

SAE 250 Spool Valves – A06 Series Operating/Service Instructions



Thank You!

You have purchased a premium-quality AV pneumatic valve. It is a high quality SAE spool valve, designed for ease of installation and maintenance.

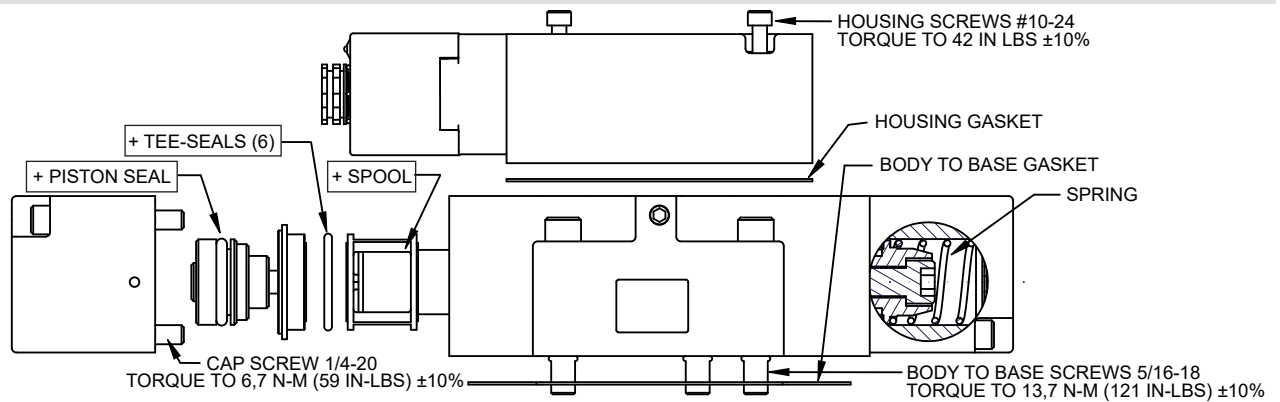
With care in its installation and maintenance you can expect it to have a long and economical service life. Before you service your valve, please read the information in this document completely, and save it for future reference. A general user manual with more detailed information is available online, visit AV's website at www.automaticvalve.com.

SERVICE INFORMATION

Please read and make sure you understand all instructions before proceeding with the service.

If you have any questions about installation or servicing your product, please contact AUTOMATIC VALVE or your authorized AV distributor, see contact information listed at the back of this document, or visit www.automaticvalve.com.

Service Kit Installation Instructions



+ = Items that Must Be Lubricated

Pneumatic equipment should be serviced only by persons trained and experienced in pneumatic products. Turn off the electrical supply to the valve. Shut off and exhaust the air supply.

1. Follow appropriate lock-out/tag-out procedures. Do not attempt to service a valve, if you are not familiar with lock-out/tag-out procedures.
2. Turn off electrical power to the valve.
3. Remove valve from all electrical and air power sources.
4. Ensure all stored air power is exhausted.
5. Remove end caps by first removing 2 socket head cap screws.
6. Remove existing serviceable components by “pushing” internal components gently out of the valve body.
7. Clean the spool with a clean cloth.
8. Discard the spring (Single Spring Return Models Only).
9. Lubricate the designated **+** items in the above assembly drawing with a thin film of lubricant - the item should look “WET” with no excess lubricant visible.
10. Replace components as shown above.
 - 10.1 Alternate Tee-seals and spacers.
 - 10.2 Once all 6 Tee-seals are installed, insert the retainer and piston into end cap. Insert O-ring in end cap.
 - 10.3 Replace spring (Single Spring Return models only).
11. Orientate spool as shown above.
12. Make sure rubber plug is still present in body. (9A Oper. Only)
13. Orientate the caps by aligning the pilot hole in the valve body with the pilot hole in the cap. (For external pilot, this hole is covered; see Field Conversion on page 3.)
14. Torque cap screws into body to 6,7 N-m (59 in-lbs) ±10%. Alternate tightening of the screws, so that cap “squeezes” evenly onto body.
15. Replace the housing gasket, if necessary. Torque housing screws to 4,8 N-m (42 in-lbs) ±10%. Take care not to scratch interface surface.
16. Replace the body-to-base gasket, if necessary. Torque body-base screws to 13,7 N-m (121 in-lbs) ±10%.

Series	Valve Type	Kit Model Number		Contents			
		Buna-N	Fluoroelastomer	Tee-Seals	Gasket	Piston Seal	Spring
A06	Single	K-A06-SGL	K-A06-SGL-A	6	1	1	1
	Double	K-A06-DBL	K-A06-DBL-A	6	2	2	–

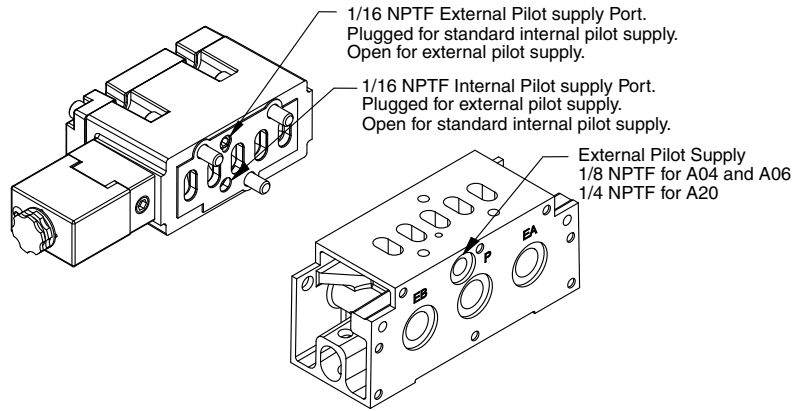
Air Line Lubrication of AUTOMATIC VALVE products is not required, but is recommended to maximize service life. Oils should be compatible with seal material, have an ISO 32 or lighter viscosity, and have an aniline point between 82°C (180°F) and 99°C (210°F).

Wiring														
Options					Pin Number									
4 pin Micro	5 Pin Micro	5 Pin Mini	Cst.	Schematic [For SGL Solenoid use Sol B pin out] (See next Page for Wiring & Service Diagram)	1		2		3		4		5	
					Lead	Connects To	Lead	Connects To	Lead	Connects To	Lead	Connects To	Lead	Connects To
-	0	-	GM		Red/White	Sol A Brown	Red	Sol B Black	Green	Ground	Red/Yellow	Sol B Brown	Red/Black	Sol A Black
-	1	-	Ford		Red/White	Sol B Brown	Red	Sol A Black	Green	Ground	Red/Yellow	Sol A Brown	Red/Black	Sol B Black
-	2 AC	-	Chrysler		Red/White	Sol A Brown	Red	Sol A Black	Green	Ground	Red/Yellow	Sol B Brown	Red/Black	Sol B Black
-	2 DC	-	Chrysler		Red/White	Sol A Black	Red	Sol B Black	Green	Ground	Red/Yellow	Sol A Brown	Red/Black	Sol B Brown
-	-	3	GM		Red/White	Sol A Brown	Red	Sol B Black	Green	Ground	Red/Yellow	Sol B Brown	Red/Black	Sol A Black
-	-	4	Ford		Red/White	Sol B Brown	Red	Sol A Brown	Green	Ground	Red/Yellow	Sol A Black	Red/Black	Sol B Black
-	-	5	Chrysler		Red/White	Sol A Brown	Red	Sol A Black	Green	Ground	Red/Yellow	Sol B Brown	Red/Black	Sol B Black
6	-	-	GM		Brown	Sol A Brown	White	-	Blue	Sol A Sol B (Black)	Black	Sol B Brown	None	
7	-	-	Ford		Brown	-	White	Sol A Brown	Blue	Sol A Sol B (Black)	Black	Sol B Brown	None	

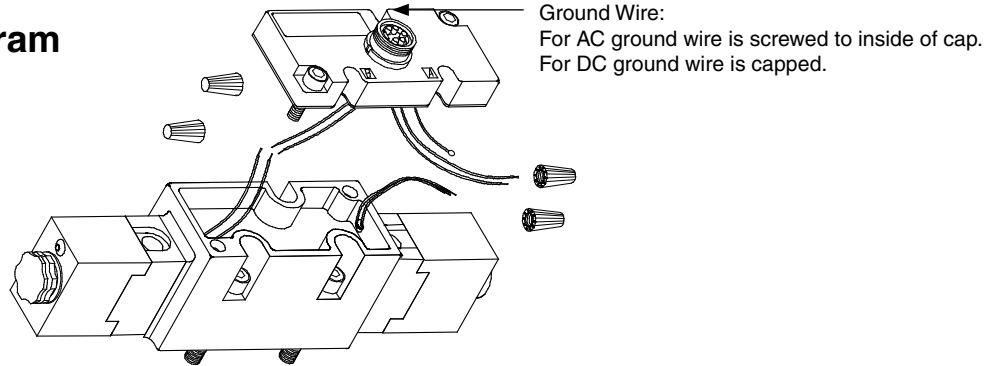
External Pilot – Field Conversion

Remove the valve from the sub-base and turn upside down.

- Remove the 1/16 NPTF pipe plug from the external pilot supply port in the valve and install it in the supply port.
- Connect the air supply to the external pilot supply port in the base.



Wiring & Service Diagram

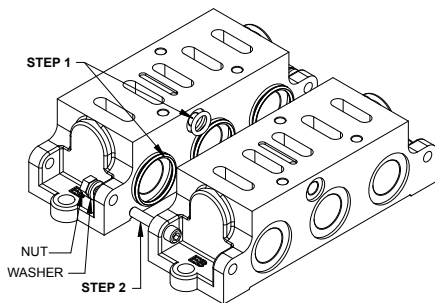


Assembly: Valve to Manifold Base

Model 413 Assembly

Instructions:

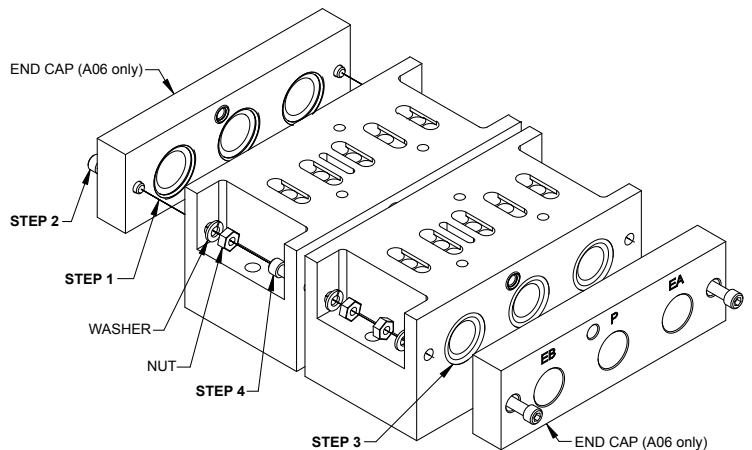
1. STEP 1: Place O-Rings in counterbores in base.
2. STEP 2: Assemble base to base using screws, washers, and nuts.



Model 416 Assembly

Instructions:

1. STEP 1: Place O-Rings in counterbores of end caps.
2. STEP 2: Assemble cap to base using screws, washers, and nuts.
3. STEP 3: Place O-Rings in counterbores of base.
4. STEP 4: Assemble base to base using screws, washers, and nuts.



CAUTIONS And WARNINGS



ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the “ROSS Group”.

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.
3. All applicable instructions should be read and complied with before using any fluid power system to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS Group location.
4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

FILTRATION and LUBRICATION

1. Dirt, scale, moisture, etc., are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible

lubricants are petroleum base oils with oxidation inhibitors, an aniline point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks personal injury, and/or damage to property.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.
2. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

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SAFETY APPLICATIONS

1. Mechanical Power Presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
2. Safety exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All safety exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators (“FRLs”) which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to

be free of defects in material and workmanship. The ROSS Group's obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND THE ROSS GROUP EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE ROSS GROUP MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT IS THE ROSS GROUP LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF THE ROSS GROUP MAY EXTEND THE LIABILITY OF THE ROSS GROUP AS SET FORTH HEREIN.



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