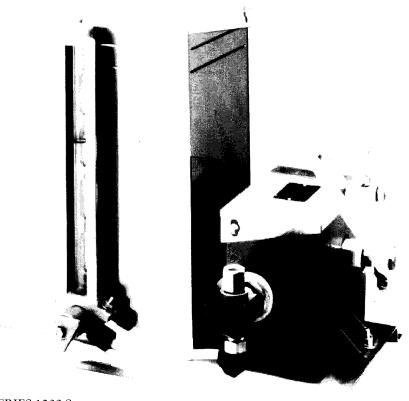
1 2 0 0 S
Beam Driven
Chemical Injectors

## Description

Designed specifically for operation on a beam pumped well, TXT 1200 Series Chemical Injectors are positive displacement type pumps powered by direct connection to the movement of a walking beam, rod line or rocker arm. The connection is made by a length of nominal pipe, or a wire line. The unit pumps on the upstroke of the beam action. On the downstroke, the injector arm returns to its set position. The ratchet mechanism is housed in a precision-bored, heavy cast gray iron case and is submerged in oil for long life.

## **Applications**

- Injection of de-emulsifiers, solvents, corrosion inhibitors, scale inhibitors, lubricants and other chemicals
- High pressure bearing lubrication
- Pumping thin viscous fluids or nonabrasive slurries

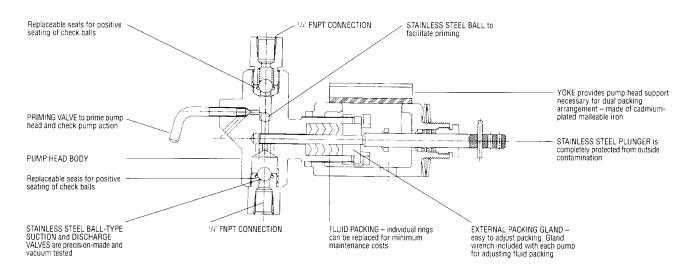


SERIES 1200 S (For weights, see bottom of pages 2 and 3)



# E Pump Head & Box Assembly

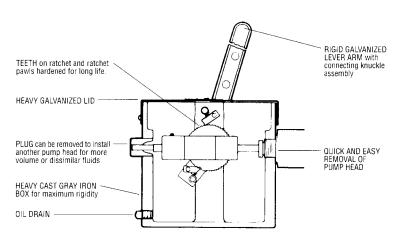
# Outstanding Features – Chemical Injectors



The TXT Pump Head is efficient, (horizontal plunger and vertical check valves); virtually trouble-free; easy to maintain; stainless steel trim standard; built-in priming valve to aid in priming, checking pump action; external packing gland.

The box assembly is heavy cast gray iron for maximum rigidity, has a galvanized lid, and a rigid galvanized lever arm. The pump head can be easily removed for cleaning and maintenance. An additional pump head can be installed if more volume is required or if there is a need to pump dissimilar fluids.

A wide choice of models and plunger sizes are available. The Series 1200 can be supplied with chemical tanks, of various capacity, and materials to suit the operating requirements.



#### Models Available

Description	Standard Model Number
Single Pump Head & 2 Gallon SS Tank	1200 EC
Single Plump Head & Single 5 Gallon Tank	1200 S
Double Pump Head & Double 5 Gallon Tank	1200 D
Single Pump Head (No Tank or Base)	1200 SP
Double Pump Head (No Tank or Base)	1200 DP

Plunger Sizes: Model numbers shown are equipped with 3/s" plunger size.

Other sizes available are  $\frac{3}{16}$ ,  $\frac{1}{4}$ , and  $\frac{1}{2}$ 

Choice of Trim Material: Standard - Ductile Iron Body with stainless steel trim

Optional - All Stainless Steel Head Choice of Trim Material: Teflon or Viton packing

Resilient seats (Standard on All Heads)

Hastellov balls

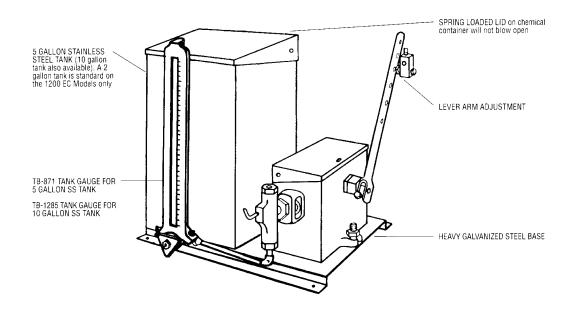
Tanks, two, five and ten gallon capacity, 430 SS and 316 SS

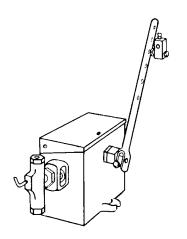
## Model Designation

1203 DP 3/s'

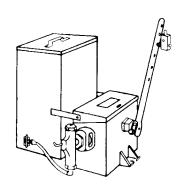
- Always specify plunger size when ordering to insure the correct size is ordered
- Indicates power unit model (without chemical tank). P indicates chemical injector model without tank
- Indicates number of injector heads (S is a single head, D is a double head unit, EC designates model with 2 gallon tank)
- Indicates plunger size (1 is  $\frac{1}{4}$ ", 3 is  $\frac{3}{5}$ ", 4 is  $\frac{3}{16}$ ", 5 is  $\frac{1}{2}$ ")
- Indicates standard unit

#### R I E S 1 2 General Assembly 1 2 0 S $\mathbf{E}$

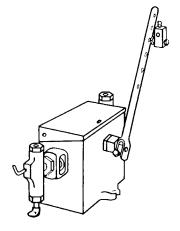




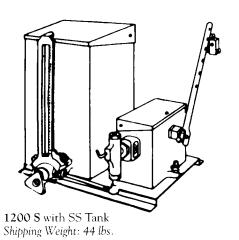
1200 SP Shipping Weight: 26 lbs.



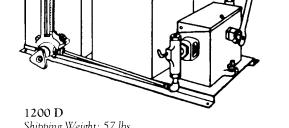
1200 EC Shipping Weight: 32 lbs.



1200 DP Shipping Weight: 30 lbs.



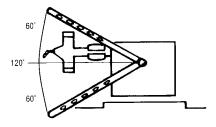
Shipping Weight: 57 lbs.



# Installation and Operating Instructions

- Remove pump from carton and inspect for possible damage in transit from factory. The cardboard carton was designed especially for this pump. If the pump has been damaged in transit, file claim with the carrier.
- 2. Bolt holes are provided for a permanent mounting (see drawing for dimensions on page 6).
- 3. Install Item 8 priming valve (included with pump, but shipped loose in carton) on the pump head.
- 4. Connect the suction line to the pump head.
  - a. If a reservoir is furnished with the pump, the suction line is already connected. Fill the reservoir and open (all the way) the tank gauge valve.
  - b. If a power unit model was purchased, a strainer should be piped in to the suction line to prevent sand, rust or other particles which would damage the plunger and foul the check valves.
- 5. Connect the discharge line (<sup>5</sup>/<sub>16</sub>" tubing will sufice). A check valve should be installed as close to the point of injection as possible. Note the arrow on the check valve indicates the flow. The top connection on the pump head is the outlet and has a <sup>1</sup>/<sub>4</sub>" female pipe thread connection.
- **6.** Connect lever arm to the power source as follows: (make sure the walking beam pump is turned off)
  - a. 3/s" OD rod or pipe (usually 10' to 12' is required for an oilfield walking beam pump). Attach a TA-700 TXT beam clamp (available from Texsteam) to the power source, such as a walking beam. Insert rod or pipe in the Item 42 beam clamp and Item 6 connecting knuckle on the lever arm, tighten set screws to secure position of rod or pipe.
  - **b.** Wire line. Simple attach to walking beam and Item 6 connecting knuckle.

- 7. Fill the box assembly Item 25 with enough SAE-30 oil to cover the bearing Item 40. If low ambient temperatures are encountered a lighter oil such as SAE-10 should be used. Check oil level at regular intervals.
- 8. Adjust for desired volume by considering each of the following:
  - a. Number of strokes of lever arm. The fastest recommended operating speed is 50 strokes per minute. Refer to the volume chart to obtain desired setting of ratchet teeth engagement and stroke length at strokes minute used.
  - b. Number of ratchet teeth engaged per stroke is dependent upon the travel of the TB-67 lever. With the connecting knuckle Item 6 in the outermost position. (a lift travel of approximately 1" will engage one tooth, a maximum of 19" will engage twenty teeth).
  - c. Adjustment of stroke length from short, to medium or to long is easily accomplished by positioning of the TA-290 cotter pin in the end of the plunger.



When the lever arm cannot travel below the level of the bottom of the base, the maximum teeth engagement will be 10.

# Maintenance Instructions for Series 1200 Beam Driven C

#### TO REMOVE TB-67 LEVER

Remove TA-414 lever bolt assembly. TB-67 lever can then be pulled free of TB-66 drive shaft assembly. Upon re-assembly, be sure TA-414 fits into the slot in the end of TB-66 drive shaft assembly.

#### TO REMOVE TA-536 CROSSHEAD

It is not necessary to remove the pump head from a single-headed unit in order to remove the crosshead if the following steps are taken.

- Hand operate TB-67 lever until chemical plunger is at its full discharge position.
- 2. Pull TA-290 pin (disconnecting plunger from TA-536 crosshead).
- 3. Remove TA-434 guide plug assembly.
- Hand operate TB-67 lever until fluid plunger is free of TA-536 crosshead. Lift out TA-536 crosshead. To remove TA-536

crosshead from double-headed unit it is necessary to remove one pump head from the gear box.

#### TO REMOVE TA-537 RATCHET SUB-ASSEMBLY

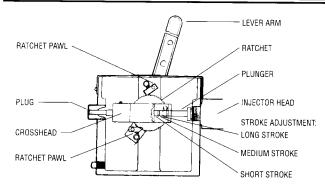
It is necessary to follow the procedure outlined under "To Remove TA-536 Crosshead" and "To Remove TB-67 Lever."

- After crosshead is removed, TA-537 sub-assembly may be pulled toward center of gear box and lifted out.
- To remove TA-457 bearing and TA-458 washer from TA-420 ratchet assembly, unscrew TA-433 bearing bolt.

To remove TB-66 drive shaft assembly, follow the procedure outlined above.

1. Unscrew the TA-5199 shaft bearing. TB-66 drive shaft assembly can then be lifted out through the gear box.

# s e r i e s i 2 o o Performance Data



A quick calculation of the preceding three factors (8a, 8b and 8c) and using the performance data chart can predetermine the injection rate before the pump is placed in operation. If more volume is required the pump head assembly can be changed or converted to a larger plunger size. Or, an additional head can be installed on the opposite side of the TB-91 box by removing the TA-434 guide plug assembly. The TA-883 guide sleeve should also be removed and this can be accomplished with a drift and hammer.

9. Start the pump and prime the fluid end by opening the priming valve. After the pump discharges clear fluid without bubbles, close the priming valve for normal operation. At this point make a visual check of the plunger drip, and using the TA-315 gland wrench that is included in the package, slowly tighten the gland to prevent excess drippage and waste of chemicals. Do not overtighten plunger packing. Keep TA-315 gland wrench handy for future packing adjustment. It may be necessary to readjust the packing the next day. A slight leak during the break-in is beneficial. Sufficient time should be allowed to let the packing "seat in."

If low volumes are required, the pump head, the fluid discharge line and all other fittings up to the line check should be thoroughly purged of all air bubbles.

Check pump action by opening the priming valve.

### Volume Output Table – Pints Per 24 Hours

			3/16" Plunge			1/4" Plunger		3/8" Plunger			1/2" Plunger		
Strokes Min.	Teeth Engagement	Short Stroke	Medium Stroke	Long Stroke									
6	1	.02	.05	.07	.04	.08	.12	.10	.20	30	.17	.35	.5
8	1	.03	.07	.10	.06	.10	.16	.14	.26	.40	.23	.47	.7
10	1	.04	.08	.12	.07	.13	.20	.17	.33	.50	.29	.59	.8
12	1	.05	.10	.15	.08	.16	.24	.20	.40	.60	.35	.71	1.0
14	1	.06	.11	.17	.10	.18	.28	.24	.46	.70	.40	.83	1.2
16	1	.07	.13	.20	.11	.21	.32	.27	.53	.80	46	.94	1.4
18	1	.08	.15	.22	.13	.23	.36	.31	.59	.90	.52	1.06	1.5

NOTES: \*For volumes with additional ratchet teeth engaged, multiply these values by number of teeth engaged. 20 teeth maximum pickup. Minimum volumes are theoretical only.

## Pressure-Volume Range Chart

NOTE\* — For double-headed units increase maximum volume by two.

NOTE\* — Series 1200 EC equipped with one head only.

Plunger Size	Maximum		Pint Per Day Volume			
Size	Pressure	Model	Max.	Min.		
3/16"	3000#	1204	.5	4.4		
1/4"	1500#	1201	.5	7.2		
3/8"	1000#	1203	.5	18.0		
1/2"	500#	1205	1.0	30.0		

## mical Injectors (Refer to parts list on page 6)

Installing TA-5200 shaft seal in TA-5199 shaft bearing.

The TA-5200 seal is pressed into the TA-5199 bearing. When done correctly the garter spring will not be visible on the assembly.

## REPLACING RATCHET PAWLS TA-455 AND RATCHET PAWL SPRINGS TA-456

It is necessary to remove TA-537 ratchet sub-assembly.

#### TO REPACK FLUID PUMP HEAD

- 1. Disconnect chemical suction line.
- 2. Pull TA-290 pin.
- 3. Entire fluid head can now be unscrewed from gear box.
- 4. Loosen gland nut.

- 5. Pull chemical plunger from head.
- Remove TA-4094 packing nut. This gives access to the yoke packing.
- 7. Loosen TA-225 lock nut. Yoke can then be unscrewed from fluid head (while unscrewing the yoke the gland nut must also be backed-off). At this point, wiper washer, gland nut and packing gland nut can be removed. This gives access to the main plunger packing.

#### TO CHECK DISCHARGE BALLS, SEATS & SPRINGS

Remove TA-1496 top bushing.

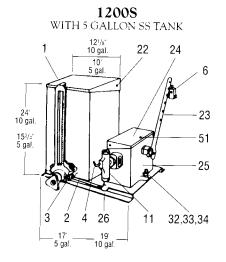
#### TO CHECK SUCTION BALL

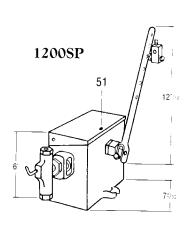
Remove TB-736 bottom bushing (suction seat is integral part of TB-736 suction bushing).

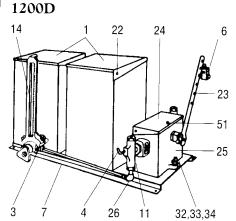
# s e r i e s i 2 o o Technical Data

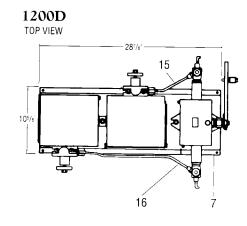
# Parts List

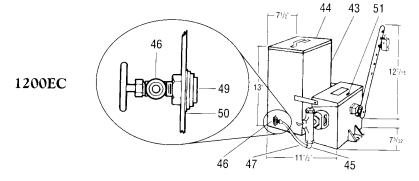
Item	Part No.	Name
_	TA-664	P
1	TA-1539	Reservoir Assy. 5 gal. 430 SS
1	TA-2057	Reservoir Assy. 10 gal. 304 SS
2	TA-3117	Reservoir Assy. 5 gal. 316 SS
3		Suction Line
	TA-3118	Connector Compression nut assy.
5	TA-1497	Priming Valve
_	TB-0038	Sight Feed Assembly
6	TA-0538	Connecting Knuckle Assy.
7	TB-101	Base for two 5-gal. SS tanks
	TA-306	Gasket
10	TA-302	Strainer Bushing Assembly
11		Head Assy. (see page 8 for parts breakdown
14	TB-871	Tank Gauge Assy, for 5 gal, SS Tank
	TB-1285	Tank Gauge Assy, for 10 gal, SS Tank
15	TA-3120	Suction Line
16	TA-3117	Suction Line
17	TA-98	Bowl
18	TA-206	Strainer
19	TA-104	Bowl Gasket
20	TB-39	Slight Feed Body
21	TA-101	Shut Off Assy.
22	TA-1842	Cover Rod
	TA-1841	Snap Ring (2 required)
23	TB-67	Lever Arm
24	TA-960	Lid
24 25	TA-91	Box Assembly 1200
26	TA-3116	Elbow compression nut assy.
27	TA-677	Outlet Body Brass
28	TA-391	Spring
29	TA-54	Ball
30	TA-479	O-Ring Buna-N
70	TA-2093	O-Ring Viton
31	TA-678	Inlet Body-Brass
32	TA-144	Nut Qty, depends on location of usage.
33	TA-425	Lock Washer Qty. dep. on loc. of usage.
34	TA-300	Washer Qty. depends on location of usage.
35	TA-453	Set Screw
36	TA-423	Beam Clamp
38	TA-452	Set Screw
39	TA-439	Hex Nut
40	TA-409	Connecting Knuckle
41	TA-438	Cap Screw
42	TA-700	Beam Clamp Assy.
43	TB-460	2-Gal. Tank (incl. cover) 430 SS
44	TB-456	Cover
45	TA-246	Elbow
46	TA-2579	Shut-off Valve
47	TA-322	Suction Line Assy.
48	TA-1748	Locknut
49	TA-1747	Strainer Bushing Assy.
50	TA-306	Bushing Gasket
51	TA-2577	LID Thumb Screw
71	171-2711	Lity Thump Screw



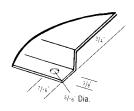




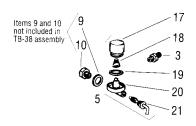




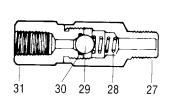
## BASE PLATE (Corner Detail)

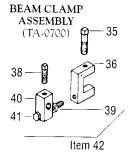


#### SIGHT FEED ASSEMBLY (TB-38)



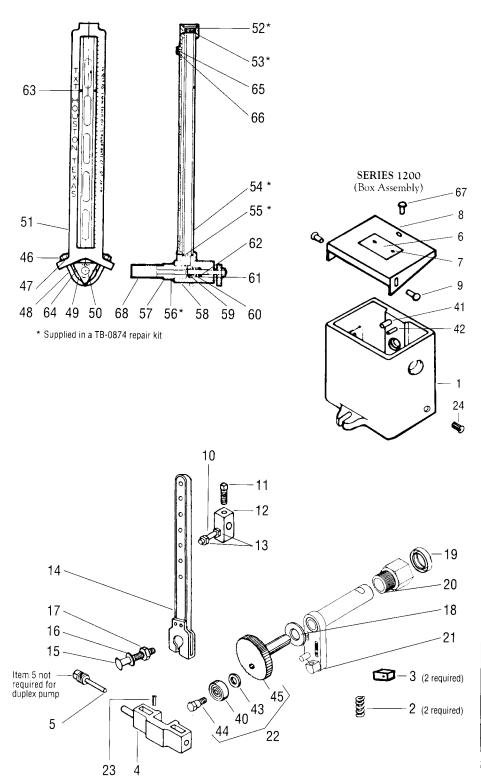
#### BRASS LINE CHECK (TA-676)





## S E R I E S 1 2 0 0

#### TANK GAUGE (TB-871) Assembly for five gallon SS tank



## Parts List

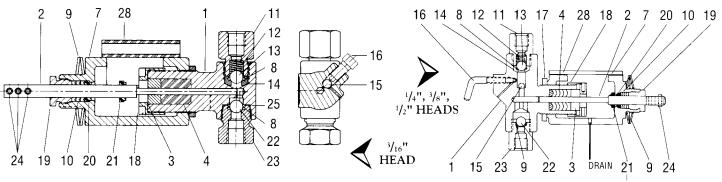
Item	Part No.	Name
1	TB-91	Box Assembly
+ 2	TA-456	Pawl Spring (2 reqd.)
† 3	TA-455	Pawl (2 reqd.)
	TA-536	Cross Head (Simplex)
4	TA-451	Cross Head (Duplex)
5	TA-434	Guide Plug Assy. (Simplex only)
6	GA-3181	Name Plate
7	TA-171	Escutcheon Pin
8	TA-960	Lid
9	TA-528	Rivet
10	TA-438	Cap Screw
11	TA-452	Set Screw
12	TA-409	Knuckle
13	TA-439	Nut
14	TB-67	Lever Arm
15	TA-424	Lever Bolt
16	TA-425	Lock Washer
17	TA-144	Nut
18	TA-4251	Nylon Washer
† 19	TA-5200	Seal
<b>†</b> 20	TA-5199	Shaft Bearing
† 21	TB-66	Drive Shaft
22	TA-537	Ratchet Assy.
† 23	TA-290	Plunger Pin
24	TA-138	Drain Plug
† 40	TA-457	Ratchet Bearing
41	TA-986	Check Pawl Spring Shaft
42	TA-985	Check Pawl Shaft
43	TA-458	Cut Washer
44	TA-433	Ratchet Bearing Bolt
45	TA-420	Ratchet Sub Assembly
46	TA-164	Nut
47	TA-577	Washer
48	TA-3106	U-Bolt
49	TA-3112	Handle Valve
50	TA-164	Nut
51	TC-393	Frame
* 52	TA-3100	Spring (TB-874 Ga. Rep. Kit)
* 53	TA-3101	Flat Washer (TB-874 Ga. Rep. Kit)
* 54	TA-3102	Gauge Glass (TB-874 Ga. Rep. Kit)
* 55	TA-2184	O-Ring (TB-874 Ga. Rep. Kit)
* 56	TA-3199	O-Ring (TB-874 Ga. Rep. Kit)
57	TA-3104	Retainer Nut
58	TA-3115	Valve Body
59	TA-3114	Stem Valve
60	TA-3113	Spring
61	TA-3328	Washer
62	TA-3107	O-Ring
63	TA-2163	O-Ring
64	TA-3329	Plug
65	TA-167	Washer
66	TA-166	Screw
67	TA-2577	Thumb Screw
68	TA-3103	Strainer

NOTES:  $\dagger$  Recommended spare parts

\* TB-874 Repair Kit parts

# s e r i e s i 2 o o Injector Heads

## Parts List



NOTE-Drip Ring moves with the plunger

	Plunger Size >	3/16"	1	3/8"			1/2"		
ITEM NO.	MATERIAL SPECIFICATION >	Material Construction	All Stainless Steel (Ductile Not. Avail.)	Ductile w/SS Trim	All Stainless Steel	Ductile w/SS Trim	All Stainless Steel	Ductile w/SS Trim	All Stainless Steel
Υ.	HEAD ASSEMBLY NO. >		TC-2041	TC-1578	TC-1582	TC-1579	TC-1583	TC-1580	TC-1584
1	Body		TC-2040	TC-0275	TC-0291	TC-0276	TC-0425	TC-0272	TB-0349
† 2	Plunger	17-4PH SS	TB-1471	TB-1175	TB-1175	TB-1176	TB-1176	TB-1177	TB-1177
3	Plunger Packing Gland	303 SS	TA-5642	TA-1463	TA-1463	TA-0957	TA-0957	TA-1219	TA-1219
† 4	Plunger Packing Set (Standard)	Buna-N	TA-3969	TA-1461	TA-1461	TA-1456	TA-1456	TA-0959	TA-0959
7	Yoke	Malleable Iron	TB-1173	TB-1173	TB-1173	TB-1173	TB-1173	TB-1173	TB-1173
. 8	O-Ring (included in item 23)	Buna-N	TA-0479	TA-0479	TA-0479	TA-0479	TA-0479	TA-0479	TA-0479
9	Belleville Washer (2 Regd.)	C. Steel	TA-4256	TA-4256	TA-4256	TA-4256	TA-4256	TA-4256	TA-4256
† 10	Yoke Packing Set	Buna-N	TA-4892	TA-4127	TA-4127	TA-4127	TA-4127	TA-4127	TA-4127
11	Top Busing	302 SS	TA-1496	TA-1496	TA-1496	TA-1496	TA-1496	TA-1496	TA-1496
† 12	Ball Check Spring	316 SS	TA-0077	TA-0077	TA-0077	TA-0077	TA-0077	TA-0077	TA-0077
† 13	Large Top Ball '/s"	316 SS	TA-0054	TA-0054	TA-0054	TA-0054	TA-0054	TA-0054	TA-0054
† 14	Top Seat-Assy. w Buna-N "O" Ring	303 SS	TA-0737	TB-0737	TB-0737	TB-0737	TB-0737	TB-0737	TB-0737
† 15	Small Top Ball 1/4"	316 SS	TA-0126	TA-0126	TA-0126	TA-0126	TA-0126	TA-0126	TA-0126
16	Priming Valve (Ball & Spring incl. 1/16")	303 SS	TA-5462	TA-1497	TA-1497	TA-1497	TA-1497	TA-1497	TA-1497
17	Lock Nut Yoke	Brass	TA-0225	TA-0225	TA-0225	TA-0225	TA-0225	TA-0225	TA-0225
18	Nut, Plunger Packing Gland	303 SS	TA-4104	TA-4104	TA-4104	TA-4104	TA-4104	TA-4104	TA-4104
19	Nut, Yoke Packing	Brass	TA-4094	TA-4094	TA-4094	TA-4094	TA-4094	TA-4094	TA-4094
# 20	Wiper Ring, Plunger	Buna-N	TA-4095	TA-4095	TA-4095	TA-4095	TA-4095	TA-4095	TA-4095
21	Drip-Ring, Plunger	Buna-N	TA-4095	TA-4095	TA-4095	TA-4095	TA-4095	TA-4095	TA-4095
22	Ball, Suction 1/s"	316 SS	TA-0054	TA-0054	TA-0054	TA-0054	TA-0054	TA-0054	TA-0054
† 23	Bottom Seat (w/Buna-N "O" Ring)	303 SS	TB-1216	TB-0736	TB-0736	TB-0736	TB-0736	TB-0736	TB-0736
24	Pin Plunger	Carbon Steel	TA-0290	TA-0290	TA-0290	TA-0290	TA-0290	TA-0290	TA-0290
25	Gasket	304 SS	TA-4394			Not ap	plicable		
† 26	O-Ring	Buna-N	N/A		Not applicable				
† 27	O-Ring	Buna-N	N/A			Not ap	plicable		
28	Yoke Cover	Plastic	TC-1604	TC-1604	TC-1604	TC-1604	TC-1604	TC-1604	TC-1604
		ALTER	NATE PARTS F	OR SEVERE	SERVICE				
† 4	Plunger Packing	Viton	TA-3967	TA-4102	TA-4102	TA-4101	TA-4101	TA-4103	TA-4103
† 4	Plunger Packing	Teflon	TA-3966	TA-1642	TA-1642	TA-1234	TA-1234	TA-1012	TA-1012
† 4	Plunger Packing	Hard	TA-3948	TA-2295	TA-2295	TA-1875	TA-1875	TA-1874	TA-1874
†8	O-Ring	Viton	TA-2580	TA-2580	TA-2580	TA-2580	TA-2580	TA-2580	TA-2580
† 14	Top Seat Assy (Metal-to-Metal)	303 SS	N/A	TA-0806	TA-0806	TA-0806	TA-0806	TA-0806	TA-0806
† 22	Ball 1/2" Use w/TA-0771,	316 SS	N/A	TA-0053	TA-0053	TA-0053	TA-0053	TA-0053	TA-0053
	Metal-to-Metal Bottom Seat Only		-						
† 23	Bottom Seat (Metal-to-Metal)	303 SS	N/A	TA-0771	TA-0771	TA-0771	TA-0771	TA-0771	TA-0771

NOTES: † Recommended Spare Parts



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