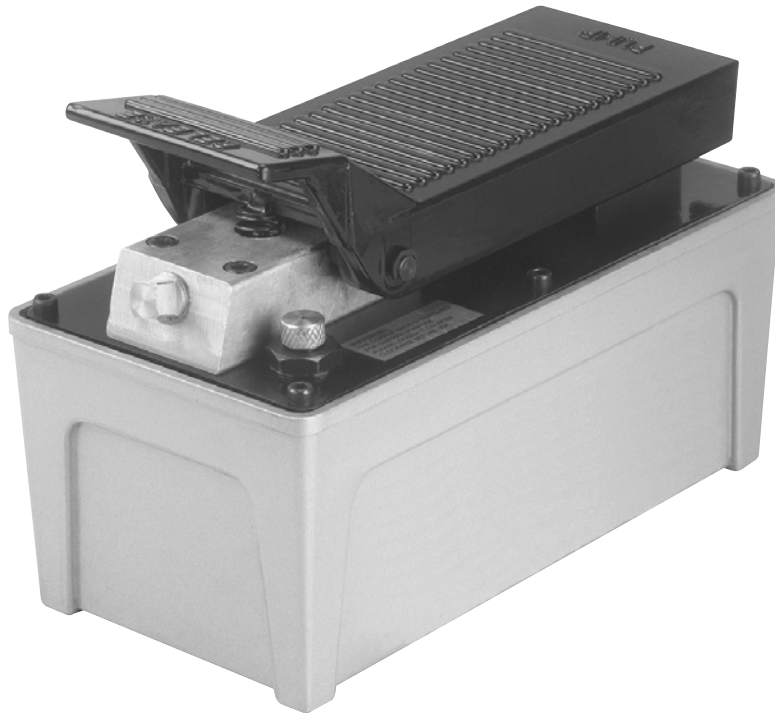




Air / Hydraulic Pump

Maximum Capacity: 690 bar (10,000 psi)



Description: The 2510A air/hydraulic pump is designed to have a maximum capacity of 690 bar (10,000 psi). It has a 2-stage release mechanism, internal relief valve, and 1606 CC (98 cu. in.) of useable oil. It pumps, holds, or releases a load with pedal control.

Explanation of Safety Signal Words

The safety signal word designates the degree or level of hazard seriousness.



DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Safety Precautions



WARNING : To prevent personal injury and equipment damage,



- Read, understand, and follow all safety precautions and operating instructions included with this pump. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator's native language. Only qualified operators should install, operate, adjust, maintain, clean, repair, or transport this equipment.



- Wear eye protection that meets ANSI Z87.1 and OSHA standards.
- Before operating the pump, tighten hose connections using the correct tools. Do not overtighten; connections should be secure and leak free. Overtightening connections may cause premature thread failure, or high pressure fittings to split at pressures lower than their rated capacities.



- Should a hydraulic hose ever rupture, burst, or need to be disconnected, **IMMEDIATELY SHUT OFF THE PUMP AND RELEASE ALL PRESSURE.** Never attempt to grasp a leaking, pressurized hose with your hands. The force of escaping hydraulic fluid could cause serious injury.

- Do not subject the hose to potential hazard, such as fire, sharp surfaces, extreme heat or cold, or heavy impact. Do not allow the hose to be altered, kinked, twisted, curled, crushed, cut, or bent so tightly that the fluid flow within the hose is blocked or reduced. Periodically inspect the hose for wear, because any of these conditions can damage the hose and result in personal injury.
- Do not use the hose to move attached equipment. Stress can damage the hose and cause personal injury.
- Hose material and coupler seals must be compatible with the hydraulic fluid used. Hoses must not come in contact with corrosive materials, such as creosote-impregnated objects and some paints. Consult the manufacturer before painting a hose. Hose deterioration due to corrosive materials can result in personal injury. Never paint couplers.
- Inspect the pump for wear, damage, and correct function before each use. Repair or replace parts as necessary. Replace worn or damaged safety decals.
- Modification of this pump requires written OTC authorization; contact OTC Technical Services.
- When assembling a system, use components having the same pressure rating as the pump. Do not exceed the hydraulic pressure rating noted on the pump data plate, or tamper with the internal high pressure relief valve. Creating pressure beyond the rating can result in personal injury.
- Before replenishing the fluid level, completely retract the system to prevent overfilling the pump reservoir. An overfill can cause personal injury due to excess reservoir pressure created when the cylinders are retracted.
- Shut off and disconnect the air supply when the pump is not in use, or before breaking any connections in the system.

Operating Instructions

Hydraulic Connections

1. **It is necessary to vent the pump before using it.** Loosen the oil fill knob by turning it counterclockwise. (The oil fill knob was installed and tightened to prevent the oil from leaking during shipment.)
2. Clean all the areas around the fluid ports of the pump and cylinder.
3. Inspect all threads and fittings for signs of wear or damage, and replace as needed.
4. Clean all hose ends, couplers, and union ends.
5. Remove the thread protector from the hydraulic fluid outlet. Connect the hose assembly to the hydraulic fluid outlet, and couple the hose to the cylinder.

Important: Seal external pipe connections with high-grade thread sealant.

Air Connections

1. Remove the thread protector from the air inlet of the pump. Install a threaded fitting that is compatible with your air supply fitting.
2. Connect shop air (with an air line filter installed) to the fitting, and regulate air supply pressure to between 6 bar (90 psi) and 9 bar (140 psi).

Priming the Pump

1. Press the **RELEASE** end of the pedal while holding down the air intake valve with a flathead screwdriver. (The air intake valve is located directly under the pedal in the area marked **PUMP**.)
2. Allow the pump to cycle for approximately 15 seconds.
3. Remove the screwdriver, and press the **PUMP** end of the pedal. If the cylinder extends and pressure builds, the pump has been successfully primed. If the pump does not respond, repeat steps 1–3, jogging the air intake valve while holding the pedal in the **RELEASE** position.

Operation

1. To extend the cylinder, press the end of the pedal marked **PUMP**.
2. To hold the cylinder in position, release the pedal.
3. To retract the cylinder, press the end of the pedal marked **RELEASE**.

Parts List & Operating Instructions

Preventive Maintenance



CAUTION: To prevent personal injury,

- Only qualified personnel shall perform inspections and repairs to this air/hydraulic pump.
- Use only those repair parts called out in the parts list in this document. Items found in the parts list have been carefully tested and selected by OTC.

Bleeding Air from the System

During the first moments of operation or after prolonged use, air may accumulate within the hydraulic system, causing the cylinder to respond slowly or in an unstable manner. To remove the air,

1. Position the cylinder at a lower level than the pump. (This allows air to be released through the pump reservoir.)
2. Run the system through several cycles of extending and retracting the cylinder, free of any load.

Lubrication

If the pump is operated on a continuous duty cycle for extended periods, the manufacturer recommends installing an automatic air line oiler in the air inlet line, as close to the pumping unit as possible. Set the unit to feed approximately one drop of oil (SAE No. 10) per minute into the system.

Inspecting the Hydraulic Fluid Level

Check the hydraulic fluid level after every 10 hours of use. The fluid level should be 19 mm (3/4 inch) from the filler / vent cap when the cylinder is retracted. Add OTC-approved hydraulic fluid—215 SSU@ 38°C (100°F), if necessary.

1. Retract the cylinder, and disconnect the air supply.
2. Clean the area around the filler/vent plug. Remove the filler/vent plug.
3. Insert a clean funnel with a filter. Add OTC-approved hydraulic fluid—215 SSU@ 38°C (100°F)—to a level 19 mm (3/4 inch) from the filler/vent plug.
4. Replace the filler/vent plug.

Draining and Flushing the Reservoir

Drain the reservoir after every 300 hours of use. Dispose of the fluid according to local, state, and federal laws.

1. Release pressure and disconnect the pump from other hydraulic system components (hose, cylinder, etc.). Clean the pump exterior of dirt and oil.
2. Remove the bolts that hold the pump assembly to the reservoir. Remove the pump assembly, being careful not to damage the gasket, filter, or safety valve.
3. Drain the reservoir of all fluid, and refill half-full using clean hydraulic fluid. Rinse the filter clean.
4. Place the pump assembly back onto the reservoir, and secure it using two of the bolts, assembled in opposite corners of the housing.
5. Press the **RELEASE** end of the pedal while holding down the air intake valve with a flathead screwdriver. (The air intake valve is located directly under the pedal marked **PUMP**.) Allow the pump to cycle for approximately 15 seconds.
6. Drain and clean the reservoir, and fill it with new OTC hydraulic fluid to a level of 19 mm (3/4 inch) from the filler / vent cap when the cylinder is retracted.

Draining and Flushing the Reservoir continued—

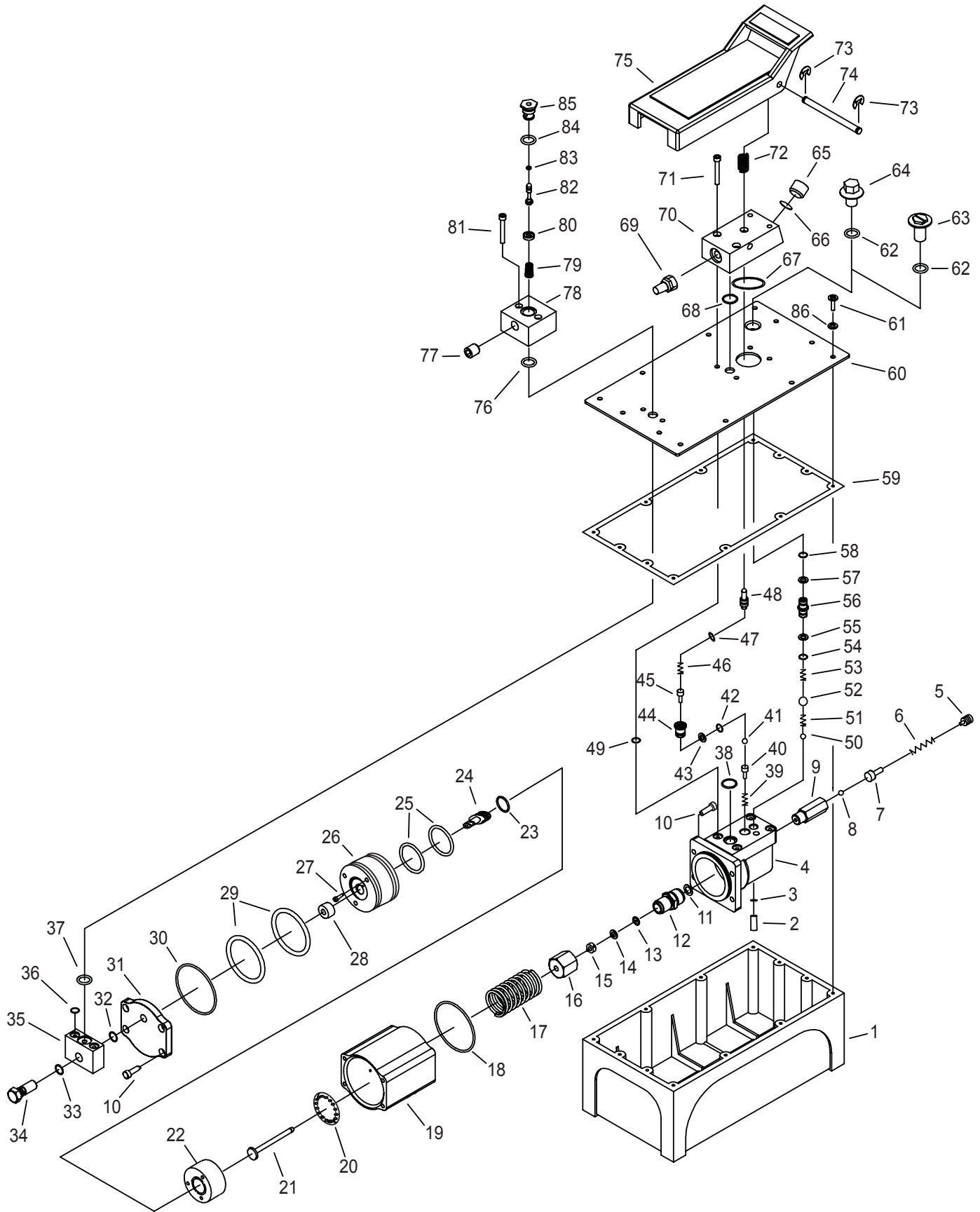
7. Position the pump assembly (with gasket) on the reservoir, and install the bolts. Torque the bolts to 2.8–3.4 N•m (25–30 inch pounds).
8. Drain and clean the other hydraulic components (hoses, cylinders, etc.) before reconnecting them to the pump. This should prevent contaminated fluid from entering the pump again.

Troubleshooting Guide

The greatest single cause of failure in hydraulic pumps is dirt. Keep the pump and attached equipment clean to prevent foreign matter from entering the system. Seal unused couplers with thread protectors. Keep hose connections free of dirt and oil.

Problem	Cause	Solution
Pump reciprocates, but no fluid delivery. (Cylinder does not extend.)	<ol style="list-style-type: none"> 1. Low fluid level. 2. Pump is not primed. 3. Fluid intake filter contaminated. 4. Overload conditions. 	<ol style="list-style-type: none"> 1. Add hydraulic fluid to within 19 mm (3/4 inch) of filler / vent hole. 2. Press RELEASE end of pedal while holding down air intake valve. Allow pump to cycle for approx. 15 seconds. 3. Remove pump assembly from reservoir, and clean intake filter. 4. Use equipment with sufficient capacity for the job.
Low fluid delivery. (The cylinder extends slowly.)	<ol style="list-style-type: none"> 1. Air supply not adequate. 2. Contamination on air side of pump. 3. Contamination on hydraulic side of pump. 4. Air in hydraulic system. 	<ol style="list-style-type: none"> 1. Verify air input supply is 5–10 CFM @ 7 bar (100 psi) minimum. 2. Clean air inlet screen on air side of pump. 3. Remove pump assembly from reservoir, and clean intake filter. 4. Position cylinder at a lower level than the pump. Run system through several cycles of extending and retracting the cylinder.
Pump will not build to maximum pressure, and there's no visible leakage.	<ol style="list-style-type: none"> 1. Air supply not adequate to obtain maximum pressure. 2. Pressure regulator not set correctly. 	<ol style="list-style-type: none"> 1. Verify air input supply is 5–10 CFM @ 7 bar (100 psi) min. 2. Verify air is regulated at 7 bar (100 psi) at the pump.
Pump builds pressure, but will not hold pressure.	<ol style="list-style-type: none"> 1. Leak in hydraulic system. 	<ol style="list-style-type: none"> 1. Check all hydraulic connections for leakage, and refit or repair as needed.
Pump continues to run slowly even after the desired pressure has been reached.	<ol style="list-style-type: none"> 1. Output pressure equal to, or higher than, relief valve setting. 	<ol style="list-style-type: none"> 1. Normal operation.
There is excess oil spray from the muffler.	<ol style="list-style-type: none"> 1. Air lubricator is set too rich, if so equipped. 	<ol style="list-style-type: none"> 1. Regulate air lubricator to one drop per minute.

Parts List



Parts List continued

Item No.	Qty.	Description	Item No.	Qty.	Description
1	1	Oil Reservoir	44	1	Release Valve
2	1	Oil Filter	45	1	Ball Seat
3	1	Oil Filter	46	1	Spring
4	1	Valve Block	*47	1	O-ring
5	1	Screw	48	1	Release Rod
6	1	Spring	*49	4	O-ring
7	1	Ball Seat	50	1	Steel Ball
8	1	Steel Ball	51	1	Spring
9	1	Safety Valve	52	1	Steel Ball
10	8	Bolt	53	1	Spring
11	1	Copper Washer	*54	1	O-ring
12	1	Pump Cylinder	*55	1	Nylon Gasket
*13	1	Y-seal	56	1	Coupler
*14	1	Nylon Gasket	*57	1	Nylon Gasket
15	1	Copper Washer	*58	1	O-ring
16	1	Nut	*59	1	Seal
17	1	Spring	60	1	Cover
*18	1	O-ring	61	6	Screw
19	1	Air Pump Housing	*62	2	O-ring
20	1	Washer	63	1	Oil Filter Plug
21	1	Pump Plunger	64	1	Oil Filter Plug
22	1	Air Piston Base	65	1	Screw
*23	1	O-ring	66	1	Oil Filter
24	1	Air Shuttle Valve	*67	1	O-ring
*25	2	O-ring	*68	1	O-ring
26	1	Piston	69	1	Muffler
27	3	Bolt	70	1	Fixing Base
*28	1	Shuttle Valve Seal	71	4	Bolt
*29	2	O-ring	72	1	Spring
*30	1	O-ring	✓73	2	Snap Ring
31	1	Rear Cover	✓74	1	Shaft
*32	1	O-ring	✓75	1	Foot Pedal
*33	1	O-ring	*76	1	O-ring
34	1	Bolt	77	1	Screw
35	1	Fixing Base	78	1	Air Valve
*36	2	O-ring	79	1	Spring
*37	1	O-ring	*80	1	Seal
*38	1	O-ring	81	2	Bolt
39	1	Spring	82	1	Air Valve Rod
40	1	Ball Seat	*83	1	O-ring
41	1	Steel Ball	*84	1	O-ring
*42	1	O-ring	85	1	Coupler
*43	1	Nylon Gasket	86	6	Copper Washer

Part numbers marked with an asterisk (*) are included in **Seal Kit No. 538592**.

Part numbers marked with a check mark (✓) are included in **Pedal Kit No. 538593**.