

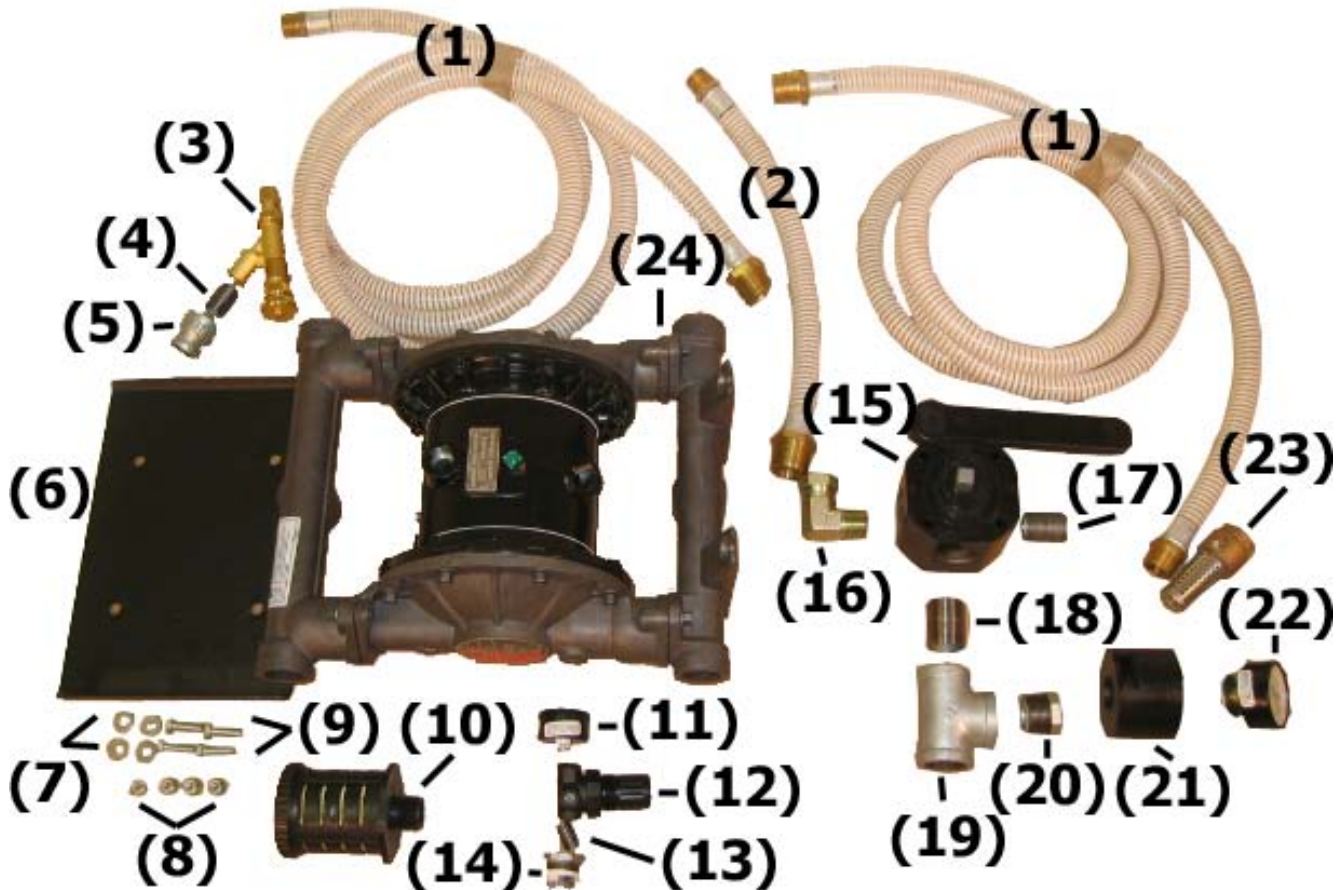


Parts List For

Calcium Chloride Pump

Model 10509

Calcium Chloride Pump



ITEM NO.	PART NO.	NO. REQ'D	DESCRIPTION	ITEM NO.	PART NO.	NO. REQ'D	DESCRIPTION
1	10537	2	Calcium Hose 10" x 3/4" x 1"	13	10565	1	Nipple, 1/2" Close
2	10531	1	Calcium Hose 17" OAL x 3/4" x 1"	14	10569	1	Bushing, 1/2" x 1/4"
3	10522	1	Calcium Ejector Gun	15	10513	1	4 Way Valve w/ Handle, Poly
4	10570	1	Nipple, 1/2" Close	16	10536	1	Fitting, Brass w/ Swivel
5	10571	1	Reducer, 3/4" x 1/2"	17	10567	1	Nipple, 3/4" Close
6	10561	1	Plate, Base	18	10579	1	Nipple, 1" Close
7	10575	4	Washer, 1/4"	19	10564	1	Tee, 1"
8	10573	4	Nut, 1/4 - 20	20	10568	1	Bushing, 1" x 1/4"
9	10574	4	Cap Screw, 1/4" x 3 1/2"	21	SB-GP	1	Gauge Protector
10	10554	1	Muffler	22	10521	1	1/4" Vacuum Pressure Gauge
11	10520	1	1/8" Air Gauge	23	10535	1	Suction Strainer
12	10523	1	Regulator	24	10509P	1	Pump



Installation and Instruction Manual
ESCO Part #10509

Calcium Chloride Pump



WARNING **SAFETY PRECAUTION**

This product, as well as all Tire Tools, should never be used by persons unless they have been trained properly according to O.S.H.A. Regulation #29CFR 1910.177 entitled "Servicing Single-Piece & Multipiece Rim Wheels." Copy of the Regulation is enclosed or contact this manufacturer.

SAFETY CAGE OR RESTRAINING DEVICE FROM O.S.H.A. REQUIREMENTS AS WRITTEN IN #29CFR 1910.177 SERVICING MULTIPIECE AND SINGLE PIECE RIM/TIRES

(D) TIRE SERVICING EQUIPMENT

- (1) The employer shall furnish a restraining device for inflation tires on all multi-piece and single piece wheels.
- (2) The employer shall provide a restraining device or barrier for inflation tires on single piece wheels unless the rim wheel will be bolted onto a vehicle during inflation.
- (3) Restraining devices and barriers shall comply with the following requirements:
 - (i) Each restraining device or barrier shall have the capacity to withstand the maximum force that would be transferred to it during a rim wheel separation occurring at 150 percent of the maximum tire specification pressure for the type of rim wheel being serviced.
 - (ii) Restraining device and barriers shall be capable of preventing the rim wheel components from being thrown outside or beyond the device or barrier for any rim wheel positioned within or behind the device:
 - (iii) Restraining devices and barriers shall be visually inspected prior to each day's use and after any separation of the rim wheel components or sudden release of contained air.



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Maintenance:

Flush pump with fresh water after each use to prolong life.

No lubrication required. Periodically drain debris from filter/regulator bowl. Periodically inspect pump for excessive wear or damage, mainly to the diaphragms, check balls, and valve seats.

Operation:

Install air regulator provided into 1/2" NPT opening in top of pump.

Install muffler into 3/4" NPT opening in bottom of pump.

Connect air supply to air inlet side of pump and set pressure to 40 - 60 p.s.i. Speed of pump is determined by pressure to pump. (Do not exceed 100 p.s.i.) The fluid direction (fill or evac) of pump is controlled by turning the blue handle on the valve at top of pump a 1/4 turn left or right. Neutral is in center. As tire is being filled, the pressure inside the tire will increase. To release internal tire pressure, turn the valve a 1/4 turn to the evacuation position till pressure is relieved. The resume filling tire until full to valve.

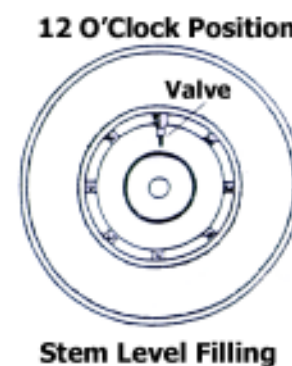
Caution:

Do not exceed recommended air pressure for the tire being filled. (Over inflation of the tire can result in personal injury).

To Fill Tires:

Valve Stem Level (Approximately 80% Fill)

- Turn tire until valve is at 12 o'clock position.
- See that the supply hose (10 ft. length) is in calcium tank, well below the liquid level.
- Connect air supply to pump, start pump. During filling, the tire pressure can be checked at any time by turning Neutral position. Pressure shown on pressure gauge.
- Continue filling until tire is half full of liquid. This can be determined by tapping tire sidewall or by checking the amount of liquid pumped against total quality. Turn control to Evacuate and allow trapped air to vent out through overflow than turn clock back to **FILL** direction.
- Continue to fill until liquid is slightly beyond stem level.



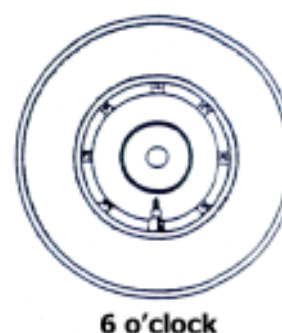
- f. Turn control to Evacuate and allow trapped air in top of tire to blow out excess liquid down to stem level. The tire is now valve stem level full with liquid.
- g. Turn regulator down to lowest setting, then turn pump control to **NEUTRAL**.
- h. Push in on #310 adapter plunger and turn right screw core housing (or core) into place.
- i. Turn control to Evacuate. This will suck liquid out of work hose and prevent spilling any on ground.
- j. Remove Haltec #310 core housing ejector from stem.
- k. Turn control to **NEUTRAL**. Turn off pump.
- l. Remove jack so weight of tractor is on tire.
- m. Adjust to recommended air pressure. Caution... Do not use standard tire pressure gauge, which would be damaged by liquids. Use Haltec #GA-1 25 air-water type gauge or equal, designed for liquid filled tires.
- n. Replace and tighten tire valve rim nut and valve cap.
- o. Flush out hose and pump by putting the ends of two hoses in pail of fresh water. Operate pump with control on Evacuate. This circulates water in all hoses. Disconnect hose and drain pump.

To Evacuate Tires:

- a. Jack vehicle up - use jack stands - do not leave vehicle raised on jack only.
- b. Rotate tire so that valve is in 6 o'clock position.
- c. Install Haltec #30 ejector gun onto the tire valve using the adapter for the correct size valve. Follow directions that accompany #310 ejector gun.
- d. Remove air/water valve core. Pressure inside tire will force some calcium chloride into hose and pump.
- e. Energize calcium pump and turn valve to "Evacuate" position. Make sure container you are pumping calcium into is not air tight.
- f. Evacuate calcium chloride from tire until pump starts to labor or slow down.

Note: Tire sidewalls will begin to collapse due to the pump pulling a vacuum inside tire. To allow air back into tire, do the following:

1. Place valve in neutral position, halfway between "fill" and "evacuate" and take stainer hose out of container. Air will not flow back into tire drawn by vacuum. Do this until sidewall returns to normal, **OR**
 2. If pumping into a closed container, do same as in No. 1 but loosen #310 ejector from valve allowing air to go into tire.
- g. Repeat process until tire and/or tube is empty.



Hydro Inflation Chart

NOTES:

1. Tables are based on using type 1 calcium chloride (75% CaCl₂). If type 2 concentrated calcium chloride (90% CaCl₂) is used, reduce specified "Lbs. CaCl₂" in tables by 25%.
2. Values shown in tables are approximate and represent 75% fill or "valve level" fill (valve valve at top of tire) which is recommended practice.
3. Antifreeze protection levels are shown at top of each table for different solutions.
4. For max tire inflation on narrower rims, decrease quantity at the rate of 4% for each 1-inch reduction in rim width. For wider rims, increase quantity by 4% for each 1-inch increase in rim width.

Tire Size	Rim Width	WATER			3 1/2 LB. SOLUTION			5 LB. SOLUTION				
		Water Gal	Weight Lbs	CaCl ₂ Lbs	Slush-free to -12°F. Solid at -52°F.	Water Gal	CaCl ₂ Lbs	Total Wt.	Slush-free to -12°F. Solid at -52°F.	Water Gal	CaCl ₂ Lbs	Total Wt.
DRIVE WHEEL TIRES												
8.3-20	7.00	10	82	8	38	100	8	40	107			
8.3-22	7.00	9	76	7	35	92	7	37	98			
8.3-24	7.00	13	108	11	39	131	10	50	133			
9.5-16	8.00	12	100	10	35	118	10	50	133			
9.5-18	8.00	12	99	9	45	121	10	48	128			
9.5-20	8.00	13	110	10	50	134	11	54	143			
9.5-22	8.00	15	123	11	56	150	12	60	159			
9.5-24	8.00	17	142	15	53	178	14	70	187			
9.5-32	8.00	22	183	19	67	225	18	90	240			
9.5-36	8.00	25	208	22	77	260	20	100	267			
9.5-42	8.00	29	242	25	88	296	23	115	307			
11.2-24	10.00	24	200	20	70	237	19	95	253			
11.2-28	10.00	27	225	24	84	284	22	110	293			
11.2-36	10.00	35	292	30	105	355	28	140	374			
12.4-24	10.00	36	300	31	109	368	29	145	387			
12.4-28	11.00	30	250	26	91	308	25	125	333			
12.4-38	11.00	35	292	30	105	355	28	140	374			
12.4-48	11.00	44	367	38	133	450	36	180	480			
12.4-56	11.00	46	384	40	140	474	37	185	494			
12.4-62	11.00	51	425	44	154	521	41	205	547			
12.4-66	12.00	53	442	45	158	533	43	215	573			
12.4-54	10.00	58	484	49	172	581	47	235	627			
12.4-54	10.00	58	484	49	172	581	47	235	627			
13.6-24	12.00	38	317	32	112	379	30	150	400			
13.6-26	12.00	40	334	35	123	415	33	165	440			
13.6-28	12.00	43	359	37	130	439	35	175	467			
13.6-36	12.00	50	420	38	152	511	41	204	543			

Tire Size	Rim Width	WATER			3 1/2 LB. SOLUTION			5 LB. SOLUTION				
		Water Gal	Weight Lbs	CaCl ₂ Lbs	Slush-free to -12°F. Solid at -52°F.	Water Gal	CaCl ₂ Lbs	Total Wt.	Slush-free to -12°F. Solid at -52°F.	Water Gal	CaCl ₂ Lbs	Total Wt.
DRIVE WHEEL TIRES												
13.6-38	12.00	57	475	49	172	581	46	230	614			
13.6R38	12.00	65	542	55	193	651	52	260	694			
212/80D15	7.00	8	69	6	31	84	7	33	89			
31S/75D15	10.00	20	164	15	75	200	16	80	212			
35S/80D20	11.00	25	288	26	132	351	28	140	373			
47S/64D20	15.00	52	432	39	197	525	42	209	559			
13.0-36	12.00	51	425	44	154	521	42	210	560			
14.0-24	13.00	47	392	40	140	474	38	190	507			
14.0-26	12.00	48	400	41	144	486	39	195	520			
14.0R26	12.00	48	400	41	144	486	39	195	520			
14.0-28	13.00	53	442	46	161	545	43	215	574			
14.0R28	13.00	53	442	46	161	545	43	215	574			
14.0-30	13.00	57	475	48	168	568	46	230	614			
14.0R30	13.00	57	475	48	168	568	46	230	614			
14.0-34	13.00	63	525	54	189	639	51	255	680			
14.0R34	13.00	63	525	54	189	639	51	255	680			
14.0-38	12.00	67	559	58	203	687	55	275	734			
14.0-46	12.00	80	667	68	238	805	65	325	867			
14.0R46	12.00	80	667	68	238	805	65	325	867			
15.5-38	14.00	66	550	56	196	663	53	265	707			
15.5R38	14.00	66	550	56	196	663	53	265	707			
16.0-24	15.00	61	509	52	182	616	49	245	654			
16.0R24	15.00	61	509	52	182	616	49	245	654			
16.0-26	15.00	65	542	56	196	663	52	260	694			
16.0R26	15.00	65	542	56	196	663	52	260	694			
16.0-28	15.00	69	575	59	207	699	56	280	747			
16.0R28	15.00	69	575	59	207	699	56	280	747			
16.0-30	15.00	73	609	63	221	746	59	295	787			
16.0R30	15.00	73	609	63	221	746	59	295	787			
16.0-34	15.00	82	684	70	245	829	66	330	880			
16.0-38	15.00	90	751	77	270	912	73	365	974			
16.0R38	15.00	90	751	77	270	912	73	365	974			
17.5L-24	15.00	55	459	47	165	557	45	225	600			
18.4-16.1	16.00	49	409	42	147	497	39	195	520			



Instructions-Parts List

Calcium Chloride Pump Model 10509



This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

ALUMINUM AND STAINLESS STEEL

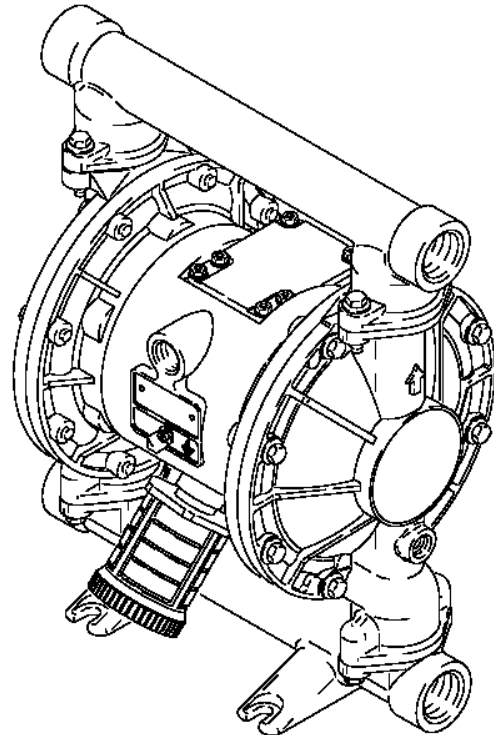
Husky_ 1040 Air-Operated Diaphragm Pumps

120 psi (0.8 MPa, 8 bar) Maximum Fluid Working Pressure
120 psi (0.8 MPa, 8 bar) Maximum Air Input Pressure

- *Model No. D73 _____ Aluminum Pumps
- *Model No. D74 _____ Stainless Steel Pumps
- *Model No. D7C _____ Aluminum BSPT Pumps
- *Model No. D7D _____ Stainless Steel BSPT Pumps
- Model No. 232501 Private-Label Aluminum 1040 Pump (See page 24.)

*NOTE: Refer to the Pump Matrix on page 24 to determine the Model No. of your pump.

US and Foreign Patents Pending



Installation

KEY FOR FIG. 2

- A Air supply line
- B Bleed-type master air valve
(required for pump)
- C Air regulator
- D Air line quick disconnect
- E Master air valve (for accessories)
- F Air line filter
- G Fluid suction line
- H Bung adapter
- J Fluid drain valve (required)
- K Fluid shutoff valve
- L Fluid line
- Y Ground wire (required; see page 4
for installation instructions)

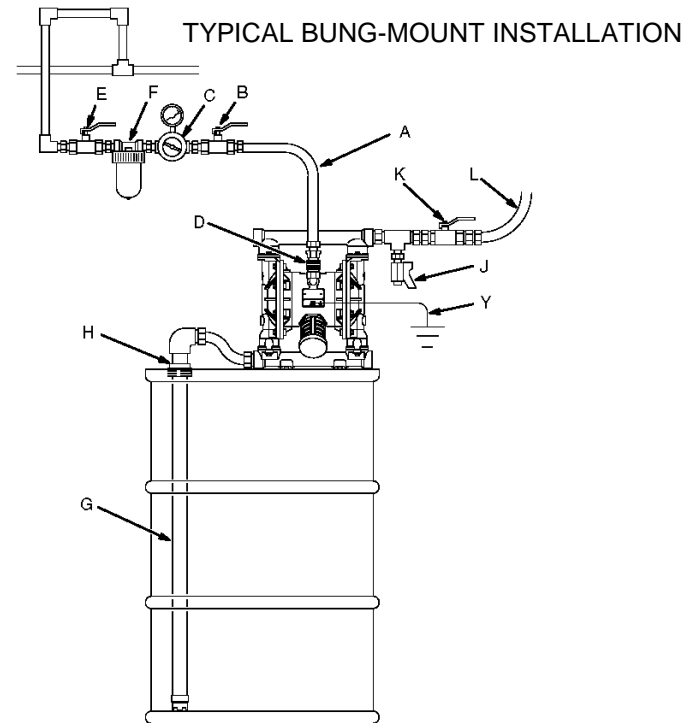
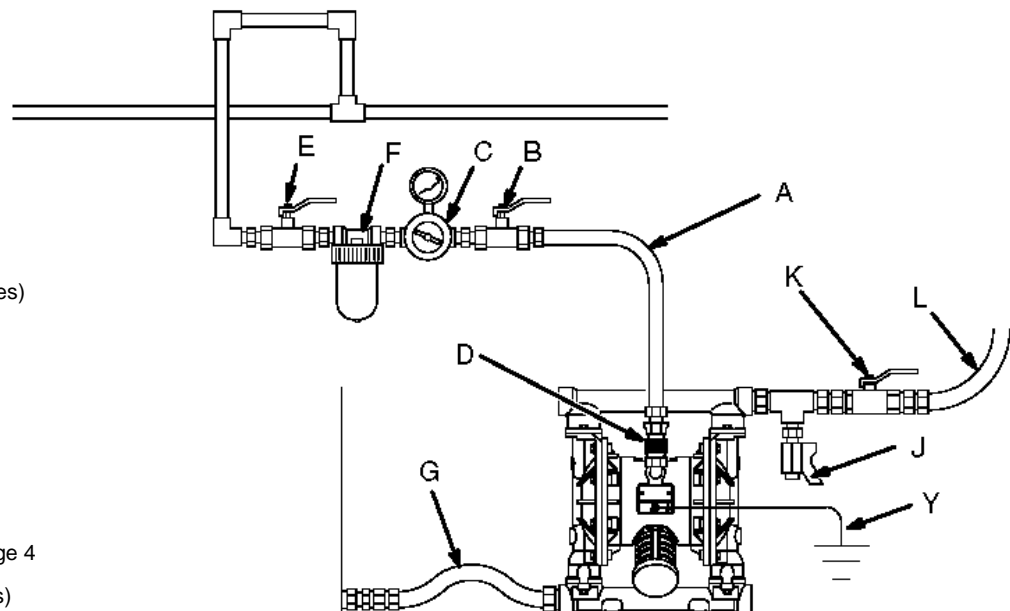


Fig. 2

KEY FOR FIG. 3

- A Air supply line
- B Bleed-type master air valve
(required for pump)
- C Air regulator
- D Air line quick disconnect
- E Master air valve (for accessories)
- F Air line filter
- G Fluid suction line
- J Fluid drain valve (required)
- K Fluid shutoff valve
- L Fluid line
- Y Ground wire (required; see page 4
for installation instructions)



IE



Fig. 3

Installation

KEY FOR FIG. 4

- A Air supply line
- B Bleed-type master air valve
(required for pump)
- C Air regulator
- D Air line quick disconnect
- E Master air valve (for accessories)
- F Air line filter
- G Fluid suction line
- J Fluid drain valve (required)
- K Fluid shutoff valve
- L Fluid line
- M Wall mounting bracket
- Y Ground wire (required; see page 4
for installation instructions)

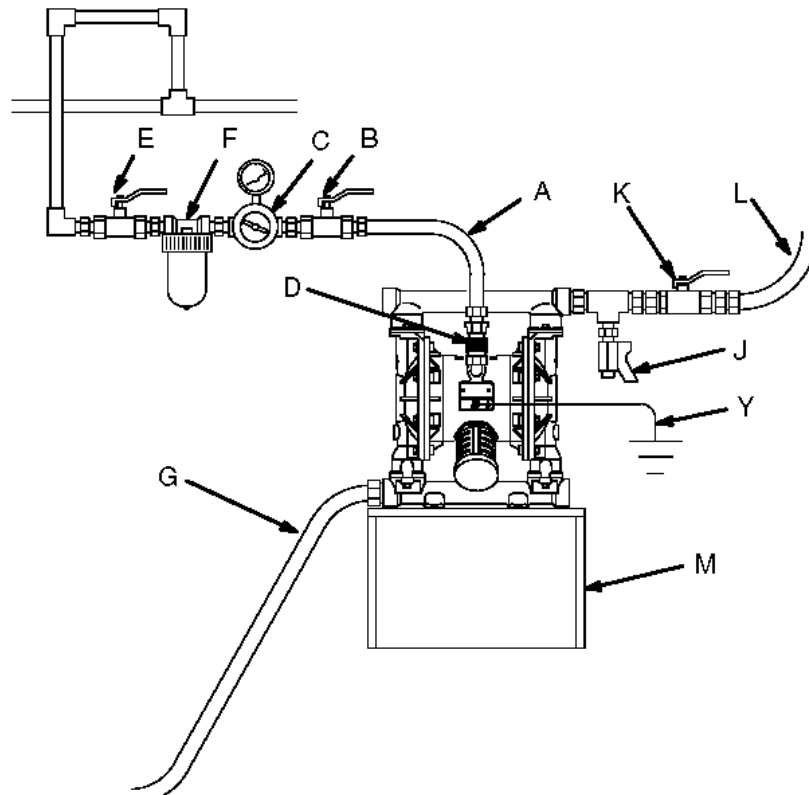


Fig. 4

Changing the Orientation of the Fluid Inlet and Outlet Ports

On aluminum pumps, the fluid inlet and outlet manifolds have threaded ports on both ends. The pump is shipped with a plug installed in one end of each manifold, and the opposite end open. See Fig. 5. To change the orientation of the inlet and/or outlet port, remove the plug from one end of a manifold and install it in the opposite end.

On stainless steel pumps, the fluid inlet and outlet manifolds have threaded ports on one end only. The pump is shipped with the ports facing the same direction.

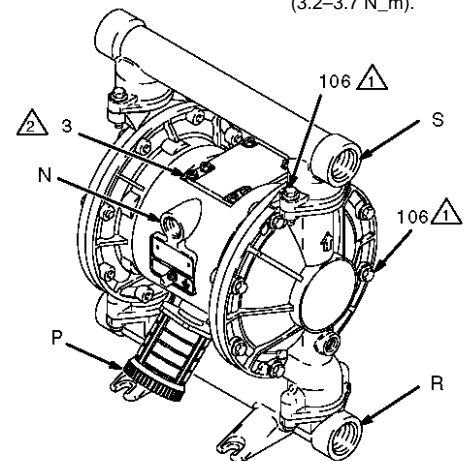
To reverse the orientation of the ports:

1. Remove the screws and nuts holding the inlet and/or outlet manifold to the covers.
2. Reverse the manifold and reattach. Install the screws and torque to 120–150 in-lb (14–17 N.m).

KEY

- N 1/2 npt(f) air inlet port
- P Muffler. Air exhaust port is 3/4 npt(f)
- R 1 npt(f) fluid inlet port

Apply medium-strength (blue) Loctite_ or equivalent to the threads, and torque to 120–150 in-lb (14–17 N.m).
Torque to 28–33 in-lb (3.2–3.7 N_m).



Installation

Air Exhaust Ventilation



WARNING

FIRE AND EXPLOSION HAZARD



Be sure to read and follow the warnings and precautions regarding **TOXIC FLUID HAZARD**, and **FIRE OR EXPLOSION HAZARD** on page 3, before operating this pump.



Be sure the system is properly ventilated for your type of installation. You must vent the exhaust to a safe place, away from people, animals, food handling areas, and all sources of ignition when pumping flammable or hazardous fluids. See Fig. 6.

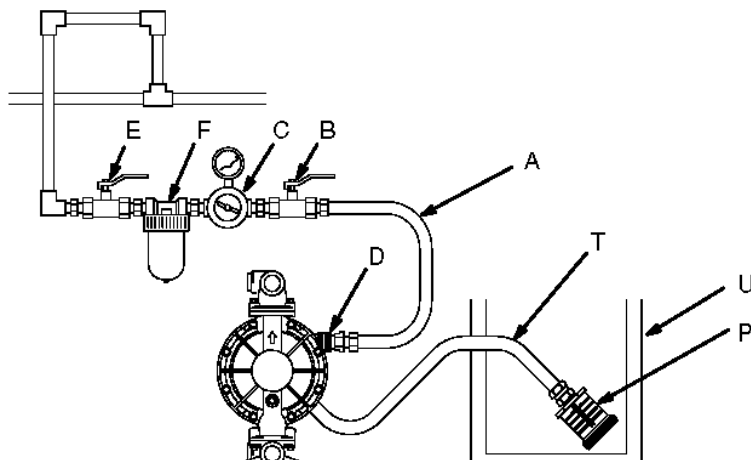
Fig. 5

The air exhaust port is 3/4 npt(f). Do not restrict the air exhaust port. Excessive exhaust restriction can cause erratic pump operation.

To provide a remote exhaust:

1. Remove the muffler (P) from the pump air exhaust port.
2. Install a grounded air exhaust hose (T) and connect the muffler (P) to the other end of the hose. The minimum size for the air exhaust hose is 3/4 in. (19 mm) ID. If a hose longer than 15 ft (4.57 m) is required, use a larger diameter hose. Avoid sharp bends or kinks in the hose.
3. Place a container (U) at the end of the air exhaust line to catch fluid in case a diaphragm ruptures.

VENTING EXHAUST AIR



KEY

- A Air supply line
- B Bleed-type master air valve
(required for pump)
- C Air regulator
- D Air line quick disconnect
- E Master air valve (for accessories)
- F Air line filter
- P Muffler
- T Grounded air exhaust hose
- U Container for remote air exhaust

Fig. 6



Installation

Fluid Pressure Relief Kit

CAUTION

Pressure Relief Kit 235409 (V) is available for Aluminum Pumps, to prevent over pressurization and rupture of the pump or hose. See Fig. 7. The kit includes instructions.

Thermal expansion of fluid in the outlet line can cause over pressurization. This can occur when using long fluid lines exposed to sunlight or ambient heat, or when pumping from a cool to a warm area (for example, from an underground tank).

Over pressurization can also occur if the Husky pump is being used to feed fluid to a piston pump, and the intake valve of the piston pump does not close, causing fluid to back up in the outlet line.

KEY

- R 1 npt(f) optional fluid inlet port
- S 1 npt(f) optional fluid outlet port
- V Pressure relief kit

1△ Install kit between fluid inlet and outlet r

2△ Connect fluid inlet line here.

3△ Connect fluid outlet line here.

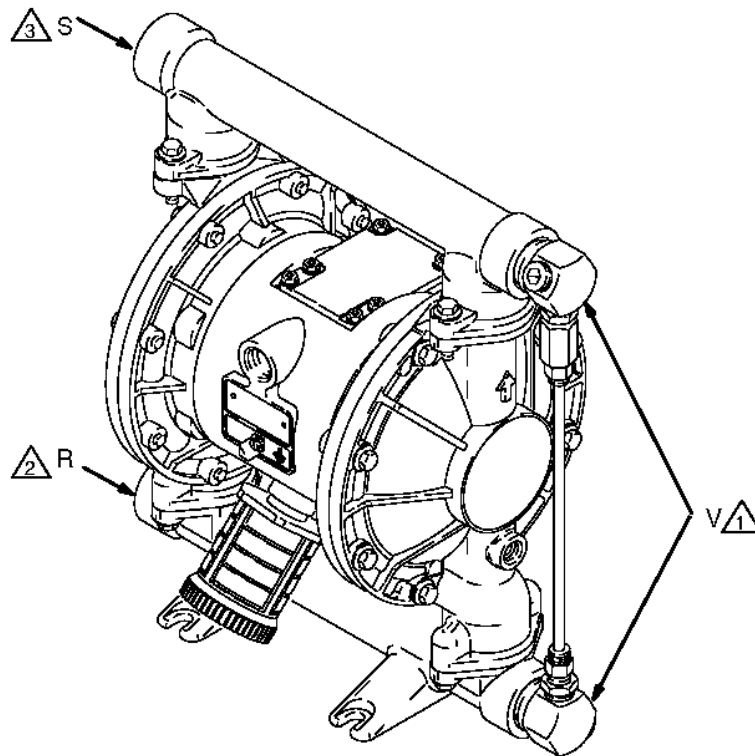


Fig. 7



Operation

Pressure Relief Procedure

WARNING

PRESSURIZED EQUIPMENT HAZARD

The equipment stays pressurized until pressure is manually relieved. To reduce the risk of serious injury from pressurized fluid, accidental spray from the gun or splashing fluid, follow this procedure whenever you

- Are instructed to relieve pressure
- Stop pumping
- Check, clean or service any system equipment
- Install or clean fluid nozzles

1. Shut off the air to the pump.
2. Open the dispensing valve, if used.
3. Open the fluid drain valve to relieve fluid pressure, having a container ready to catch the drainage.

Flush the Pump Before First Use

The pump was tested in water. If the water could contaminate the fluid you are pumping, flush the pump thoroughly with a compatible solvent. Follow the steps under **Starting and Adjusting the Pump**.

Starting and Adjusting the Pump

WARNING

TOXIC FLUID HAZARD



To reduce the risk of serious injury splashing in the eyes or on the skin, and toxic fluid spills, **never** move or lift a pump under pressure. If dropped, the fluid section may rupture. Always follow the **Pressure Relief Procedure Warning** above before lifting the pump.

1. Be sure the pump is properly grounded. Refer to **Grounding** on page 4.
2. Check fittings to be sure they are tight. Use a compatible liquid thread sealant on male threads. Tighten fluid inlet and outlet fittings securely.
3. Place the suction tube (if used) in fluid to be pumped.\

NOTE: If fluid inlet pressure to the pump is more than 25% of outlet working pressure, the ball check valves will not close fast enough, resulting in inefficient pump operation.

4. Place the end of fluid hose (L) into an appropriate container.

5. Close the fluid drain valve (J).
6. Back out the air regulator (C) knob, and open all bleed-type master air valves (B, E).
7. If the fluid hose has a dispensing device, hold it open while continuing with the following step.
8. Slowly increase air pressure with the air regulator (C) until the pump starts to cycle. Allow the pump to cycle slowly until all air is pushed out of the lines and the pump is primed.

If you are flushing, run the pump long enough to thoroughly clean the pump and hoses. Close the air regulator. Remove the suction tube from the solvent and place it in the fluid to be pumped.

Operation of Remote Piloted Pumps

1. Follow preceding steps 1 through 7 of **Starting and Adjusting Pump**.
2. Open air regulator (C).



WARNING

The pump may cycle once before the external signal is applied. Injury is possible. If pump cycles, wait until end before proceeding.

3. Pump will operate when air pressure is alternately applied and relieved to push type connectors (14).

NOTE: Leaving air pressure applied to the air motor for extended periods when the pump is not running may shorten the diaphragm life. Using a 3-way solenoid valve to automatically relieve the pressure on the air motor when the metering cycle is complete prevents this from occurring.

Pump Shutdown



WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** at left.

Maintenance

Lubrication

The air valve is designed to operate unlubricated, however if lubrication is desired, every 500 hours of operation (or monthly) remove the hose from the pump air inlet and add two drops of machine oil to the air inlet.



CAUTION

Do not over-lubricate the pump. Oil is exhausted through the muffler, which could contaminate your fluid supply or other equipment. Excessive lubrication can also cause the pump to malfunction.

Flushing and Storage



WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 11.

Flush the pump often enough to prevent the fluid you are pumping from drying or freezing in the pump and damaging it. Use a compatible solvent.

Always flush the pump and relieve the pressure before storing it for any length of time.

At the end of the work shift, relieve the pressure.

Tightening Threaded Connections

Before each use, check all hoses for wear or damage, and replace as necessary. Check to be sure all threaded connections are tight and leak-free. Check and retorque all threaded connections at least every two months. Retorque the fluid cover screws first, followed by the manifold screws.

The recommended frequency for retorquing of fasteners varies with pump usage; a general guideline is to retorque fasteners every two months.

Preventive Maintenance Schedule

Establish a preventive maintenance schedule, based on the pump's service history. This is especially important for prevention of spills or leakage due to diaphragm failure.



Troubleshooting



WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 11.

- Relieve the pressure before checking or servicing the equipment.
- Check all possible problems and causes before disassembling the pump.

PROBLEM	CAUSE	SOLUTION
Pump cycles at stall or fails to hold pressure at stall.	Worn check valve balls (301), seats (201) or o-rings (202).	Replace. See page 18.
Pump will not cycle, or cycles once and stops.	Air valve is stuck or dirty.	Disassemble and clean air valve. See page 16. Use filtered air.
	Check valve ball (301) severely worn and wedged in seat (201) or manifold (102 or 103).	Replace ball and seat. See page 18.
	Check valve ball (301) is wedged into seat (201), due to overpressurization.	Install Pressure Relief Valve (see page 10).
	Dispensing valve clogged.	Relieve pressure and clear valve.
Pump operates erratically.	Clogged suction line.	Inspect; clear.
	Sticky or leaking balls (301).	Clean or replace. See page 18.
	Diaphragm ruptured.	Replace. See pages 19–21.
	Restricted exhaust.	Remove restriction.
Air bubbles in fluid.	Suction line is loose.	Tighten.
	Diaphragm ruptured.	Replace. See pages 19–21.
	Loose inlet manifold (102), damaged seal between manifold and seat (201), damaged o-rings (202).	Tighten manifold bolts (106) or replace seats (201) or o-rings (202). See page 18.
	Loose diaphragm shaft bolt (107).	Tighten or replace (pages 19–21).
	Damaged o-ring (108).	Replace. See pages 19–21.



Troubleshooting

PROBLEM	CAUSE	SOLUTION
Fluid in exhaust air.	Diaphragm ruptured.	Replace. See pages 19–21.
	Loose diaphragm shaft bolt (107).	Tighten or replace (pages 19–21).
	Damaged o-ring (108).	Replace. See pages 19–21.
Pump exhausts excessive air at stall.	Worn air valve block (7), o-ring (6), plate (8), pilot block (18), u-cups (10), or pilot pin o-rings (17).	Repair or replace. See page 16.
	Worn shaft seals (402).	Replace. See pages 19–21.
Pump leaks air externally.	Air valve cover (2) or air valve cover screws (3) are loose.	Tighten screws. See page 16.
	Air valve gasket (4) or air cover gasket (22) is damaged.	Inspect; replace. See pages 16, 22–23.
	Air cover screws (25) are loose.	Tighten screws. See pages 22–23.
Pump leaks fluid externally from ball check valves.	Loose manifolds (102, 103), damaged seal between manifold and seat (201), damaged o-rings (202).	Tighten manifold bolts (106) or replace seats (201) or o-rings (202). See page 18.



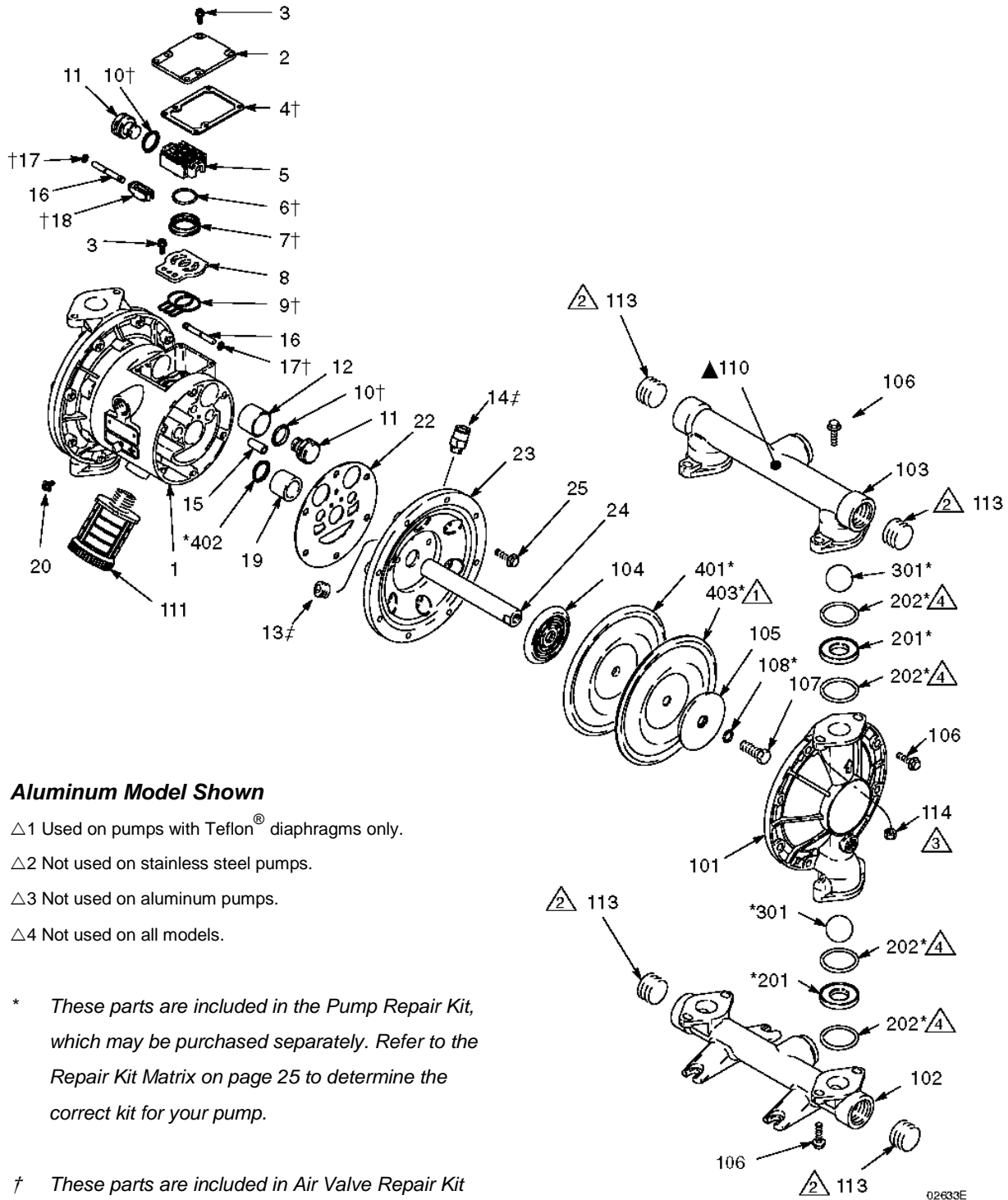
Parts

Air Motor Parts List (Matrix Column 2)					Fluid Section Parts List (Matrix Column 3)				
Digit	Ref. No.	Part No.	Description	Qty	Digit	Ref. No.	Part No.	Description	Qty
7	1	188838	HOUSING, center; alum.	1	3	101	188840	COVER, fluid; aluminum	2
	1≠	195921	HOUSING, center; remote	1		102	188841	MANIFOLD, inlet;aluminum	1
	2	188854	COVER, air valve; alum.	1		103	188842	MANIFOLD, outlet; aluminum	1
	3	116344	SCREW, mach, hex flange hd; M5 x 0.8; 12 mm (0.47 in.)	9		104	188607		2
	4†	188618	GASKET, molded Santoprene	1		105	188607	PLATE, air side; alum. PLATE, fluid side;aluminum	2
	5	188855	CARRIAGE; aluminum	1		106	115643	SCREW; M8 x 1.25; 25 mm (1 in.)	24
	6†	108730	O-RING; nitrile	1		107	189044	BOLT; M12 x 1.75; 35 mm (1.38 in.); sst	2
	7†	188616	BLOCK, air valve; acetal	1		108*	104319	O-RING; Teflon	2
	8	188615	PLATE, air valve; sst	1		110	188970	LABEL, warning	1
	9†	188617	SEAL, valve plate;buna-N	1		▲			
	10†	112181	PACKING, u-cup; nitrile	2		111	112182	MUFFLER	1
	11	188612	PISTON, actuator; acetal	2		113	112183	PLUG: 1" npt; cst	4
	12	188613	BEARING, piston; acetal	2		114	None	Not Used	0
	13≠	104765	PLUG, pipe; headless	2	4	101	188860	COVER, fluid; sst	2
	14≠	115671	FITTING, connector; male	2		102	188862	MANIFOLD, inlet; sst	1
	15	188611	BEARING, pin; acetal	2		103	188861	MANIFOLD, outlet; sst	1
	16	188610	PIN, pilot; stainless steel	2		104	188607	PLATE, air side; alum.	2
	17†	157628	O-RING; buna-N	2		105	188960	PLATE, fluid side; sst	2
	18†	188614	BLOCK, pilot; acetal	1		106	112178	SCREW; M8 x 1.25; 25 mm (1 in.)	24
	19	188609	BEARING, shaft; acetal	2		107	189044	BOLT; M12 x 1.75; 35 mm (1.38 in.); sst	2
	20	116343	SCREW, grounding	1		108*	104319	O-RING; Teflon	2
	22	188603	GASKET, air cover; foam	2		110	188621	LABEL, warning	1
	23	188839	COVER, air; aluminum	2		▲			
	23≠	195917	COVER, air; remote	2		111	112182	MUFFLER	1
	24	188608	SHAFT, diaphragm; sst	1		113	None	Not Used	0

continued



Parts



Aluminum Model Shown

- $\triangle 1$ Used on pumps with Teflon[®] diaphragms only.
- $\triangle 2$ Not used on stainless steel pumps.
- $\triangle 3$ Not used on aluminum pumps.
- $\triangle 4$ Not used on all models.

** These parts are included in the Pump Repair Kit, which may be purchased separately. Refer to the Repair Kit Matrix on page 25 to determine the correct kit for your pump.*

† These parts are included in Air Valve Repair Kit 236273, which may be purchased separately.

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Parts

Fluid Section Parts List (Matrix Column 3) (continued)

Seat Parts List (Matrix Column 4)

Digit	Ref. No.	Part No.	Description	Qty
C	101	188840	COVER, fluid; aluminum	2
	102	192070	MANIFOLD, inlet; aluminum; BSPT	1
	103	192071	MANIFOLD, outlet; aluminum; BSPT	1
	104	188607	PLATE, air side; aluminum	2
	105	188607	PLATE, fluid side; aluminum	2
	106	115643	SCREW; M8 x 1.25; 25 mm (1 in.)	24
	107	189044	BOLT; M12 x 1.75; 35 mm (1.38 in.); sst	2
	108*	104319	O-RING; Teflon	2
	110	188970	LABEL, warning	1
	▲			
	111	112182	MUFFLER	1
	113	113991	PLUG; 1" BSPT; cst	4
	114	None	Not Used	0
	D	101	188860	COVER, fluid; sst
102		192068	MANIFOLD, inlet; sst; BSPT	1
103		192069	MANIFOLD, outlet; sst; BSPT	1
104		188607	PLATE, air side; aluminum	2
105		188960	PLATE, fluid side; sst	2
106		112178	SCREW; M8 x 1.25; 25 mm (1 in.)	24
107		189044	BOLT; M12 x 1.75; 35 mm (1.38 in.); sst	2
108*		104319	O-RING; Teflon	2
110		188621	LABEL, warning	1
▲				
111		112182	MUFFLER	1
113		None	Not Used	0
114		112257	NUT, hex; M8 x 1.25; sst	8

Digit	Ref. No.	Part No.	Description	Qty
2	201*	188604	SEAT; acetal	4
	202*	109205	O-RING; Teflon	8
3	201*	188707	SEAT; 316 stainless steel	4
	202*	109205	O-RING; Teflon	8
4	201*	188708	SEAT; 17-4 stainless steel	4
	202*	109205	O-RING; Teflon	8
5	201*	188711	SEAT; Hytrel	4
	202	None	Not Used	0
6	201*	191595	SEAT; Santoprene	4
	202*	109205	O-RING; Teflon	8
8	201*	188712	SEAT; Viton	4
	202	None	Not Used	0
9	201*	189722	SEAT; polypropylene	4
	202*	109205	O-RING; Teflon	8
A	201*	189723	SEAT; Kynar	4
	202*	109205	O-RING; Teflon	8
G	201*	194211	SEAT; Geolast	4
	202*	109205	O-RING; Teflon	8



Parts

Ball Parts List (Matrix Column 5)

Digit	Ref. No.	Part No.	Description	Qty
1	301*	112088	BALL; Teflon	4
2	301*	112254	BALL; acetal	4
3	301*	103869	BALL; 316 stainless steel	4
4	301*	102973	BALL; 440C stainless steel	4
5	301*	112089	BALL; Hytrel	4
6	301*	112092	BALL; Santoprene	4
7	301*	112090	BALL; buna-N	4
8	301*	112184	BALL; Viton	4
G	301*	114751	BALL; Geolast	4

Diaphragm Parts List (Matrix Column 6)

Digit	Ref. No.	Part No.	Description	Qty
1	401*	188606	DIAPHRAGM, backup; Hytrel	2
	402*	112181	PACKING, u-cup; nitrile	2
	403*	188605	DIAPHRAGM; Teflon	2
5	401*	188606	DIAPHRAGM; Hytrel	2
	402*	112181	PACKING, u-cup; nitrile	2
6	401*	188857	DIAPHRAGM; Santoprene	2
	402*	112181	PACKING, u-cup; nitrile	2
7	401*	188859	DIAPHRAGM; buna-N	2
	402*	112181	PACKING, u-cup; nitrile	2
8	401*	188858	DIAPHRAGM; Viton	2
	402*	112181	PACKING, u-cup; nitrile	2
G	401*	194212	DIAPHRAGM; Geolast	2
	402*	112181	PACKING, u-cup; nitrile	2

