

HydraPak,

Single Source Hydraulic Power

Operating Instructions Parts List

REG HYDRA TOOLS

CONSTRUCTION EQUIPMENT

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Manufactured by

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INTRODUCTION

Your new Power Unit has been engineered to provide hydraulic power economically, with portability and reliability no other hydraulic system can match. It can be used minutes after it is received, operating with non-detergent motor oil as its fluid, powering a wide variety of tools.

When parts or information are required for your Power Unit always give:

Model Number

Serial Number

Tags are located on the lower edge of the control panel (see Figure 1).

Other information found on tag:

GPM - This is the gallons per minute of the pump at 3400 RPM.

PSI - This is the pounds per square inch the Power Unit is rated at. (Actual system relief settings are slightly higher to compensate for friction losses in extension hoses and fittings.)

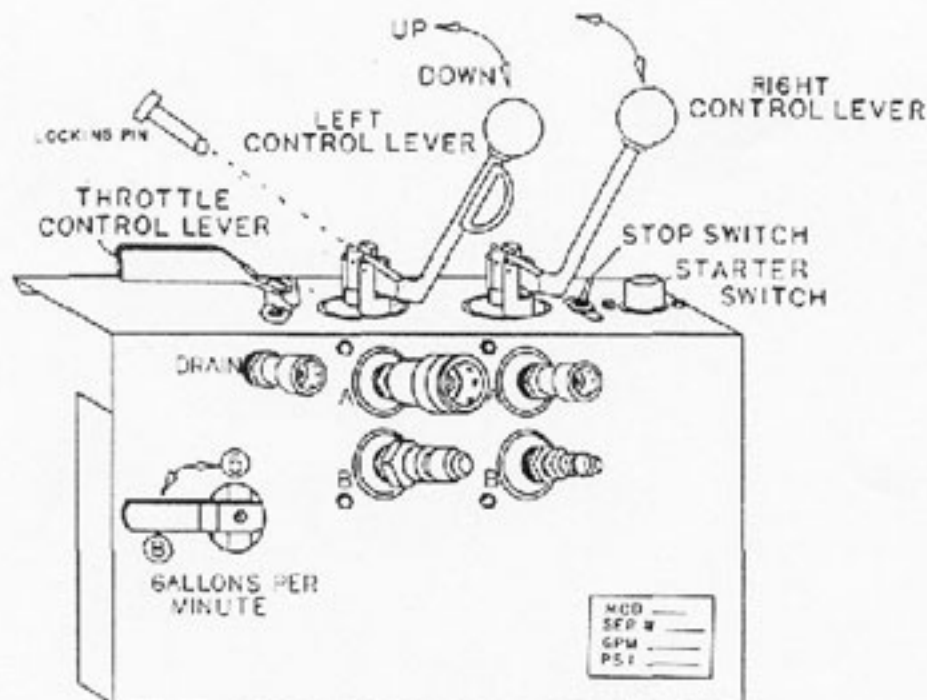


Figure 1

I OPERATING CONTROLS

- A. On/off and starter switches. To start - turn on/off switch "on" (some models have optional switch mounted on engine - in this case both switches must be on). (Figure 1)

Press start button down.

To stop - turn on/off switch to "off" position.

- B. Throttle - Put the throttle in slow position when starting and when stopping the engine. This permits a warming and cooling period.

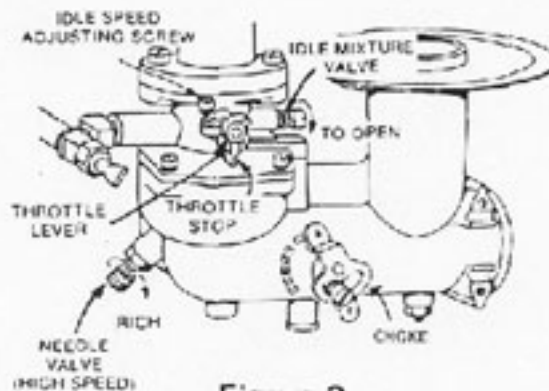


Figure 2

- C. Choke - Close to start a cold engine (Figure 2). Open choke slowly after engine starts.

The choke must be open during normal operation or when starting a warm engine.

- D. Control Lever

1. The standard control valve on all Power Units is an open centered valve. (O4 is stamped on the end of spool). All ports are connected to tank when spool is in neutral. The valve control lever is spring returned to neutral whenever the handle is released. Some tools and/or accessories may require the lever to be locked in the "up" position (spool is locked down). This is accomplished with pin and locking block provided. (Figure 1)

The "D" ring is always used on this handle.

The 1/2" female quick disconnect is on the top (Port A).

The 1/2" male quick disconnect is on the bottom (Port B).

When lever is raised, flow is from A (out) to B (in) - forward.

When lever is lowered, flow is from B (in) to A (out) - reverse.

2. The optional control valve on Power Units is a tandem center valve. (T4 is stamped on end of spool.) This can be used to power a cylinder in both directions. The pump unloads to tank and the cylinder or motor are locked when the spool is in neutral. (Both Ports A & B are blocked.) The ¼" female quick disconnect is on the top (Port A). The ¼" male quick disconnect is on the bottom (Port B). Pressure setting of the factory is typically 600psi - This can be re-adjusted. Consult factory for change.
3. The optional 5/8 lever available on HX-58 and HX-58S models is a volume control feature. Choose the GPM output closest to the GPM requirement of the tool or accessory. 5 GPM or 8 GPM outputs are at full engine RPM. Other outputs can be obtained by varying the engine RPM. Certain tools can be damaged by excess fluid flow; if in doubt of tools requirement - consult factory. Some accessories such as a winch can be run at either setting. This gives the advantage of a high/low power range.

II PRESTART CHECKLIST

- A. Check engine oil level
 1. Each Power Unit is pretested and therefore filled with oil at the factory.
 2. Follow engine manufacturers' recommendations as to type of oil to add if necessary.
- B. Check the engine air cleaner and air intake screen for dirt or obstruction. Clean as required.
- C. Fill the fuel tank with clean fuel. The requirements are listed in engine manufacturers specifications.

Caution

Handle fuel with care - it is highly flammable.

Use approved fuel container.

Never remove the fuel cap or add fuel to a running or hot engine.

Exhaust fumes are deadly - do not run engine without ventilation.

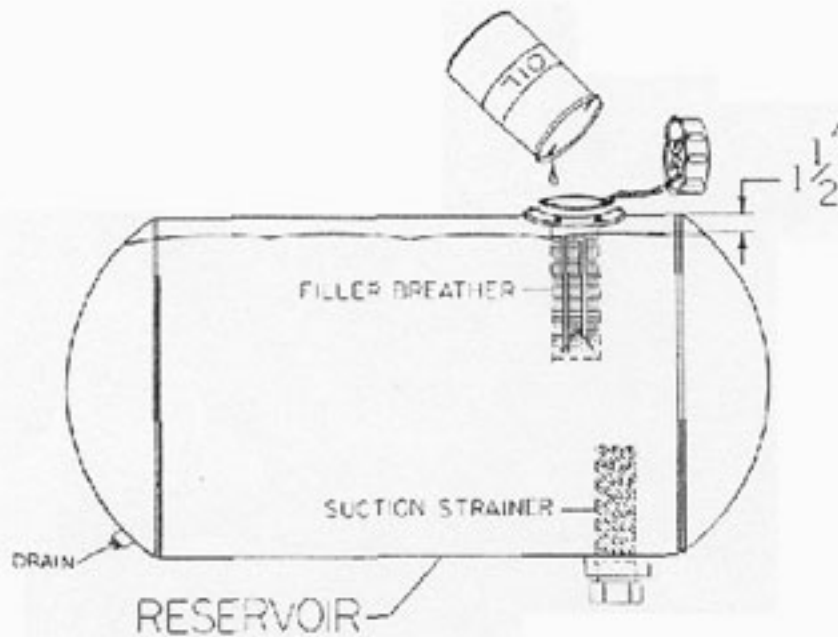


Figure 3

D. Check hydraulic reservoir level. (Figure 3)

1. Be sure shipping cap is replaced with chrome filler/breather cap provided.
2. Fluid level should be at $1\frac{1}{2}$ " from top of tank.
3. Your Power Unit is filled with 20 wgt. non-detergent motor oil at the factory. Extreme climatic conditions may dictate a different viscosity oil or the use of a hydraulic fluid - consult factory for recommendations.
4. When oil filter is changed, suction strainer should be removed and cleaned. Reusable worm gear clamp can be used to replace factory clamps.
5. Wrap strainer thread and drain plug with teflon tape before reassembly.
6. Always use vented breather cap.

III OPTIONAL EQUIPMENT

- A. T4 valve - Typically located to the right side of the control panel. Tandem center valve work ports are blocked in the neutral position. Typically set at 600 psi. (Figure 1)
- B. 5/8 Switch - Controls pump output. Either 5 or 8 GPM at full engine RPM is available. Intermediate volume is available by varying engine speed. (Figure 1)
- C. Drain line - Standard on 16 HP models but available on all others. Used as a case drain on some motors. Fluid is allowed to return to reservoir at atmospheric pressure. (Figure 1)

NOTE: On tools equipped with case drain lines (3rd smaller line), the line must be connected or hydraulic motor shaft seal damage will result.

D. Electrical System

1. Optional electric start

Battery	27 AMP hour
Starter	12 Volt gear drive
Flywheel alternator	12 Volt - 3 AMP - red wire - charging circuit
	12 Volt - 100 Watts - white wire - lighting circuit

2. Wiring diagram

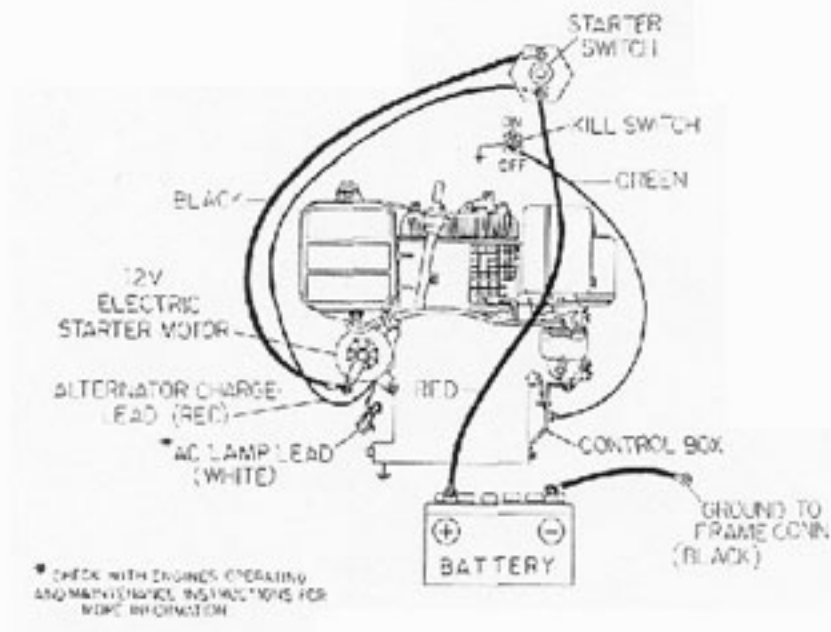


Figure 4

OPTIONAL EQUIPMENT (continued)

3. Battery

CAREFULLY READ ALL INSTRUCTIONS BEFORE STARTING

1. A new battery must be filled with electrolyte (acid) before using.
 - a. Open acid pack and position as shown.

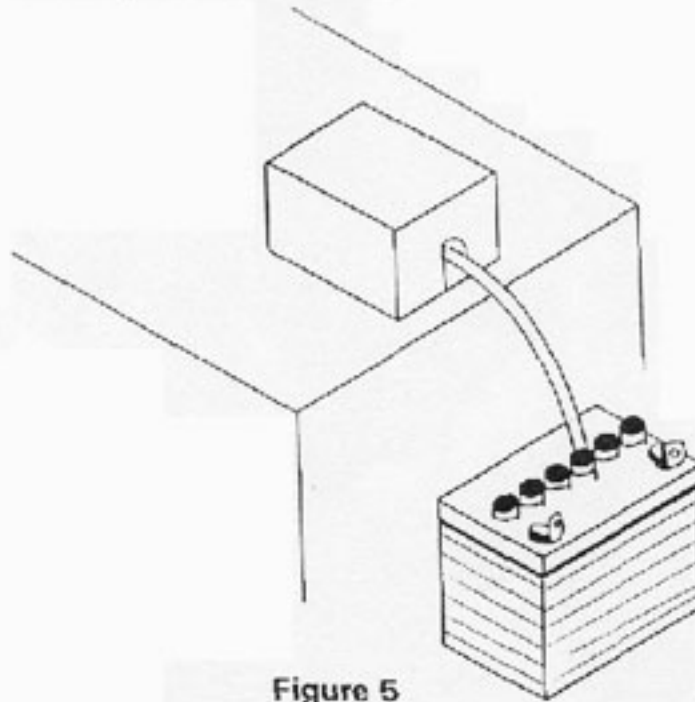


Figure 5

- b. On first filling, fill each cell unit until electrolyte reaches top of separator only.
 - c. Charge battery for 20 minutes on "low" or "trickle charge".
 - d. After charging, check electrolyte in all cells. Adjust to circle full full level (vent wall or filler tube) with additional electrolyte as required.

BATTERY (continued)

2. Battery Maintenance - Make a weekly check of electrolyte.
 - a. Add water as necessary - keep level below the base of the filler tubes.
 - b. Always use mineral free or distilled water in battery.
 - c. When temperature is below 32°F, immediately charge battery after adding water. This will mix water and electrolyte. If water is not mixed, it will remain on top and become frozen.

3. Battery Cable and Terminals

- a. Keep battery terminals clean and tight.
- b. Always disconnect battery before performing any work on the Power Unit.

4. Jump Starting

Connect the jumper cables in the sequence below to prevent any possible spark near the battery. To remove the cables, reverse the sequence.

- a. Connect the red jumper to the positive (+) terminal of Power Unit.
- b. Connect the other red jumper to the positive (+) terminal of booster battery.
- c. Connect the black jumper to the negative (—) terminal of the booster battery.
- d. Connect the other black jumper to the frame of the Power Unit.

The best starter life is provided by using short starting cycles of several seconds. Prolonged cranking can damage the starter motor if cranked more than 15 seconds per minute.

IV STARTING PROCEDURE

- A. Place control lever in neutral.
 - a. Lever is spring loaded to neutral and should move up and down freely unless locking pin is in place.

- B. On/Off switch should be "On".
 - a. Some units are equipped with two switches, one on the control panel and the other on the engine itself. Both must be "On" to start engine.

- C. Close the choke
 - a. The choke setting will change according to the engine temperature, air temperature, and grade of fuel.

- D. Put the throttle lever in the "slow" position.

- E. Electric start - press the "start" button.
 - a. Release the button when the engine starts.

Note on overcranking - The best starter life is provided by using short starting cycles of several seconds. Prolonged cranking can damage the starter motor if cranked more than 15 seconds per minute.

- F. Rewind starter - grasp starter handle and pull out cord rapidly - repeat if necessary with choke opened slightly.

- G. Open choke slowly after the engine starts running.

- H. Permit the engine to warm before applying load. That is, operating the control lever.

NOTE: Allow the hydraulic system to warm before using accessory or tool during cold weather.

V STOPPING PROCEDURE

- A. Move control lever to neutral.
 - a. Remove locking pin if used.
- B. Move throttle lever to "slow" position.
- C. Permit the engine and hydraulic system to cool.
 - a. Run the engine at idle for several minutes if the work load was severe.
- D. Turn the On/Off switch to "Off".

NOTE: Allow engine to cool before covering.

VI PREVENTATIVE MAINTENANCE CHART

	FREQUENCY
Check and clean obstruction from air intake screen	Daily
Check and clean obstruction from oil cooler	Daily
Check engine oil level - add if required	Daily
Check reservoir oil level - add if required	Daily
Wash air filter precleaner	25 hrs.
Change engine oil First - 5 hrs.	Every 25 hrs.
Check air cleaner filter - replace if necessary	100 hrs.
Check and clean obstructions from cooling fins and external surfaces	100 hrs.
Check battery electrolyte - add if necessary	50 hrs.
Check and clean and replace spark plug	100 hrs.
Have cylinder head removed and cleaned (leaded fuel)	100 hrs.
Have cylinder head removed and cleaned (unleaded fuel)	200 hrs.
Replace reservoir, filter and oil First - 50 hrs.	Every 250 hrs.
Clean suction screen in reservoir	250 hrs.
Check coupling spider	250 hrs.
Grease wheel bearings	500 hrs.
Check ignition timing	500 hrs.
Check valves and tappet clearance	500 hrs.
Fuel filter in line	500 hrs.
Lightly oil throttle cable	500 hrs.

SPECIFICATIONS (continued)

Frame Specs

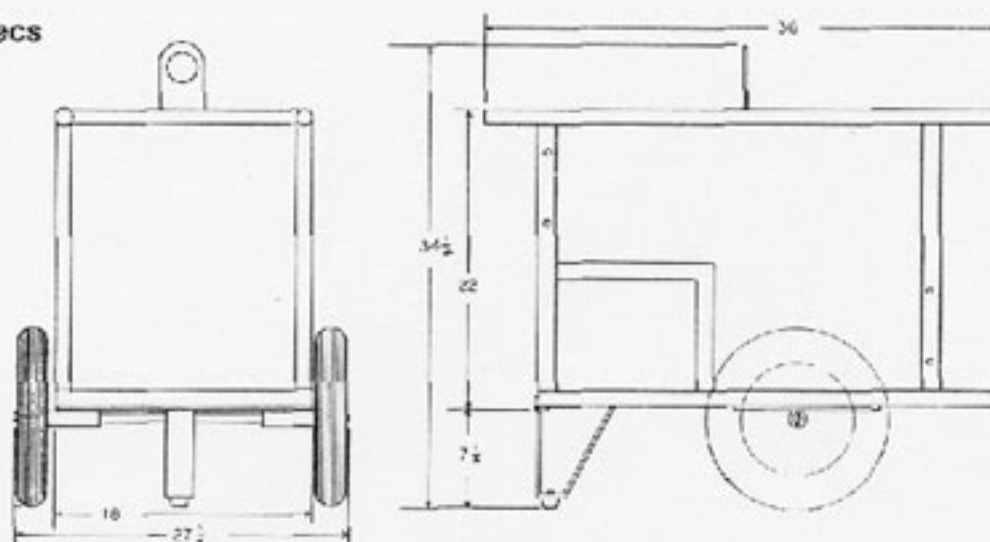


Figure 7

Shipping weight with oil

8 HP	11 HP	16 HP
190 lbs.	200 lbs. (pull start)	275 lbs.
	230 lbs. (electric start, heat exchanger)	

Tires Size 4.80 x 8
 Inflation 30 psi
 Axle 5/8" Dia.

E. Heat Exchanger - Oil Cooler

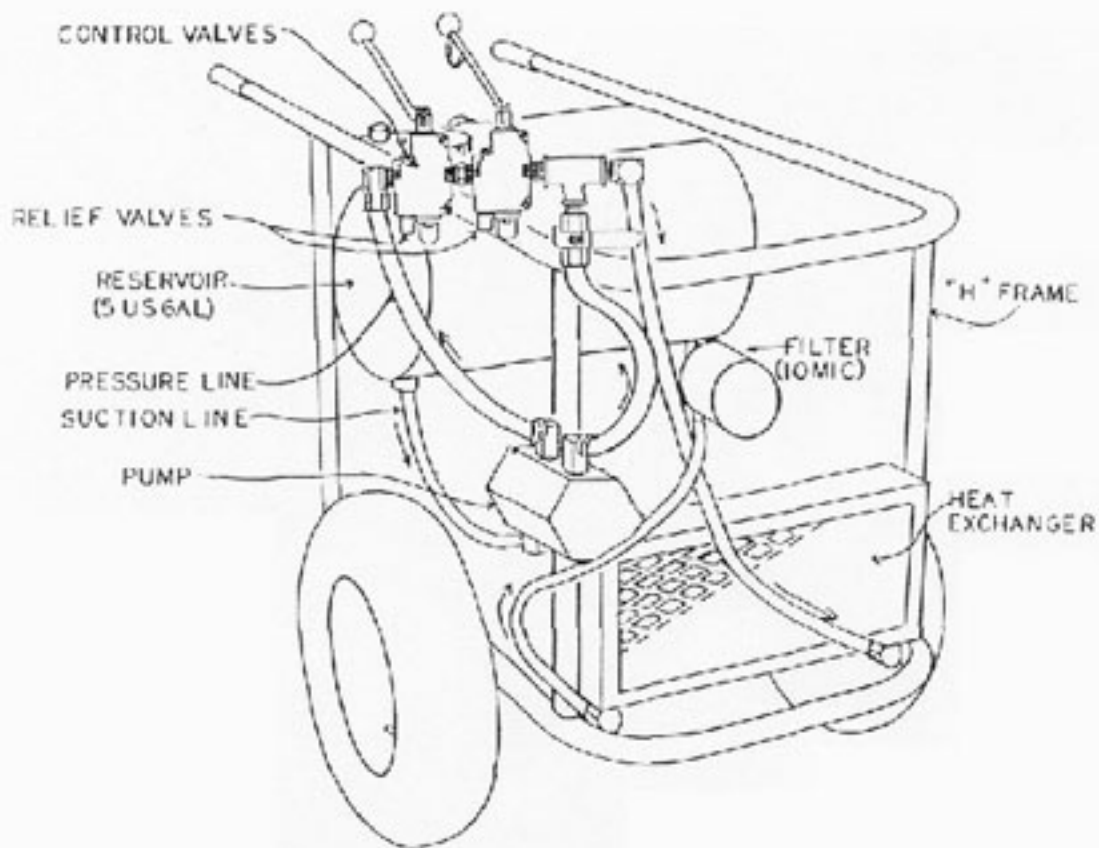


Figure 8

- a. The hydraulic oil cooler **must** be kept clean and unobstructed at all times.
- b. Check the hydraulic oil cooler **daily** before operating and frequently during use.
- c. If debris builds up on the screen during operation - stop the engine immediately.
- d. An obstructed hydraulic oil cooler will cause the hydraulic system and engine oil to overheat and fail prematurely.

VIII TROUBLE SHOOTING

- A. System inoperative - Engine operating normally
 - 1. Low fluid level (reservoir)
 - 2. Restriction
 - a. Hose kinked/damaged
 - b. Quick disconnect not coupled properly
 - 3. Control valve
 - a. In wrong direction
 - 4. Coupling between engine and pump
 - a. Coupling worn out
 - b. Pump or engine key sheared

- B. System slow - Engine operating normally
 - 1. Low fluid level (reservoir)
 - 2. Restriction
 - a. Hose kinked/damaged
 - b. System filter clogged - fluid going through bypass
 - c. Suction filter clogged - fluid going through bypass
 - d. Heat exchanger clogged
 - 3. Control valve
 - a. Not fully activated - locking pin not holding valve fully open.
 - 4. Cold oil temperature
 - a. Oil viscosity not suited to climate
 - 5. Pump damaged/worn
 - 6. System relief valve
 - a. Set too low for application
 - b. Stuck partially open
 - c. Broken spring
 - 7. Extension hoses too long
 - a. Hoses over 50' long will add sufficient friction to the hydraulic system to slow some tools down slightly.
 - b. Where possible, use as few quick disconnects as possible.
 - c. Some power units may require an increase in system pressure to compensate for long hose runs. Consult the factory for recommendations.

8. 5/8 Switch
 - a. Tools designed for the 8 GPM range will run slower at the 5 GPM setting.
 - b. Tools designed for the 5 GPM range must never be run at 8 GPM setting. Excessive oil flow will damage tools not intended for high speed operation.
 - c. Some tools such as hydraulic pumps and HydraWinch can be run at either volume depending on requirements.
 9. Tool flow requirements too large for Power Unit capacity.
 10. Engine RPM too low.
- C. System overheats - engine operating normally.
1. Low fluid level (reservoir)
 2. Air intake of heat exchanger clogged/dirty
 3. Severe operating conditions
 - a. Extremely high ambient temperature and extended duty cycle can cause system to overheat.
 4. Relief valve set too low
 - a. Oil that is unnecessarily bypassed over a relief generates heat.
- D. Oil Foaming
1. Low fluid level (reservoir)
 2. Water in oil
 3. Pump shaft seal work out (sucking air into pump)
 4. Air leak in suction line
 5. Improper type of oil.
 - a. Use only approved hydraulic oil or non-detergent motor oil of a grade compatible with application.
 - b. Detergent oil will foam, causing premature failure of pump.
- E. Pump leaks
1. Plugged reservoir filler/breather
 2. Yellow shipping cap installed. (use chrome filler/breather cap supplied.)
 3. Shaft seal worn on pump
 4. Cracked inlet/outlet fitting

HYDRA PAKS

WHEN ORDERING PARTS, ALWAYS SPECIFY MODEL AND SERIAL NUMBER

EFFECTIVE JANUARY 1, 1990

ITEM#	PART#	QTY.	DESCRIPTION	PRICE	ITEM#	PART#	QTY.	DESCRIPTION	PRICE
1	00458	1	MAIN FRAME	\$	23	00434	1	HEAT EXCHANGER SMALL	\$
2	00455	1	AIR BAFFLE		23	00435	1	HEAT EXCHANGER LARGE	
3	00872	1	RESERVOIR						
4	00921	1	FILLER BREATHER						
5	04721	1	VALVE LOCK		24	00866	2	RUBBER MOUNTS	
6	04793	1	VALVE		25	00878	1	FOAM SEAL	
7	00919	1	CONNECTOR FEMALE 1/2		26	00405	1	ENGINE 11HP. PULL ST.	
8	00920	1	CONNECTOR MALE 1/2"		26	00468	1	ENGINE 11HP. ELEC. ST.	
9	00865	1	BALL VALVE		26	00469	1	ENGINE 16HP. ELEC. ST.	
10	00908	1	SUCTION STRAINER		26	00467	1	ENGINE 8HP. PULL ST.	
11	00869	4	RUBBER RESERVOIR MTS		27	00969	2	CONNECTOR FEMALE 1/4"	
12	04722	1	FILTER HEAD		28	04055	1	THROTTLE LEVER	
	04723	1	FILTER ELEMENT		29	04745	1	HANDLE W/PIN (D)	
13	00904	1	FILTER CANISTER		30	04792	1	VALVE	
14	00973	1	PUMP 5/8 GPM		31	04746	1	HANDLE W/PIN	
14	00930	1	PUMP 6 GPM		32	456275	1	SWITCH ON/OFF	
14	00931	1	PUMP 8 GPM		33	00860	1	SWITCH START	
15	00861	1	BATTERY		34	00967	1	CONNECTOR MALE 1/4"	
16	00454	1	PUMP BRACKET 8&11 HP			00659	1	THROTTLE CABLR ASSY.	
16	00972	1	PUMP BRACKET 16 HP.						
17	00905	1	COUPLING HALF 9/16			00499	PAIR	1/2 HOSE W/FTG. 10'	
17	00873	1	COUPLING HALF 1/2 ID			00500	PAIR	1/4 HOSE W/FTG. 10'	
18	00907	1	RUBBER INSERT			04749	2	1/2 HOSE W/FTG. 25'	
19	00906	1	COUP. HALF 1" 8&11 HP			04748	2	1/2 HOSE W/FTG. 14'	
20	00871	2	WHEELS			04760	1	PRESSURE TEST KIT	
21	04743	1	AXLE			04762	1	ROLL OF TEFLON TAPE	

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