

PEXTO

PH52 HYDRAULIC SHEAR

INSTRUCTIONS AND PARTS IDENTIFICATION



MODEL PH52



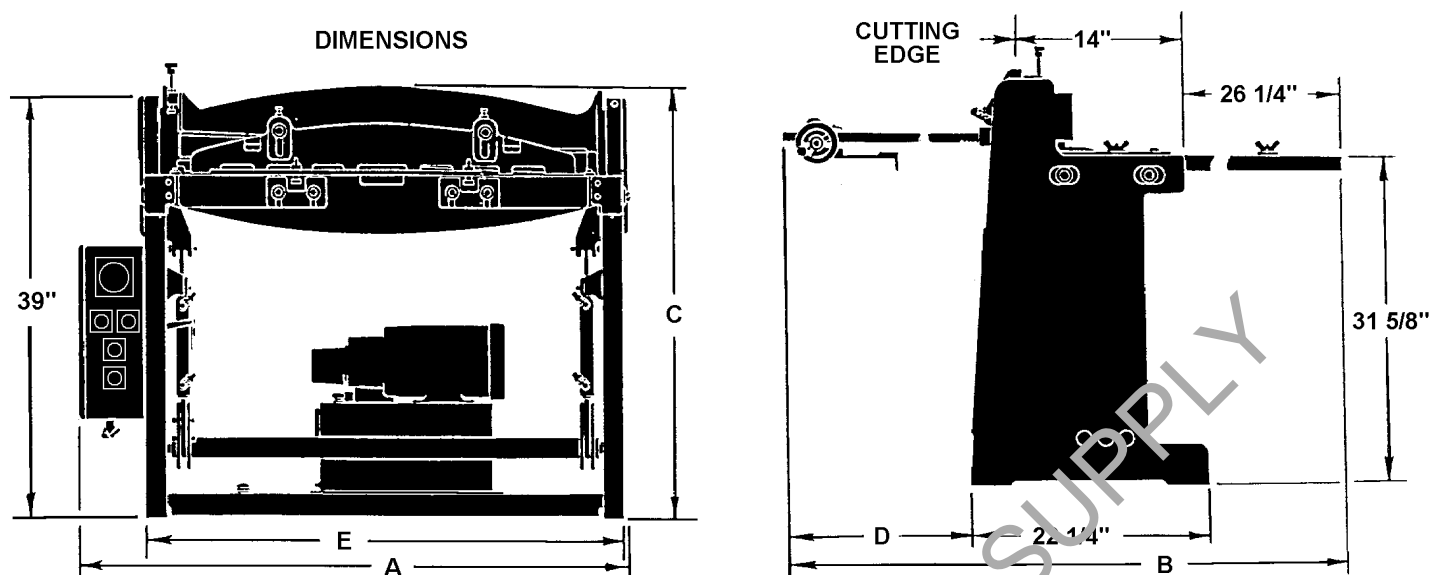
ROPER WHITNEY

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SAFETY RULES PH52

1. Do not operate machine without proper instructions.
2. Perform all installation and set up operations before applying power for electrical start up.
3. Machine to be operated by qualified authorized personnel.
4. All required guarding to be installed and effective before using.
5. Do not use machine if servicing is required.
6. Ground all electrically powered equipment.
7. Never leave machine running unattended.
8. Keep work area clear and in proper order.
9. Avoid accidental start-up.
10. Use safety glasses and protective tools when required.
11. Never adjust machine with power on.
12. Be alert to all potential hazards.
13. **WARNING:** Electrical danger -- misuse or improper installation of machinery connected to a source of electricity may result in accidental shock that could cause injury or death. Installation must conform to National Electric Code (Article 250 -- Grounding, etc.)

PH52 SPECIFICATIONS**MAXIMUM CAPACITY - 16 GAUGE**

SHEAR	A	B	C	D	E	BLADE LENGTHS
PH52	66"	75 7/8"	42"	29 1/2"	59 1/4"	53 1/2"

SPECIFICATIONS**PH52**

Blade Length	53 1/2"
Capacity Mild Steel (w/S'td Carbon Steel Blades)	16 ga.
Capacity Stainless Steel (w/High Speed Steel Blades)	20 ga.
Back Gauge Range	25"
Front Gauge Range	37"
Strokes per min. Full Length, Full Capacity	45
Strokes per min. 3/4 Length	60
Strokes per min. 1/2 Length	75
Strokes per min. 1/4 Length	100
Motor - 1800 RPM 3 Phase	2 H.P.
Oil Reservoir Capacity	5 Gal.
Length	66"
Height	42"
Width F to B (with gauges)	76"
Width F to B (without gauges)	26"
Shipping Weight (approximate)	1300 lbs.

PH52 POWER UNIT START-UP INFORMATION

1. While in transit or during installation, a power unit may be subjected to many unusual conditions. On systems with separately mounted pumps and motors, the alignment between shafts should be checked with an indicator or straight edge and adjustments made if necessary. Pump misalignment drastically reduces pump-bearing life.
2. Fill the reservoir with a premium grade fluid. For machine tool feed and similar applications at pressures to 1500 psi and temperatures to 130 degrees Fahrenheit, a fluid viscosity of 150 SSU @ 100 degrees Fahrenheit is permissible. For higher pressures and temperatures (150 degrees Fahrenheit max) a fluid viscosity from 225 to 325 SSU @ 100 degrees Fahrenheit will provide maximum pump service life. When using high viscosity fluids (325 or above) a heater must be used to heat the oil to 80 degrees Fahrenheit minimum before start up. For cold start up applications at temperatures down to 0 degrees Fahrenheit automatic transmission fluid, type 4, will usually prove satisfactory.
3. Connect the motor to the proper electrical source, checking the motor nameplate for proper wiring if dual voltage motors. Jog the motor to check rotation. Poly phase motors are bidirectional and proper rotation can be established by reversing any two power leads. The electrical characteristics for valves are shown on the nametag. **CAUTION:** simultaneously energizing both solenoids on double solenoid valves will cause coil burnout.
4. Systems pressures should be set as low as possible to prevent unnecessary fluid heating. On some applications this may be from 50 to 200 psi above necessary static pressures to overcome dynamic pressure drop or to achieve proper acceleration.
5. Pump noise and "crackle" is most often caused by air entering the pump suction. The tightening of the suction fittings will usually eliminate such problems. If the pump fails to prime, vent pump discharge to atmosphere to establish fluid flow.
6. The fluid level should be maintained so it always shows in the sight gauge. This is of utmost importance when an immersion type heat exchanger is used to prevent condensation from collecting on uncovered cooling coils.
7. After the first few hours of operation any foreign material from the system plumbing will be flushed into the reservoir. It is good practice to drain and replace the initial filling, and to clean the reservoir and suction strainer.
8. For most industrial applications, an operating temperature of 150 degrees Fahrenheit is considered maximum. At higher temperatures difficulty is often experienced in maintaining reliable and consistent hydraulic control, component service life is reduced, hydraulic fluid deteriorates, and a potential danger to operating personnel is created.
9. At least once a year or every 4,000 operation hours, the reservoir suction strainer and air vent filter should be cleaned: at this time check the entire system for possible future difficulties. Some application or environmental conditions may dictate such maintenance be performed at more frequent intervals.

PH52 INSTRUCTIONS

OPERATING INSTRUCTIONS:

This shear has been tested to capacity at the factory. Do not exceed maximum rated capacity of 16 gauge in mild steel.

WARNING: TO PREVENT SERIOUS INJURY!

Never place any part of the body under the crosshead or within the blade area unless the motor is turned off. Never operate, install blades, or perform maintenance work on this shear without proper instruction and without first reading and understanding this manual. Also, provide all proper protective devices that may be necessary or advisable for any particular use, operation, set-up or service.

INSTALLATION & SET UP FOR CUTTING:

To set up shear, remove from skid and place on level foundation. Remove front and rear panels. Loosen all leg-to-bed bolts, items (37) & (38). Loosen two upper bed adjusting screws, item (39) by two complete turns. Then tighten two lower adjusting screws, item (40) only one complete turn. This adjustment will move the bed and lower shear blade away from the crosshead blade. Check underneath the bed with feeler gauges to be sure bed is seated on the machined ledges on right and left hand leg at all four corners. If necessary, shim legs at the floor, to level bed on ledges. Bed must be level from end to end and front to back. With bed level in both directions, shear must be securely bolted to foundation. Re-check bed to be sure it is correctly seated on both legs. Wedge a block of hard wood 3/4" thick between the 2 blades to prevent the crosshead & upper blade from falling. Now remove upper cylinder hinge pins. Snug down on leg-to-bed bolts, finger tight, to allow take up on adjusting screws, items (39) & (40). Insert a 1/2" diameter rod, approximately 13" long into the hole in the "welded on block" at the lower left side of the lever assembly, (**see picture below**) item (11). Using this bar as a lever, the crosshead can be lowered and raised easily to set the shear blades to the proper clearance.

WARNING: Use caution when operating this lever to be sure that it does not slip out of the hole causing the crosshead & upper blade to fall and cause serious injury.



PH52 INSTRUCTIONS

Using feeler gauges, carefully move the bed towards crosshead blade by adjusting screws, items (39) & (40), constantly raising and lowering crosshead with the help of the 1/2" diameter lever bar. Check clearance along entire length as crosshead moves up and down, but do not allow blades to rub together or overlap. Position blades within .0015 to .002 inch. Place a sheet of heavy paper (approx. .005") full length of cut between blades. Move crosshead down with lever bar. If shear does not cut paper, move bed blade toward upper blade as necessary by carefully readjusting screws (39) & (40) at either or both sides. If shear cuts paper on ends, but not in the center, it will be necessary to turn crosshead tie rod adjusting nut clockwise until paper cuts full length of blades. If shear cuts in center but not on ends, reverse direction of turn on crosshead tie rod adjusting nut.

NOTE: This adjustment of crosshead tie rod adjusting nut is carefully made at the factory and should not be necessary on a new shear.

When blades are properly adjusted, tighten leg to bed bolts (37) & (38) securely. With crosshead blade in upper position, replace cylinders, cylinder hinge pins, and cotter pins.

The above set up is necessary to check for blade clearance or to adjust for cutting at installation, or when changing blades.

ELECTRICAL CONNECTIONS:

Must be made by a qualified electrician. When wiring, check to see that the electrical characteristics shown on the motor plate and control panel match the supply source. Decal on the panel indicates voltage, phase, and frequency required. On-Off push buttons to operate the motor are mounted on the control panel. The selector switch for single cycle or continuous cycle is located directly below the start-stop buttons, followed by a ground fault detector "push-to-test" light. The Quick Disconnect is located on top of the control panel. The electrical supply source should come in to the Quick Disconnect, and proper ground connection should be made here.

Motor must rotate counter clockwise when facing the shaft end of the motor indicated by arrow decal on motor housing. Jog motor on and off to determine correct rotation. If motor is running in wrong direction, reverse any 2 incoming lead connections at the Disconnect Box. **CAUTION:** Disconnect power on incoming source before making this change. Motor should now run in proper rotation.

CAUTION:

Be sure available electric supply conforms to requirements as noted in the Control Box before applying power.

HYDRAULICS:

Mobil DTE 25 hydraulic oil is supplied in the tank.

CAUTION:

Keep tank filled to proper level with a clean hydraulic oil as specified (or equal). Air in hydraulics can prevent correct operation of shear. The lines are bled of air at the factory before shipment and all units have been tested thoroughly. However, it may be necessary at times to bleed the air from the lines. Instructions for this are covered under "Preventative Maintenance."

PH52 INSTRUCTIONS

A flanged pump/motor mount (62C) and a flexible coupling (62D) connect the pump (62E) to the motor (62B). A relief valve is provided in the hydraulic circuit and is set at the factory for ample pressure to shear a maximum 16 gauge mild steel sheet. When this pressure is exceeded, the hydraulic oil is directed back to the tank and the crosshead will stop at the point, returning to the top of the stroke when the foot switch is released. The hydraulic pressure for the PH52 shear is approximately 1100 to 1150 P.S.I. Adjusting the pressure on the shear should be done by qualified personnel, using a pressure gauge. Before adjusting the pressure, it is advisable to check all installation and mechanical adjustments to be sure that the shear is in proper operating condition. Do not set above recommended working pressure, as serious, irreparable damage may occur. Such action may also result in a loss of warranty. Contact Roper Whitney for information if necessary.

OPERATION OF SHEAR:

Maximum capacity is 16 gauge mild steel. Do not exceed rated capacity. Before using check for: proper foundation installation, correct setting of blades, correct electrical connections, correct direction of rotation of motor, remove pipe plug and install filler breather cap on top of tank, check level of hydraulic fluid in sight gauge, and note location and use of all controls. The control panel is located on the left leg, with Start-Stop motor control push buttons. Here also is the selector switch for a single cycle or continuous cycle cutting operation.

Single Cycle -- With motor on, depress the footswitch. The crosshead will go down, shear the stock, and actuate upper limit switch, sending the crosshead back up where the lower limit switch is actuated and the cycle stops. If the operator does not remove pressure on the footswitch, the crosshead will still stop. To recycle, the operator must remove his foot and again press the footswitch. If the foot is removed while the crosshead is descending, it will return immediately to top of stroke and stop.

Continuous Cycle -- Depress footswitch. As long as footswitch is held, the crosshead will descend, return and repeat the cycle until foot switch is released. Releasing footswitch during any part of the stroke will automatically return crosshead to top of stroke. The limit switches are factory set for full stroke, stopping the crosshead before it physically reaches the top of the stroke and before the crosshead contacts the stop bracket, item (36), at the bottom of the stroke.

The upper limit switch controls the length of stroke, and when actuated, automatically returns the crosshead to the top of the stroke. The length of the stroke may be varied for shearing stock of various widths, by lowering and raising the adjusting screw, item (20). The upper limit switch operating lever may also be adjusted for this purpose if necessary.

Set backgauge for desired cut. For accuracy, trim cut before shearing to gauge. Use care to locate sheet metal positively against backgauge and side gauge. During long cutting runs, an occasional wiping of the blades with an oil soaked cloth will serve to reduce wear and prevent slag or chip buildup.

CAUTION: Shut off power before oiling blades. Avoid oil or grease on bed or holddown contact points for better holding of sheet during cut.

PH52 INSTRUCTIONS

PREVENTIVE MAINTENANCE:

Periodic lubrication is required where indicated (X) on drawing. The hydraulic oil level must be maintained -- add Mobil DTE 25 hydraulic oil, or equivalent, when required and make complete oil change approximately every 2000 hours.

NOTE: When tank is drained and refilled, the oil filter, breather filler and tank should be cleaned. When cleaning the tank, use lint free rags.

Holddown adjustment should be maintained so the holddown clamps the material before the blades start to cut.

BLEEDING AIR FROM HYDRAULIC LINES -- Air in the hydraulic circuit causes a slow, spongy, erratic action in the hydraulic cylinder, with a similar action at the crosshead. When one cylinder, because of air in the lines, travels faster than the other, the gibs of the crosshead may bind, resulting in a loss of shearing power and costly damage.

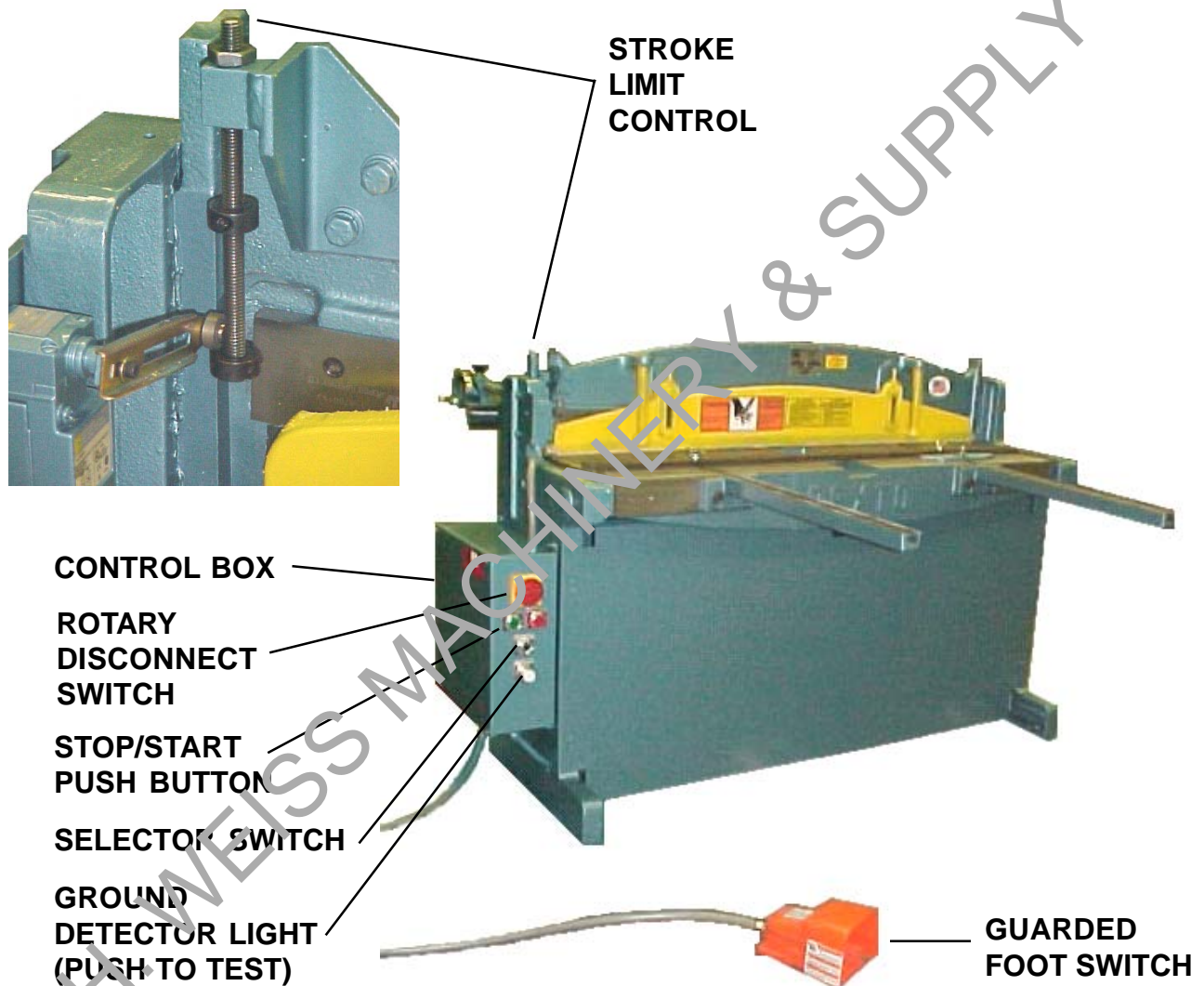
Air in the hydraulic lines is caused by low oil level in the reservoir, loose hydraulic connections, or a failure to bleed the lines properly after adding or changing component parts of the circuit. Cavitation of the pump is another cause. When a pump cavitates (starves for oil) because of low oil level, plugged air breather or oil filter, it may pump some air from the reservoir into the lines. In all cases, this air must be removed. If oil level is low, fill reservoir to proper level with hydraulic oil (Mobil DTE 25) and bleed the system.

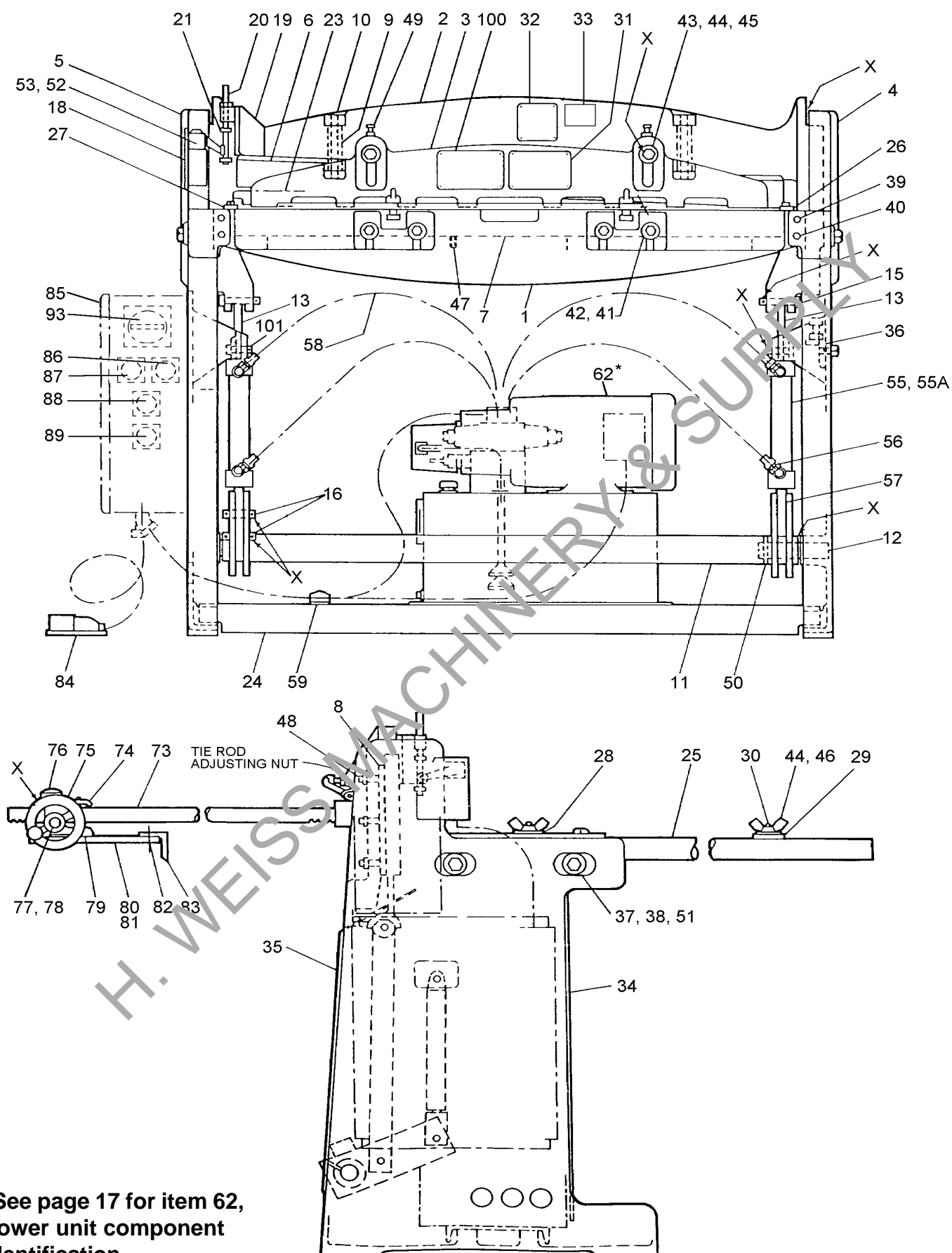
To bleed the hydraulic system of air, follow this procedure. Push START button. If ram is not at the top of stroke, it should automatically go to that position and stop. Raise the upper limit switch adjusting screw, item (20), as far as it will go. Remove front panel, item (34). Loosen swivel hose fitting, item (56), approximately 1 to 1 1/2 revolutions at one (1) of the top cylinder ports. Then turn selector switch to SINGLE CYCLE. Insert a 3/4" to 1" thick x 3" wide hardwood board between the blades, from the back side, with the blades across the grain. Force the block tightly between the blades in order to keep the upper blade from lowering. Then depress the footswitch in short bursts until a solid stream of oil comes from the open fitting. There should be no air or bubbles. Tighten fitting and repeat the process on other top cylinder port. Be sure to tighten that fitting. This should be done with the loss of only 1 to 2 cups of oil. Next, loosen two (2) lower hose fittings approximately 1 1/2 turns each. Remove the wood block and depress footswitch sending ram to bottom of stroke. Do not remove foot from switch. As the ram lowers, air and air filled oil should spurt out of lower cylinder fittings, which should now be tightened. Then release footswitch allowing ram to return to top of stroke and stop. Reset upper limit switch. Any remaining air in circuit should soon purge itself from the system. If, however, the ram lowers in a jerky manner, or tends to drift downward when unit is turned off, it may be necessary to repeat the entire bleeding operation.

BLADES:

To insure precision cutting, return dull blades to factory in Rockford, Illinois, via prepaid transportation.

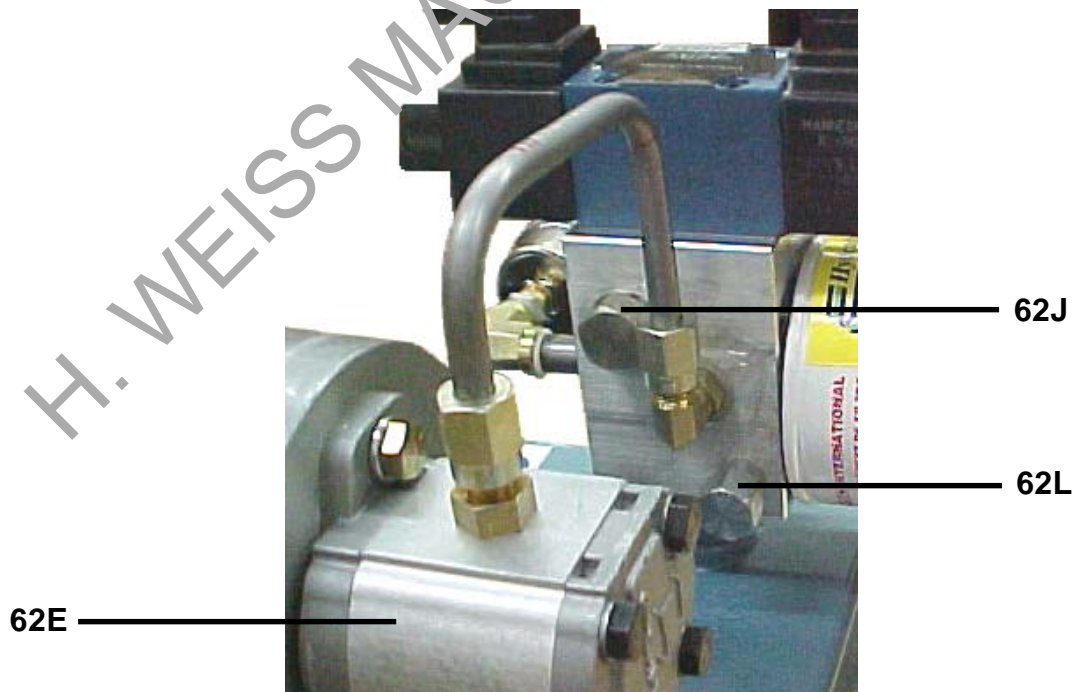
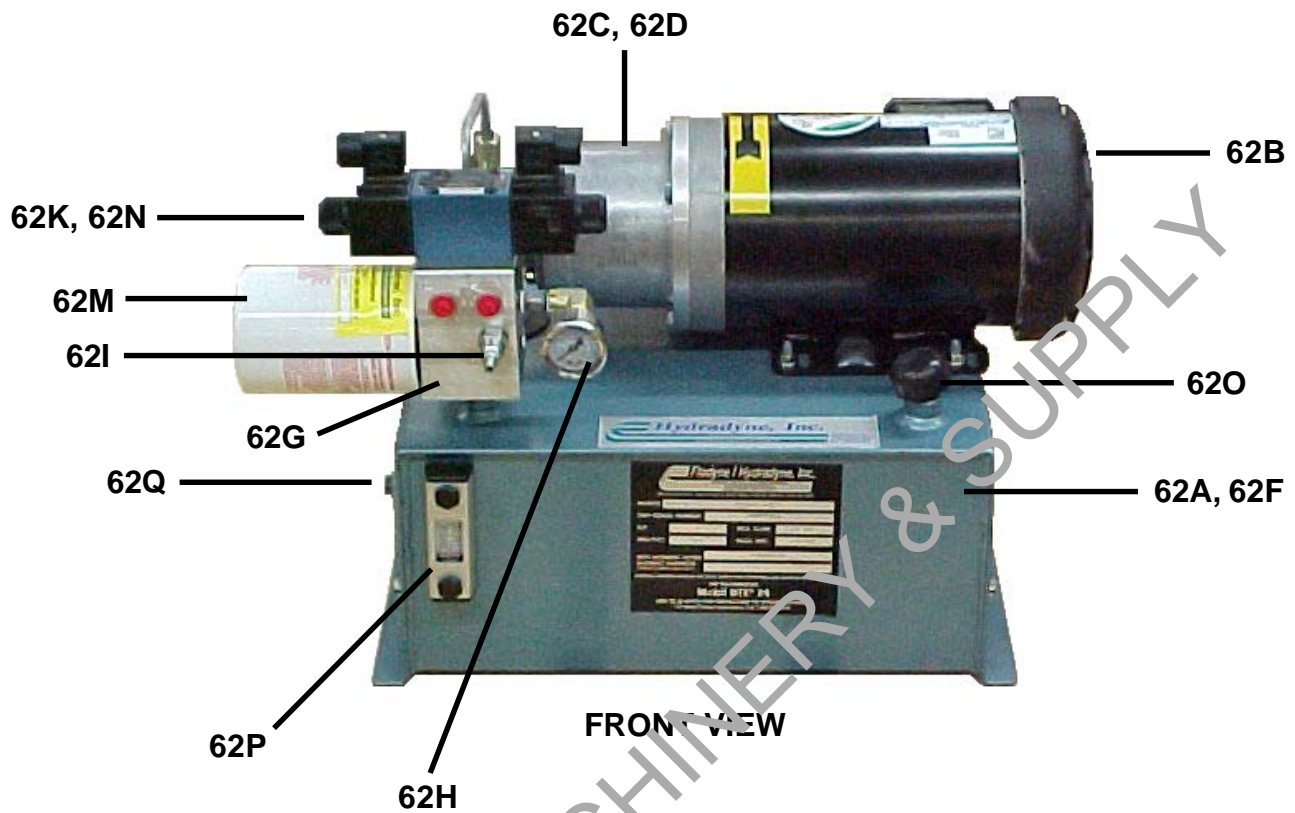
PH52 HYDRAULIC SHEAR CONTROLS



PH52 PARTS IDENTIFICATION CHART

*See page 17 for item 62,
power unit component
identification

**PH52
POWER UNIT COMPONENTS IDENTIFICATION
ITEM #62**



See pg 17, for item 62,
power unit component
identification

PH352, PH452
POWER UNIT COMPONENTS IDENTIFICATION
ITEM #62

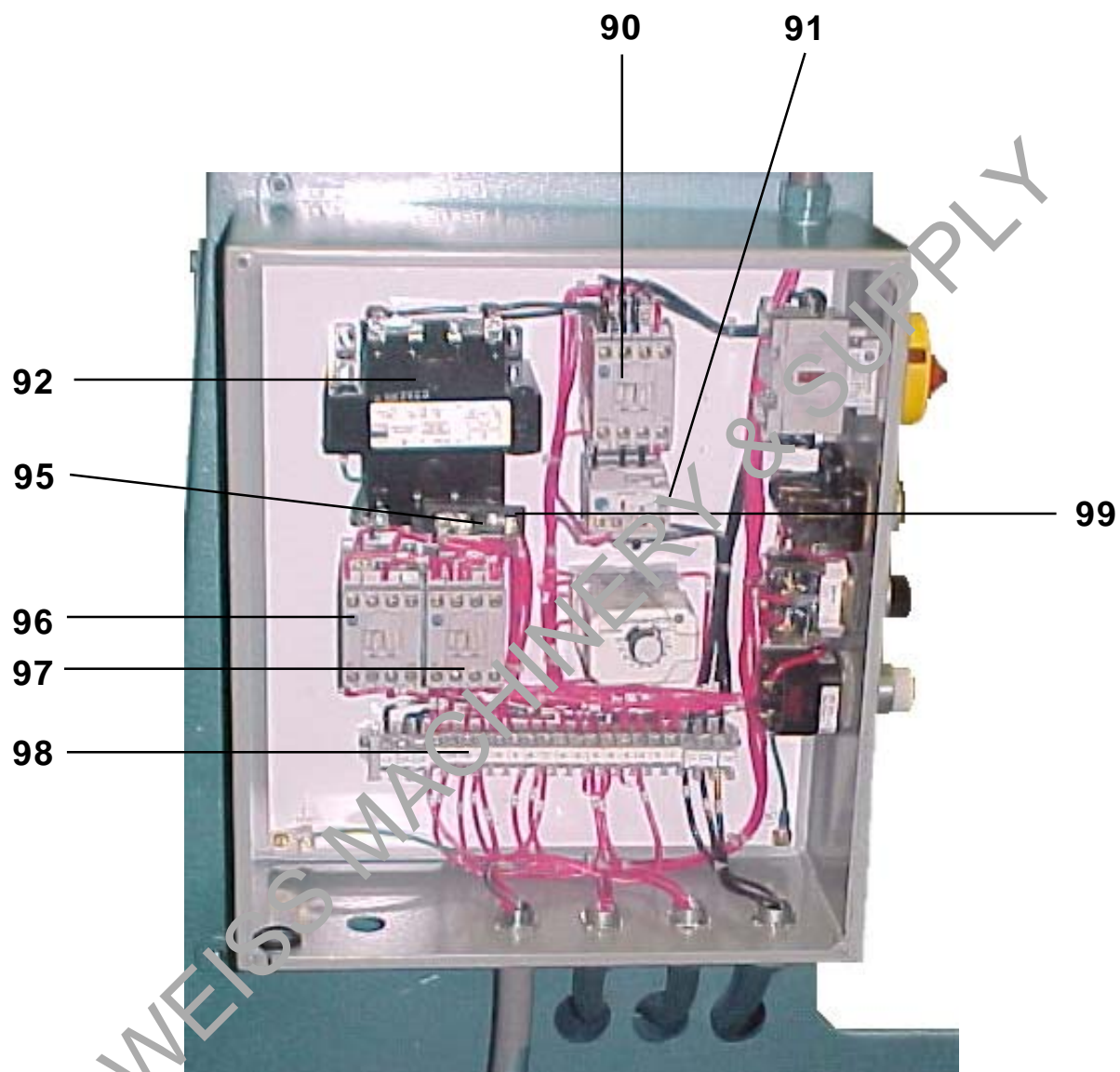


CUSTOM MANIFOLD FITTINGS



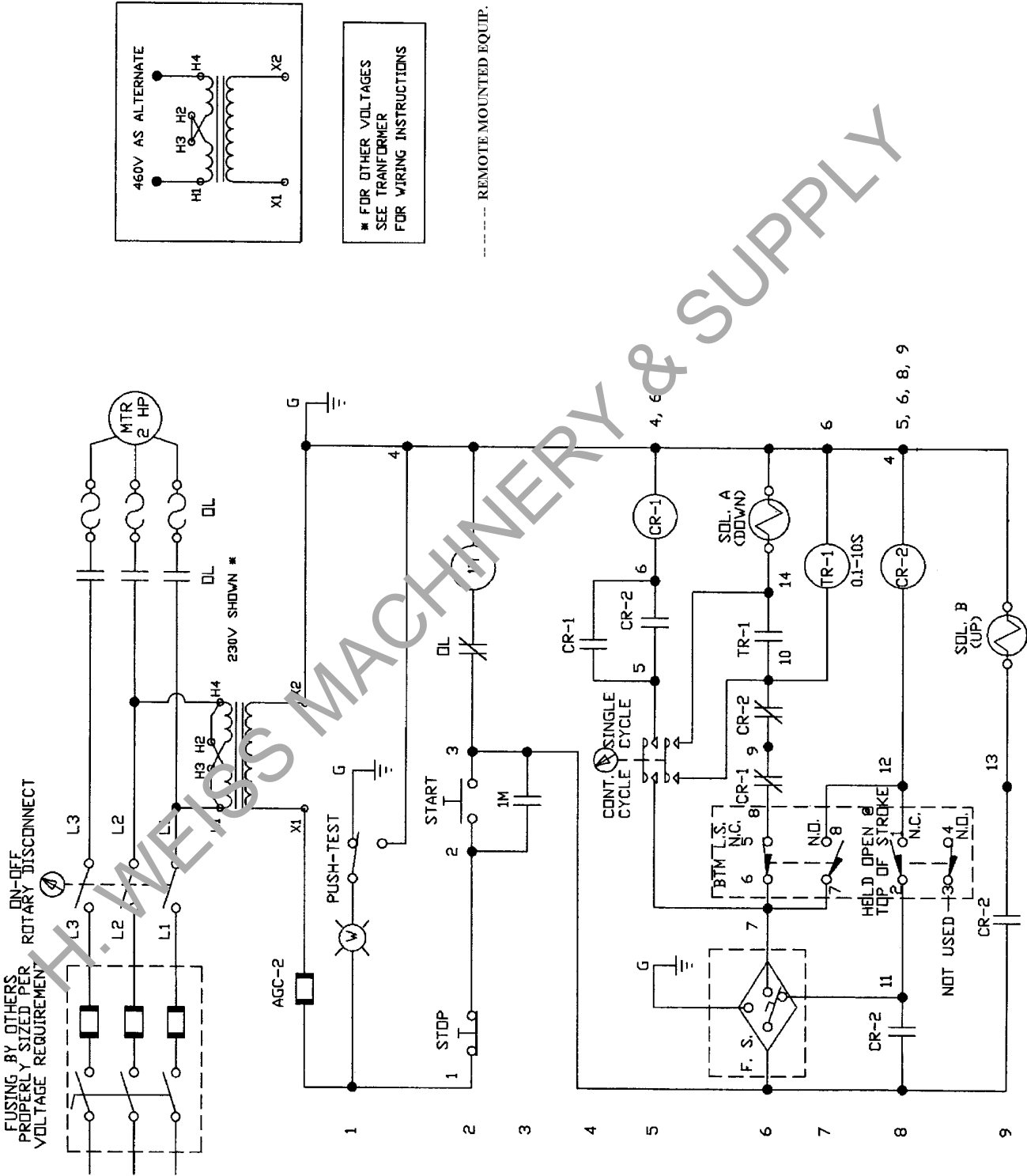
Manifold Ports P, A & B - #4 SAE

Pump Flow - 2.85 GPM
Relief Valve - 1500 PSI

PH52 PARTS IDENTIFICATION CHART**PH52 CONTROL BOX**

See pg 18 for Control Box parts identification.

PH52 ELECTRICAL SCHEMATIC



PH52 PARTS IDENTIFICATION

ITEM NO.	PART NO.	PART NAME	QTY.
1	762090083	Bed	1
2	262940005	Crosshead Assembly	1
	(Crosshead Assembly consists of the following parts)		
	762610079	Crosshead	1
	762030002	Tie Rod	1
	762650003	Adjusting Screw	1
	643023009	Nut, Hex Full 5/8-11	1
	643023007	Nut, Hex Full 1/2-13	2
	678033107	Washer, Flat 1/2	2
	678033109	Washer, Flat 5/8	1
3	762010084	Holddown	1
4	762140255	R. H. Leg	1
5	762140256	L. H. Leg	1
6	350700193	Upper Blade	1
7	350700193	Lower Blade	1
8	762400071	Gib	2
9	662184548	Holddown Spring	2
10	762160085	Holddown Stud	2
11	762030129	Lever Assembly	1
12	762160075	Hinge Pin	2
13	762240130	R. H. & L. H. Link	2
15	600000147	Crosshead Pin	2
16	762160113	Pin, Treadle	4
18	762060114	Limit Switch Mounting Plate	1
19	762200116	Stroke Control Bracket	1
20	762160117	Stroke Adjusting Screw	1
21	600000133	Split Collar	2
23	762440083	Finger Guard	1
24	762180132	Tie Brace	1
25	762030035	Front Arm	2
26	762420031	R. H. Side Gauge	1
27	762420032	L. H. Side Gauge	1
28	762420034	Bevel Gauge	1
29	762420087	Front Gauge	1
30	762160036	Tee Bolt	3
31	600346164	Warning Plate	1
32	600346123	Nameplate	1
33	600346125	Regrind Plate	1
34	762440133	Front Panel	1
35	762440134	Rear Panel	1
36	762200120	Adjustable Stop Bracket	1
37	601012379	Bed to Leg Bolt	4

PH52 PARTS IDENTIFICATION

ITEM NO.	PART NO.	PART NAME	QTY.
38	600033129	Special Washer	4
39	633012183	"Bed In" Adjusting Screw	2
40	601012183	"Bed Out" Adjusting Screw	2
41	600033128	Front Arm Bolt Washers	13
42	601012225	Front Arm Bolt	4
43	601012279	Holddown Bolt	2
44	678033107	Holddown Bolt Washer	9
45	621012266	Holddown Lock Screw	2
46	673023007	Wing Nut 1/2-13	3
47	621012173	Lower Blade Adjusting Screw	9
48	633012183	Gib Adjusting Screw	6
49	633012183	Holddown Adjusting Screw	2
50	600063473	Roll Pin	2
51	659023009	Bed to Leg Nut, 5/8-11 Sq. Hd.	4
52	660152654	Limit Switch	1
53	660152655	Operating Lever	1
55	669011034	Cylinder	2
55A	669062062	Cylinder Seal Replacement Set	1
56	669021253	Hose Fitting	6
57	762260110	Cylinder Tang	2
58	669041708	Hose	4
59	660172700	Clamp	2
61*	Hydraulic Oil - Mobil DTE 25 or Compatible Hyd Fluid		5 Gal
62	669092558	Power Unit, 2 H.P.	1
62A	669133107	Reservoir	1
62B	669082399	Electric Motor	1
62C	669021280	Pump/Motor Adapter	1
62D	691386630	Pump/Motor Coupling	1
62E	669082400	Pump	1
62F	669031637	Suction Screen	1
62G	669051917	Custom Manifold	1
62H	669102730	Gauge	1
62I	669123008	Relief Valve	1
62J	669123009	PO Check Valve	1
62K	669123007	Directional Valve	1
62L	669123010	Check Valve	1
62M	669031635	Filter Element	1
62N	611012064	Mounting Bolts 10-24 x 2" SHC	4
62O	669031638	Filler/Breather	1
62P	669102726	Sight/Temp Gauge	1
62Q	669000070	Door Assembly	1

*Not Shown

PH52 PARTS IDENTIFICATION

ITEM NO.	PART NO.	PART NAME	QTY.
62R	669021135	Straight Runtree w/O Ring	1
62S	669021111	Swivel 90° Elbow	2
62T	669021255	Swivel Tee	1
62U	669062076	O Ring	1
73	762030053	Back Gauge Rods	2
74	762420048	Pointer	2
75	762980089	Balcrank Handwheel	2
76	600356311	Hand Knob	2
77	762680091	Connecting Shaft	1
78	762380092	Pinion, RH & LH	2
79	762200090	Gauge Holder Bracket	2
80	762240054	Right Hand Link (Back Gauge)	1
81	762240055	Left Hand Link (Back Gauge)	1
82	762160051	Pivot Stud	3
83	762420056	Back Gauge Bar	1
84	660092104	Footswitch w/Guard	1
85	660102134	Enclosure w/Panel	1
86	660071916	Stop Push Button (Red)	1
87	660071917	Start Push Button (Green)	1
88	660082076	Selector Switch	1
89	660082023	Push-To-Test Ground Detector	1
90	660021290	Magnetic Starter	1
91	660041589	Overload	1
92		Transformer	
	660132412	For 230, 460 Volt Units	1
	660132411	For 208 Volt Units	1
93	660031329	Rotary Disconnect Switch	1
95	660051720	Fuse	1
96	660142502	Relay, 2 PDT	1
97	660142503	Relay, 4 PDT	1
98	660000065	Terminal Block	16
99	660051722	Fuse Block	1
100	662346152	Warning Plate	1
101	662083617	Pin, Ring-Pull Quick Release	2