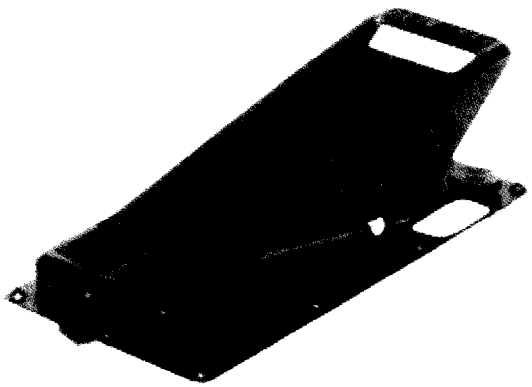
10,000 psi

Air Hydraulic Pump



ASSEMBLY & OPERATION INSTRUCTIONS

SAVE THESE INSTRUCTIONS. For your safety and the safety of others around you, read carefully before attempting to install, assemble, service or use this air hydraulic pump. Observe all safety and warning information. Failure to comply with the information contained within could result in severe, even fatal injury and/or property damage.

GENERAL DESCRIPTION

The air hydraulic pumps can deliver hydraulic fluid pressure up to 10,000 PSI. It consists of an in-line air and hydraulic cylinder. It has an operating pressure of 10,000 PSI at 125 PSI air inlet pressure. It is suited for plant maintenance, fabrication, bolting, vehicle repair and any task that requires hydraulic pressure from air input.

Specifications

Hydraulic Capacity	10,000 PSI (700 Bar)
Air Operating Pressure	25 – 145 PSI (1.7 – 10 Bar)
Hydraulic Outlet	3/8" -18 NPT (female)
Air Inlet	Rc 1/4" -19 (female)
Oil Tank Capacity	2.5 L (150 cu. In)
Oil Capacity Useable	2.1 L (128 cu.in)
Oil Flow at 10,000 PSI	0.11L/min (7 cu.in / min.)
Oil Flow at 100 PSI	0.8L / min (48.8 cu.in /min.)
Operating Noise	70 dBA
Air Consumption at 100 PSI	340 L / min. at 10,000 PSI

Technical Features

1. Heavy-duty aluminum reservoir for durability and light in weight.
2. Equipped with muffler to reduce working noise and operator fatigue
3. Three position treadle easily provides pressure, hold and release operation
4. Internal pressure relief valve provides overload protection

⚡ WARNING!

It is the responsibility of the owner and / or operator to read this instruction manual carefully before using your air hydraulic pump. Proper use and care of the air/hydraulic pumps will help assure you of continuous, safe, trouble free performance. Failure to follow any of these instructions may result in property damage or personal injury.

When using pneumatic equipment, basic safety precaution should always be followed to reduce the risk of personal injury and hazards due to over pressurization.

READ ALL INSTRUCTIONS BEFORE USING THIS TOOL.

Safety Warnings

1. To prevent personal injury, always taking proper protective wear when operating hydraulic equipment.

2. Pump reservoir must be vented. Failure to do so may cause the rapid formation of vapor pockets, which can damage the pump.

3. All hoses and components used with these pumps must have a working pressure rating higher than or equal to the maximum pressure rating of the pump

4. Before using, make sure that all the hoses and components are properly connected in accordance with this instruction.

5. Only properly trained workers can use this Air Hydraulic Pumps.

6. Do not operate with pressure over 145 PSI, which may cause damage and void warranty.

7. When transfer the pump or in any vertical position, be sure to fasten the fill screw.

8. Do not use if you detect structure failure during use.

9. Do not use if any component is found missing or damaged.

10. The air / hydraulic pump is capable of generating fluid pressure up to 10,000 PSI. Make certain the tool in use is held securely and is in proper working condition. Do not continue to operate the pump once the work is completed.

11. Stay clear of loads supported by hydraulics. A cylinder, when used as a load lifting device, should never be used as a load holding device. After the load has been raised or lowered, it must always be blocked mechanically.

12. To avoid personal injury keep hands and feet away from cylinder and work-piece during operation.

13. Use only rigid pieces to hold loads. Carefully select steel or wood blocks that are capable of supporting the load. Never use hydraulic cylinder as a shim or spacer in any lifting or pressing application.

14. Do not exceed equipment ratings. Never attempt to lift a load weighing more than the capacity of the cylinder. Overloading causes equipment failure and possible personal injury. The cylinders are designed for a max. pressure of 700 bar (10, 000 PSI).

15. Never set the relief valve to a higher pressure that the maximum rated pressure of the pump. Higher settings may result in equipment damage and / or personal injury.

16. The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure.

17. Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.

18. Do not drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.

19. Do not lift hydraulic equipment by the hose or swivel couplers. Use the carrying handle or other means of safe transport.

20. Keep Hydraulic equipment away from flames and heat. Excessive heat will soften packings and seals, resulting in fluid leaks, Heat also weakens hose materials and packings, For optimum performance do not expose equipment to temperature of 65^0 C (150^0 F) or higher, Protect hose and cylinders from weld spatter.

21. Do not handle pressured hoses. Escaping oil under pressure can penetrate the skin, causing serious injury, If oil is injected under the skin, see a doctor immediately.

22. Only use hydraulic cylinders in a coupled system, Never use a cylinder with unconnected couplers. If the cylinder becomes extremely overloaded, components can fail catastrophically causing server personal injury.

23. Hydraulic equipment must be only be serviced by a qualified hydraulic technician. To protect your warranty, use only high-grade oil.

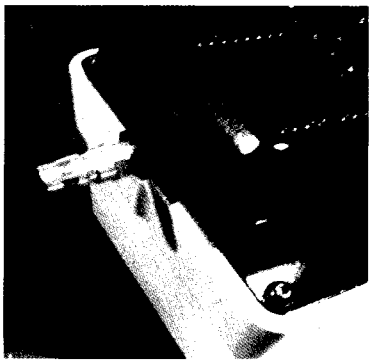
24. Immediately replace worn or damaged parts .

Installation

Before installation, check all the items with the packing list provided to make sure that no parts are missing. Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

1. **AIR SUPPLY**. Pump operate with 25 -145 PSI air and a minimum of 340L/min, air pressure is required to obtain 68.9Mpa hydraulic pressure. A regulator / filter / lubricator should be installed upstream from pump to provide clean, lubricated air and allow for air pressure adjustment.

2. **AIR CONNECTIONS**. Attach air supply to the Rc 1/4"- 19 connection on the end of the pump. Use Teflon tape or similar thread sealant. Torque to 20-25 ft.lbs. (27 – 34 Nm).



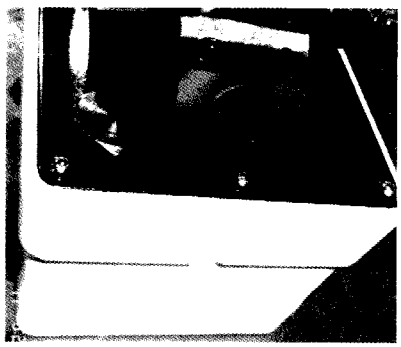
⚠ CAUTION

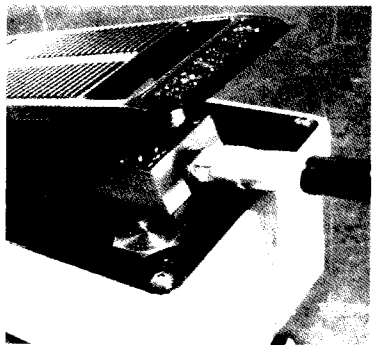
Do not operate with air pressure above 1.0Mpa or damage may occur which could void your warranty

4. **HYDRAULIC CONNECTIONS.**

Thread hose into outlet port of pump. Use 1-1/2 wraps of Teflon tape the NPT hose fittings only, leaving the first complete thread free of tape to ensure that pieces of tape do not break off and enter the system. Torque hose fittings to 65 – 75 ft lbs (88 -102 Nm). The outlet port is located on the opposite of pump from the air inlet connection. Valve block or treadle should be restrained when torquing fittings. The reservoir base should not be

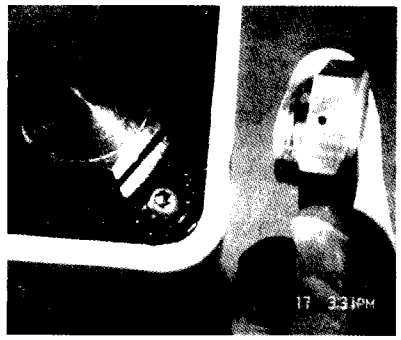
bolted down or restrained to compensate for the fittings installation torque.





5. **VENTING**. This pump must always be vented prior to use.

a) **VENT SCREW**. The vent screw should be screwed on to vent the reservoir when the pump is operated in the horizontal position. It is located near the hydraulic outlet port on the top of the reservoir. To use this screw, take off the Fill Screw (in Black) and screwed Vent Screw (in Brass)on. The vent screw can NOT be used when this pump is mounted vertically! When mounting in the vertical position or for shipping purpose, use the fill screw. See picture below.



b) **FILL SCREW**. The fill screw is located on the same position of the vent screw. This screw servers only for shipping. To use as a fill port, remove the vent/fill screw from the reservoir. Oil level should be to bottom of port.

⚡ CAUTION !!

When the pump in the vertical position, the fill screw must be screwed fast.

6. **OIL LEVEL**. Always check oil level with all cylinders or tools in the fully retracted position. If they are advanced when the pump is filled, the reservoir will be over-filled when they are retracted.

Operation

1. **OIL LEVEL**. Check the oil level of pump and add oil if necessary

2. **VENTING PUMP**. Make sure the pump reservoir is vented

3. **TREADLE OPERATION**.

   a) TO ADAVNCE CYLINDER. Depress the "PRESSURE" end of treadle and the pump will start to pump hydraulic oil to the system.

   b) TO HOLD THE CYLINDER POSITION. The pump will stop and hold pressure when the treadle is in the free/neutral position (treadle is not depressed in either "PRESSURE" or "RELEASE" positions.

   c) TO RETRACT CYLINDER. Depress the "RELEASE" end of the treadle to retract cylinder. To stop the cylinder from retracting, release the treadle and return it to the holding position.

⚠ NOTE

To prolong the using life of pump and cylinder, DO NOT continue to operate the pump after the cylinder is fully extended or retracted.

4. **PRIMING**. Priming of the hydraulic pump is normally not required. If, however, the pump is run completely out of oil, it will be necessary to proceed with the following steps:

   a) If the pump is mounted vertically, remove and place it on the horizontal surface.
   b) Fill pump with hydraulic oil.
   c) Set air pressure to 0.21— 0.275 Mpa.
   d) While holding treadle in the retractile position, press the air button located just above the air inlet swivel connector, then run the pump momentarily several times.
   e) To verify that the pump is primed, operate as normal with cylinder attached. If cylinder does not advance, repeat step 4 (d)

5. **PRESSURE ADJUSTMENT**.

To obtain less than maximum hydraulic pressure, either install adjustable relief valve in the system or limit the inlet air pressure. When limiting the inlet air pressure, pump will also down and stall as the hydraulic pressure increases. To obtain a stall-out pressure, lower the inlet air pressure until the pump stalls below the desired hydraulic pressure, and increase the air pressure until the desired hydraulic pressure is reached. Repeat

pump operation to verify the stall-out pressure.

⚠ NOTE

These pumps were not designed for stall to restart applications. The seals on the pump will not ensure the pressure drop accuracy required for effective stall to restart operation.

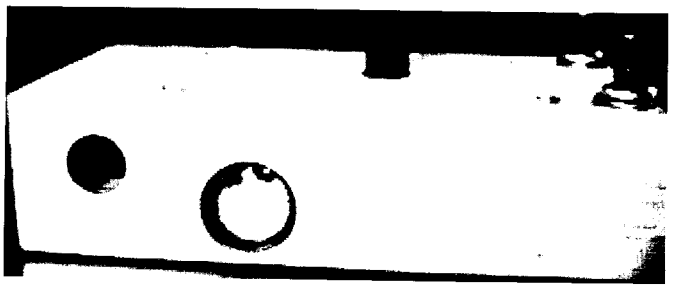
Maintenance

1. **MAINTAINING PROPER OIL LEVEL.**

Check the oil level of the pump prior to start-up, and add hydraulic oil, if necessary, by removing the vent/fill screw ,

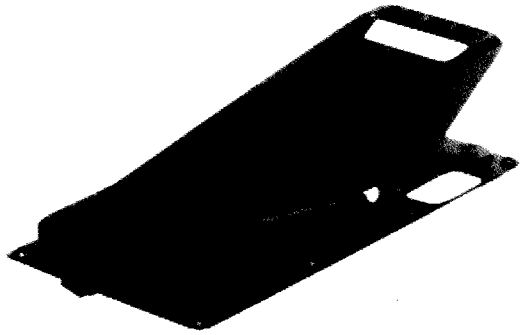
2. **CLAENING THE MUFFLER.**

Clean the muffler every , or more frequency if pump is used in dirty environment. To expose the muffler, remove 2 screws holding down muffler plate. Wash muffler element in soap water, dry, and reassemble, installing screws hand tight.



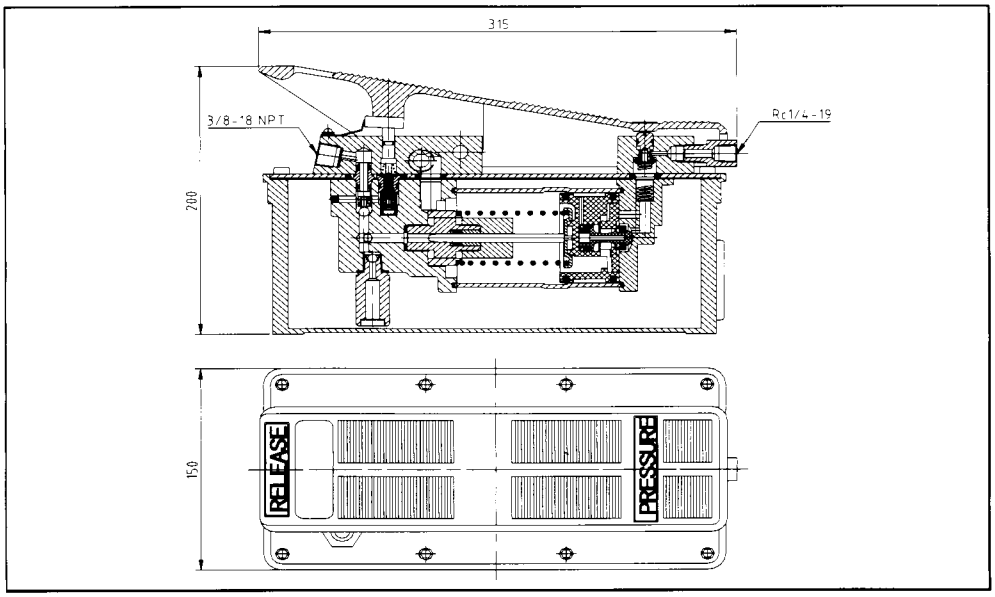
3. **CHANGING THE OIL.**

Change the oil every The vent/fill plug serves as a drain plug used for changing oil. Refill pump with hydraulic oil. Dispose of used oil properly.

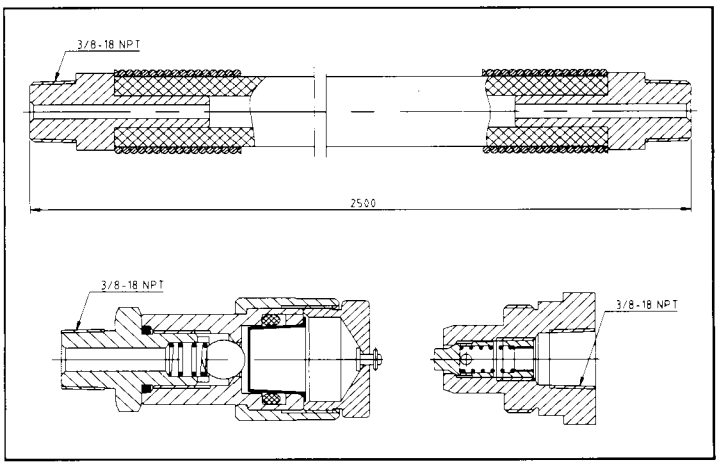


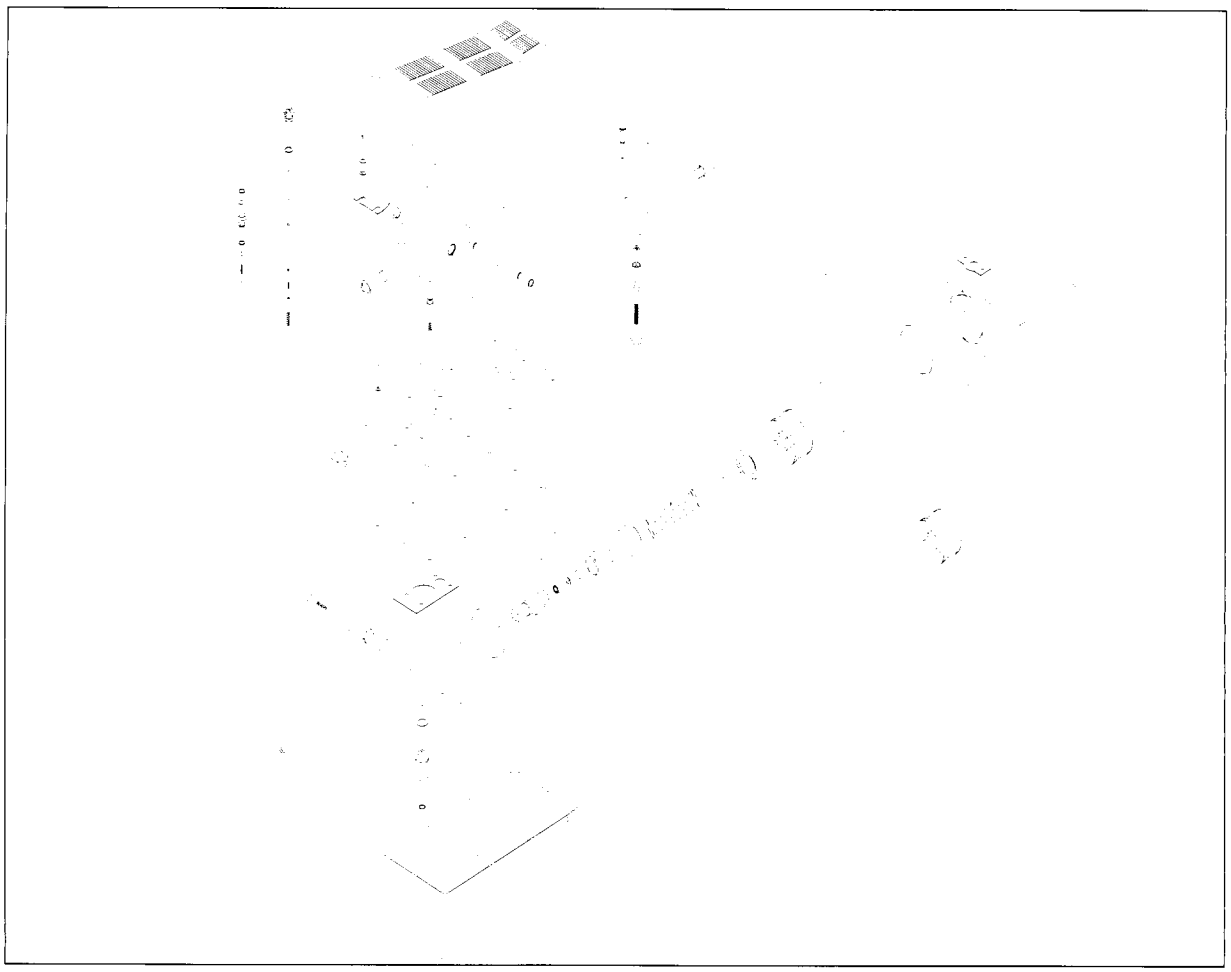
Air Disconnect Nipple: Rc 1/4" -19

Hydraulic Output Port : 3/8" – 18 NPT Female



Optional Hydraulic Coupler as follows:





Item No.	Description	Quantity
01 *	O Ring	2
02 *	Backup Ring	2
03	Oil Outlet Screw	1
04	Spring	1
05	Steel Ball	1
06	Oil Feedback Screw	1
07 *	Backup Ring	1
08 *	O Ring	1
09	Dowel Pin	1
10	Oil Feedback valve	1
11	Steel Ball	1
12	Steel Ball Base	1
13	Spring	1
14	Allen Screw	1
15	Spring	1
16	Foot Pedal	1

17	Allen Bolt Screw	2
18	Spring Washer	2
19	Washer	2
20	Spring Clip	1
21	Retaining Block	1
22	Actuator Button	1
23 *	O-Ring	1
24	Allen Bolt Screw	6
25	Air Inlet Fitting	1
26	Intake Air Valve Body	1
27 *	Seal Washer	1
28	Air Valve Poppet	1
29	Allen Bolt Screw	1
30	Spring	1
31 *	O-Ring	2
32	Retaining Ring	2
33	Muffler	2
34	Release Valve Body	1
35	Oil Filtration Mesh	2
36	Retaining Ring	2
37 *	O-Ring	1
38	Release Valve Button	1
39	Pin	1
40	Snap-Ring	2
41	Cone Spring	1
42	Cap Screw	10
43	Copper Washer	10
44 *	O-Ring	1
45	Cover Plate	1
46	Screw	1
47	Washer	1
48	Seal Gasket	1
49	Pressure Setting Screw	1
50	Safety Spring	1
51	Release Valve Pin	1
52	Seal Gasket	1
53	Release Valve Screw	1
54	Seal Washer	3
55	Allen Bolt Fixing Screw	1
56	Steel Ball	2
57	End Black	1
58	Oil Intake Screw	1
59	Reservoir	1

60	Seal Gasket	1
61	Hex cylinder	1
62 *	U-Cap	1
63 *	Back-Up Ring	1
64	Brass Sleeve	1
65	Hex Bolt Nut	1
66	Spring Base	1
67	Spring	1
68	Plunger Ass'y	1
69	Piston Ass'y	1
69-1	Seal	2
69-2 *	Piston	1
70	Air Cylinder	1
71	Cylinder Cover	1
72	Seal Gasket	1
73	Allen Bolt Screw	4

Remarks: All parts marked * are easy wear components and are the recommended for service spare parts.

TROUBLE SHOOTING

Only qualified hydraulic technicians should service the pump or system components. A system failure may or may not be the result of a pump malfunction. To determine the cause of the problem, the complete system must be included in any diagnostic procedure. The following information is intended to be used only as an aid in determining if a problem exists. DO NOT disassemble the pump. For repair service, contact Authorized Service Centers in your area.

Symptoms	Probable Cause
1) Pump does not start	* Air supply turned off or air line blocked;
2) Pump does not reciprocate	* Air piston stuck. 1) Check cylinder bore of pump for contamination or lack of lubrication. 2) Piston poppet not sealing. Replace.
3) Air motor fails to build pressure	* External leak in system; * Internal leak in pump; * Internal leak in system component; * Low oil level
4) Pump reciprocates but no pressure	Check prime. Depress both air valve and hydraulic release valve at the same time.
5) Pump builds less than full pressure	* Check air supply, low air pressure; * Internal relief valve set low;

	* External system leak; * Inlet check ball not seating properly;
6) Pump will not hold system pressure	* Outlet check ball not sealing properly; * Release valve mechanism not sealing properly. Check pin, ball, release poppet and poppet retainer.
7) Pump build pressure, but the load does not move	* load greater than cylinder capacity at full pressure; * Flow to cylinder blocked;
8) Pump will not build maximum pressure. Visual sign of leakage through air exhaust muffler	* Check piston sub-assembly; Replace copper gasket and assemble in vertical position. Replace piston packing.
9) Cylinder will not return	Return flow or coupler restricted/ locked; No load on a " load return" cylinder; return spring broken on cylinder, Release valve malfunction;
10) Low oil flow rate	* Reservoir not vented; Inadequate air supply; Dirty air filter; Clogged inlet filter;