

20 Series

Model 20-02-01 Adhesive Supply Pump

Maximum durability.

vanSCO's Model 20-02-01 Adhesive Supply Pump delivers constant pressure for maximum durability. Stainless-steel filter elements are available in 16, 30, 50, and 100 mesh to meet all of your gluing equipment needs.

vanSCO's 20-02-01 Adhesive Supply Pump:

Constant Pressure Supply

An all-pneumatic design delivers a consistent and continuous supply of pressure for your adhesive directly from a pail, drum, or tote.

Pressure Tank Equivalent-Compatible

Designed as a "drop-in" replacement for any adhesive pressure tank, eliminating all A.S.M.E. pressure vessel requirements.

Designed for Durability

A flexible, relaxed diaphragm seal located between fluid and air sections, eliminates packing or sliding seals that could otherwise wear out, leak, adjust, or jam.

Pumps On Demand

Will not run continuously unless material is being dispensed.

Increased Quality Production

Once the adhesive enters the inlet, there is zero adhesive to air contact, eliminating the possibility of adhesive drying within the pump.

Corrosion Resistant

All components of the fluid section are stainless-steel, nylon, Teflon[®], or UHMW polyethylene.

Fully Adjustable

Regulated control allows pressure variation between zero and 100 psi.



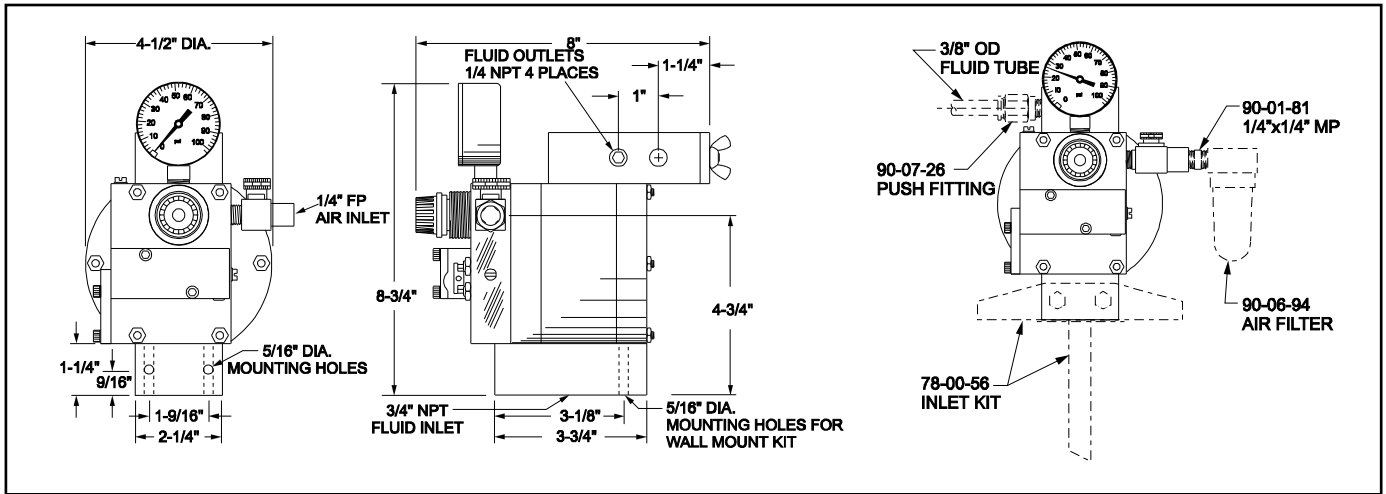
How to order:

Part Number	Description
20-02-01	Adhesive pump
20-02-10	Adhesive pump with air filter

Recommended Parts:

78-00-56	Inlet kit, drum or pail
78-00-57	Inlet kit, wall mount
90-06-94	Air filter
90-07-26	3/8" OD tube outlet push fitting
90-00-95	3/8" OD fluid outlet tube
90-03-12	Strainer element, SS, 50 mesh
90-03-13	Strainer element, SS, 100 mesh
90-03-14	Strainer element, SS, 16 mesh
90-03-16	Strainer element, SS, 30 mesh

Model 20-02-01



Technical Characteristics

Adhesive Supply Pump Specifications	
Inlet air pressure:	50-120 psi filtered, regulated, and lubricated compressed air
Maximum continuous pumping rate:	25 gallons per hour with 1,000 cps viscosity adhesive
Maximum output pressure:	Equal to regulated air pressure
Cycles per gallon:	60
Air consumption:	3.5 cubic feet per gallon under average conditions
Construction:	All wetted parts: Stainless-steel, nylon, Teflon, UHMW polyethylene
Maximum adhesive viscosity:	6,000 cps with 3' x 3/4" diameter suction tube drum or pail mount kit 2,000 cps with 9' x 3/4" diameter suction tube wall mount kit

For more information visit www.vansco.com or contact us direct.



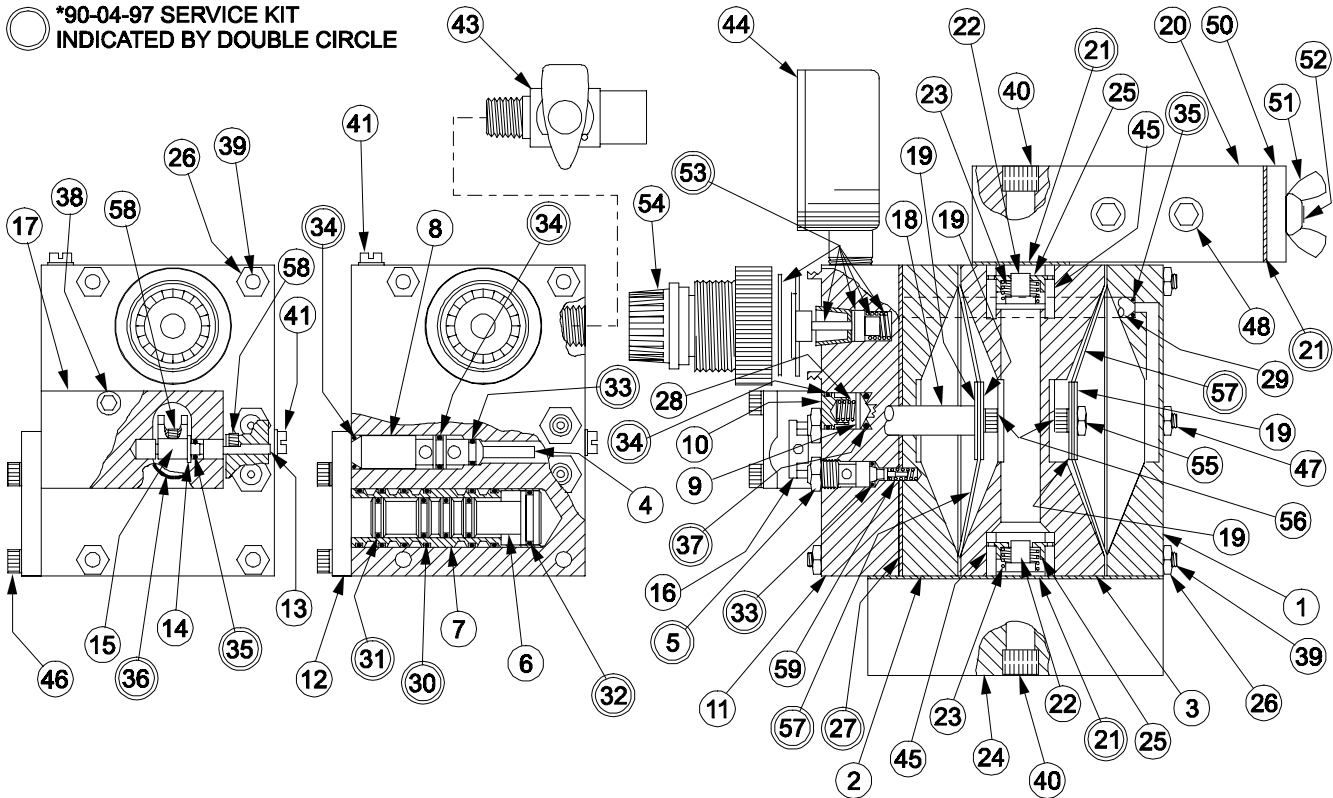
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20-02-01

PUMP COMPONENT PARTS

○ *90-04-97 SERVICE KIT
INDICATED BY DOUBLE CIRCLE



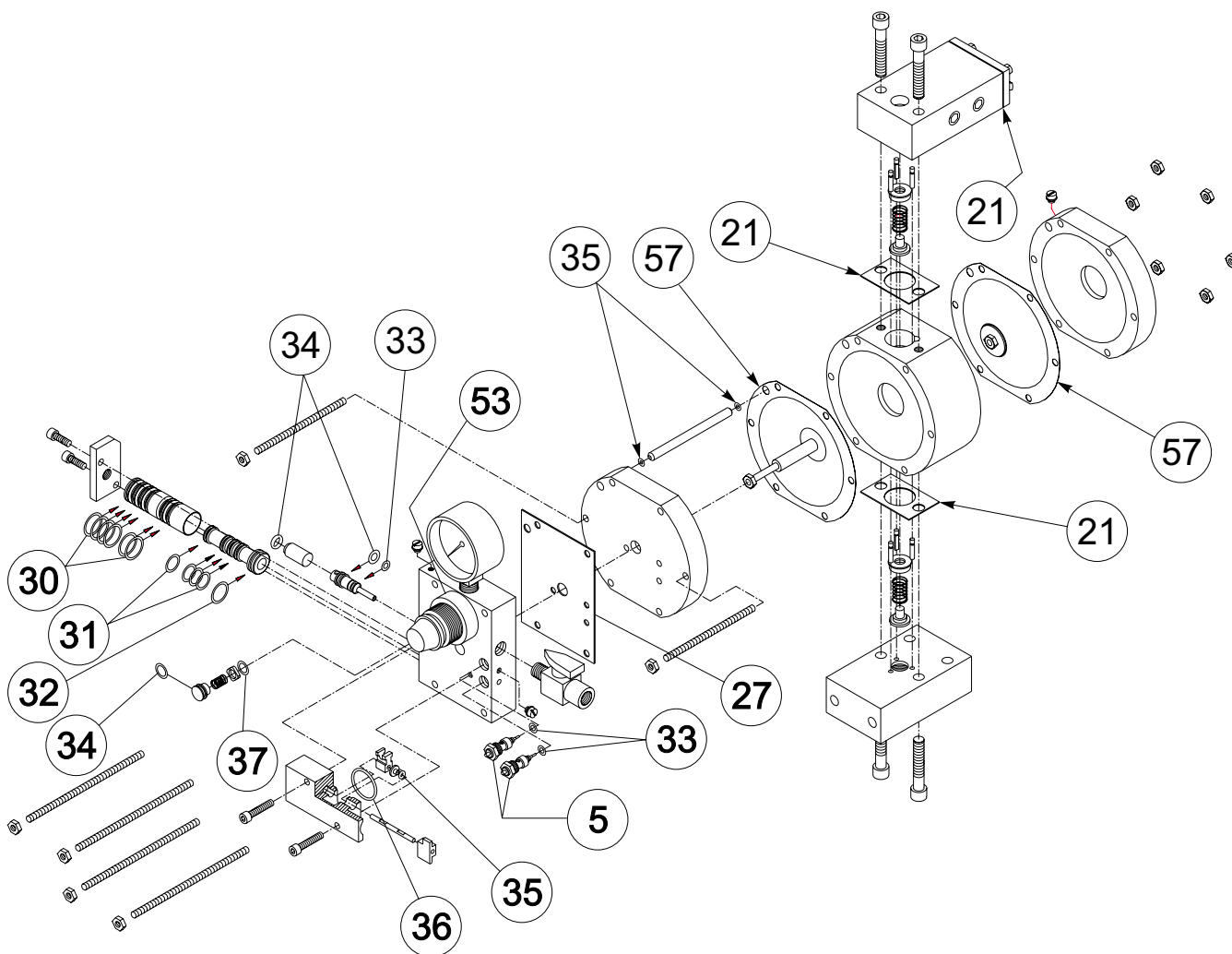
ITEM	PART NO.	QTY	DESCRIPTION
1	90-20-78	1	Accumulator Cover
2	90-20-79	1	Pumping Chamber Cover
3	90-20-80	1	Pump Body
4	90-20-81	1	Ejector
*5	90-20-84	2	Pilot Valve Assembly
6	90-20-88	1	Main Valve Spool
7	90-20-89	1	Main Valve Sleeve
8	90-20-90	1	Spacer
9	90-20-91	1	Check Valve Poppet
10	90-20-92	1	Poppet Stop
11	91-20-43	1	Air Manifold Sub Assembly
12	90-20-94	1	Valve End Plate
13	90-20-95	1	Rocker Shaft
14	90-20-96	1	Rocker Shaft Seal
15	90-20-97	1	Fork
16	90-20-98	1	Rocker
17	90-20-99	1	Rocker Housing
18	91-20-00	1	Actuating Rod Assembly
19	91-20-04	4	Diaphragm Plate
20	91-20-06	1	Strainer Body
*21	91-20-07	3	Gasket
22	91-20-09	2	Check Valve Poppet
23	91-20-10	2	Spring
24	91-20-54	1	Check Valve Block
25	91-20-12	2	Poppet Stop
26	90-06-08	12	10-32 Hex Nut
*27	91-20-14	1	Gasket
28	91-20-15	1	Spring
29	91-20-16	1	Cross-Over Tube

ITEM	PART NO.	QTY	DESCRIPTION
*30	90-02-58	6	O-Ring
*31	90-05-23	4	O-Ring
*32	90-02-32	1	O-Ring
*33	90-06-55	3	O-Ring
*34	90-06-33	3	O-Ring
*35	90-02-67	3	O-Ring
*36	90-00-42	1	O-Ring
*37	90-02-36	1	O-Ring
38	90-05-63	2	10-32 x 1" Cap Screw
39	91-20-41	4	10-32 x 4-11/16" Threaded Stud
40	90-06-58	4	5/16-18 x 1-3/4" Cap Screw
41	90-46-29	3	10-32 Plug with Gasket
42			Item Number Not Used
43	90-00-28	1	1/4MP x 1/4FP Shut-Off Valve
44	90-00-21	1	0-100 psi Air Pressure Gauge
45	91-20-42	2	Poppet Guide Pin (Set of 3)
46	90-06-59	2	10-32 x 1/2" Cap Screw
47	91-20-40	2	10-32 x 3-11/16" Threaded Stud
48	90-03-87	3	1/4" SOHD Pipe Plug, S.S.
50	91-20-08	1	End Cap
51	90-07-57	2	1/4-20 Wing Nut
52	90-07-56	2	1/4-20 x 1" SOHD Set Screw
*53	90-04-44	1	Air Regulator Service Kit
54	91-20-57	1	Regulator Cap with Spring
55	90-01-11	1	10-32 Hex Nut
56	90-05-59	2	10-32 x 1/4" Cap Screw
*57	91-20-05	2	Diaphragm
58	90-06-57	2	8-32 x 3/16" SOHD Set Screw
59	90-46-01	2	Spring

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*Items included in Service Kit 90-04-97

90-04-97 PUMP SERVICE KIT FOR 20-02-01/20-02-00



ITEM	PART No.	QTY	DESCRIPTION
5	90-20-84	2	Pilot Valve
21	91-20-07	3	Gasket
27	91-20-14	1	Gasket
30	90-02-58	6	O-Ring
31	90-05-23	4	O-Ring
32	90-02-32	1	O-Ring
33	90-06-55	3	O-Ring
34	90-06-33	3	O-Ring
35	90-02-67	3	O-Ring
36	90-00-42	1	O-Ring
37	90-02-36	1	O-Ring
53	90-04-44	1	Air Regulator Kit
57	91-20-05	2	Diaphragm

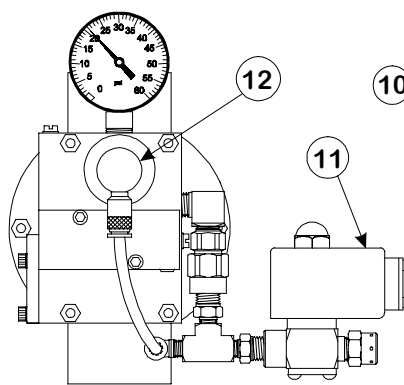
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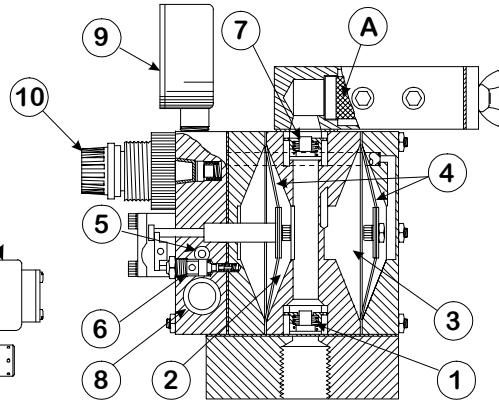


20-02 SERIES PRINCIPLES OF OPERATION

ADHESIVE SUPPLY PUMP



SERVO PUMP



MANUAL PUMP

- 1 Inlet Check Valve
- 2 Primary Pumping Chamber
- 3 Secondary Pumping Chamber
- 4 Diaphragm
- 5 Vacuum Ejector
- 6 Pilot Valve
- 7 Outlet Check Valve
- 8 Directional Air Valve
- 9 Pressure Gauge
- 10 Pressure Adjustment Knob (Manual pump only)
- 11 Servo Regulator (Servo pump only)
- 12 Air Regulator (Servo pump only)
- A Strainer Element

The 20-02 series pump supplies an adjustable amount of constant, unvarying pressurized adhesive. The pump is a pneumatically operated, floating diaphragm, single acting, on demand, 1:1 pressure ratio pump. The adhesive section of the pump (#2 and #3) is separated from the pneumatic section by two floating, unstressed diaphragms (#4). The primary pumping chamber (#2) is combined with a secondary pumping chamber (#3) that supplies flow during the pump suction stroke.

During the suction stroke, an internally created vacuum draws fluid through the inlet check valve (#1) into the primary pumping chamber (#2). When the pumping chamber is full, the lower pilot valve (#6) shifts a directional air valve and applies regulated air pressure to the primary pumping chamber. This blocks the inlet check valve and forces adhesive through the outlet check valve (#7) at a pressure equal to the amount shown on the pump gauge (#9).

During the delivery stroke, the primary pumping chamber (#2) supplies output flow and fills the secondary pumping chamber (#3). When the primary pumping chamber (#2) is empty, the directional air valve (#8) is shifted back to its original position by the upper pilot valve (#6). As a result, regulated air pressure is applied to the secondary pumping chamber (#3) and the vacuum ejector (#5) is turned on, initiating a new suction stroke.

Adjusting the knob (#10) located on the front of the pump varies the output pressure on the manually adjustable pump (20-02-00, 20-02-01).

Adjusting the fluid volume control on the connected controller varies the amount of voltage supplied to the proportional air valve (#11) and varies the output pressure on the servo-controlled pump (20-02-05, 20-02-06). This in turn backs up pilot air pressure that opens the pump (#12) a measured amount. The greater the voltage, the higher the adhesive output pressure.

TECHNICAL INFORMATION

ADHESIVE SUPPLY REQUIREMENTS:

Adhesive Supply Pressure:

No adhesive pressure required at the pump inlet.

Adhesive Filtration Requirement:

50-mesh strainer

Adhesive Viscosity Recommendations:

6000 cps with 3 foot suction tube

2000 cps with 9 foot suction tube

Adhesive Composition Requirements:

All wetted parts are stainless steel, nylon, Teflon, and UHMW polyethylene, so any material that is compatible with these materials is acceptable.

PNEUMATIC SUPPLY REQUIREMENT

Operating air pressure: 70 to 120 psi filtered, regulated, and lubricated

Air consumption

Maximum: 3.0 cubic feet per minute

Typical: 0.4 cubic feet per minute,
3.5 per gallon of adhesive delivered

ELECTRICAL SUPPLY REQUIREMENTS:

(servo pump only)

0 to 20 VDC (0 to 0.25 amps)

OUTPUT RESULTS:

Maximum output pressure:

Manual pump: 100 psi

Servo pump: 60 psi

Maximum flow: 25 gallons per hour with 1,000 cps adhesive

MOUNTING REQUIREMENTS:

Fluid inlet: 3/4" FNPT

Air inlet: 1/4" FNPT

Electrical inlet: (servo pump only) 4-pin circular electrical connector

General Mounting:

The **manual pump** can be mounted in any position without effecting function.

The **servo pump** must be mounted so that the proportional air valve is in an upright position at all times.

FLUID OUTPUT ADJUSTMENT:

Manual pump 20-02-00 and 20-02-01:

The fluid output pressure is adjusted by rotation of the knob located on the front of the pump.

Servo pump 20-02-05 and 20-02-06:

The fluid output pressure is adjusted by varying the amount of voltage that is supplied to the proportional air valve. The higher the voltage the higher the output pressure. This can be accomplished by using one of VanSco's variable speed controllers.

MAINTENANCE

INITIAL START UP, RUNNING PRODUCTION, SHUTDOWN, AND RESTART:

Start up:

1. The inlet suction tube must be shorter than the depth of the pail or drum of adhesive. Shorten the suction tube to a length that just reaches the bottom of the adhesive container without restricting flow. Use a hacksaw for best results. Install fluid inlet suction tube at bottom inlet on the pump. Make certain not to cross thread suction tube. Install the suction tube gasket seal against base of pump.
2. Purge all fluid and air lines of foreign material prior to running production. It is recommended to purge the air line with clean, dry, unlubricated air.
3. With the inlet air pressure OFF, install pump in desired location and connect air inlet line and servo cable (servo pump only).
4. Install output adhesive lines to the outlet ports in the strainer block housing (top of pump). Make sure all adhesive fittings are secure. Turn on the air pressure to the pump. The pump will begin to cycle quickly until fluid fills the entire pump. From this point on, the only pump cycling will occur when the output demand requires it. Check all adhesive applicator lines for leaks.

<p>If the pump does not self-prime, priming of the pump can be achieved by turning the pump upside down and filling the fluid inlet suction tube with adhesive prior to inserting the tube in to the adhesive supply container.</p>

Running Production:

Adjust the pump outlet pressure to the desired setting. The typical application pressure is between 20 and 30 psi. Start at about 20 psi for the initial start up and adjust it up or down as needed. Push in the red lock ring on the adjustment knob to lock the pressure at the desired setting (manual pump only).

Shutdown:

It is not necessary to flush the system of adhesive during any shutdown period less than thirty days. Flushing the system is recommended for shutdowns exceeding 30 days.

Check Lists:

Monthly:

1. Check strainer element and remove any debris that may have collected. Strainer element is located in the four-outlet strainer body.
2. Check for air bubbles in the adhesive supply.
3. Check for constant exhaust from the pilot valve exhaust hole.

TROUBLESHOOTING GUIDE:

Problem:	Cause:	Solution:
Pump cycles rapidly with little or no output	Pump is not primed	Prime pump by turning pump upside down and filling suction tube with adhesive
	Suction tube does not reach adhesive in barrel	Replenish adhesive supply
	Outlet check valve jammed open	Remove debris from outlet check valve
	Suction tube incorrectly installed	Air in sucked in around threads. Re-install suction tube correctly
	Inlet check valve block loose	Tighten inlet check valve block
Pump cycles rapidly but continues to supply adhesive	Defective lower pilot valve	Replace lower pilot valve
	Valve spool or sleeve O-ring leak	Replace all valve spool and sleeve O-rings
Pump does not cycle or no adhesive at outlet	Clogged strainer element	Remove debris from strainer element
	Dry valve spool O-rings	Lubricate spool O-rings and check inlet air lubricator
	Loose rocker or fork set screw	Tighten set screws in fork and rocker
	Clogged suction tube	Remove debris from suction tube
Pump rapidly cycles when no adhesive is being dispensed	Defective pilot valve	Replace both pilot valves
	Valve spool or sleeve O-ring leak	Replace all spool and sleeve O-rings
	Inlet check valve jammed open	Remove debris from inlet check valve
Long or continuous valve spool exhaust	Defective upper pilot valve	Replace upper pilot valve
	Valve spool or sleeve O-ring leak	Replace all spool and sleeve O-rings
Short valve spool exhaust	Defective lower pilot valve	Replace lower pilot valve
Constant pilot valve exhaust	Defective lower pilot valve	Replace lower pilot valve
Maximum output pressure not attainable	Valve spool or sleeve O-ring leak	Replace all spool and sleeve O-rings
	Insufficient inlet air pressure	Inlet air pressure must exceed desired outlet pressure by 10 psi minimum
	Pilot section leak (servo pump only)	Check entire pilot section for leaks
	Debris in proportional air valve ball & seat (servo pump only)	Repair proportional air valve
	Insufficient electrical input signal (servo pump only)	Check controller input signal
Adhesive in air section of pump	Loose actuating rod assembly	Tighten actuating rod assembly
	Leak in diaphragm	Replace diaphragm
Little or no adhesive pressure regulation (servo pump only)	Proportional air valve malfunction	Repair proportional air valve
	Insufficient electrical input signal	Check controller for proper output signal (See controller manual)

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