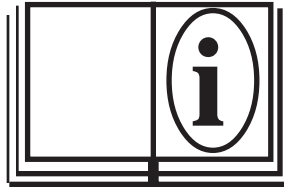


**WACHS HCM-3E2
POWER UNIT
MODEL 14-000-21**



	HYDRAULICTOOL
	POWER UNITS
Model HCM-3E2 Ser.No.	<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-21

Revision No: 1

WACHS HCM 3E2 POWER UNIT

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WACHS HCM 3E2 POWER UNIT

SECTION I

STANDARD EQUIPMENT



Wachs HCM-3E2 Features:

- Units convert easily from cart mount to skid mount
- All cart mount units have collapsible handles
- All cart mount units have large dia. pneumatic tires for ease of transport
- Hydraulic oil-level sight gauge
- HTMA hydraulic quick couplers
- Large capacity hydraulic cooler, meets or exceeds HTMA specifications

Wiring Reference

Wachs hydraulic power units are prewired at the factory. This page describes wiring of the HCM-3E2 in case you need to perform service on the unit.

Electrical Specifications

Requirement	220-240 V, 3 phase
Fuse panel	50 A
Wiring	6 gauge (13 mm ²)

Power Switch

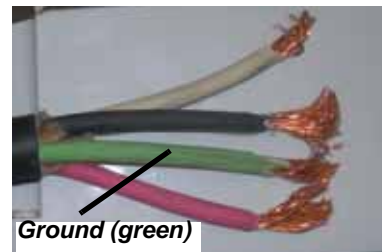
The power switch is on the front of the electrical control box. Turn the switch clockwise to turn the unit on. Turn the switch counter-clockwise to turn the unit off.



Plug (Input) Wiring

The photo at the right shows the input power cable. The green wire is ground. The other wires (black, white, and red) are hot.

After connecting the cable to input power, “bump” the motor on and off to check the direction it is rotating. A label on the motor (shown at right) indicates the motor rotation direction. If the motor is rotating the wrong direction, flip any 2 of the input “hot” power input wires to reverse the direction.



Motor should turn clockwise

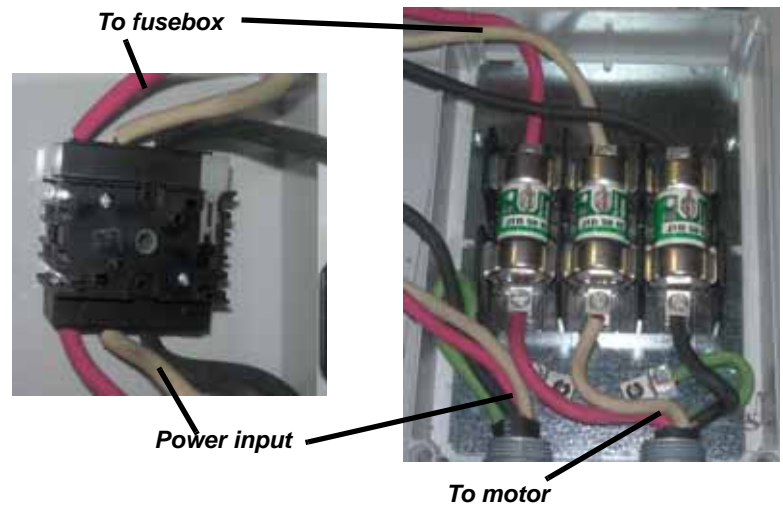


WARNING

All electrical work should be performed by a qualified electrician. Disconnect main electrical power to the unit before removing covers. Disconnect hydraulic circuit before performing service.

Switch and Fusebox Wiring

The photos below show the wiring of the switch and fusebox. Make sure fuses are 50 amps.



Motor Wiring

The motor on the HCM-3E2 is prewired at the factory for low voltage (220/240 V) operation, as shown on the wiring connection label on the motor. No other service is required.

Units in the field cannot be changed to high voltage (480 V) with the supplied components. Contact factory service at E.H. Wachs if this is required.

WACHS HCM 3E2 POWER UNIT

SECTION II

MACHINE SPECIFICATIONS

The **Wachs HCM 3E2** power unit provides power for operation of type 1, type 2, or type 3 open-center tools (8 GPM /30.3 LPM at 1500 PSI/103 Bar).

The electric unit is equipped with a 15 HP Baldor electric motor. The unit has an enclosed hydraulic and cooling system lined with sound suppressing material. The unit should never be operated with this enclosure open. Some units may also have a hood lined with sound suppressing material over the motor.

The power units are all equipped with air-to-oil coolers and suction fans mounted to the power shaft on the motor.

The hydraulic system is self-contained with reservoir, filtration, and level indicators.



MODEL HCM-3E2 # 14-000-21				
SPECIFICATION	DESCRIPTION			
HYDRAULIC SYSTEM:	OPEN CENTER			
FRAMETYPE:	THREE WHEEL	SKID		
	MOBILE UNIT			
LENGTH:	27.5"	27.5"		
	69.85 CM	69.85 CM		
WIDTH:	24.5"	15.0"		
	62.23 CM	38.1 CM		
HEIGHT:	31.5"	22.0"		
	80.01 CM	55.88 CM		
WEIGHT (DRY):	31.5"	22.0"		
	80.01 CM	55.88 CM		
FILTRATION:	10 MICRON RETURN RETURN			
OIL COOLER:	AIR TO OIL WITH INDEPENDENT FAN			
MOTOR:	15 HP 220VOLT 3 PHASE BALDOR			
	ELECTRIC MOTOR			
FUEL:	N/A			
HYDRAULIC OIL:	4.0GALLONS/15.14 LITRES			
RATED FLOW:	GPM @ PSI	LPM @ BAR		
A PORT:	8.8	0	33.3	0
	8.0	1500	30.3	103
B PORT:				
C PORT:				
HYDRAULIC RELEIF PRESSURE:	1500 PSI @ 103.0 BAR			

WACHS HCM 3E2 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.



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.
--	---

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.

For your safety and the safety of others, read and understand these safety recommendations and operating instructions before operating.

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.

	CAUTION RISK OF ELECTRICAL SHOCK This device should never be used in an excessively wet environments. Make certain power source's ground is functioning before operating this power unit. Failure to do so could result in serious injury or death. Non-conductive hoses should be used when operating power unit near power lines. The hose should be tested regularly for electrical current leakage in accordance with your safety department instructions.
--	--

	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 3E2 POWER UNIT

SECTION III

SAFETY INSTRUCTIONS (cont.)



TIPS FOR SAFE USE OF YOUR POWER UNIT

- Make sure hoses and fittings are undamaged and tight before starting the power unit.
- Keep clear of hot engine exhaust.
- Never use flammable solvents around the power unit engine.
- Clean up oil and fuel spills immediately. Do not overfill fluids.
- Always shut down the power unit engine before performing any maintenance or adjustments on the power unit unless otherwise specified.
- Make sure all hoses are connected for correct flow direction to and from the tool being used.
- Do not operate the power unit if a fuel odor is present. Check for spilled fuel. Check for fuel leaks.
- Keep the power unit at least 3.3 feet (1 meter) away from buildings, obstructions and flammable objects. Do not aim engine exhaust at materials that could catch fire.
- Operating the power unit at excessive speeds increases the danger of personal injury. Do not change governor settings or tamper with governor components which may increase engine speed.
- Allow the engine to cool before storing the power unit in an enclosure.
- Keep all fasteners tight to be sure that the power unit is in safe working condition
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.

BE TRAINED THOROUGHLY BEFORE OPERATING THE POWER UNIT ALONE.

- Operator training must consist of a demonstration as well as a verbal period of instruction. This training is given by the dealer before the power unit is delivered.
- The new operator must start in an area without bystanders and use all controls until able to fully operate the power unit under the conditions for the work area.

KNOW THE WORK CONDITIONS.

- Operators must know all prohibited uses or work areas for the power unit. For example, excessive slopes and poor or dangerous terrain conditions.

OBEY THE SAFETY RULES.

- Unauthorized modifications to the power unit may impair the function and/or safety as well as impair the machine's life. Use only approved WACHS service parts or accessories.

The safety tag below is attached to the power unit when shipped from the factory. Read and understand the safety instructions listed on this tag before removal. We suggest you retain this tag and attach them to the power unit when not in use.

DANGER

1. FAILURE TO USE HYDRAULIC HOSE LABELED AND CERTIFIED AS PROTECTIVE LINES WITH INSULATED ELECTRICAL LINES MAY RESULT IN DEATH OR SERIOUS INJURY.

BEFORE USING HOSE LABELED AND CERTIFIED AS NON-CONDUCTIVE OR ELECTRICAL INSULATED HOSE, THE HOSE IS LABELED AS NON-CONDUCTIVE. THE HOSE SHOULD BE REGULARLY TESTED FOR ELECTRICAL CURRENT LEAKAGE IN ACCORDANCE WITH YOUR SAFETY DEPARTMENT INSTRUCTIONS.

2. A HYDRAULIC LEAK OR BURST MAY PENETRATE INTO THE BODY OR CAUSE OTHER SEVERE PERSONAL INJURY.

A. DO NOT EXCEED RATED FLOW AND PRESSURE FOR THIS TOOL. EXCESSIVE FLOW OR PRESSURE MAY CAUSE A LEAK OR BURST.

B. DO NOT EXPOSE THE WATER OR PNEUMATIC MEDIUM OF HYDRAULIC HOSE USED WITH THIS TOOL. EXCESS PRESSURE MAY CAUSE A LEAK OR BURST.

C. CHECK TOOL HOSES COUPLINGS AND CONNECTORS ON THE TOOL. PARTS, JOINTS OR FITTINGS CAN WITH YOUR HANDS. CONTACT WITH A LEAK MAY IN SEVERE PERSONAL INJURY.

IMPORTANT

READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY

TAG IS TO BE REMOVED ONLY BY TOOL OPERATION
SEE OTHER SIDE

DANGER

3. DO NOT LIFT OR CARRY TOOL BY THE HANDLES. DO NOT ALLOW HOSE TO BE HIT OR KICKED, KICK THE DAMAGED HOSE.

4. MAKE SURE HYDRAULIC HOSES ARE PROPERLY CONNECTED TO THE TOOL BEFORE PRESSURING SYSTEM. SYSTEM PRESSURE MUST ALWAYS BE DISCONNECTED TO TOOL. "N" PORT. SYSTEM RETURN HOSE MUST ALWAYS BE CONNECTED TO THE TOOL. "Y" PORT. REVERSING CONNECTIONS MAY CAUSE REVERSING TOOL OPERATION WHICH COULD RESULT IN SEVERE PERSONAL INJURY.

5. DO NOT CONNECT CLOSE CENTER TOOLS TO OPEN CENTER HYDRAULIC SYSTEMS. THIS MAY CAUSE EXTREME SYSTEM HEAT AND/OR SEVERE PERSONAL INJURY.

DO NOT CONNECT OPEN CENTER TOOLS TO CLOSED CENTER HYDRAULIC SYSTEMS. THIS MAY CAUSE EXTREME SYSTEM HEAT AND/OR SEVERE PERSONAL INJURY.

6. BYSTANDERS MAY BE INJURED IN YOUR WORK AREA. KEEP BYSTANDERS CLEAR OF YOUR WORK AREA.

7. WEAR HEARING, EYE, FOOT, HAND AND HEAD PROTECTION.

IMPORTANT

READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY

TAG IS TO BE REMOVED ONLY BY TOOL OPERATION
SEE OTHER SIDE

WACHS HCM 3E2 POWER UNIT

SECTION IV

SET-UP AND OPERATING PROCEDURES

WACHS HCM 3E2 POWER UNIT

SECTION IV

SET-UP AND OPERATION

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 3/4	16 19	SAE100R2-10 SAE100R1-12	SAE100R7-12 SAE100R7-12
9 to 12	34 to 45	to 50	to 15	Both	5/8	16	SAE100R2-10	SAE100R8-10
9 to 12	34 to 45	51-100	15 to 30	Pressure Return	5/8 3/4	16 19	SAE100R2-10 SAE100R2-12	SAE100R8-10 SAE100R7-12
9 to 12	34 to 45	100-200	30 to 60	Pressure Return	3/4 1	19 25.4	SAE100R2-12 SAE100R1-16	SAE100R8-12 SAE100R7-16
13 to 16	49 to 60	to 25	to 8	Pressure Return	5/8 3/4	16 19	SAE100R2-10 SAE100R1-12	SAE100R8-10 SAE100R7-12
13 to 16	49 to 60	26 to 100	8 to 30	Pressure Return	3/4 1	19 25.4	SAE100R2-12 SAE100R1-16	SAE100R8-12 SAE100R7-16

HYDRAULIC SYSTEM

1. The hydraulic system consists of a hydraulic fluid reservoir, filter assembly, single pump, and a wide variety of flow controls. The filter 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.

2. The hydraulic pump will vary depending upon the capabilities of the power unit. The pump will be called out in the parts section of the manual.

3. 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.

TOOL HOSE RECOMMENDATIONS

4. The hoses in the chart (TABLE 1) above are recommended for the hydraulic fluids specified in the section concerning hydraulic fluids.

HYDRAULIC FLUID REQUIREMENTS

5. The power unit is shipped from the factory with the recommended hydraulic fluid. Oils meeting the specifications listed below will provide all season operation if normal maintenance is performed.

The following fluids work well over a wide temperature range at start-up, allow moisture to settle out, and resist biological growth likely in cool operating hydraulic circuits.

These fluids are recommended by E.H. Wachs. Other fluids that meet or exceed the specifications of these may also be used.

- Ams-Oil Hydraulic A/W 150 SSU, 100V.I.**
- Chevron AW-MV-32**
- Exxon "Univis" J-26**
- Mobil D.T.E. 13**
- Gulf "Harmony" AW-HIV-150-32**
- Shell "Tellus" T-32**
- Sun "Sunvis" 805 MG**
- Texaco "Rando"**
- Union "Unax" AW-WR-32**

Viscosity (fluid thickness)

STANDARD	METRIC
50° F 450 SSU Max.	10° C 95 Centistrokes
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.

WACHS HCM 3E2 POWER UNIT

SECTION IV

SET-UP AND OPERATION (CONT.)

MOTOR DESCRIPTION

The power unit is equipped with a 15 HP motor which is one of the three following motor enclosures. All units are built to customer requirements.

OPEN DRIP PROOF MOTORS

Intended for use in clean, dry locations with access to an adequate supply of cooling air. In addition, there should be protection from or avoidance of flammable materials.

TOTALLY ENCLOSED MOTORS

Intended for use where moisture, dirt, and corrosive materials are present in indoor or outdoor locations.

EXPLOSION-PROOF MOTORS

Indicated by the Underwriters Laboratories, Inc.(UL) label, are required for hazardous locations in accordance with the National Electrical Code (NEC).

The following checks must be performed prior to operating the power unit:

HYDRAULIC OIL

Check the oil level in the reservoir, add oil as required. refer to power unit specifications and hydraulic fluid requirements section on preceding page.

MOTOR WIRING

Connect the machine in accordance with Illustration A in column 2. the wiring, fusing and grounding must be in accordance to the National Electric Code (NEC) and any local codes that may apply.

When the machine is connected to the load for proper direction of rotation and started, it should start quickly and run smoothly. If this is not the case, cease operation immediately and investigate the cause.

It is recommended that the motor current be checked after power unit has been operated for a short time and compared to the nameplate current.

CHECK LIST

Keep the following in an area that is accessible to the operator and maintenance personnel.

- Engine tool kit (if required)
- Owners manual
- Engine reference manual

HYDRAULIC CONNECTIONS

Pressure and return hoses are connected to the ports at the control panel as shown in Illustration A.

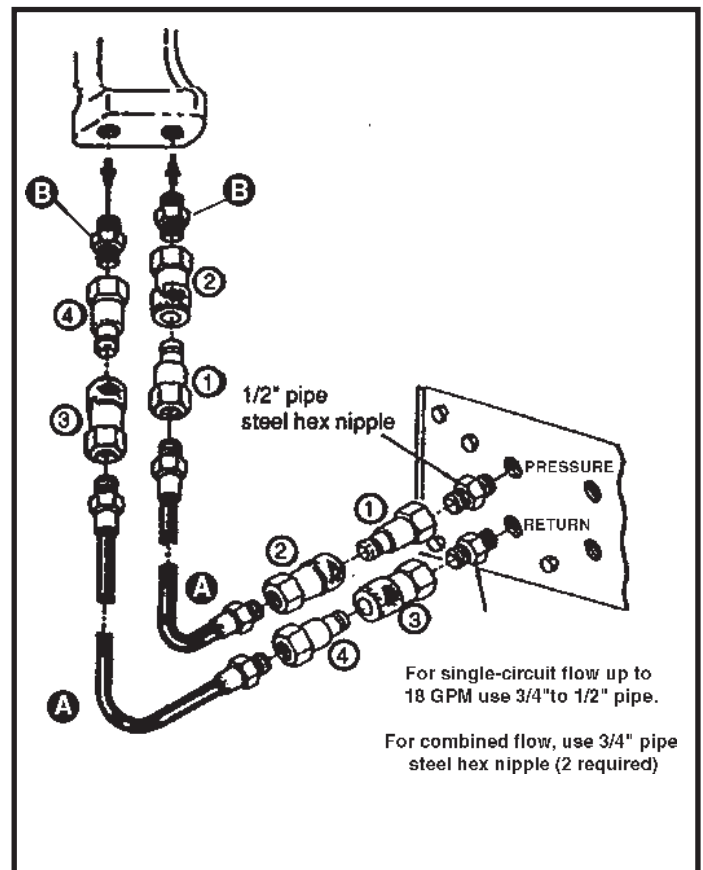


Illustration A

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.

WACHS HCM 3E2 POWER UNIT

SECTION IV

SET-UP AND OPERATION (cont.)

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. 3/8" female quick acting coupler with 3/8" npt thread.

FOR SINGLE CIRCUIT FLOW UP TO 15 GPM*

3. H.T.M.A. 3/8" 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.
- A. Refer to table 1 on page 10 for hose recommendations.
- B. Use adapters with threads that match tool part.



IMPORTANT: When using couplers, oil should always flow from the male coupler to the female coupler.

BEFORE START UP

Perform the checks specified in "Preparation For Use" section, before operating the power unit. Make certain the following conditions are met.

- Hydraulic tank must be full.
- All hoses are to be free of damage. All hose and coupler fittings must be tight.
- The front section of the motor 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 zero 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.

Plug unit into power source, turn motor switch on. Allow unit to run without activating the tool until hydraulic circuit warms up.

TOOL OPERATION

Start the engine as specified in preceding steps.

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 5 GPM/19 LPM circuits combined into one 10 GPM/ 38 LPM circuit for operation of H.T.M.A. type 3 tools.

To obtain 10 GPM/ 38 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 10 GPM /38 LPM circuit to start the flow.

NOTE: Both 5GPM/19 LPM circuits remain in the OFF position for 10 GPM / 38 LPM flow.

SHUT DOWN

Return the hydraulic circuit to the OFF position or zero flow.

Turn the switch to the OFF position

Disconnect the hydraulic hoses and store in suitable area (see maintenance section on proper procedure for storage of hoses).

NOTE: 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 sun light or in exceptionally warm spaces. Expansion of the fluid can cause a pressure build up inside the hoses.

WACHS HCM 3E2 POWER UNIT

SECTION V

MAINTENANCE

WACHS HCM 3E2 POWER UNIT

SECTION V

MAINTENANCE

HYDRAULIC SYSTEM MAINTENANCE



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

Observe the following for maximum performance and service life from the hydraulic system.

- Use the correct hydraulic fluid at all times.
 - Keep the hydraulic system and fluids clean at all times.
 - Keep water out of the fluid.
 - 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.
- A. Remove condensed moisture from the hydraulic fluid. Condensation is a frequent problem with cool mobile hydraulic circuits. This condition occurs in moist or cold cli-



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

mates when warm air in the reservoir tank draws moisture from the cooler outside air. Water will then accumulate in the tank.

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.

Approximately once each week (less often in hot, arid climates) take a small sample from the bottom of the hydraulic tank by removing the 1/2" npt drain plug. If clear water appears, drain tank until clean oil is flowing. If fluid is milky, allow it to settle for about 48 hours before draining.

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



NOTE: See your local WACHS dealer for proper filter replacement specifications.

- D. 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.
- E. Fill the hydraulic tank. 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.

MOTOR MAINTENANCE

This is a ball bearing motor. The bearings have been given initial lubrication at the factory. Sealed motors are factory lubricated for normal bearing life.

Baldor motors are pre-greased with Shell "Dolium R". Other equivalents are: Chevron SRI2 and Texaco "premium RB".

Over greased bearings can cause premature bearing failure. If motor is equipped with Alemite fitting, apply grease with grease gun.

Use 1 to 2 full strokes on motors in NEMA 215 frame and smaller. Use 2 to 3 strokes on NEMA 254 through NEMA 365 frames. Use 3 to 4 strokes on NEMA 404 frames and larger. On motors having drain plugs, remove grease drain plug and run motor 20 minutes before replacing plug.

On motors equipped with slotted head grease screws, remove screw and apply grease tube to hole. Insert 2 to 3 inch length grease string into each hole on motors in NEMA 215 frame and smaller. Insert 3 to 5 inch length on larger motors.

Motors having grease drain plugs, remove plug and operate motor for 20 minutes before replacing drain plug.

WACHS HCM 3E2 POWER UNIT

SECTION VI

TROUBLE SHOOTING

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

WACHS HCM 3E2 POWER UNIT

SECTION VI

TROUBLE SHOOTING

PROBLEM:	CAUSE:	REMEDY:
TOOLS RUN TOO HOT	RELIEF VALVE SET TOO LOW	ADJUST FOR 2100 PSI/148 BAR CRACKING PRESSURE.
	HOSES TOO SMALL	INCREASE HOSE DIAMETER
	IMPROPER FLUID	REPLACE FLUID
	COOLER CLOGGED, BLOCKED AIR FLOW.	CLEAN COOLER, STRAIGHTEN FIN-AS NECESSARY.
	AIR INJECTORS AND/OR INJECTON-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 PLUG-ON COLD START UNITS. REPAIR CIRCUIT OR REPLACE GLOW PLUG AS NECESSARY.
	HYDRAULIC PUMP DAMAGED	REPLACE.
	AIR FLOW THROUGH POWER UNIT BLOCKED.	REMOVE OBSTRUCTION.
	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 ONLY OPEN CENTER TOOLS	
MOTOR RUNS BUT HYDRAULIC CIRCUIT WILL NOT DRIVE TOOLS.	CIRCUIT SOLENOID SWITCHES OFF OR DEFECTIVE.	SET SWITCHES TO "ON". REPLACE IF SWITCH DEFECTIVE.
	TOOL NOT CONNECTED TO POWER UNIT	CONNECT TOOL, CHECK COUPLERS
	HYDRAULIC FLUID RESIVOIR LOW	CHECK AND FILL AS REQUIRED
	TOOL HOSES BLOCKED	REMOVE OBSTRUCTION
	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

WACHS HCM 3E2 POWER UNIT

SECTION VII

PARTS LISTS AND EXPLODED VIEW DRAWINGS

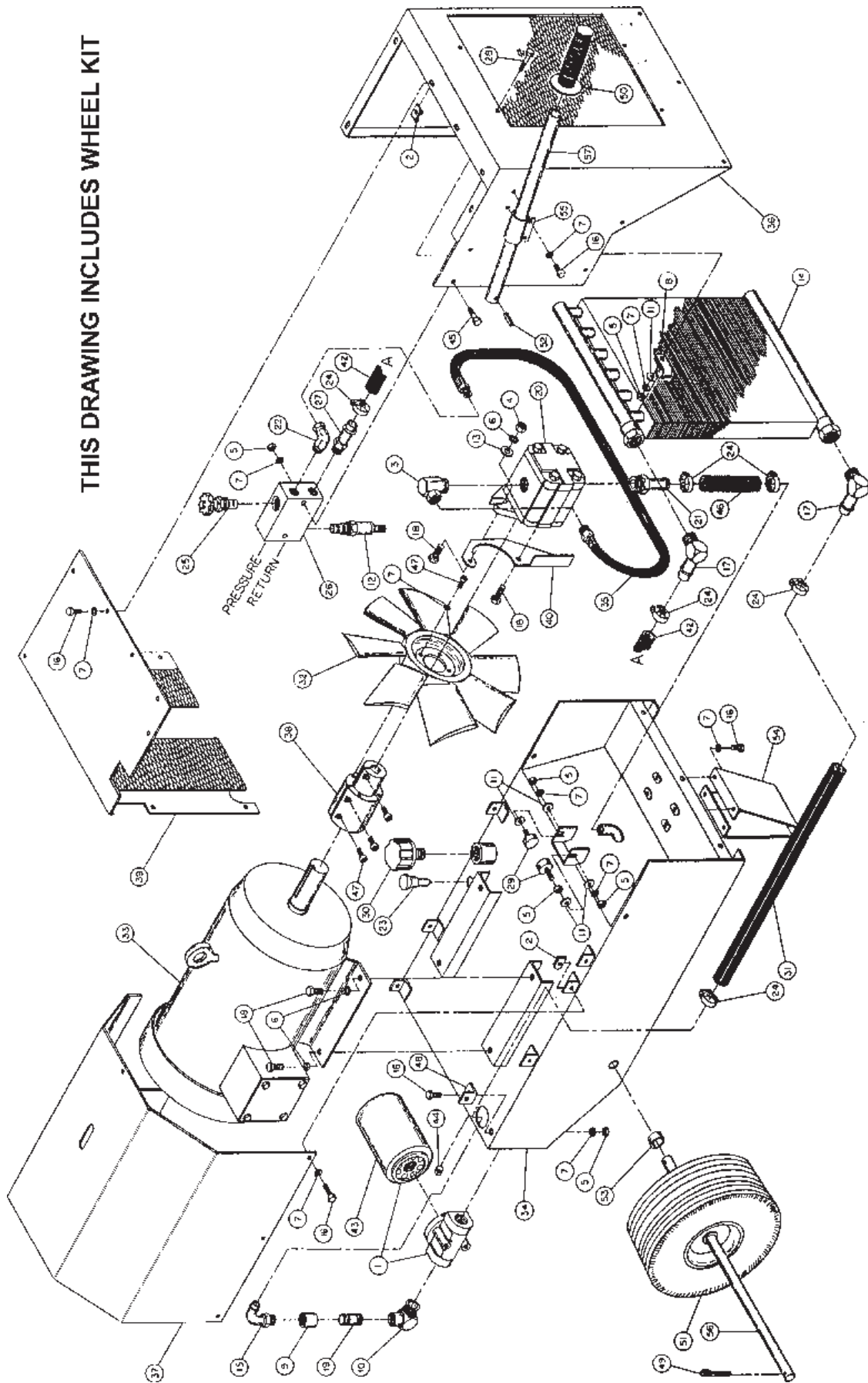
WACHS HCM 3E2 POWER UNIT

BILL OF MATERIALS HCM 3E2 #14-000-21

REF.	QTY.	DESCRIPTION
1	1	FILTER
2	20	NUT, JAM
3	1	FITTING
4	2	NUT, 3/8"
5	10	NUT, 1/4"
6	6	WASHER, LOCK 3/8"
7	37	WASHER, LOCK 1/4"
8	4	CLAMP
9	1	FITTING 3/4"
10	1	WASHER 1/4"
11	8	WASHER 1/4"
12	1	VALVE, RELIEF
13	2	WASHER, FLAT
14	1	COOLER
15	1	FITTING
16	23	BOLT, 1/4"
17	2	FITTING
18	6	BOLT, 3/8"
19	2	FITTING 3/4"
20	1	PUMP, HYD.
21	1	FITTING
22	1	FITTING
23	1	GUAGE, SIGHT
24	2	CLAMP, HOSE
25	1	VALVE
26	1	MANIFOLD
27	1	FITTING
28	4	BOLT, 1/4"
29	2	FOOT
30	1	CAP
31	2	HOSE, RETURN
32	1	FAN
33	1	MOTOR
34	1	TANK, HYDRAULIC
35	1	HOSE, PRESSURE
36	1	GRILL
37	1	HOOD
38	1	COUPLER, PUMP
39	1	GRILL, REAR
40	1	BRACKET, PUMP
41	1	GRAPHIC SET
42	3	HOSE, RETURN 3/4"

REF	QTY.	DESCRIPTION
43	1	FILTER ELEMENT
44	1	PLUG 1/4" NPT
45	2	BOLT, 1/4NC x 2.00
46	1	HOSE, SUCTION
47	7	BOLT
48	1	TAB
49	2	PIN, COTTER 1/8"
50	2	GRIP, HANDLE
51	2	WHEEL
52	2	PIN, SPRING
53	2	SPACER
54	2	FOOT
55	2	BRACKET, HANDLE
56	1	AXLE
57	2	HANDLE

THIS DRAWING INCLUDES WHEEL KIT



WACHS HCM 3E2 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-3E2 Ser.No.	<input type="text"/> <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	