

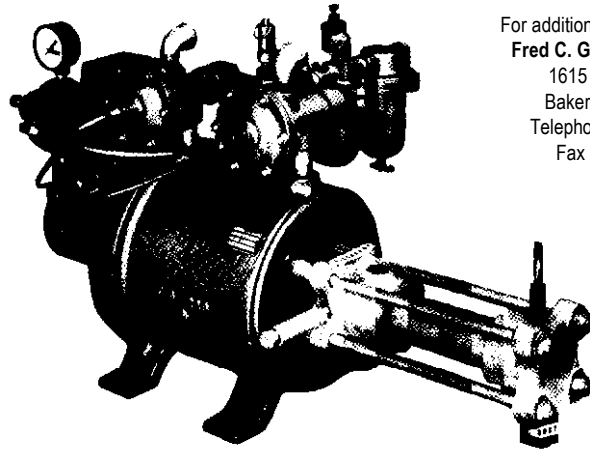
FRED C. GILBERT CO.
100 E. MINNER AVE. • P. O. BOX 5534
OILDALE, CALIFORNIA
PHONE BAKERSFIELD 399.9569

~~FRED C. GILBERT CO.~~
~~3508 ST. MORE AVE. • P. O. BOX 1713~~
~~BAKERSFIELD, CALIFORNIA~~
~~PHONE FA 7-3016~~

PUMPS

Series 6000
Air or Gas Driven

CATALOG AND PARTS LIST



For additional information contact:
Fred C. Gilbert Company
1615 A Bedford Way
Bakersfield, Ca. 93308 USA
Telephone (661) 399-9569
Fax (661) 393-9654

DESCRIPTION

The Series 6000 **TXT** "Slugger" Pumps are air or gas driven positive displacement type reciprocating pumps. The gas motor is an integral part of the pump.

All models have **an** exceptionally wide volume range and can achieve high discharge pressures. Each pump can be ordered or easily converted to exhaust the power **gas** into lines with pressures to 75 PSI. This feature allows conservation of the power gas where a low pressure system is available (such **as** a fuel gas system).

TYPICAL APPLICATIONS

Chemical Injection
Hydrostatic Testing
Glycol recirculation
Fluid transfer at high pressures
Slugging inhibitors into well **annulus**
Blending detergents in air-gas drilling

OPERATIONAL DATA

Pump Model Number	6001	6002	6003	6004
DISCHARGE PRESSURE — maximum	4000 PSI	10,000 PSI	1500 PSI	800 PSI
VOLUME — maximum				
Intermittent	1.5 GPM	.6 GPM	7.6 GPM	15.2 GPM
Continuous	1.1 GPM	.4 GPM	5.2 GPM	10.7 GPM

PUMP SPEED

Maximum — intermittent	50 SPM	50 SPM	50 SPM	50 SPM
Maximum -continuous	35 SPM	35 SPM	35 SPM	35 SPM
Minimum	4 SPM	4 SPM	4 SPM	4 SPM

(one stroke equals one complete cycle of the pump)

POWER/FLUID PRESSURE RATIO	50:1	63:1	8.33:1	4.2:1
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AIR OR GAS PRESSURE REQUIRED TO OPERATE PUMP

Maximum	200 PSI	200 PSI	200 PSI	200 PSI
Minimum	25 PSI	25 PSI	25 PSI	25 PSI

(TA-131 Safety Valve set at 200 PSI to prevent overpressure on main piston housing)

MAXIMUM POWER GAS SACK PRESSURE

75 PSI	75 PSI	75 PSI	75 PSI
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(only on pumps equipped for back pressure service — see drawing Of master valve)

PUMP ACTION	DOUBLE	SINGLE	DOUBLE	DOUBLE
SHIPPING WEIGHT	126 lbs.	120 lbs.	146 lbs.	137 lbs.

MANUFACTURERS OF:

CHEMICAL INJECTORS . PROPORTIONING PUMPS
SAFETY & RELIEF VALVES . **NON-LUBRICATED**
PLUG VALVES . GAS REGULATORS . DUMP VALVES
 . HOT OIL HEATERS . STEAM GENERATORS FOR
 THE INTERNATIONAL OIL PRODUCING INDUSTRY,
 PROCESS INDUSTRIES AND GENERAL INDUSTRY



320 HUGHES ST. • P. O. BOX 9127 • HOUSTON 11, TEXAS • WA 8-5361
Cable Address: TEXSTEAM

March 1963

INSTALLATION INSTRUCTIONS

1. Remove pump from carton and inspect for possible damage in transit. If damaged file claim with the carrier.
2. Mount the pump by bolting to 'a stable foundation with ½" bolts.
3. Connect fluid suction lines and fluid discharge lines. CAUTION -rigid piping should be avoided to prevent the possibility of pulling the fluid end out of alignment. Flexible hoses should be used if at all possible.
4. Close the TA-477 Valve. This is the speed control valve for the pump.
5. Install the Filter and Lubricator (included with each 6000 pump) in the air or gas lines to the TB-214 Inlet Bushing. Two ½" nipples are also included with pump to facilitate hook-up. The filter should be upstream of the lubricator (see opposite page). Arrows on top indicate the direction of air or gas flow. Read the instructions included with the filter and lubricator. After the pump is in operation, adjust to the slowest drip rate that will give continuous lubrication. For normal temperatures use SAE 30 oil; for lower, use SAE 20 or SAE 10.
6. Remove the TA-511 Valve Housing Cap and fill the chamber with two quarts of SAE 20 lubricating oil.
7. Fill the TA-558 Grease Jack with a lubricant suitable for the fluid being pumped. Texstream normally stocks suitable greases for most fluids.
8. Install a check valve suitable for the operating pressure and volume of the pump in the discharge line. The Texstream TB-283 ½" line check is recommended to 6000 PSI.
9. If necessary, pipe off the exhaust gas by connecting directly to the two ½" street ells on top of the TC-54 Manifold. If gas exhaust back pressure is encountered, the master valves should be equipped with #13 and #14 on drawing TB-327.
10. Start the pump by slowly opening the TA-477 Valve Handle. This controls the pump speed. For a desired volume determine the pump speed required to achieve that volume from the chart on pages 4, 6, 8, or 10.
11. Check the adjustable piston rod packing! **DO NOT OVERTIGHTEN!**
12. Check the pressure reading on the TA-1295 Pressure Gauge. It is factory set at 33 **PSI**. Readjust, if necessary, by means of the TB-40 Pressure Regulator. ***This is extremely important! Do not ever allow more than 33 PSI pressure on this system as proper operation of the pump will be impaired.***

OPERATING INSTRUCTIONS

1. Do not run pump faster than 50 strokes per minute.
2. Adjust **packing** to allow a slow drip to begin with. Then slowly tighten the gland to prevent excess **drippage** and waste of fluid. Do not **overtighten** packing. A slight drip during the break-in is beneficial. **Sufficient** time should be allowed to let the packing "seat in."
3. Turn the TA-558 Grease Jack one or two turns for lubricating the packing.
4. Check oil level in lubricator and in flipper spring chamber.
5. Check the TA-1295 Pressure Gauge -it should read 33 PSI.
6. Clean the Air or Gas Filter occasionally. (Blowdown provided on bottom of filter.)

MATERIAL SPECIFICATIONS

Power End (all models) — Materials used on critical parts such as the piston rods, master valve spring, packing retainer and packing spring are of stainless steel. The TD-223 Main Piston Housing is of high strength **pearlite** malleable iron with plastic and **Molybdenum Disulfide (MOS₂)** coating. It is imperative that only clean and dry air or gas be **used**. All O-Rings are **Buna N**. The fluid end packing is a **Buna N** compound-fabric reinforced. The **flipper** rod packing is composition and **Buna-N** (spring loaded).

Fluid End — Model 6001 -Piston barrel is of hard alloy centrifugally cast in seamless steel liner. Piston rings are iron alloy and the end caps are malleable iron. The piston, packing gland, adjusting nut, suction bushing, balls, bleeder valve and grease jack are stainless steel.

Fluid End-Model 6002 -The TB-498 **Pump Head** is C-1018 steel with stainless trim.

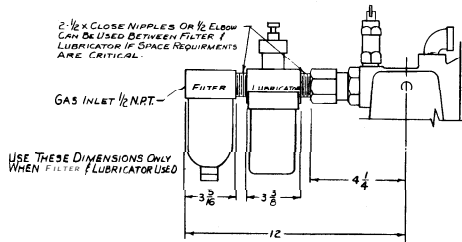
Fluid End — Models 6003 and 6004 -Same as 6001 except end caps and manifolds are aluminum. Pistons are Ductile iron. Piston Barrel on Models 6003 and 6004 is alloy iron.

Texstream is endeavoring to build the best 'possible equipment and your suggestions are appreciated. If you note corrosion, furnish us with complete information on the fluid being pumped. If any excessive wear or replacement of parts is experienced, notify your nearest TXT Representative **or** Authorized Service Dealer.

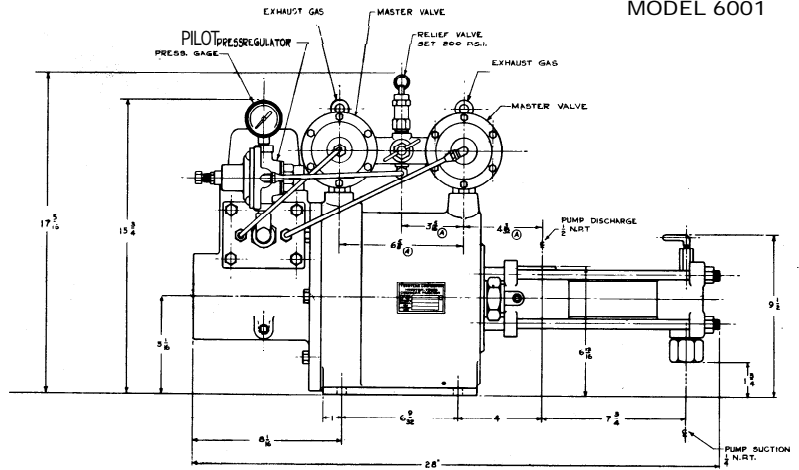
DIMENSIONAL DATA

All power end dimensions are the same for Models 6001, 6002, 6003 and 6004. See page 7 for fluid end dimension on Model 6002.

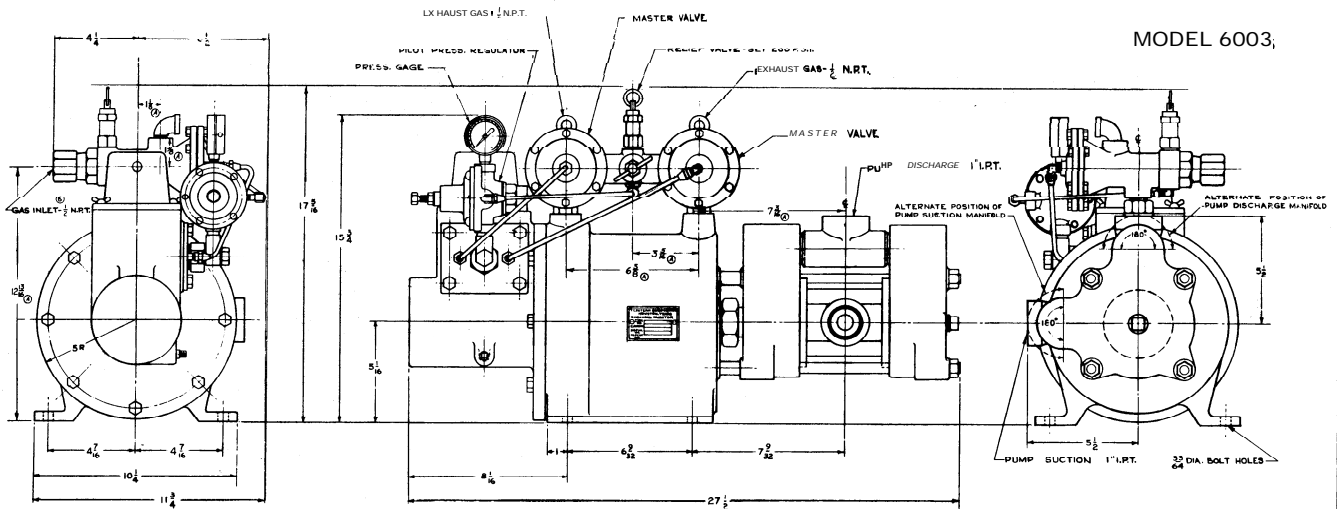
TA-1857 Lubricator and TA-1858 Filter furnished with all models



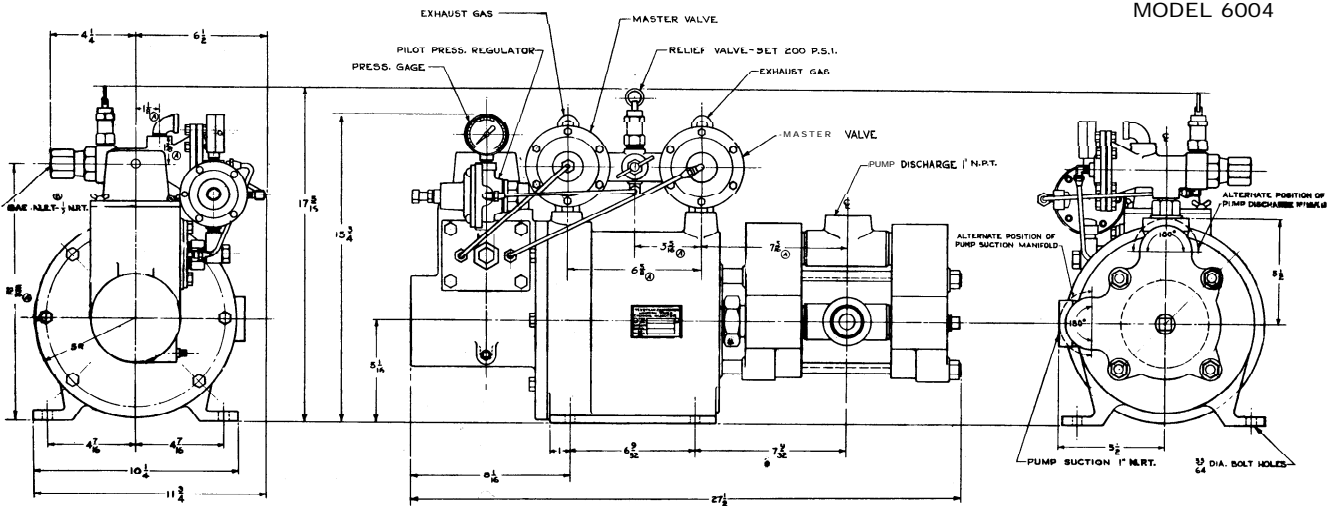
MODEL 6001



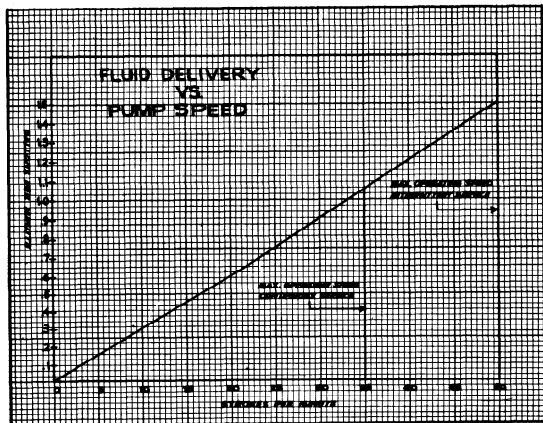
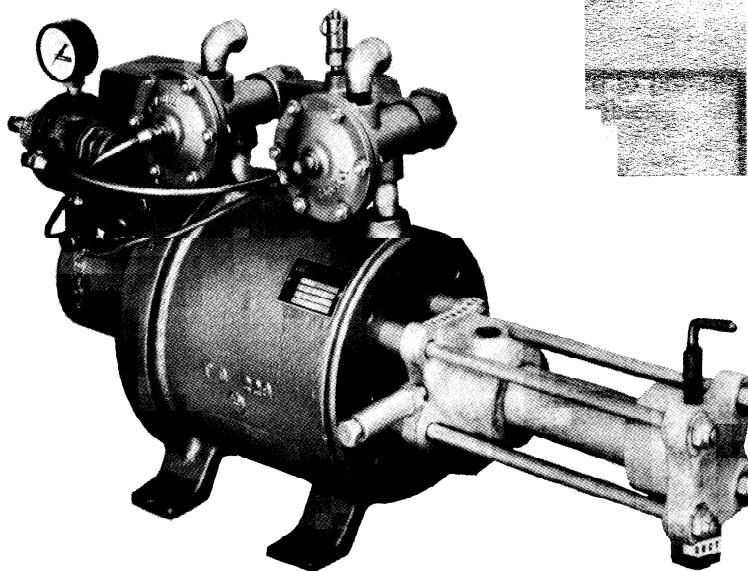
MODEL 6003;



MODEL 6004



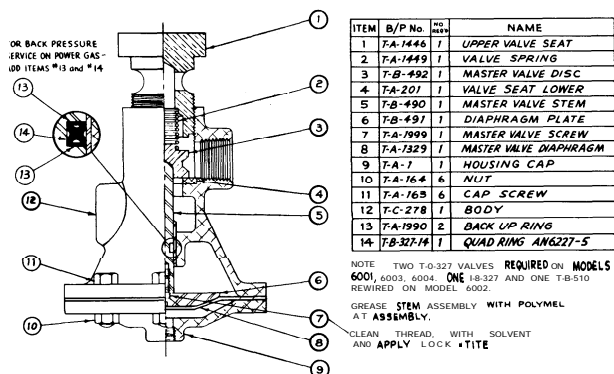
MODEL 6001 PARTS LIST



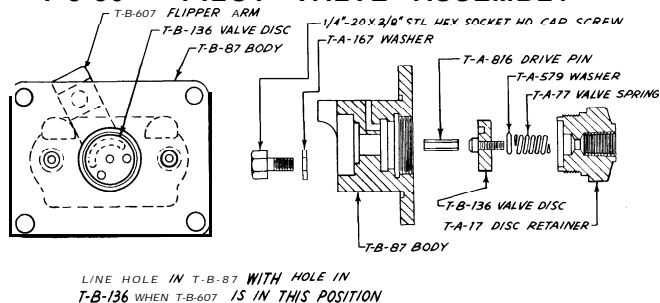
AIR CONSUMPTION

Injection Pressure, psi	100	250	500	750	1000	1500	2000	3000	4000
Std. Cu. Ft. Air Required to Pump 1 Gallon	11	13	16	19.4	22.6	29	35.8	48.8	62

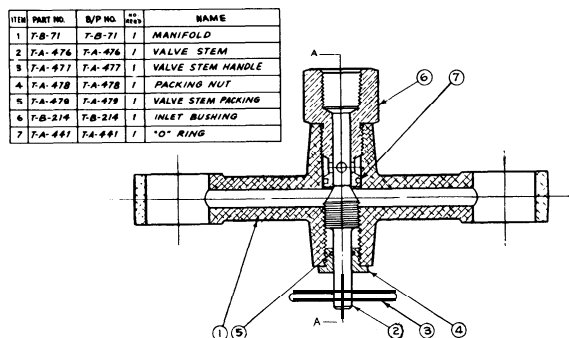
T-B-327 • MASTER VALVE ASSEMBLY



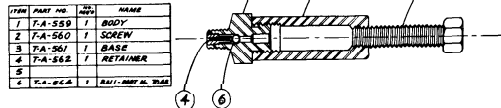
T-8-86 • PILOT VALVE ASSEMBLY



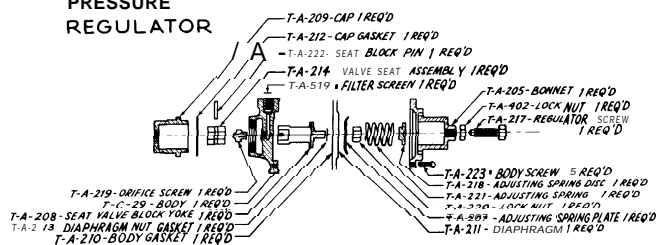
T-C-54 • MANIFOLD ASSEMBLY

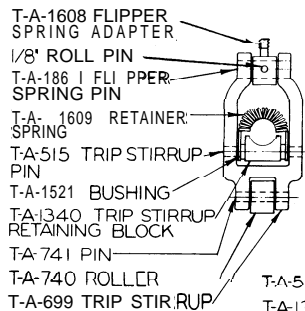
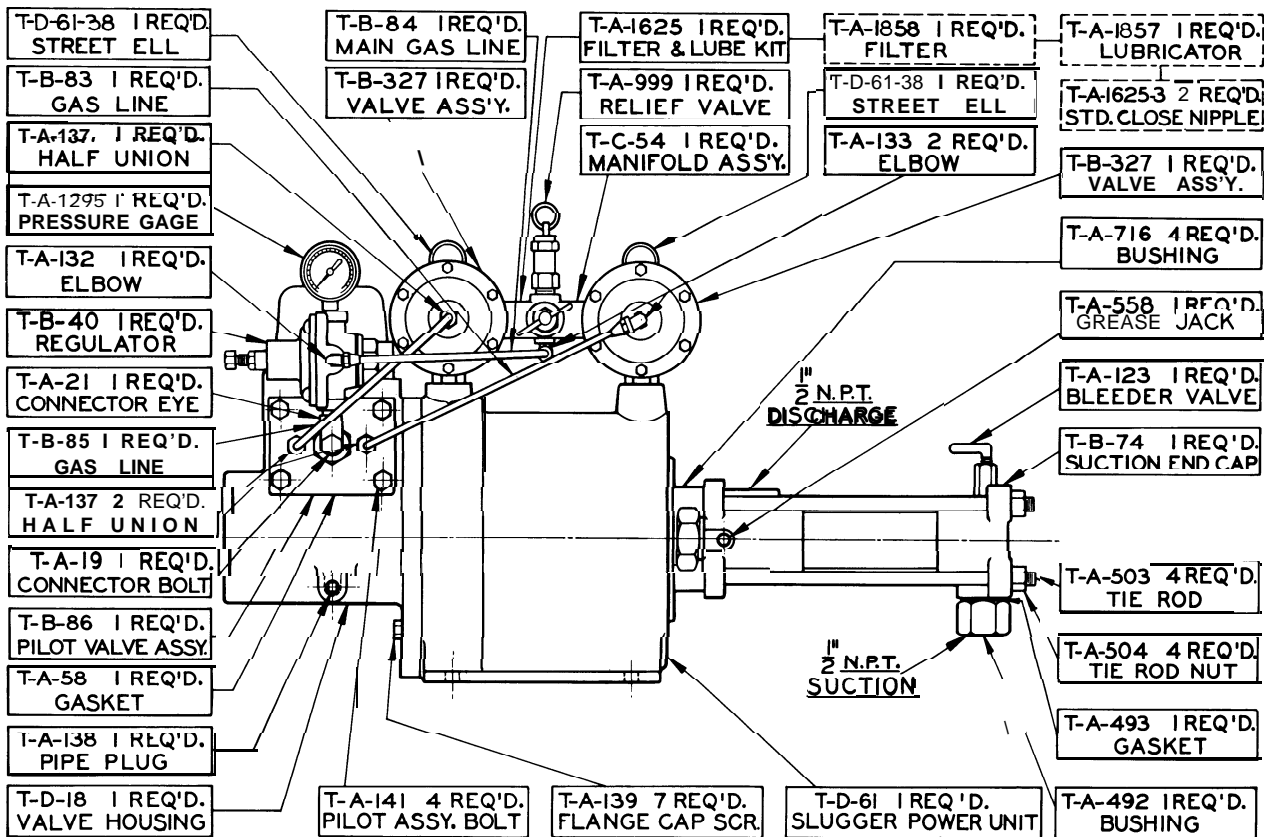


T-A-558 1/8" GREASE JACK ASSEMBLY



TB-40 PRESSURE REGULATOR

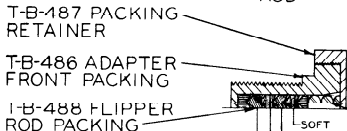




T-A-474 TRIP STIRRUP ASSY.

T-A-511 CAP ASSY.
 T-A-136 CAP SCR. 2 REQ'D.
 T-A-510 GASKET
 T-B-607 FLIPPER ARM ASSEMBLY
 T-A-73 1 SPRING

T-A-474 TRIP STIRRUP ASSY.
 T-B-82 PISTON ROD



SOFT
 HARD
 SOFT
 HARD
 DETAIL

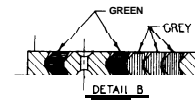
T-B-14 PACKING SPRING

T-A-2165 O-RING
 T-B-76 PISTON ASSY.
 T-B-359 PISTON
 T-A-1584 BUSHING
 T-B-76-3 SET SCREW
 T-D-2 23 PISTON

T-A-1331 PACKING ADJUSTING NUT
 1/2" N.P.T. X 2 LONG
 NI PP LE-2 REQ'D.

T-A-2165 O-RING

T-A-747 PISTON RING 4 REQ'D.
 T-A-734 PISTON
 T-B-72 DISCHARGE END CAP
 T-A-750 SEAL

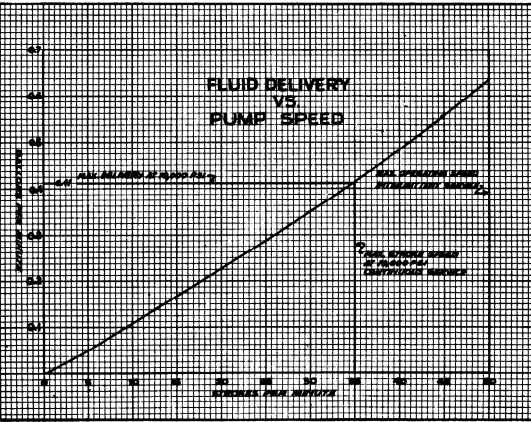
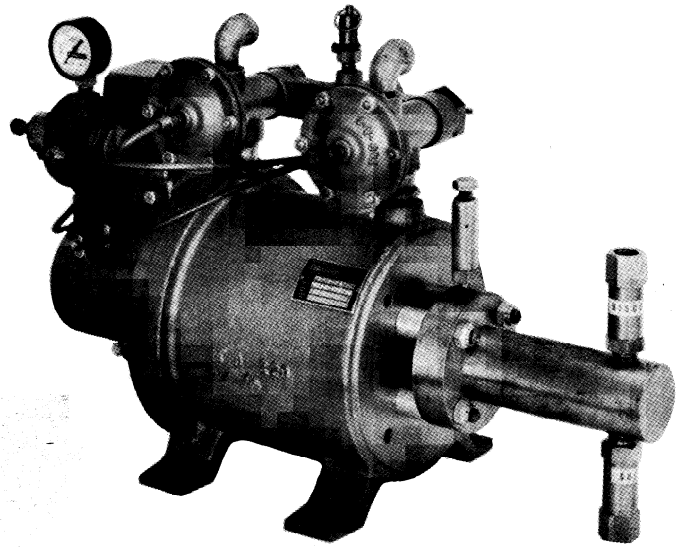


T-A-54 DISC. BALL
 T-A-494 RETAINER SCREW
 T-A-491 SUCTION BALL
 T-B-81 PISTON ROD

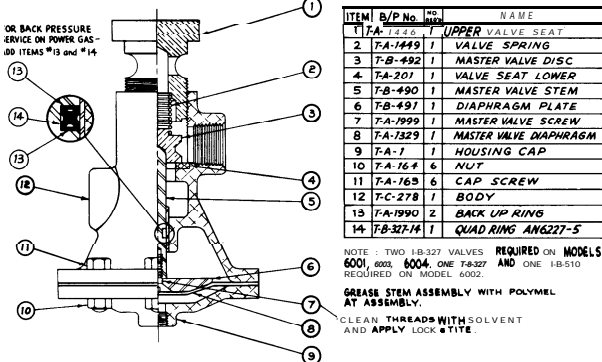
T-B-118 PISTON RING
 T-A-490 O-RING 2 REQ'D.
 T-A-501 PACKING SUPPORT
 T-A-1328 ROD PACKING
 T-A-448 LANTERN RING
 T-A-1545 PACKING GLAND
 T-A-1337 PACKING GLAND NUT
 T-A-2214 ROLL PIN 2 REQ'D.
 T-A-1616 PACKING-REAR ROD
 T-A-1330 REAR PACKING GLAND

T-B-607 FLIPPER ARM ASSEMBLY

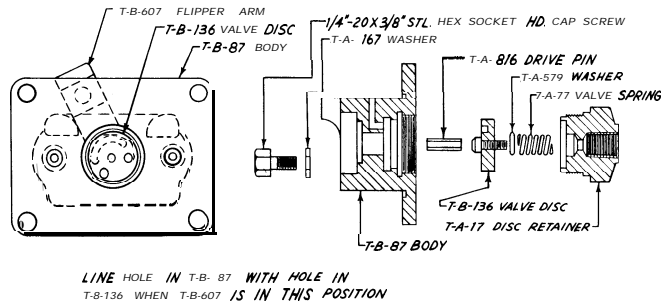
MODEL 6002 PARTS LIST



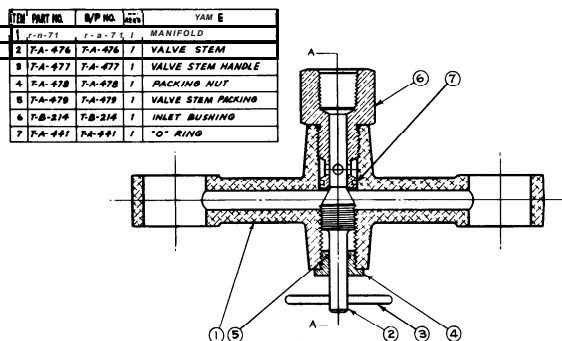
T-B- 327 • MASTER VALVE ASSEMBLY



T-B-86 • PILOT VALVE ASSEMBLY



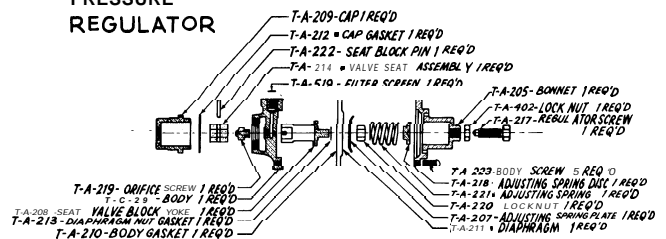
T-C-54 • MANIFOLD ASSEMBLY

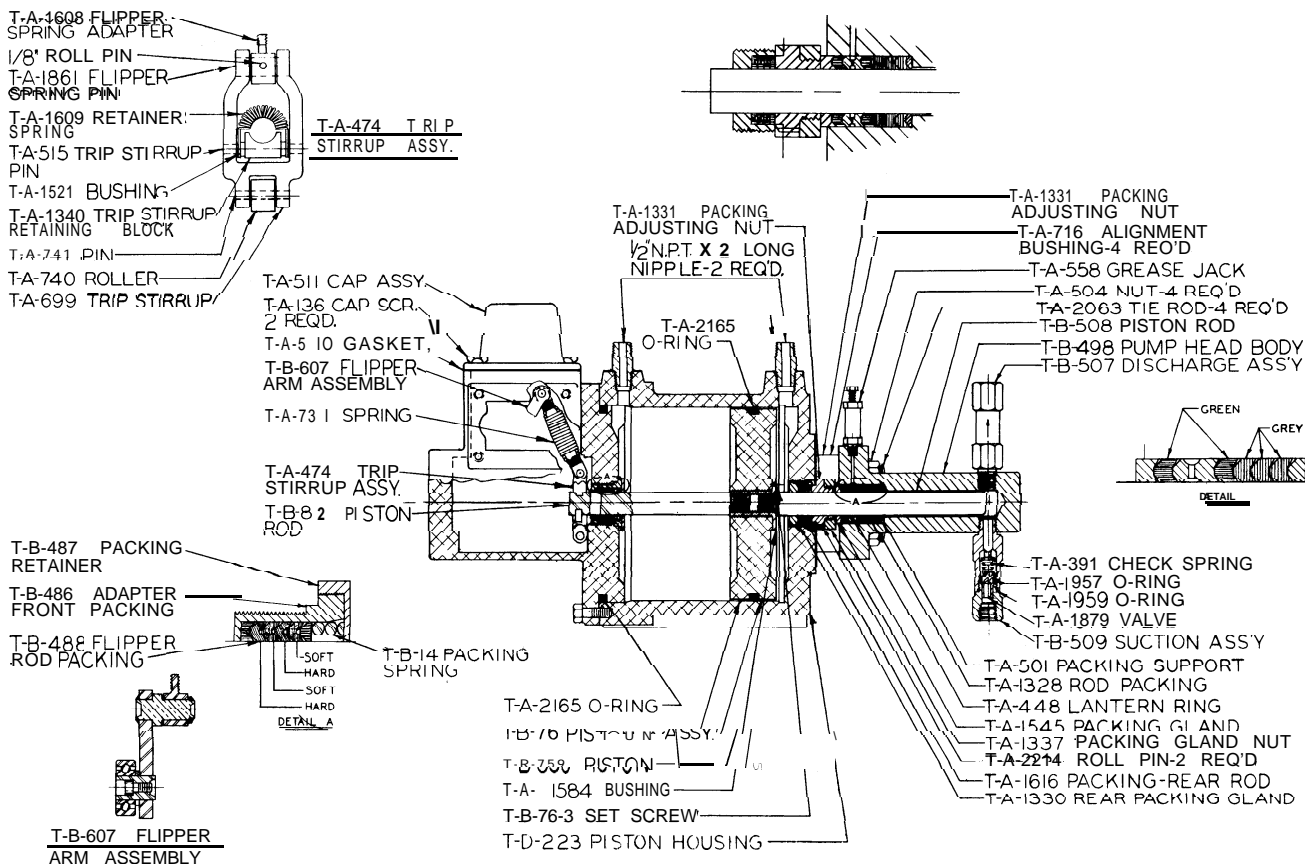
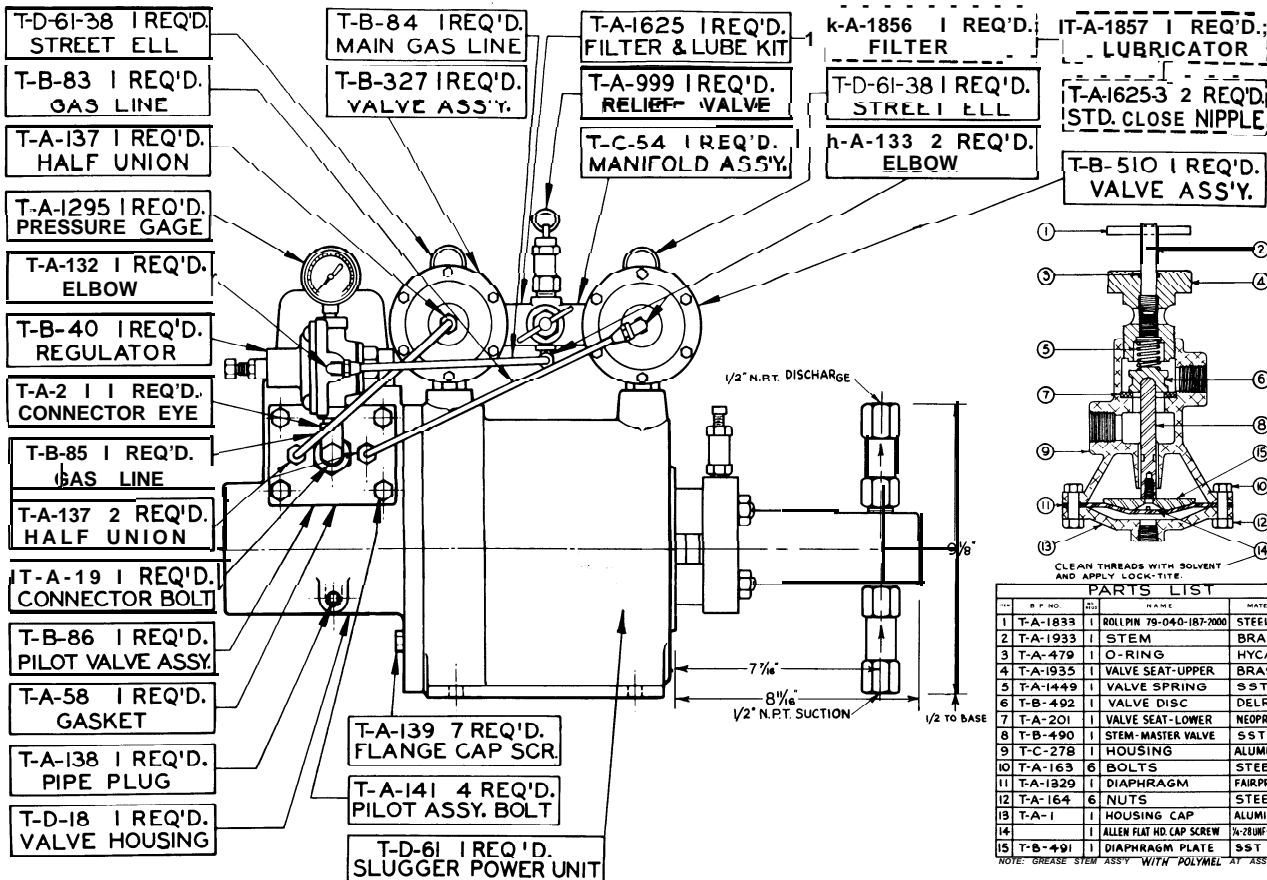


T-A- 558

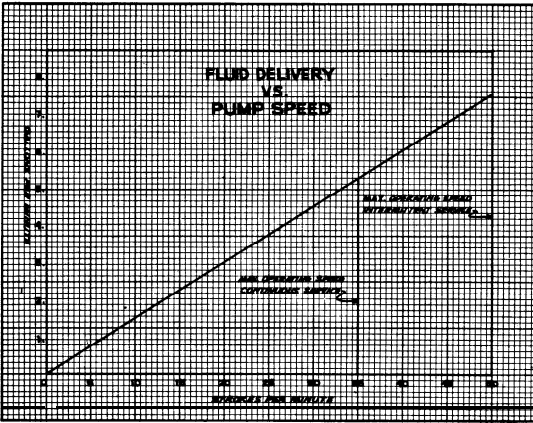
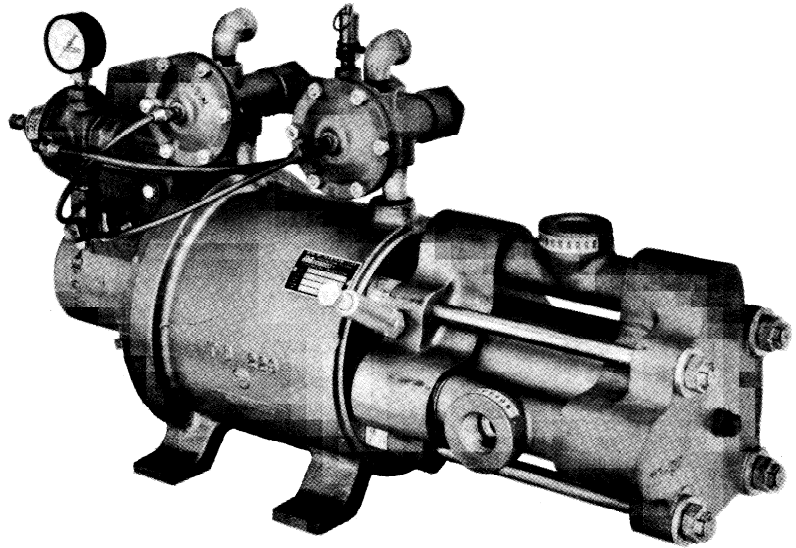
ITEM	PART NO.	QTY	NAME
1	T-A-558	1	BODY
2	T-A-560	1	SCREW
3	T-A-561	1	BASE
4	T-A-562	1	RETAINER
5	T-A-564	1	BALL AND RING

TB- 40 PRESSURE REGULATOR





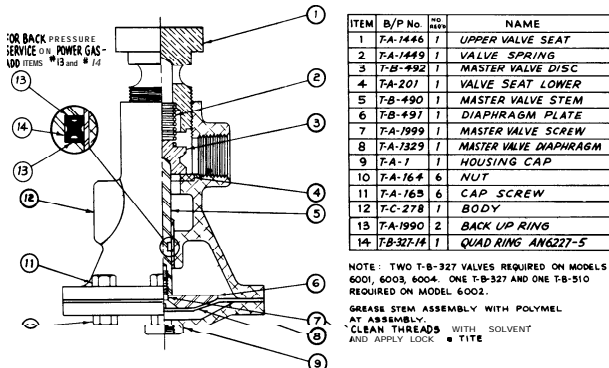
MODEL 6003 PARTS LIST



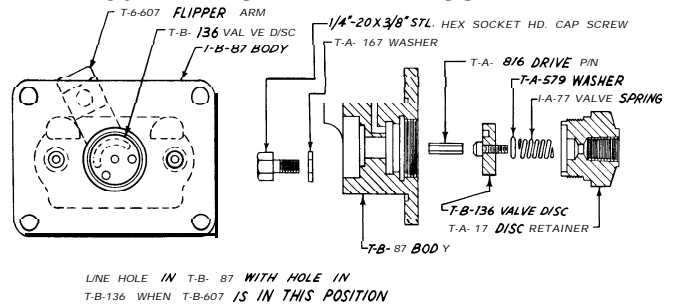
AIR CONSUMPTION

Injection Pressure, psi	100	250	400	580	700	850	1000	1250	1500
Std. Cu. Ft. Air Required to Pump 1 Gallon	2.5	4.2	5.7	7.2	8.7	10.2	11.6	14.1	16.7

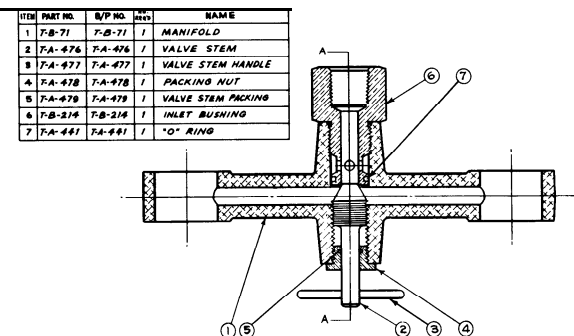
T-B- 327 • MASTER VALVE ASSEMBLY



T-B-86 • PILOT VALVE ASSEMBLY

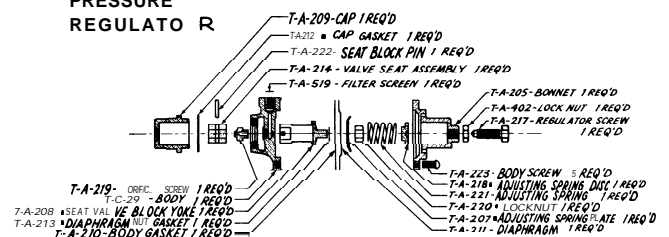


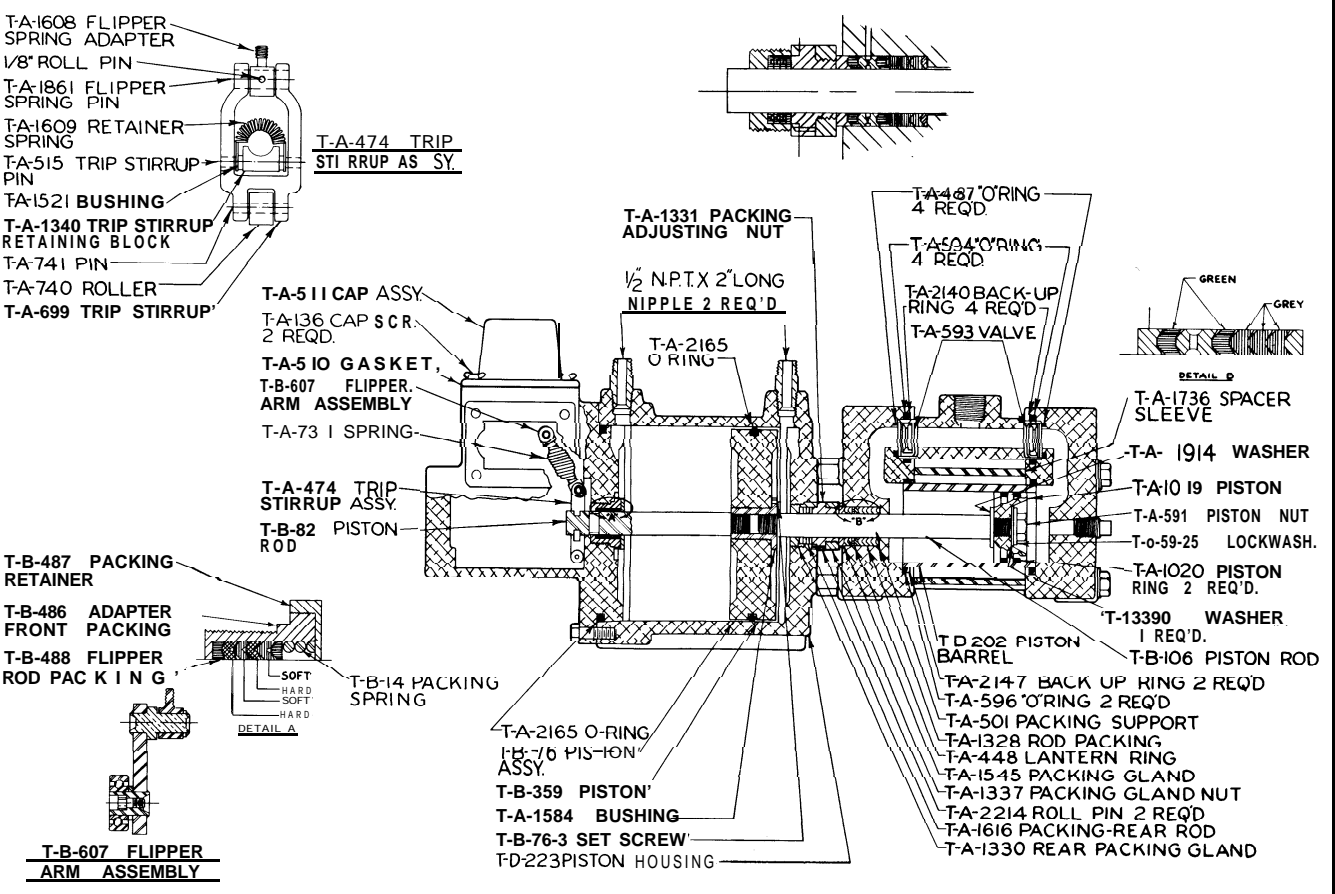
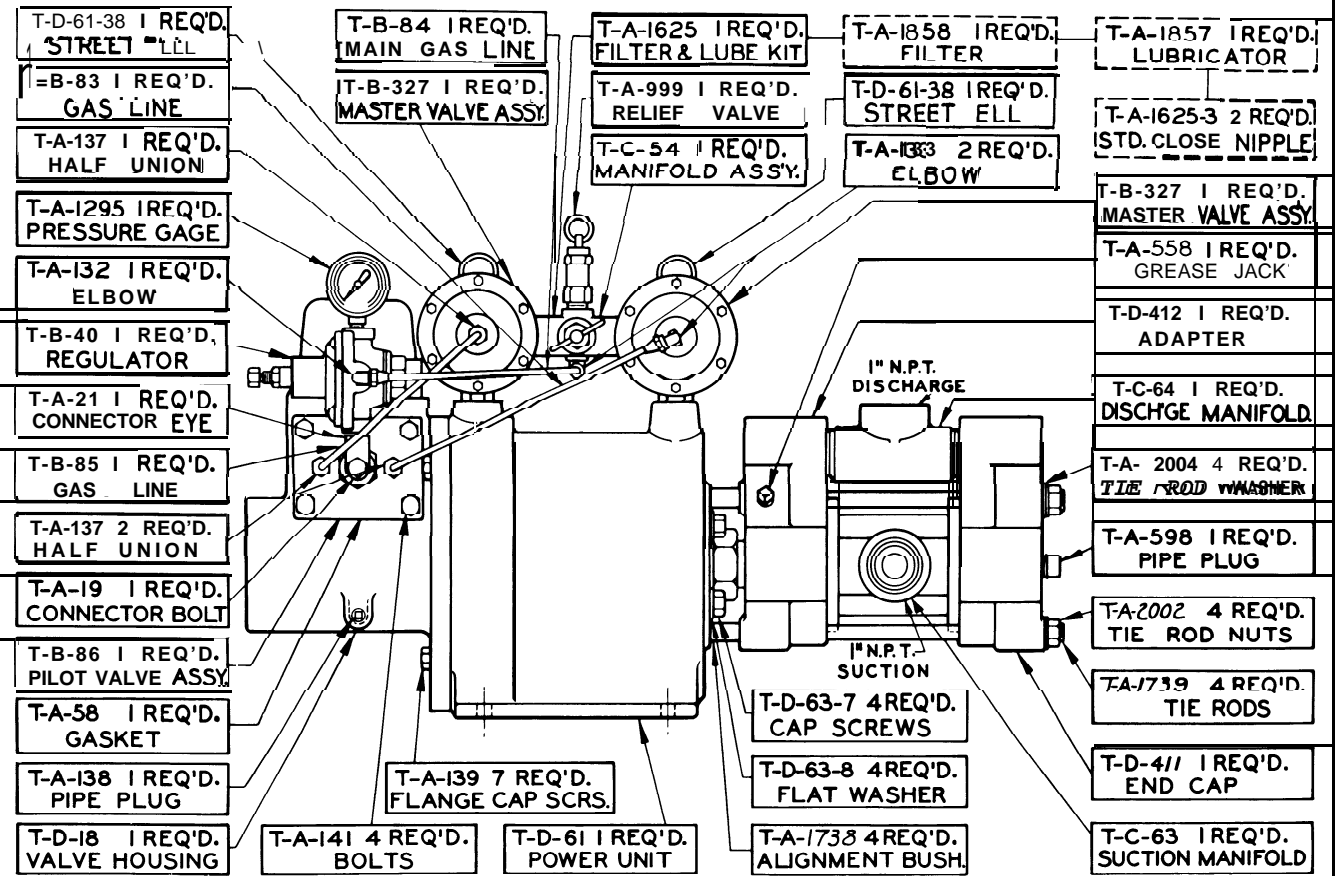
T-C-54 • MANIFOLD ASSEMBLY



T-B- 40

PRESSURE REGULATOR

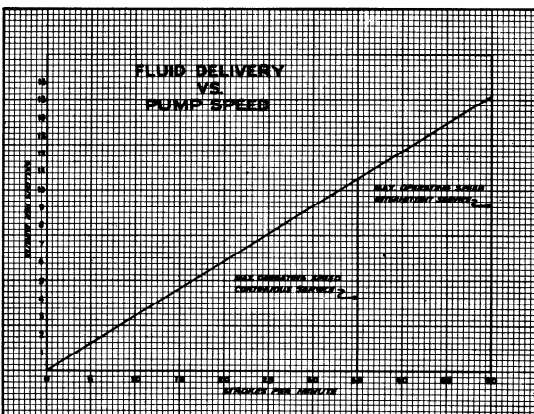
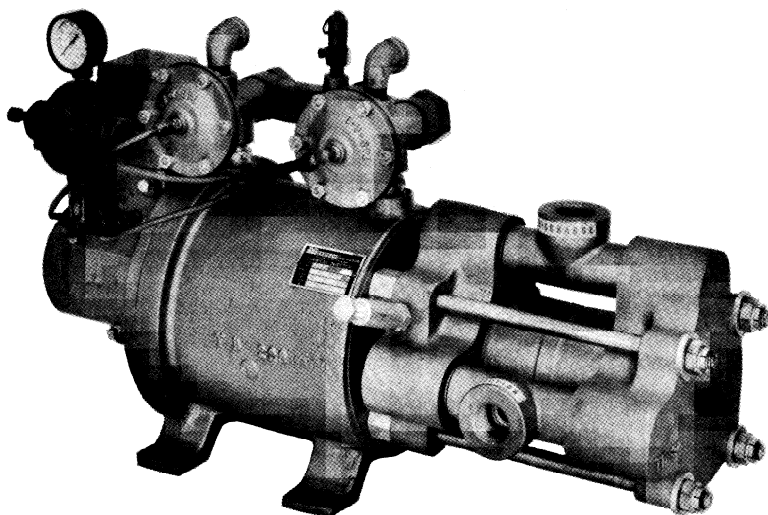




MODEL

6004

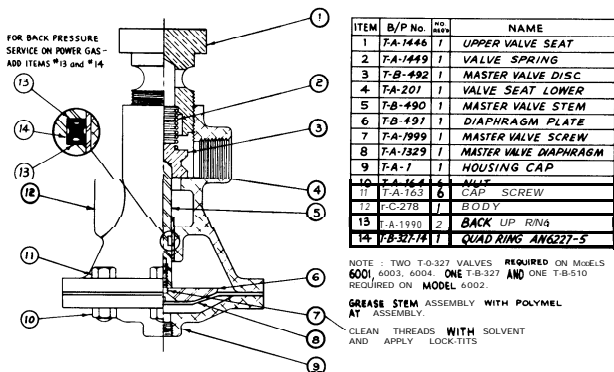
PARTS LIST



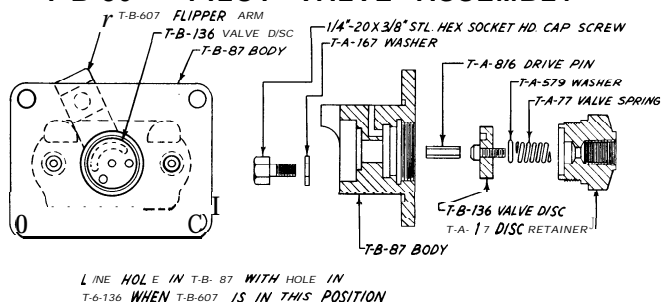
AIR CONSUMPTION

Injection Pressure, psi	100	200	300	400	500	600	700	800
Std. Cu. Ft. Air Required to Pump 1 Gallon	1.9	3.1	4.3	5.5	6.7	7.8	9.0	10.2

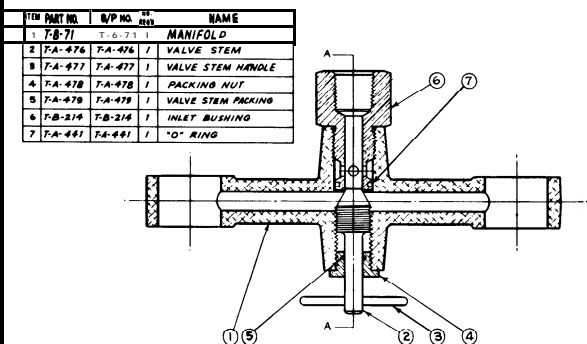
T-B-327 - MASTER VALVE ASSEMBLY



T-B-86 - PILOT VALVE ASSEMBLY



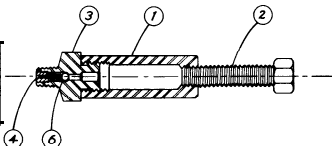
T-C-54 • MANIFOLD ASSEMBLY



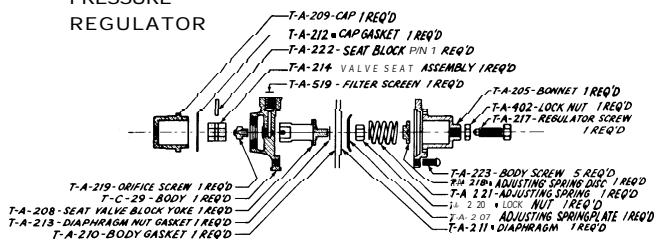
T-A-558

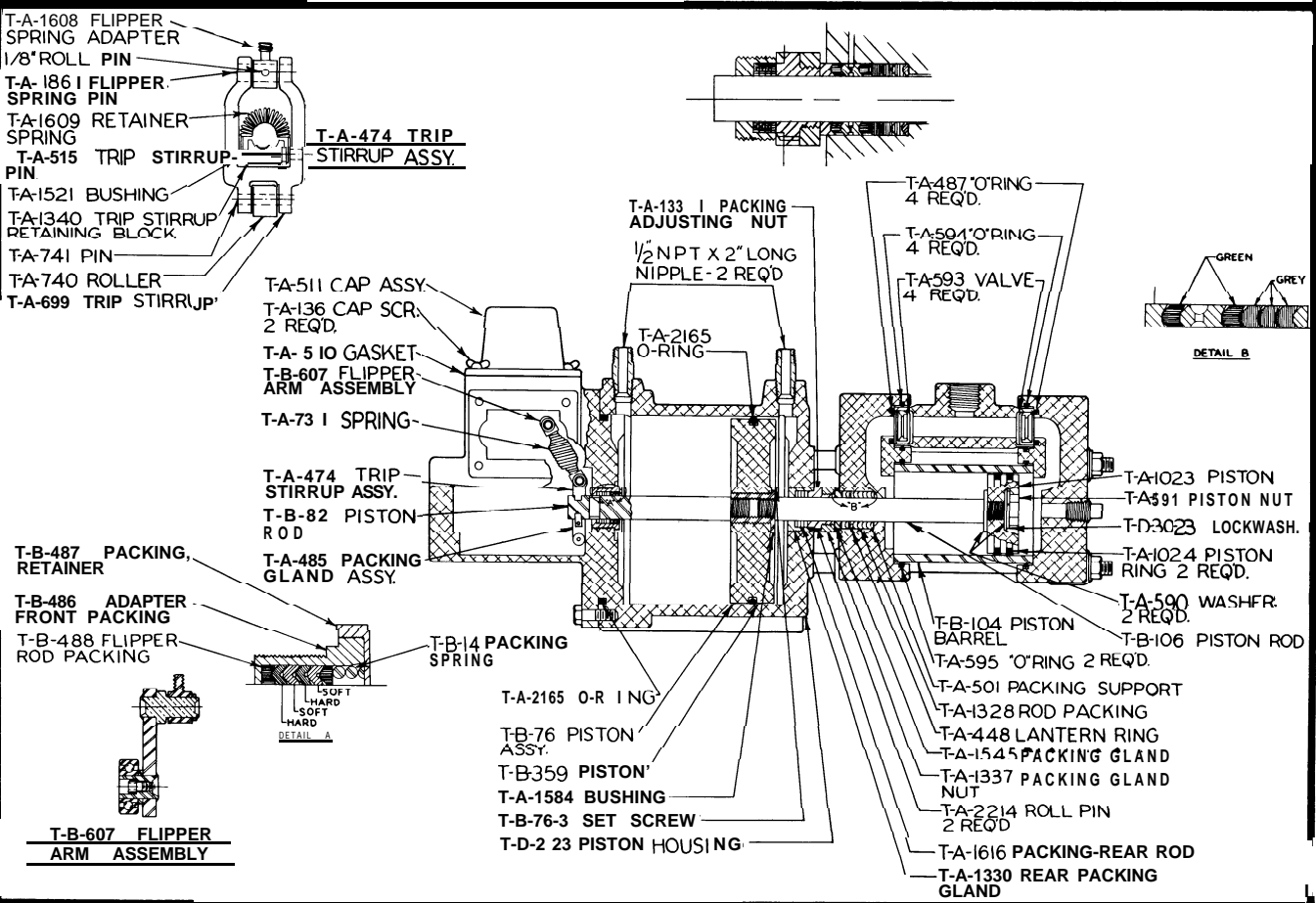
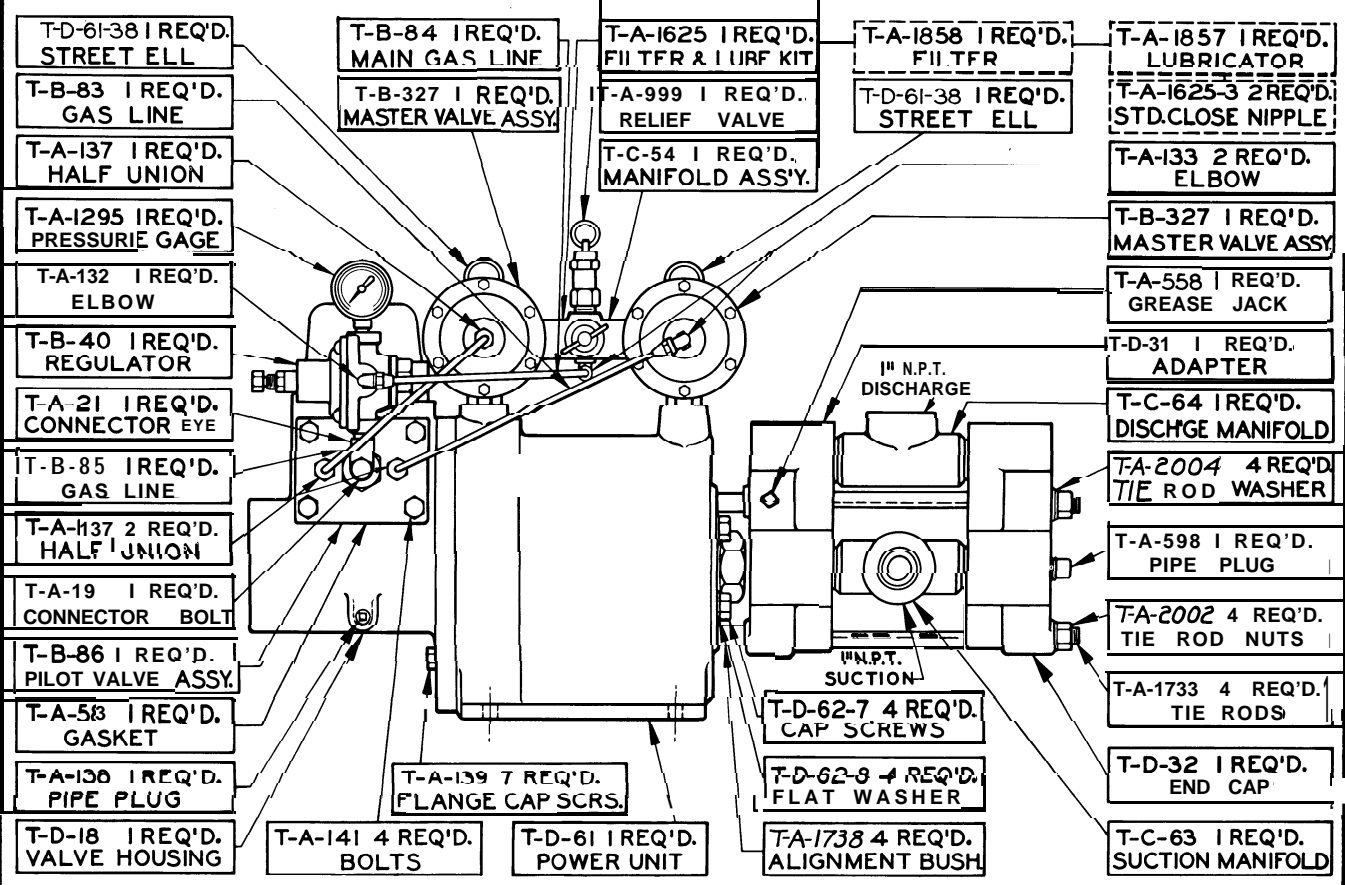
1/8" GREASE JACK ASSEMBLY

ITEM	PART NO.	QTY	NAME
1	FA-559	1	BODY
2	FA-560	1	SCREW
3	FA-561	1	BASE
4	FA-562	1	WASHER
5	FA-563	1	BALL BEARING



TB- 40 PRESSURE REGULATOR





SERVICING POWER END OF MODELS 6001, 6003 AND 6004 SLUGGER PUMPS

TC-54 Manifold Assembly (Gas/air Inlet Control)

To inspect TA-476 gas/air inlet control valve, unscrew TA-478 packing nut. Inspect TA-479 valve stem packing for possible replacement. Reassemble packing nut with sealing compound on threads.

Inspect TA-441 O-ring by first removing TB-213 Inlet Bushing.

TB-327 Master Valve Assembly

Remove the six TA-163 cap screws, remove TA-1 housing cap and inspect TA-1329 master valve diaphragm for possible ruptures. After removing the diaphragm, the TB-491 diaphragm plate and TB-490 master valve stem may be removed as one unit. Master valve plate and stem may be disassembled by removing TA-1999 master valve screw.

To inspect TA-1449 valve spring, TB-492 master valve disc and TA-201 lower valve seat-unscrew TA-1446 upper valve seat.

Back Pressure Seal on TB-490 Stem

If the pump is being used on an installation where it is exhausting into a back pressure to 75 psi, then the stem should be equipped with one TA-2164 O-ring and two TA-1990 leather back-up rings.

Inspecting TB-86 pilot valve assembly

To remove TA-17 disc retainer, lift out TA-77 valve spring, TA-579 washer and TB-136 valve disc. Close inspection of the TB-136 valve disc sealing surface and drive socket slot is recommended. Very close inspection of TA-816 drive pin should be made, if ends are worn, the drive pin should be replaced.

TB-607 Flipper Arm Assembly

To inspect or replace flipper arm assembly, it is necessary to remove TA-511 valve housing cap assembly. Reach into the pump and “unhook” TA-474 trip stirrup assembly from the end of TB-82 low pressure piston rod. Now unscrew the four TA-141 pilot assembly bolts from the TB-86 pilot housing. This will enable you to lift out TB-607 flipper arm assembly, TA-731 flipper spring and TA-474 trip stirrup assembly as a unit.

Close inspection of TB-607 flipper arm assembly should be made, especially the drive pin slot inside the bearing. If it is worn, the TB-607 flipper arm assembly should be replaced.

TA-731 Flipper Spring

To replace TA-731 flipper spring, unscrew from the TB-607 flipper arm assembly and the TA-1608 flipper spring adapter.

TA-474 Trip Stirrup Sub-Assembly

To replace TA-1608 flipper spring adapter — drive out roll pin and TA-1861 flipper spring pin. To replace TA-1609 retainer spring- TA-1521 bushings or TA-1340 trip stirrup retainer block, drive out TA-515 trip stirrup pin. To replace TA-740 roller, drive out TA-741 pin.

NOTE: If TA-515 trip stirrup pin or TA-741 pin is removed-upon replacement of these pins, the bronze TA-699 trip stirrup should be **peened over** the ends to prevent the pins from working out.

To reassemble, attach TA-474 trip stirrup to TA-731. Attach TA-731 to TB-607 flipper arm assembly. Attach **flipper** arm assembly to TB-87 valve body. Insert trip stirrup assembly, **flipper** arm assembly through opening on side of TB-18 valve housing and then bolt TB-87 body to housing. Then reach down into pump and slip TA-474 trip stirrup assembly over end of TB-82 piston rod. Care should be taken to make sure TA-1340 trip stirrup retaining block and TA-1609 retainer spring fits into groove on end of rod correctly. Next the TB-86 pilot valve assembly should be reassembled. Be sure parts in TB-136 valve disc are aligned correctly (See parts breakdown on TB-86).

Inspection of TB-488 Flipper Rod Packing and other Power End Parts

Remove TA-511 valve housing cap assembly. Reach in and **unhook** TA-474 trip stirrup assembly from TB-82 low pressure piston rod. Disconnect copper lines TB-85, TB-83, and TB-84. Remove the seven TA-139 flange cap screws. Pull back and out on TB-18 valve housing. This motion will free valve housing from piston rod.

Inspect TA-2165 packing ring. By backing out TB-487 packing retainer, inspection of TB-14 packing spring and TB-488 flipper rod packing can be made. It is not usually necessary to remove **TB-486** front packing adapter. By pulling on TB-82 piston rod **move** piston to its full “back” stroke, TB-82 rod can then be removed from TB-76 power piston wrench “flats” will be found on the rod up close to power piston. In order to remove **TB-76** power piston, it is necessary to remove fluid end and fluid piston from the pump. After power piston TB-76 is free of the pump, inspection should be made of TA-2165 piston ring and replace if worn.

inspection of TB-40 Pressure Regulator

Loosen TA-402 lock nut, back out TA-217 regulator screw, remove the five TA-223 body screws and lift off TA-205 bonnet. Lift out and inspect TA-218 adjusting spring disc and TA-221 adjusting spring. Unscrew TA-220 lock nut and lift out TA-207 adjusting spring plate, TA-221 diaphragm, TA-210 body gasket and TA-213 diaphragm nut gasket. To inspect other parts, unscrew TA-209 cap, lift **out** TA-212 cap gasket. At this point TA-222 seat block pin must be removed with punch. When pin is removed, TA-214 valve seat assembly (reversible) and TA-219 orifice screw can be removed. Now the TA-208 valve seat block yoke can be lifted out through other side of TC-29 body.

Check TA-519 inlet filter screen for obstructions.

SERVICING POWER END OF 6002

First — make sure power gas or air is “**off**.” It is suggested that the power line **be disconnected**. After the power is **disconnected** or shut off-hand operate the **flipper** assembly several times to make sure all gas **or** air is bled off-the above procedure prevents the pump from stroking and possibly causing injury.

Servicing the power end of the 6002 is identical to the 6001, 6003, 6004 with the exception of the control mechanism that is incorporated into the suction control of the TB-510 master valve assembly.

As the 6002 is a single acting (discharges fluid only on the forward stroke) pump, the input power gas must be controlled on the discharge stroke with the TA-477 Valve mounted on the TC-54 Manifold Assembly as well as controlling the speed of the suction or “Back” stroke by adjusting TA-1933 Valve mounted on the TB-510 Suction Control Master Valve (next to Fluid End).

In order to inspect the TA-1933 suction control stem and TA-479 O-ring seal, tint unscrew TA-1935 upper valve seat, being careful not to lose TA-1449 valve spring and TB-492 valve disc as the TA-1935 upper valve seat is removed. To **remove** stem TA-1933 from TA-1935 upper valve seat, drive TA-1833 roll pin from TA-1933 stem, now screw the stem up into the valve seat. When the threads disengage, the stem will fall on through.

TA-479 O-ring will stay in TA-1935 upper valve seat. It must be removed for close inspection or replacement.

MAINTENANCE AND INSPECTION OF FLUID END-6001

To check or replace TA-492 Suction Bushing and TA491 Suction Ball

Remove the suction bushing. Upon reassembling, be sure the TA-493 suction bushing gasket is in place

To check or replace fluid piston and piston barrel

Remove the TA-504 tie rod nuts and the TA-503 tie rods. TB-74 Suction end cap can then **be** removed, then **pull TB-118 piston** barrel straight forward until it is clear of the piston assembly. At this point TA-747 piston rings may be inspected or replaced.

To remove piston assembly from TB-81 high pressure piston rod

Insert drift pin or punch through the hole in the TB-81 piston rod immediately behind the piston, use **crescent** wrench to remove TA-494 packing retainer **screw** (care should be taken not to let the TB-81 piston rod turn). After the packing retainer **screw** is removed, the TA-54 Discharge Ball can be removed and the TA-734 piston can be pulled from the rod. At this point inspection of the TA-750 O-ring seal can be made, also TA-490 piston barrel packing (O-ring) located in the TB-74 suction end cap and TB-72 discharge end cap.

To inspect or replace TA-1328 fluid end packing

First loosen TA-1337 packing gland nut by turning it back (toward power end); now TB-72 discharge end cap can be pulled back and off **over** the end of the protruding piston rod — as the discharge end cap is removed, some of the packing may or may not pull free and remain on the rod. If it does this, packing can be easily removed. At this point TA-1328 packing, TA-448 lantern ring and TA-1545 packing gland may be inspected or replaced.

To inspect or replace TA-1616 rear rod packing

The entire set of TA-1328 packing, TA-1545 packing gland, TA-1337 packing adjusting nut and TA-1331 packing nut must be removed first. Inspection or replacement of TA-1616 packing can now be made. Upon reassembly **care should** be taken to align the two $\frac{1}{8}'' \times \frac{3}{8}''$ roll pins protruding from TA-1330 rear packing gland to the two holes in TA-1331 packing adjusting nut.

It is not necessary to remove TA-1330 **rear** packing gland from TD-61 power piston housing.

To inspect or replace **TB-81** high pressure piston rod

Remove TA-511 Valve housing cap assembly, unhook TA-474 trip stirrup assembly, disconnect lines and remove TD-18 valve housing from main housing. Then by pulling out on TB-82 low pressure piston rod, pull the TB-76 piston assembly free and TB-8 1 rod will pull on out through power end.

To reassemble both TB-8 1 high pressure piston rod and TB-82 low pressure piston **rod** should be “made up” into the TB-76 power piston. Insert TB-81 high pressure piston rod into the power end of TD-223 piston housing

and assemble in reverse of disassembling procedure. Care should be used to remove oil and foreign matter from threads. Apply **Loctite** Sealant (available at Texsteam) before reassembling rods into piston.

To reassemble fluid end

Reverse order of disassemble. Misalignment of fluid end will **cause** excessive **packing, piston ring** and **rod wear**. Therefore, use a torque wrench to tighten tie-rod nuts between 40 and 45 foot-pounds. Tighten nuts by turning last half-turn continuously until the specified torque is reached.

MAINTENANCE AND INSPECTION OF 6002 FLUID END

To inspect TB-509 suction check

Unscrew TA-1880 bushing, inspect TA-1879 valve and TA-1957 O-ring for damage and for possible foreign matter.

To inspect TB-507 discharge check

Unscrew TB-499 bushing, inspect TA-1870 valve, TA-1957 O-ring and TA-391 spring.

To inspect or replace TA-1328 packing

Remove the four TA-504 nuts. Release the tension on the packing by backing off TA-1337 packing gland nut. With the four nuts removed and packing tension released, the TB-498 pump head may be pulled free of the TB-508 piston rod. Some of the packing TA-1328 may or may not remain on the piston rod. At this point TA-1328 packing, TA-501 packing support, TA-448 lantern ring and TA-1545 packing gland may be inspected **or** replaced as necessary.

To inspect or replace TA-1616 rear rod packing

The entire set of TA-1328 packing, TA-1545 packing gland nut, TA-1337 packing adjusting nut and TA-1331 packing nut must be removed.

Inspection or replacement of TA-1616 can now be made. Upon reassembly, care should **be** taken to **align** the two $\frac{1}{8}" \times \frac{3}{8}"$ roll pins protruding from TA-1330 rear packing gland to the two holes in TA-1331 packing nut. It is not necessary to remove TA-1330 rear packing gland from TD-223 power piston housing.

To inspect or replace TB-508 high pressure piston rod

It is necessary to **remove** TD-18 valve housing then by pulling out on TB-82 low pressure piston rod. **Pull** TB-76 piston assembly free and TB-508 rod will pull out through power end.

To reassemble both TB-508 high pressure piston rod and TB-82 low pressure piston rod should be "made up" into the TB-76 power piston. Insert TB-508 high pressure piston rod into the power end of TD-223 piston housing and assemble in reverse of disassembling procedure. Care should be used to remove foreign matter or oil from threads. Apply **Loctite** Sealant (available at Texsteam) before screwing rods into piston.

To reassemble fluid end Reverse order of disassemble.

Misalignment of fluid end will cause excessive **packing, piston ring** and **rod** wear. Therefore, use a torque wrench to tighten tie-rod nuts between 40 and 45 foot-pounds. Tighten nuts by turning last half-turn continuously until the specified torque is reached.

MAINTENANCE AND INSPECTION OF MODEL 6003 FLUID END

To inspect Piston Rings and Checks

Remove the four TA-2002 **flexlock** nuts and lock washers. TD-411 end cap can then be removed off tie rods. Both TC-63 suction manifold and TC-64 discharge manifold, can be removed from the pump, and inspect the four TA-593 suction and discharge check valves. (The discharge checks fit into the TC-64 discharge manifold and the suction checks fit into each end cap).

Inspect the four TA-594 manifold O-rings and the TA-487 valve O-rings. To remove piston barrel, **—** first remove TA-1736 spacer sleeve. Pull TB-202 piston barrel straight out **over** TA-1019 piston. Inspect TA-1019 piston and TA-1020 piston rings for possible wear and replacement, if necessary.

Removing Piston

Place **a back-up** wrench on the "flat" immediately behind TA-1019 piston **—** remove TA-591 piston nut. (Care should be taken not to let TB-106 piston rod **turn** when removing piston.) Piston can now **be** removed from rod. Reassembly of piston-upon reassembly of the piston onto rod, be sure TA-1914 piston spacer ring, TA-590 piston washer and **TD-59-25** shake proof lockwasher are in their proper place.

To inspect fluid end packing

Back-off TA-1337 packing adjusting nut to release packing tension. Pull TD-412 adapter out toward the end of

rod. **As** the adapter is pulled away, some of the TA-1328 fluid piston rod packing may or may not remain in the adapter. If it is necessary to replace packing, TD-412 adapter must be pulled free of the rod. At this point TA-1328 packing, TA-501 packing support, TA-448 lantern ring and TA-1545 packing gland may be inspected or replaced.

To inspect **or** replace **TA-1616** rear rod packing

Entire set of TA-1328 packing, TA-1545 packing gland nut, TA-1331 packing nut must be removed or “pulled back” toward the protruding end of the rod. Inspection or replacement of TA-1616 rear rod packing can now be made. Upon reassembly care should be taken to align the two $\frac{1}{8}'' \times \frac{3}{8}''$ roll pins protruding from TA-1330 rear packing gland to the two holes in TA-1331 packing nut.

It is not necessary to remove TA-1330 rear packing gland from TD-61 power piston housing.

Remove TA-511 valve housing cap assembly, unhook TA-474 trip stirrup assembly, disconnect lines and remove **TD-18** valve housing from main housing. Then by pulling out on TB-82 low pressure piston rod, pull the TB-76 piston assembly free and TB-81 rod will pull on out through power end.

To reassemble both TB-81 high pressure piston rod and TB-82 low pressure piston rod should be “made up” into the TB-76 power piston. Insert TB-81 high pressure piston rod into the power end of TD-223 piston housing and assemble in reverse of disassembling procedure. Care should be used to remove oil and foreign matter from threads. Apply **Loctite** Sealant (available from **Texsteam**) before reassembling rods into piston.

To reassemble fluid end Reverse order of disassemble.

Use torque wrench to tighten tie-rod nuts between 100 and 110 foot-pounds. Tighten nuts by turning last half-turn continuously until the specified torque is reached. After testing tighten nuts back to 75 **to** 80 ft. lbs. (Torque drops off when testing.)

MAINTENANCE AND INSPECTION OF MODEL 6004 FLUID END

To inspect piston rings and checks

Remove the four TA-2002 **flexnuts** and TA-2004 tie rod washers. TD-32 end cap can then be removed off tie rods. Both TC-64 discharge manifold and TC-63 suction manifold can now be removed from the pump. Inspect the four TA-593 suction and discharge check valves. (The discharge checks fit into the TC-64 discharge manifold and the suction checks fit into each end cap.)

Inspect the four TA-594 manifold O-rings and the TA-487 valve O-rings. To remove piston barrel -pull TE-104 straight out and **over** TA-1023 piston. Inspect TA-1023 piston and TA-1024 piston rings for possible wear and replacement, if necessary.

Removing piston

Place a “back-up” wrench on the “flat” immediately behind TA-1023 piston and remove TA-591 piston nut. (Care should be taken not to let TB-106 piston rod turn when removing piston.) Piston can now be removed from rod.

Reassembly of TA-1023 piston-upon reassembly of the piston onto the piston rod be sure the two TA-590 piston washers and the TD-59-25 shakeproof **lockwashers** are in their proper place.

To inspect fluid end packing

Back-off TA-1337 packing adjusting nut to release packing tension. Pull TD3 1 adapter out toward the end of rod. As the adapter is pulled away, **some** of the TA-1328 fluid piston rod packing may or may not remain in the adapter. If it is necessary to replace packing, TD-31 adapter must be pulled free of the rod.

At this point TA-1328 packing, TA-501 packing support, TA-448 lantern ring and TA-1545 packing gland may **be** inspected or replaced as necessary.

To inspect TA-1616 rear rod packing- Entire set of TA-1328 packing, TA-1545 packing gland nut, TA-1337 packing adjusting nut and TA-1331 packing nut must be removed.

It is not necessary **to remove** TA-1330 rear packing **gland** from TD-61 power piston housing.

Remove TA-511 valve housing cap assembly, unhook TA-474 trip stirrup assembly, disconnect lines, and remove TD-18 valve housing from main housing. Then by pulling out on TB-82 low pressure piston rod, pull the TB-76 piston assembly free and TB-81 rod **will** pull on out through power end.

To reassemble both TB-81 high pressure piston rod and TB-82 low pressure piston rod **should** be “made up” into the TB-76 power piston. Insert TB-81 high pressure piston rod into the power end of TD-223 piston housing and assemble in reverse of disassembling procedure. Care should be used to remove oil and foreign matter from threads. Apply **Loctite** Sealant (available at Texsteam) before reassembling rods into piston.

To reassemble fluid end Reverse order of disassemble.

Use torque wrench to tighten tie-rod nuts between 75 and 80 foot pounds. Tighten nuts by turning last **half-turn** continuously until the specified torque is reached. After testing, tighten nuts back to 75 to 80 ft. lbs. (torque drops off when testing.)

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