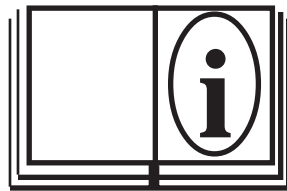




**WACHS HCM-3D
POWER UNIT
MODEL 14-000-09**



	HYDRAULICTOOL
	POWER UNITS
Model HCM-3D Ser.No. <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
E.H. WACHS COMPANIES 100 Shepard St. Wheeling Il. 60090	

Part Number: 14-MAN-09

Revision No: 1

Revised:
April, '98

WACHS HCM-3D POWER UNIT

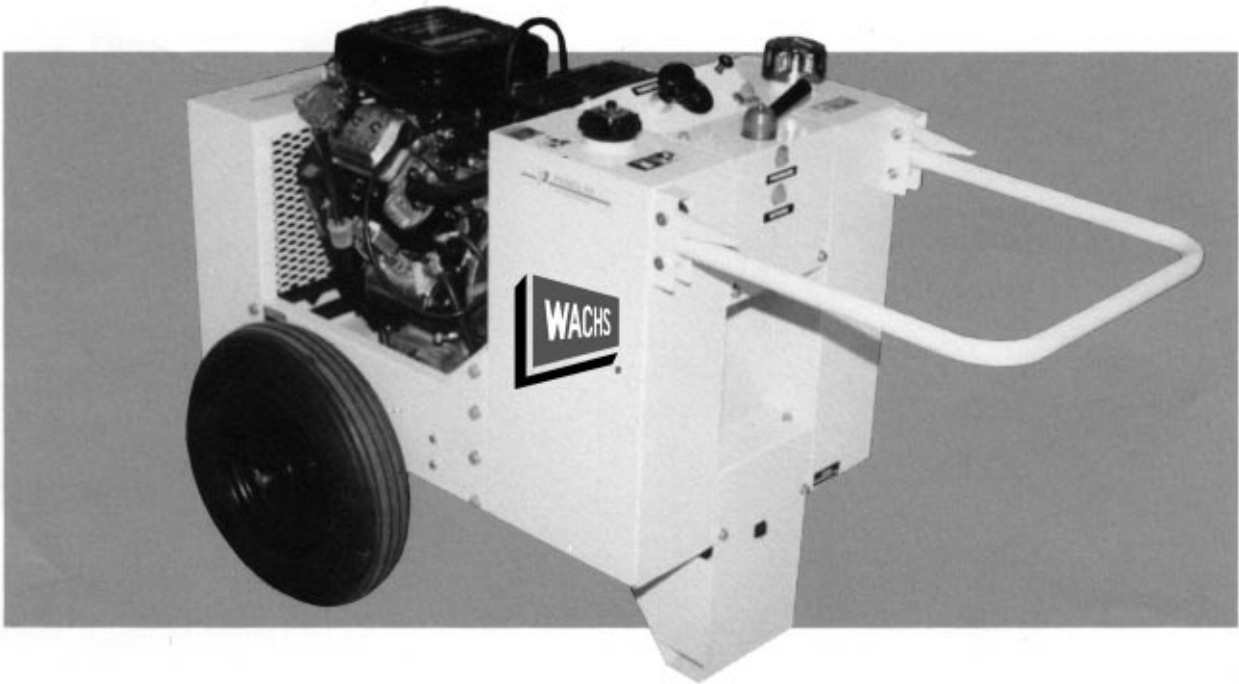
TABLE OF CONTENTS

SECTION I	STANDARD EQUIPMENT.....	4
SECTION II	SPECIFICATIONS.....	5
SECTION III	SAFETY.....	6
SECTION IV	SET-UP AND OPERATING PROCEDURES.....	7-12
SECTION V	MAINTENANCE.....	13-14
SECTION VI	TROUBLE SHOOTING.....	15-19
SECTION VII	PARTS LISTS AND EXPLODED VIEW DRAWINGS.....	21-25
SECTION VIII	ORDERING INFORMATION.....	26

WACHS HCM-3D POWER UNIT

SECTION I

STANDARD EQUIPMENT



Large 16" diameter wheels for ease of transport over rough terrain and through yard gates.

Large capacity hydraulic cooler to extend unit life and offer operator comfort. Cooling will meet or exceed HTMA specifications.

Fuel level gauge

Hour meter

Low engine oil-pressure shut-down

Collapsible handle

Electric start

WACHS HCM-3D POWER UNIT

SECTION II

SPECIFICATIONS

The **E.H. WACHS HCM-4D Diesel power unit** is designed to provide hydraulic flow and pressure for operation of H.T.M.A. type 1 & 2 hydraulic tools. The unit provides power for operation of type 1 or 2 open center tools (10-14 GPM 3&53 LPM @ 1500 P511103 BAR. If equipped with the optional combiner kit, the two circuits can be combined into one 10 GPM-38 LPM circuit for operation of H.T.M.A. type 3 tools.



NOTE:

Not all power units can be equipped with the optional dual circuits or combiner kit. Check with your local WACHS dealer for details.

The power unit may be equipped with an 18 hp gas engine, or diesel engines ranging from 16 hp to 19 hp. See the serial number identification plate on your unit to determine which this unit has.

The power units are all equipped with air-to-oil coolers with suction fan mounted to the power shaft on the engine.

All engine compartments are open for easy maintenance and repair of the engine. The fuel and hydraulic systems are self-contained with the required reservoir, filtration and level indicators.

Model:	HCM-3D
Hydraulic system:	Open Center
Frame Type:	Cart Mount
Length:	38 in. /96.5 cm
Width:	29 in. /73.7 cm
Height:	32 in. /81.3 cm
Weight (dry)	318 lbs. /144.24 kg
Filtration:	10 micron return line canister type.
Oil Cooler:	None
Engine:	16hp Diesel
Fuel:	5 gallon/18.9 litres
Hyd. oil (useable):	5.0 gallons 18.9 litres
Hyd. relief Pressure	1500psi/103bar
GPM/LPM	10 GPM/37.9 LPM

NOTE:

Cooling to HTMA specifications will not exceed 40° above ambient.

WACHS HCM-3D POWER UNIT

SECTION III

SAFETY INSTRUCTIONS

The E. H. Wachs Company takes great pride in manufacturing safe, quality products with user safety a priority.

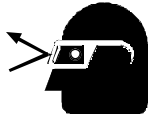
The E.H. Wachs Company recommends that all users comply with the following safety rules and instructions when operating our equipment. For your safety and the safety of others, read and understand these safety recommendations and operating instructions before operating.




Read the Following thoroughly before proceeding.

	CAUTION DO NOT attempt to locate hydraulic leaks by feeling around hoses and fittings with bare hands. "Pin-hole" leaks can penetrate the skin.
--	---

ALWAYS WEAR PROTECTIVE EQUIPMENT:


	WARNING Impact resistant eye protection must be worn while operating or working near this tool.
--	---

For additional information on eye and face protection, refer to federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.133., Eye and Face Protection and American National Standards Institute, ANSI Z87.1, Occupational and Educational Eye and Face Protection. Z87.1 is available from the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

	CAUTION Personal hearing protection is recommended when operating or working near this tool.
--	--

Hearing protectors are required in high noise areas, 85 dBA or greater. The operation of other tools and equipment in the area, reflective surfaces, process noises and resonant structures can substantially contribute to and increase the noise level in the area. For additional information on hearing protection, refer to federal OSHA regulations, 29 Code of Federal Regulations, Section 1910.95, Occupational Noise Exposure and ANSI S12.6 Hearing Protectors.

1. **READ THE OPERATING MANUAL!!** Reading the setup and operating instructions prior to beginning the setup procedures can save valuable time and help prevent injury to operators or damage to machines.
2. **INSPECT MACHINE & ACCESSORIES!** Prior to machine setup physically inspect the machine and it's accessories. Look for worn tool slides, loose bolts or nuts, lubricant leakage, excessive rust, etc. A properly maintained machine can greatly decrease the chances for injury.
3. **ALWAYS READ PLACARDS & LABELS!** All placards, labels and stickers must be clearly legible and in good condition. Replacement labels can be purchased from the manufacturer.
4. **KEEP CLEAR OF ROTATING PARTS!** Keep hands, arms and fingers clear of all rotating or moving parts. Always turn machine off before attempting any adjustments requiring contact with the machine or it's accessories.
5. **SECURE LOOSE CLOTHING & JEWELRY!** Loose fitting clothing, jewelry; long, unbound hair can get caught in the rotating parts on machines. By keeping these things secure or removing them you can greatly reduce the chance for injury.
6. **KEEP WORK AREA CLEAR!** Be sure to keep the work area free of clutter and nonessential materials. Only allow those personnel directly associated with the work being performed to have access to the area if possible.

	ATTENTION This safety symbol appears in these instructions to identify an action that could cause bodily injury to the operator or other personnel.
--	---

WACHS HCM-3D POWER UNIT

SECTION III

SET-UP AND OPERATING PROCEDURES

WACHS HCM-3D POWER UNIT

SECTION IV

SET-UP AND OPERATING PROCEDURES

HYDRAULIC SYSTEM DESCRIPTION

The hydraulic system consists of a hydraulic fluid reservoir, filter assembly, single or optional tandem pump, and a wide variety of flow controls. The lifter element is a "spin on" type element for easy replacement. The filter housing has a pressure bypass valve to divert fluid directly to the tank in the event of a restricted filter.

Hydraulic pumps will vary depending upon the capabilities of the specific power unit. The hydraulic pump(s) will be illustrated and called out in the parts section of this manual.

Pressure hoses from the pump are connected directly to a control module which contains a relief valve, a flow control valve, and a pressure and return port. Optional control modules may contain additional valves and ports.

HYDRAULIC FLUID REQUIREMENTS

The power unit is shipped from the factory WITHOUT the necessary operating fluids. Fluids meeting the specifications below, however, will provide good all-season operation if normal maintenance is performed (I.E periodic filter changes, draining of condensate, etc.).

Viscosity (fluid thickness)

STANDARD	METRIC
50° F 450 SSU Max.	10° C 95 Centistokes
100° F 130-200 SSU	38° C 27-42 C.S.
140° F 85 SSU Min.	60° C 16.5 C.S. Min.
Pour Point:	-10° F/-23° C Min. (for cold startup)
Viscosity Index:	(ASTM D 2220) 140 minimum
Demulsibility:	(ASTM D-1401) 30 Minutes Max.
Flash Point:	(ASTM D-92) 340°F/171°C Min.
Rust Inhibition:	(ASTM D-665 A&B) Pass
Oxidation:	(ASTM D943) 1000 Hours Min.
Pump Wear Test:	(ASTM D2882) 60 mg Max.

The following fluids work well over a wide temperature range at startup, allow moisture to settle out, and resist biological growth likely in cool operating hydraulic circuits. These fluids are recommended by the E.H. WACHS CO. Other fluids that meet or exceed the specifications of these fluids may also be used:

Ams-Oil: hydraulic fluid NW 150 ssu, 100 vi.

Chevron: AW-MV-32

Exxon: Univis', J-26

Mobil: DTE 13

Gulf: Harmony AW-HVI-150-32

Shell: Tellus T-32

Sun: Sunvis 805 MG

Texaco: Rando HD-AZ

Union: Unax AW-WR-32

FUEL SYSTEM DESCRIPTION

The fuel system consists of a fuel tank, fuel pump, and a filter.

Fuel is pumped from the tank by an engine-mounted fuel pump. Fuel leaving the pump passes through a canister-type, engine mounted fuel filter. The fuel filter element is removable. The output side of the lifter housing is connected, via a hose.

FUEL REQUIREMENT

The WACHS HCM-4D uses diesel fuel for its operation.

WACHS HCM-3D POWER UNIT

SECTION IV

SET-UP AND OPERATING PROCEDURES

ENGINE DESCRIPTION

An engine owner's manual is provided with the power unit. This manual lists the recommended service intervals. It should be followed to ensure proper power unit maintenance.

TOOL HOSE RECOMMENDATIONS

The hoses in the chart (TABLE 1) below are recommended for the hydraulic fluids specified in the HYDRAULIC FLUID REQUIREMENTS section on page 8.

PREPARATION FOR USE

The following checks must be made prior to operating the power unit.



ALWAYS CHECK THE OIL LEVEL IN THE ENGINE CRANKCASE BEFORE STARTING THE ENGINE.

HYDRAULIC OIL.

The hydraulic tank is empty prior to shipment from the factory. Add oil prior to operating power unit.



NEVER START THE ENGINE ON A NEW POWER UNIT WITHOUT FIRST CHECKING THE OIL LEVEL IN THE HYDRAULIC TANK. SEVERE PUMP DAMAGE CAN RESULT IF THE OIL LEVEL IS TOO LOW.

TABLE 1. HYDRAULIC HOSE RECOMMENDATIONS

FLOW PER CIRCUIT		LENGTH EACH HOSE		USE	INSIDE DIAMETER		SAE SPEC (WIRE BRAID)	SAE SPEC (FIBER BRAID)
GPM	LPM	FEET	METERS		INCH	MM		
5 to 8	19 to 30	to 50	to 15	Both	1/2	13	SAE100R1-8	SAE100R7-8
5 to 8	19 to 30	51-100	15 to 30	Both	5/8	16	SAE100R2-10	SAE100R8-10
5 to 8	19 to 30	100-300	30 to 90	Pressure Return	5/8	16	SAE100R2-10	SAE100R7-12
					3/4	19	SAE100R1-12	SAE100R7-12
9 to12	34 to 45	to 50	to 15	Both	5/8	16	SAE100R2-10	SAE100R8-10
9 to12	34 to 45	51-100	15 to 30	Pressure Return	5/8	16	SAE100R2-10	SAE100R8-10
					3/4	19	SAE100R2-12	SAE100R7-12
9 to12	34 to 45	100-200	30 to 60	Pressure Return	3/4	19	SAE100R2-12	SAE100R8-12
					1	25.4	SAE100R1-16	SAE100R7-16
13to16	49 to 60	to 25	to 8	Pressure Return	5/8	16	SAE100R2-10	SAE100R8-10
					3/4	19	SAE100R1-12	SAE100R7-12
13to16	49 to 60	26 to 100	8 to 30	Pressure Return	3/4	19	SAE100R2-12	SAE100R8-12
					1	25.4	SAE100R1-16	SAE100R7-16

WACHS HCM-3D POWER UNIT

SECTION IV

SET-UP AND OPERATING PROCEDURES

FUEL LEVEL

The power unit is shipped with only a small amount of fuel for safety purposes. The engine has been run at the factory to purge all air from the fuel system. To prevent air from entering the system, always fill the fuel tank before starting the engine.

BATTERY

Check the electrolyte level in each battery cell. The level should never be below the top of the plates. If the level is low, add distilled water. The level is correct when filled to the bottom of the split ring in each cell. Check that the battery cables are clean and tight so that the charging circuit will function properly.

TIRES

Check the air pressure in the tires. See recommended air pressures on the sides of tires.

LOOSE ITEMS SHIPPED WITH NEW UNITS

Keep the engine reference manual in an area that is accessible to the operator and maintenance personnel.

- Engine tool kit (If required)
- Engine owner's manual

HYDRAULIC CONNECTIONS

Pressure and return hoses are connected to the ports at the control panel as shown on the following column in illustration A.

The pressure and return ports are marked with a decal. When installing couplers, the pressure port receives the male coupler and the return port receives the female coupler.

The hoses can then be connected directly to the couplers. Couplers are available through your local WACHS dealer.

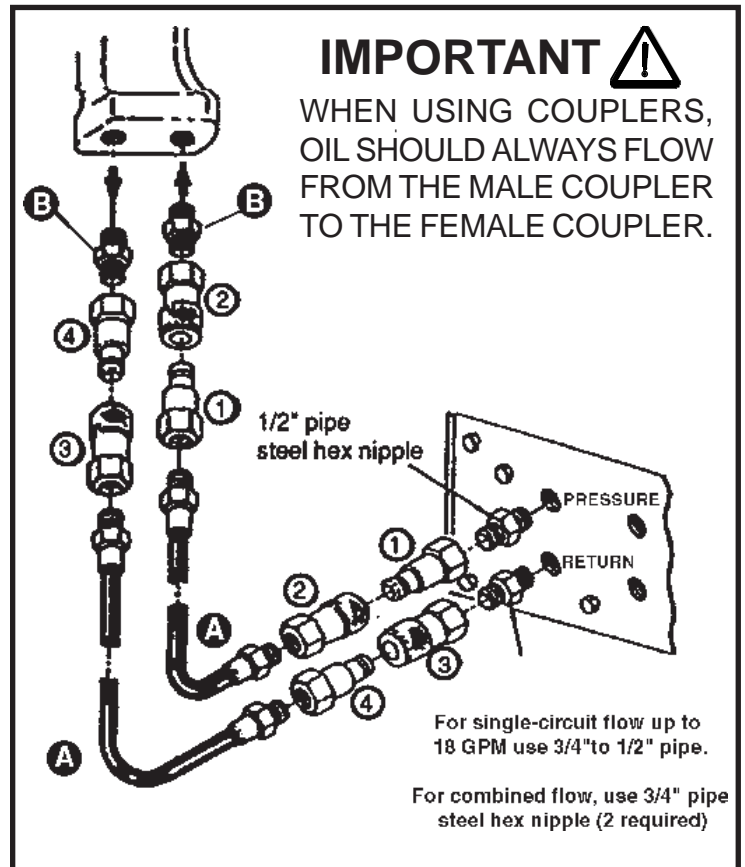


Illustration A

1. H.T.M.A. 3/8" male quick acting coupler with 1/2" npt thread.
2. H.T.M.A. 3/8" female quick acting coupler with 1/2" npt thread. At the tool this may be H.T.M.A. Sir female quick acting coupler with 3/8" npt thread.

*FOR SINGLE CIRCUIT FLOW UP TO 10 GPM *

3. H.T.M.A. 3/8" female quick acting coupler with 1/2" npt thread.
4. H.T.M.A. 3/8" male quick acting coupler with 1/2" npt thread. At the tool this may be H.T.M.A. 3/8" male quick acting coupler with 3/8" npt thread.

Refer to table 1 for hose recommendations.

Use adapters with threads that match tool part.

WACHS HCM-3D POWER UNIT

SECTION IV

SET-UP AND OPERATING PROCEDURES

OPERATING INSTRUCTIONS

BEFORE START-UP

Perform the checks specified on pages 9-10, before operating the power unit. Make certain the following conditions are met.

Engine oil level is at the "FULL" mark on the dipstick. Add oil as required. Refer to the section 1 for fuel requirements.

Hydraulic tank must be full.

-Check that fuel level is adequate for estimated operating time. On diesels, allowing the fuel tank to run dry will cause air to enter the injection system. The system must then be bled.

-All hoses are to be free of damage. All hose and coupler fittings must be tight.

-The front section of the engine must be free of leaves, dirt, and other debris that may inhibit cooling or create a fire hazard.

START-UP

Make sure the flow control circuit is set at 0 or off.

Connect the hydraulic hoses to the applicable couplers on the control panel. Male couplers are pressure ports. Female couplers are return ports.

Check that the hoses are properly connected to the tool and that the tool is in the off or deactivated mode.

Pull the throttle knob out slightly, then turn the ignition key to start the engine. Allow the engine to run at a low speed until the engine and the hydraulic circuits are warm.

COLD WEATHER START-UP

Some power units may be equipped with an optional cold start kit. To use the optional cold start kit, proceed as follows:

Press the cold start button for 15 to 20 seconds.

Turn the ignition key to start the engine.

If the engine fails to start, turn the ignition key to off and press the cold start button for an additional 15 to 20 seconds. Turn the ignition key to start the engine.



DO NOT CONTINUOUSLY CRANK THE ENGINE FOR LONGER THAN 15 SECONDS AT ONE TIME. ALLOW AT LEAST ONE MINUTE FOR THE STARTER TO COOL BETWEEN START ATTEMPTS.

TOOL OPERATION

Start the engine as as described in the previous section.

After start-up, turn the hydraulic circuit to the ON position or a flow setting to start fluid flowing to the tool.

For units having an optional flow combiner kit, the two 14 GPM/ 52.9 LPM circuits combined into one 28 GPM/ 105.8 LPM circuit for operation of H.T.M.A. type 3 tools.

To obtain 28 GPM/ 105.8 LPM, attach the pressure hose to the center port with all flow circuits in the off position. The return hose may be attached to either return port. Turn on the 28 GPM/ 105.8 LPM circuit to start the flow.



NOTE: Both 14GPM /52.9 LPM circuits remain in the off position for 28 GPM /105.8 LPM flow.

WACHS HCM-3D POWER UNIT

SECTION IV

SET-UP AND OPERATING PROCEDURES

SHUT DOWN

Push throttle knob in.

Return the hydraulic circuit to the off position or 0 flow.

Turn the ignition key to off. If the power unit is equipped with a diesel engine you must also pull out the stop knob.

Disconnect the hydraulic hoses and store in a suitable area.



WHEN STORING HOSES, THE COUPLERS AT THE HOSE ENDS SHOULD BE CONNECTED TOGETHER TO PREVENT CONTAMINANTS FROM ENTERING THE HYDRAULIC SYSTEM.



DO NOT STORE THE HOSES IN DIRECT SUNLIGHT OR IN EXCEPTIONALLY WARM SPACES. EXPANSION OF THE FLUID CAN CAUSE A PRESSURE BUILDUP INSIDE THE HOSES.

WACHS HCM-3D POWER UNIT

SECTION V

MAINTENANCE

WACHS HCM-3D POWER UNIT

SECTION V

MAINTENANCE

MAINTENANCE INSTRUCTIONS

Hydraulic System Maintenance

Observe the following suggestions for maximum performance and service life from your **WACHS HCM-4D Power Unit**.

Use the correct hydraulic fluid at all times.

Keep the hydraulic system and fluids clean at all times.

Keep water out of the fluid.



WATER IN THE FLUID REDUCES LUBRICATION AND CAUSES PREMATURE PARTS WEAR. PUMP CAVITATION MAY ALSO OCCUR.

Keep air out of the lines. Air is indicated by the hydraulic system overheating and foam at the hydraulic tank breather. Tighten all suction line fittings and clamps.

Hydraulic system wear is noted by increased heat during tool operation, reduced tool performance and eventual system breakdown.

Remove condensed moisture from the hydraulic fluid. Condensation is a frequent problem with cool mobile hydraulic circuits. This condition occurs in moist or cold climates when warm air in the reservoir tank draws moisture from the cooler outside air. Water will then accumulate in the tank.

Approximately once each week (less often in hot dry weather) take a small sample from the bottom of the hydraulic tank by removing the 1/2" npt drain plug. If clear water appears, drain the tank until clean oil starts to show.

If fluid is milky, allow it to settle for about 48 hours before draining. 1% water in a 2000 psi/ 40 bar system can cause a 25% increase in wear rate.

Check suction hose. Check hose from the hydraulic tank to the pump inlet to see that it is not kinked and that the clamps are secure. This will reduce the risk of pump cavitation and sucking air into the system. All -pump fittings must be tight.

Check hydraulic lines and fittings. Check for loose fittings, leaks, etc., through out the entire hydraulic circuit.

Change the hydraulic filter. If the operator consistently connects the hose ends together when detached from the tool and wipes off contaminants before connecting quick disconnects, the filter element should provide maximum performance.



NOTE: See dealer for air filter replacement specifications.

Fill the hydraulic tank by removing the filler cap at the top center of the tank. The tank is full when oil appears in the perforated basket at the bottom of the filler pipe.



NOTE: Do not use fluids other than those specified with in this manual.

ENGINE MAINTENANCE

See engine manual for maintenance requirements.

WACHS HCM-3D POWER UNIT

SECTION VI

TROUBLE SHOOTING

WACHS HCM-3D POWER UNIT

SECTION VI

TROUBLE SHOOTING

TESTING AND TROUBLE SHOOTING

The hydraulic system and engine should be tested periodically to insure that the power unit is operating at peak efficiency. Performing the recommended tests will help to isolate problems that may exist in the engine and hydraulic system.

The following pages list some of the more frequently encountered problems that may arise and the possible solutions.

WACHS HCM-3D POWER UNIT

SECTION VI

TROUBLE SHOOTING

PROBLEM:	CAUSE:	REMEDY:
STARTER WILL NOT CRANK ENGINE:	ENGINE WORKING AGAINST THE HYDRAULIC PUMP PRESSURE.	BE SURE THE CURCUIT SWITCHES ARE OFF.
	BATTERY DISCHARGED OR NOT PROPERLY CONNECTED.	CHECK CONDITION OF BATTERY CABLE CONNECTIONS, ETC. REPLACE AS NECESSARY.
	STARTER DEFECTIVE.	INSPECT STARTER. REPLACE AS NECESSARY.
	IGNITION SWITCH OR SOLENOID SWITCH (ES) DEFECTIVE.	REPLACE AS NECESSARY.
ENGINE CRANKS BUT WILL NOT START:	AIR INJECTORS AND/OR INJECTOR PUMP.	BLEED INJECTORS. REFER TO ENGINE MANUAL.
	WATER IN FUEL	EMPTY WATER SEDIMENT TRAP. BLEED INJECTORS PER MANUAL.
	COLD START NOT FUNCTIONING	CHECK CURRENT TO GLOW PLUGS ON COLD START UNITS. REPAIR CIRCUIT OR REPLACE GLOW PLUG AS NECESSARY.
	INADEQUATE COMPRESSION	CHECK FOR CLOGGED AIR CLEANER, VALVES SEATED, CYLINDER COMPRESSION LOSS, REPAIR AS REQUIRED.
ENGINE RUNS BUT HYDRAULIC CIRCUIT WILL NOT DRIVE TOOLS.	CIRCUIT SELONOID SWITCHES OFF OR DEFECTIVE.	SET SWITCHESTO ON. REPLACE IF SWITCH DEFECTIVE
	TOOL NOT CONNECTEDTO POWER UNIT.	CONNECTTOOL,CHECK COUPLERS.
	HYDRAULIC FLUID RESERVOIR LOW.	CHECK AND FILL AS REQUIRED.
	TOOL HOSES BLOCKED.	REMOVE OBSTRUCTION.

WACHS HCM-3D POWER UNIT

SECTION VI

TROUBLE SHOOTING

PROBLEM:	CAUSE:	REMEDY:
ENGINE RUNS BUT HYDRAULIC CIRCUIT WILL NOT DRIVE TOOLS.	TOOL HOSES INCORRECTLY CONNECTED TO CIRCUIT FITTINGS.	CHECK THAT TOOL HOSE GOES FROM TOP PORT TO TOOL PRESSURE OR IN PORT, AND FROM TOOL RETURN OR OUT PORT TO LOWER PORT, BOTH PORTS ARE ON THE SAME SIDE OF MANIFOLD.
	RELIEF VALVE(S) STUCK OPEN	ADJUST OR REPLACE.
	TOOL IS DEFECTIVE	REPAIR AS NECESSARY.
TOOLS RUN TOO HOT.	RELIEF VALVE SET TOO LOW.	ADJUST FOR 2100 PSI/ 48 BAR CRACKING PRESSURE.
	HOSES TOO SMALL	INCREASE HOSE DIAMETER (REFER TO SECTION 1.)
	IMPROPER FLUID	REPLACE FLUID (REFER TO SECTION 1.)
	COOLER CLOGGED, BLOCKED AIR FLOW.	CLEAN COOLER, STRAIGHTEN FINS AS NECESSARY.
	AIR INJECTORS AND/OR INJECTOR PUMP.	BLEED INJECTORS. REFER TO ENGINE MANUAL.
	THERMAL DIVERTER VALVE DEFECTIVE.	CHECK THAT VALVE IS DIRECTING HOT OIL TO THE COOLER BY FEELING THE TUBING AT THE COOLER. REPLACE VALVE IF DEFECTIVE.
	COLD START NOT FUNCTIONING	CHECK CURRENT TO GLOW PLUGS ON COLD START UNITS. REPAIR CIRCUIT OR REPLACE GLOW PLUG AS NECESSARY.
	HYDRAULIC PUMP DAMAGED.	REPLACE PUMP.
AIR FLOW THROUGH POWER UNIT BLOCKED.	REMOVE OBSTRUCTION.	

WACHS HCM-3D POWER UNIT

SECTION VI

TROUBLE SHOOTING

PROBLEM:	CAUSE:	REMEDY:
TOOL RUNS TOO HOT	FAN BELT LOOSE OR BROKEN.	REPLACE OR ADJUST AS REQUIRED.
	FLOW CONTROL VALVES OR PRIORITY VALVES HAVE BEEN ADDED TO THE CIRCUIT.	SOME ROTARY TOOLS MUST HAVE FLOW CONTROLS. ADJUST FLOW TO MATCH TOOL GPM TO AVOID FORCING EXCESS FLOW OVER THE RELIEF.
	CLOSED CENTER TOOLS IN USE	USE ONLY OPEN CENTER TOOLS

If a problem persists or is not listed in the above chart, cease operation and consult the manufacturer for additional instructions.

WACHS HCM-3D POWER UNIT

SECTION VII

PARTS LISTS AND EXPLODED VIEW DRAWINGS

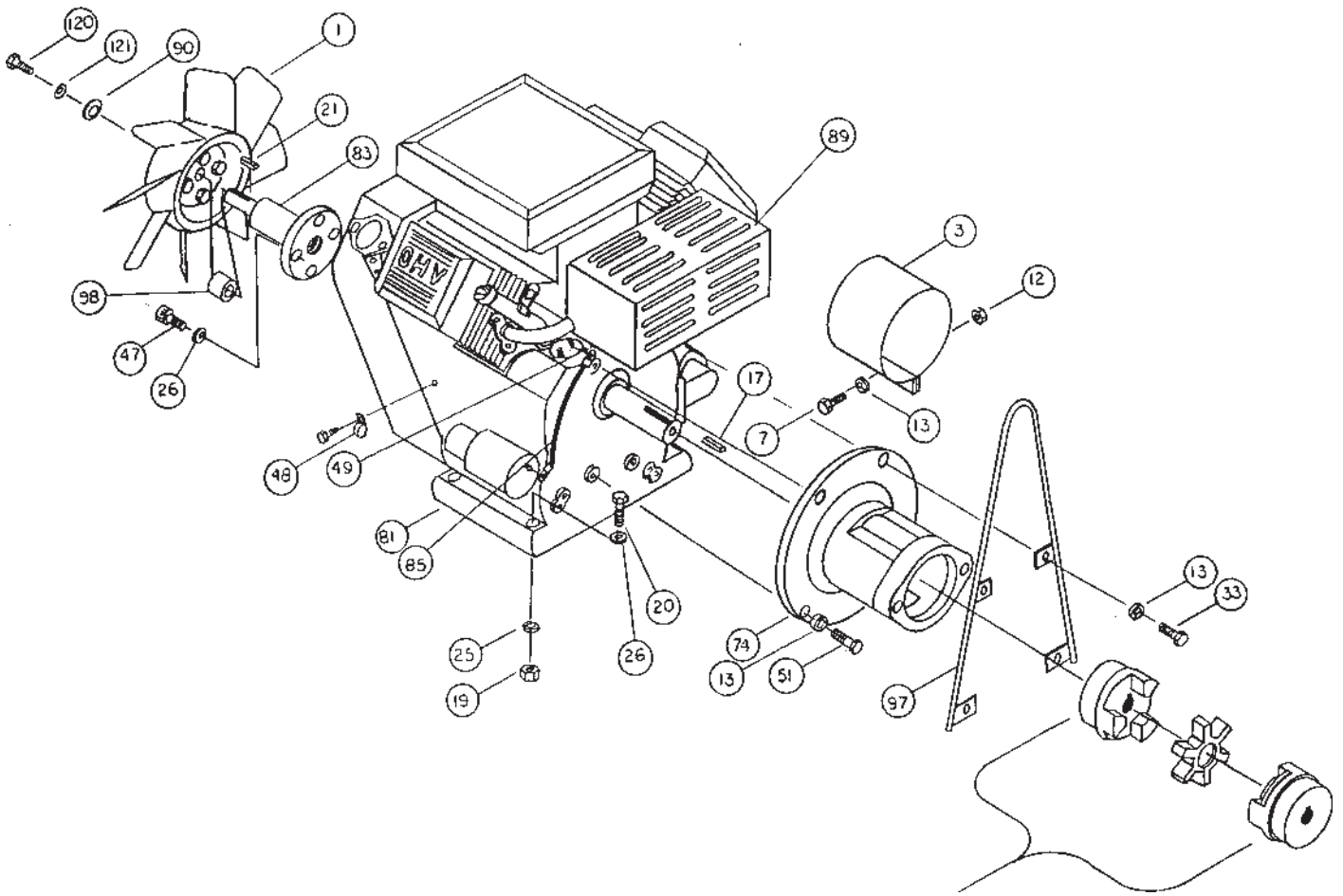
WACHS HCM-3D POWER UNIT

BILL OF MATERIALS HCM-3D 14-000-09

REF.	QTY.	DESCRIPTION
1	1	FAN
2	1	FILTER
3	1	COUPLING, GUARD
4	30"	HOSE
5	12	NUT, JAM
6	4	BOLT, 3,8 x 1-3/4"
7	18	BOLT, 1/4"X314"
8	2	BOLT, 114 x 2-1/4"
9	1	FITTING
10	1	PLUG
11	2	CLAMP, HOSE
12	17	NUT, 1/4"
13	22	WASHER, LOCK 3/8"
14	31	LOOKWASHER 1/4"
15	4	BOLT, 3/8 x 1-1/2"
16	2	PIN, COTTER
17	1	KEY 1/4x 1"
18	4	CLAMP, .750
19	4	NUT, 5/16
20	1	BOLT, 5/16 x 1-3/4"
21	1	KEY, 3/16 X 1-1/2"
22	12	WASHER, 1/4" FLAT
23	1	FITTING
24	1	VALVE, RELIEF
25	6	WASHER, LOCK
26	4	WASHER, FLAT

REF.	QTY.	DESCRIPTION
27	1	COOLER
28	1	FITTING
29	2	WHEEL
30	4	FITTING
31	1	GAUGE, HR METER
32	1	CABLE, THROTTLE
33	2	BOLT, 3/8x1"
34	2	BOLT, 5/16 x1"
35	2	CLAMP, HOSE
36	1	STRAP
37	1	PUMP, HYD.
38	1	FITTING
39	6	TIE, 8"
40	1	SHIPPING CONTAINER
41	1	"
42	1	"
43	1	"
44	1	CHOKE CABLE
45	1	CAP, HYD. TANK
46	3	PAINT, WHITE
47	4	BOLT, 5/16x1"
48	1	CLAMP
49	1	STARTER, SOL
50	4	NUT, 3/8"
51	2	BOLT, 3/8 x 1-1/4"
52	1	TANK, HYD.
53	1	TANK, FUEL

WACHS HCM-3D POWER UNIT



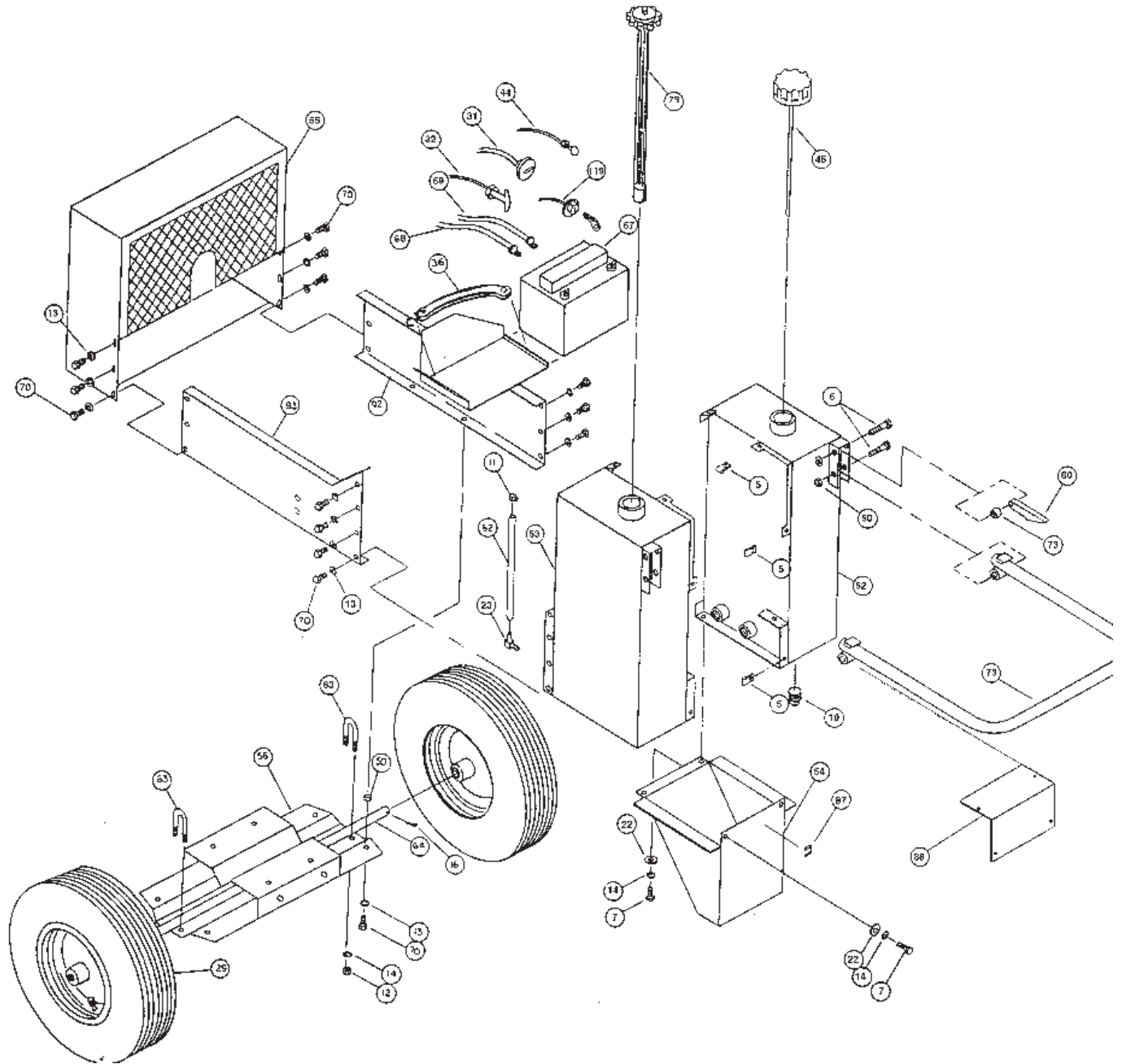
WACHS HCM-3D POWER UNIT

BILL OF MATERIALS HCM-3D 14-000-09

REF.	QTY.	DESCRIPTION
54	1	FOOT, REAR
55	1	SHROUD, COOLER.
56	1	BRACKET, ENGINE MNT
57	1	FITTING
58	1	FITTING
59	1	HANDLE
60	2	LATCH, HANDLE
61	1	HOSE, 50"
62	1	HOSE, 45"
63	2	"U" BOLT
64	2	AXLE
65	1	HOSE, 11-1/2"
66	6	CLAMP, HOSE IDEAL
67	1	BATTERY, GUI-220
68	1	CABLE, POS.. RED
69	1	CABLE, NEG. BLACK
70	18	BOLT, 3/8 x 3/4"
71	1	HOSE, 15-1/2"
72	1	MANIFOLD
73	2	SPACER, HANDLE
74	2	MOUNT, PUMP
75	2	OIL, ENGINE
76	3	OIL, HYDRAULIC
77	2	GAS, REGULAR
78	4	BOLT, 1/4x 1-1/4"
79	1	CAP, FUEL GAUGE
80	1	FITTING PLUG

REF.	QTY.	DESCRIPTION
81	1	ENGINE
82	1	SWITCH, PRESSURE
83	1	SHAFT, FAN
84	1	WIRING, COMPLETE
85	1	CABLE, BATTERY RED
86	1	VALVE, FLOW
87	1	BUMPER, HOOD
88	1	COVER, PLATE
89	1	MUFFLER, V-TWIN
90	1	WASHER, FAN
91	1	COUPLER, PUMP
92	1	FRAME, SIDE - RIGHT
93	1	FRAME, SIDE - LEFT
94	1	LEVER, ASSEMBLY
95	1	HOSE, INNER SUPPORT
96	1	PANEL, CONTROL - LOWER
97	1	LIFTING EYE
98	1	SPACER, FAN
99-115	1	GRAPHIC SET
116	1	HOSE, RETURN
117	1	FITTING
118	1	SWITCH, IGNITION
119	1	SWITCH, IGNITION
120	1	BOLT, 6 MM
121	1	WASHER, 6 MM
122	1	PLUG, CONTROL VALVE

WACHS HCM-3D POWER UNIT



WACHS HCM-3D POWER UNIT

SECTION VIII

ORDERING INFORMATION

To place an order or to get more detailed information on any E.H. Wachs products, call us at:
1-800-323-8185.

ORDERING REPLACEMENT PARTS

Please use parts list provided in manual. Have part description and part number of required replacement part or parts to help expedite order and insure proper parts are being ordered.

REPAIR INFORMATION

Please call E.H. Wachs Company prior to returning any equipment for repair. We will advise you of shipping and handling. Please enclose with equipment to be repaired your name, address, phone number and a brief description of problem or work to be done or estimated.

All repair work done at our plant will be estimated and the customer advised of cost and time required to complete repair.

WARRANTY INFORMATION

Enclosed with the manual is a warranty card. Please fill out the registration card and return to E.H. Wachs. Retain the owners registration record and warranty card for your information.

RETURN GOODS ADDRESS

E.H. Wachs Company
100 Shepard Street
Wheeling, Illinois 60090


Call or Write:

E.H. Wachs Company
P.O. Box A
100 Shepard Street
Wheeling, Illinois 60090

847-537-8800

FAX: 847-520-1147 • 847-520-1168

Toll-Free: 1-800-323-8185

	HYDRAULICTOOL
	POWER UNITS
Model HCM-3D Ser.No.	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
E.H. WACHS COMPANIES 100 Shepard St. Wheeling Il. 60090	