Discontinue

CKD

SM-9407-A

INSTRUCTION MANUAL

SELEX Valve
Reduced Wiring Type

MN4TB $\frac{1}{2}$-T50, T50A, T30, T31, T10

MN4TBX12

- 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.

Discontinue

INDEX

MN4TB $\frac{1}{2}$ -T50, T50A, T30, T31, T10, MN4TBX12

Selex valve reduced wiring type

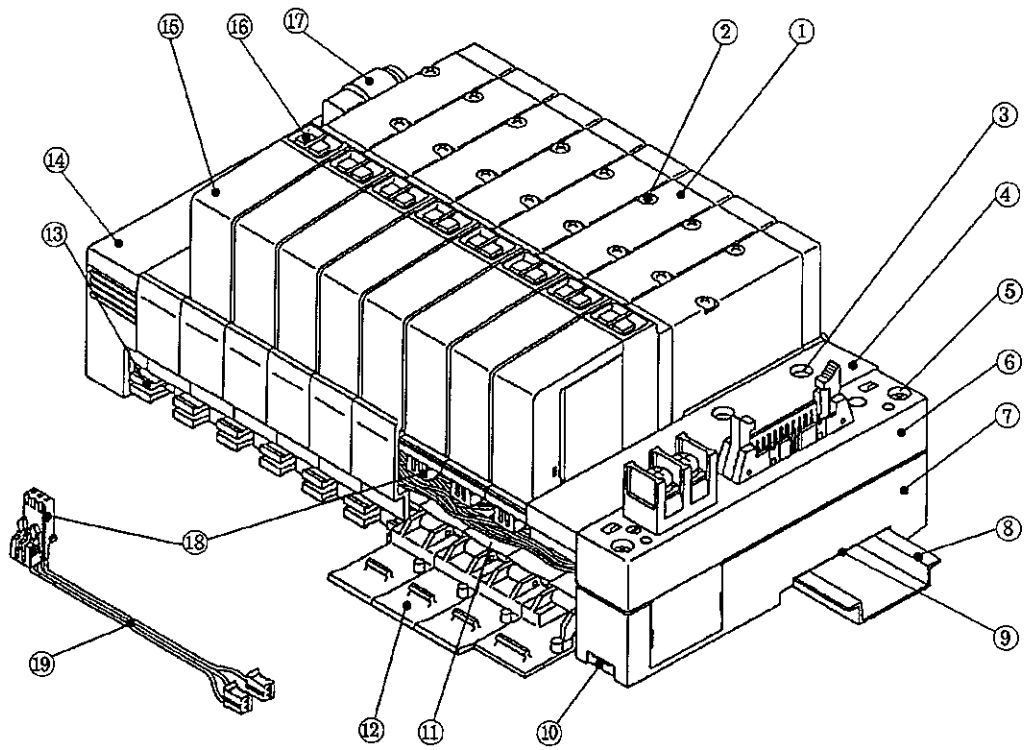
SM 9407-A

Dec.19.1991

Revision : Sep.28.2000

1. PRODUCT

1.1 Components and function



[V6-138-A]

① Valve block with solenoid valve

② Solenoid valve mounting screw

③ Manifold mounting screw

There are two ea. screws on both end blocks for the purpose of mounting all manifold blocks onto DIN rail.

④ End block A

This block is placed in between wiring block and end of solenoid valve group so as to fix all blocks onto DIN rail while plugging ends of common supply port as well as common exhaust port and functions as a connecter to wiring block.

⑤ Wiring block cover mounting screw

Those are for the purpose of fixing cover onto wiring block base.

⑥ Wiring block cover

Printed board with relay connecters is built-in and fixed within this cover to distribute signals respectively to each solenoid valve.

⑦ Wiring block base

⑧ Mounting rail (DIN rail)

⑨ Plate

It is fixed underside of wiring block base and tentatively fixed to end block A.

⑩ Lever

It is set while pushed in to prevent wiring block base from lifting up.

⑪ Wiring duct

Houses cables inside of it.

⑫ Wiring duct cover

it is kept closed to protect cables. Simplified dust proof type.

⑬ Coupling key

It is pushed in to assures firm coupling of adjacent blocks. It makes blocks to be separable when this key is pulled out.

⑭ End block B

This block is placed at the opposite end of clocks from wiring block to fix all blocks onto DIN rail and functions plugging common supply port as well as common exhaust port.

⑮ Lighting cover

Energizing light is lit within white frame end solenoid is energized. Solenoid a and b lights "red" and "amber" respectively when it is energized.

⑯ Manual override

⑰ Air supply or exhaust block

⑱ Valve connecter

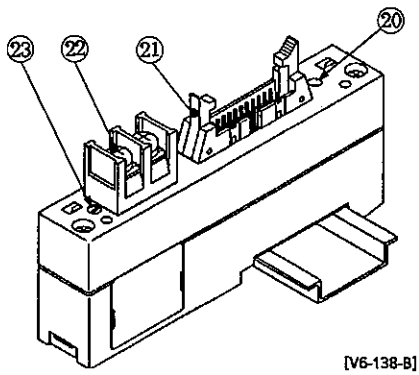
⑲ Valve connecter cable ass'y

It is installed onto valve block and connects solenoid valve and wiring block.

Ass'y is consisted of two relay connecters to correspond solenoid a and b.

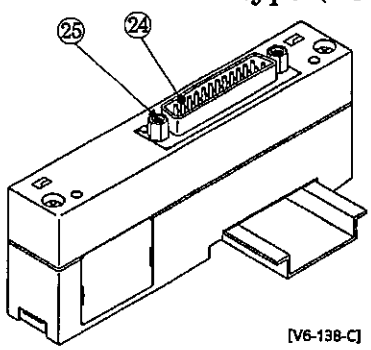
○ Flat cable type (T50)

○ Flat cable w/amplifying circuit type (T50A)



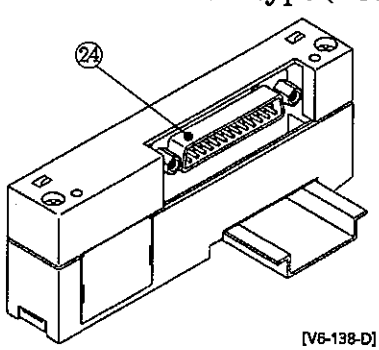
[V6-138-B]

○ D sub-connector type (T30)



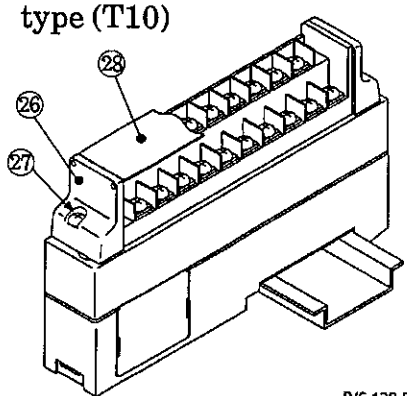
[V6-138-C]

○ D sub-connector type (T31)



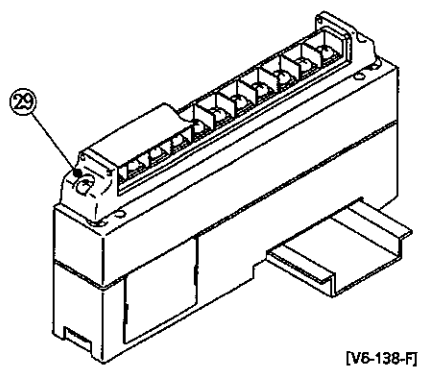
[V6-138-D]

○ Concentrated terminal blocks type (T10)



[V6-138-E]

For 5 blocks or over



[V6-138-F]

For 4 blocks or less

⑳ Source of power lamp
It is lit when connected with right polarity.

㉑ 20-pin connecter
Control terminals of manifold solenoid valve are collectively gathered.

㉒ Terminal blocks for source of power
Those terminals are used when external source is utilized.

㉓ Source of power polarity polarity type

㉔ 25-pin D sub-connector
Control terminals of manifold solenoid valve are collectively gathered.

㉕ Mounting fixture
It is used to fix connector with screw (M2.6)

㉖ Connector type terminal block (20-terminal)
Control terminals of manifold solenoid valve are collectively gathered.
Terminal blocks are able of being either mounted or dismounted.

㉗ Terminal block base mounting screw
Fixes terminal block base onto wiring block cover. Base is removable by loosening screws.

㉘ Protective cover
Terminal number marked paper is inserted.

㉙ Connector type terminal block base (11-terminal)

Discontinue

1.2 Specifications

Manifold specifications

Model / Item	4TB1		4TB2	
Manifold type	Manifold block type			
Applicable solenoid valve	4TB1 series		4TB2 series	
Nos. of blocks	2 blocks up to (Refer to the wiring specification below, as for max. Nos. of			
Sort of manifold	blocks)Common supply, common exhaust			
Ambient temperature °C	5 to 50			
Ambient humi	35 to 85%RH (With no dew)			
Working environment	No corrosive gas existing			
Fluid temperature °C	5 to 50			
Port size	Supply port (P) Exhaust port (R)	Cylinder port (A · B)	Supply port (P) Exhaust port (R)	Cylinder port (A · B)
	Snap joint fixture (ϕ6, ϕ8)	Snap joint fixture (ϕ4, ϕ6, ϕ8)	Snap joint fixture (ϕ8, ϕ10, ϕ12)	Snap joint fixture (ϕ6, ϕ8, ϕ10)
	External pilot port (Optional)	——	External pilot port (Optional)	——
	Snap joint fixture (ϕ6)	——	Snap joint fixture (ϕ6)	——

Solenoid valve specifications

Item	4TB110 2-pos. Single	4TB120 2-pos. Double	4TB130 3-pos. All ports blocked	4TB140 3-pos. ABR connection	4TB150 3-pos. PAB connection
Working fluid	Compressed air				
Operating method	Pilot (Soft spool)				
Min. working pressure MPa	0.15	0.1	0.2		
Max. working pressure MPa	0.7 (when block manifolds are mounted)				
Proof pressure MPa	1.05 (when block manifolds are mounted)				
Effective sectional area mm^2	7		4		3
Response time ms	Less than 20 (at 0.5MPa)		Less than 30 (at 0.5MPa)		
Lubrication	Not required (Use turbine oil class 1, ISO VG32 (#90) when lub. is preferred)				
Protective construction	Dust proof				
Manual override	Non-locking type (Standard)				
Mass g	130	135	140		

Item	4TB210 2-pos. Single	4TB220 2-pos. Double	4TB230 3-pos. All ports blocked	4TB240 3-pos. ABR connection	4TB250 3-pos. PAB connection
Working fluid	Compressed air				
Operating method	Pilot (Soft spool)				
Min. working pressure MPa	0.15	0.1	0.2		
Max. working pressure MPa	0.7 (when block manifolds are mounted)				
Proof pressure MPa	1.05 (when block manifolds are mounted)				
Effective sectional area mm^2	14.5		12		
Response time ms	Less than 20 (at 0.5MPa)		Less than 30 (at 0.5MPa)		
Lubrication	Not required (Use turbine oil class 1, ISO VG32 (#90) when lub. is preferred)				
Protective construction	Dust proof				
Manual override	Non-locking type (Standard)				
Mass g	150	155	160		

● Response time is the value at 0.5MPa, no lubrication while it is ON. The value varies depending on supply pressure and quality of oil when lubricated.

Discontinue

1 PRODUCT

Electricity specifications

Rated voltage V	AC100V50/60Hz	AC200V50/60Hz	DC24V
Inrush current A	0.056/0.044	0.028/0.022	0.080
Holding current A	0.028/0.022	0.014/0.011	
Power consumption (with lamp) W	1.8/1.4	1.8/1.4	1.9
Temperature rise ℃	50		
Voltage fluctuation range	±10%		
Heat-proof class	B		
Surge absorber	Standard		
Indicator	Standard		

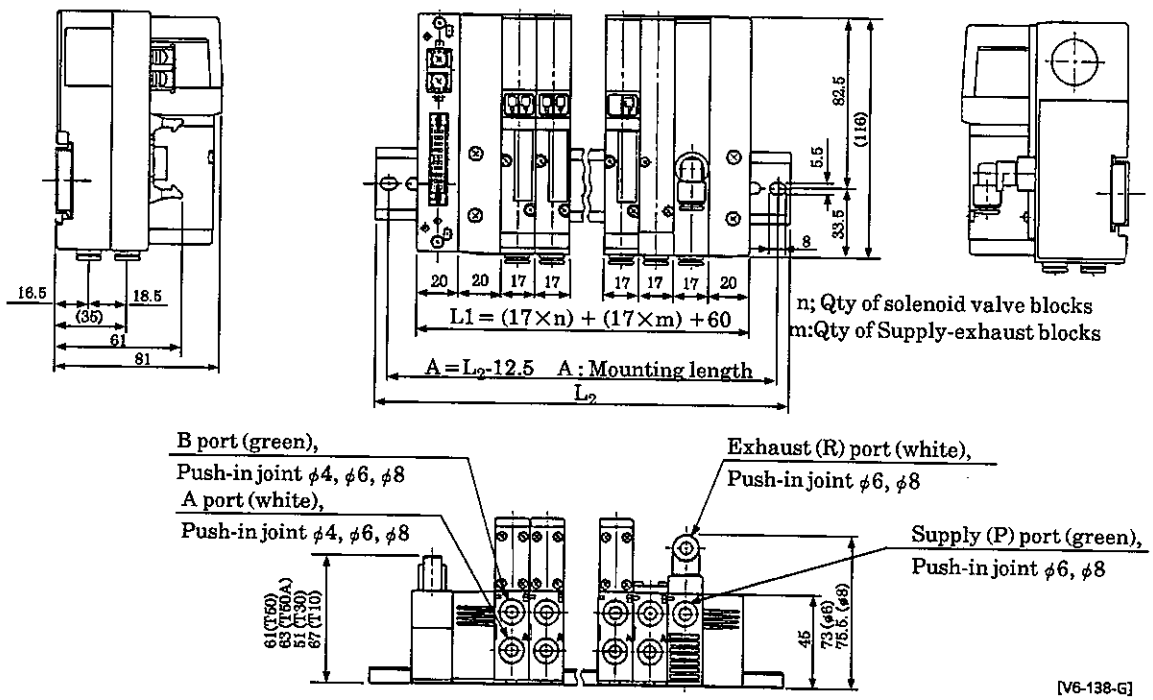
- AC100V·200V coils are serviceable with AC 110·220(60Hz).

Wiring specifications

Item		Max. numbers of blocks			Voltage correspondence			
		Double solenoid	Single solenoid	Mixed manifold (Nos. of solenoid)	AC100V	AC200V	DC24V	DC12V
Concentrated terminal blocks type	T10	9 blocks	9 blocks	9 blocks	○	○	○	○
D sub-connector type	T30 T31	10 blocks	2 0blocks	(20 points)			○	○
Flat cable connector type	T50	8 blocks	16 blocks	(16 points)			○	○
Flat cable w/amplifying circuit type Flat cable connector type	T50A						○	

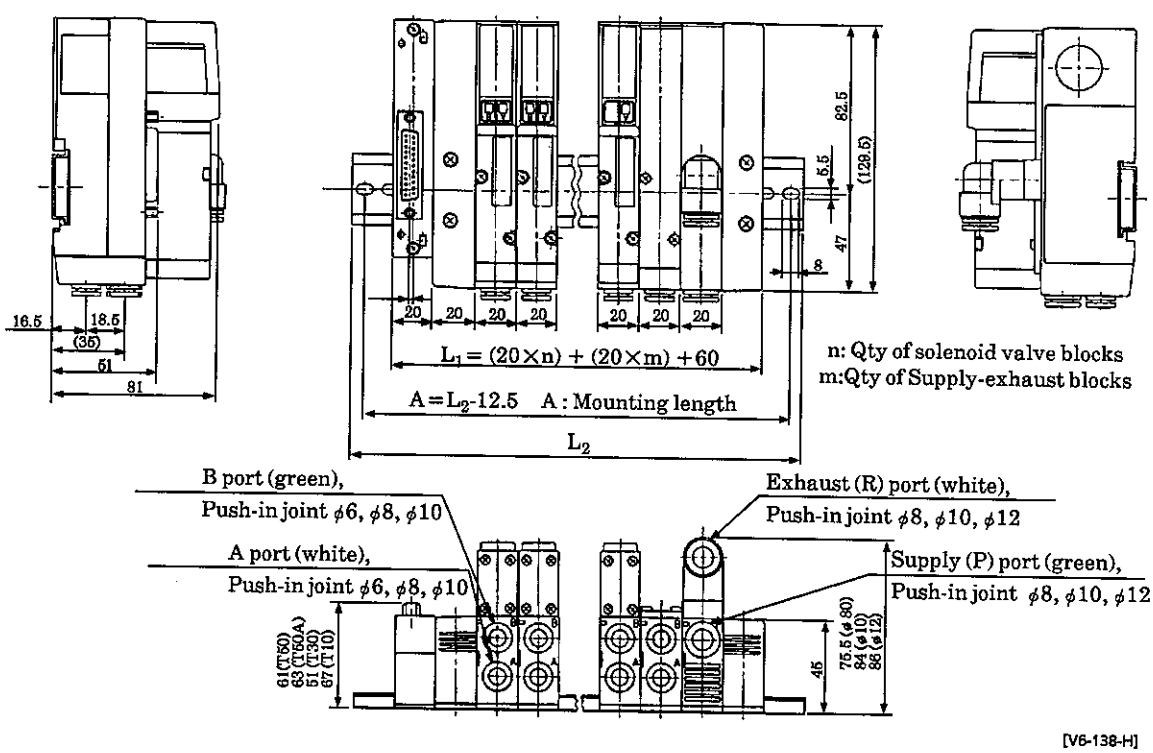
1.3 External dimensions

○ MN4TB1※0 - ※ - ※T※ - ※



Illustrated above is that of T50 type.

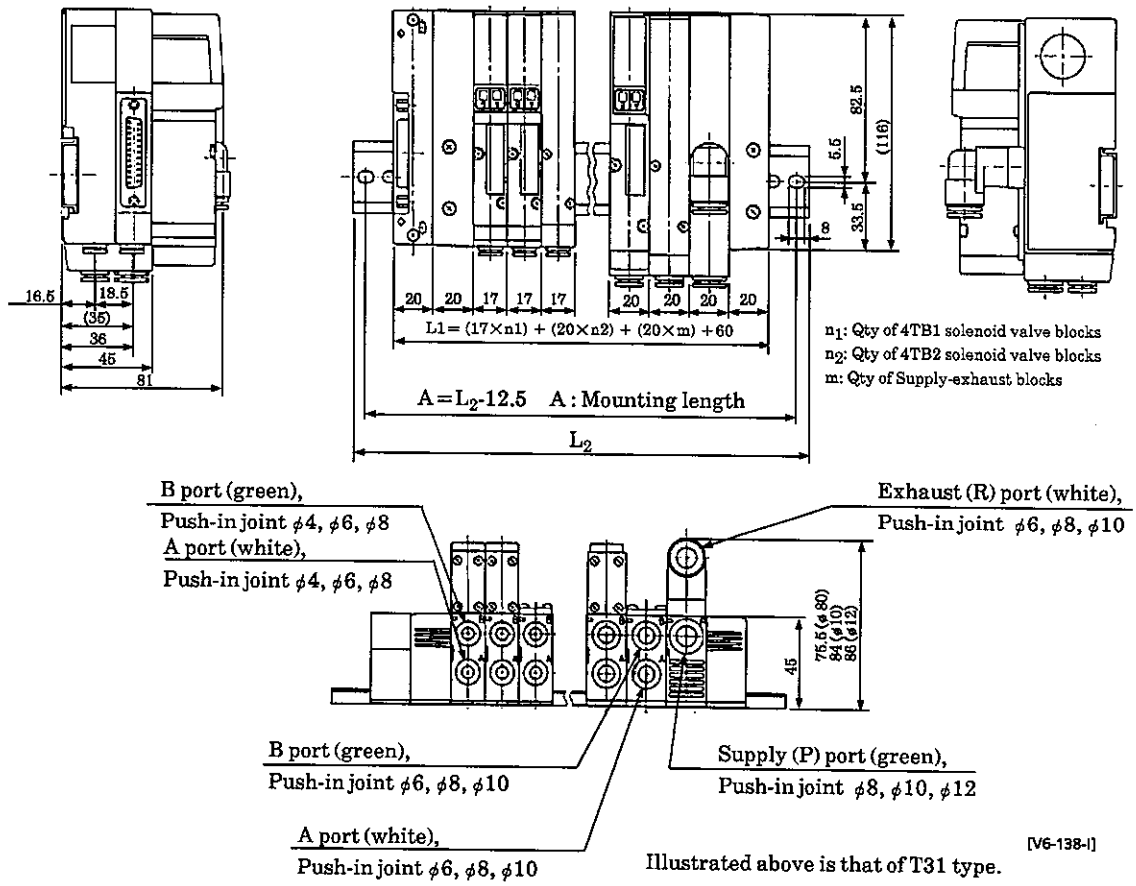
○ MN4TB2※0 - ※ - ※T※ - ※



Illustrated above is that of T30 type.

Discontinue

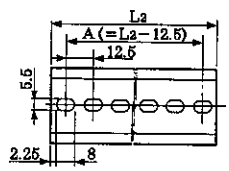
○ MN4TBX12※0 - ※ - ※T※ - ※



[V6-138-I]

Illustrated above is that of T31 type.

○ Selection of DIN rail length



[V6-138-K]

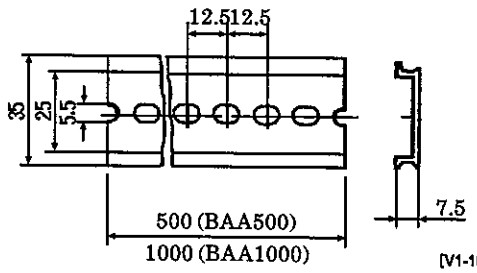
L1:Manifold length		L2:Rail length	A:Installation span
under 110		150	137.5
over 110, under 122.5		162.5	150
122.5	135	175	162.5
135	147.5	187.5	175
147.5	160	200	187.5
160	172.5	212.5	200
172.5	185	225	212.5
185	197.5	237.5	225
197.5	210	250	237.5
210	222.5	262.5	250
222.5	235	275	262.5
235	247.5	287.5	275
247.5	260	300	287.5
260	272.5	312.5	300
272.5	285	325	312.5

L1:Manifold length		L2:Rail length	A:Installation span
285	297.5	337.5	325
297.5	310	350	337.5
310	322.5	362.5	350
322.5	335	375	362.5
335	347.5	387.5	375
347.5	360	400	387.5
360	372.5	412.5	400
372.5	385	425	412.5
385	397.5	437.5	425
397.5	410	450	437.5
410	422.5	462.5	450
422.5	435	475	462.5
435	447.5	487.5	475
447.5	460	500	487.5
460	472.5	512.5	500
472.5	485	525	512.5
485	497.5	537.5	525
497.5	510	550	537.5

For the rail over 510, calculate the required rail length with multiples of 12.5.

1.4 Periferal components

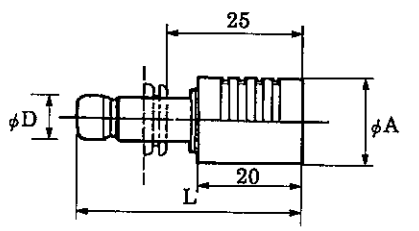
1) Mounting rails (BAA)



[V1-103-A]

Model No,	L
BAA500	500
BAA1000	1000

2) Silencer

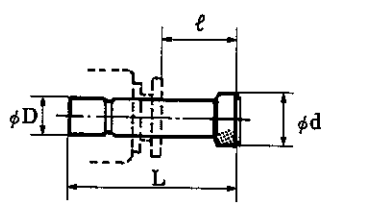


[V1-103-B]

Model No.	D	L	A	S value (mm^2)
SLW-H6	φ6	41	16	8
SLW-H8	φ8	42	16	10
SLW-H10	φ10	53	20	20
SLW-H12	φ12	66	25	30

S value : Effective sectional area.

3) Blanke plug



[V1-103-C]

Model No.	D	L	ℓ	d
GWP4-B	φ4	27	12	6
GWP6-B	φ6	29	12.5	8
GWP8-B	φ8	33	12.5	10
GWP10-B	φ10	38	18	12
GWP12-B	φ12	39	18	14

4) Tubes

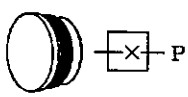
(1) Soft nylon tube F-15Ⓐ
(2) Urethane tube U-95Ⓐ
(3) Hard nylon tube AX-12Ⓐ

It may cause some difficulties to insert tubes or loosing force chucking when the ID of tube is inaccurate or the hardness is not as specified.

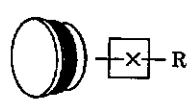
Ⓐ Applicable tube OD	
04	φ4
06	φ6
08	φ8
10	φ10
12	φ12

5) Masking plugs

These are commonly used when plugging port between each block is required for either models of 4TB1 and 4TB2.



NCP



NCR [V6-138-J]

Model code	Description
N4TB-NCP	Supply port exclusive
N4TB-NCR	Exhaust port exclusive

2
CAUTION

2. CAUTIONS

2.1 Cautions at Operation

1) Environmental conditions

(1) Within the area of much dust or floating foreign particles, mount either silencer or elbow joint to R (Exh.) port keeping its open end downward to provide protective measurement of keeping those foreign particles from falling into R port.

(2) Instead of leaving water dripping over the solenoid, either provide a cover or install the solenoid within a panel box.

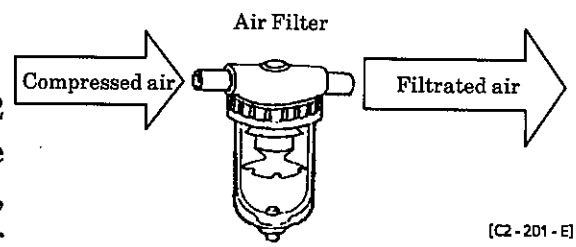
2) Installation auxiliary equipment

(1) Filter

Select a filter element of 5μm or smaller.

(2) Lubricator

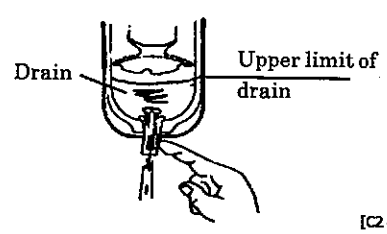
Both 4TB1 series and 4TB2 series do not particularly require lubrication. (Use Turbine oil, Class 1, ISO VG32 (#90) or equivalent, if and when lubrication is preferred.)



[C2-201-E]

3) Drain the sludge

Much sludge (such as condensed humidity, oxide oil, tarry material and foreign particles) apt to be contained within the compressed air which destructs the reliability of pneumatic equipment remarkably. Consider the following remedies of removing such sludge.



[C2-201-F]

- Improving the quality of compressed air

  Dehumidifying by use of after-cooler dryer, removing foreign particles by use of air filter, removing tarry accumulation by use of tar removal filter, etc.

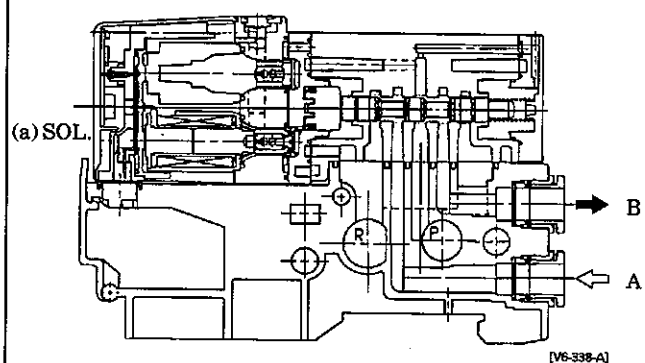
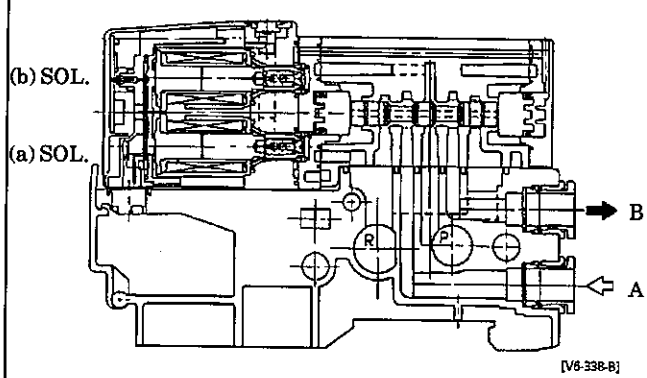
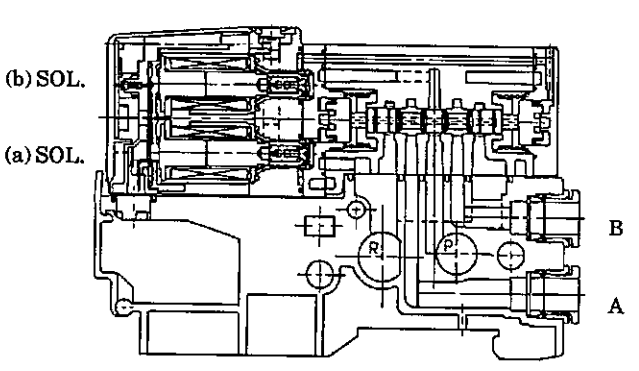
4) Super dry air

It is recommended to adopt DC driven solenoid valve when super dry air is intended to operate the unit because it may shorten service life of unit.

3. OPERATION

3.1 Actuation

1) Single unit actuation

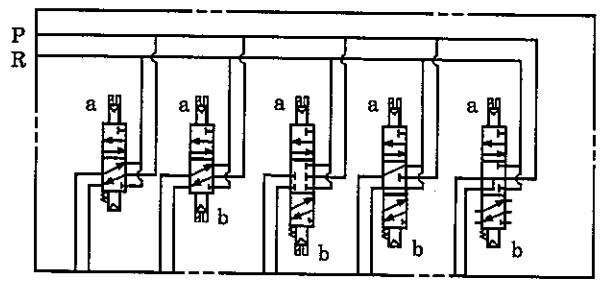
	Illustration of Operation	Explanation of Operation
4TB110 4TB210	 Illustrated above is that of 4TB110.	De-energized (Illustrated) P→B A→R Energized P→A B→R
4TB120 4TB220	 Illustrated above is that of 4TB120.	Due to the structure concentrating two solenoid valves to one side of body by unitedly molding them, general appearance of unit looks alike to that of single solenoid valve. Two valves are lined in raw, upper and lower, and upper deck is named Solenoid (b) as well as lower deck is named Solenoid (a). (a) When Sol (a) is energized P→A B→R (b) When Sol (b) is energized (Illustrated) P→B A→R It self-holds shifted position even after
4TB130 4TB230	 Illustrated above is that of 4TB130.	When de-energized P, A, B, R closed ※1
4TB140 4TB240		When de-energized P is closed. A, B→R ※1
4TB150 4TB250		When de-energized P→A, B R is closed

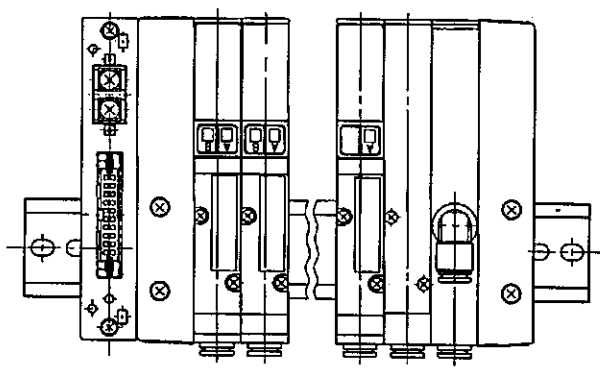
※1 Refer to the case of 4TB120, 4TB220 when each Sol (a) and Sol (b) is energized.

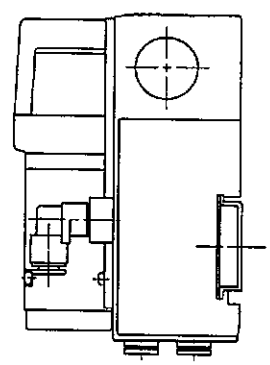
2) Manifold actuation

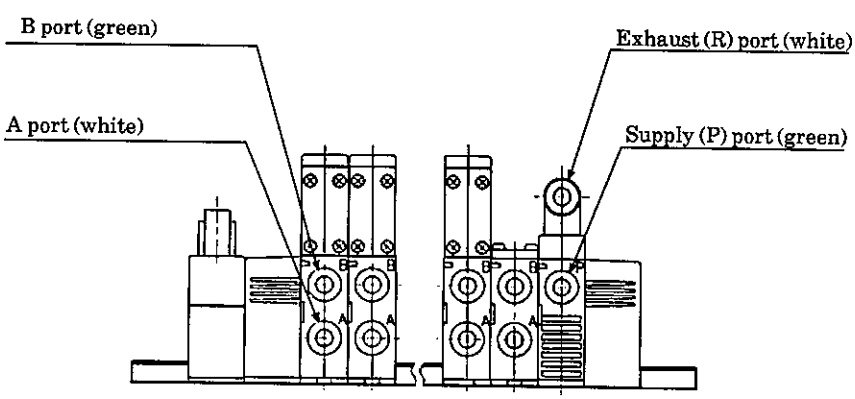
Both main exhaust R_1 & R_2 and pilot exhaust port are discharged through common exhaust port.

Pneumatic circuit diagram









Illustrated above is that of 4TB1.

3.2 Operation

1) The range of working pressure

Always keep working pressure above specified, confirming the lowest limit of it including the case of pressure drop, due to it being internal pilot type solenoid valve. Rather use the one with external pilot type in case pressure drop is suspected to exceed the lowest limit.

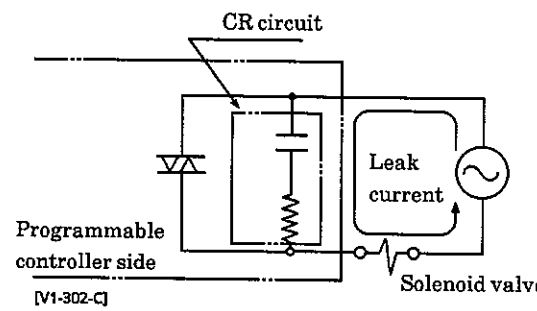
(Refer to Paragraph 4.3 .)

	Min. working pressure MPa
4TB110 · 4TB210	0.15
4TB120 · 4TB220	0.10
4TB130 · 4TB230	0.20
4TB140 · 4TB240	
4TB150 · 4TB250	

2) Solenoid valve

- Leak current control

Keep confirmed that the leak current out of programmable controller output stays within the following specification, when operating solenoid valve by programmable controller to prevent wrong actuation.



DC24V Less than 1.8mA
AC200V Less than 1.5mA
AC100V Less than 3 mA

- Working voltage

Coils for AC100V, 200V (50/60Hz) are serviceable with AC110V, 220V (60Hz).

- Continuous energizing

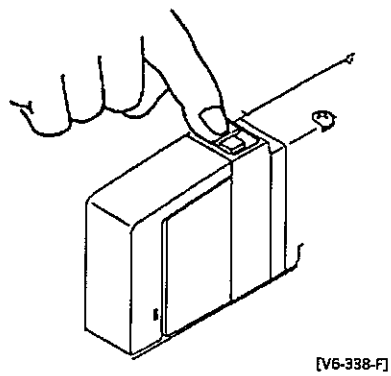
Give remedy of radiating heat when installing unit within control box or operating unit with long energizing hours, because it is apt to generate quite some volume of heat.

3) Manual override

- Manually operation device

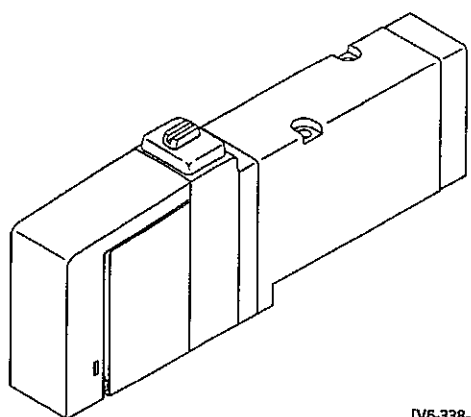
Main valve will not be shifted with this device, unless compressed air is supplied through pilot line supply port (P), due to it being pilot operated type solenoid valve.

- Non-lock type manual override
  Press operating button down to it hitting the bottom. As for 3-position single solenoid valve, it generates as the same effect as if it is energized, while the button is being pressed down and retracts when button is released. 2-position double solenoid valve on the contrary generates as the same effect as if solenoid coil A(B) is energized when Button A (B) is pressed down but does not retract even when the button is released. Press B (A) button down to make it retract.

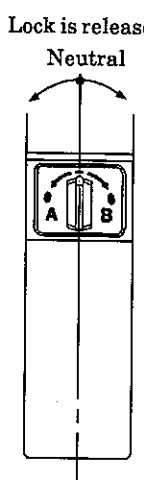


[V6-338-F]

- Lock type manual override
  Valve A(B) generates as the same effect as if it is energized when the knob is turned for approx. 90°, by either screw driver or fingers, toward the direction of A(B).
  Center position of knob, for 3-position type, is neutral position.
  Avoid forcible turning the knob beyond locking position to prevent its damage.
  Also, make it sure to release the locking before starting regular operation.



[V6-338-G]



[V6-338-H]

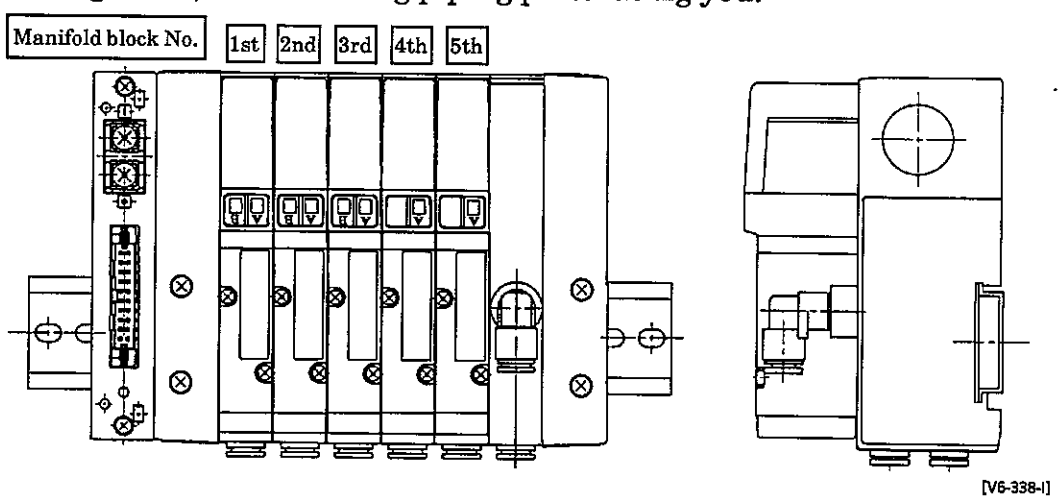
4) Response time
- Supply pressure
  Response time posted in catalog is the one when energized with no lubrication at pressure of 0.5MPa.
- Lubrication
  It may some time be caused delayed response time in case when the volume of lubricant is excessive or working pressure is remarkably low.

3.3 Correspondence between Connector pin No. and valve

1) Table of correspondence of connector pin No. with solenoid Nos.
There are no open numbers allocated to solenoid valve beginning from No. 1 matching with manifold specifications regarding with connector pins for types T50, T50A, T30 and T31.

2) To meet requirement of revising valve specifications, either double or single solenoid valve is serviceable to those block numbers with ○● markings on the following tables and the pin number with ●marking is left open when single solenoid valve is connected.

3) Manifold number starts from left end block, regardless the location of wiring block, while holding piping ports facing you.



● Flat cable type (T50 & T50A)

○ For single solenoid valve

	Connector pin No.															
	1	2	3	4	5	6	7	8	11	12	13	14	15	16	17	18
1st	○															
2nd		○														
3rd			○													
4th				○												
5th					○											
6th						○										
7th							○									
8th								○								
9th									○							
10th										○						
11th											○					
12th												○				
13th													○			
14th														○		
15th															○	
16th																○
Marking	○ SOL. (a) side / ● SOL. (b) side															

Corresponds up to 16 blocks of manifolds.

○ For double solenoid valve

	Connector pin No.															
	1	2	3	4	5	6	7	8	11	12	13	14	15	16	17	18
1st	○	●														
2nd			○	●												
3rd					○	●										
4th							○	●								
5th									○	●						
6th											○	●				
7th													○	●		
8th															○	●
9th																
10th																
11th																
12th																
13th																
14th																
15th																
16th																
Marking	○ SOL. (a) side / ● SOL. (b) side															

Corresponds up to 8 blocks of manifolds.

○ For mixed type (composite with single and double)

	Connector pin No.															
	1	2	3	4	5	6	7	8	11	12	13	14	15	16	17	18
1st	○															
2nd		○														
3rd			○	●												
4th					○	●										
5th							○									
6th								○								
7th									○	●						
8th											○					
9th												○				
10th													○	●		
11th															○	●
12th																
13th																
14th																
15th																
16th																
Marking	○ SOL. (a) side / ● SOL. (b) side															

The table, left, indicate corresponding relation between pin Nos.and solenoid on 11-block manifold when installing single solenoid onto blocks No. 1, 2, 5, 6, 8 & 9 while installing double solenoid (including 3-position valve) onto other blocks, as an example of mixing installation of single and double valved.

Corresponds up to 16 points of solenoids.

● Sub-connector type (T30 & T31A)

○ For single solenoid valve

	Connector pin No.																			
	1	14	2	15	3	16	4	17	5	18	6	19	7	20	8	21	9	22	10	23
1st	○																			
2nd		○																		
3rd			○																	
4th				○																
5th					○															
6th						○														
7th							○													
8th								○												
9th									○											
10th										○										
11th											○									
12th												○								
13th													○							
14th														○						
15th															○					
16th																○				
17th																	○			
18th																		○		
19th																			○	
20th																				○
Marking	○ SOL. (a) side / ● SOL. (b) side																			

Corresponds up to 20 blocks of manifolds.

Discontinue

○ For double solenoid valve

	Connector pin No.																			
	1	14	2	15	3	16	3	17	5	18	6	19	7	20	8	21	9	22	10	23
1st	○	●																		
2nd			○	●																
3rd					○	●														
4th							○	●												
5th									○	●										
6th											○	●								
7th													○	●						
8th															○	●				
9th																	○	●		
10th																			○	●
11th																				
12th																				
13th																				
14th																				
15th																				
16th																				
17th																				
18th																				
19th																				
20th																				
Marking	○ SOL. (a) side / ● SOL. (b) side																			

Corresponds up to 10 blocks of manifolds.

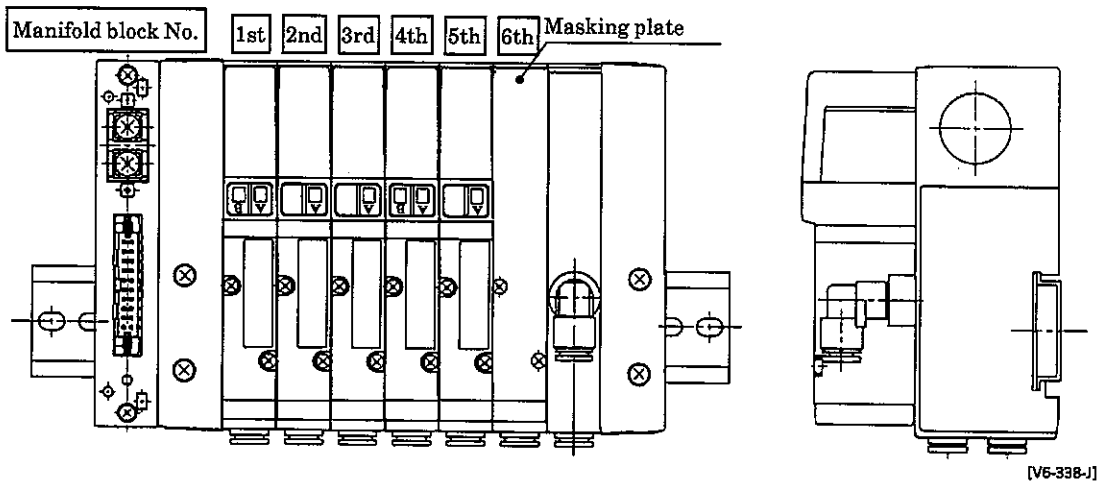
○ For mixed type (composite with single and double)

	Connector pin No.																			
	1	14	2	15	3	16	4	17	5	18	6	19	7	20	8	21	9	22	10	23
1st	○																			
2nd		○																		
3rd			○	●																
4th					○	●														
5th							○													
6th								○												
7th									○	●										
8th											○									
9th												○								
10th													○	●						
11th															○	●				
12th																	○	●		
13th																			○	●
14th																				
15th																				
16th																				
17th																				
18th																				
19th																				
20th																				
Marking	○ SOL. (a) side / ● SOL. (b) side																			

The table, left, indicate corresponding relation between pin Nos.and solenoid on 13-block manifold when installing single solenoid onto blocks No. 1, 2, 5, 6, 8 & 9 while installing double solenoid (including 3-position valve) onto other blocks, as an example of mixing installation of single and double

Corresponds up to 20 points of solenoids.

4) Wiring to correspond double solenoid has been provided to valve block with masking plate, in advance. Remember this block also takes two pin numbers to eliminate erroneous assignment.



	Connector pin No.															
	1	2	3	4	5	6	7	8	11	12	13	14	15	16	17	18
1th	○	●														
2th			○													
3th				○												
4th					○	●										
5th							○									
6th								○	●							
7th																
8th																
9th																
10th																
11th																
12th																
13th																
14th																
15th																
16th																
Marking	○ SOL. (a) side / ● SOL. (b) side															

Masking plate

Table, left, indicates corresponding pin No. and solenoid when a masking plate is installed onto block No. 6
There is a wiring on the 6th block corresponding to double solenoid valve.,

5) Refer to the Paragraph 4.5.4 "Wiring" concerning with Concentrated terminal base type units. (T10).

4. INSTALLATION

4.1 Piping

1) Piping tubes

Push-in joint fixtures are provided on all Air supply-exhaust blocks and valve blocks with solenoid valve. Make use of tubes as follows

- Piping tubes for air supply and exhaust.

Soft nylon tubes	F-1506 (ϕ6 × ϕ4)
	F-1508 (ϕ8 × ϕ5.7)
	F-1510 (ϕ10 × ϕ7.2)
	F-1512 (ϕ12 × ϕ8.9)
Urethane tube	U-9506 (ϕ6 × ϕ4)
	U-9508 (ϕ8 × ϕ5)
	U-9510 (ϕ10 × ϕ6.5)
	U-9512 (ϕ12 × ϕ8)

- Piping tubes for valves.

Soft nylon tubes	F-1504 (ϕ4 × ϕ2.5)
	F-1506 (ϕ6 × ϕ4)
	F-1508 (ϕ8 × ϕ5.7)
	F-1510 (ϕ10 × ϕ7.2)
Urethane tube	U-9504 (ϕ4 × ϕ2)
	U-9506 (ϕ6 × ϕ4)
	U-9508 (ϕ8 × ϕ5)
	U-9510 (ϕ10 × ϕ6.5)

Pay enough cautions to select appropriate wall thickness and hardness when intending to use commercially available tubes. As for urethane tube, select hardness more than 93° (Rubber hardness gage)

Tubes which do not meet OD tolerance and required hardness may cause slipping off the fixture due to loss of chucking force or makes it difficult to insert over fixture.

OD tolerance

Soft·hard nylon	±0.1mm
Urethane ϕ6	+0.1mm
	−0.15mm
ϕ8, ϕ10, ϕ12	+0.1mm
	−0.2mm

Wall thickness of tubes

Tube O.D. (mm)	Tube I.D. (mm)	
	Nylon	Urethane
ϕ4	ϕ2.5	ϕ2.5
ϕ6	ϕ4	ϕ4
ϕ8	ϕ5.7	ϕ5
ϕ10	ϕ7.2	ϕ6.5
ϕ12	ϕ8.9	ϕ8

2) Inserting tube over fixture
Insert the tube over up to the deepest part of push-in type joint fixture.

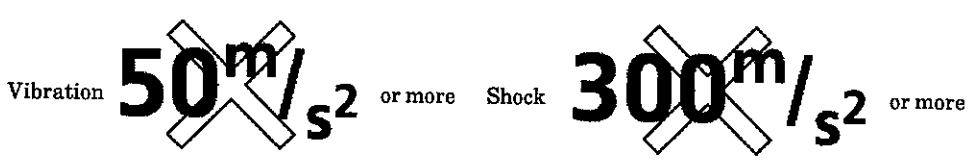
3) Bending radius of tube
Keep bending radius of tube more than specified min. radius on the following table. (Otherwise, it may cause slipping off or air leakage.)

Tube diameter	Min. Tube bending radius (mm)	
	Nylon	Urethane
ϕ4	10	10
ϕ6	20	20
ϕ8	30	30
ϕ10	40	40
ϕ12	55	50

4) Avoid such usage as discharging A or B port to an open air by choking supply port (P).

5) Make sure that there is no leakage from tubing between solenoid valve and cylinder particularly when using 3-position, all port blocked models such as 4TB130 OR 4TB230. and also see to that cylinder has no leakage through rod packing and piston packing. Cylinder may rather keep moving instead of stopping in the position when there is leakage.
It may be advisable, however, to use cylinder with brake where there is requirement of holding cylinder long in an intermediate stopping position or retaining repeating accuracy.

6) There is no restriction of mounting posture of solenoid valve. It is still recommended to install the unit on a flat and horizontal surface. Avoid installation of the unit where there is vibration more than 50m/s^2 or shock more than 300m/s^2.



4.2 Cautions at manifold operation

1) Supply air and exhaust air to and from valve is carried out through Ex-supply block. Select appropriate block referring the following table to operate number of blocks simultaneously per block In some case, it may be advisable to install Ex-supply port block at both ends of manifold train taking Supply air pressure (P) through every port as well as exhausting every exhaust (R) to open air.

Model name / Series name / Joint			Valve block with solenoid valve					
			4TB1 1NSS※			4TB2 2NSS※		
Series name		Joint	H4	H6	H8	H6	H8	H10
Supply / Exhaust port block	4TB1 1NQS※	H6	4	3	2			
		H8	9	6	4			
	4TB2 2NQS※	H8	—	—	—	3	2	—
		H10	14	9	6	4	3	2
		H12	20	13	8	5	4	3

- Figures in respective cell indicate max. No. of valves operable simultaneously per Ex-supply block
- [ ] indicate the mixed manifold specifications with varying size of Model 4TB1 and 4TB2.

2) Supply port (P) as well as exhaust port (R) may be located anywhere freely but pay precaution to prevent direct exhausting air to connecting part of wiring block.

3) Adjacent cylinder sometimes pops out due to back pressure when operating single acting cylinder with 3-position, A·B·R connection (4TB140, 4TB240) to manifold or 3-port type operation. Take either one of the following remedies to prevent this incident.

- Make use supply port and exhaust port one step larger.
- Increase numbers of blocks appropriately.
- Use masking plug to make exhaust port independent

Refer to paragraph 5.2 regarding to increasing blocks or application of masking plug.

4.3 Environmental conditions

1) Within the area of much dust or floating foreign particles, mount either silencer or elbow joint to R port keeping its open end down ward to provide protective measurement of keeping those foreign particles from talling into R port.

2) Instead of leaving water dripping over the solenoid, either provide a cover or install the solenoid within a panel box.

4.4 External pilot line

1) External pilot line is recommended for one of the following cases.

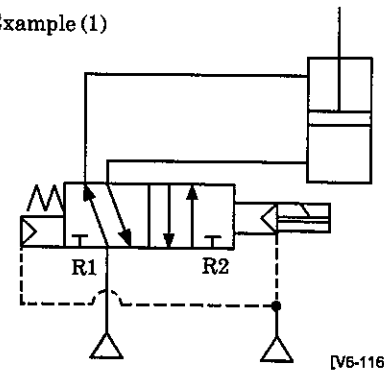
(1) Operation of unit with lower pressure than min. working pressure

(2) Influence to internal pilot line is suspected due to A·B port discharge to an open air (Blow circuit) by some inevitable reasons.

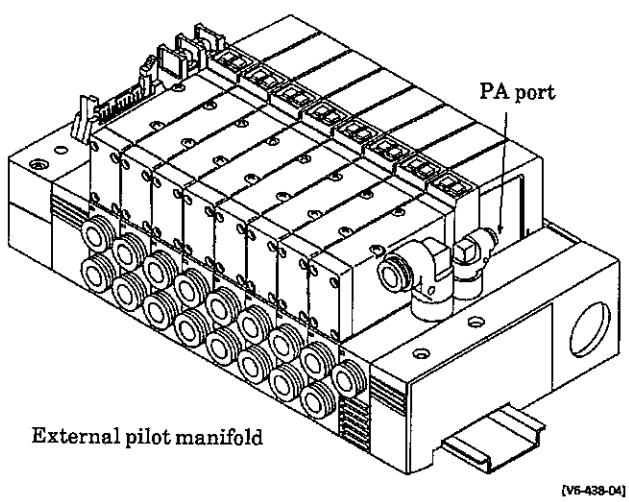
Make sure, however, to supply air to PA port with more than 0.2MPa.

For the case of (1) above, take tubing from circuit far apart from blow circuit end.

Example (1)

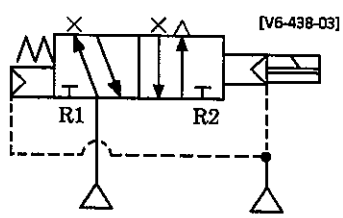


P1 = Less than 0.5MPa PA = More than 0.2MPa



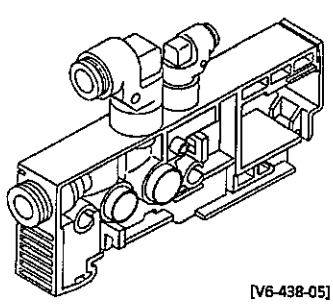
External pilot manifold

Example (2)

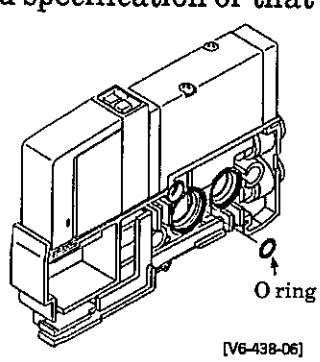


PA = More than 0.2MPa

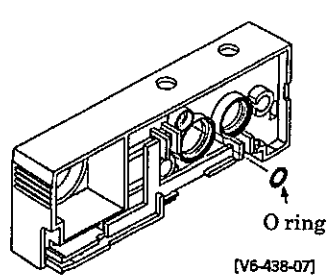
2) External specification should be applied to whole manifold base when external pilot actuation is required. Solenoid valve itself is able to be operated by either standard specification or that of external pilot.



Supply and exhaust block for external pilot operation



Valve block for external pilot operation

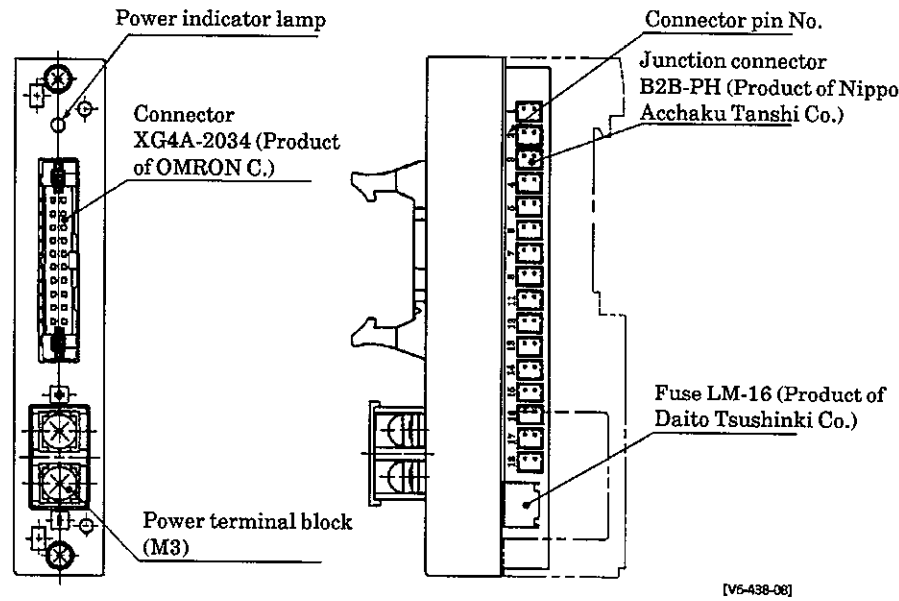


End blocks (2 ea) for external pilot

4.5 Wiring

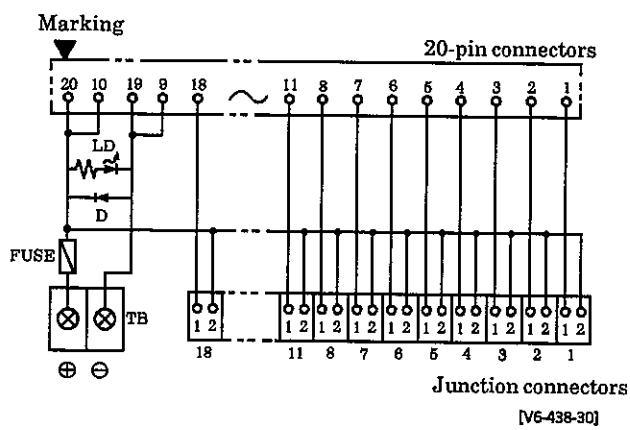
1) Flat cable type (T50)

(1) External appearance

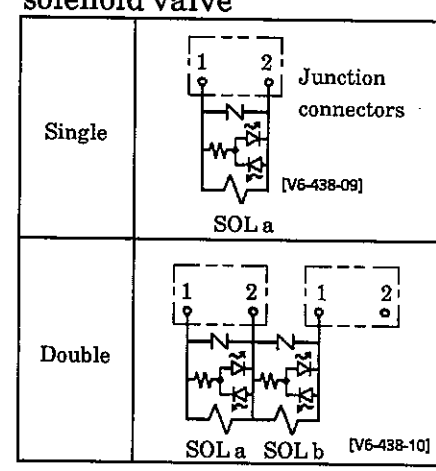


(2) Circuit architecture

Internal circuit diagram of Wiring block

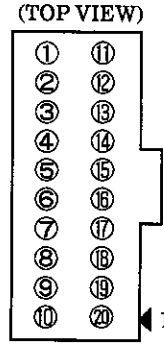


Internal circuit diagram of solenoid valve



(3) Connector pins arrangement

(TOP VIEW)



No. 1 to 8	Signal pins
No. 11 to 18	Signal pins
No. 9, 19	Power ⊖ pin
No. 10, 20	Power ⊕ pin

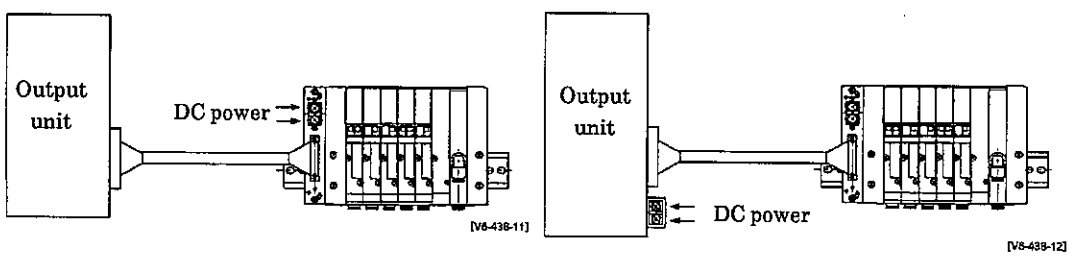
Connector pins Nos. are just tentatively assigned for convenience sake Refer to order of function allocation by each PC manufacturer starting the pin marked (▲) and verify it prior to connection

(4) Power source supply

These power terminals are only made use of only when external power connection is required. Supply power to either wiring block or Input-output unit referring to the illustration at right. Power indicator light is lit when wired right.

Verify polarity marking on the cover to eliminate erroneous wiring as it may cause fuse burning out.

M3×6 screws are arranged to terminal blocks. Use clamped terminal metal piece of 6.4mm wide or less for M3 screw. and apply tightening torque of 0.3 to 0.5 N·m to fix it.

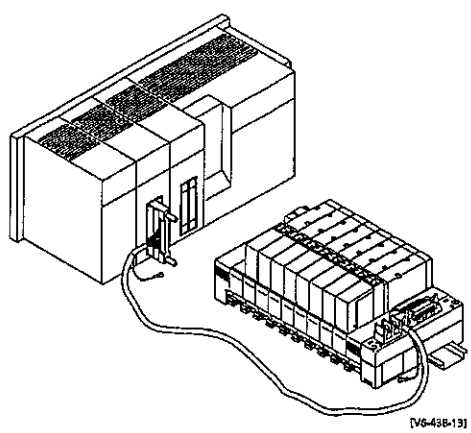


In this case the fuse on wiring block side does not function becoming out of circuit

(5) How to connect with PC

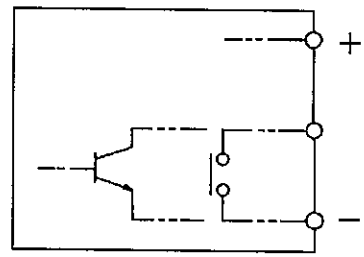
ⓐ So far as the following units are able to be connected directly with Output unit using exclusively designed cable. Carefully make combination and select correct exclusive cable specified by PC manufacturers so as to prevent vital troubles to equipment within the system

Manufacturers	Model code of PC	Model code of connecting cable
OMRON Co. Ltd.	C200H-0D215 C500-0D415CN	G79-□C
	C500-0D213	G79-0□DC-□
Matsushita Denko Co., Ltd.	AFP33484	AY15133 to 7
	AFP53487	AY15223 to 7
Izumi Denki Co. Ltd.	PF3S-T32K	Same spec. with that of OMRON



ⓑ Carefully varify signal line, power line within a cable to wire output unit other than PC posted above. Pin arrangement, in particular, differes depending on manufacturers or models even though connectors appear alike. Confirm wiring is right.

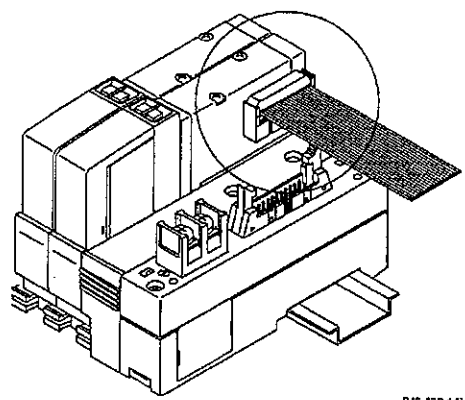
As for output unit, select the type of either with contact points between one side of power unit and output unit or NPN



[V1-407-O]

(6) Building cable

When connecting cable is to be built peculiarly, it is recommended to use the following equipment at valve side. There may be occasions of coupling fixture do not match, although many other equipment are serviceable with this unit due to it being conformity to MIL specification (MIL-C-83503). In such case, fix the lock lever using tie-bands.


[V6-438-14]

Socket	XG4M- 2030
Strain Relief	XG4T- 2004
Individual wire pressed with adhesive bond	XG5M- 2032
Individual wire pressed with adhesive bond	XG5M- 2035

(7) Cable

Either flat type cable or multiple fine cores cable is generally used for the unit of this type. Carefully handle this type of cable as mechanical strength and electric capacity are subtle.

- Be sure to provide a certain radius at bending part of flat cable.
- Pay particular attention against voltage drop in the portion of cable due to cable having high resistance. (AWG28 Approx. 0.22Ω/m)

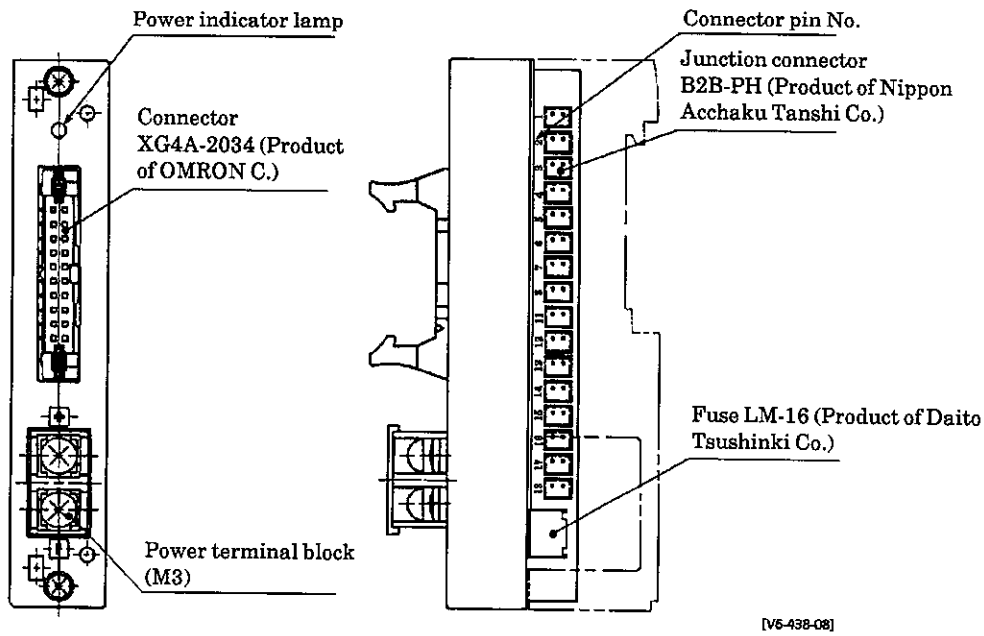
Consider of using flat cable type (T50A) with amplifying circuit when the loss at electric outlet becomes problem.

(8) Fuse

Dip type fuse, LM16 (for 1.6A), product of Daito tsushinki Co., Ltd.), is normally provided as standard. Purchase one with the same specification when requirement of replacing it is occurred. When revision of controlled current is required, use replace the fuse with current level of below 2A. Also never intend to use fuse with larger capacity than 2A

2) Flat cable type w/amplifying circuit (T50A)

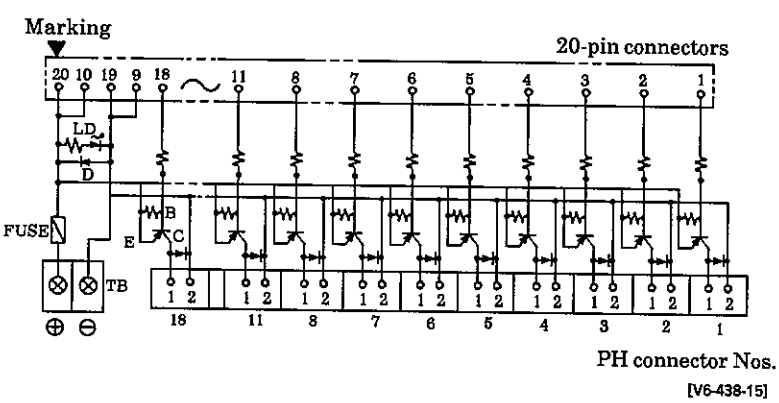
(1) External appearance



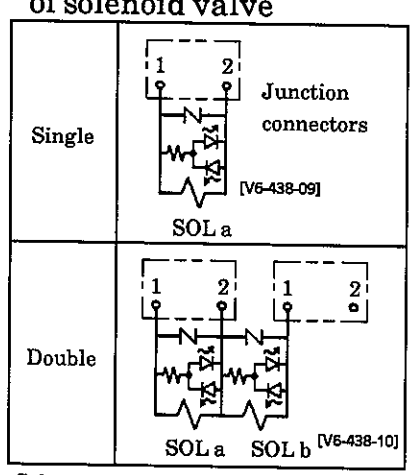
Connector height is 2mm higher than that of T50.

(2) Circuit architecture

Internal circuit diagram of Wiring block

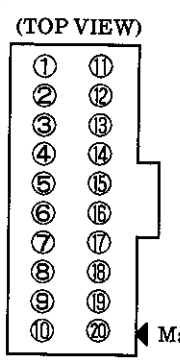


Internal circuit diagram of solenoid valve



Solenoid valve, Standard specifications

(3) Connector pins arrangement



No. 1 to 8	Signal pins
No. 11 to 18	Signal pins
No. 9, 19	Power ⊖ pin
No. 10, 20	Power ⊕ pin

Connector pins Nos. are just tentatively assigned for convenience sake Refer to order of function allocation by each PC manufacturer starting the pin marked (▲) and verify it prior to

(4) Major specifications

Items		Specifications
Source of Power, voltage	(V)	DC24±10%
Input current when it is ON	(mA)	3 to 10
Input current when it is OFF	(mA)	0 to 1.0
Max. output current	(mA)	160
Output voltage drop	(V)	Less than 0.5
Surge absorber		Diode

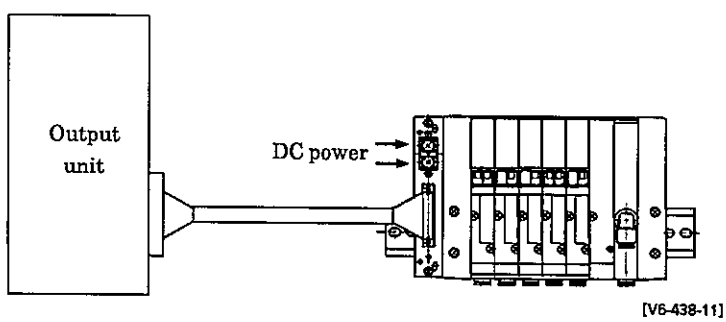
(5) Power source supply

Make certain that power is supplied to terminal of wiring block in order to have amplifying circuit function normal.

Select appropriate wire diameter to maintain voltage drop minimal and verify polarity matching with marking on the cover to eliminate erroneous wiring.

Power indicator light is lit when wired right

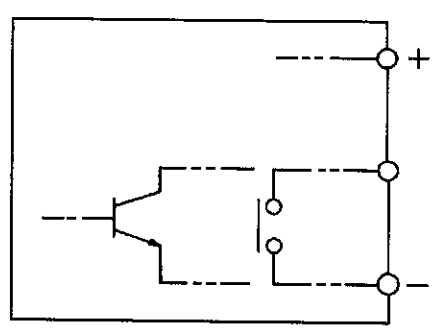
M3×6 screws are arranged to terminal blocks. Use clamped terminal metal piece of 6.4mm wide or less for M3 screw. and apply tightening torque of 0.3 to 0.5 N·m to fix it.



[V6-438-11]

(6) How to connect with PC

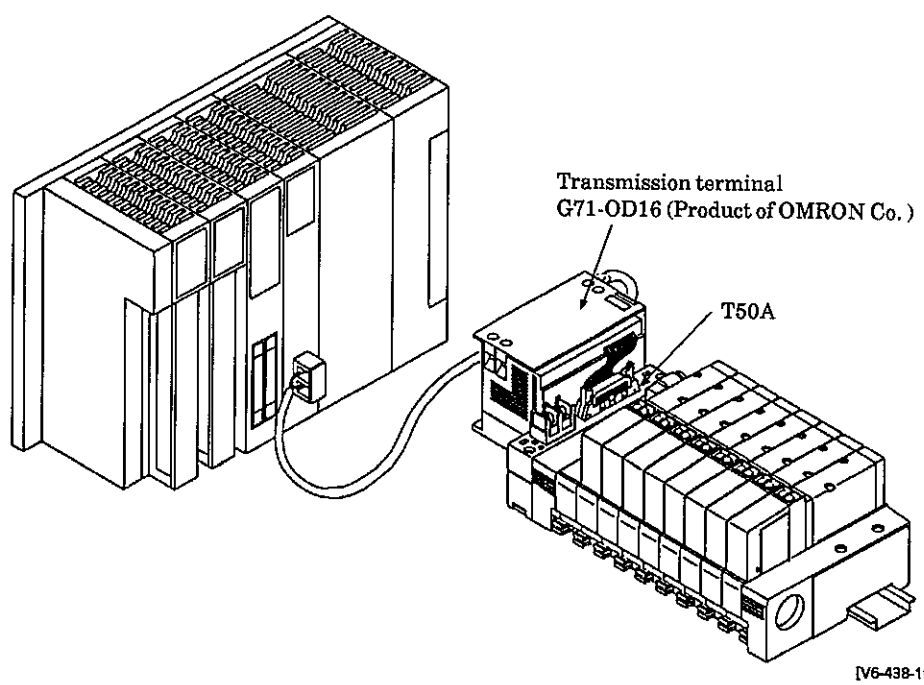
ⓐ As for output unit, with the same principle as that of T50 type, select the type of either with contact points between one side of power unit and output unit or NPN transistor·open collector output type



[V1-407-O]

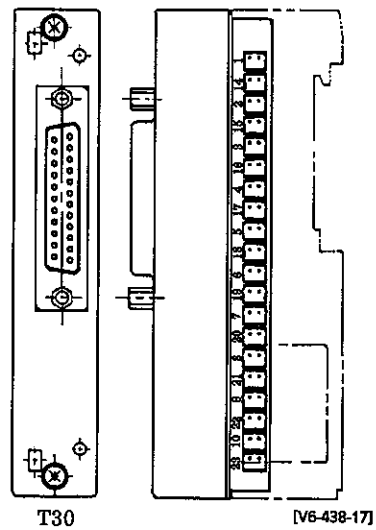
ⓑ From view point of PC with T50A, there is requirement of driving only one point, max. 10mA. It, therefore, doesn't matter even there is some voltage loss between PC and valve. It is still capable to drive valve even when it is inevitable to wire quite some length with fairly large resistance value such as flat cable. As for power line, select appropriate diameter of wire to minimize voltage drop and supply power to junction block.

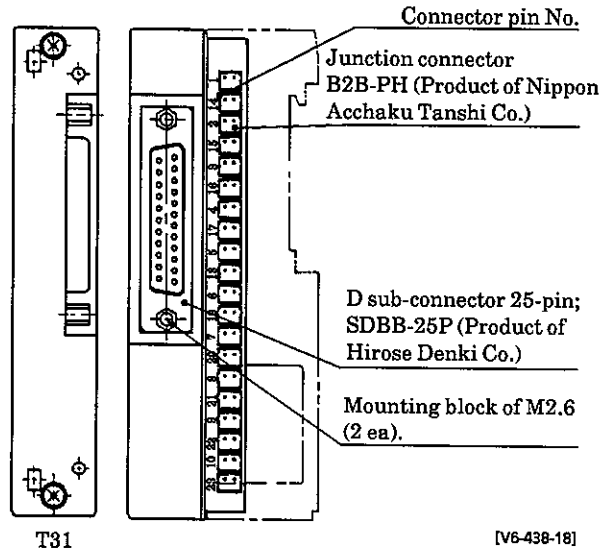
- An example of wiring long span
  In case of connecting T50A and Output unit, C500-OD213, product of OMRON, with AWG28 flat cable, calculation discloses that it is able to wire more than 300m span.
- Connection of transmission terminals
  Transmission terminal, G71-OD16, DC 24V, product of OMRON Co. is capable of driving valve with no difficult, just through T50A, although it has only one point output of max. 20mA.



3) D sub-connector type (T30, T31)

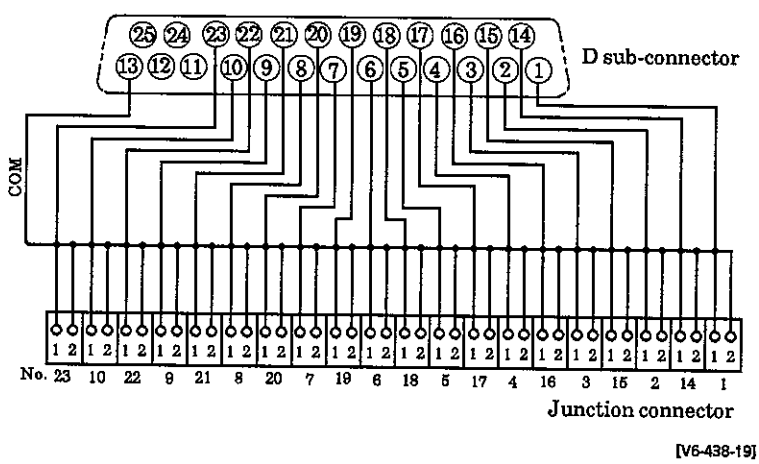
(1) External appearance



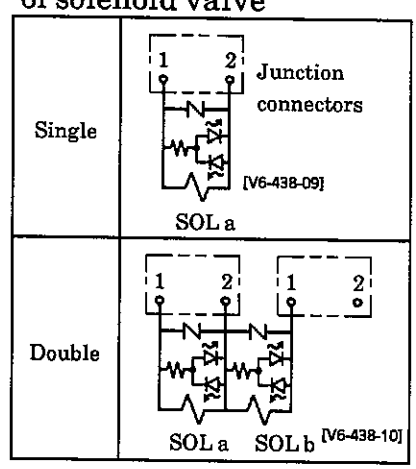


(2) Circuit architecture

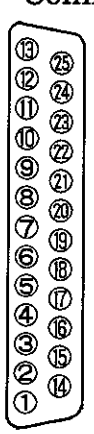
Internal circuit diagram of Wiring block



Internal circuit diagram of solenoid valve



(3) Connector pins arrangement



(TOP VIEW)

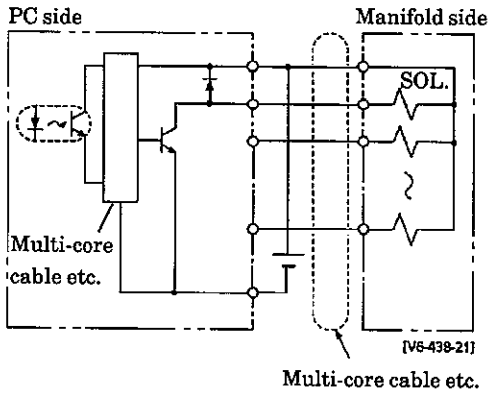
No. 1 to 10	Signal pins
No. 14 to 23	Signal pins
No. 13	COM

(4) How to connect with PC

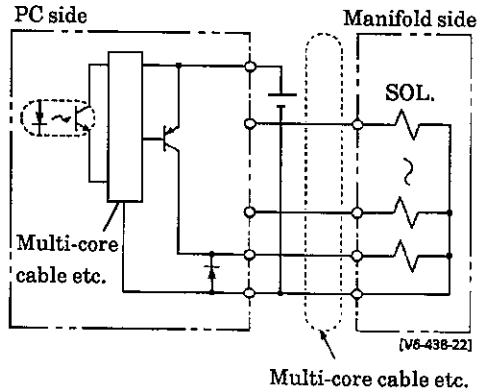
Common wiring is internally laid in advance. It is able to be connected either DC output unit on PC, NPN output or PNP output because there is no polarity on solenoid valve.

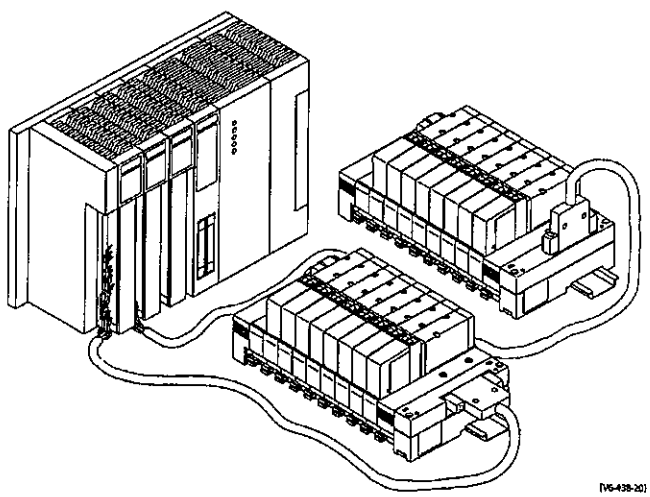
Wire it according to illustrations at right, respectively

DC Output unit (NPN output type)



DC Output unit (PNP output type)





(5) Building cable

When connecting cable is to be built peculiarly, it is recommended to use the following equipment at valve side.

Parts	Model code	Manufacturer
D sub-connector socket, solder type	HDBB-25S	Hirose Denki Co., Ltd.
D sub-connector socket, solder type	JAZ-25S	Nippon Acchaku Tanshi Co., Ltd.
D sub-connector socket, clamp type	CDB-25S	Hirose Denki Co., Ltd.
D sub-connector socket, clamp type	JAC-25S	Nippon Acchaku Tanshi Co., Ltd.
Plug case (for solder type)(w/M2.6 screw)	HDB-CTF	Hirose Denki Co., Ltd.
Plastic cover with M2.6 screw	JCB-25M	Nippon Acchaku Tanshi Co., Ltd.

Avoid using press adhesive cable as many occasions as possible because its electric capacity is small and its voltage drop is large due to core wire being fine line.

(6) CKD cable specification (The cable manufactured by us, model code as follows, are also serviceable.)

Model code

N4T – Cable – D 0 ※1 – ※2

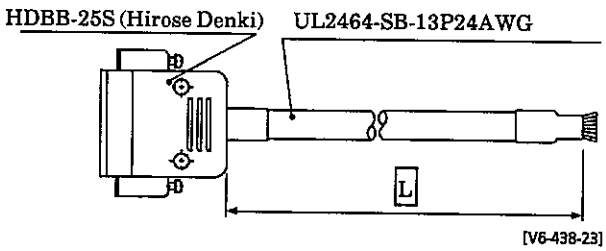
※1 User side connecting system

0	Cut wire only
1	w/terminal metal for M3.5

※2 Cable length

1	1m
3	3m
5	5m

○ N4T-CableD00- L

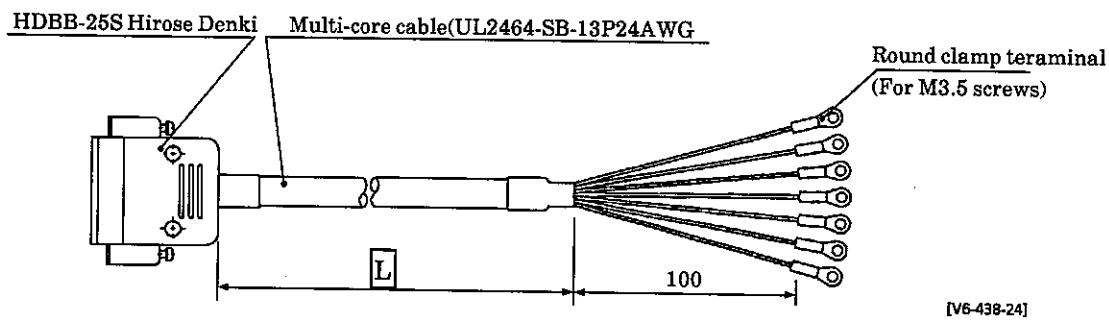


Correspondence of D sub-connector terminal Nos. with wire core

D sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Wire end identification	Color of insulator	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow
	Kind of markings	1-dot									2-dots			
	Color of marking	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black

D sub-connector terminal No.		14	15	16	17	18	19	20	21	22	23	24	25
Wire end identification	Color of insulator	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green
	Kind of markings	2-dots							3-dots				
	Color of marking	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black

○ N4T- cable D01- L



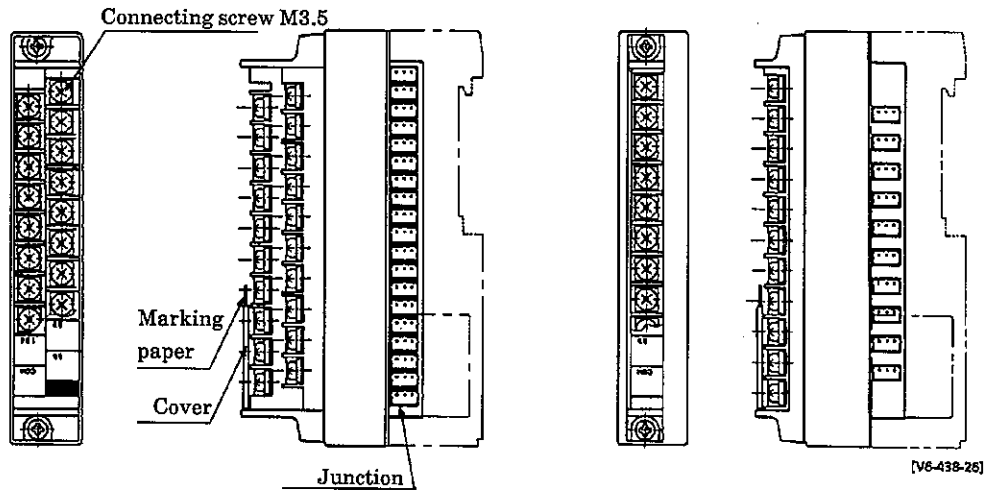
Correspondence of D sub-connector terminal Nos. with wire core

D sub-connector terminal No.		1	2	3	4	5	6	7	8	9	10	11	12	13
Wire end identification	Color of insulator	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow
	Kind of markings	1-dot										2-dot		
	Color of marking	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
Marked tube No.		1	2	3	4	5	6	7	8	9	10	Cut off	Cut off	13

D sub-connector terminal No.		14	15	16	17	18	19	20	21	22	23	24	25
Wire end identification	Color of insulator	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green
	Kind of markings	2-dot							3-dot				
	Color of marking	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
Marked tube No.		14	15	16	17	18	19	20	21	22	23	Cut off	Cut off

4) Concentrated terminal base type (T10)

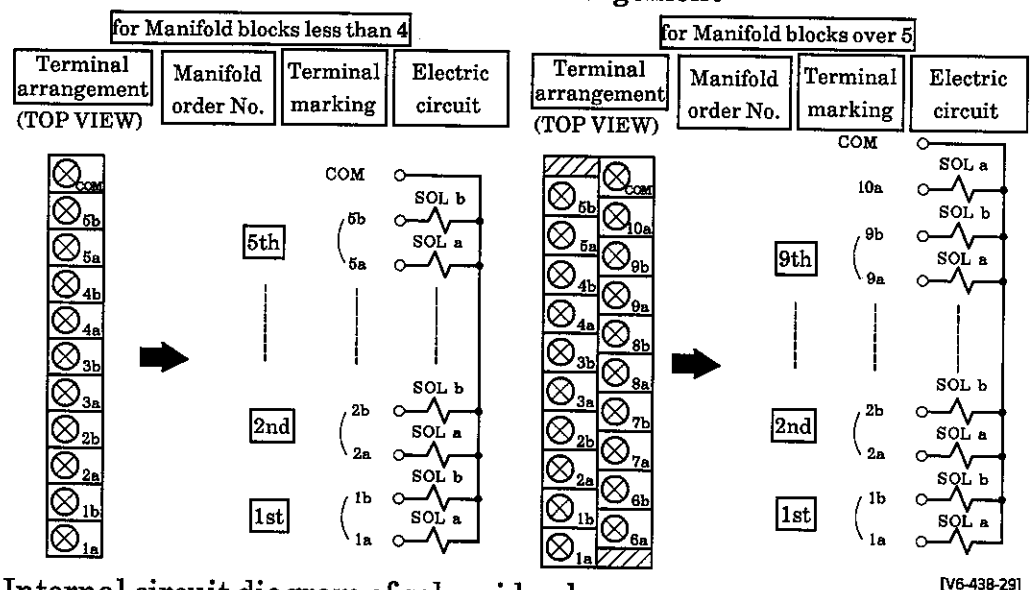
(1) External appearance



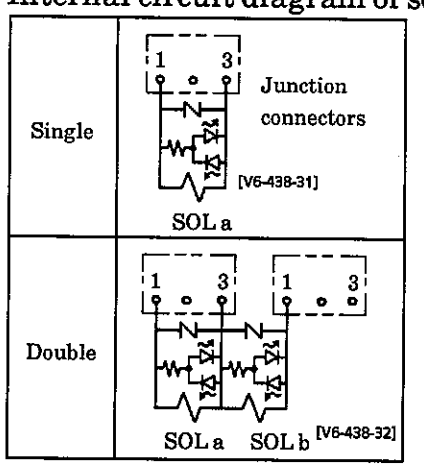
Manifold blocks, over 5 ea.

Manifold blocks, less than 4 ea.

(2) Circuit architecture and terminal arrangement



Internal circuit diagram of solenoid valve

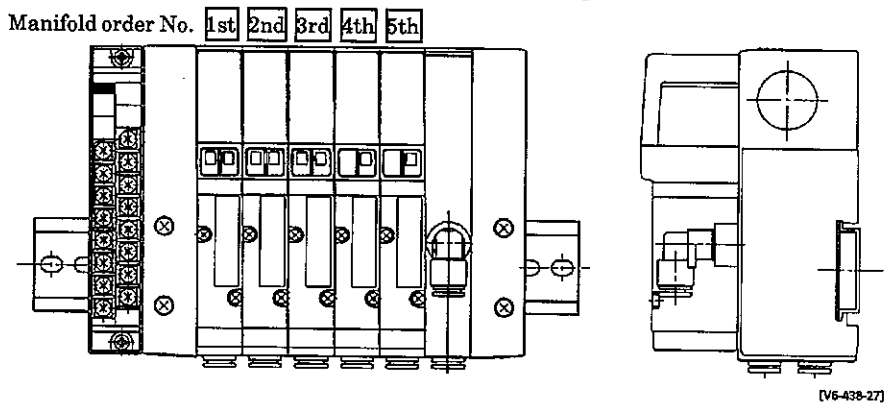


Solenoid valve, Standard specifications

(3) Correspondence of circuit architecture with terminal arrangement

Terminal numbers are, in accordance with markings on terminal cover, allocated to respective solenoids.

Numeric figures in markings such as "1a", "1b", "2a" ··· denote order of sequential number of blocks and letters in the markings denote either a solenoid side or b solenoid side, respectively. Allocation of sequential block numbers of manifold is began from left end block while facing to port side, regardless the location of wiring block.



An example of correspondence is shown below.

○ for Single solenoid valve

	Connector pin No.																	
	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a
1st	○																		
2nd			○																
3rd					○														
4th							○												
5th									○										
6th											○								
7th													○						
8th															○				
9th																	○		
10th																			○
Marking	○ SOL. (a) side / ● SOL. (b) side																		

○ for Double solenoid valve

	Connector pin No.																	
	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a
1st	○	●																	
2nd			○	●															
3rd					○	●													
4th							○	●											
5th									○	●									
6th											○	●							
7th													○	●					
8th															○	●			
9th																	○	●	
10th																			○
Marking	○ SOL. (a) side / ● SOL. (b) side																		

○ for mixed (Double and single) solenoid valve

	Connector pin No.																	
	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a
1st	○																		
2nd			○																
3rd					○	●													
4th							○	●											
5th									○										
6th											○								
7th													○	●					
8th															○				
9th																	○		
10th																			○
Marking	○ SOL. (a) side / ● SOL. (b) side																		

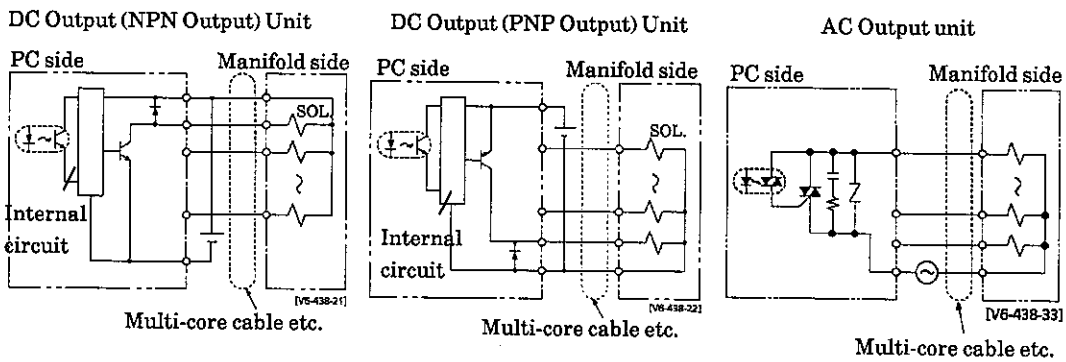
The table, left, indicate corresponding relation between pin Nos.and solenoid on 10-block manifold when installing single solenoid onto blocks No. 1, 2, 5, 6, 8 9 & 10 while installing double solenoid (including 3-position valve) onto other blocks, as an example of mixing installation of single and double valved.

(4) How to connect with PC

Common wiring is internally laid in advance. It is able to be connected either to ⊕ or ⊖ terminal because there is no polarity on solenoid valve.

Wire it according to illustrations below, respectively.

Terminal blocks are provided M3.5 ×7 screws. Width of clamp terminal should be less than 7, for M3.5 size. Apply tightening torque of 1.0N·m or over.

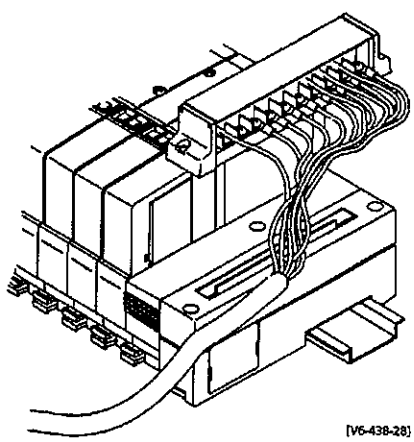


(5) How to mount or dismount terminal blocks

Lift terminal block base upward by loosening mounting screws at both end of base.

For mounting the unit, tighten screws with the torque of more than 1.0 N · m .

Note there is no inter changeability between terminal bases No. 11 and No. 20.



5. MAINTENANCE

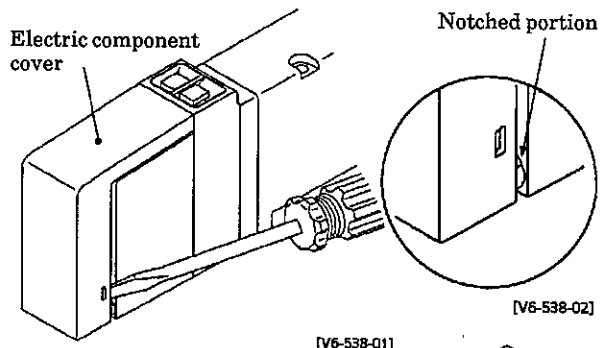
5.1 Assembly and disassembly

1) Coil replacement

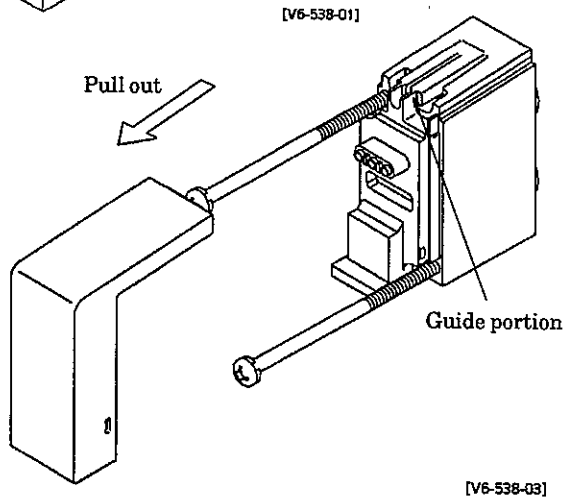
① Remove electric part cover. To do so, insert the ⊖ tip of screw driver into the notch on side of cover to unlatch a claw then pull the cover out. During the course of assembly, push the cover along guide till a click sound is heard.

② Coil component is installed with two mounting screws. The most appropriate tightening torque is 0.5N · m .

③ Rated voltage is posted on the side of coil. Verify it before mounting coil.



[V6-538-01] [V6-538-02]



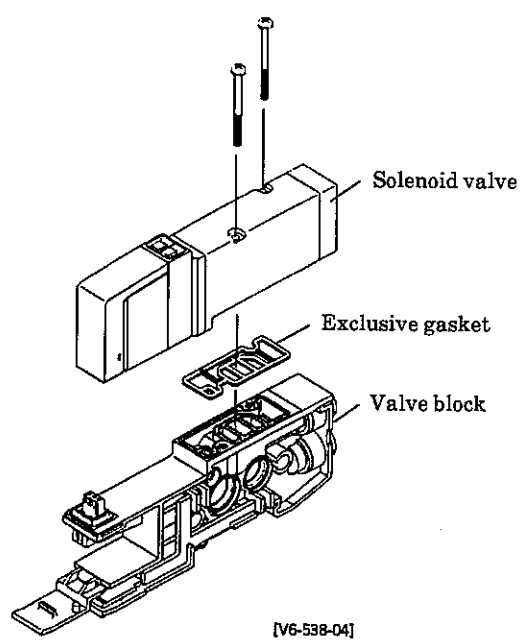
[V6-538-03]

2) Mounting solenoid valve

① Solenoid valve body is mounted with two screws. The most appropriate tightening torque is ; 0.5N·m for 4TB1 as well as 0.5N·m for 4TB.

② Verify exclusive gasket is installed on the valve block.

③ While setting solenoid valve, carefully eliminate excessive load onto connector by aligning valve with valve connector. (Valve connector is able to be installed even after solenoid valve is mounted.)



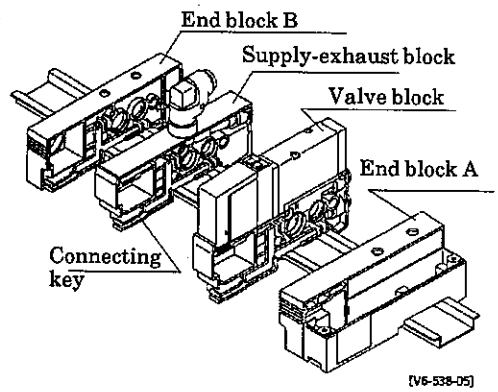
[V6-538-04]

3) Assembling block manifolds

① Fix DIN rail.

② Mount number of required blocks of each type in sequence respectively. (Refer to the detailed instruction as follows regarding to mounting blocks of each type.)

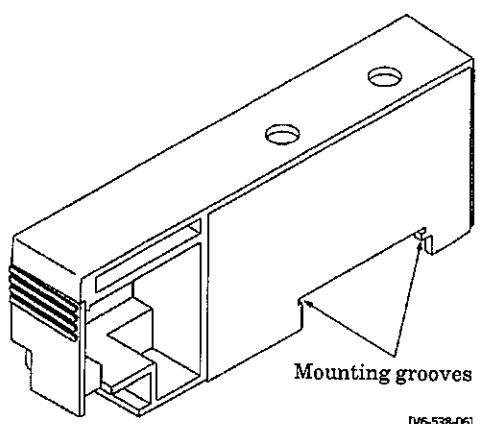
Slide them on the DIN rail so as to line with no gap between them.



③ Insert connecting key upon completion of binding all blocks and verify the complete connection.

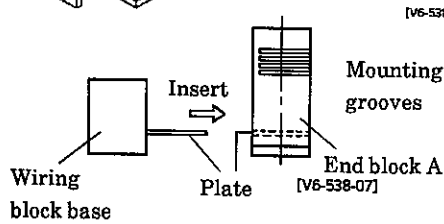
④ Fixing block manifold is done upon tightening four mounting screws on both end block. The most appropriate tightening torque is 1.4N·m.

⑤ Wire manifold s after completion of binding block manifold. It is for the purpose of keeping cables from being pinched by blocks during the work of block mounting.

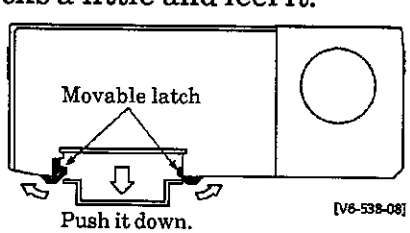


4) Mounting end block A and wiring block base

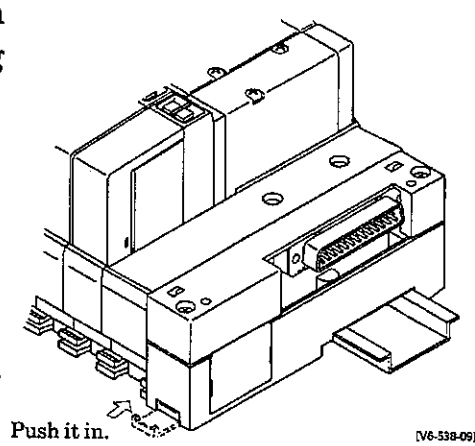
① While opening latch, make the plate on the bottom of wiring block base slide into mounting groove of end block A until no gap exists between sides of two blocks.



② Press end block together with wiring block down onto DIN rail to let movable latches hook on rail side. To confirm complete latching on the rail, try lifting blocks a little and feel it.



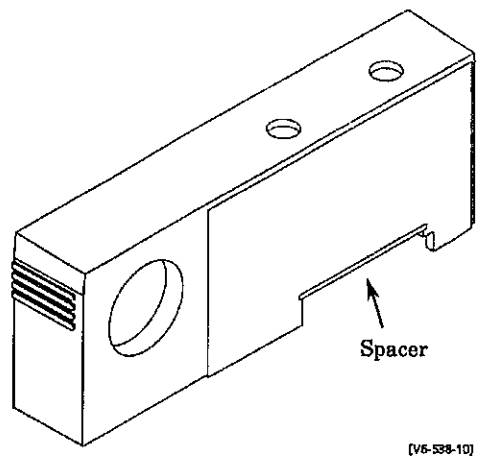
③ Push the lock lever on the bottom of wiring block into the base.



5) Mounting end block B

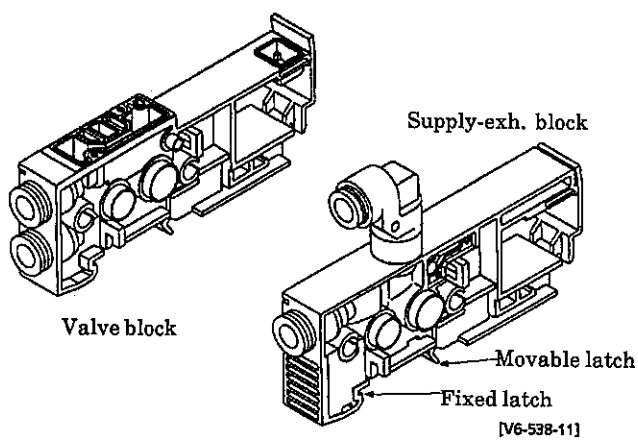
① Verify that there is a spacer installed into mounting groove of end block B.

② Press the block down onto DIN rail to let movable latches hook on rail side. To confirm complete latching on the rail, try lifting blocks a little and feel it.



6) Mounting supply-exhaust block and valve blocks

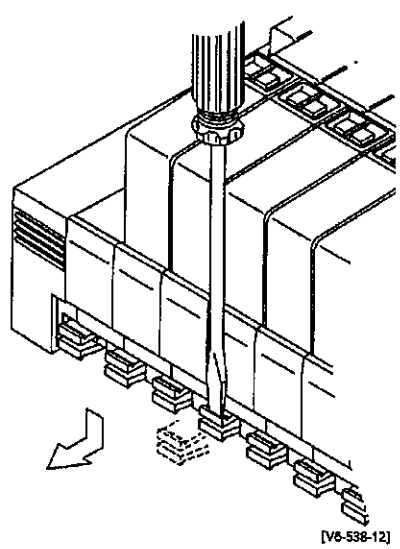
① Upon making fixed latch hook onto side of rail, press the other movable latch onto rail.



7) Dismounting each block

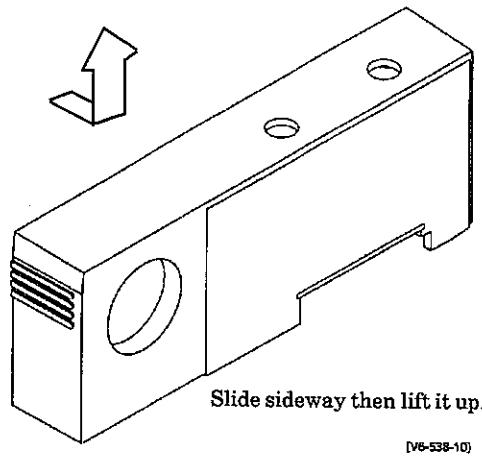
① Loosen mounting screws on both end blocks for approx. 6 to 7 turns.

② Pull out connecting key out of block to be removed. Make use the ⊖tip of screw driver to ply the key out when it is difficult to use finger tip.



③ Make the block slide on rail for approx. 4mm or more then ply movable latch out to remove the block off the rail.

④ In case it is valve block, push connecting key back so as to open wiring duct cover. Removal of block is accomplished when valve connector is pulled out of duct.

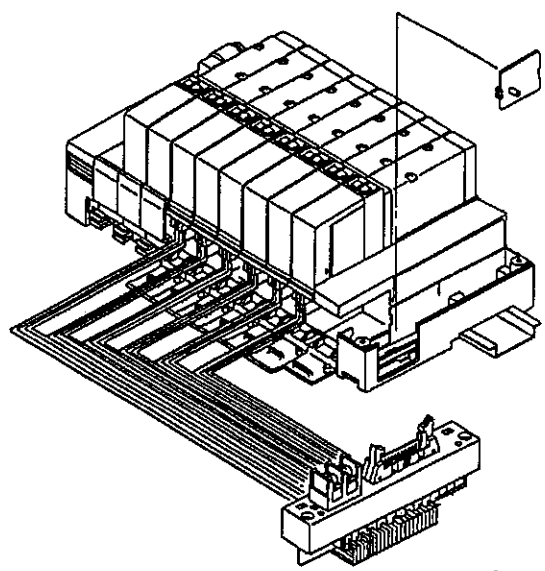


Slide sideway then lift it up.

[V6-538-10]

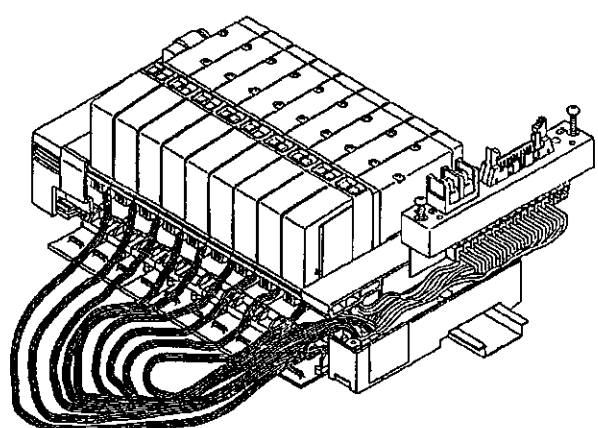
8) Installation of wiring block cover

① Connect each junction connector cables to respective blocks in advance to eliminate erroneous matching afterward.



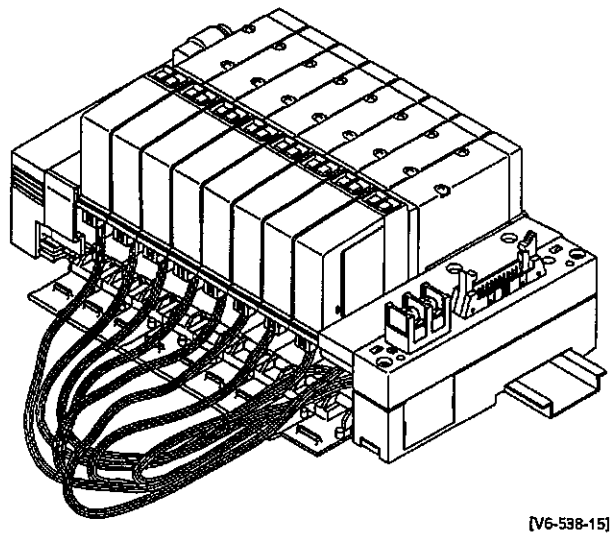
[V6-538-13]

② Bind cables and lay it into duct of end block A While adjusting cable length to be placed into duct and carefully keeping cables from being pinched, place wiring block cover onto wiring block base. Use two mounting screws to fix cover in position. The most appropriate tightening torque is 0.8N · m.



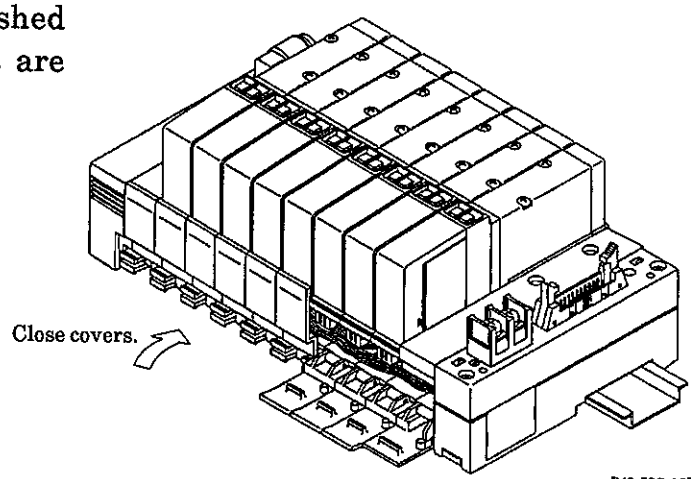
[V6-538-14]

③ Bind the rest of cables and lay it into wiring duct. Be sure to place it deeper beyond valve connector.



[V6-538-15]

④ Installation is accomplished when wiring duct covers are closed.

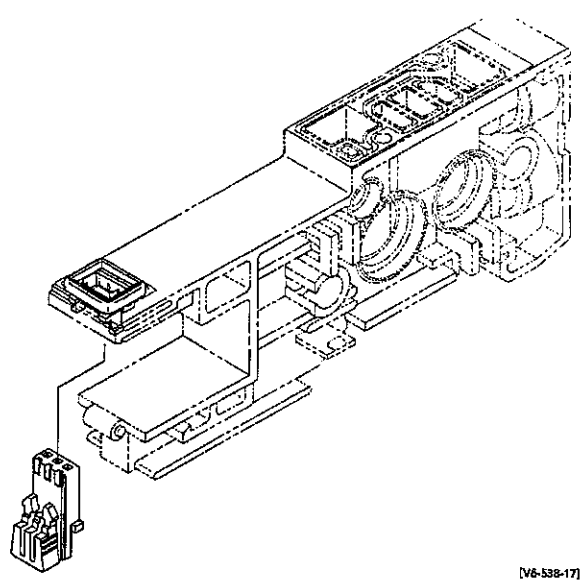


[V6-538-16]

9) Mounting and dismounting valve connector

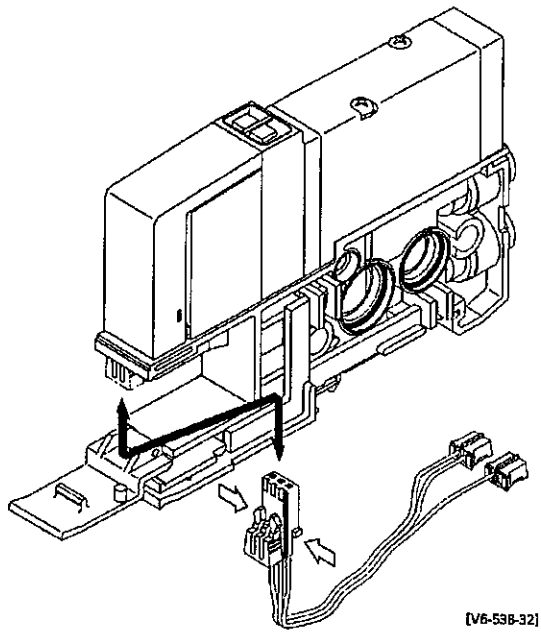
① Open duct cover. To do so, pull it while pushing it downward during the state of connecting key is left inserted.

② While holding lever facing you insert connector upward through inside of wiring duct until it clicks. Try to pull it down to confirm its setting.



[V6-538-17]

③ To pull it out, push it downward while pinching levers toward center.

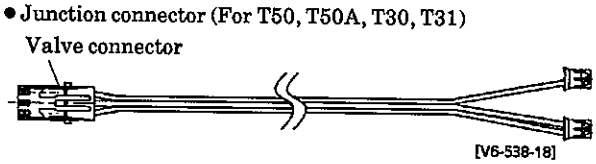


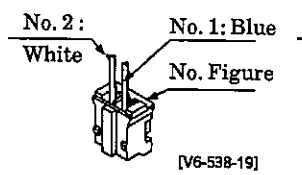
10) Wiring to wiring block cover

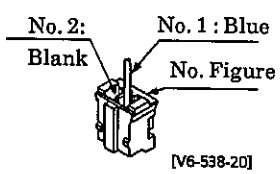
① Valve connector cable is branched out to two junction connectors which are respectively corresponding to each solenoid. The end of two terminals are to Sol (a) and Common ; while one solid end is for Sol (b).

② Verify the signal No. prior to connection. Mate projection of connector on cable side and notch of post on block side then push it in to retain the height of 7.5mm. Shallow insertion may cause insufficient contact effect or may result it being unable connected to wiring block base.

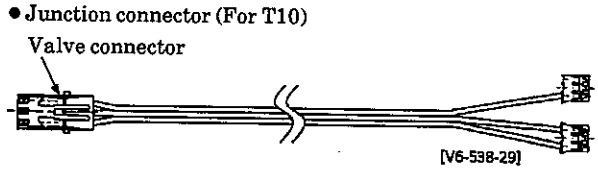
● Junction connector (For T50, T50A, T30, T31)

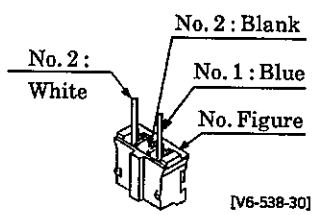


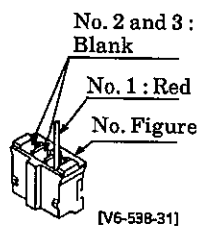


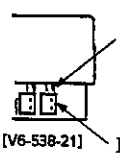


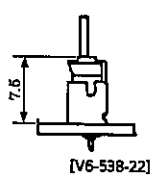
● Junction connector (For T10)











5.2 Revision of manifold specifications

Rely upon our product as the units have been manufactured under strict quality control.

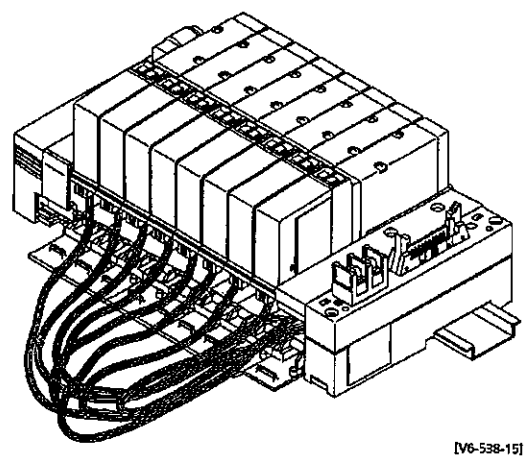
The followings are the explanation should there be requirement of revising manifold specifications. Carefully carry it out because any erroneous work may result damage to units.

1) Increasing number of respective blocks

(1) Confirm that there are O rings installed on blocks to be added as well as existing block. (3 ea. for external pilot specification.)

(2) Confirm that there is no gap existing between blocks and cables are not pinched.

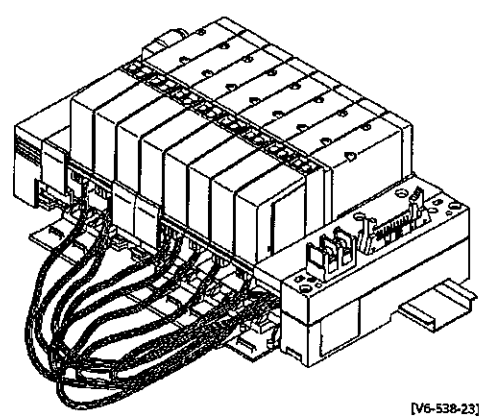
Carry out block connection and internal wire connection individually complying with the following knack.



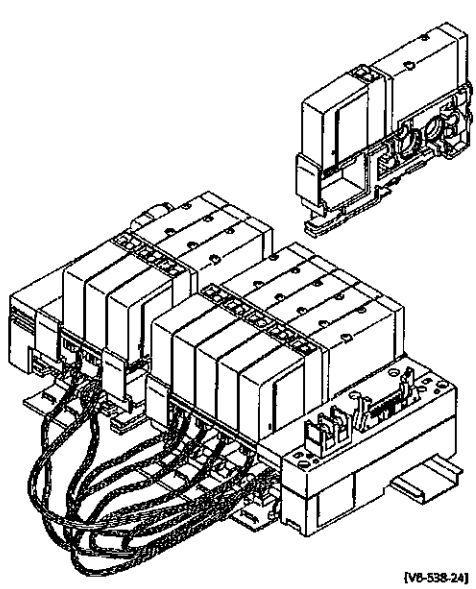
[V6-538-15]

① Take cable out once upon opening wiring duct cover.

② Put cable tip of added block into two, close wiring cover and pull out the connecting key.



[V6-538-23]

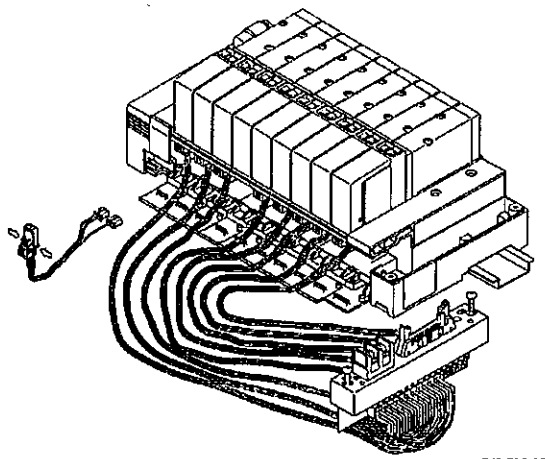


[V6-538-24]

③ Upon loosening end block mounting screws (2 ea.) for 2 to 3 turns uniformly, slide the block for approx. 30mm to provide open space for block to be added. Install additional block onto DIN rail, connect manifold block back, push connecting key and tighten end block mounting screws again after confirming sound connection.

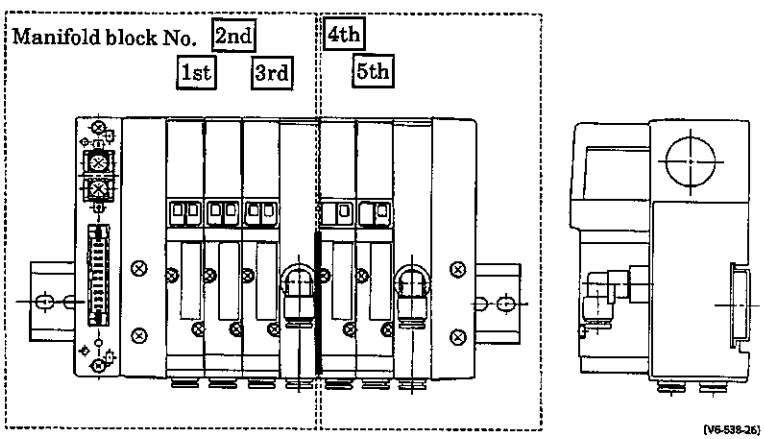
2) Partitioning off blocks

④ Once block connection is accomplished, connect additional cable complying with article "5.1, 8) Installation of wiring block cover".



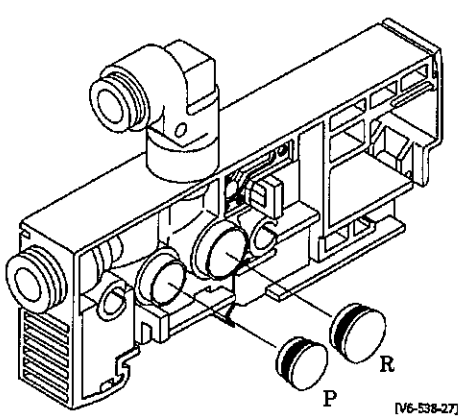
[V6-538-25]

(1) Pneumatic circuit is able to be partitioned at right side of block installed masking plugs. Verify the position of partitioning.

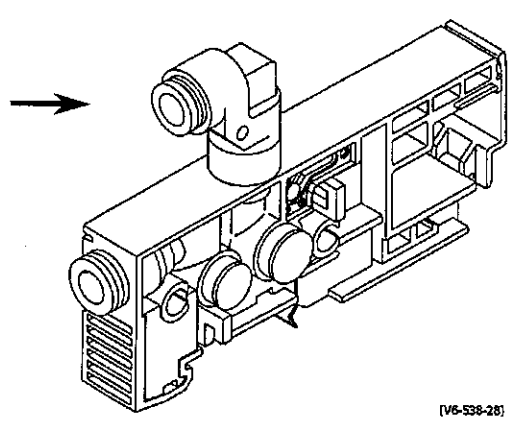


[V6-538-26]

(2) Note that there are two types of masking plugs. Install each of them carefully to appropriate port as illustrated at right. Connect blocks as usual after installation of plugs. Installation of additional block is, thus, accomplished.



[V6-538-27]



[V6-538-28]

5.3 Periodic inspection

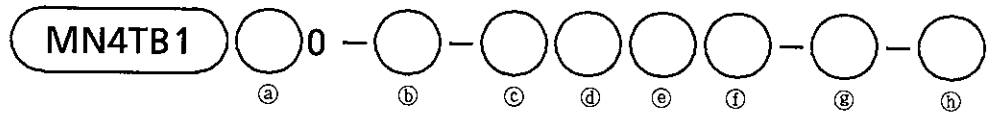
1) Carry out periodic inspection(s) once or twice per annum to maintain the best service condition of solenoid valves.
2) Items to inspect are slacken screws, accumulation of dust or foreign particles or drain at filter in supply-exhaust block. Give air blow to clean it when accumulation is abnormal.

Discontinue

6. HOW TO ORDER

1) MN4TB1

Model code of Manifold



ⓐ Manual Operation Shifting type	
1	2-position Single
2	2-position Double
3	3-position All port blocked
4	3-position ABR connection
5	3-position PAB ports
8	Mixed manifold

ⓑ Port size	
H4	ϕ4 One touch joint
H6	ϕ6 One touch joint
H8	ϕ8 One touch joint
HX	Mixed one touch joint

ⓒ Manual operation device	
Non marking	Non lock type man. opr. dev.
M1	Lock-type manual override (tool required)

ⓓ Indicator & protective circuit	
L	with Lamp & surge absorber
Non marking	without lamp nor surge absorber

ⓔ Wiring type	
T10	Concentrated terminal block type
T30	D sub connector, up facing type
T31	D sub connector, side facing type
T50	Flat cable type
T50A	Flat cable type : with power terminal
T6□	Serial transmission type

- See the instruction manual for the serial transmission type.

ⓕ Other options	
Non marking	None
K	External Pilot

- Contact with the nearest dealer of CKD when intending to operate supply block and exhaust block with external pilot line.

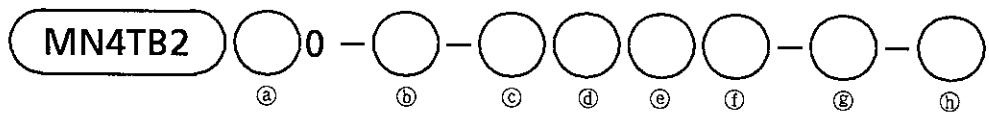
ⓖ Qty of Solenoid valve	
2	2 blocks
≀	≀
	Allowable max. qty of blocks

ⓗ Voltage		
1	AC100V 50/60Hz	Standard
2	AC200V 50/60Hz	
3	DC24V	
4	DC12V	Optional
5	AC110V 50/60Hz	
6	AC220V 50/60Hz	

Discontinue

2) MN4TB2

Model code of Manifold



ⓐ Manual Operation Shifting type	
1	2-position Single
2	2-position Double
3	3-position All port blocked
4	3-position ABR connection
5	3-position PAB ports
8	Mixed manifold

ⓑ Port size	
H6	φ6 One touch joint
H8	φ8 One touch joint
H10	φ10 One touch joint
HX	Mixed one touch joint

ⓒ Manual operation device	
Non marking	Non lock type man. opr. dev.
M1	Lock-type manual override (tool required)

ⓓ Indicator & protective circuit	
L	with Lamp & surge absorber
Non marking	without lamp nor surge absorber

ⓔ Wiring type	
T10	Concentrated terminal block type
T30	D sub connector, up facing type
T31	D sub connector, side facing type
T50	Flat cable type
T50A	Flat cable type : with power terminal
T6□	Serial transmission type

- See the instruction manual for the serial transmission type.

ⓕ Other options	
Non marking	None
K	External Pilot

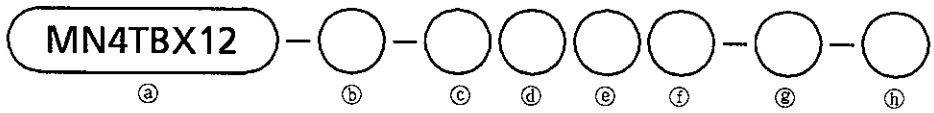
- Contact with the nearest dealer of CKD when intending to operate supply block and exhaust block with external pilot line.

ⓖ Qty of Solenoid valve	
2	2 blocks
⟆	⟆
	Allowable max. qty of blocks

ⓗ Voltage		
1	AC100V 50/60Hz	Standard
2	AC200V 50/60Hz	
3	DC24V	
4	DC12V	Optional
5	AC110V 50/60Hz	
6	AC220V 50/60Hz	

3) MN4TBX12

Model code of Manifold



ⓑ Port size	
H4	φ 4 One touch joint
H6	φ 6 One touch joint
H8	φ8 One touch joint
H10	φ10ワンタッチ継手
HX	Mixed one touch joint

ⓒ Manual operation device	
Non marking	Non lock type man. opr. dev.
M1	Lock-type manual override (tool required)

ⓓ Indicator & protective circuit	
L	with Lamp & surge absorber
Non marking	without lamp nor surge absorber

ⓔ Wiring type	
T10	Concentrated terminal block type
T30	D sub connector, up facing type
T31	D sub connector, side facing type
T50	Flat cable type
T50A	Flat cable type : with power terminal
T6□	Serial transmission type

- See the instruction manual for the serial transmission type.

ⓕ Other options	
Non markin	None
K	External Pilot

- Contact with the nearest dealer of CKD when intending to operate supply block and exhaust block with external pilot line.

ⓖ Qty of Solenoid valve	
2	2blocks
⸝	⸝
	Allowable max. qty of

ⓗ Voltage		
1	AC100V 50/60Hz	Standard
2	AC200V 50/60Hz	
3	DC24V	
4	DC12V	Optional
5	AC110V 50/60Hz	
6	AC220V 50/60Hz	

Discontinue

CKD株式会社

北海道
●札幌営業所
〒060-0032 札幌市中央区北２条東 14-26(苗穂駅前ビル１階)
TEL(011)232-1760 FAX(011)232-9050

東北
●北上営業所
〒024-0034 岩手県北上市諏訪町 2-4-26
TEL(0197)63-4147 FAX(0197)63-4186
●仙台営業所
〒984-0015 仙台市若林区卸町 2-2-1(パックス 2-1 階)
TEL(022)239-1851 FAX(022)239-1856
●山形営業所
〒990-0834 山形県山形市清住町 2-6-24
TEL(023)644-6391 FAX(023)644-7273
●郡山営業所
〒963-8034 福島県郡山市島 1-16-9
TEL(0249)23-6348 FAX(0249)24-0862

北関東
●大宮営業所
〒330-0038 埼玉県さいたま市宮原町 3-429-1(第一清水ビル２階)
TEL(048)652-3811 FAX(048)652-3816
●茨城営業所
〒300-0847 茨城県土浦市卸町 1-1-1(関鉄つくばビル４階 C)
TEL(0298)41-7490 FAX(0298)41-7495
●宇都宮営業所
〒321-0953 栃木県宇都宮市東宿郷 3-1-9(USK 東宿郷ビル３階)
TEL(028)638-5770 FAX(028)638-5790
●太田営業所
〒373-0813 群馬県太田市内ケ島町 946-2(大槻総合ビル１階)
TEL(0276)45-8935 FAX(0276)46-5628

南関東
●東京営業所
〒101-0047 東京都千代田区内神田 3-6-3(CKD 第二ビル)
TEL(03)3254-4571 FAX(03)3254-7537
●立川営業所
〒190-0022 東京都立川市錦町 3-2-30(朝日生命立川錦町ビル３階)
TEL(042)527-3773 FAX(042)527-3782
●千葉営業所
〒260-0021 千葉市中央区新宿 2-5-19(住友生命千葉南ビル３階)
TEL(043)248-2815 FAX(043)248-2818
●横浜営業所
〒222-0033 横浜市港北区新横浜 2-17-19(日総第 15 ビル４階)
TEL(045)475-3471 FAX(045)475-3470
●厚木営業所
〒243-0035 神奈川県厚木市愛甲 1212-3
TEL(046)226-5201 FAX(046)226-5208
●甲府営業所
〒409-3867 山梨県中巨摩郡昭和町清水新居 1509
TEL(055)224-5256 FAX(055)224-3540
●東京支店
〒101-0047 東京都千代田区内神田 3-6-3(CKD 第二ビル)
TEL(03)3254-3273 FAX(03)3256-9526

北陸・信越
●長岡営業所
〒940-0096 新潟県長岡市春日 1-6-18(春日ハイツ１階)
TEL(0258)33-5446 FAX(0258)33-5381
●上田営業所
〒386-0034 長野県上田市大字中之条 323-6(NF ビル 103 号)
TEL(0268)24-2392 FAX(0268)24-2394
●松本営業所
〒399-0033 長野県松本市大字笹賀 5945
TEL(0263)25-0711 FAX(0263)25-1334
●富山営業所
〒939-8064 富山県富山市赤田中町 494-1
TEL(076)421-7828 FAX(076)421-8402
●金沢営業所
〒920-0025 石川県金沢市駅西本町 3-16-8
TEL(076)262-8491 FAX(076)262-8493

東海
●名古屋営業所
〒450-0003 名古屋市中村区名駅南 2-7-2(CKD 第一ビル)
TEL(052)582-7811･7812 FAX(052)582-8777
●小牧営業所
〒485-8551 愛知県小牧市応時 2-250
TEL(0568)73-9023 FAX(0568)75-1692
●豊田営業所
〒473-0912 愛知県豊田市広田町広田 103
TEL(0565)54-4771 FAX(0565)54-4755
●静岡営業所
〒422-8035 静岡県静岡市宮竹 1-3-5
TEL(054)237-4424 FAX(054)237-1945
●浜松営業所
〒435-0054 静岡県浜松市早出町 223-9
TEL(053)463-3021 FAX(053)463-4910
●四日市営業所
〒510-0064 三重県四日市市新正 5-3-20
TEL(0593)51-3151 FAX(0593)51-6788
●名古屋支店
〒450-0003 名古屋市中村区名駅南 2-7-2(CKD 第一ビル)
TEL(052)581-9851 FAX(052)583-9262

関西
●大阪営業所
〒542-0073 大阪市中央区日本橋 1-17-17(三井住友銀行日本一ビル)
TEL(06)6635-2772 FAX(06)6643-5950
●北大阪営業所
〒567-0828 大阪府茨木市舟木町 5-16(柴田ビル３階)
TEL(0726)32-4111 FAX(0726)32-4114
●東大阪営業所
〒577-0013 大阪府東大阪市長田中 5-2-29
TEL(06)6746-2503 FAX(06)6746-6605
●堺営業所
〒591-8021 大阪府堺市新金岡町 5-5-6(泉マンション１階)
TEL(072)253-0071 FAX(072)253-0054
●滋賀営業所
〒520-2361 滋賀県野洲郡野洲町北野 1-13-20(三甲ビル３階)
TEL(077)586-2070 FAX(077)586-2154
●京都営業所
〒612-8414 京都市伏見区竹田段川原町 35-3
TEL(075)645-1130 FAX(075)645-4747
●奈良営業所
〒639-1123 奈良県大和郡山市筒井町 460-15(オッシュム･ロジナ１階)
TEL(0743)57-6831 FAX(0743)57-6821
●神戸営業所
〒673-0016 兵庫県明石市松の内 2-6-8(西明石スポットビル３階)
TEL(078)923-2121 FAX(078)923-0212
●大阪支店
〒542-0073 大阪市中央区日本橋 1-17-17(三井住友銀行日本一ビル)
TEL(06)6635-2765 FAX(06)6643-5015

中国
●広島営業所
〒734-0023 広島市南区東雲本町 3-1-10
TEL(082)285-4455 FAX(082)285-2110
●岡山営業所
〒700-0916 岡山県岡山市西之町 10-104
TEL(086)244-3433 FAX(086)241-8872
●山口営業所
〒747-0034 山口県防府市天神 2-2-2
TEL(0835)38-3556 FAX(0835)22-6371

四国
●高松営業所
〒760-0055 香川県高松市観光通 2-2-15(ダイヤビル)
TEL(087)834-9640 FAX(087)834-9633
●松山営業所
〒790-0921 愛媛県松山市福音寺町 44-1(林マンション１階)
TEL(089)976-0477 FAX(089)976-0488

九州
●北九州営業所
〒802-0976 北九州市小倉南区南方 5-13-34
TEL(093)964-0785 FAX(093)964-0910
●福岡営業所
〒812-0006 福岡市博多区上牟田 1-15-2
TEL(092)473-7138 FAX(092)473-5540
●熊本営業所
〒869-1103 熊本県菊池郡菊陽町久保田 2698-1
TEL(096)340-2580 FAX(096)340-2584

本社
●本社・工場
〒485-8551 愛知県小牧市応時 2-250
TEL(0568)77-1111 FAX(0568)75-3715
●営業本部
〒450-0003 名古屋市中村区名駅南 2-7-2(CKD 第一ビル)
TEL(052)581-3741 FAX(052)583-9710
●海外営業部
〒450-0003 名古屋市中村区名駅南 2-7-2(CKD 第一ビル)
TEL(052)581-3751 FAX(052)583-9710

CKD Corporation

2-7-2,Meieki-Minami,Nakamura-ku,Nagoya 450-0003,Japan PHONE+81-(0)52-581-3751 FAX+81-(0)52-583-9710

U.S.A
CKD USA CORPORATION
●HEADQUARTERS
4080 Winnetka Ave., Rolling Meadows, IL 60008 U.S.A.
PHONE +1-847-368-0539 FAX +1-847-788-0575
●CINCINNATI OFFICE
1420 Jamike Dr., Erlanger, KY 41018 U.S.A.
PHONE +1-859-283-2776 FAX +1-859-283-2785
●AUSTIN OFFICE
595 Round Rock West Dr., Suite #602, Round Rock, TX 78681 U.S.A.
PHONE +1-512-339-3035 FAX +1-512-339-3161
●SAN JOSE OFFICE
43040 Christy Street, Fremont, CA 94538 U.S.A.
PHONE +1-510-659-9245 FAX +1-510-659-9485

Malaysia
M-CKD PRECISION SDN.BHD.
●HEADQUARTERS
Lot No.6,Jalan Modal 23/2, Seksyen 23, Kaw Miel,
Fasa 8, 40300 Shah Alam,Selangor Darul Ehsan, Malaysia
PHONE +60-(0)3-5541-1468 FAX +60-(0)3-5541-1533
●JOHOR BAHRU OFFICE
116, 118 Jalan Ros Merah 2/17, Taman Johor jaya, 81100 Johor Bahru, Malaysia
PHONE +60-(0)7-352-9129 FAX +60-(0)7-352-9144
●MELAKA OFFICE
14, Jalan Mutiara Melaka 3, Taman Mutiara Melaka Batu Berendam, 75350 Melaka, Malaysia
PHONE +60-(0)6-3172361 FAX +60-(0)6-317-2461

Thailand
CKD SALES THAI CORPORATION LTD.
●HEADQUARTERS
Suwan Tower 14/1 Soi Saladaeng 1, North Sathorn Rd., Bangrak, Bangkok 10500 Thailand
PHONE +66-(0)2-267-6300 FAX +66-(0)2-267-6305
●LAEMCHABANG OFFICE
53/67, 69 Moo 9, Tungsukla, Sriracha, Chonburi
20230 Thailand
PHONE +66-(0)38-330-133 FAX +66-(0)38-330-079

Home Page Address http://www.ckd.co.jp/

●NAVANAKORN OFFICE
176/4-6, Moo 13, Paholyothin Rd., Klongneung, Klongluang, Pathumthani 12120 Thailand
PHONE +66-(0)2-909-2158 FAX +66-(0)2-909-1128
●RAYONG OFFICE
125/32 M.Charoen Nakorn, T.Maptapud, Rayong 21150, Thailand
PHONE +66-(0)38-608-549 FAX +66-(0)38-608-549

Singapore
CKD SINGAPORE PTE LTD.
705 Sims Drive #03-01/02, Shun Li Industrial Complex, 387384 Singapore
PHONE +65-744-2623 FAX +65-744-2486

Taiwan
台湾旭開理股份有限公司
TAIWAN-CKD CORPORATION
中華民国台湾省新竹県竹北市泰和路 176 號
No.176 Taiho Rd. Chupei-City, Hsinchu Taiwan R.O.C
PHONE +886-(0)3-553-5501 FAX +886-(0)3-553-5505

China
喜開理(上海)機器有限公司
CKD(SHANGHAI)CORPORATION
●本社
中国上海市外高橋保税区富特北路 129 号４楼 A 部位
HEADQUARTERS
Part-A 4th Floor, No.129 Fute Road North Waigaoqiao FTZPutong New Area, Shanghai, China
PHONE +86-(0)21-58663366 Fax +86-(0)21-58681598
●営業部
中国上海市淮海中路 775 号上海新華聯大厦西楼 11 階 B 室
SALES HEADQUARTERS
Room B, 11F, West Tower, Shanghai Xinhualian Bld.No. 775, Huaihai Road Middle, Shanghai, China
PHONE +86-(0)21-64723673 Fax +86-(0)21-64159786
●北京事務所
中国北京市復興路成 12 号 恩菲科技大厦 1015 室
BEIJING OFFICE
En-Fei-Ke-Ji Bdg. Room #1015, Fu-xing-Lu-Wu 12, Beijing,100004, China
PHONE +86-(0)10-63957378 FAX +86-(0)10-63957378
●天津事務所
中国天津市南開区白堤路 148 号
TIANJIN OFFICE
Bai-Di-Lu, 148, Nankai-Qu, Tianjin, 300193, China
PHONE +86-(0)22-27483916 FAX +86-(0)22-27483916
●無錫事務所
中国江蘇省無錫市清揚南三路
WUXI OFFICE
Qing-Yang South No.3 Rd., Wuxi, Jiangsu, 214023, China
PHONE +86-(0)510-5732914 FAX +86-(0)510-5759598
●南京事務所
中国南京市山西路 57 号杰源山西路商務中心 502 室
NANJING OFFICE
Room 502, Jieyuan Shanxi Road Business Center No.57, Shanxi Road, Nanjing, China
PHONE +86-(0)25-3733596 FAX +86-(0)25-3733596
●重慶事務所
中国重慶市石橋鋪橄欖路 8 号業興科技広場 1634 号
CHONGQING OFFICE
Taixing Keji Square Room 1634, Yuzhou Road No. 8 Shiqiaopu, ChongQing, 400039, China
PHONE +86-(0)23-68631161 FAX +86-(0)23-68631161
●成都事務所
中国四川省成都市西玉龍街 210 号成都外貿大厦 22 楼 2207 号
CHENGDU OFFICE
Chengdu Waimao Bdg. 22F, Room #2207, Xi-Yu-Long-Jie 210, Chengdu city, Sichuan Prov., 610031, China
PHONE +86-(0)28-6620216 FAX +86-(0)28-6620216
●西安事務所
中国陝西省西安市労働南路 296 号西北民航大厦 610 号
XIAN OFFICE
Xi-bei-min-hang Bldg. Room #610, Lao-dong-nan-lu 296, Xian city, Shangxi Prov., 710082, China
PHONE +86-(0)29-8703422 FAX +86-(0)29-8709982

Korea
CKD KOREA CORPORATION
5F, 503-1, Daenoung Bldg., 33-1, Mapo-Dong, Mapo-Ku, Seoul Korea
PHONE +82-2-719-4382 FAX +82-2-719-4385