4F5 models on FS base

- M4F4※0-B08

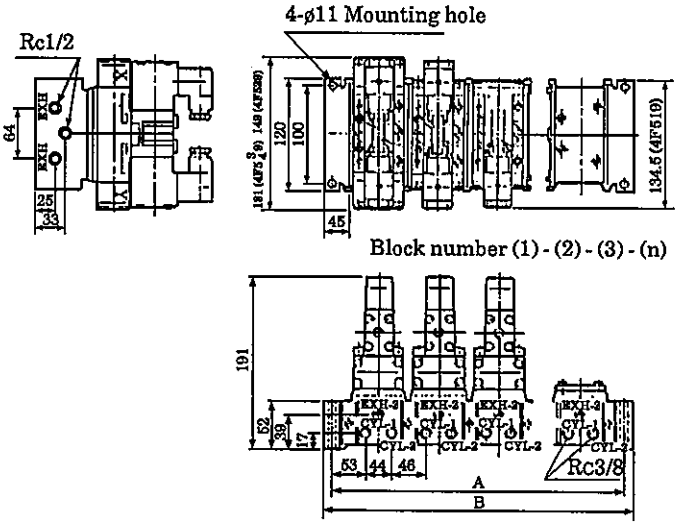
Stack Mark / Block No. (n)	A	B
2	210	230
3	285	305
4	360	380
5	435	455
6	510	530
7	585	605
8	660	680
9	735	755
10	810	830



- M4F5※0-C10

Stack Mark / Block No. (n)	A	B
2	240	270
3	330	360
4	420	450
5	510	540
6	600	630
7	690	720
8	780	810
9	870	900
10	960	990

NOTE : Base dimensions for M4F - C10 are as same as above.

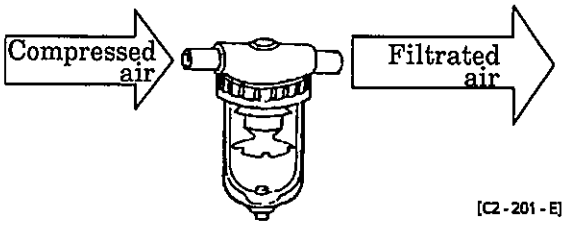


2
CAUTION

2. CAUTION

2.1 Fluid

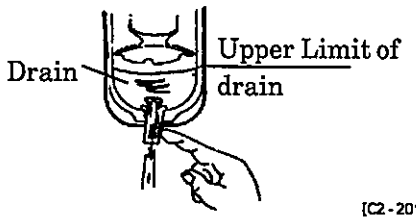
1) Use the compressed air, filtrated and dehumidified. Carefully select a filter of an adequate filtration rate (5μm or lower preferred), flow rate and its mounting location (as closest to directional control valve as possible).



[C2-201-E]

2) Be sure to drain out the accumulation in filter periodically.

3) Note that the intrusion of carbide of compressor oil (such as carbon or tarry substance) into the circuit causes malfunction of solenoid valve and cylinder. Be sure to carry out thorough inspection and maintenance of compressor.



[C2-201-F]

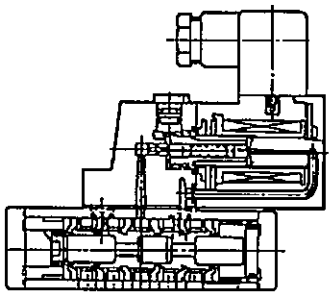
3. OPERATION

3.1 Function

1) 2-position, Single solenoid
Solenoid on = Spool moves to left.
Solenoid off = Spool moves to right.

Non-current
S → C1
C2→ E2
E1→ Blocked

With current
S → C2
C1 → E1
E2 → Blocked

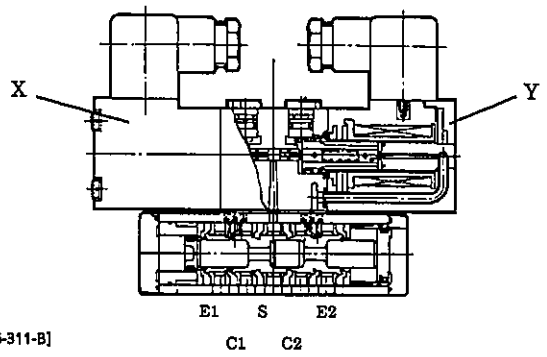


[V6-311-A]

2) 2-position, Double solenoid
X side solenoid on = Spool moves to right.
The same solenoid off = Spool holds its position as is.
Y side solenoid on = Spool moves back to left.
This concept is also used for self holding. (Cylinder does not move even at the occasion of power failure.)

X solenoid on
S → C1
C2 → E2
E1 → Blocked

Y solenoid on
S → C2
C1 → E1
E2 → Blocked



[V6-311-B]

3) 3-position, All ports blocked

Cylinder stops at intermediate positions (when off).

Once it stops, cylinder is locked and external force is unable to move the cylinder.

When both solenoids receive no signal current;

every port such as S, C1, C2, E1 and E2 is blocked.

X solenoid on	Y solenoid on
S → C1	S → C2
C2 → E2	C1 → E1
E1 → Blocked	E2 → Blocked

4) 3-position, ABR connection

Cylinder stops at intermediate positions same as 3) above. But an external force is able to move the once stopped cylinder.

When both solenoids receive no signal current;

S → Blocked
C1 → E1
C2 → E2

X solenoid on	Y solenoid on
S → C1	S → C2
C2 → E2	C1 → E1
E1 → Blocked	E2 → Blocked

5) 3-position, PAB connection

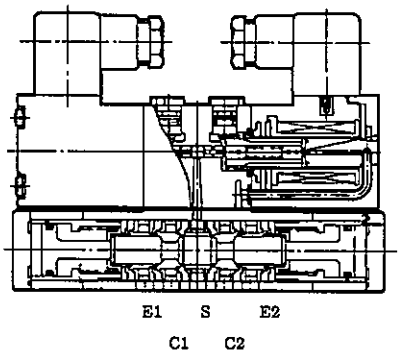
Cylinder stops at intermediate positions (when current is off) as same as 3) above. But the cylinder is not to stay still unless the unit pressure from both side of cylinder balances up due to individual pressurization to C1 port as well as to C2 port.

When both solenoids receive no signal current;

S → C1 · C2
E1 → Blocked
E2 → Blocked

X solenoid on
S → C1
C2 → E2
E1 → Blocked

Y solenoid on
S → C2
C1 → E1
E2 → Blocked



[V6-311-C]

3.2 To operate the solenoid valve by other signal than electric

In the event that manual operation is tentatively required rather than the operation by an electric signal, turn the cock at the solenoid coil, same size to that of a thumb, clockwise with a piece of coin or a tip of a minus driver. Be sure to turn it backward, (position 0) when required manual operation is carried out.

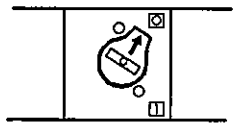
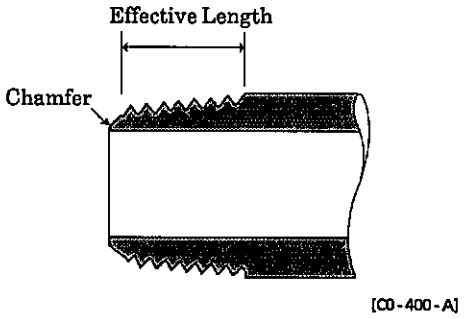


Fig.1

4. INSTALLATION

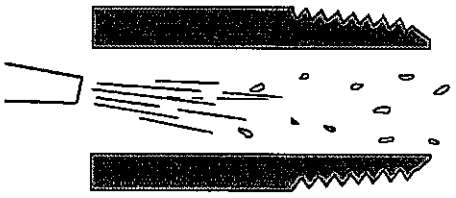
4.1 Piping

1) For piping beyond the filter, use pipes that hardly get corroded such as galvanized pipes, nylon tubes, rubber tubes, etc. (Refer to Selection Guide Table for Related Equipment.)
2) See to it that the pipe connecting cylinder and solenoid valve has effective sectional area needed for the cylinder to drive at specified speed. (Refer to Selection Guide Table for Related Equipment.)
3) Install filter preferably adjacent upper-stream to solenoid valve for eliminating rust, foreign substance and drain in the pipe.
4) Strictly observe the effective thread length of gas pipe and give a chamfer of approx. 1/2 pitch from the threaded end.



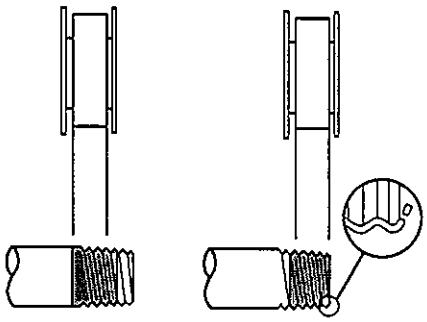
[C0-400-A]

5) Flush air into the pipe to blow out foreign substances and chips before piping.

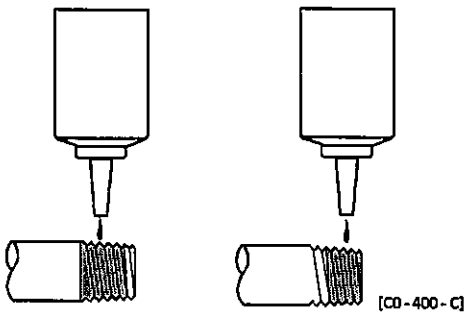

[C0-400-B]

6) Refrain applying sealant or sealing tape approx. two pitches of thread off the tip of pipe to avoid residual substances from falling into piping system.

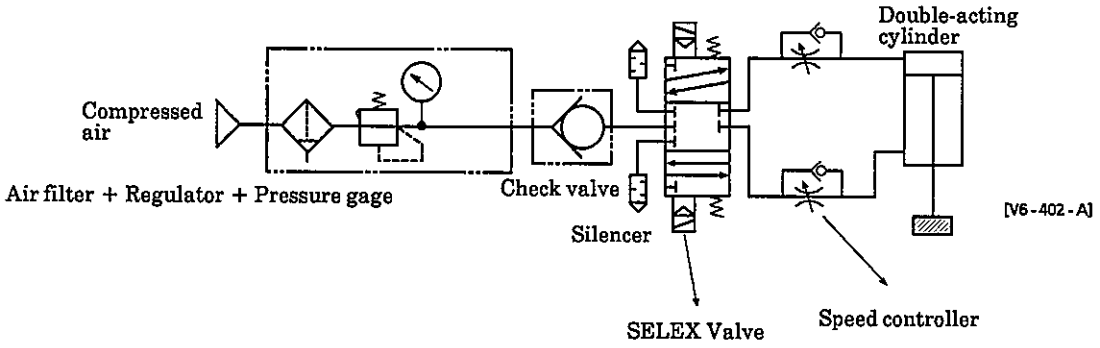
● Seal Tape


Right False

● Sealant (Paste or liquid)


[C0-400-C]
Right False

7) Keep PE port left open. Plugging it caused malfunction of system.
8) Installation of a filter is mandatory. Install a lubricator (Turbine oil class 1, ISO VG32) at an upper-stream location to the valve when it seems to be necessary.
9) Regulate, however, to avoid over lubrication to the valve.
10) Select an appropriate mounting location for valve, while designing a lay-out of circuit, where only the least vibration or shock is generated or nil.
11) Inspect against any external leakage at each threaded joint, upon completion of plumbing, by applying soapy water over it.
12) Design plumbing circuit so as to provide an ample space for handling tools during later maintenance works.
13) Make sure a check valve is installed to Supply port of Selex valve, 3-position, all closed type, because much more accuracy of intermediate stopping position is achieved once a check valve is added to the supply port of this type valve.
14) Confirm no leakage at the sealed portion between the valve and cylinder.
15) Applicable Solenoid valves
M4F439, M4F539,M4F639,M4F739,

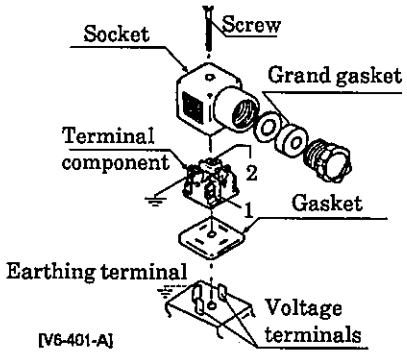


4.2 Operational Cautions of using Manifold Blocks

1) For the system anticipated to actuate 6 or more valves simultaneously, connect Air supply (S) port to both ends of each block and lead exhaust ports to an open air at both end of each block.
2) Each Supply port as well as Exhaust port is provided at both ends of block for easy utilization.
3) In case of driving single-acting cylinder upon mounting 3-position ABR connecting valves on manifolds, use an independently circuited solenoid valve. (This is for the purpose of preventing an adjacent cylinder from popping out due to a back pressure.)

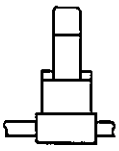
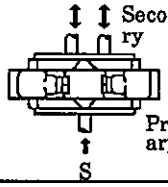
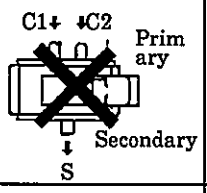
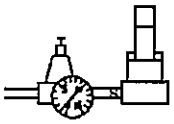
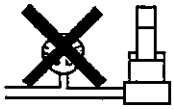
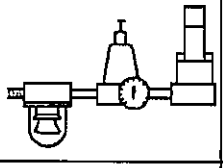
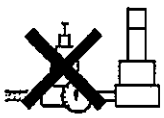
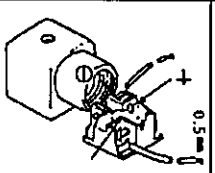
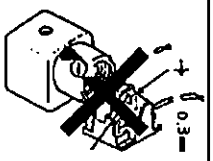
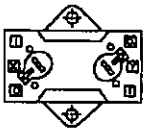
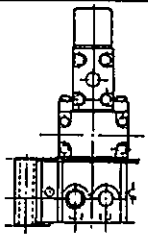
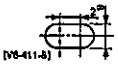
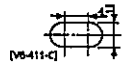
4.3 Wiring

1) Use the wire of 0.5mm2 or above for an electric circuit. Insert the tips of wire through the core and fasten wires onto the terminals of socket respectively. (Terminals 2 and 1 as per illustrated.)



2) Install a 0.5 ~1A fuse in the circuit.
3) It is recommended the use of snap action switch(es) such as relay or magnetic switch to build a circuit.
4)
   (1) Terminal box provided is servicable for 3-pin plug connector, ISC/4400.
   (2) Use the cable of;
      a) Vynil insulated, 600V, C3312, JIS standard,
      b) 0.75 mm^2 or 1.25mm^2, 2 - 3 cores
      c) Cable OD, ø7 ~ ø10
   (3) It is recommended a clamped terminal be used at the tip of each wire to avoid insufficient contact or loosen off.
      (For instances: 1.25Y-3U, 1.25-3.5S, 1.25-4M; ID-M3.5, OD-7mm or smaller)
   (4) Lead wire outlet on the socket of the case is able to be assembled in either one of four direction in the step of 90°.
   (5) Make use the terminal numbered l and 2 as per illustrated to connect wires to DIN terminal.
      Connect ⊕terminal with 1 as well as ⊖ terminal with 2 in case it is DIN terminal with a lamp for DC.

4.4 Installation cares

Item	Right	False	Description
1			Maker sure to blow foreign particles away (air flushing) out of pipes prior to connecting solenoid valve to it.
2			Carefully connect pipings as the direction of air flow is specified. S port
3	0.1 or 0.15~ 1.0 MPa 		Be sure to maintain the primary pressure (Port S) within 1.0 MPa. Install pressure regulator when supplied air pressure tends to be close to the maximum.
4			Install an air filter in an up-stream of regulator to eliminate dust or humidity from getting into line.
5			Use terminals ①and 2 for wiring to DIN terminals. Core of wire to be of 0.5mm² or above.
6	2 	2 	Keep the manual control 0(Off) position unless the control is required because the control is provied with a locking system. Turn the control button to 1(On) position using a piece of coin or a minus tip of a screw driver only when manual control is required.
7			PE port is for exhaust from pilot line. Keep the PE port left open instead of placing a plug. M4F6~7 is open air exhaust type, since there are no Pe ports provided.
8		Manifold Base mpounting screws Recommended M4F4: 4 - long hole  Use 48mm or longer M8 × 60 M4F5:2 - ϕ11, 2 - long hole  Use 54mm or longer M10 × 70 M4F6:4 - ϕ13 Use 67mm or longer M12 × 80 M4F7:4 - ϕ13 Use 67mm or longer M12 × 80	

[V5-411-A]

5. MAINTENANCE

5.1 Disassembling and Assembling

1) 2-postion, Single

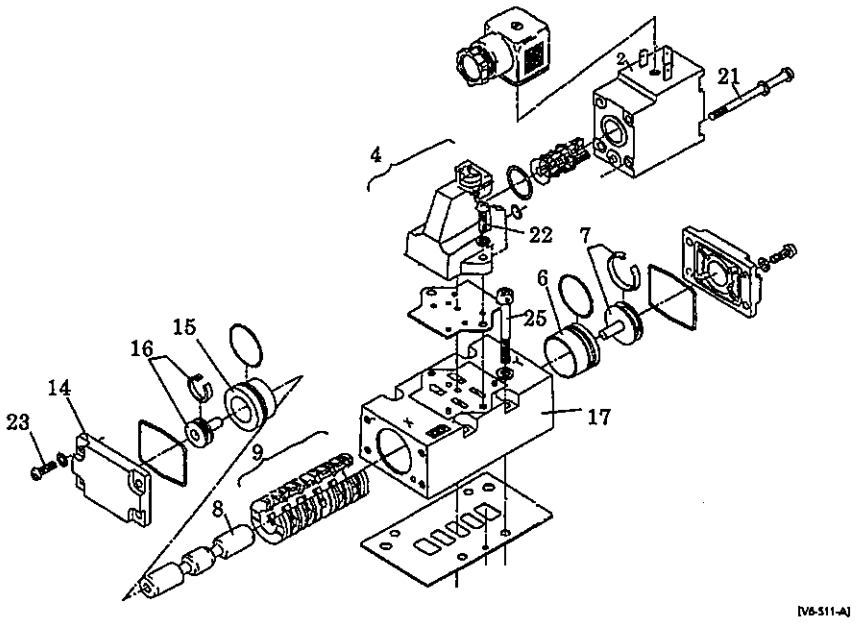
(1) Disassembling the valve

Avoid to be involved with unnecessary eccessively detailed disassembling work unless it is really required to do so because the structural members such as Piston ass'y 7 & 16, Cylinder 6 & 15 and Seal ass'y 9 have specific position and direction of overall assembly.

① Remove mounting screws 21 to disassemble solenoid 2.
② Remove mounting screws 22 to disassemble pilot ass'y 4.
③ Remove mounting screws 23 to disassemble caps 14 at both ends of body.
④ Push cylinder 6 out of Y end of body.
⑤ Push piston 7 toward X end through the bore of body. Then a set of internal structure members such as piston 16, cylinder 15, spool 8 and seal ass'y 9 come out of body 17.
⑥ Remove mounting screws 25 to disassemble body 17.

(2) When ready to start assembling, be sure, to wipe off the surface of spool, piston, interior surface of spool packing etc at where only least amount of dust is expected.

(3) Be sure to coat some grease (silicon grease) on cylinder 6 and 15, piston ass'y 7 and 16, spool 8 and spool packing 9 and then build into body 17.



2) 2-position, Double

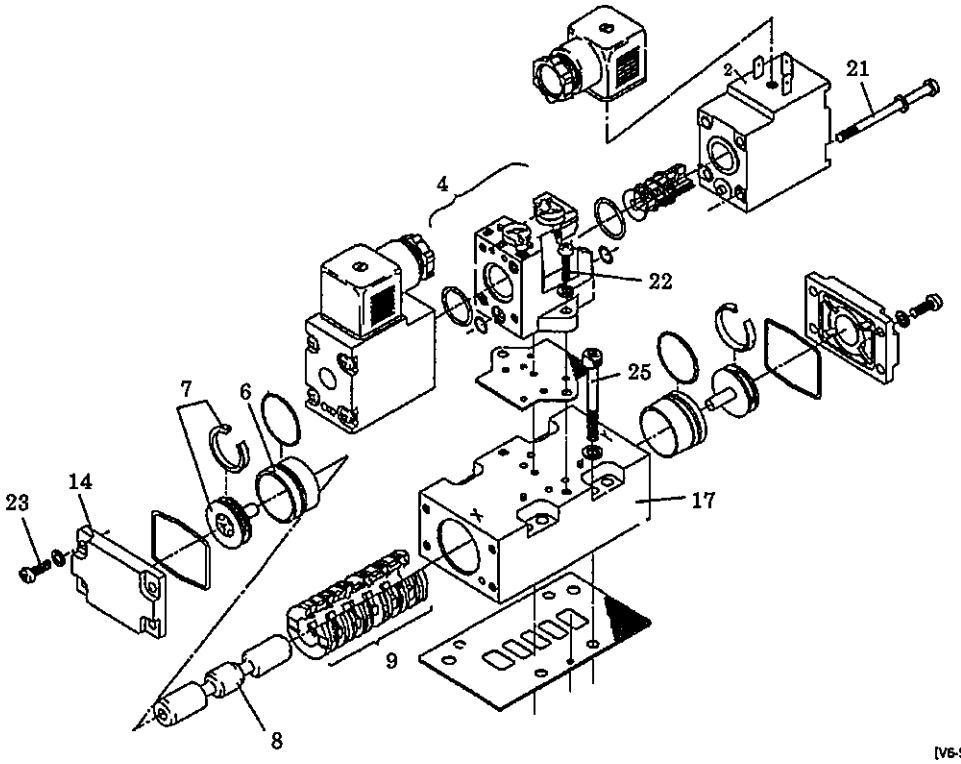
(1) Disassembling the valve

Avoid to be involved with unnecessary eccessively detailed disassembling work unless it is really required to do so because the structural members such as Piston ass'y 7 & 16, Cylinder 6 & 15 and Seal ass'y 9 have specific position and direction of overall assembly.

① Remove mounting screws 21 to disassemble solenoid 2.
② Remove mounting screws 22 to disassemble pilot ass'y 4.
③ Remove mounting screws 23 to disassemble caps 14 at both ends of body.
④ Push cylinder 6 out of Y end of body.
⑤ Applying the Y side piston 7 back to the Y end of seal ass'y 9, push it toward X end through the bore of body. Then a set of internal structure members such as X side piston 7, X side cylinder 6, spool 8 and seal ass'y 9 come out of body 17.
⑥ Remove mounting screws 25 to disassemble body 17.

(2) When ready to start assembling, be sure, to wipe off the surface of spool, piston, interior surface of spool packing etc at where only least amount of dust is expected.

(3) Be sure to coat some grease (silicon grease) on cylinder 6, piston ass'y 7, spool 8 and spool packing 9 and then build into body 17.



3) 3-position valve

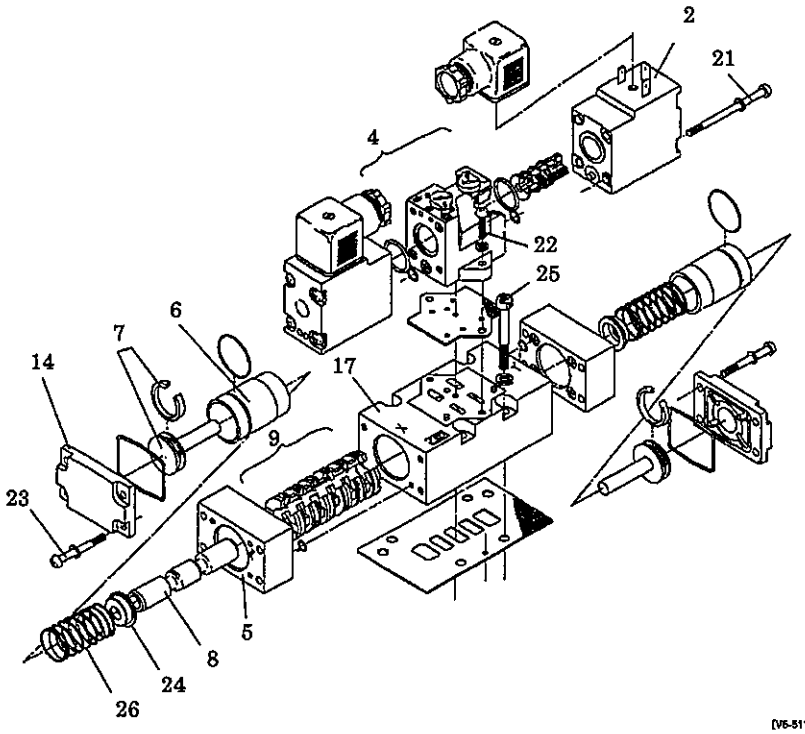
(1) Disassembling the valve

Avoid to be involved with unnecessary eccessively detailed disassembling work unless it is really required to do so because the structural members such as Piston ass'y 7 & 16, Cylinder 6 & 15 and Seal ass'y 9 have specific position and direction of overall assembly.

① Remove mounting screws 21 to disassemble solenoid 2.
② Remove mounting screws 22 to disassemble pilot ass'y 4.
③ Remove mounting screws 23 to disassemble caps 14 at both ends of body.
④ Remove body blocks 5 from both ends of body then cylinder 6, spring 26 and spring seat 24.
⑤ Apply piston 7 back to the Y end of seal ass'y. Push it toward X end through the bore of body. Then a set of internal structure members such as piston 16, cylinder 15, spring 26, spring seat 24, spool 8 and seal ass'y 9 come out of body 17.
⑥ Remove mounting screws 25 to disassemble body 17.

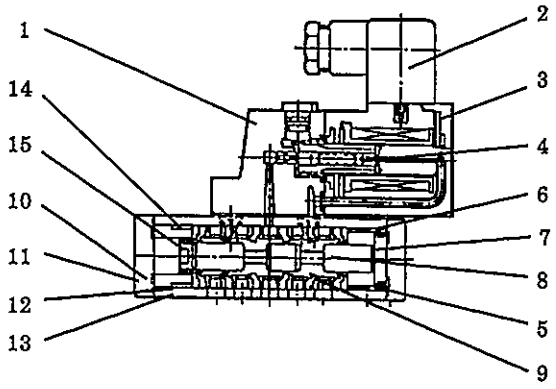
(2) When ready to start assembling, be sure, to wipe off the surface of spool, piston, interior surface of spool packing etc at where only least amount of dust is expected.

(3) Be sure to coat some grease (silicon grease) on cylinder 6, piston ass'y 7, spool 8 and spool packing 9 and then build into body 17 and body block 5.

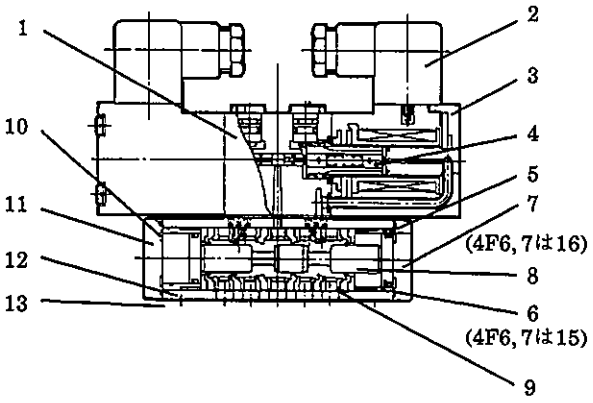


5.2 Internal struature and parts list

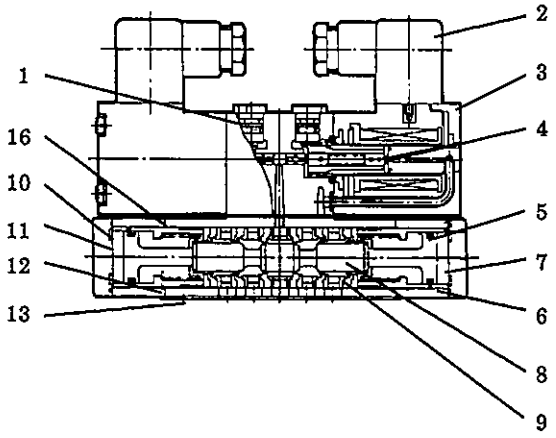
● 2-position, Single solenoid



● 2-position, Double solenoid



● 3-position, All ports block, ABR Connection, PAB Connection



Item No.	Parts name	Material
1	Pilot valve body ass'y	
2	DIN Terminal box	
3	Coil ass'y	EP
4	Plunger ass'y	
5	O Ring	NBR
6	Cylinder	A5056
7	Piston (A) ass'y	
8	Spool	A6063

Item No.	Parts name	Material
9	Seal ass'y	
10	Gasket	NBR
11	Cap	ADC12
12	Body	ADC12
13	Gasket	NBR
14	Cylinder (B)	A5056
15	Piston (B) Ass'y	
16	Body block	ADC12

5.3 Expendable Parts List

Item No. / Parts name / Model number	3	4	7	9	7
	Coil model No.	Plunger ass'y	Piston (A) ass'y	Seal ass'y	Piston (B) ass'y
4F419	4F 4※0 / 5※0 / 6※0 / 7※0 – Wire connecting option symbol – (No marking for DIN Terminal box) Coil – voltage ※1	※1	4F9-104	4F9-106	4F9-103
4F429					—
4F439			4F0-114		—
4F449					
4F559					
4F519			4F9-108	4F9-107	4F9-109
4F529					—
4F539			4F9-115		—
4F549					
4F559					
4F619			4F9-117	4F9-118	4F9-116
4F629			—		
4F639			4F9-122		—
4F649					
4F659					
4F719			4F9-121	4F9-119	4F9-120
4F729			—		
4F739			4F9-123		—
4F749					
4F759					

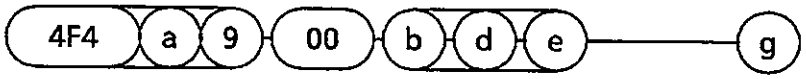
Note : The stocks of expendable parts are kept in the unit of kit.
It is recommended to replace the components in the unit of kit instead of single piece of the parts. Specify the kit number in your purchase order, please.

※1 The contents of Coil model No. (Coil ass'y) include Plunger ass'y.

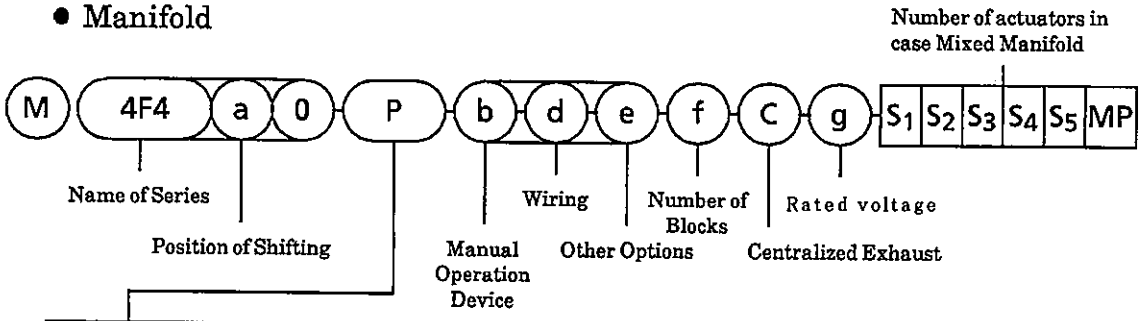
6. MODEL CODING

6.1 M4F4

- Solenoid valve unit to go on Manifold



- Manifold

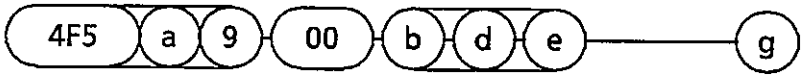


Ⓟ Dia. of Connecting port	
08	Rc 1/4
08Y	Rc 1/4 (Cylinder port on rear of block)

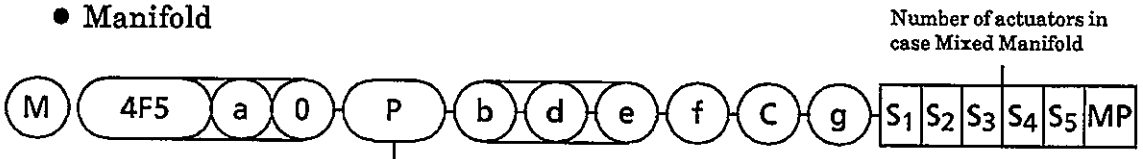
Symbols for Mixmanifolds			
Symbol	Position No. of solenoid	Symbol	Position No. of solenoid
S1	2-Position single	S4	3-Position ABR connection
S2	2-Position double	S5	3-Position PAB connection
S3	3-Position All port blocked	MP	Masking Plate

6.2 M4F5

- Solenoid valve unit to go on Manifold



- Manifold

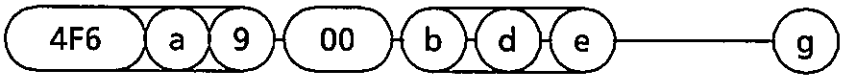


Ⓟ Dia. of Connecting port	
10	Rc 3/8
10Y	Rc 3/8 (Cylinder port on rear of block)

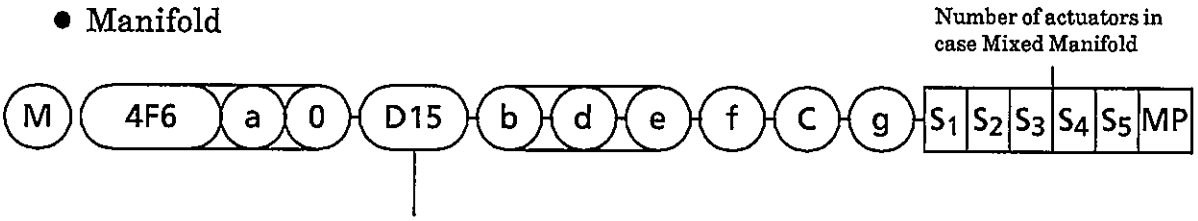
Symbols for Mixmanifolds			
Symbol	Position No. of solenoid	Symbol	Position No. of solenoid
S1	2-Position single	S4	3-Position ABR connection
S2	2-Position double	S5	3-Position PAB connection
S3	3-Position All port blocked	MP	Masking Plate

6.3 M4F6

- Solenoid valve unit to go on Manifold



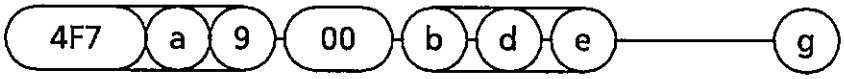
- Manifold



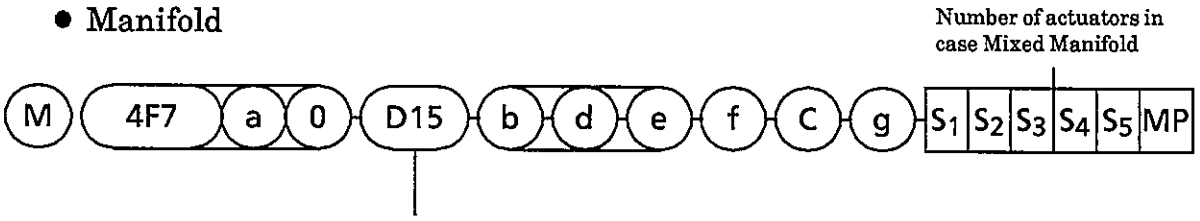
Symbols for Mixmanifolds			
Symbol	Position No. of solenoid	Symbol	Position No. of solenoid
S1	2-Position single	S4	3-Position ABR connection
S2	2-Position double	S5	3-Position PAB connection
S3	3-Position All port blocked	MP	Masking Plate

6.4 M4F7

- Solenoid valve unit to go on Manifold



- Manifold



Symbols for Mixmanifolds			
Symbol	Position No. of solenoid	Symbol	Position No. of solenoid
S1	2-Position single	S4	3-Position ABR connection
S2	2-Position double	S5	3-Position PAB connection
S3	3-Position All port blocked	MP	Masking Plate

ⓐ Solenoid position	
1	2-position, Sing
2	2-position, Double
3	3-position, All port blocked
4	3-position, ABR Connection
5	3-position, PAB Connection
8	Mixed Manifold

ⓑ Manual override	
No marking	Locking type (Standard)
M2	Non-locking
M3	Locking type w/Man. Op. Lever

Principle of Man. Op. is described on page 11.

ⓓ Electric connection		
No marking	DIN Terminal Box	Standard
L	DIN terminal box with indicator light	Option
E	Grommet lead wire	
E1	Conduit lead wire (CTC 19)	
E2	Conduit lead wire (G 1/2)	
F	DIN Terminal Box (G 1/2)	

Principle of Wiring is described on page 14.

ⓒ Other Options	
No marking	Without Option
S	Surge absorber attached

ⓕ Station number	
2	2 stations
⋮	⋮
10	10 stations

ⓖ Rated voltage		
AC100V	100 VAC, 50/60 Hz	Standard
AC200V	200 VAC, 50/60 Hz	
DC24V	24 VDC	
AC110V	110 VAC, 50/60 Hz	Option
AC220V	220 VAC, 50/60 Hz	

AC100V / 200V coil can be used for AC110V / 220V (60Hz).

6.5 Repair kits number

① Indicate a hyphen (−) and "K" after "4F", ⓐ Name of series, ⓑ Positions and type, and "0" for expendable parts kit (Seal ass'y, Piston (A) ass'y, Plunger ass'y and Piston (B) ass'y).

→ 4F510 — K

② Indicate each Kit No. for Seal ass'y. Piston(A) ass'y, Plunger ass'y, Coil ass'y and Piston(B) ass'y by "5.3 Expendable Parts List" in page 20.

→ 4F9 — 106

③ Show the symbol of Coil ass'y as follows
4F4~7※0 -- Wiring option -- Coil Voltage
No marking for DIN terminal box.

④ Gasket to DIN terminal box for 4F1~7
Replace it periodically when operated under high ambient temperature and continuous electric charging, as it apt to have aging progressed.
Code No. of Gasket for DIN Terminal box.: 4F9 - 330