



IP-01

1:1 RATIO TRANSFER PUMP

OPERATING MANUAL



IPM, INC.

Manufactured by International Pump Manufacturing, Inc.
Covers models: IP01, IP01S, IP01-SST and IP01S-SST.

Manual Number: MIP11192008

IP-01

1:1 RATIO TRANSFER PUMPS

OPERATIONS MANUAL WITH PARTS IDENTIFICATION

This manual contains IMPORTANT WARNINGS and INSTRUCTIONS. Read and retain for future reference.

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WARNING: The equipment described herein must only be operated or serviced by properly trained individuals, thoroughly familiar with the operating instructions and limitations of the equipment.

Notice: All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty or responsibility of any kind expressed or implied. Statements or suggestions concerning possible use of IPM equipment are made without representation or warranty that any such use is free of patent infringement, and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated or that other measures may not be required.

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1.0 SAFETY WARNINGS

Please read and observe all warnings contained in this operations manual before any attempt to operate the equipment.

Misuse of Equipment

Misuse of the Equipment can cause serious injury. Use the equipment only for its intended purpose. Care should be taken to prevent over pressurization of the pump or accessories connected to it. Use only proper parts in good condition. Use the pump only with compatible fluids. Improper use or misuse of this equipment could result in fluid being splashed on the skin or in the eyes, serious bodily injury, property damage, fire or explosion.

Make daily check on the equipment and repair damaged or worn parts immediately.

Do not alter this equipment, doing so could cause it to function incorrectly and could cause serious injury.

Material & Fluid compatibility

Always ensure the chemical compatibility of the fluids and solvents with the wetted parts in the pump and any components. Check the fluid manufacturer's data sheets and specifications before using the fluids or solvents in this pump.

Pressurized Hoses

Because the hoses are pressurized, they present a danger should the fluid escape at high pressure. This escaping fluid pressure can spray out and cause serious bodily injury or property damage. Ensure that the hoses do not leak or rupture due to wear, misuse or damage.

The hoses should be handled properly - do not pull on the hoses to move the equipment around. Use the hoses only for fluids in which they are compatible both for the inner liner of the hose and the outer covering. Use care not to exceed the temperature rating of the hose.

Before each use, ensure that the fluid couplings are tight and that the entire length of hose is not worn or damaged. Check the entire hose for leaks, bulging cover, damage, abrasion or cuts. These conditions may cause the hose to fail that could result in splashing of pressurized fluid on the skin, or in the eyes and cause serious bodily injury or property damage.

Pressure Specification

The maximum working fluid pressure of this equipment is *180 psi (12.5bar)* at the maximum incoming air pressure of *180 psi (12.5bar)*. Ensure all equipment and accessories used with this pump are rated to withstand the maximum working pressure of this pump. Never exceed the maximum working pressure of the pump or any device attached to the pump.

Procedure for Pressure Relief

In order to avoid the risk of serious bodily injury such as splashing fluid on the skin or in the eyes, or risk of injury from moving parts, the following procedure should be used. This procedure should be used when shutting down the pump, when servicing or repairing the pump or any part of the system, when replacing or cleaning components, or when pumping of fluid is stopped.

1. Close the air valve to the pump.

2. Use the air bleed down valve (see installation instructions) to relieve the air pressure in the system.
3. Relieve the fluid pressure by holding a grounded metal pail in contact with the metal part of the fluid dispense valve and slowly opening the valve.
4. With a container ready to catch the fluid open the drain valve (see installation instructions).
5. It is a good practice to leave the drain valve open until it is time to dispense fluid again.

If you are unsure that the fluid pressure has been relieved (due to a blockage in a component or a hose) be careful to relieve the pressure by slowly loosening the hose end coupling to allow the fluid pressure to escape slowly. After the pressure has been relieved, the fitting can be removed completely and any blockages removed.

Flush the Pump before Using It

1. The pump is tested with lightweight DOP oil, which is left in to protect the pump parts. If the fluid you are pumping may be contaminated by oil, flush out the oil with a compatible solvent before using the pump. Follow the Flushing Instruction below:

Warning

To reduce the risk of static sparking or splashing fluid in the eyes or on the skin, follow the **Pressure Relief Procedure** before Flushing.

For your safety, read the **Fire or Explosion Hazard** before flushing and follow all the recommendations.

2. If you are pumping fluid that dries, hardens or sets up, flush the system with a compatible solvent as often as necessary to prevent build-up of dried fluid in the pump or hoses.
3. If the pump is being used to supply a circulating system, allow the solvent to circulate through the entire system for at least 30 minutes every 48hrs, or more often if necessary to prevent settling.
4. Always fill the wet -cup with 1/2 full of throat seal liquid (TSL) or compatible solvent to keep the fluid from drying on the displacement rod and damaging pump throat packing.
5. Lubricate the throat packing frequently, when you are pumping a non-lubricating fluid, or are shutting down for more than a few days.

Shut down & care of the Pump

For Overnight shut down, follow the Pressure Relief Procedure.

Always stop the pump at bottom of the stroke to prevent the fluid from drying on the exposed displacement rod and damaging the throat packing.

Hazards from Fire or Explosion

Hazards exist when sparks can ignite vapors or fumes from flammable or combustible materials or other hazardous conditions (explosive dusts, etc.). These sparks can be created from plugging in or unplugging an electrical supply cord. Sparks can also be created from the static electricity generated by the flow of fluid through the pump and hose.

Every part of the equipment must be properly grounded to prevent static electricity from generating a spark and causing the pump or system to become hazardous. These sparks can cause a fire, explosion, and serious bodily injury and property damage. Ensure that the pump and all components and accessories are properly grounded and that electrical supply cords are not plugged in or unplugged when these hazards exist.

Should any evidence of static electricity (sparks or small shocks while in contact with the equipment) exists, discontinue the operation immediately. Investigate the source of the static electricity and correct the grounding problem. Do not use the system until the grounding problem is repaired.

Grounding Procedures

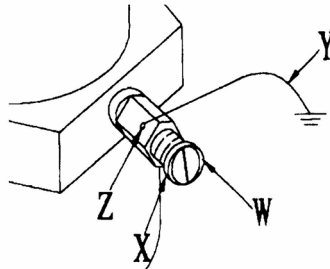
Grounding of the pump and all other dispensing equipment is necessary to minimize the possibility of sparks due to static electricity. Grounding must be in compliance with local electrical codes. Check with the local authorities for requirements in your area and with the type of equipment being used. Ensure that all the following equipment is grounded:

1. Air Compressor: Follow the grounding procedures as recommended by the manufacturer.
2. Air Hoses: Use grounded air hoses.
3. Fluid Container used to supply the system: Grounding must be done according to local codes.
4. Pump: Follow the procedures included referring to Figure 1.
5. Fluid Hoses: Use grounded fluid hoses.
6. Dispensing Valve: The valve must be metal to conduct through the fluid hose to the pump which must be properly grounded.
7. Dispensing Point: Grounding must be done according to local codes.
8. Solvent Containers: Grounding must be done according to local codes. Use metal conductive pails that are properly grounded.
9. Grounding while dispensing, cleaning, or relieving pressure: Maintain conductivity by firmly holding the metal part of the dispensing valve to the side of a grounded metal container

FIGURE 1

Grounding the Pump:

Follow these procedures for grounding the pump. Loosen the lock screw (W) to allow insertion of one end of a 12 gauge minimum size wire into the hole in the side of the lug (Z). Insert the wire (Y) and tighten the lock screw securely. The other end of the ground wire must be secured to a true earth ground.



Hose Grounding:

It is very important that the hoses used for both air and the fluid be a grounding type and that this ground continuity is maintained. Regular checks of the hose ground resistance (with a resistance meter using a suitable range) and a comparison to the Manufacturer's Specification will ensure the ground is within specifications. If it is not within specified limits it should be replaced immediately.

Solvent Cleaning:

While cleaning the system with solvent, hold the metal part of the dispensing valve in contact with a grounded metal pail to minimize the possibility of splashing fluid on the skin or in the eyes or static sparks. Use low fluid pressure for additional safety.

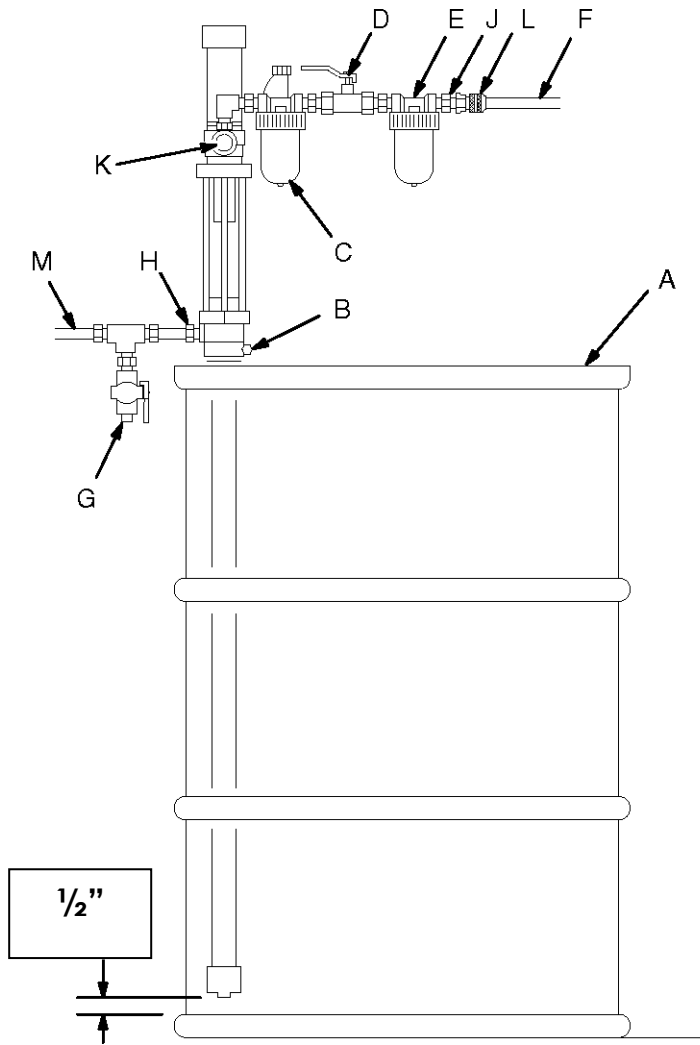
Hazards From Moving Parts:

Use the Pressure Relief Procedure to prevent the pump from starting unintentionally when not desired. Take care that moving parts present a pinching hazard to fingers or other body parts. Stay clear of these moving parts when starting or operating the pump.

Safety Standards:

Safety standards have been established by the United States Government under the Occupational Safety and Health Act. These standards should be consulted as they apply to the hazards and type of equipment being used.

2.0 INSTALLATION



KEY

- A Vent Plug
- B Bung Adapter
- C Air Line Lubricator
- D Bleed-type Master Air Valve
- E Air Line Filter
- F Grounded Air Hose
- G Fluid Drain Valve
- H Fluid Outlet
- J Pin Fitting
- K Air Control Valve
- L Air Line Coupler
- M Grounded Fluid Hose

FIGURE 2

Figure 2 depicts a typical installation provided as a guide for your reference. Select and install optional accessories required. Feel free to call your **IPM** representative or the **IPM** Technical Department for assistance.

2.1 Mounting Configuration

Install the necessary accessories in sequence using **Figure 2** as a guide. An Air Control Valve (K) for Controlling air flow is required with the equipment. To minimize the risk of serious bodily injury such as splashing fluid on the skin or in the eyes or risk of injury from moving parts, install the following accessories in your system.

1. Bleed-off master air valve (D)

This valve will relieve the air trapped within the system after the pump is stopped. Air that is trapped between this valve and the pump can cause the pump to reciprocate unintentionally, which may cause harm to the operator.

2. Fluid Drain Valve (G)

The fluid drain valve (use a metal valve for grounding purposes) is installed to relieve fluid pressure in the pump, hose or the dispensing valve when the pump is stopped. The relief of pressure by the dispensing valve, which at times is inadequate if there is a clog or restricted passage in the hose or the dispensing valve, can be achieved by using this fluid drain valve (G).

Connect an air lubricator (C). The lubricator provides proper lubrication to the air motor. (see daily maintenance check). Next, install a bleed-off master air valve (D). This valve is required in your system to relieve trapped air (as explained above).

Air Filter (E) helps to remove dirt and foreign particles from the supply air, water moisture also will be trapped within this filter. Be sure to release the trapped water daily as a good housekeeping practice (Also see daily maintenance check). Connect a grounded air supply hose for the supply of air.

For the fluid section, connect one fluid drain valve (G) directly after the outlet of the pump. Be sure to connect it pointing downwards for safety. Connect a grounded fluid hose (M) to the fluid outlet 3/4" NPT(female).

Grounding of the pump and accessories are to be ensured before operation. Observe all OSHA regulations and other safety regulations.

3.0 OPERATIONS

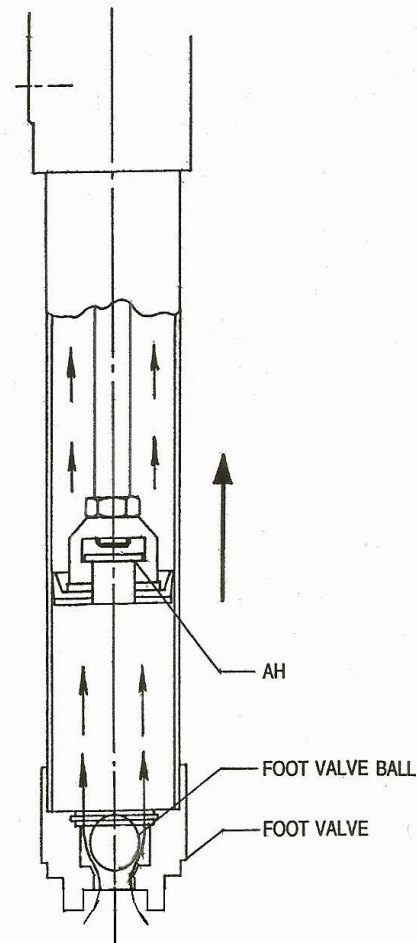
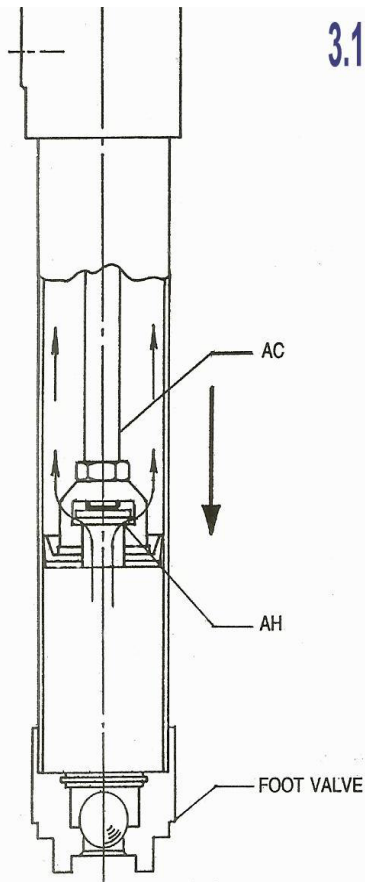
3.1 Working Principle of Transfer Pump (Fluid Section)

Downstroke:

When the Piston Shaft (AC) is in the downstroke motion, the fluid that is present in the lower chamber of the cylinder closes the ball valve. The fluid hence lift up the piston valve (AH) as it flows into the upper chamber and to the fluid outlet in Housing X.

Upstroke:

During the upstroke motion, the piston valve (AH) is closed and fluid present in the upper chamber is transferred to the outlet. At the same time, the ball of the foot valve is opened by the suction action of the motion and fluid is being drawn into the lower chamber.



3.2 Start up and Adjustment of the Pump

Ensure that installation is fully completed before proceeding to start up operations.

1. Ensure that the air control valve (K) is closed. Open the bleed-type master air valve (D). Connect the quick disconnect coupler to the male fitting.
2. Into a grounded metal container, open the dispensing valve (G) slowly. Ensure metal-to-metal contact between the container and the valve.
3. Adjust the pump air control valve (K) slowly for pressure just enough to start running the pump. This is to prime all air within the system. After all the air has been expelled from the lines, close the dispensing valve. During the priming of the pump, the pump runs when the dispensing valve is opened, and stop when the valve is closed.
4. Turn the air regulator slowly until sufficient flow from the dispensing valve is achieved. Remember to run the pump always at the lowest possible speed necessary to achieve what is desired. Never exceed the maximum working pressure of any component in the system.
5. The pump should not be left to run dry of the fluid being worked upon. When running empty, the speed will become very quickly and probably damaging itself. During operation, should the pump be found to run too fast, stop it immediately and check the fluid supply. Is the fluid level in the drum too low or empty? If air has gone into the system, do a priming procedure. Ensure that all air has been expelled from the lines before operation again. Flush the pump or leave it filled with a compatible solvent when not in use.
6. Always follow the Pressure Relief Procedure should the pump be put away for any period of time or during system shut off at the end of the day.

3.3 Shut Down Procedure:

1. Relieve the air pressure with the air regulator.
2. Open the air needle valve.
3. Bleed off residual pressure in the system with the Bleed-off master air valve.
4. Open the drain valve to relieve fluid pressure in the system. Use a container to collect the fluid drained off. Be **especially careful** as the fluid may still be under pressure. Hold the metal fluid drain valve against the side of the grounded container while relieving the pressure.

Note: For long periods of shut-down, flush the pump thoroughly with an appropriate cleaning fluid.

3.4 Daily Maintenance Check:

1. Ensure sufficient lubricant in the air lubricator.
2. Keep the packing cup $\frac{1}{2}$ filled with a suitable fluid (it will keep the piston rod clean and lubricate the packing).
3. Drain the moisture trapped in the air pressure cylinder.

Clean and flush the pump thoroughly with care and appropriate cleaning fluid to obtain the maximum service life of the equipment.

3.5 Disassembly Procedure: (See 4.1 and 4.2 diagrams for corresponding reference numbers)

1. All inlet and outlet hoses to be removed and the pump moved to a suitable work area.
2. Clamp on the housing (8) with the outlet hole against one of the jaws of the vice. Alternatively, a pipe clamp may be utilized instead of a vice. When clamping the housing- it becomes possible to remove either the air cylinder or the lower tube and/or foot valve.



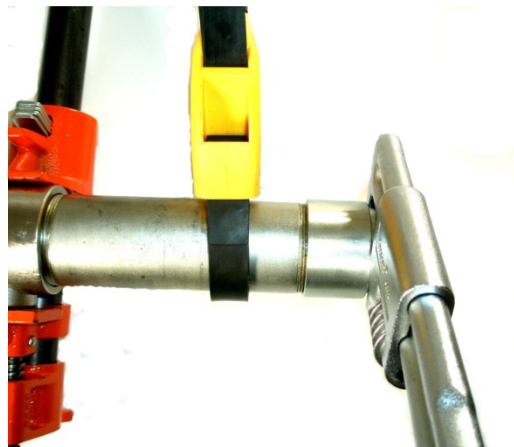
3. Remove the foot valve (27), while holding the cylinder (14) with a strap wrench as shown.



4. Use snap ring pliers to remove (24) and (25). Remove ball (26) and examine for debris and/or damage. Replace as necessary. Replace Teflon o-ring (9). Re-assemble for valve (27) with ball (26), snap rings (24) and (25). Please see the note on foot valves at the end of this section.



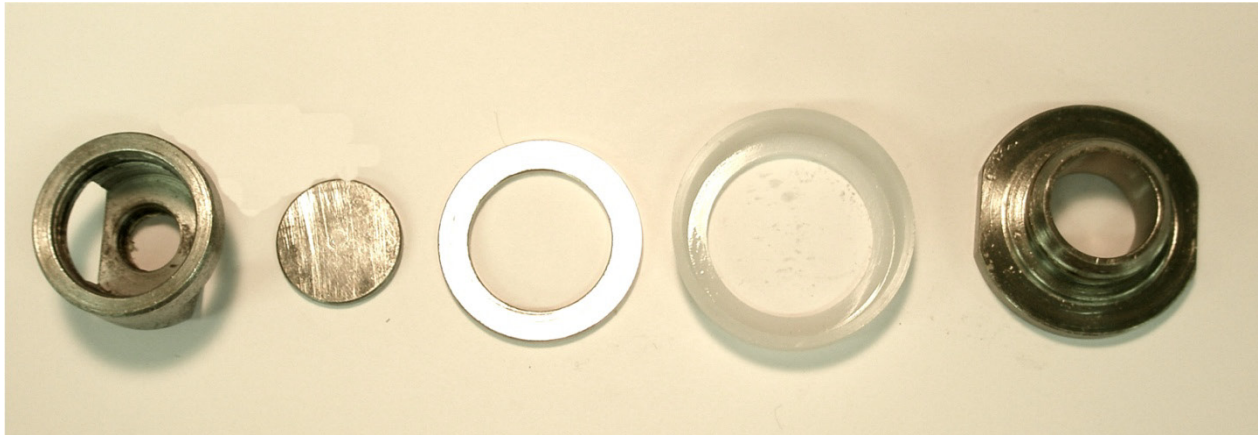
5. With a strap wrench close to housing (8), unscrew cylinder (14). While removing cylinder, take care NOT to bend the piston rod (18). Examine cylinder (14) for scratches in the cylinder wall by looking through the cylinder at an angle to a light source.



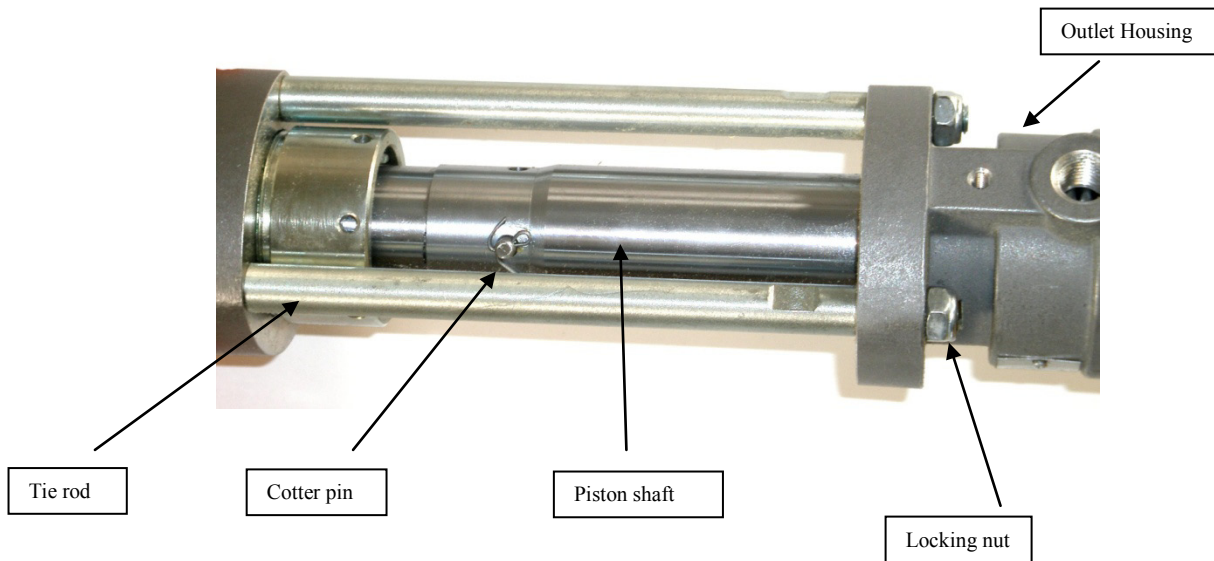
6. At this point you can remove the connecting rod (18) from either the displacement rod (16) or the internal foot valve (19-27) from the connecting rod (18). Typically, you will be taking apart the internal foot valve assembly to inspect and clean.



7. Please note that you need to loosen the jam nuts (17), and then retighten upon assembly.
8. Clamp piston valve housing (19) in vice and unscrew piston pump (23). Remove piston cup (22) and examine for damage; replace if necessary. Check piston valve (20) within the housing (19) for build up and debris.
9. Re-assemble the piston pump (23) to the piston valve housing (19) with the piston valve (20), washer (21) and piston cup (22) in place. Shown in the picture below are the complete set of components for the upper check valve.



10. Re-assemble the jam nut (17) onto the connecting rod (18). Install the piston valve housing assembly (19) onto the connecting rod (18). Adjust the housing (19) so that the distance between the connecting rod (18) and the piston valve (20) has a gap of 0.060" to 0.080". Use a feeler gauge for accuracy. ***This gap is extremely important because too much gap will not allow the fluid to flow correctly, too little (or no gap at all) will constrict the flow.***
11. From the fluid section drawing, remove the three cap nuts (1) from the tie rods (4). Slide complete air piston assembly (25) out through the outlet housing (8). Please note that (25) is shown in the Air Motor section 5.1.



12. From the Air Motor section 5.1, remove the cotter pin (16) and pull out the pin (17). Unscrew the displacement rod (16*) from the piston shaft (15). *The displacement rod is shown in the fluid section 5.2.

13. From section 5.2, remove the packing nut (2) from the outlet housing (8), and remove packing's (3, 5 and 6) from the outlet housing. Examine all packing's for damage and replace as necessary. Examine the displacement rod (16) for damage- principally scratches along its length. Replace if necessary. Re-assemble the packing parts (3, 5 and 6) and snug up the packing nut (2). Take care not to over-tighten the packing nut. Make sure and lubricate the packing's before installing them.

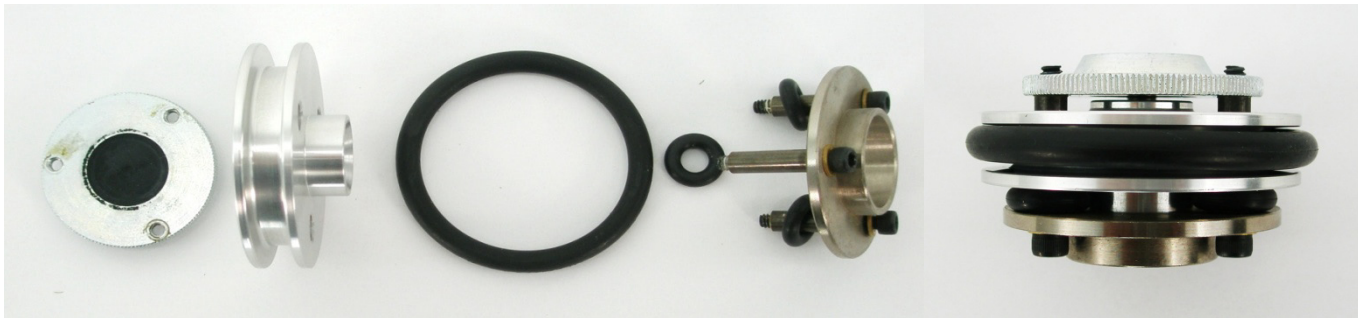
14. Clamp the Air Motor assembly in to a vice, holding by base (19). Using a strap wrench near the base as shown, remove the air cylinder (4). Examine the spring (3) in the air motor cap (1) to ensure that it is not damaged or loose. Slide the air piston assembly (25) with the piston shaft (15) out through the base (19). Examine the V-block packing (18) for damage and replace. Examine the gasket (2) in the air motor cap, and replace if needed. This gasket seals the cylinder cap to the air cylinder. Look at section 5.1 for a complete illustration and the part reference numbers.



15. From fluid section, unscrew displacement rod (16) from the piston shaft (15 from section 5.1). Examine for damage due to debris build-up. Re-assemble the muffler (24), with the point of the cone up- inside the piston shaft and the displacement rod (16) to the piston shaft.
16. From section 5.1, remove the air motor piston assembly (25) from the piston shaft (15). Remove the cap screws (1). Examine the o-rings (8 and 9) and replace where necessary.

3.6 Assembly Procedure:

1. Align air piston assembly with (5, 6, 7, 8, 9, 10, 11 and 12). The air exhaust valve plate (5) and the screws (12) require the use of Loctite-222 on the threads to ensure they do not vibrate loose. Tighten the screws to 10-14 inch pounds.

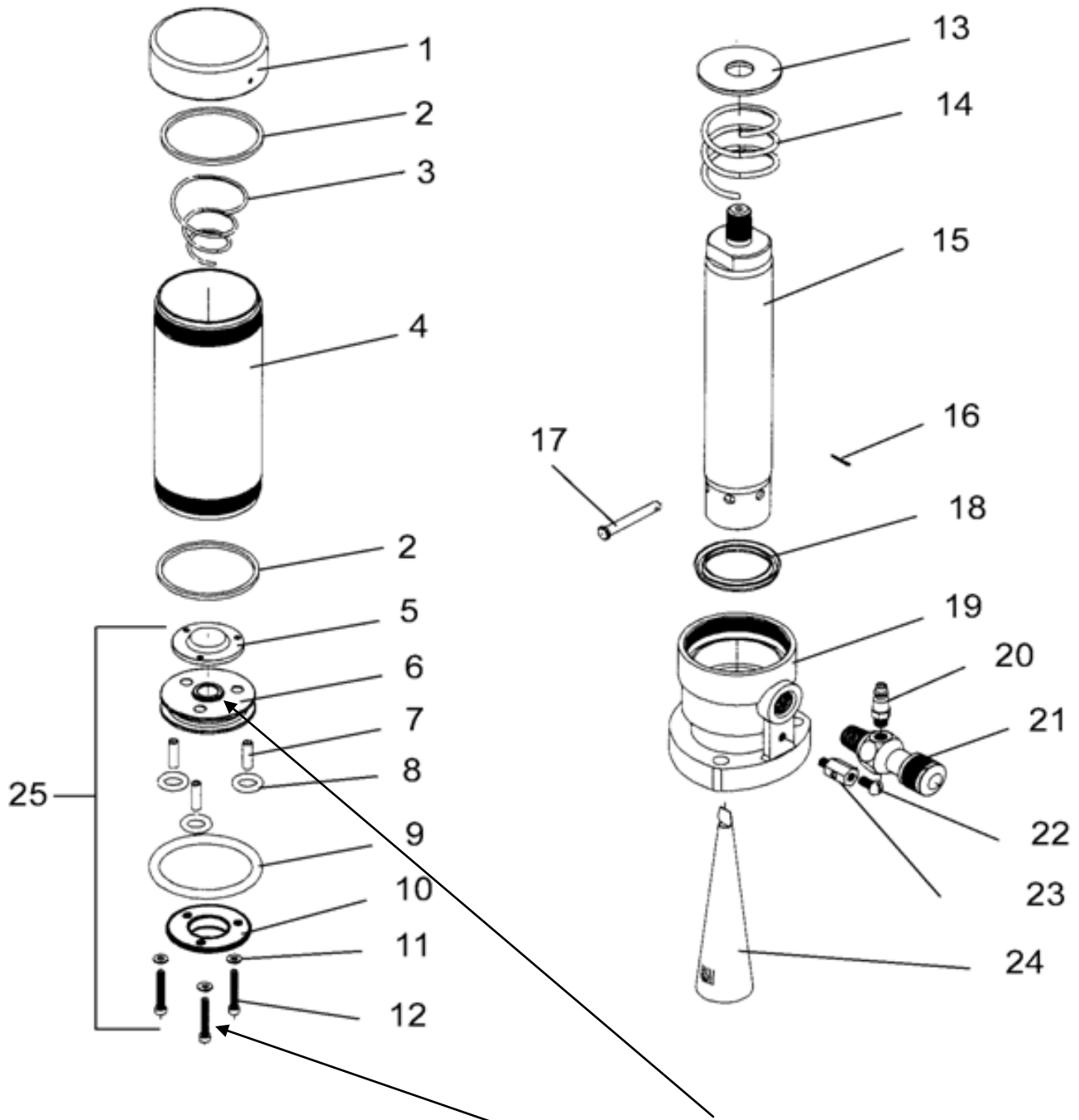


2. Assemble the complete piston assembly (use Loctite-222), with washer (13) onto the piston shaft (15). Hand-tighten only.
3. Slide complete piston and shaft assembly into the air motor base (19). Make sure that the two gaskets (2) are in the correct position. Clamp the air motor base in to a vice and use a strap wrench to assemble the air cylinder (4) and the air cylinder cap (1) to the air motor base. Hand tighten the air cylinder cap. Connect piston shaft (15) to displacement rod (16*) with Pin (17) and cotter pin (16). Install tie rods (4*) in outlet housing (8*). Insert piston shaft through the packing's and install the lock nuts (1) with Loctite-242 and torque to 8 inch pounds. (*Appears in diagram 5.2)
4. Assemble suction piston assembly to displacement rod (16) by screwing until the threads bottom-out with the jam nut (17). Then tighten the jam nut.
5. Replace o-ring (9) in outlet housing (8). Use Loctite on threads for cylinder (14) and screw into outlet housing. Hand-tighten cylinder in place.
6. Use Loctite-242 on the threads exposed on the cylinder (14) and tighten foot valve (27) in place.

A NOTE ON FOOT VALVES: *All foot valves have been converted to a larger flow style. This is to reduce out-gassing and suction pressure. While the foot valves are readily interchangeable with the older style, the internal components are not- so take care when ordering replacement parts.*

4.0 Air Motor parts diagram and part list for all pumps

4.1 Parts Drawing for AIR MOTOR Section (all pumps)



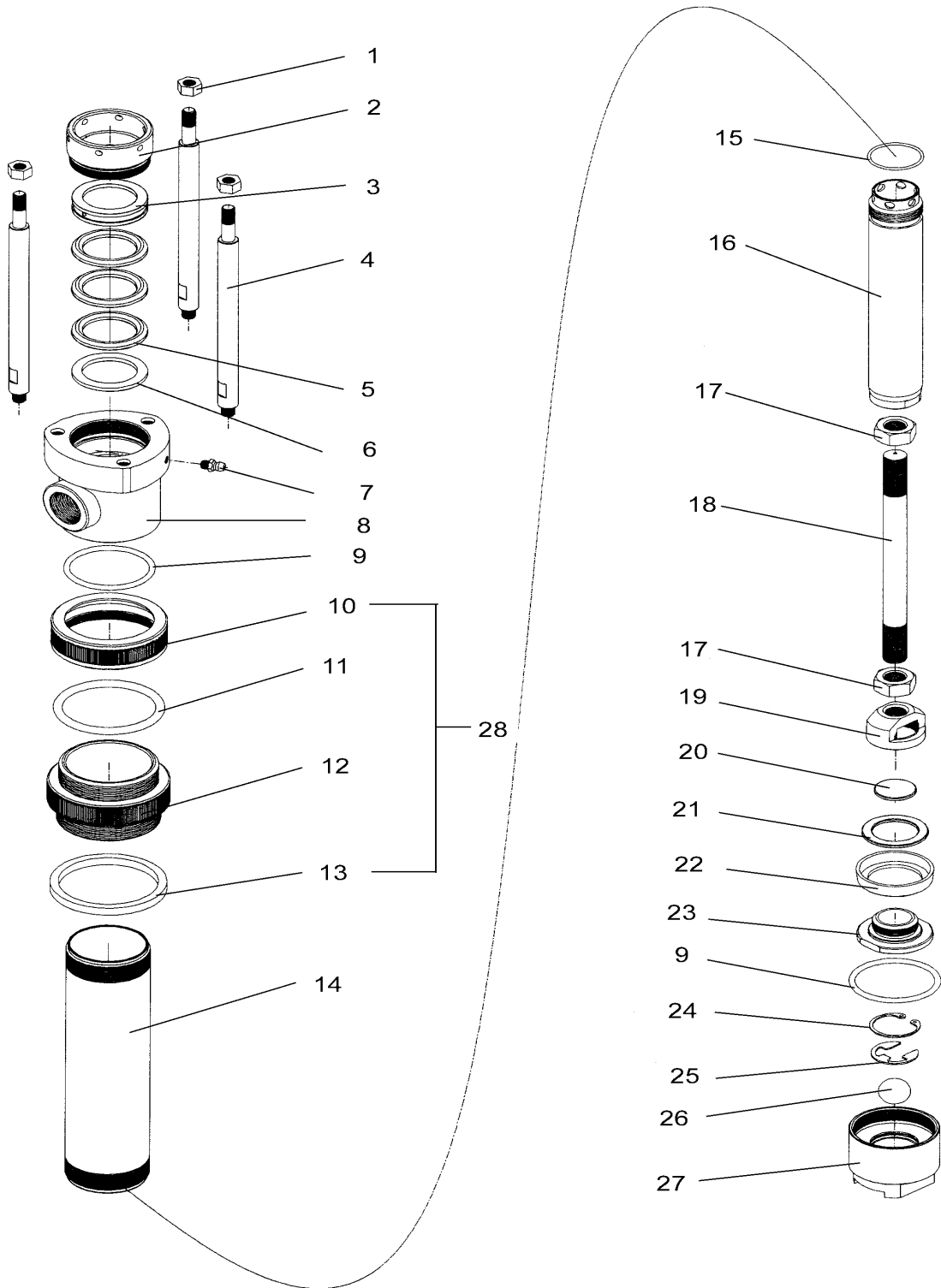
Note: Part number 12 (threads) and part number 5 require the use of Loctite-222 to help ensure they do not come undone.

4.1 Parts list for AIR MOTOR Section (all pumps)

Ref No.	New part Number	Old Part Number	Description	QTY
1	500100	01-172-406	Cap, cylinder	1
2*	500101	01-172-404	Gasket	2
3	500103	01-178-866	Spring	1
4	500102	01-172-407	Air cylinder	1
5	500138	01-162-729	Plate, air exhaust valve	1
6	500137	01-189-210	Piston, air	1
7	500140	01-181-485	Spacer, valve plate	3
8*	500144	01-108-358	O-Ring	3
9*	500141	01-108-357	O-Ring	1
10	500139	01-181-487	Plate, air intake valve	1
11	500143	01-220-884-1	Copper gasket	3
12	500142	01-220-884	Screw, socket head cap; 6-32 X 1"	3
13	500104	01-157-872	Washer, valve	1
14	500105	01-178-780	Spring	1
15	500106	01-215-947	Shaft, piston	1
16	500113	01-180-166	Cotter Pin Dia. 2 X 16	1
17	500112	01-178-923	Pin, headed, straight	1
18*	500110	01-172-585	Packing, v-block (NBR)	1
19	500109	01-215-946	Base, air motor	1
20	500134	01-990-005	Fitting, air line	1
21	500133	01-990-001	Needle valve assembly	1
22	500108	01-104-582	Screw M5x10	1
23	500107	01-104-029	Lug, grounding	1
24	500111	01-178-490	Muffler	1
25	700055	01-220-168	Air valve & piston assembly	1

*Supplied in the repair kit 01-214-584 (New P/N 601005). See the kit in section 5.0.

4.2 Parts drawing for Fluid Section of Carbon Steel Drum Pump (IP01)

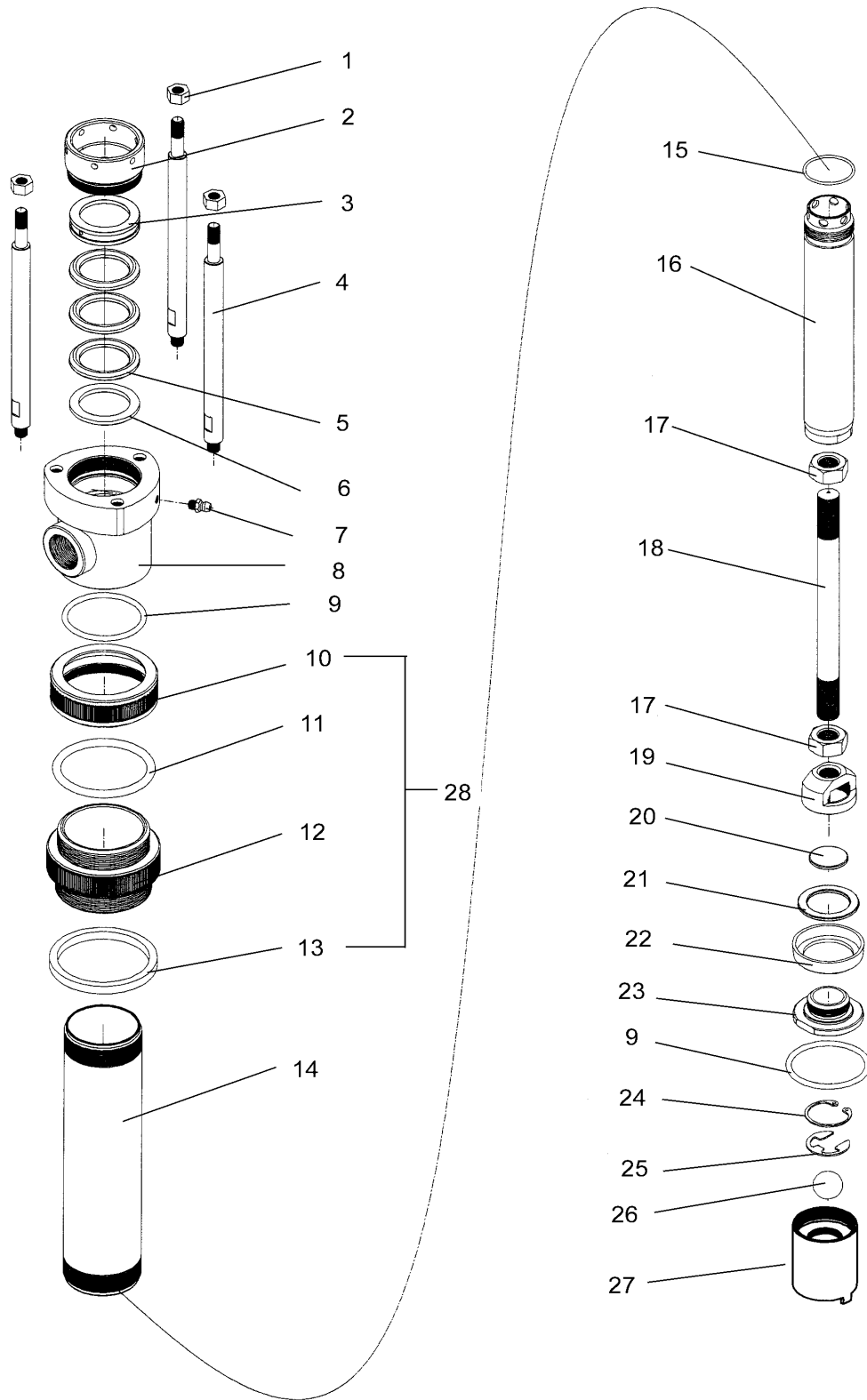


4.1 Parts list for Fluid Section of Carbon Steel Drum Pump (IP01)

Ref No.	New Part Number	Old Part Number	Description	QTY
1	500115	01-104-541	Nut, lock, M8	3
2	500117	01-177-152	Nut, packing	1
3*	500118	01-178-543CS	Gland, female	1
4	500116	01-177-171	Tie rod	3
5*	500119	01-177-164	V-packing (Polyethylene)	3
6*	500120	01-172-385CS	Gland, male	1
7	500122	01-101-281	Fitting, grease	1
8	500121	01-178-542	Housing, outlet	1
9	500124	01-104-537	O-Ring (PTFE)	2
10	500146	01-217-359-B	Cap, bung adapter	1
11	500147	01-217-359-D	O-Ring	1
12	500145	01-217-359-A	Adapter, bung	1
13	500053	01-217-359-C	Gasket	1
14	500128	01-172-416	Cylinder, 55 Gallon	1
15	500114	01-177-156	O-Ring (Viton)	1
16	500123	01-217-189	Rod, displacement	1
17	500125	01-105-775	Nut, hex	2
18	500126	01-177-150	Rod, connecting	1
19	500129	01-177-168	Housing, valve, piston	1
20	500130	01-177-155	Valve, piston	1
21	500131	01-172-393CS	Washer (C/Steel)	1
22*	500132	01-177-159	Cup, piston (Polyethylene)	1
23	500127	01-177-151	Piston, pump	1
24	500193	OP601-1-4X	Snap Ring	1
25	500192	OP601-1-3X	E-clip	1
26	500269	02-101-917	S/Steel Ball	1
27	500196	01-990-006X	Foot Valve	1
28	700015	01-217-359	Bung adapter Assembly	1
N/A	810101	01-226-941	IP01 Pump	1

* Supplied in the repair kit 01-215-964 (new P/N 601006). See the kit in section 5.0.

4.3 Parts drawing for Fluid Section (C/Steel Stubby Pump) IP01S

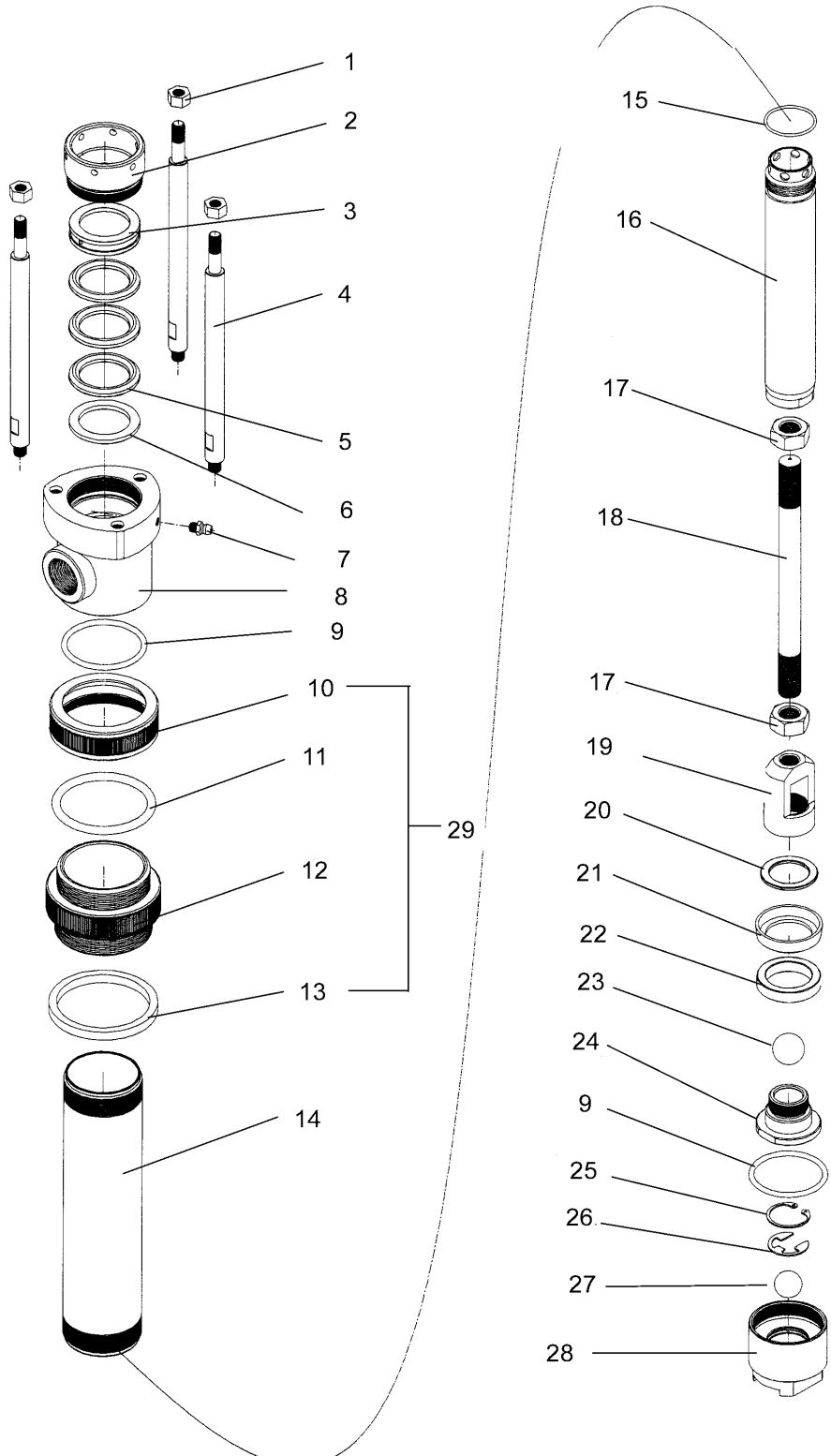


4.3 Parts list for Fluid Section (C/Steel Stubby Pump) IP01S

Ref No.	New Part Number	Old Part Number	Description	QTY
1	500115	01-104-541	Nut, lock, M8	3
2	500117	01-177-152	Nut, packing	1
3*	500118	01-178-543CS	Gland, female	1
4	500116	01-177-171	Tie rod	3
5*	500119	01-177-164	V-packing (Polyethylene)	3
6*	500120	01-172-385CS	Gland, male	1
7	500122	01-101-281	Fitting, grease	1
8	500121	01-178-542	Housing, outlet	1
9	500124	01-104-537	O-Ring	2
10	500146	01-217-359-B	Cap, bung adapter	1
11	500147	01-217-359-D	O-Ring	1
12	500145	01-217-359-A	Adapter, bung	1
13	500053	01-217-359-C	Gasket	1
14	500150	01-177-165	Cylinder, 5 Gallon Pail	1
15	500114	01-177-156	O-Ring	1
16	500123	01-217-189	Rod, displacement	1
17	500125	01-105-775	Nut, hex	2
18	500151	01-177-160	Rod, connecting	1
19	500129	01-177-168	Housing, valve, piston	1
20	500130	01-177-155	Valve, piston	1
21	500131	01-172-393CS	Washer (C/Steel)	1
22*	500132	01-177-159	Cup, piston	1
23	500127	01-177-151	Piston pump	1
24	500193	OP601-1-4X	Snap Ring	1
25	500192	OP601-1-3X	E-clip	1
26	500269	02-101-917	S/Steel Ball	1
27	500198	01-217-102X	Foot Valve	1
28	700015	01-217-359	Bung adapter Assembly	1
N/A	810102	01-226-944	IP01S Pump	1

* Supplied in the repair kit 01-215-964 (new P/N 601006). See the kit in section 5.0.

4.4 Parts drawing for Fluid Section (IP01SST) Stainless Drum Length

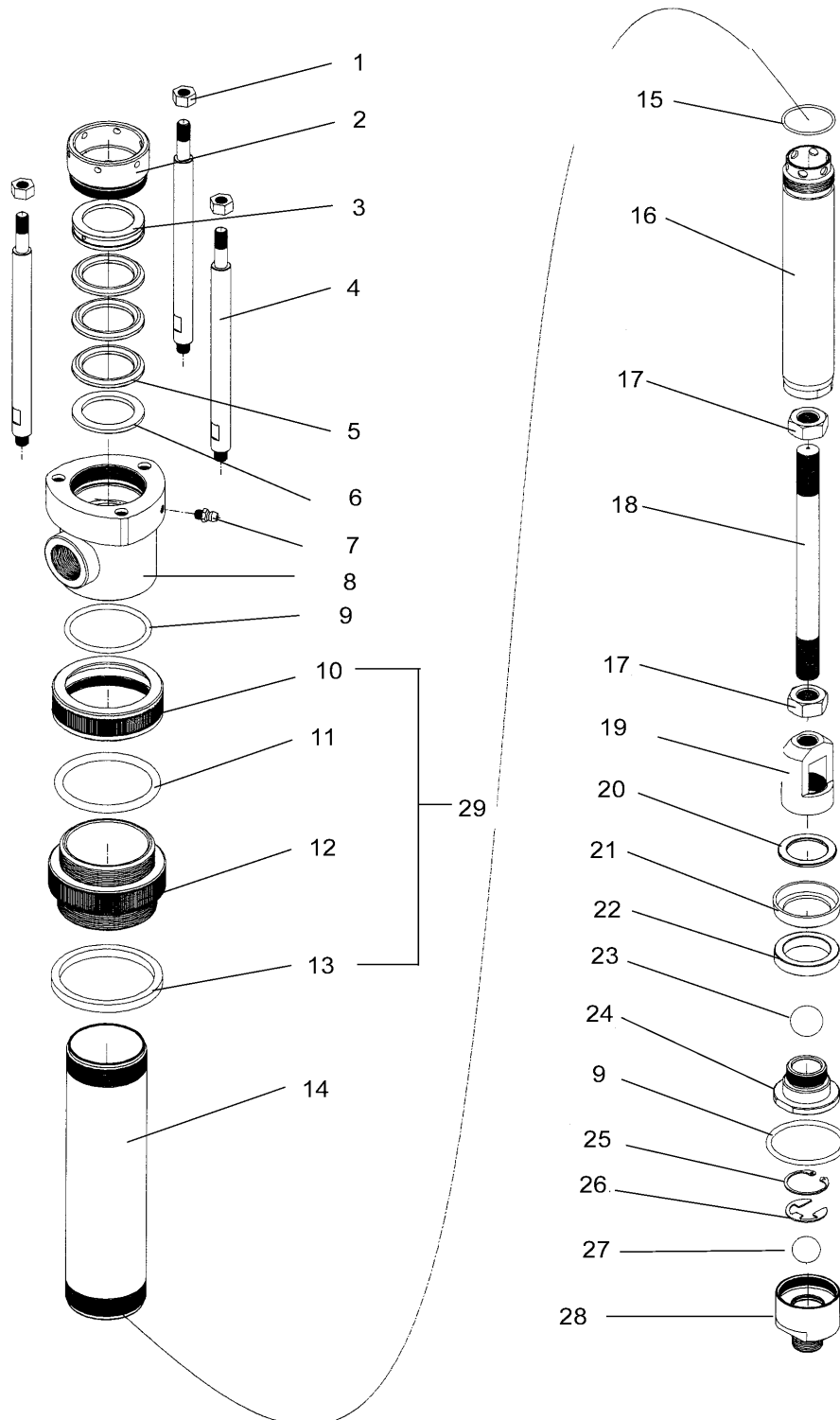


4.4 Parts list for Fluid Section (IP01SST) Stainless Drum Length

Ref No.	New Part Number	Old Part No.	Description	QTY
1	500115	01-104-541	Nut, lock, M8	3
2	500152	01-180-049	Nut, packing	1
3*	500153	01-178-543	Gland, female (S/S)	1
4	500163	01-177-170	Tie rod	3
5*	500119	01-177-164	V-packing (Polyethylene)	3
6*	500154	01-172-385	Gland, male	1
7	500122	01-101-281	Fitting, grease	1
8	500121	01-178-542	Housing, outlet	1
9	500124	01-104-537	O-Ring	2
10	500146	01-217-359-B	Cap, bung adapter	1
11	500147	01-217-359-D	O-Ring	1
12	500145	01-217-359-A	Adapter, bung	1
13	500053	01-217-359-C	Gasket	1
14	500159	01-178-863	Cylinder, 55 Gallon	1
15	500114	01-177-156	O-Ring (Viton)	1
16	500155	01-217-211	Rod, displacement	1
17	500156	01-105-776	Nut, hex	2
18	500157	01-177-149	Rod, connecting	1
19	500160	01-177-175	Housing, valve, piston	1
20	500161	01-172-393	Washer (S/S)	1
21*	500132	01-177-159	Cup, piston	1
22	500164	01-172-391	Spacer, piston	1
23	500269	02-101-917	Ball, S/S Piston	1
24	500158	01-172-495	Piston, pump	1
25	500193	OP601-1-4X	Snap Ring	1
26	500192	OP601-1-3X	E-clip	1
27	500269	02-101-917	S/Steel Ball	1
28	500197	01-990-007X	Foot Valve	1
29	700015	01-217-359	Bung adapter Assembly	1
N/A	810103	01-226-942	IP01SST Pump	1

*Supplied in the repair kit 01-215-964 (new P/N 601006). See the kit in section 5.0.

4.5 Parts drawing for Fluid Section (IP01S-SST) Stainless Steel Stubby Pump



4.5 Parts list for Fluid Section (IP01S-SST) Stainless Steel Stubby Pump

Ref No.	New Part Number	Old Part No.	Description	QTY
1	500115	01-104-541	Nut, lock, M8	3
2	500152	01-180-049	Nut, packing	1
3*	500153	01-178-543	Gland, female	1
4	500163	01-177-170	Tie rod	3
5*	500119	01-177-164	V-packing	3
6*	500154	01-172-385	Gland, male	1
7	500122	01-101-281	Fitting, grease	1
8	500121	01-178-542	Housing, outlet	1
9	500124	01-104-537	O-Ring	2
10	500146	01-217-359-B	Cap, bung adapter	1
11	500147	01-217-359-D	O-Ring	1
12	500145	01-217-359-A	Adapter, bung	1
13	500053	01-217-359-C	Gasket	1
14	500166	01-172-494	Cylinder, 5 Gallon Pail	1
15	500114	01-177-156	O-Ring (Viton)	1
16	500155	01-217-211	Rod, displacement	1
17	500156	01-105-776	Nut, hex	2
18	500165	01-990-008	Rod, connecting	1
19	500160	01-177-175	Housing, valve, piston	1
20	500161	01-172-393	Washer (S/S)	1
21*	500132	01-177-159	Cup, piston	1
22	500164	01-172-391	Spacer, piston	1
23	500269	02-101-917	Ball, S/S Piston	1
24	500158	01-172-495	Piston, pump	1
25	500193	OP601-1-4X	Snap Ring	1
26	500192	OP601-1-3X	E-clip	1
27	500269	02-101-917	S/Steel Ball	1
28	500188	01-990-049X	Foot Valve	1
29	700015	01-217-359	Bung adapter Assembly	1
N/A	810104	01-226-945	IP01S-SST Pump	1

* Supplied in the repair kit 01-215-964 (new P/N 601006). See the kit in section 5.0.

5.0 REPAIR KITS

IP01 FLUID SECTION REPAIR KITS

IP01 UHMW Repair Kit

New P/N	Old P/N	Description	Qty
601006	01-215-964	Fluid Section Repair Kit	N/A
Individual Kit Components			
500153	01-178-543	Gland Female	1
500119	01-177-164	V- packing	3
500154	01-172-385	Gland Male	1
500132	01-177-159	Cup, Piston	1

IP01 Teflon Repair Kit

New P/N	Old P/N	Description	Qty
601004	01-213-013	Fluid Section Repair Kit	N/A
Individual Kit Components			
500118	01-178-543CS	Gland Female	1
500180	01-172-487	V- packing	3
500120	01-172-385CS	Gland Male	1
500181	01-172-489	Cup, Piston	1

IP01 AIR MOTOR REPAIR KITS

IP01 Standard Air Motor Repair Kit

New P/N	Old P/N	Description	Qty
601005	01-214-584	Air Motor Repair Kit	N/A
500101	01-172-404	Gasket	2
500141	01-108-357	O-Ring	1
500144	01-108-358	O-Ring	3
500110	01-172-585	Packing, V-Block	1

IP01 EPR to Polypropylene Conversion Kit

New P/N	Old P/N	Description	Qty
601007	01-221-038	Conversion Kit	N/A
500185	01-108-876	O-Ring	1
500186	01-108-877	O-Ring	3

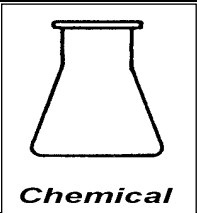
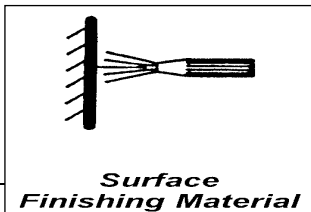
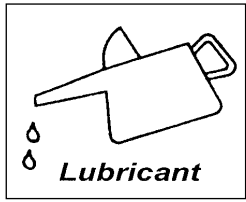
6.0 TROUBLE SHOOTING

Problem	Cause	Recommended Solutions
Pump does not move.	*Air Motor stalled	*Remove and then reattach the quick disconnect fitting in an effort to "re-boot" the air motor.
	*Fluid section seized	*Make sure pump has no air or liquid pressure. Remove air cylinder and cap from air motor. See if piston rod can move up/down or turn. If yes, check for full stroke ability. If piston rod does not move at all, you are seized in the fluid section.
	*Low air supply	A) Increase air supply with air regulator B) Open air needle valve C) Close bleed valve
Air leaks along piston shaft.	*Worn packing. Reference number 5 in fluid section.	*Replace packing; reference #5 (fluid section).
Air leaks from piston shaft holes.	*Contamination by debris in the air motor piston.	*Check o-ring (ref #9), replace if necessary, and then check the rubber seal (ref #5) to see if it has come apart from the air exhaust valve plate.
Slow operations (Air Motor)	*Icing of the air motor *Clogged muffler	*Allow ice built up on the air motor to thaw. *Clean or replace the muffler; reference number 25 in the air motor section.
Low output both stokes	*Restricted fluid hoses *Bad fluid seal in the foot valve (reference #27) or defective piston cup.	*Clean, clear or replace hoses. *Replace ball (reference number 26) and/or piston cup, reference number 22 (fluid sections).
Low output on up stroke	*Bad or damaged piston cup	*Replace piston cup, reference number 22 in the fluid sections.
Low output on down stroke	*Bad or damaged foot valve or ball.	*Replace foot valve ball (reference number 26) in the fluid sections.
Leaking fluid through the packing at Air Motor base (fluid section #8)	*Packing damaged or not seated properly. *Packing nut (reference #2) too loose. *Scored or scratched displacement rod (reference #16)	*Replace packing; reference #5 (fluid section). *Tighten packing nut *Replace displacement rod.
Abnormal or rapid operation.	*Low or no fluid supply. *Broken spring(s) in air motor.	*Replenish fluid supply, and re-prime the pump. *Replace springs (Ref. No.'s 3 & 14) in the air motor.
Jerky movement of the pump	*Packing nut (reference #2 in the fluid section) too tight.	*Stop pump operation. Relieve fluid pressure with the drain valve. Loosen packing nut (#2) and re-tighten snugly.

Warning: The fluid section reference numbers will not correspond identically with all pumps. Make sure the pump you are using matches the drawing you are looking at. The reference numbers are based on the IP01 series pump and are intended as a guide only.

7.0 TECHNICAL SPECIFICATIONS

(A) Recommended Application Chart

Industry	Application	Viscosity Range(CPS)
 Chemical	Alcohol	0-100
	Dye	0-1000
	Methyl Chloride	0-200
	Solvents	0-500
 Surface Finishing Material	Paint(Latex)	100-1000
	Paint(Oil base)	100-800
	Sealer(Wood)	100-800
	Stain(Oil base)	100-1000
 Lubricant	Anti-Freeze	30-100
	Die Lubricant	30-50
	Gear Oil	200-1000
	Lubricant	100-1500
	Mold Release Agent	30-100
	Oil	100-500

(B) Technical Specifications

Fluid to Air Pressure ratio.....	1 : 1
Maximum Flow.....	4 G.P.M. (15 l/pm)
Maximum Output Fluid Pressure.....	180 P.S.I. (12bar)
Air Input Pressure Range.....	30 –180 P.S.I. (2 - 12 bar)
Air Inlet Size.....	1/4” NPT(f)
Fluid Inlet Size.....	3/4” NPT(m)
Fluid Outlet Size	3/4” NPT(f)
Weight: Drum Length.....	18 lbs (8.2 kg)
Stubby.....	12 lbs (5.5 Kg)
Packing.....	Teflon [®] , UHMWP
Other seals.....	Viton [®]
Rod and Cylinder.....	See parts list for pump details.
Other wetted parts.....	See parts list for pump details.

IP-01

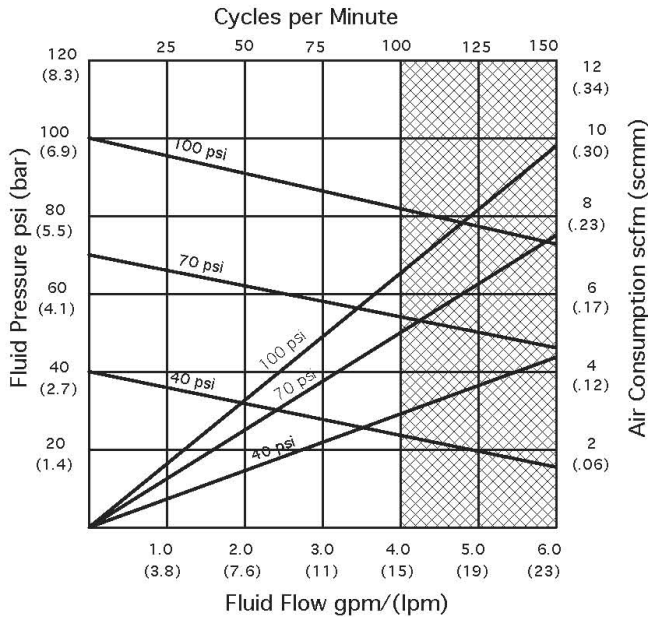
Air Operated Fluid Pump



Technical Specifications

Fluid Ratio..... 1:1
 Max. Output Flow (intermittent).....6.0 gpm (23.0 lpm)
 Max. Output Flow (continuous).....4.0 gpm (15.0 lpm)
 Maximum Output Pressure.....180 psi (12.4 bar)
 Maximum Air Input Pressure.....180 psi (12.4 bar)
 Air Inlet Port.....1/4 npt(f)
 Fluid Outlet Port.....3/4 npt(f)
 Fluid Inlet Port.....1 1/2 npt (f)
 Rod & Piston Packings.....Teflon®
 Other Seals.....Viton®
 Rod & Cylinder.....Carbon Steel or Stainless Steel
 Other Wetted Parts.....Carbon Steel or Stainless Steel
 Weight stubby/drum.....11 lbs. (4.9 Kg.)/14.3 lbs. (6.5 Kg.)
 Package Dimensions & Weight:
 IP-01...4"x4"x54" (102mm x 102mm x 137cm) 22 lbs. (10 Kg.)
 IP-01S...4"x4"x35" (102mm x 102mm x 89mm) 16 lbs. (7.26 Kg.)

Performance



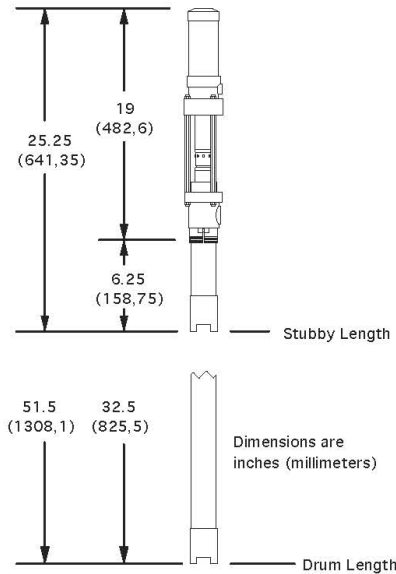
Model Numbers

Bare Stubby: IP-01S
 Bare Drum: IP-01, IP-01 SST
 Bung Adapter*: 01-217-359

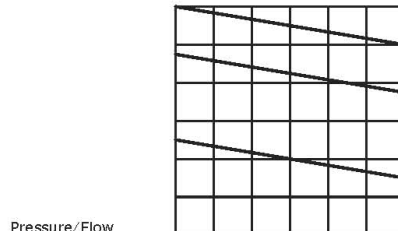
*One supplied with pump. Adapters have internal seal to allow nitrogen blanket or prevent moisture contamination.

IFP 102 06/08

Dimensions

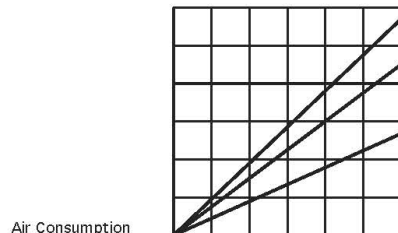


How to Read Performance



Pressure/Flow

1. Locate required flow along bottom edge of chart.
2. Follow vertically to bold line for input air pressure.
3. Follow horizontally to left edge of chart to read maximum available fluid pressure.



Air Consumption

1. Locate fluid flow along bottom edge of chart.
2. Follow vertically to bold line for input air pressure.
3. Follow horizontally to right edge of chart to read air consumption.

100 Series 1:1

Air Operated Fluid Pump



IPM's IP-01 series of pumps are general purpose transfer pumps designed for use with a wide variety of materials. The air driven motor is designed with simplicity in mind for years of use in less than desirable conditions.



- Carbon Steel or stainless steel construction for economy and durability
- UHMW PE packings and Viton seals for material compatibility.
- Standard 4/GPM output rate.

Piston style air motor allows a compact pump design; best suited for use as a drum transfer pump.

Metal air motor and fluid housings provide more durable port threads; resistant to cross-threading.

Modular two-piece construction allows fast service without the need to disassemble the entire pump assembly.

In-the-drum pump tube places the pumping chamber below the material level resulting in better suction characteristics, and more complete pump filling.

Ball check style foot valve provides superior operation especially with abrasive or contaminated materials while delivering long life and higher pressure operation.

Typical Fluids Handled

- *Polyureas
- *Polyols
- *Enamels
- *Waterbornes
- *Acid catalyzed finishes

Typical Applications

- *Aerospace
- *Wood furniture
- *Automotive
- *Transportation
- *Petro-chemical

International Pump Manufacturing
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Sumner, WA. 98390

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8.0 Warranty and Disclaimer

WARRANTY

International Pump Manufacturing, Inc. (IPM) warrants the equipment it manufactures to be free of defects in material and workmanship for a period of one year from the day of sale by an authorized IPM distributor to the original purchaser. IPM will at its discretion repair or replace any part of the equipment proven to be defective. This warranty applies only when the equipment is used for the intended purpose and has been installed, operated and maintained in accordance with the written recommendations.

A condition of the warranty is the prepaid return of the equipment to an authorized distributor of IPM who shall provide verification of the warranty claim. IPM will repair or replace, free of charge any parts found and verified to be defective. Transportation will be prepaid for the repaired or replaced parts under warranty. Should the inspection of the equipment not reveal any defect in material or workmanship, repairs will be made at standard charges, which include parts, labor and transportation.

The warranty does not apply or nor will IPM be liable for damage, wear, or malfunction of equipment caused by improper installation, misuse, abrasion, corrosion, negligence, accident, tampering, lack of improper maintenance, or by substitution of non-IPM parts. Additionally IPM shall not be liable for and the warranty does not apply to wear, damage, or malfunction caused by incompatibility of accessories, components, structures, equipment or materials not supplied by IPM. The warranty does not apply to nor will IPM be responsible for the improper operation, maintenance, design, manufacture, installation of components, accessories, equipment or structures not supplied by IPM.

The warranty is void unless the Warranty Registration Card is properly completed and returned to International Pump, Inc. within ONE month of the date of the sale.

LIMITATIONS AND DISCLAIMERS

This warranty is the sole and exclusive remedy for the purchaser. No other warranties (expressed or implied), including warranties for fitness of purpose or merchantability, or non-contractual liabilities are made, including product liability, whether on negligence or strict liability basis. Liability for directly special or non-contractual damages or loss is expressly excluded and denied. IPM's liability shall in no case exceed the amount of the purchase price.

IPM does not warrant and disclaims implied warranties of merchantability and fitness for a particular purpose, components, accessories, equipment, materials sold but not manufactured by IPM. These items (switches, hoses, etc.) are subject to the provisions of the warranty of the manufacturer of these items. IPM will provide reasonable assistance with warranty claims on these items.



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