Genesis

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ARO

Genesis Series Valves
Parts List / Service Instructions

INDEX **PAGE**

ARO

INGERSOLL–RAND COMPANY
ONE ARO CENTER • BRYAN, OHIO 43506–0151
✆ (419) 636–4242 • FAX (419) 633–1674

INGERSOLL-RAND
FLUID PRODUCTS

Warnings and Cautions

SPECIFICATIONS

- Pressure Ratings: 150 p.s.i. max. (10.3 bar) except valves with low–watt coils which are 115 p.s.i. max. (7.9 bar).
- Shift Pressure: 25 p.s.i. (single solenoid)
  5 p.s.i. (double solenoid)
  25 p.s.i. (double solenoid, 3–position)
- Flows: 1.2 Cv (average)
- Operating Medium: compressed air only
- Lubrication: none required
- Filtration: 40 micron recommended
- Temperature Range: 0 – 180°F (–18 – 82.2°C)
- Signal Response Time: 19 m sec (0 cu. inches per NFPA spec T3.21.3 1990)

APPLICATION

WARNINGS:

1. ARO valves are designed for use only in industrial pneumatic (air) and/or vacuum systems applications and are NOT to be used for individual consumer use, application or service.

2. When any ARO valve is used in any type application, safeguards must be provided to insure against bodily injury for the operator and / or other persons in the immediate area.

3. ARO valves are NOT to be used as a safety device or to operate and/or control the operation of full revolution clutch systems and/or brake systems on power presses or similar equipment. ARO valves are not designed or intended for such uses.

LUBRICATION

Valve components are lubricated at the time of assembly at the factory and can normally be operated without air line lubrication to an approximate life of twenty million cycles, depending on application. If air line cylinders or other air line devices, used in conjunction with ARO valves, require lubrication, be sure the lubricating oils used are compatible with the valve seals and are of sufficient viscosity to assure adequate lubrication. Aro recommends an oil lubricant with a viscosity of 100 – 200 SUS at 100°F and an aniline point above 200°F. Aro does not recommend the use of compound oils containing graphite fillers, extremely low viscosities and other non–fluidic lubricants. RECOMMENDED: Aro 29665 air line lubricator oil is available in one quart containers.

INSTALLATION AND SERVICE

WARNINGS:

1. Shut off, disconnect and exhaust air pressure from system before installing or performing service to any ARO valve.

2. Shut off and disconnect electrical supply to system before installing or performing service to any ARO valve.

3. Allow only persons with a thorough understanding of the operation and application of all ARO valves being used in a particular system and how the ARO valve(s) relate to and interact with other components of the system to install or perform maintenance or service to any ARO valve or other components of the system.

4. DO NOT subject any ARO valve to any condition that exceeds the limits set forth in the specifications for a particular valve model.

5. When valve is used or installed into a system, provisions must be made to prevent the valve from being accidentally operated (actuated), which may in turn cause bodily injury or otherwise cause a hazardous or dangerous condition

6. Damaged air pressure hoses or electrical wiring, or connections, can cause accidental valve operation (actuation), which may in turn cause bodily injury or otherwise cause a hazardous or dangerous condition. KEEP ALL HOSES, ELECTRICAL WIRING, FITTINGS AND CONNECTIONS IN FIRST CLASS OPERATING CONDITION.

7. **ARO 2–POSITION, 4–WAY VALVES:** Regardless of which of the 2–positions this type of ARO valve is in, when air pressure is applied to the inlet port(s) of these valves, there will always be an open flow path of air from the inlet to one of the valve outlets. A method to exhaust this trapped air pressure must be installed into the system so all air pressure can be removed from valve or system before performing service or maintenance to valve.

8. **ARO 3–POSITION, 4–WAY VALVES:** To actuate this type of ARO valve, either a double solenoid, double remote air pilot pressure or override is used. When the valve actuator has shifted the valve, air pressure applied at the inlet port(s) will flow thru the valve to one of the two outlet ports. When the valve is not in a shifted position, the valve will automatically move to a center position. ARO valves can be either closed center or open center type and will reveal the following characteristics when the valve is in the center position:

   a. **OPEN CENTER VALVES:** When this type ARO valve is in the center position, the inlet port(s) is blocked and the two outlet ports are open to the exhaust port(s) of the valve. With this type valve, in the center position, air pressure is not present at either outlet port. Do not use this type ARO valve if exhausting the air pressure from the valve will cause hazardous or dangerous condition.

   b. **CLOSED CENTER VALVES:** When this type valve is in the center position, all inlet, outlet and exhaust ports are blocked. Do not use this type valve if having the air pressure blocked at the port(s) may cause a hazardous or dangerous condition in the application, installation and / or servicing of an ARO valve. These valves must not be used to control load holding devices without an additional mechanical positive stop on the holding device.

9. Genesis Plug–In valves and manifolds are internally wired and must be properly grounded to ensure safe and correct operation.

WARNINGS:

Hazardous Voltage. Serious injury can occur. Do not attempt any service without disconnecting all electrical supply sources.

G N 1 2 SD – 120 – A

SPOOL TYPE
N – PLUG ON
P – PLUG IN

VALVE BODY STYLE
ISO SIZE

COIL AND CURRENT TYPE
SEE COIL CHART BELOW

COIL VOLTAGE
000 – NO COIL
005 – 5 VOLTS (DC ONLY/LOW WATT ONLY)
012 – 12 VOLTS (AC OR DC)
024 – 24 VOLTS (AC OR DC)
120 – 120 VOLTS (AC OR DC)
240 – 240 VOLTS (AC ONLY)

VALVE TYPE
2 – 2 POSITION / URETHANE
*3 – 3 POSITION / SPRING CENTERED, ALL PORTS BLOCKED IN NEUTRAL / URETHANE
4 – 2 POSITION / VITON
*7 – 3 POSITION, SPRING CENTERED, INLET PORT BLOCKED, CYLINDER PORTS OPEN IN NEUTRAL / URETHANE
*8 – 3 POSITION, SPRING CENTERED, ALL PORTS BLOCKED IN NEUTRAL / VITON
*9 – 3 POSITION, SPRING CENTERED, INLET PORT BLOCKED, CYLINDER PORTS OPEN IN NEUTRAL / VITON

*** AVAILABLE IN PD, SD, ND, AD AND MD ACTUATOR STYLES ONLY.**

ACTUATOR
□ PD – DOUBLE PILOT
□ PS – PILOT / SPRING
SD – DOUBLE SOLENOID
SS – SOLENOID / SPRING
ND – DOUBLE SOLENOID – NEMA 4
NS – SOLENOID / SPRING – NEMA 4
AD – EXTERNAL PILOT, DOUBLE SOLENOID
AS – EXTERNAL PILOT, SOLENOID / SPRING
MD – EXTERNAL PILOT, DOUBLE SOLENOID – NEMA 4
MS – EXTERNAL PILOT, SOLENOID / SPRING – NEMA 4

□ AVAILABLE ONLY ON PLUG–ON MODELS

COIL CHART

PLUG–ON MODELS

CURRENT TYPE	DESCRIPTION	COIL
–A	STANDARD AC	116218–XX
–B	MOLDED LEADS AC	116647–XX
–C	CABLE AC	115046–XX
–D	STANDARD DC	116218–XX
–E	MOLDED LEADS DC	116647–XX
–F	CABLE DC	115046–XX
–G	CONDUIT AC	118154–XX
–K	CONDUIT DC	118154–XX
–L	LOW WATT DC	115064–XX
–M	LOW WATT DC	NO COIL
–N	STANDARD AC/DC	NO COIL
–S	INTRINSICALLY SAFE	119398 KIT

COIL DASH	VOLTAGE
31	12 VAC
33	120 VAC
35	240 VAC OR 120 VDC
37	5 VDC (LOW WATT ONLY)
38	24 VAC OR 12 VDC
39	24 VDC

PLUG–IN MODELS

CURRENT TYPE	DESCRIPTION	COIL KIT
–A, –H	STANDARD AC	N/A
–D, –J	STANDARD DC	N/A
–L, –P	LOW WATT DC	N/A

PLUG–IN VALVES AND MANIFOLDS

MANIFOLD ASSEMBLY INSTRUCTIONS

1. Using the pipe plugs, seal off the ports that are not to be used. Ports are located on the rear and bottom of the manifold. Plugs for the bottom ports have been supplied from the factory.
2. Install the track gasket into the groove located on the side of the manifold. It will be retained in place when properly installed.
3. Repeat steps 1 and 2 for each manifold to be used.
4. Install the tie rods into the left side end plate. The left side end plate has female threads while the right side has a thru hole and counterbore. The tie rods may be assembled at one time or as individual blocks are added to the manifold stack.
5. Install the flat gasket onto the stack prior to the installation of any blocks. The large open area aligns over the electrical conduit hole.
6. Install the preassembled manifold bases onto the tie rods so the internal wire tray faces forward. Attach the right side end plate, securing with two cap screws. Use a 5 mm hex wrench and torque to 40 in. lbs (4.5 Nm).
7. The manifold stack is now ready to be secured to the mounting surface, wired and have the valves mounted.

WIRING INSTRUCTIONS

1. The Genesis manifold comes with a factory installed wiring plug. The basic configuration provides for five wires. Only three wires are needed for single solenoid operation.
2. Using a 3 mm hex wrench, remove two screws, releasing the door from the front of the manifold.
3. The green wire with the ring terminal is to be connected to the manifold using the supplied green ground screw. This screw is to be installed in the hole directly below the ground symbol at the edge of the wire tray. The hole has not been tapped, as the screw is self–forming, to insure a positive ground.
4. The main power leads are clearly marked. Black wires will supply signal to the number 14 operator, while the white wires control the number 12 operator.
5. If the operator terminal block has been ordered, the internal wiring, with the exception of the ground wire, will be pre–installed into the block at the factory. Wiring is completed by connecting external wires to the appropriate terminal opposite the operator wires. The number 12 operator is controlled by the white wires and the number 14 operator is controlled by the black wires.
6. If the optional operator lights have been ordered, the internal wiring connections have been completed at the factory. The only remaining wiring needed is to connect the power source to the correct operator control wires and insulate the completed connections.
7. The manifold is now ready to be final wired into the control assembly.

VALVE AND ACCESSORY INSTALLATION

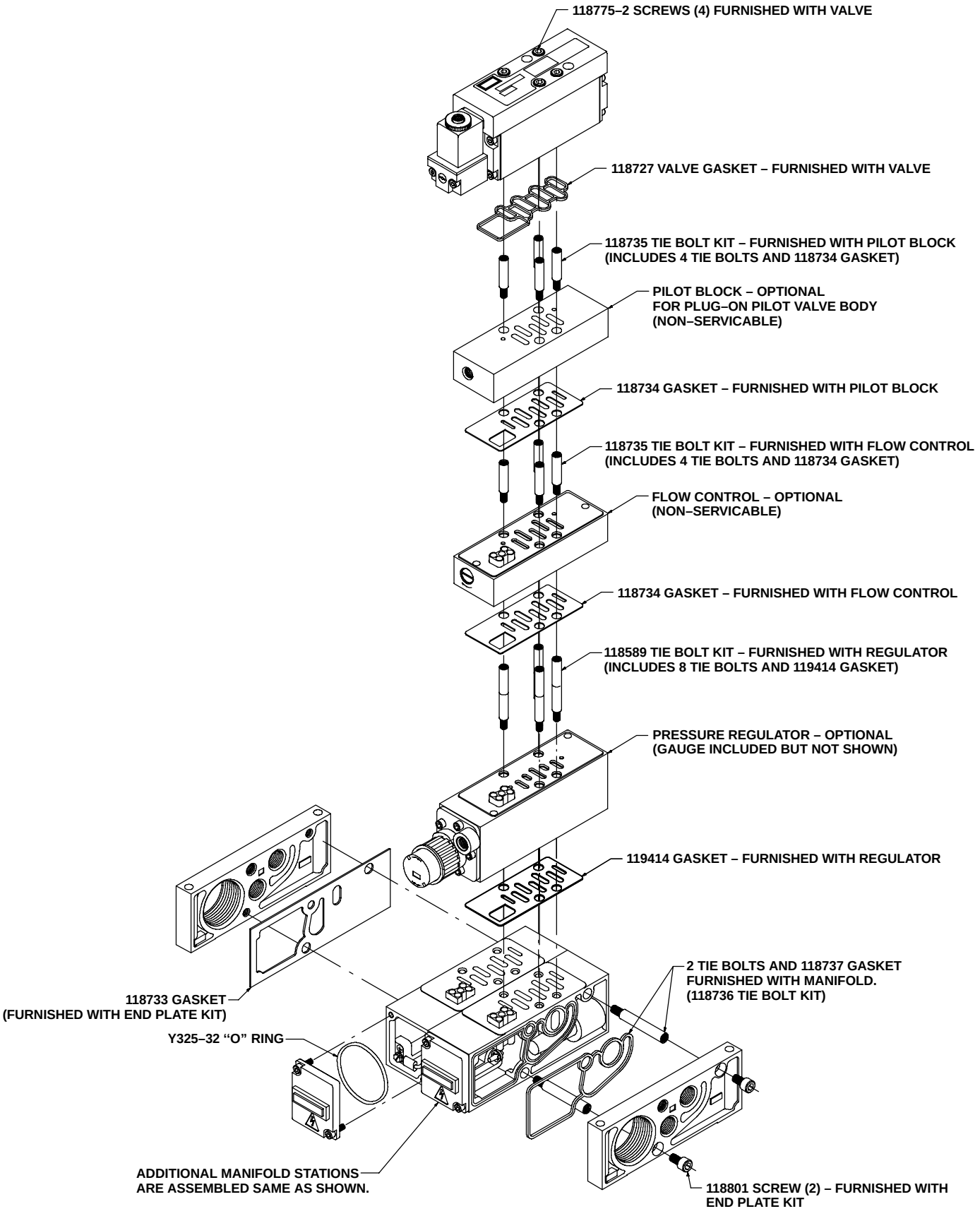
1. Install the track gasket into the track in the bottom of the valve body and insert the four tie down bolts into the body thru the holes provided.
2. Position the valve above the manifold so that the electrical plug is aligned with the manifold plug. The four tie down bolts will correctly align all the valve / manifold interfaces. Torque the bolts to 40 in. lbs (4.5 Nm).
3. If any accessories are to be installed, use the following procedure.

   Screw the stacking pins into the manifold. Install the flat gasket onto the manifold so the stacking pins slide thru the gasket. Position the accessory above the manifold so the electrical plugs align, then press the unit down so the pins firmly engage. Follow this same procedure for each accessory to be used.
4. All electrical and pneumatic connections have now been made and the valve is ready to operate.

BASIC VALVE OPERATION

- Directional control valves are used to start, stop and direct the flow of air in a pneumatic system. By directing the flow of air, these valves control the action of other pneumatic devices.
- The Genesis valve is a 4 – way, 4 – ported, pneumatic, directional control valve. It has four main ports which are: pressure inlet, two outlet or cylinder ports and an exhaust port. The Genesis valve is available as a 2 – position or 3 – position valve.
- In the unactuated or normal position of a 4 – way, 2 – position valve, the inlet port (port 1) is connected to outlet port 2, and outlet port 4 is connected to exhaust port 3. In the actuated position, the inlet port (port 1) is connected to outlet port 4 and outlet port 2 is connected to exhaust port 3.
- The 4 – way, 3 – position valve operates the same way as a 2 – position, except it has a third or center position. This center position is considered a neutral position and can be ordered in two different variations; 1) all ports blocked or 2) inlet port blocked and outlet ports open to exhaust. In the “all ports blocked in neutral” valve, the spool seals all of the ports from each other in the center position, allowing no air to flow. In the “inlet port blocked and outlet ports open” valve, the spool blocks inlet port 1 and connects outlet ports 2 and 4, to exhaust port 3.

PLUG–IN MODELS



PLUG–ON VALVES AND MANIFOLDS

MANIFOLD ASSEMBLY INSTRUCTIONS

1. Using the pipe plugs, seal off the ports that are not to be used. Ports are located on the rear and bottom of the manifold. Plugs for the bottom ports have been supplied from the factory.
2. Grease and assemble the three seals into the side of the manifold.
3. Repeat steps 1 and 2 for each manifold to be used.
4. Assemble end plates to the manifold, securing with cap screws and nuts. Two tabs on each manifold have a recessed area on the inside to help keep the nut from turning during assembly.
5. The manifold stack is now ready to be secured to the mounting surface and have the valves mounted.

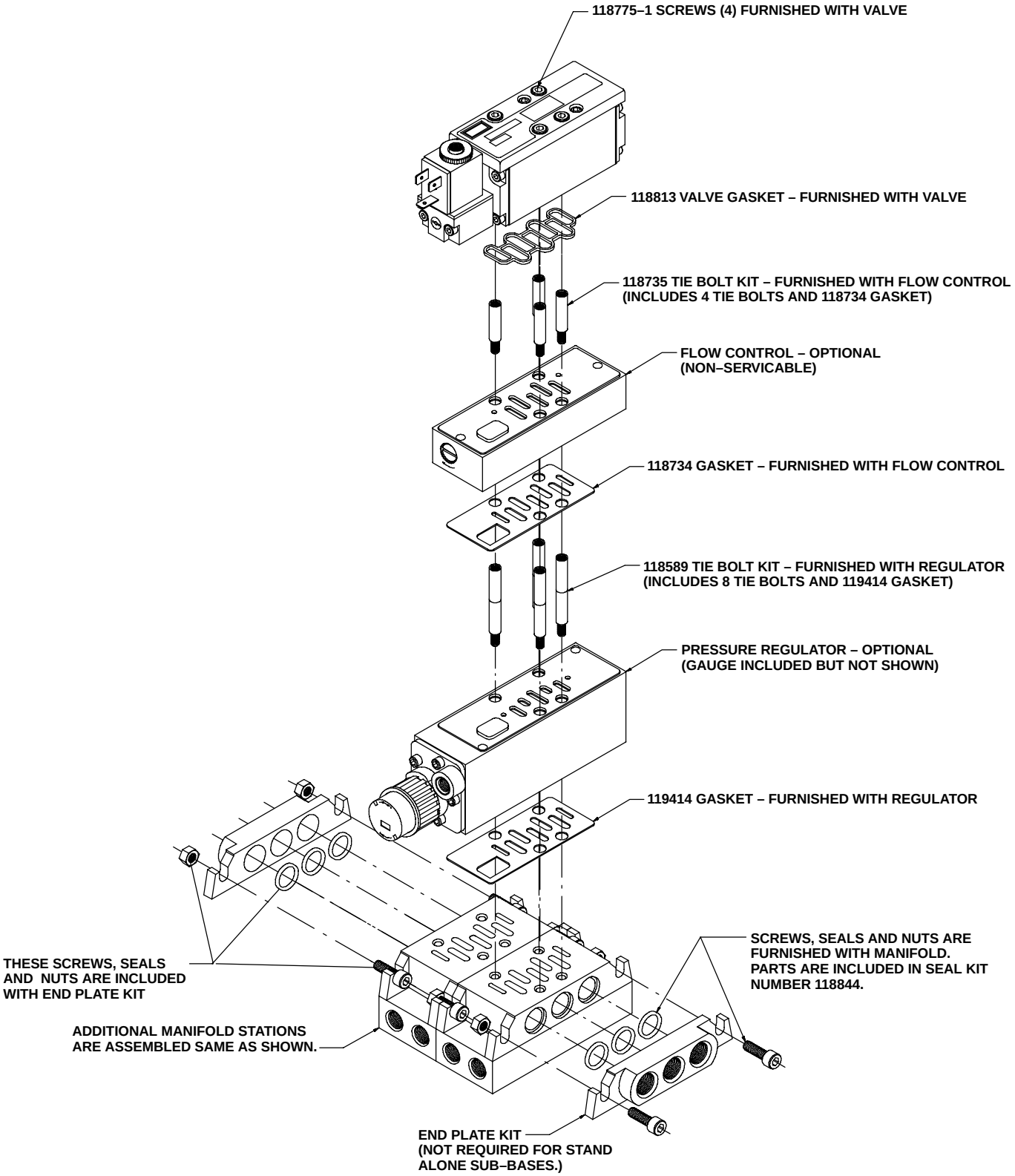
VALVE AND ACCESSORY INSTALLATION

1. Install the track gasket into the track in the bottom of the valve body and insert the four tie down bolts into the body thru the holes provided.
2. Assemble the valve body to the manifold, securing with tie down bolts. Torque the bolts to 40 in. lbs (4.5 Nm).
3. If any accessories are to be installed, use the following procedure. Screw the stacking pins into the manifold. Install the flat gasket onto the manifold so the stacking pins slide thru the gasket. Position the accessory above the manifold and press the unit down so the pins firmly engage. Follow this same procedure for each accessory to be used.
4. All pneumatic connections have been made and the valve is ready to operate.

BASIC VALVE OPERATION

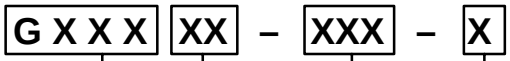
- Directional control valves are used to start, stop and direct the flow of air in a pneumatic system. By directing the flow of air, these valves control the action of other pneumatic devices.
- The Genesis valve is a 4 – way, 5 – ported, pneumatic, directional control valve. It has five main ports which are: pressure inlet, two outlet or cylinder ports and two exhaust ports. The Genesis valve is available as a 2 – position or 3 – position valve.
- In the unactuated or normal position of a 4 – way, 2 – position valve, the inlet port (port 1) is connected to outlet port 2, outlet port 4 is connected to exhaust port 5 and exhaust port 3 is blocked. In the actuated position, the inlet port (port 1) is connected to outlet port 4, outlet port 2 is connected to exhaust port 3 and exhaust port 5 is blocked.
- The 4 – way, 3 – position valve operates the same way as a 2 – position, except it has a third or center position. This center position is considered a neutral position and can be ordered in two different variations; 1) all ports blocked or 2) inlet port blocked and outlet ports open to exhaust. In the “all ports blocked in neutral” valve, the spool seals all of the ports from each other in the center position, allowing no air flow. In the “inlet port blocked and outlet ports open” valve, the spool blocks inlet port 1, connects port 2 to exhaust port 3 and connects outlet port 4 to exhaust port 5.

PLUG–ON MODELS



SERVICE REPAIR KITS

VALVE MODEL NUMBER



OPTION	REBUILD KIT	GASKET KIT
NON–PLUG–IN		
GN12	118820–3	118824
GN13	118822–3	118824
GN14	118820–4	118824
GN17	118821–3	118824
GN18	118822–4	118824
GN19	118821–4	118824
PLUG IN		
GP12	118820–1	118823
GP13	118822–1	118823
GP14	118820–2	118823
GP17	118821–1	118823
GP18	118822–2	118823
GP19	118821–2	118823

PRESSURE REGULATOR		
MODEL	REBUILD KIT	PRESS. ADJ. KIT
118573–X2	119213	119212–30
118573–X3	119213	119212–60
118573–X4	119213	119212–120
118573–X5	119213	119212–30
118573–X6	119213	119212–60
118573–X7	119213	119212–120

SOLENOID COILS (PLUG IN VALVES ONLY)				
OPTION	VOLTAGE	COIL OPT. –A, –H	COIL OPT. –D, –J	COIL OPT. –L, –P
000	NO COIL	NONE	NONE	NONE
005	5	NONE	NONE	119394–37
012	12	NONE	119393–38	119394–38
024	24	119393–38	119393–39	119394–39
048	48	119393–39	NONE	NONE
120	120	119393–33	119393–35	NONE
240	240	119393–35	NONE	NONE

NUMBER OF SOLENOID COILS REQUIRED PER VALVE (PLUG IN VALVES ONLY)	
OPERATOR OPTION	NUMBER OF KITS REQUIRED
PD	NONE
PS	NONE
SD	2
SS	1
ND	2
NS	1
AD	2
AS	1
MD	2
MS	1

NOTE:

A. THE REBUILD KIT AND GASKET KIT SELECTION IS DETERMINED BY THE FIRST FOUR POSITIONS IN THE MODEL NUMBER [GX1X] XX–XXX–X, (THE POSITIONS WITHIN THE BRACKETS).

B. THE SOLENOID COIL IS DETERMINED BY THE COIL VOLTAGE OPTION CODE IN THE MODEL NUMBER GX1XXX–[XXX–X], (THE POSITIONS WITHIN THE BRACKETS).

C. THE NUMBER OF SOLENOID COILS REQUIRED IS DETERMINED BY THE OPERATOR OPTION CODE IN THE MODEL NUMBER GX1X[XX]–XXX–X, (THE POSITIONS WITHIN THE BRACKETS).

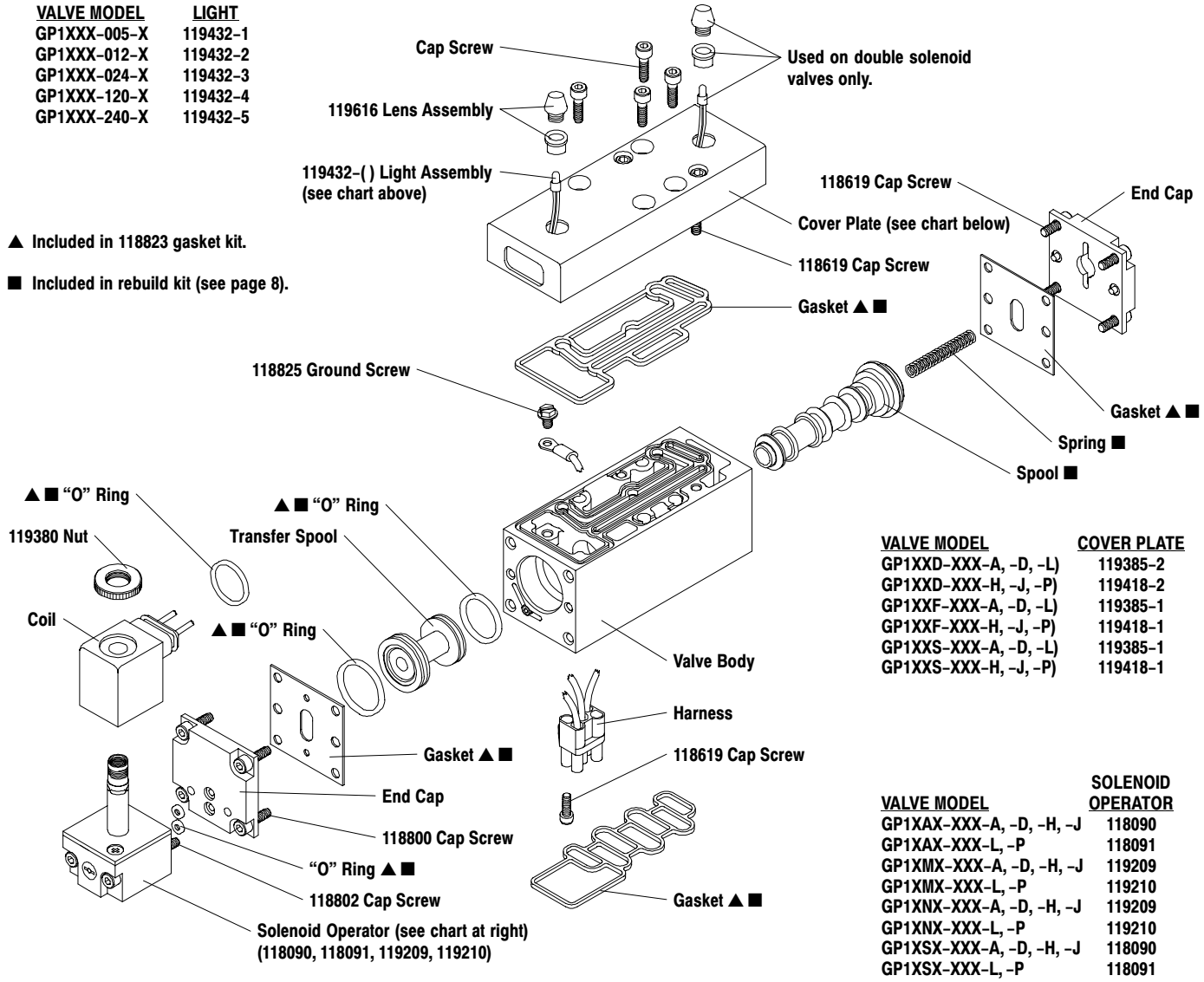
D. THE REBUILD KIT INCLUDES THE GASKET KIT.

PLUG–IN VALVE

VALVE MODEL	LIGHT
GP1XXX–005–X	119432–1
GP1XXX–012–X	119432–2
GP1XXX–024–X	119432–3
GP1XXX–120–X	119432–4
GP1XXX–240–X	119432–5

▲ Included in 118823 gasket kit.

■ Included in rebuild kit (see page 8).



VALVE MODEL	COVER PLATE
GP1XXD–XXX–A, –D, –L)	119385–2
GP1XXD–XXX–H, –J, –P)	119418–2
GP1XXF–XXX–A, –D, –L)	119385–1
GP1XXF–XXX–H, –J, –P)	119418–1
GP1XXS–XXX–A, –D, –L)	119385–1
GP1XXS–XXX–H, –J, –P)	119418–1

VALVE MODEL	SOLENOID OPERATOR
GP1XAX–XXX–A, –D, –H, –J	118090
GP1XAX–XXX–L, –P	118091
GP1XMX–XXX–A, –D, –H, –J	119209
GP1XMX–XXX–L, –P	119210
GP1XNX–XXX–A, –D, –H, –J	119209
GP1XNX–XXX–L, –P	119210
GP1XSX–XXX–A, –D, –H, –J	118090
GP1XSX–XXX–L, –P	118091

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

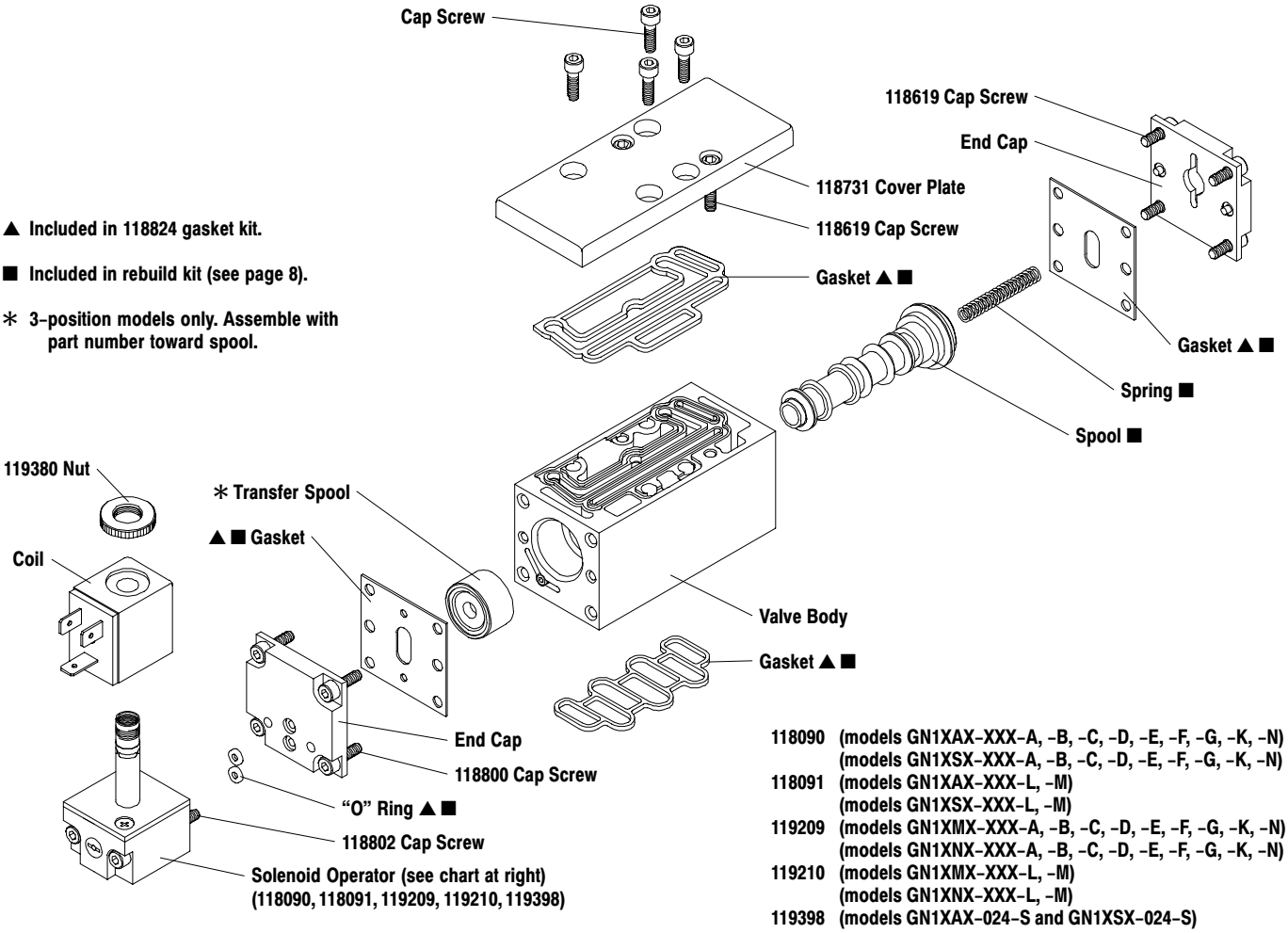
DISASSEMBLY

1. Remove valve from service and disconnect all lines, inlet and outlet.
2. Remove two cap screws (118802), releasing solenoid operator and coil from valve body.
3. Disconnect the coil wires from the wiring harness.
4. To remove coil from solenoid operator, remove nut (119380), releasing coil.
5. Remove four cap screws in each end cap, releasing end caps and gaskets. NOTE: Notice the location of the cavity on the inside of the end cap. This will be important at the time of assembly.
6. Remove transfer spool (118732).
7. Using a wooden or plastic dowel, push spool out of valve body.
8. Remove two cap screws (118619), releasing cover plate and gasket.

ASSEMBLY

1. Grease i.d. of valve body and assemble spool and spring into body. Assemble small end of spool into valve body first.
2. Grease gasket and assemble gasket and end cap to valve body, securing with four cap screws. NOTE: Torque screws to 22 – 38 in. lbs (2.5 – 4.3 Nm).
3. Grease "O" rings and assemble to transfer spool (118732).
4. Assemble transfer spool (118732) to valve body. Assemble with small end of spool into valve body first.
5. Grease gasket and assemble gasket and end cap to valve body, securing with four cap screws (118800). NOTE: Torque screws to 22 – 38 in. lbs (2.5 – 4.3 Nm).
6. Assemble gasket to top of valve body.
7. Assemble wire end of wire harness up thru valve body, securing harness with cap screw (118619). NOTE: Torque screw to 8 – 18 in. lbs (0.9 – 2.0 Nm).
8. Secure ground wire with ground screw (118825). NOTE: Torque screw to 5 – 15 in. lbs (0.6 – 1.7 Nm).
9. Feed wires thru cover plate. Short wires toward front end (transfer spool end) of valve and long wires toward rear end of valve (double solenoid only).
10. Insert four mounting screws thru cover plate and body.
11. Assemble cover plate to valve body, securing with two cap screws (118619). NOTE: Torque screws to 26 – 36 in. lbs (2.9 – 4.1 Nm).
12. Assemble coil to solenoid operator, securing with nut (119380).
13. Grease and assemble "O" ring to groove in coil.
14. Connect wires in cover plate to coil. Install lights (if used) and connect wires.
15. Grease two "O" rings and assemble to end cap.
16. Assemble solenoid operator and components to valve body, inserting wires into cover plate.
17. Secure solenoid operator with two cap screws (118802). NOTE: Torque screws to 13 – 23 in. lbs (1.5 – 2.6 Nm).
18. Grease and assemble gasket to bottom of valve body.

PLUG–ON VALVE



▲ Included in 118824 gasket kit.

■ Included in rebuild kit (see page 8).

∗ 3–position models only. Assemble with part number toward spool.

118090	(models GN1XAX–XXX–A, –B, –C, –D, –E, –F, –G, –K, –N) (models GN1XSX–XXX–A, –B, –C, –D, –E, –F, –G, –K, –N)
118091	(models GN1XAX–XXX–L, –M) (models GN1XSX–XXX–L, –M)
119209	(models GN1XMX–XXX–A, –B, –C, –D, –E, –F, –G, –K, –N) (models GN1XNX–XXX–A, –B, –C, –D, –E, –F, –G, –K, –N)
119210	(models GN1XMX–XXX–L, –M) (models GN1XNX–XXX–L, –M)
119398	(models GN1XAX–024–S and GN1XSX–024–S)

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

DISASSEMBLY

1. Remove valve from service and disconnect all lines, inlet and outlet.
2. Remove nut (119380), releasing coil.
3. Remove two cap screws (118802), releasing solenoid operator from valve body.
4. Disconnect four cap screws in each end cap, releasing end caps and gaskets. NOTE: Notice the location of the cavity on the inside of the end cap. This will be important at the time of assembly.
5. Remove the transfer spool.
6. Using a wooden or plastic dowel, push spool out of valve body.
7. Remove two cap screws (118619), releasing cover plate and gasket.

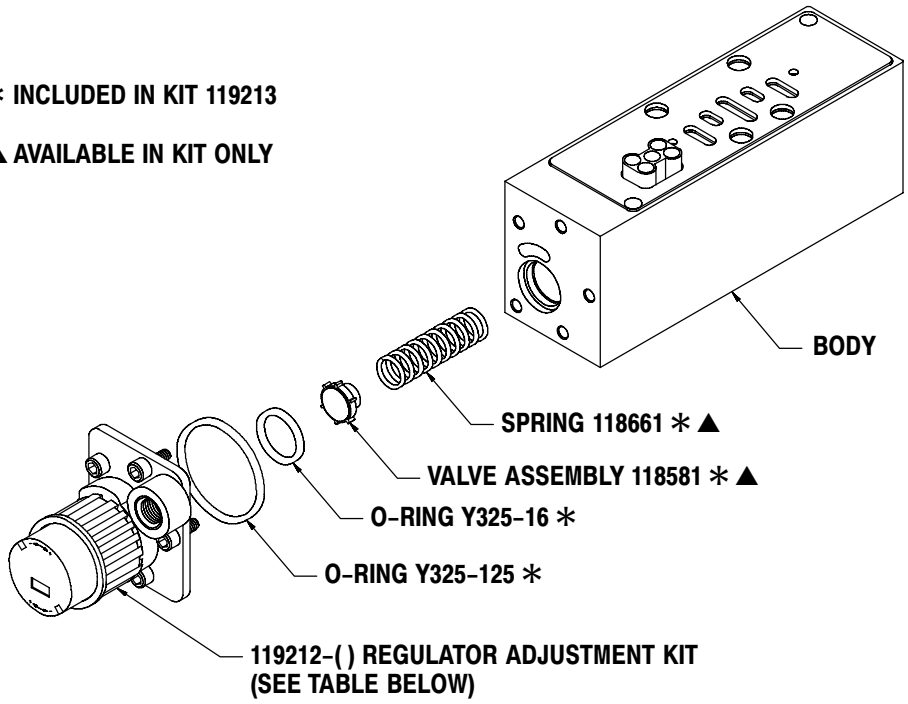
ASSEMBLY

1. Grease i.d. of valve body and assemble spool and spring into body. Assemble small end of spool into valve body first.
2. Grease gasket and assemble gasket and end cap to valve body, securing with four cap screws. NOTE: Torque screws to 22 – 38 in. lbs (2.5 – 4.3 Nm).
3. Grease gasket and assemble transfer spool, gasket and end cap to valve body, securing with four cap screws (118800). NOTE: Torque screws to 22 – 38 in. lbs(2.5 – 4.3 Nm).
4. Grease gasket and assemble to top of valve body.
5. Insert four mounting screws thru cover plate and body.
6. Assemble cover plate to valve body, securing with two cap screws (118619). NOTE: Torque screws to 26 – 36 in. lbs (2.9 – 4.1 Nm).
7. Grease two "O" rings and assemble to end cap.
8. Assemble solenoid operator to end cap, securing with two cap screws (118802). NOTE: Torque screws to 13 – 23 in. lbs (1.5 – 2.6 Nm).
9. Assemble coil to solenoid operator, securing with nut (119380).
10. Grease and assemble gasket to bottom of valve body.

PRESSURE REGULATOR

✻ INCLUDED IN KIT 119213

▲ AVAILABLE IN KIT ONLY



REGULATOR NO.	REG. ADJ. KIT	GAUGE ☆	DESCRIPTION
118573–N2	119212–30	119219–60	PLUG–ON 30 P.S.I.G.
118573–N3	119212–60	119219–100	PLUG–ON 60 P.S.I.G.
118573–N4	119212–120	119219–160	PLUG–ON 120 P.S.I.G.
118573–N5	119212–30	NONE	PLUG–ON 30 P.S.I.G.
118573–N6	119212–60	NONE	PLUG–ON 60 P.S.I.G.
118573–N7	119212–120	NONE	PLUG–ON 120 P.S.I.G.
118573–P2	119212–30	119219–60	PLUG–IN 30 P.S.I.G.
118573–P3	119212–60	119219–100	PLUG–IN 60 P.S.I.G.
118573–P4	119212–120	119219–160	PLUG–IN 120 P.S.I.G.
118573–P5	119212–30	NONE	PLUG–IN 30 P.S.I.G.
118573–P6	119212–60	NONE	PLUG–IN 60 P.S.I.G.
118573–P7	119212–120	NONE	PLUG–IN 120 P.S.I.G.

☆ NOT SHOWN

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

DISASSEMBLY

1. Remove five cap screws, releasing regulator adjustment kit 119212–( ).
2. Remove "O" rings (Y325–125 and Y325–16).
3. Remove valve assembly (118581) and spring (118661).

ASSEMBLY

1. Assemble spring (118661) and valve assembly (118581) into body.
2. Grease "O" ring (Y325–16) and assemble to body.
3. Grease "O" ring (Y325–125) and assemble to groove in regulator housing.
4. Assemble regulator adjustment kit 119212–( ) to body, securing with five cap screws. Torque to 15 – 25 in. lbs (1.7 – 2.8 Nm).