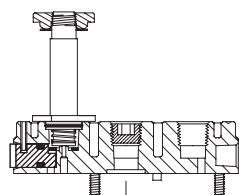


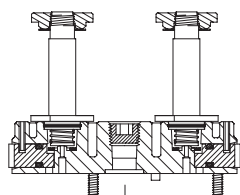
# OPERATOR'S MANUAL

# ALPHA

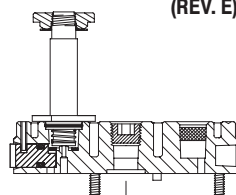
REVISED: 9-22-03  
(REV. E)



SP  
SOLENOID / PILOT



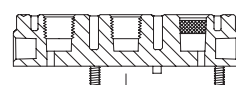
SD  
DOUBLE SOLENOID



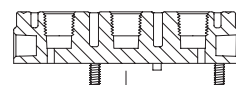
SS  
SINGLE SOLENOID

VALVE MODEL	"A" SPOOL KIT	"B" COVER PLATE KIT
A2XXBD	118597-12	114776
A2XXPS	118597-2	116538
A2XXPD	118597-12	116539
A2XXSS-XXX-X	118597-2	119238
A2XXSD-XXX-X	118597-12	119236
A2XXSS-XXX-L	118597-2	119241
A2XXSD-XXX-L	118597-12	119239
A2XXSP-XXX-X	118597-12	119237
A2XXSP-XXX-L	118597-12	119240
A3XXPD	118597-3	116539
A3XXSD-XXX-X	118597-3	119236
A3XXSD-XXX-L	118597-3	119239
A3XXSP-XXX-X	118597-3	119237
A3XXSP-XXX-L	118597-3	119240
A4XXPS	118598-4	116538
A4XXPD	118598-14	116539
A4XXSS-XXX-X	118598-4	119238
A4XXSD-XXX-X	118598-14	119236
A4XXSS-XXX-L	118598-4	119241
A4XXSD-XXX-L	118598-14	119239
A4XXSP-XXX-X	118598-14	119237
A4XXSP-XXX-L	118598-14	119240
A7XXPD	118597-7	116539
A7XXSD-XXX-X	118597-7	119236
A7XXSD-XXX-L	118597-7	119239
A7XXSP-XXX-X	118597-7	119237
A7XXSP-XXX-L	118597-7	119240
A8XXPD	118598-8	116539
A8XXSD-XXX-X	118598-8	119236
A8XXSD-XXX-L	118598-8	119239
A8XXSP-XXX-X	118598-8	119237
A8XXSP-XXX-L	118598-8	119240
A9XXPD	118598-9	116539
A9XXSD-XXX-X	118598-9	119236
A9XXSD-XXX-L	118598-9	119239
A9XXSP-XXX-X	118598-9	119237
A9XXSP-XXX-L	118598-9	119240

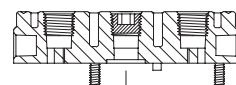
MODEL NUMBER	PORT SIZE	"C" VALVE BODY
AX11XX-	1/8 N.P.T.F.	116205-1
AX12XX-	1/4 N.P.T.F.	116205-2
AX13XX-	3/8 N.P.T.F.	119644
AX21XX-	1/8 N.P.T.F.	116206-1
AX22XX-	1/4 N.P.T.F.	116206-2
AX39XX-	NONE	115030
AX49XX-	NONE	115081



PS  
SINGLE PILOT



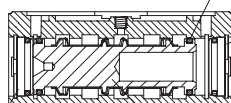
PD  
DOUBLE PILOT



BD  
DOUBLE BLEED



**"B" Cover Plate Kits Include:**  
Cover Plate Assembly  
Mounting Screws  
Armature Assembly (where applicable)  
Cover Plate Gasket



"O" Ring, marked:  
Yellow - Nitrile  
Red - Viton  
(included in "A")

Retaining Ring  
(included in "A")

"C" Valve Body

119242 End Cap Kit  
(includes: End Cap (2) &  
"O" Ring (2), not marked)

**"A" Spool Kits Include:**  
Spool Assembly  
"O" Rings (4)  
Retaining Rings  
Spring (where applicable)

## GENERAL CONSIDERATIONS

1. Remove valve from service and disconnect all lines, inlet, outlet and pilot on side ported and stacking models. On subplate mounted and "Thin" models, remove valve from base.
2. Disconnect all electrical connections from coil.
3. Remove all fittings from ports and pilot connections.

## SINGLE AND DOUBLE SOLENOID VALVE DISASSEMBLY

1. Remove nut and washer from top of coil, then lift coil vertically to clear stem. NOTE: Cover plate disassembly is not required beyond this point. If cover plate is defective, replace with appropriate kit.
2. Remove the four socket head screws, lift cover plate vertically until locating pins are clear, then remove gasket.
3. Remove retaining rings from valve body. Caution is to be used on spring return and spring centered valves, as spring or spool may eject.
4. Remove end caps from body.
5. Remove spool. Spool may require forcible removal, use a wooden or plastic dowel, do not use a metal punch or screwdriver in valve bore, as this could result in damage to body seal lands.
6. De-grease body, then inspect i.d. for damage to seal lands. If lands show scratches or burrs, replace body. Do not de-grease elastomer components in hot water based solvents, trichloroethylene or methyl ethyl ketone.

## SINGLE AND DOUBLE SOLENOID VALVE REASSEMBLY

1. Be sure valve body is completely dry both internally and externally.
2. Lubricate all seals, o.d. of spool and i.d. of valve body with a light coat of 36460 "O" ring lube or equivalent.
3. Install one end cap and retaining ring in body with "O" ring toward bore - on spring return valve, the end opposite the spring should be installed.
4. Install spool in body (spring cavity, if so equipped, facing out) be sure spool is centered in bore. Do not cock. While a slight force may be required, do not beat spool into valve.
5. After spool is seated, install spring in spring cavity in spool (where applicable). Install end cap, depressing spring, and install retaining ring.
6. Install gasket in valve body and assemble cover plate on valve. NOTE: On single solenoid valves, the coil

stem installs on opposite end to spring.

7. Install four socket head cap screws, taking care not to cross thread screw, and torque to 18 - 23 in. lbs (2.0 - 2.6 Nm).
8. Install coils over stems, with single horizontal pin closest to valve. Place spring washer over stem, then reinstall nut and hand tighten.

## SINGLE AND DOUBLE PILOT VALVE DISASSEMBLY

1. Remove the four socket head screws. Lift cover plate vertically until locating pins are clear, then remove gasket.
2. Remove retaining rings from valve body. Caution is to be used on spring return and spring centered valves as spring or spool may eject.
3. Remove end caps from body.
4. Remove spool. Spool may require forcible removal. Use a wooden or plastic dowel, do not use a metal punch or screwdriver in valve bore, as this could result in damage to body seal lands.
5. De-grease body, then inspect i.d. for damage to seal lands. If lands show scratches or burrs, replace body. Do not de-grease elastomer components in hot water based solvents, trichloroethylene or methylethyl ketone.

## SINGLE AND DOUBLE PILOT VALVE REASSEMBLY

1. Be sure valve body is completely dry both internally and externally.
2. Lubricate all seals, o.d. of spool and i.d. of valve body with a light coat of 36460 "O" ring lube or equivalent.
3. Install one end cap and retaining ring in body with "O" ring toward bore - on spring return valve, the end opposite the spring should be installed.
4. Install spool in body (spring cavity, if so equipped, facing out) be sure spool is centered in bore. Do not cock. While a slight force may be required, do not beat spool into valve.
5. After spool is seated, install spring in spring cavity in spool (where applicable). Install end cap, depressing spring, and install snap ring.
6. Install gasket in valve body and assemble cover plate on valve. NOTE: On single pilot valves, the coil stem installs on opposite end to spring.
7. Install four socket head cap screws, taking care not to cross thread screw, and torque to 18 - 23 in. lbs (2.0 - 2.6 Nm).