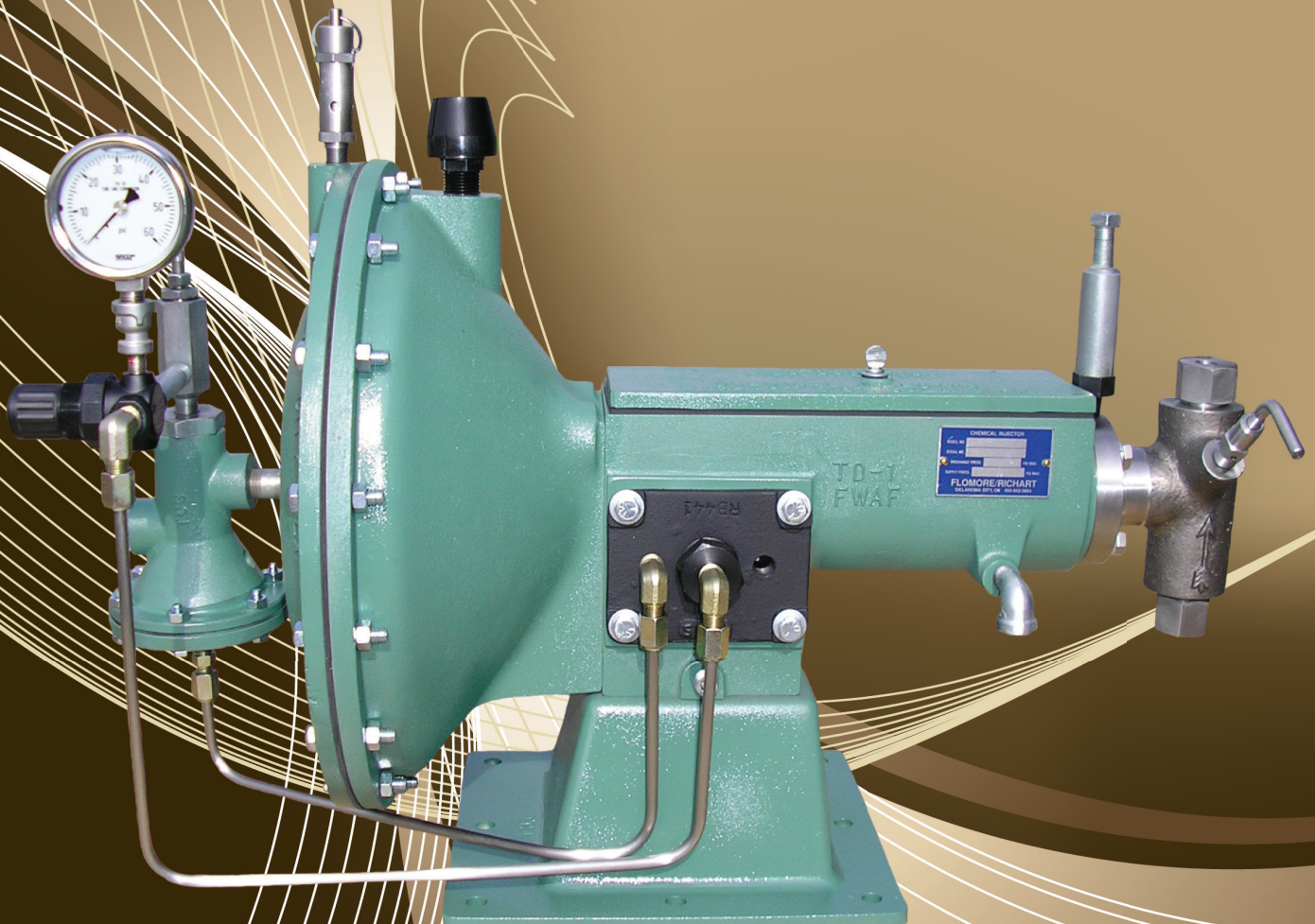


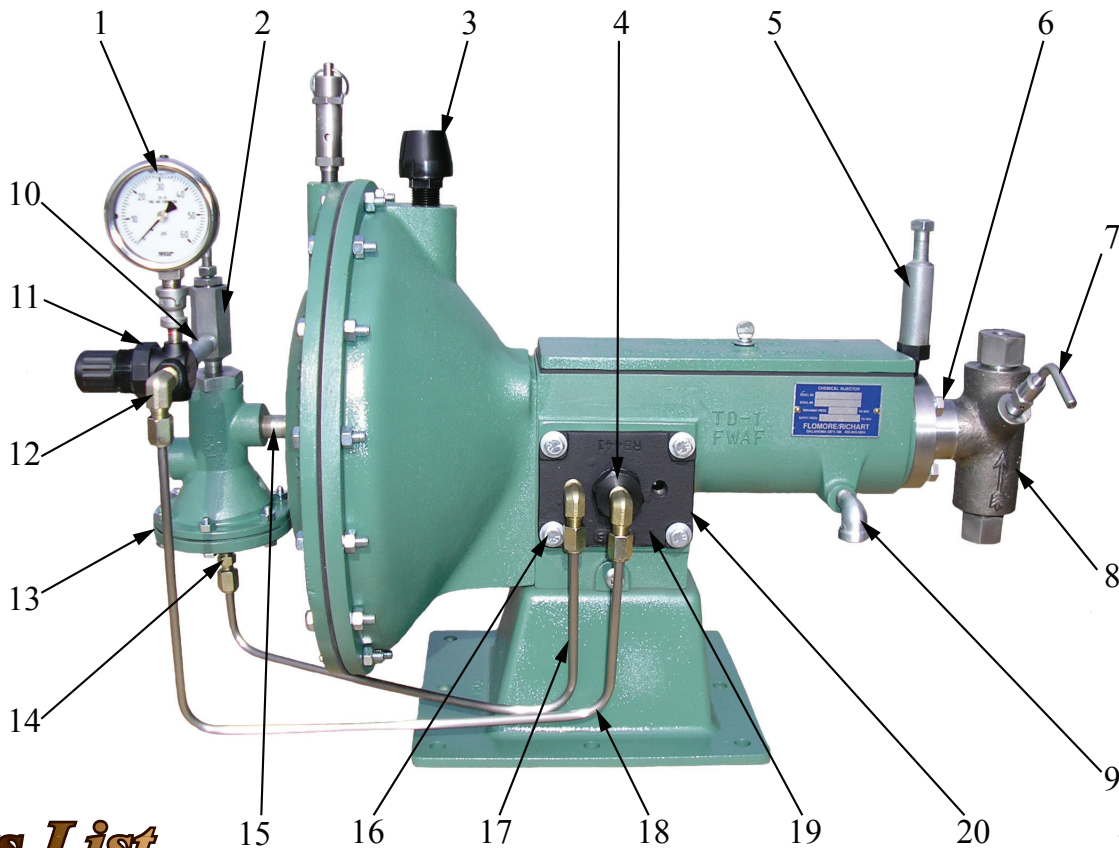
FLOMORE

Different By Design

5020 Series Injector



5020 Series Injector



Parts List

| Item # | Part # | # Req'd. | Description | Material | Alternate Part # |
|--------|-------------------|----------|--------------------------|---------------------|------------------|
| 1 | A-1854 | 1 | 0-12 PSI Pressure Gauge | ◆ | A-1295SS |
| 2 | A-0022 | 1 | Inlet Gas Valve Assembly | Brass | A-0022SS |
| 3 | A-2599 | 1 | Air Filter | Plastic | ◆ |
| 4 | A-0132 | 2 | Elbow | Brass | A-0132SS |
| 5 | A-0558 | 1 | Grease Jack | Steel | ◆ |
| 6 | A-4452 | 1 | Bolt | 316 Stainless Steel | ◆ |
| 7 | A-0123 | 1 | Priming Valve | 304 Stainless Steel | ◆ |
| 8 | See Pages 10 & 11 | 1 | Head Assembly | See Pages 10 & 11 | ◆ |
| 9 | A-0075 | 1 | Street Elbow | Steel | ◆ |
| 10 | A-4692 | 1 | Nipple | Steel | ◆ |
| 11 | A-1718 | 1 | Regulator | Plastic | ◆ |
| 12 | A-0132 | 1 | Half Union | Brass | A-0132SS |
| 13 | B-0037 | 1 | Master Valve | Aluminum | B-0037SS |
| 14 | A-0137 | 1 | Half Union | Brass | A-0137SS |
| 15 | A-0009 | 1 | Attachment Nipple | Brass | A-0009SS |
| 16 | A-0141 | 1 | Cap Screw | Steel | ◆ |
| 17 | A-1494 | 1 | Master Valve Line | Copper | A-1494SS |
| 18 | A-1493 | 1 | Pilot Valve Line | Copper | A-1493SS |
| 19 | C-0009 | 1 | Pilot Valve Assembly | Steel Seat | ◆ |
| 20 | A-0058 | 1 | Pilot Valve Gasket | Fiber | ◆ |

* Recommended Spare Parts

**Furnished on all plungers except 1/4"

***Alternate Parts for Sour Gas Trim are all Stainless Steel

Installation and Operating Instructions

1. The discharge bushing is a ¼" NPT connection (Item #9, Page 8), this is where you will connect your fluid discharge line, you should **always** install a line check at the point of injection for additional safety. Our A-0675 stainless steel line check is a ¼" NPT male x female good for discharge pressure of 6,000 PSIG, our ½" NPT female x female line check is 10,000 PSIG rated.

NOTE: Install line check valves with the flow arrow pointing in the direction of the flow.

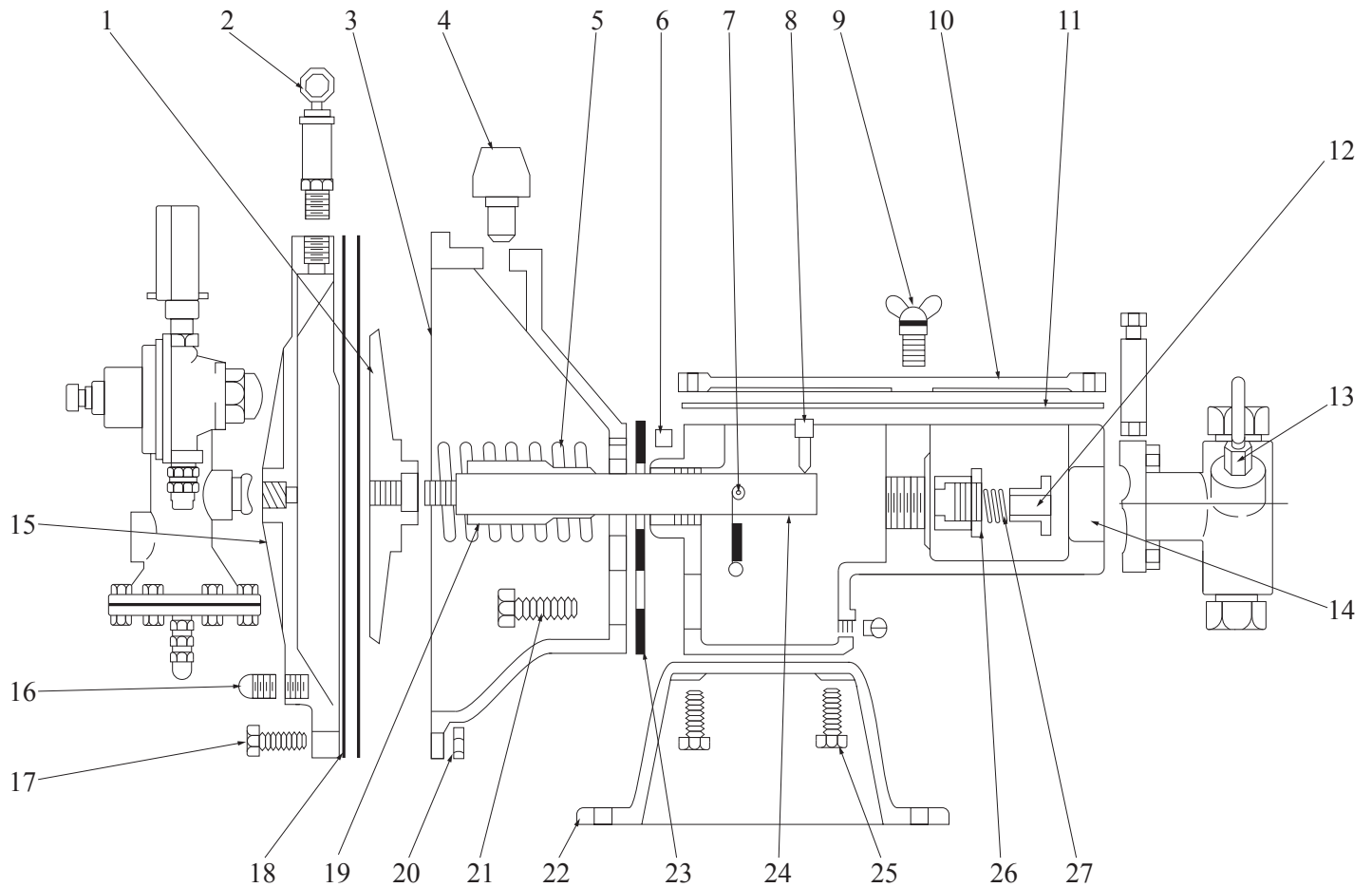
2. The suction bushing is a ¼" NPT connection (Item #17, Page 8), care should be taken to make sure no dirt, sand or other foreign objects are left in the suction line before hooking it up, as any of these items will not allow the check valves in the head assembly to operate properly.
3. Before connecting the gas line to power the pump, make sure there is no more than **50 PSIG** available, if the line pressure is higher than **50 PSIG**, you **must** reduce to this pressure. Make sure this line is free of debris and connect to the A-0022 inlet gas assembly (Item #2, Page 2), this is also a ¼" NPT connection. The regulator with a gauge (Item #11, Page 2) is preset to 12 PSIG, and should always be set at this point. This regulator and gauge are used to regulate a very, very small amount of gas going through pilot valve (Item #19, Page 2) and the master valve (Item #13, Page 2) and has **nothing** to do with regulating the **incoming** gas pressure to the pump.
4. Remove thumb screw (Item #9, Page 3) and cover (Item #10, Page 3) and pour 3 quarts of light weight motor oil (10 weight), Marvel Mystery, or transmission fluid, into the chamber next to the large diaphragm, this is true on all size plungers except the 1¼", with it, plug the ¼" NPT drain and fill the chamber that the plunger operates in with oil, this will lubricate the plunger and lengthen the life of the packing.
5. After all connections are made, open the fluid valve on your storage tank and open priming valve (Item #7, Page 2), at the same time, slowly open the speed control valve (Item #2, Page 2) to start pump. After the stream of fluid from the priming valve is free of air bubbles, close this valve.
6. When you first start the pump you may see some fluid leakage around the plunger packing nut (Item #2, Page 8), this is OK for the first 2 or 3 minutes, this allows the packing to get wet and take a set, then **stop** the pump and very slightly tighten the packing nut (Item #2, Page 8), then restart the pump.

NOTE: DO NOT ATTEMPT PACKING ADJUSTMENT WITH PUMP RUNNING!

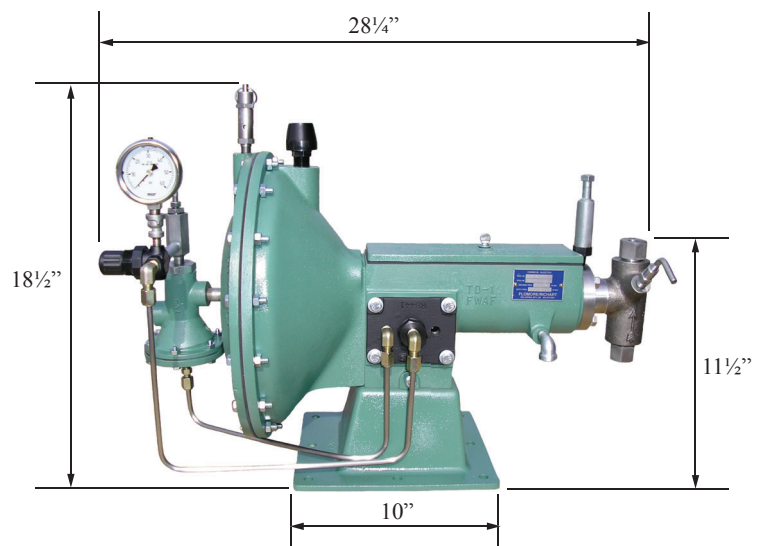
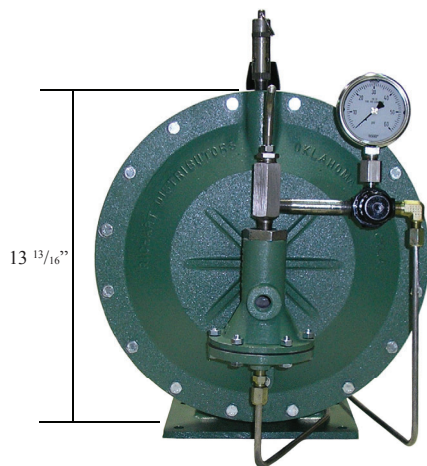
7. Volumes of fluid pumped, are a function of plunger stroke length and speed (SPM). You have available two (2) stroke lengths and a variety of speeds up to 60 SPM continuous or 75 SPM intermittently. To change stroke length, move the plunger pin (Item #8, Page 3) from one hole to the other. The hole nearer the injection head will give you the longest stroke.

5020 Series Injector

Cross Section



Dimensions



5020 Series Injector

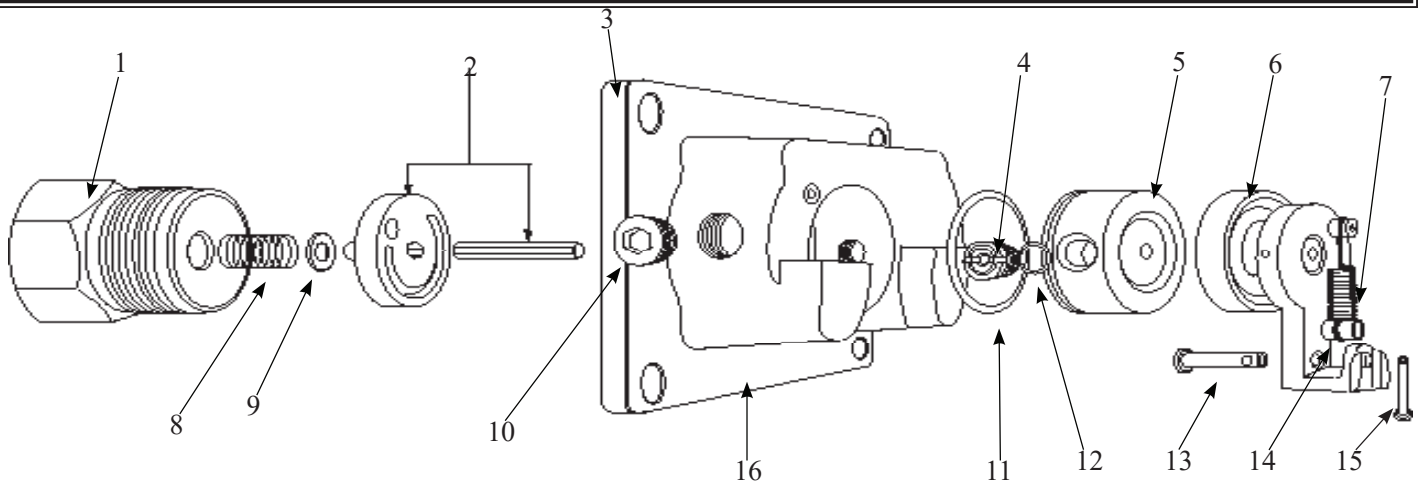
Parts List

| <i>Item #</i> | <i>Part #</i> | <i># Reqd.</i> | <i>Description</i> | <i>Material</i> | <i>Alternate Part #</i> |
|---------------|---------------|----------------|-------------------------|---------------------|-------------------------|
| 1 | B-0002 | 1 | Disc | Aluminum | ◆ |
| 2 | A-0131 | 1 | ¼" Safety Valve Set #50 | Brass | A-0131SS |
| 3 | D-0434 | 1 | Housing | Aluminum | ◆ |
| 4 | A-2599 | 1 | Air Filter | Plastic | ◆ |
| 5 | A-0025 | 1 | Spring | Steel | ◆ |
| 6 | A-0143 | 1 | Set Screw | Steel | ◆ |
| 7 | A-0020 | 1 | Pin | Steel | ◆ |
| 8 | A-0035 | 1 | Stroke Adjustment Pin | Brass | ◆ |
| 9 | A-2970 | 1 | Wing Screw | Steel | ◆ |
| 10 | B-0004 | 1 | Cover | Aluminum | ◆ |
| 11 | B-0036 | 1 | ⅛" Gasket | Buna-N | ◆ |
| 12 | A-0041 | 1 | Nut | Brass | ◆ |
| 13 | A-0123 | 1 | Priming Valve | 303 Stainless Steel | ◆ |
| 14 | D-0001 | 1 | Housing | Aluminum | ◆ |
| 15 | C-0001 | 1 | Cover | Aluminum | ◆ |
| 16 | A-0138 | 1 | Drain Plug | Steel | ◆ |
| 17 | A-0142 | 1 | Diaphragm Housing Bolts | Steel | ◆ |
| 18 | B-0010 | 2 | Diaphragm | Buna-N | ◆ |
| 19 | A-0076 | 1 | Bushing | Steel | ◆ |
| 20 | A-0144 | 1 | Nut | Steel | ◆ |
| 21 | A-0139 | 1 | Bolt | Steel | ◆ |
| 22 | C-0004 | 1 | Base | Aluminum | ◆ |
| 23 | B-0011 | 1 | Gasket | Fiber | ◆ |
| 24 | B-0003SS | 1 | Thrust Rod | 303 Stainless Steel | ◆ |
| 25 | A-0141 | 1 | Screw | Steel | ◆ |
| 26 | A-0038 | 1 | Stuffing Box | Brass | ◆ |
| 27 | A-0059 | 1 | Packing | Buna-N | ◆ |

* Recommended Spare Parts

**Alternate Parts for Sour Gas Trim are all Stainless Steel

5020 Series C-0009 Pilot Valve Assembly

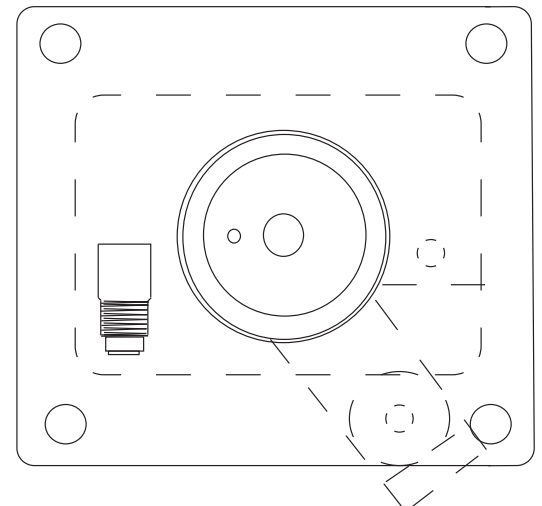


Parts List

NOTE: Using a small amount of grease, lubricate items #11 and #12, o'rings, before and after installation on item #5. This will keep o'rings in place and facilitate the pressing of the valve seat into position.

| Item # | Part # | # Reqd. | Description | Material |
|--------|--------|---------|-------------------------|-----------------|
| 1 | C-0495 | 1 | Disc Retainer | Steel |
| 2 | C-4668 | 1 | Valve Disc and Pin | Stainless Steel |
| 3 | C-0441 | 1 | Pilot Valve Body | Ductile Iron |
| *4 | C-0463 | 2 | Seat Seal Screw | Steel |
| 5 | C-0451 | 1 | Valve Seat | Steel |
| 6 | A-0065 | 1 | Flipper Arm Assembly | Iron |
| 7 | A-4600 | 1 | Flipper Spring Assembly | Steel |
| 8 | A-0077 | 1 | Spring | Steel |
| 9 | A-0579 | 1 | Washer | Stainless Steel |
| 10 | C-3386 | 1 | Flush Seal Plugs | Steel |
| 11 | C-0485 | 1 | Seat Seal O' Ring | Buna- N |
| *12 | C-0474 | 2 | Seat Seal Screw O' Ring | Buna- N |
| 13 | A-0170 | 1 | Clevis Pin | Steel |
| 14 | A-0772 | 1 | Spring Bushing | Brass |
| 15 | A-0168 | 1 | Cotter Pin | Steel |
| 16 | A-0058 | 1 | Gasket | Fiber |

Pilot Valve Assembly



Time the disc with hole at left or 9 o'clock and the flipper arm to the right.

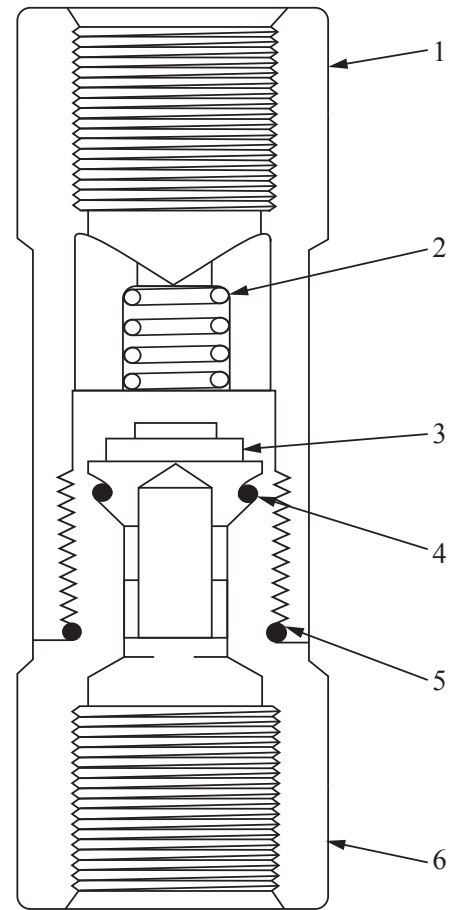
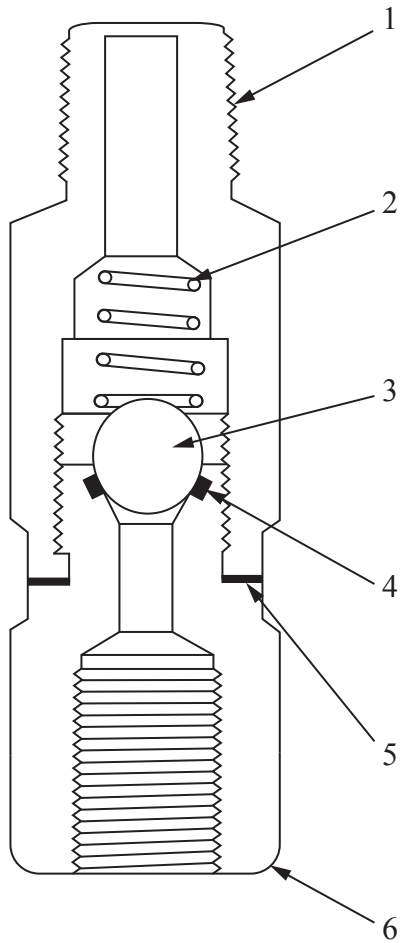
*Recommended Spare Parts * Items make up a C- 0600 Pilot Valve Seat and Disc Assembly

5020 Series Components

A-0675 & A-0676 Line Check

B-1288 Line Check

15,000 lbs. Working Pressure



Parts List

| Item # | Part # | # Reqd. | Description | Material |
|--------|--------|---------|-------------|---------------------|
| 1 | A-0677 | 1 | Outlet Body | Brass |
| | A-1296 | 1 | Outlet Body | 303 Stainless Steel |
| 2 | A-0391 | 1 | Spring | Steel |
| 3 | A-0054 | 1 | 3/8" Ball | 316 Stainless Steel |
| 4 | A-0479 | 1 | O'Ring | Buna-N |
| | A-2580 | 1 | O'Ring | Viton |
| 5 | A-1574 | 1 | Washer | 304 Stainless Steel |
| 6 | A-0678 | 1 | Inlet Body | Brass |
| | A-1297 | 1 | Inlet Body | 303 Stainless Steel |

Parts List

| Item # | Part # | # Reqd. | Description | Material |
|--------|--------|---------|-------------|---------------------|
| 1 | B-0271 | 1 | Body | 303 Stainless Steel |
| 2 | A-0391 | 1 | Spring | Steel |
| 3 | A-1879 | 1 | Valve | 303 Stainless Steel |
| 4 | A-0612 | 1 | O'Ring | Buna-N |
| | A-2184 | 1 | O'Ring | Viton |
| 5 | A-1959 | 1 | O'Ring | Buna-N |
| | A-3979 | 1 | O'Ring | Viton |
| 6 | A-1880 | 1 | Bushing | 303 Stainless Steel |

* Recommended Spare Parts

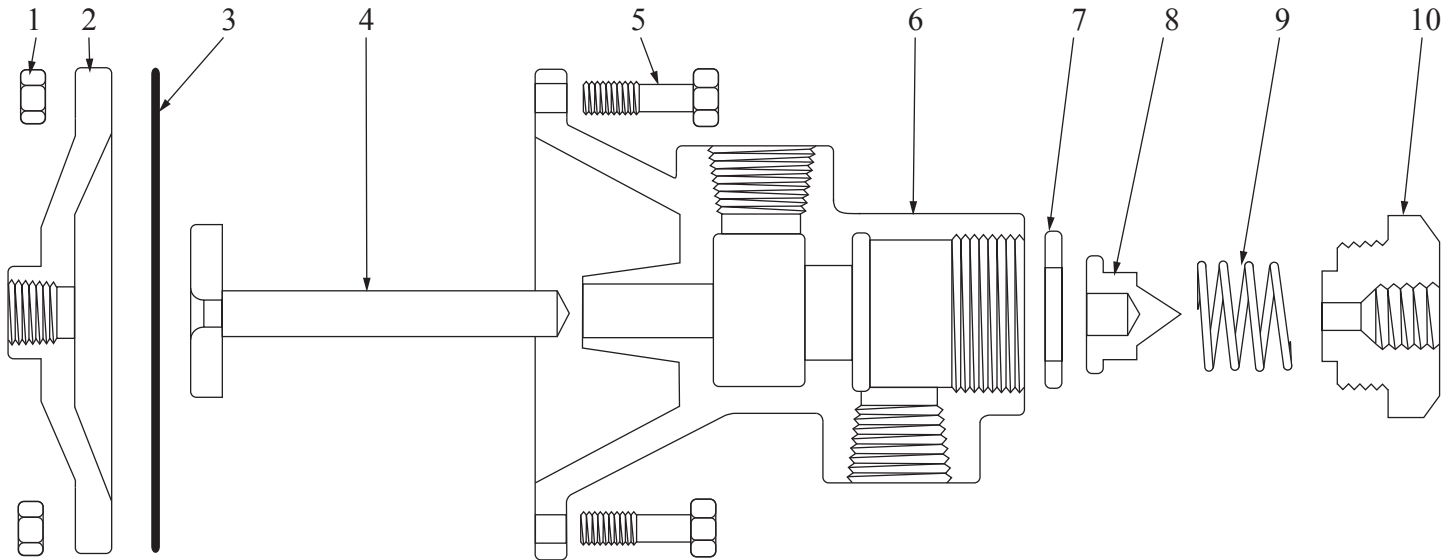
**A-0675 Only

***A-0676 Only

* Recommended Spare Parts

5020 Series Components

B-0037 Master Valve Assembly



Parts List

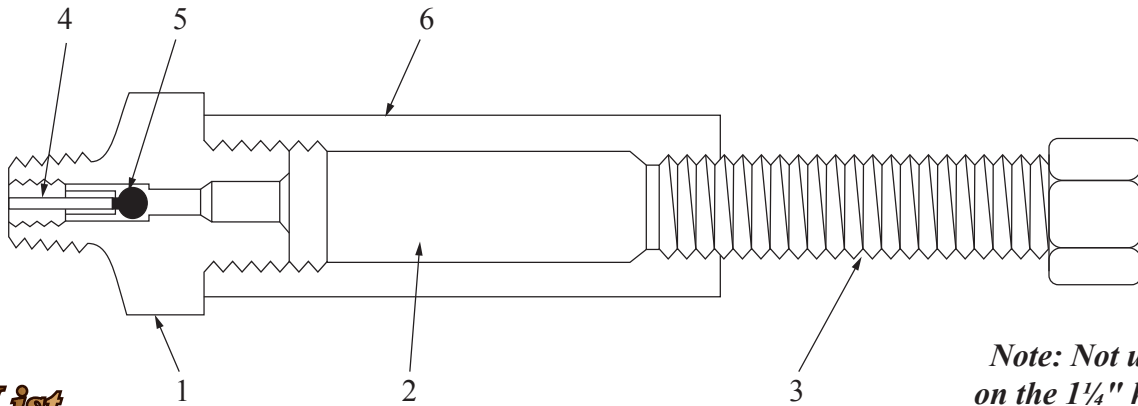
| Item # | Part # | # Reqd. | Description | Material |
|--------|-----------|---------|------------------|-----------------|
| 1 | A-0164 | 1 | Cap Nut | Steel |
| 2 | A-0001 | 1 | Housing Cap | Aluminum |
| 3 | A-1329 | 1 | Diaphragm | Buna-N |
| 4 | A-0197 | 1 | Stem Assembly | Brass |
| | A-0197-SS | 1 | Stem Assembly | Stainless Steel |
| 5 | A-0163 | 1 | Cap Bolt | Steel |
| 6 | C-0003 | 1 | Housing | Aluminum |
| 7 | A-0201 | 1 | Lower Valve Seat | Buna-N |
| 8 | A-0196 | 1 | Valve Disc | Brass |
| | A-0196SS | 1 | Valve Disc | Stainless Steel |
| 9 | A-0202 | 1 | Valve Spring | Steel |
| 10 | A-0200 | 1 | Upper Valve Seat | Brass |
| | A-0200-SS | 1 | Upper Valve Seat | Stainless Steel |

* Recommended Spare Parts

**Alternate Parts for Sour Gas Trim are all Stainless Steel

5020 Series Components

A-0558 Grease Jack Assembly



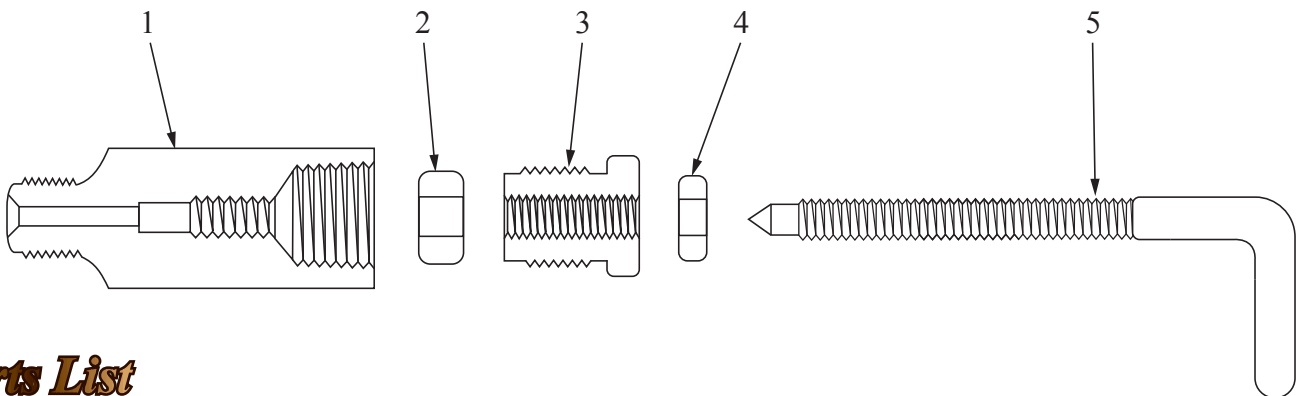
Note: Not used on the 1/4" head.

Parts List

| Item # | Part # | # Reqd. | Description | Material |
|--------|----------|---------|--------------------------|---------------------|
| 1 | A-0561 | 1 | Base | Steel |
| 2 | A-3179-1 | 1 | Lube Stick | ◆ |
| | A-3179-2 | 1 | Carton of 72 Lube Sticks | ◆ |
| 3 | A-0560 | 1 | Screw | Steel |
| 4 | A-0562 | 1 | Retainer | Steel |
| 5 | A-0564 | 1 | Ball | 316 Stainless Steel |
| 6 | A-0559 | 1 | Body | Steel |

* Recommended Spare Parts

A-0022 Inlet Valve Assembly



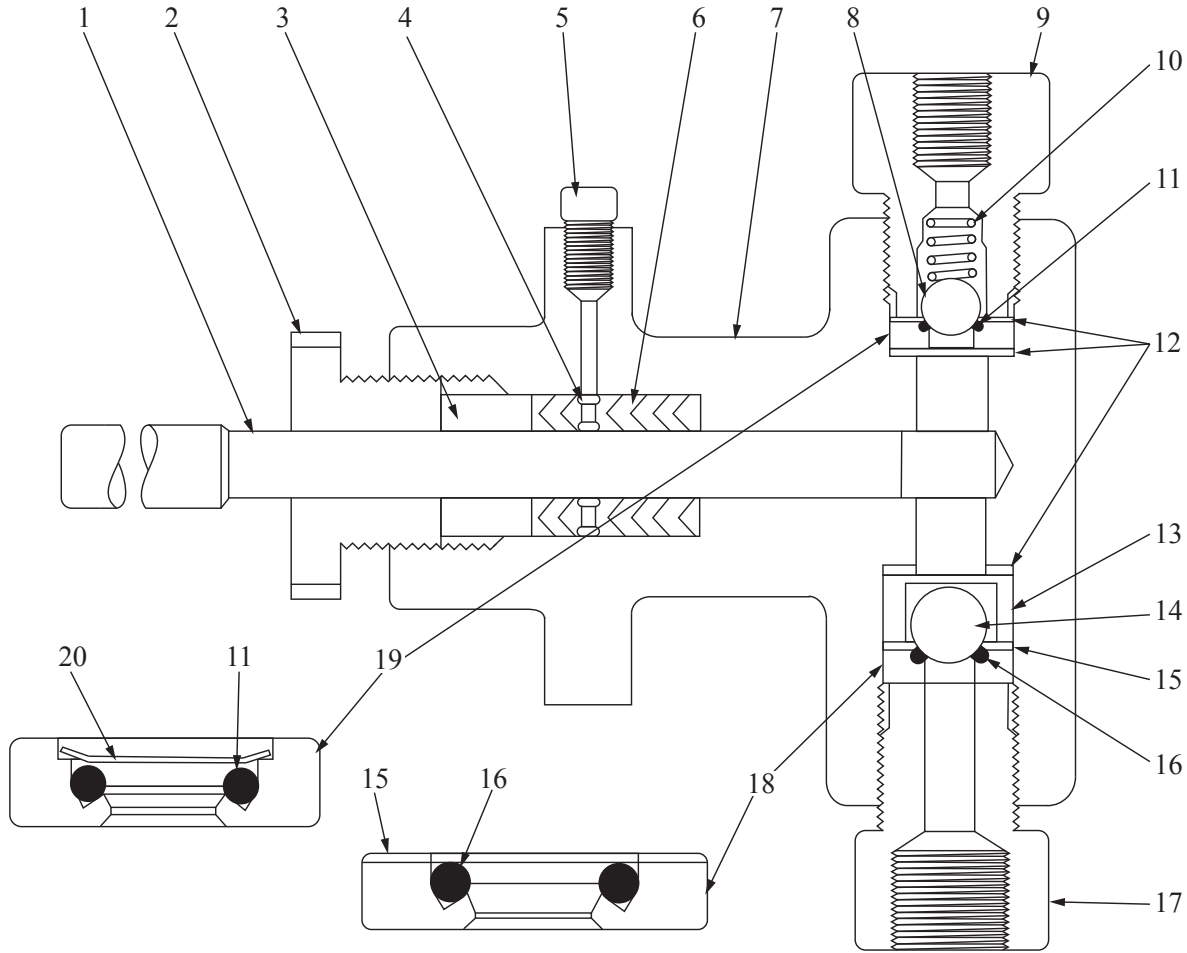
Parts List

| Item # | Part # | # Reqd. | Description | Material |
|--------|--------|---------|-------------|----------|
| 1 | A-0010 | 1 | Body | Brass |
| 2 | A-0023 | 1 | Packing | Graphite |
| 3 | A-0011 | 1 | Gland Nut | Brass |
| 4 | A-0195 | 1 | Nut | Brass |
| 5 | A-0013 | 1 | Valve Stem | Brass |

* Recommended Spare Parts

Injector Heads

(For 1/4", 3/8", 1/2", 3/4", and 1" Heads)



Alternate Components

| Item # | Part # | Description | Material |
|--------|--------|--|---------------------|
| 11 | A-2336 | O'Ring | Viton |
| 13 | A-0157 | Metal-to-Metal Top Seat for 1/4" & 3/8" Heads | 303 Stainless Steel |
| 16 | A-2184 | O'Ring (1/2" - 1 1/4") | Viton |
| | A-2336 | O'Ring (1/4" & 3/8") | |
| 19 | A-0157 | Metal-to-Metal Bottom Seat for 1/4" & 3/8" Heads | 303 Stainless Steel |
| | A-0051 | Metal-to-Metal Bottom Seat for 1/2", 3/4" & 1" Heads | |

| Item # | Part # | | | Description |
|--------|--------|--------|--------|----------------------|
| | Viton | Teflon | Hard* | |
| 6 | A-4102 | A-1642 | A-2295 | 1/4" Plunger Packing |
| | A-4101 | A-1234 | A-1875 | 3/8" Plunger Packing |
| | A-4103 | A-1012 | A-1874 | 1/2" Plunger Packing |
| | A-4657 | A-2988 | A-2772 | 3/4" Plunger Packing |
| | A-4658 | A-1013 | A-4135 | 1" Plunger Packing |

| Item # | Part # | | Description |
|--------|----------|--|--------------|
| | Ceramic | | |
| 1 | A-2764-C | | 1/4" Plunger |
| | A-0743-C | | 3/8" Plunger |
| | A-0032-C | | 1/2" Plunger |
| | A-2767-C | | 3/4" Plunger |
| | A-0158-C | | 1" Plunger |

*Hard packing for 3000PSI and above service

Parts List for Ductile Iron Head

| Item # | Part # | | | | | # Req'd. | Description | Material |
|--------|--------|--------|--------|--------|--------|----------|----------------------|--|
| | 1/4" | 3/8" | 1/2" | 3/4" | 1" | | | |
| ◆ | C-1609 | C-0085 | C-0068 | C-0335 | C-0019 | 1 | Head Assembly | Ductile Iron with Stainless Steel Trim |
| 1 | A-2764 | A-0743 | A-0032 | A-2767 | A-0158 | 1 | Plunger | Armalooy - 17.4 pH Stainless Steel |
| 2 | A-2765 | A-0944 | A-0055 | A-2768 | A-0047 | 1 | Packing Gland Nut | Carbon Steel |
| 3 | A-1463 | A-0957 | A-1219 | A-2769 | A-0043 | 1 | Packing Gland | 303 Stainless Steel |
| 4 | A-2766 | A-0742 | A-0447 | A-2770 | A-0448 | 1 | Lantern Ring | 303 Stainless Steel |
| 5 | A-0516 | | | | | 1 | Pipe Plug | ◆ |
| *6 | A-1461 | A-1456 | A-0959 | A-2771 | A-0050 | 1 | Plunger Packing | Buna-N |
| 7 | C-1608 | C-0084 | C-0022 | C-0333 | C-0020 | 1 | Body | Ductile Iron |
| 8 | A-0054 | | | | | 1 | 3/8" Top Check Ball | 316 Stainless Steel |
| 9 | A-0152 | | | | | 1 | Top Bushing | 303 Stainless Steel |
| 10 | A-0077 | | | | | 1 | Ball Check Spring | 316 Stainless Steel |
| *11 | A-2097 | | | | | 1 | O'Ring | Buna-N |
| 12 | A-2350 | | | | | 3 | Gasket | 304 Stainless Steel |
| 13 | A-0444 | | | | | 1 | Ball Cage | 17.4 pH Stainless Steel |
| 14 | A-0054 | | A-0053 | | | 1 | Bottom Check Ball | 316 Stainless Steel |
| 15 | A-2350 | | A-2338 | | | 1 | Gasket | 304 Stainless Steel |
| *16 | A-2097 | | A-0612 | | | 1 | O'Ring | Buna-N |
| 17 | A-0153 | | | | | 1 | Bottom Bushing | 303 Stainless Steel |
| *18 | B-0368 | | B-0698 | | | 1 | Bottom Seat Assembly | 303 Stainless Steel |
| *19 | B-0368 | | | | | 1 | Top Seat Assembly | 303 Stainless Steel |
| 20 | A-3523 | | | | | 1 | O'Ring Retainer | Stainless Steel |

Parts List for Stainless Steel Head

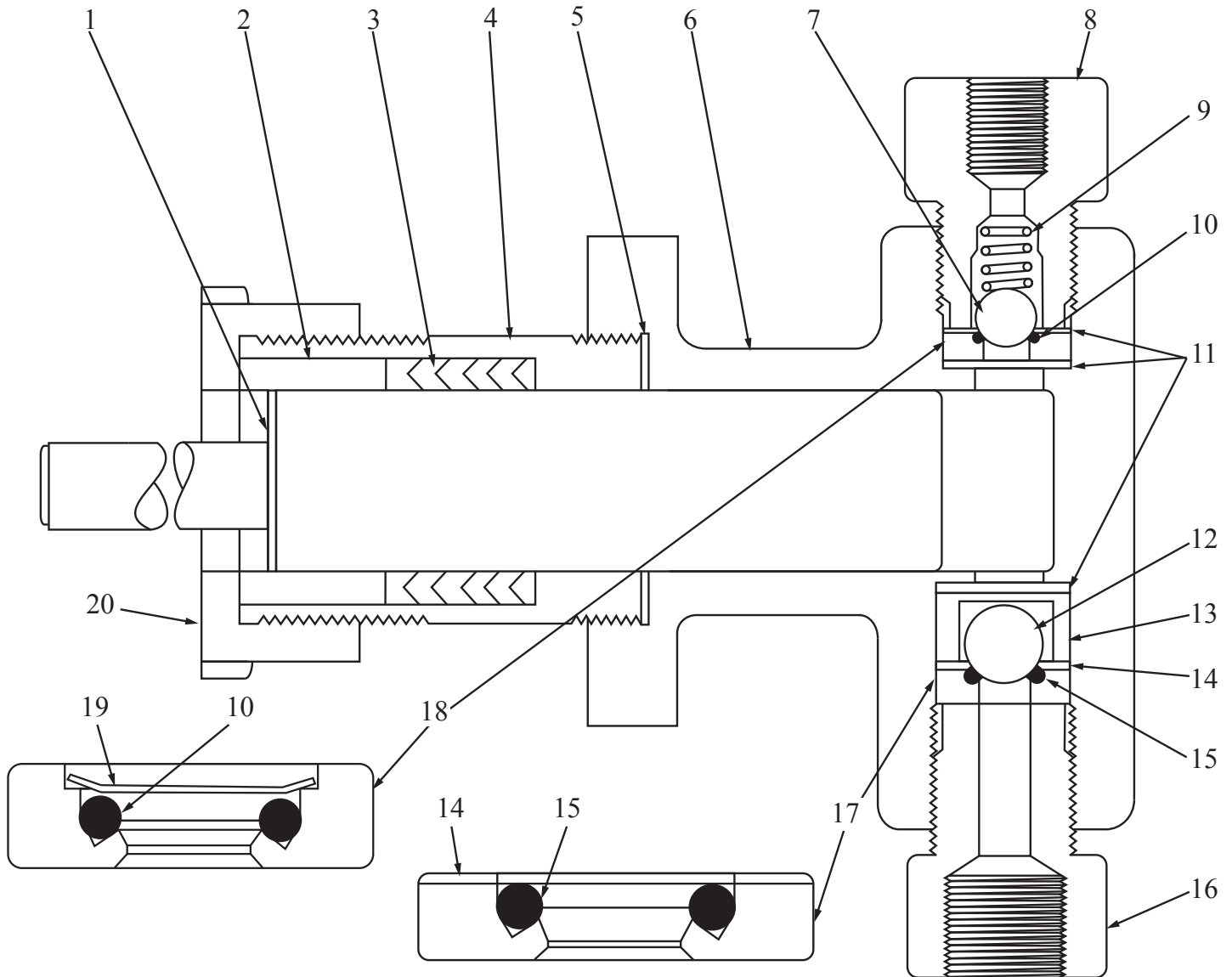
| Item # | Part # | | | | | # Req'd. | Description | Material |
|--------|--------|--------|--------|--------|--------|----------|----------------------|------------------------------------|
| | 1/4" | 3/8" | 1/2" | 3/4" | 1" | | | |
| ◆ | C-1611 | C-0148 | C-0139 | C-0337 | C-0137 | 1 | Head Assembly | Stainless Steel |
| *1 | A-2764 | A-0743 | A-0032 | A-2767 | A-0158 | 1 | Plunger | Armalooy - 17.4 pH Stainless Steel |
| 2 | D-0250 | D-0375 | D-0500 | D-0750 | D-1000 | 1 | Packing Gland Nut | Stainless Steel |
| 3 | A-1463 | A-0957 | A-1219 | A-2769 | A-0043 | 1 | Packing Gland | 303 Stainless Steel |
| 4 | A-2766 | A-0742 | A-0447 | A-2770 | A-0448 | 1 | Lantern Ring | 303 Stainless Steel |
| 5 | A-0516 | | | | | 1 | Pipe Plug | ◆ |
| *6 | A-1461 | A-1456 | A-0959 | A-2771 | A-0050 | 1 | Plunger Packing | Buna-N |
| 7 | C-1610 | C-0147 | C-0140 | C-0340 | C-0138 | 1 | Body | Stainless Steel |
| 8 | A-0054 | | | | | 1 | 3/8" Top Check Ball | 316 Stainless Steel |
| 9 | A-0152 | | | | | 1 | Top Bushing | 303 Stainless Steel |
| 10 | A-0077 | | | | | 1 | Ball Check Spring | 316 Stainless Steel |
| *11 | A-2097 | | | | | 1 | O'Ring | Buna-N |
| 12 | A-2350 | | | | | 3 | Gasket | 304 Stainless Steel |
| 13 | A-0444 | | | | | 1 | Ball Cage | 17.4 pH Stainless Steel |
| 14 | A-0054 | | A-0053 | | | 1 | Bottom Check Ball | 316 Stainless Steel |
| 15 | A-2350 | | A-2338 | | | 1 | Gasket | 304 Stainless Steel |
| *16 | A-2097 | | A-0612 | | | 1 | O'Ring | Buna-N |
| 17 | A-0153 | | | | | 1 | Bottom Bushing | 303 Stainless Steel |
| *18 | B-0368 | | B-0698 | | | 1 | Bottom Seat Assembly | 303 Stainless Steel |
| *19 | B-0368 | | | | | 1 | Top Seat Assembly | 303 Stainless Steel |
| 20 | A-3523 | | | | | 1 | O'Ring Retainer | Stainless Steel |

* Recommended Spare Parts

* Alternate Components Available (see tables on page 10)

Injector Heads

(For 1¼" Heads)



Injector Heads

(For 1¼" Heads)

Parts List

| <i>Item #</i> | <i>Part #</i> | <i># Req'd.</i> | <i>Description</i> | <i>Material</i> |
|---------------|---------------|-----------------|----------------------|--|
| ♦ | C-0048 | 1 | Head Assembly | Ductile Iron with Stainless Steel Trim |
| | C-0134 | | | Stainless Steel |
| 1 | A-0408 | 1 | Plunger | Armaly - 17.4 pH Stainless Steel |
| 2 | A-0404 | 1 | Packing Gland | 303 Stainless Steel |
| *3 | A-0405 | 1 | Plunger Packing | Buna-N |
| 4 | A-0923 | 1 | Adapter | 303 Stainless Steel |
| 5 | A-0521 | 1 | Gasket | Copper |
| 6 | C-0049 | 1 | Body | Ductile Iron |
| | C-0135 | | | Stainless Steel |
| 7 | A-0054 | 1 | ⅜" Top Check Ball | 316 Stainless Steel |
| 8 | A-0152 | 1 | Top Bushing | 303 Stainless Steel |
| 9 | A-0077 | 1 | Ball Check Spring | 316 Stainless Steel |
| *10 | A-2097 | 1 | O'Ring | Buna-N |
| 11 | A-2350 | 3 | Gasket | 304 Stainless Steel |
| 12 | A-0053 | 1 | ½" Bottom Check Ball | 316 Stainless Steel |
| 13 | A-0444 | 1 | Ball Cage | 17.4 pH Stainless Steel |
| 14 | A-2338 | 1 | Gasket | 304 Stainless Steel |
| *15 | A-0612 | 1 | O'Ring | Buna-N |
| 16 | A-0153 | 1 | Bottom Bushing | 303 Stainless Steel |
| *17 | B-0698 | 1 | Bottom Seat Assembly | 303 Stainless Steel |
| *18 | B-0368 | 1 | Top Seat Assembly | 303 Stainless Steel |
| 19 | A-3523 | 1 | O'Ring Retainer | Stainless Steel |
| 20 | A-0403 | 1 | Packing Nut | Stainless Steel |

* Recommended Spare Parts

* Alternate Components Available (see table above)

Alternate Construction

| <i>Item #</i> | <i>Part #</i> | <i>Description</i> | <i>Material</i> |
|---------------|---------------|--------------------------------|---------------------|
| 1 | A-0408-C | Plunger (Stainless Steel Head) | Ceramic |
| 3 | A-4480 | Plunger Packing | Viton |
| | A-1014 | | Teflon |
| | A-4133 | | Hard |
| 10 | A-2336 | O'Ring | Viton |
| 15 | A-2184 | O'Ring | Viton |
| 17 | A-0051 | Metal-to-Metal Bottom Seat | 303 Stainless Steel |
| 18 | A-0157 | Metal-to-Metal Top Seat | 303 Stainless Steel |

Performance Data and Applications

Applications for 5020 Series Injectors

- ◆ Introducing detergents in air-gas drilling operations
- ◆ Blending foaming agents in water laden gas wells
- ◆ High pressure addition of fluid compounds in blending and chemical processing
- ◆ Pilot laboratory procedure involving high pressure circulation of mercury and other test substances
- ◆ Introduction of de-salting agents, de-emulsifiers, inhibitors and flocculants in crude oil and gas streams
- ◆ High and low pressure lubrication systems
- ◆ Methanol and alcohol injection in gas systems to prevent freezing
- ◆ General high pressure injection applications
- ◆ Fluid blending of extreme pressures within varied, controlled processes
- ◆ Hydrostatic testing
- ◆ Glycol circulation
- ◆ Pumping liquefied gasses
- ◆ Water treatment
- ◆ High pressure sampling

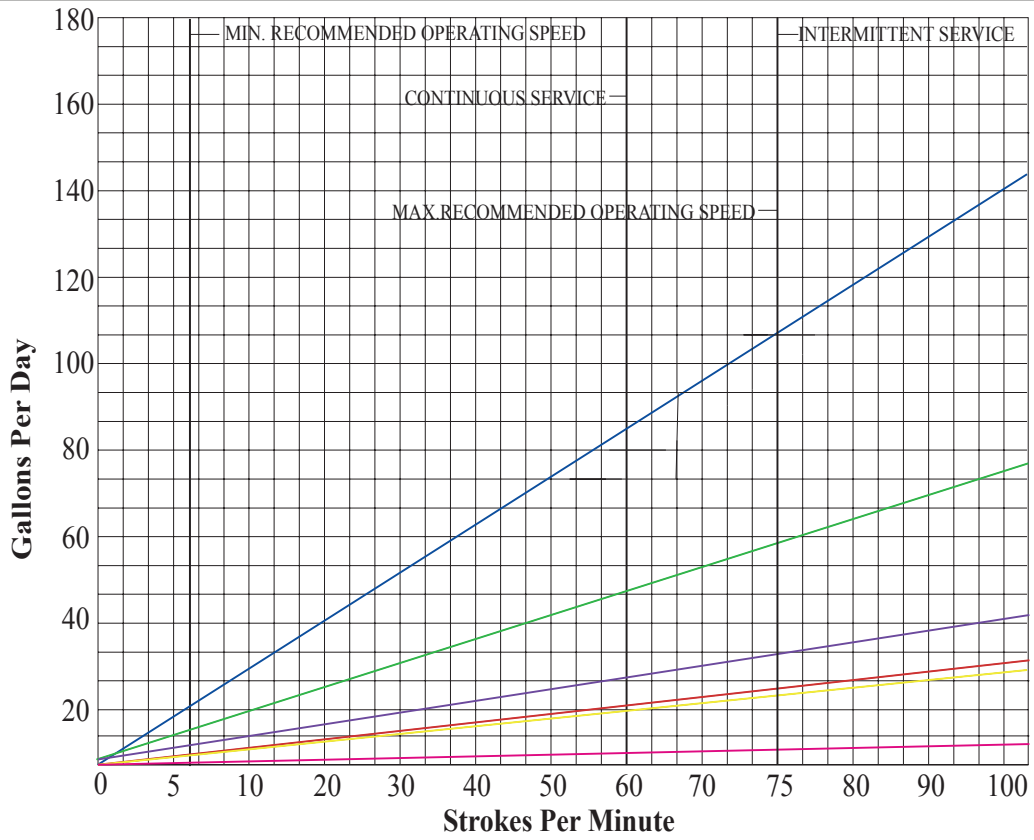
Performance Data

| <i>Model #</i> | <i>Plunger Size</i> | <i>Operating Ratio (gas*/fluid)</i> | <i>Maximum Discharge Pressure (PSIG)</i> | | <i>Maximum Volume</i> | | | |
|----------------|---------------------|---|--|---------------------|-----------------------|------------|-------------------|------------|
| | | | <i>Hard Packing</i> | <i>Soft Packing</i> | <i>Intermittent</i> | | <i>Continuous</i> | |
| | | | | | <i>GPH</i> | <i>GPD</i> | <i>GPH</i> | <i>GPD</i> |
| 50-22 | 1/4" | 1000/1 | 20,000 | 3,000 | 0.83 | 20 | 0.67 | 16 |
| 50-23 | 3/8" | 497/1 | 20,000 | 3,000 | 2.33 | 56 | 1.79 | 43 |
| 50-24 | 1/2" | 264/1 | 12,000 | 3,000 | 4.38 | 105 | 3.54 | 85 |
| 50-25 | 3/4" | 115/1 | 5,000 | 3,000 | 7.42 | 190 | 6.67 | 160 |
| 50-26 | 1" | 66/1 | ◆ | 3,000 | 16.66 | 400 | 13.33 | 320 |
| 50-27 | 1 1/4" | 42/1 | ◆ | 2,000 | 26.04 | 625 | 20.83 | 500 |

**Maximum Power Gas Pressure: 50 PSI
Stroke Length - Long: 1 1/4"; Short: 1/2"*

This information applies to FIOMORE pumps: 50-22, 50-23, 50-24

VOLUME

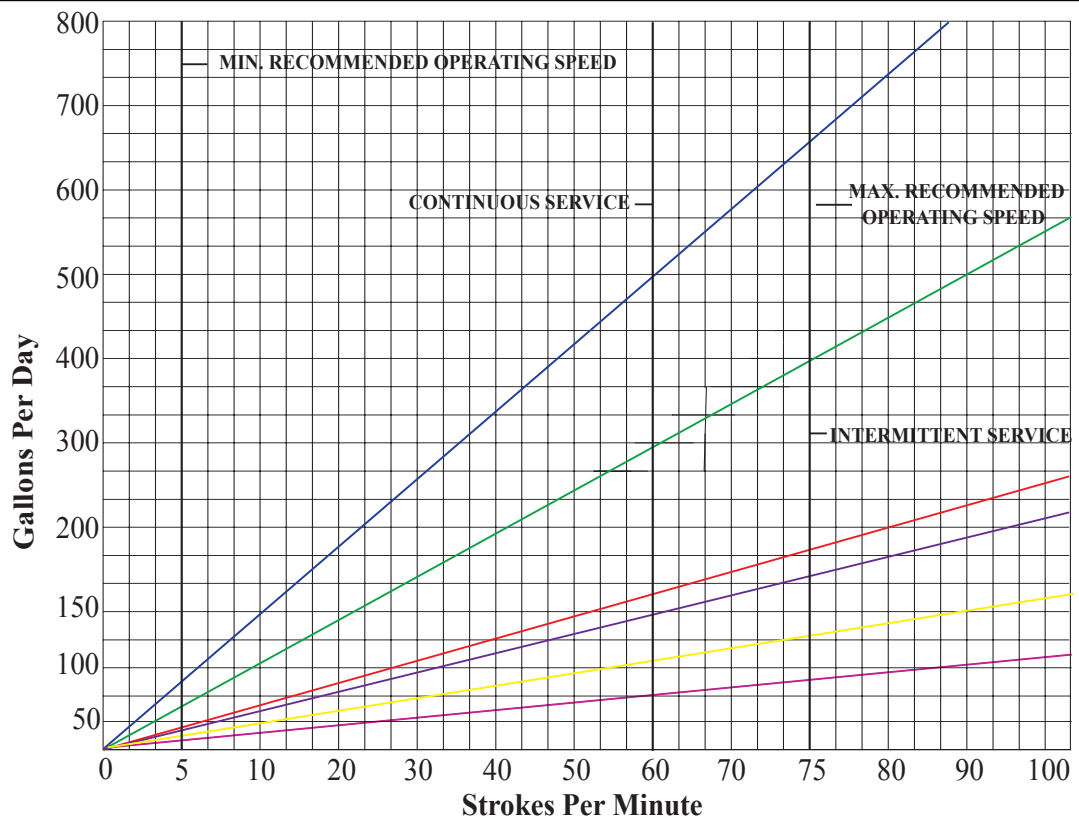


(1" Maximum Stroke Length)

- Model 5005 1/2" Plunger Long Stroke
- Model 5003 3/8" Plunger Long Stroke
- Model 5002 1/4" Plunger Long Stroke
- 1/2" Plunger Short Stroke
- 3/8" Plunger Short Stroke
- 1/4" Plunger Short Stroke

This information applies to FIOMORE pumps: 50-25, 50-26, 50-27

VOLUME



- Model 50-27 1 1/4" Plunger Long Stroke
- Model 50-25 3/4" Plunger Long Stroke
- Model 50-26 1" Plunger Long Stroke
- Model 50-27 1 1/4" Plunger Short Stroke
- Model 50-25 3/4" Plunger Short Stroke
- Model 50-26 1" Plunger Short Stroke

Performance Data

Gas Consumption Chart

| Injection Press In P.S.I | 50 | 100 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | 700 |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-------|
| 1/4" Piston Long Stroke | 280 | 281.2 | 282.4 | 283.6 | 284.8 | 286 | 289 | 292 | 294.6 | 297.2 |
| 1/4" Piston Short Stroke | 700 | 703 | 706 | 707 | 709 | 712 | 720 | 724 | 731 | 737 |
| 3/8" Piston Long Stroke | 140 | 140.6 | 141.2 | 141.8 | 142.4 | 143 | 144.5 | 146 | 147.3 | 148.6 |
| 3/8" Piston Short Stroke | 355 | 355.6 | 356.2 | 356.8 | 357.4 | 358 | 359.5 | 361 | 362.3 | 363.6 |
| 1/2" Piston Long Stroke | 80.6 | 81.2 | 81.8 | 82.4 | 83 | 83.6 | 84.8 | 86 | 87.2 | 88.4 |
| 1/2" Piston Short Stroke | 200.6 | 201.1 | 201.8 | 202.4 | 203 | 203.6 | 204.8 | 206 | 207 | 208.4 |
| 3/4" Piston Long Stroke | 36 | 37 | 38 | 39 | 40 | 41 | 43 | 45 | 47.3 | 49.4 |
| 3/4" Piston Short Stroke | 89 | 91 | 92 | 94 | 95 | 96 | 99 | 101 | 105 | 109 |
| 1" Piston Long Stroke | 20.6 | 21.2 | 21.8 | 22.4 | 23 | 23.6 | 24.8 | 26 | 27.2 | 28.4 |
| 1" Piston Short Stroke | 50.6 | 51.2 | 51.8 | 52.4 | 53 | 53.6 | 54.8 | 56 | 57.2 | 58.4 |
| 1 1/4" Piston Long Stroke | 13.6 | 14.2 | 14.8 | 15.4 | 16 | 16.6 | 17.8 | 19 | 20.2 | 21.4 |
| 1 1/4" Piston Short Stroke | 32.6 | 33.2 | 33.8 | 34.4 | 35 | 35.6 | 36.8 | 38 | 39.2 | 40.4 |

and Applications

Standard cubic feet of gas required to pump one gallon

| 800 | 900 | 1000 | 1500 | 2000 | 3000 | 3500 | 4000 | 5000 | 6000 | 7000 | 8000 | 9000 | 10000 |
|-------|-------|------|------|------|------|------|------|------|------|------|------|------|-------|
| 300 | 303 | 306 | 318 | 330 | 356 | 368 | 380 | 404 | 428 | 452 | 476 | 500 | 522 |
| 741 | 748 | 756 | 779 | 802 | 854 | 872 | 897 | 937 | 984 | 1017 | 1057 | 1090 | 1122 |
| 150 | 151.5 | 153 | 159 | 165 | 178 | 184 | 190 | 202 | 214 | 226 | 238 | 250 | 262 |
| 365 | 366.5 | 368 | 374 | 380 | 393 | 399 | 405 | 417 | 429 | 441 | 453 | 465 | 477 |
| 89.6 | 90.8 | 92 | 98 | 104 | 116 | 122 | 128 | 140 | 152 | 164 | 176 | 188 | 200 |
| 209.6 | 210.8 | 212 | 218 | 224 | 236 | 242 | 248 | 260 | 272 | 284 | 296 | 308 | 320 |
| 51.3 | 52.8 | 55.6 | 66 | 76.2 | 97 | 107 | 114 | 121 | | | | | |
| 111 | 113 | 117 | 132 | 145 | 172 | 183 | 190 | 191 | | | | | |
| 29.6 | 30.8 | 32 | 38 | 44 | 56 | 62 | | | | | | | |
| 59.6 | 60.8 | 62 | 68 | 74 | 86 | | | | | | | | |
| 22.6 | 23.8 | 25 | 31 | 37 | 49 | | | | | | | | |
| 41.6 | 42.8 | 44 | 50 | 56 | | | | | | | | | |

Troubleshooting

NOTE: Make sure valves on suction and discharge lines are open.

Pump will not run.

1. If the pump will not run, make sure you have gas and pressure (50 PSIG Max) to the A-0022 speed control valve (Item #2, Page 2). Check pressure on line that pump is injecting into, too high pressure will result in a stalled pump.
2. Check the position of the pilot valve disc (Item #2, Page 5) by removing the fitting and disc retainer, C-0495 (Item #1, Page 5), to expose the C-4668 (Item #2, Page 5).
3. With a long screwdriver, move the flipper arm forward, towards the injection head, then check the hole in the C-4668 to make sure it aligns with the hole in the C-0451 (Item #5, Page 5) body, this hole is a 9 o'clock, there is another hole at 3 o'clock, but is not to be considered when timing this pump.
4. The pump is now in time, replace all items, and start pump.

NOTE: A hole in the diaphragm (Item #18, Page 3) is evident by gas discharging constantly into the oil chamber.

Pump makes only one stroke forward and does not make return stroke.

1. Check ¼" NPT pilot hole located on right side of pilot valve assembly (Item #19, Page 2), this hole should be clear, because it is the discharge port for the pilot gas system (very small amount) which is necessary for the pump to make the return stroke.
2. Pull the lift ring on the A-0131 safety valve (Item #2, Page 3), if there is a constant discharge of gas then check the A-1329 diaphragm (Item #3, Page 7) of the B-0037 master valve (Item #13, Page 2) for a hole, while you are there make sure the A-0197 stem assembly (Item #4, Page 7) will move up (against spring tension) and return, if not disassemble the B-0037 completely, wash all parts to remove sand, slag, rust or other material that might be obstructing proper operation of this valve. At the same time check items A-0200 upper valve (Item #10, Page 7) seat, A-0196 valve disc seat (Item #8, Page 7), A-0201 lower valve seat (Item #7, Page 7) (rubber) for excessive wear and A-0202 spring (Item #9, Page 7) for breakage.
3. Make sure both ⅜" NPT ports are open and unobstructed by sand, rust, oil or other debris that might impede gas flow.

Pump runs but will not pump.

1. Make sure the fluid to be pumped is getting to the suction bushing (Item #17, Page 8) in quantity. Open the priming valve to bleed air from head assembly. If you have a liquid level gauge (and you should) shut valve on gauge as if you were making a volume test, if fluid falls in the tube on the suction stroke, then rises on the discharge stroke, the suction valve (Item #18, Page 8) is leaking or by-passing fluid.
2. Disconnect suction line, remove suction bushing, replace o'ring (Item #16, Page 8) in bottom check valve seat (Item #18, Page 8). Viton o'rings should be used in chemical service, both in bottom and top check valve seats.
3. Restart pump, set speed for volume needed.

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