

Ensure that the exhaust ports are NOT plugged. This allows the valve to be used, for example, as a 3 port double solenoid valve.

CAUTION

Leakage voltage (Fig 8)

Please note, when connecting a C-R element, in parallel to the switching element, leakage current flows through the C-R element and the leak voltage will increase.

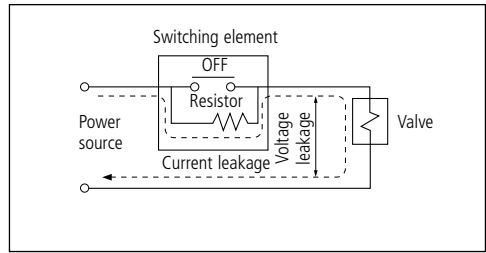


Fig 8

Ensure that the voltage leakage across the coil does not exceed 3% of the rated voltage.

Surge voltage suppressor (Fig 9)

Positive common specification

Single solenoid type
Indicator light and surge voltage suppressor

Surge voltage suppressor

Double solenoid, 3 position type
Indicator light and surge voltage suppressor

Surge voltage suppressor

Negative common specification

Single solenoid type
Indicator light and surge voltage suppressor

Surge voltage suppressor

Double solenoid, 3 position type
Indicator light and surge voltage suppressor

Surge voltage suppressor

- Please correctly connect the lead wire to (+) (positive) and (-) (negative) indications on the connector.
- For DC voltages other than 12, 24 incorrect wiring will cause damage to the surge voltage suppressor circuit. (Wrong polarity will cause trouble.)
- Solenoids, whose lead wires have been pre-wired, are positive side red and negative side black.

Positive common specification	A (-): Black	Black
	COM (+): Red	Red
Negative common specification	B (-): White (without lead wire in case of single solenoid)	White (without lead wire in case of single solenoid)
	A (+): Black	Black
	COM (-): Yellow	Yellow
	B (+): White (without lead wire in case of single solenoid)	White (without lead wire in case of single solenoid)

Fig 9

Indicator light (Fig 10)

When indicator lights with surge voltage suppressor are used, the orange indicator light refers to solenoid A, and the green indicator light to solenoid B, when energised.

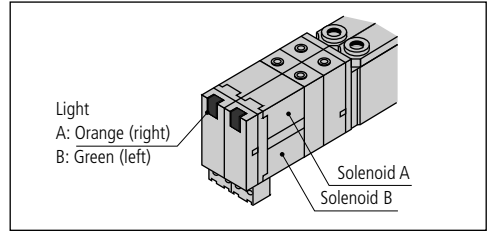


Fig 10

CAUTION

Installation of DIN Rail Manifold

When DIN Rail manifold (type 45, 45x) is installed with a bolt fix by the bolt at 2 places for 2~5 stations, at 3 places for 6~10 stations, at 4 places for 11~15 stations and 5 places for 16~20 stations.. If fixed number of stations is insufficient, DIN Rail and manifold may bend. Finally air leakage will occur.

Fittings tightening torque

Thread	Tightening torque N-m (kgf/cm)
M5	1.5~2 (15~20)
Rc (PT) 1/8	7~9 (70~90)
Rc (PT) 1/4	12~14 (120~140)
Rc (PT) 3/8	22~24 (220~240)

Maintenance

WARNING

Ensure air and electrical supplies are isolated before commencing any maintenance work.

Porting block (body ported) (Fig 1)

- To remove/replace the fittings (SX3000 series only)
1. Remove the two retaining screws 4
2. Remove retaining plate 5, port block 6 and retain gasket 9.
3. Remove fittings 6 from port block 8.

Replacement

1. Fit replacement fitting 6 into port block 8.
2. Refit retaining clip 5.
3. Ensure gasket 9 is in position.
4. Replace port block 8 complete with retainer 5 and fittings 6.
5. Replace and tighten retaining screws 4 to the following torque figures: 0.09N-m (0.9 kgf/cm).

To change port block assembly (SX5000/7000 series) (Fig 11)

1. Remove retaining screws 1.
 2. Lift off porting block 2 or 4 retain gasket.
 3. Ensure gasket 3 is in position.
 4. Replace porting block 2 or 4.
 5. Replace and tighten screw 1 to the correct torque.
- Tighten to the following torque figure:**
0.6N-m (6 kgf/cm).

Manifold push-in fitting removal/replacement (Fig 2)

1. Disconnect electrical connector 6.
2. Remove two retaining screws 1.
3. Lift valve off the manifold block 10.
4. Retain gasket 3.

Removal of fittings (Fig 2)

1. Prise out retaining clip 4.
 2. Remove fittings 6 from manifold block 10.
 3. Replace fittings 6 into manifold block 10.
 4. Re-fit retaining clip 4.
- Note 1) P and R ports cannot be changed.
Note 2) O-rings must be free from scratches and dust. Otherwise, air leakage may result.

Replacing the valve (Fig 2)

1. Ensure gasket 3 is correctly in position on the manifold block 10.
 2. Position the valve 2 onto the manifold block 10.
 3. Re-fit and tighten the two retaining screws 1.
 4. Re-connect the electrical connector 6.
- Tighten valve retaining screws to the following torque figures:**
- | | |
|--------|----------------------|
| SX3000 | 0.15N-m (1.5 kgf/cm) |
| SX5000 | 0.6 N-m (6 kgf/cm) |
| SX7000 | 1.4 N-m (14 kgf/cm) |

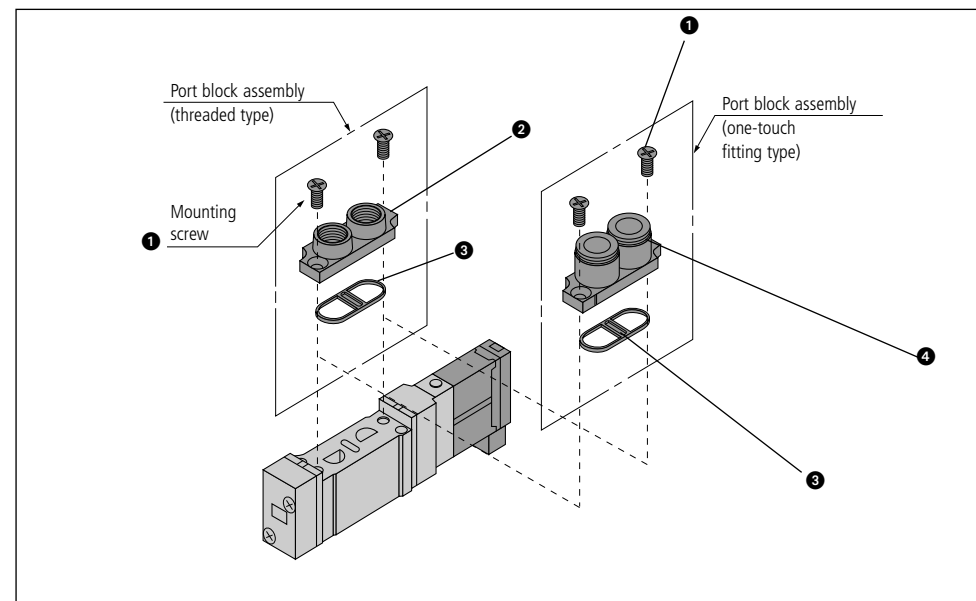


Fig 11

Blanking plate (Fig 12)

A blanking plate may be fitted on an unused manifold station.

Fitting blanking plate

Ensure gasket 3 is correctly fitted to manifold.

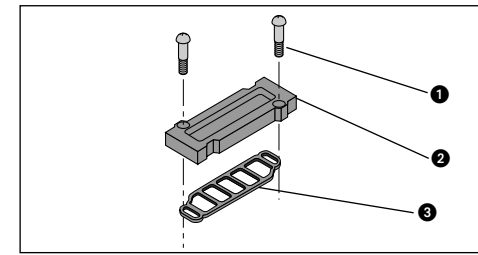


Fig 12

Fit blanking plate 2 to manifold.
Fit and tighten retaining screws.
Removal is the reverse of the above. Ensure gasket is retained.

Supply block disc (Fig 13)

When supplying a manifold with more than one pressure insert a block disc between the stations subjected to independent pressure supplies.

Exhaust block disc (Fig 13)

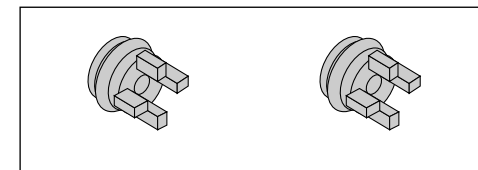


Fig 13

If a valve exhaust has an effect on other stations in the circuit or an externally piloted dual pressure valve is used on a standard manifold, insert exhaust block disc(s) in between stations to isolate the exhaust.

Block disc indication (Fig 14 a, b, c)

These indicators are applied to the manifold block containing block discs for external confirmation.

Label for SUP block disc

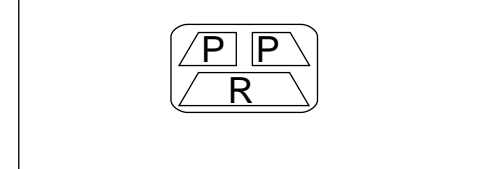


Fig 14a

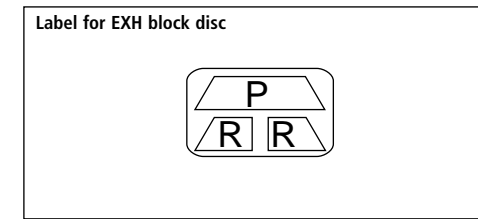


Fig 14b

Label for SUP, EXH block disc

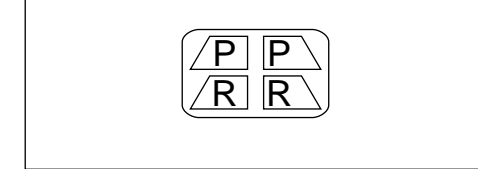


Fig 14c

Note: When ordering block disc installed at the factory, labels will be attached to the manifold showing the locations.

Individual supply spacer assembly (Fig 15)

When it is required to supply a valve, on a manifold station with an independent air supply, individual supply spacer can be fitted between the valve and manifold base.

Fitting an individual supply spacer (Fig 15)

1. Remove the valve from the manifold (see above).
2. Fit supply spacer gasket 5 to manifold.
3. Fit supply spacer 4 to manifold.
4. Fit valve gasket 3 to supply spacer.
5. Re-fit valve to supply spacer.
6. Fit and tighten valve retaining screws.

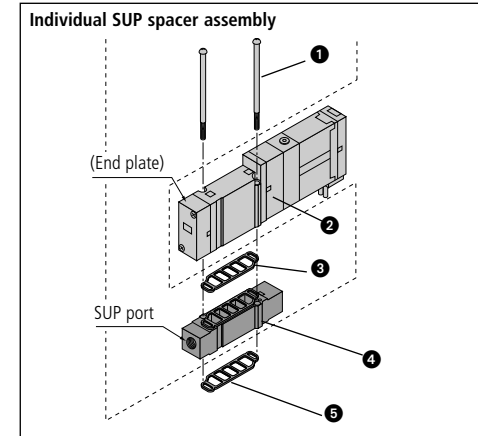


Fig 15

Individual exhaust spacer assembly (Fig 16)

When it is required to separate an individual valve exhaust an individual exhaust spacer can be fitted.

Fitting an individual exhaust spacer (Fig 16)

As for fitting supply spacer (above).

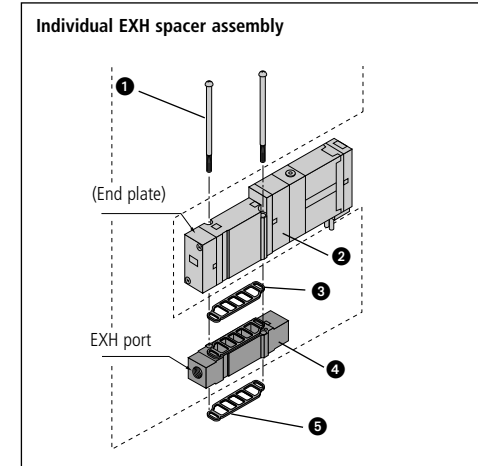


Fig 16

CAUTION

The supply and exhaust ports may be fitted either at the lead wire end of the valve or the end plate side. If supplied factory-assembled they are fitted at the end plate side.
For protection of the wiring unit section from drain, piping at the EA port shall be so arranged that it will not be directly exposed to exhaust from the valve.

Increasing manifold stations (Figs 17, 18, 19, 20 & 21)

Slacken captive bolt (a) (Fig 17). Press DIN rail release button (c) (Fig 17) and separate the manifold base from the DIN rail.

Note: Additional bases must be added to the 'U' side of the manifold.

Press splitting button (b) (Fig 17), until the button locks, and then separate the manifold blocks.
Separate the connector block (Fig 18) as in 3 above. Remove, and retain the connector mounting screw 1 (Fig 18).

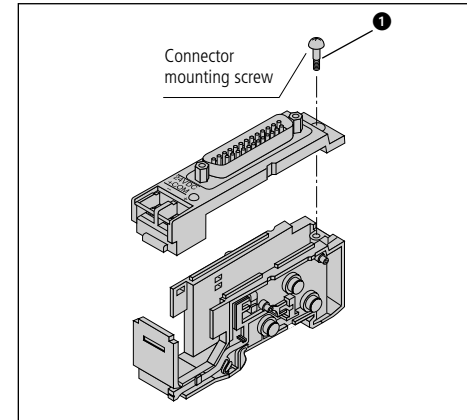


Fig 18

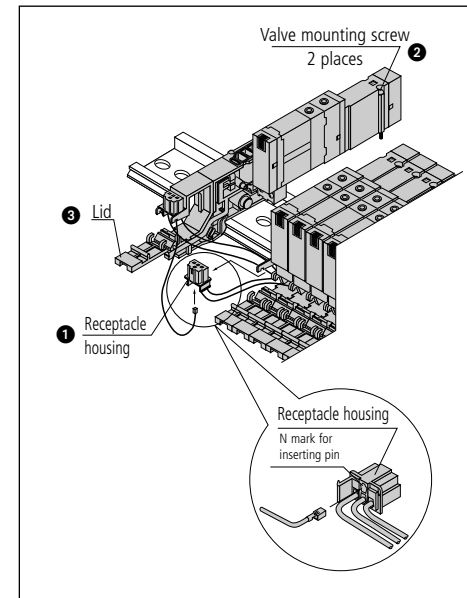


Fig 19

- Note 1) When adding manifold bases to use more than 10 stations, add SUP/EXH block assemblies as well.
- Note 2) When bolt for the end block is not sufficiently tightened during reassembly air leakage may result. Before supplying air, check that there is no gap between blocks and that the manifold block is firmly fixed to the DIN rail in order to ensure air supply without leakage.

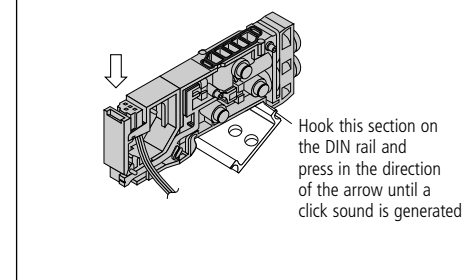


Fig 20

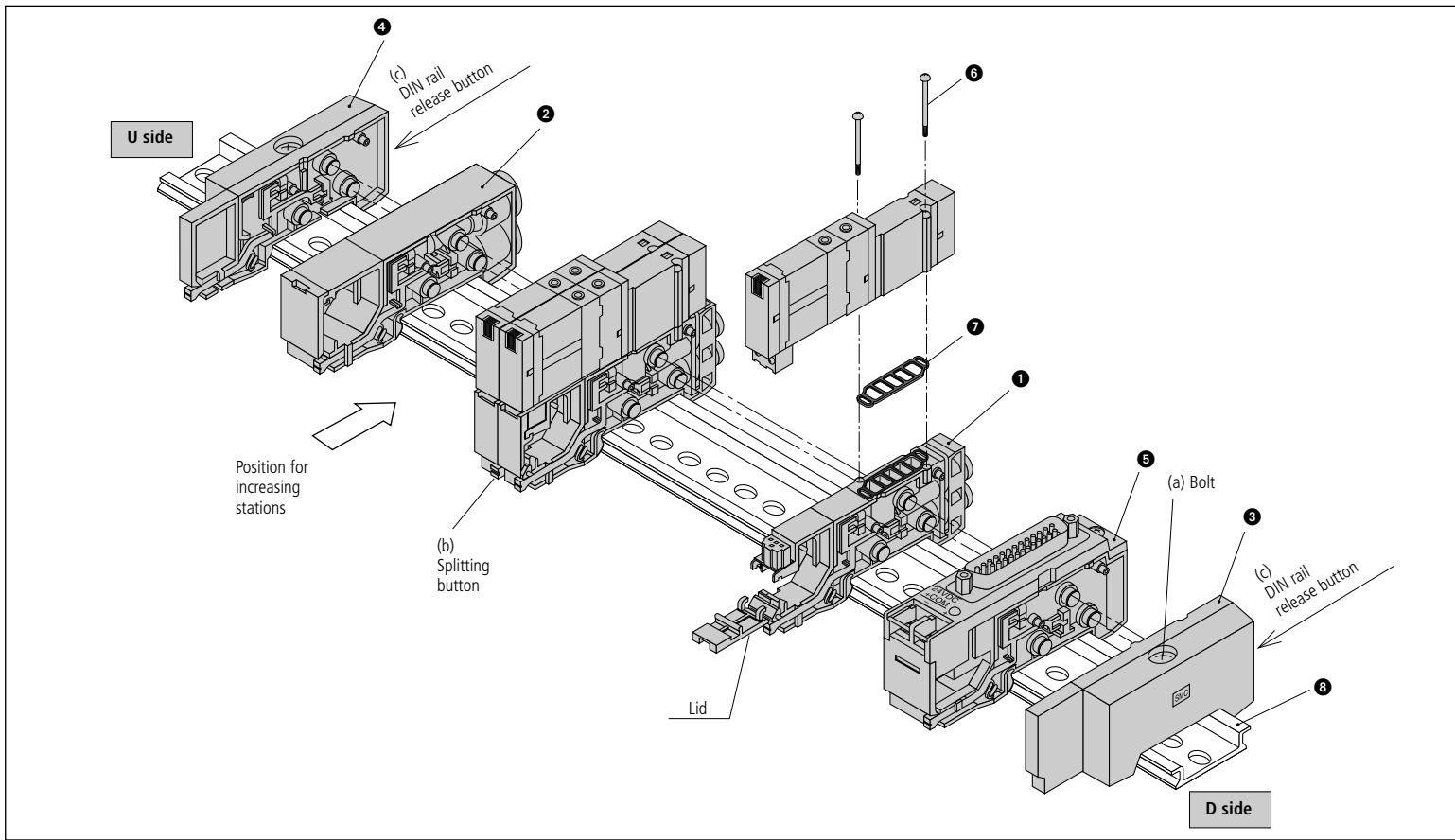


Fig 17

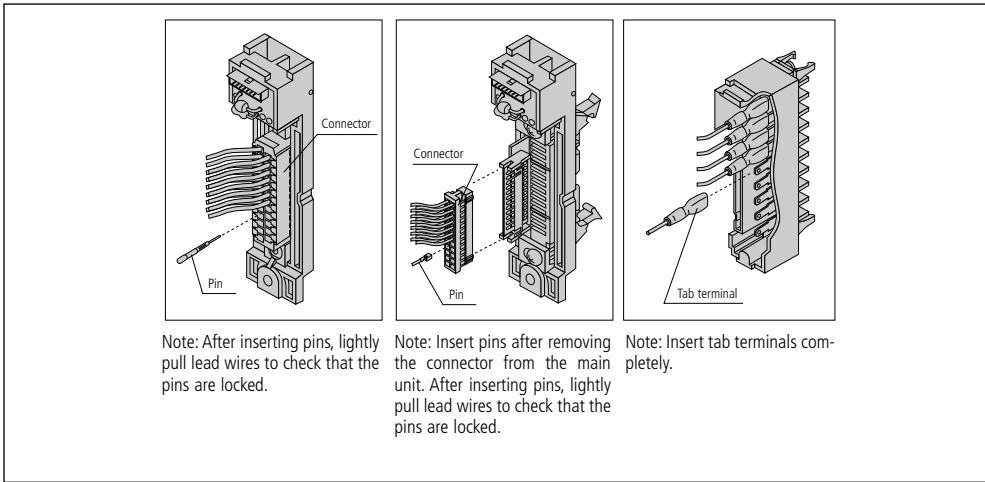


Fig 21

Slacken the valve mounting screws ② (Fig 19), on the 'U' side, remove the valve, and take out the receptacle housing ① (Fig 19). Insert the common wire (red) of the manifold block to be added into the pin insertion section (N mark) (Fig 19), of the receptacle removed in 5 above. Refit the receptacle to the manifold. Fit the additional manifold block to the DIN rail, on the 'U' side. Refer to the circuit diagram, and the lead wires into the connector (Fig 21). **Note: SOL. A black wire, SOL. B white wire (Fig 21).** Re-fit the connector block assembly. Press the blocks together until an audible 'click' is heard. Feed the lead wire into the manifold block, taking care not to trap the wire, close the lid ③ (Fig 19). Ensure that there is no gap between the blocks, re-tighten bolt (a) (Fig 17) to a torque figure of 1N·m.

CAUTION

- Depending on the type of connector there is a limit to the number of solenoids that can be used. Manifold bases that are to be added cannot exceed the number of usable solenoids. When all manifold stations are wired for double solenoids, expansion of the manifold may not be possible. Consult SMC for further information.
- The manifold block assembly mounting position for addition of manifold bases is always on the U side, because wires are connected to respective connectors sequentially from the D side.
- When bolt (a) for the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there is no gap between blocks and that the manifold block is firmly fixed to the DIN rail in order to ensure air supply without leakage.

'Q' suffix modification

Valve orientation

Body ported

In order to prevent incorrect valve assembly to a base or manifold, a machined hole ④ is inserted into the valve body and also into the base/manifold ⑤. The valve sealing gasket ③ has upper and lower protrusions which insert into the above-mentioned holes in the body and manifold.

Manifold mounted

The base mounted valve is fitted with a location pin ④ adjacent to the solenoid end. A matching hole ⑤ is machined into the manifold, and the gasket ③ has a matching hole to accept the above pin, ensuring that location is correct on assembly.

When you enquire about the product, please contact the following

SMC Corporation:

ENGLAND	Phone 01908-563888	TURKEY	Phone 212-2211512
ITALY	Phone 02-92711	GERMANY	Phone 6103-402-0
HOLLAND	Phone 020-5318888	FRANCE	Phone 01-64-76-10-00
SWITZERLAND	Phone 052-34-0022	SWEDEN	Phone 08-603 07 00
SPAIN	Phone 945-184100	AUSTRIA	Phone 02262-62-280
	Phone 902-255255	IRELAND	Phone 01-4501822
GREECE	Phone 01-3426076	DENMARK	Phone 8738-0800
FINLAND	Phone 09-68 10 21	NORWAY	Phone 67-12 90 20
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