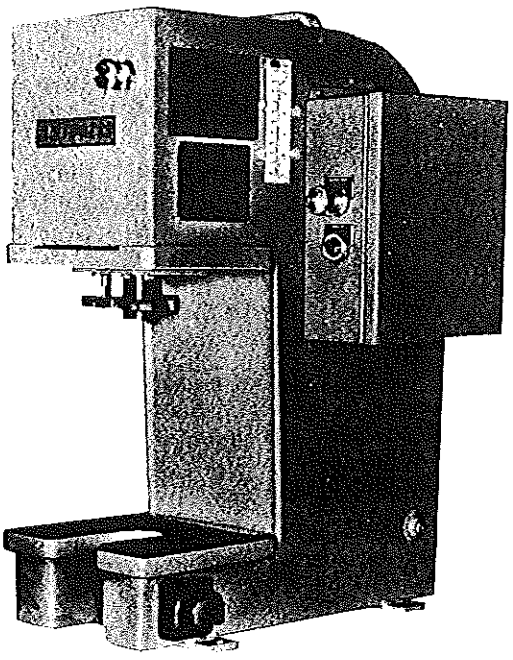
BULLETIN SMW 2A-3-B

MULTIPRESS®

HYDRAULIC EQUIPMENT

operation instructions and service manual



SERIES W2A-3 3-TON

MULTIPRESS® INCORPORATED

(614) 228-0185

560 Dublin Avenue, P.O. Box 154; Columbus, Ohio 43215

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NOTICE

MULTIPRESS supplies service bulletins, parts lists and parts for presses with serial numbers below 30,000, only as a convenience to our customers.

Any press with a serial number below 30,000 was not manufactured by *MULTIPRESS*.

All guarding and safety considerations are the responsibility of the current owner per ANSI B11.2 1995.

INTRODUCTION

SERVICE POLICY

The simplicity of Multipress® Equipment, the unitized construction of its major components and observance of the instructions in this manual assure ease of servicing by the user.

All field service requested by the user and rendered by our factory representatives will be charged for at the established rate per day plus expenses. Multipress equipment sent to our factory for inspection and service will be rendered only upon receipt of purchase order for such service.

Current characteristics, dictated by the characteristics of the users' current are required at time of order.

MULTIPRESS® EQUIPMENT WARRANTY

If any multipress equipment part of our manufacture which, after prepaid shipment to our factory and upon inspection at our factory or by a qualified factory representative, is proven defective in workmanship or material, it will be replaced free of charge providing that, within a period of six months from date of shipment from our factory it it still owned by the original purchaser and being used in recommended service and using an oil meeting our recommended specifications.

Parts other than of our manufacture bear only such warranties as their manufacturers allow. When upon inspection by a qualified representative, it is indicated that these parts are defective, we will endeavor to secure from the manufacturer the benefits of such warranties for our customers.

INSTALLATION

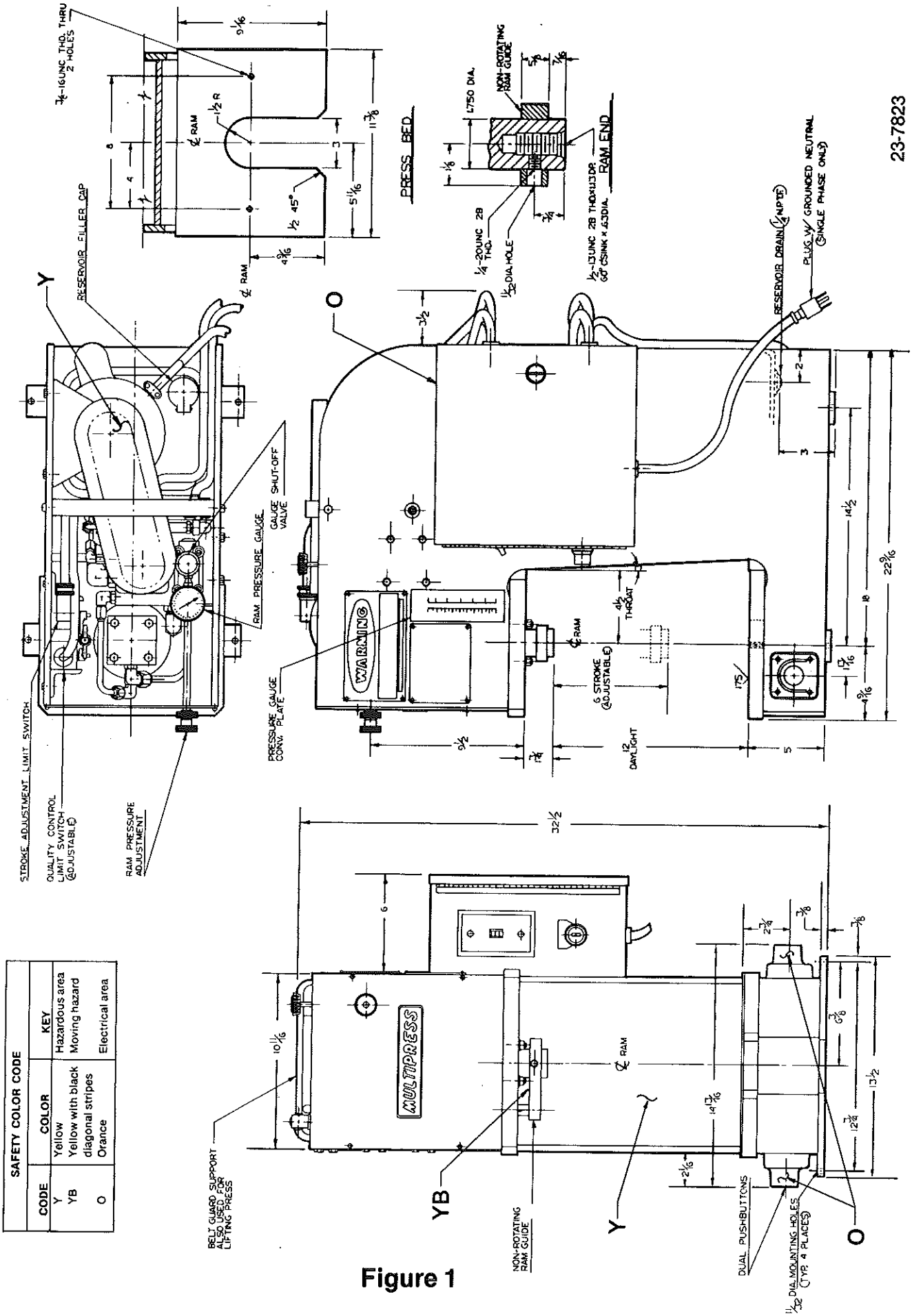


Figure 1

PRESS SPECIFICATIONS

PRESS DATA

Specifications	
Height	32-1/2 in
Width	13-1/2 in
Depth	22-9/16in
Mounting Dimentions	
(Front to Back)	14-1/2 in
(Left to Right)	12-3/4 in
Daylight	12 in
Reservoir Capacity	22 qts
Ram Speed - Approach	260 ipm
- Pressing	40 ipm
- Return	240 ipm
Piston Diameter	2-1/2 in
Min. Operating Pressure	500 psi
Max. Operating Pressure	1225 psi
Differential Pressure (Ram Enters Pressing Speed)	500 psi
Weight	350 lbs

MACHINE CYCLE RATES

Stroke Length (Inches)	Stroke (Per Minute)
6	19
5-1/2	21
5	23
4-1/2	25
4	28
3-1/2	31
3	36
2-1/2	42
2	50
1-1/2	62
1-1/8	76
1	84
1/2	125

CURRENT INPUT (60 HERTZ)

Single Phase	Three Phase
115 Volt—10.8 amps 230 Volt—5.4 amps	230 Volt—2.8 amps 460 Volt—1.4 amps

INSTALLATION

GENERAL

This manual is intended for reference when installing and preparing Multipress® Equipment for operation and is for normal maintenance, repair and upkeep of the equipment.

INSTALLATION INSTRUCTIONS

After removing press from shipping crate, stand the press upright near the area where it will be anchored to the floor.

Care should be taken to avoid twisting or dropping of the press during the uncrating and transportation to the area of operation.

BENCH

If your press is to be mounted on an Multipress® bench, uncrate the bench and assemble per instructions in crate. Bolt bench firmly to the floor.

Position press on bench and bolt firmly in place using shims to compensate for any unevenness between top of bench and press.

ELECTRIC

Your standard press is wired to be connected to current characteristics as specified when ordered.

Connection of press to users' power source should be accomplished by qualified personnel.

CAUTION

Do not permit electric motor to operate before press reservoir is filled with oil or to operate in the wrong direction of rotation (See STARTING PUMP & MOTOR instructions and direction of rotation arrow plate on pump-motor assembly.)

RECOMMENDED OIL SPECIFICATIONS

Warranty for Multipress® Equipment applies only when the proper hydraulic fluid has been used and oil contamination level is equal to or better than "NAS . . . 1638 . . . CLASS No. 8 OR BETTER. NO PARTICLES OVER 200 MICRON."

Certain basic physical and chemical properties are necessary for proper operation of the multipress.

The following basic properties should be presented to the fluid supplier* for his recommendation of a product for use in this multipress:

Viscosity @ 100°F	300 SUS/plus or minus 15 SUS
Viscosity Index	90 or higher
Rust and oxidation inhibitors	yes
Anti-foam additive	yes

Specific gravity; 0.882—0.887 at 60°F/60°F (API Gravity; 29-31)

*It is suggested that the fluid supplier provide the user with certification that his product meets the above requirements.

FILLING THE OIL RESERVOIR

CLEANLINESS is the most important requisite in proper maintenance of oil hydraulic equipment. Of the few maintenance difficulties encountered in the operation of oil hydraulic equipment, many of them are directly traceable to dirt or foreign matter in the oil.

EXTREME CARE should be exercised in maintaining a clean supply of oil in the reservoir and hydraulic system of your Multipress® Equipment at all times. Make certain that no lint, dirt, abrasive scale or other foreign material enters the hydraulic system. Trouble free operation over a long period of time may be obtained from the press by taking these precautions with the oil in the press. (See Multipress® Equipment Warranty on page 3.)

The oil reservoir is filled thru the oil filler cap which is located on top of the reservoir. Lift the filler cap and fill the reservoir with any clean oil meeting our recommended oil specifications above. Approximately 22 qts. are required to fill the reservoir to within 1" of the top of the reservoir.

CAUTION

Never operate press if oil level is low, or if the oil temperature is greater than 150°F. The use of coolers is recommended when fluid temperatures are expected to exceed 130°F.

SEQUENCE OF OPERATION

STARTING THE PUMP & MOTOR

IMPORTANT: Prior to start-up, remove the protective belt cover, start and stop the electric motor in order to check for proper rotation. There are arrows clearly marked on the pump indicating the correct rotation. If this is incorrect, reverse the wiring of the motor leads. Also, do not tighten the pump as this is a fluid pump which runs on a cushion of oil and must not only be free to rotate, but have equal pressure on all sides. Lower the setting of the relief valve (Item 31, Fig. 7) by loosening lock nut and then turning knob counterclockwise until loose but not removed. (See PRESSURE ADJUSTMENT plate on right side of press.)

CAUTION

If the motor is permitted to operate in the wrong direction of rotation, the pump will be damaged after only a few seconds due to lack of oil to lubricate its precision machined internal parts. When the oil in the reservoir is at the proper level and the pump is operating in the correct direction of rotation, the pump will prime itself and provide adequate lubrication.

CAUTION

If the press has been shipped to you with the press ram extended, the ram will retract and stop against the stroke adjustment limit switch arm as soon as the motor is started, if the motor and pump are operating in the correct direction of rotation.

NOTE

Ram may not retract if Relief Valve has been backed off too far.

When it is determined that the pump and motor are operating in the correct direction, with the power on, actuate the "Start" switch. This allows the electric motor to start and energizes the control circuit. Allow the motor to run a few minute to remove air from the hydraulic system. Check pipe and hose lines for any leakage which may have developed since leaving the factory.

INCHING

Set the selector switch to "JOG DOWN". Simultaneously actuate and maintain actuation of the dual pushbuttons to the desired position of the press ram. Release of either button allows the ram to stop. Set the selector switch to "JOG UP". Actuation of the dual pushbuttons allows the ram to move up.

CAUTION

Limit switch (LS2) must be actuated at top of stroke. Ram will fully retract when in cycling mode.

SET-UP

Jog the press ram to your desired lower stop position allowing ram to exert full pressure against a part or block.

NOTE

Set up tooling before setting pressure on ram.

Adjust pressure by loosening the Gauge Shut-off Valve and turn the Ram Pressure Adjustment Knob on the front of the press. Clockwise increases pressure, counterclockwise decreases pressure. Set the selector switch and jog the ram up just off the work. Set the Quality Control Limit Switch (LS1) to that point. This adjustment allows you to select where the automatic system takes over to approach the work, achieve tonnage and time reverse. Jog the ram to your required upper stop position. Set the Stroke Adjustment Limit Switch (LS 2) at that position. After setting Ram Pressure, close gauge needle valve to avoid damage to gauge.

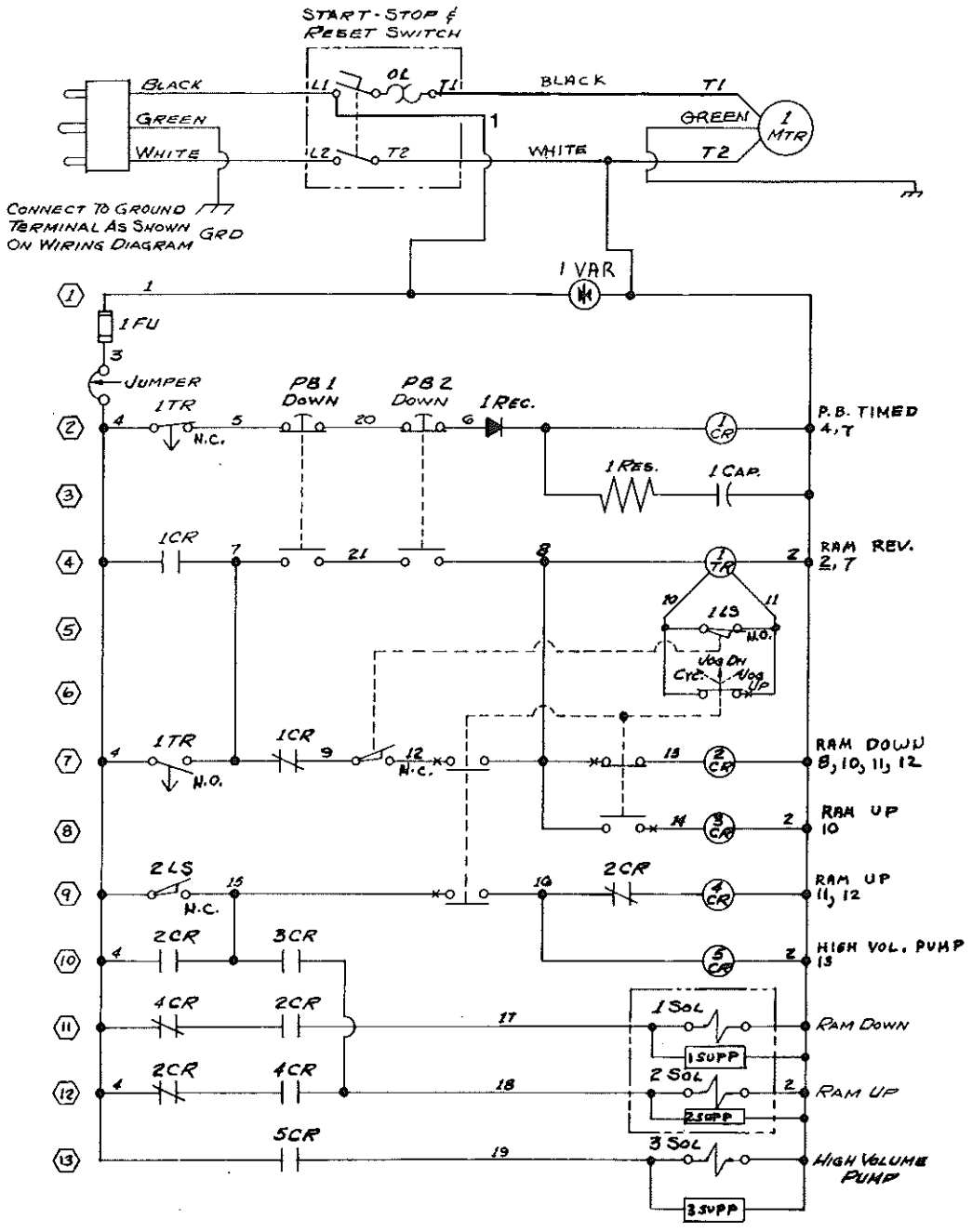
CYCLING

Simultaneously actuate and maintain actuation of both Cycle Start buttons. Ram extends and the ram guide bar inside the frame rolls off of the Quality Control Limit Switch (at this time you may release the dual pushbuttons). Release of either button allows the ram to retract to its upper stop position, if the Quality Control Limit Switch has not been released by the ram guide bar. The timer also starts after this limit switch is released. Ram continues down, contacts the work, achieves pressure and time reverses. Ram returns to the pre-set upper stop position.

SINGLE PHASE ELECTRICAL CIRCUIT

Standard (115 volt 1 phase 60 HERTZ)

You have received the 115 volt, single phase press. See the wiring diagram in the control box for circuit details or diagram below.



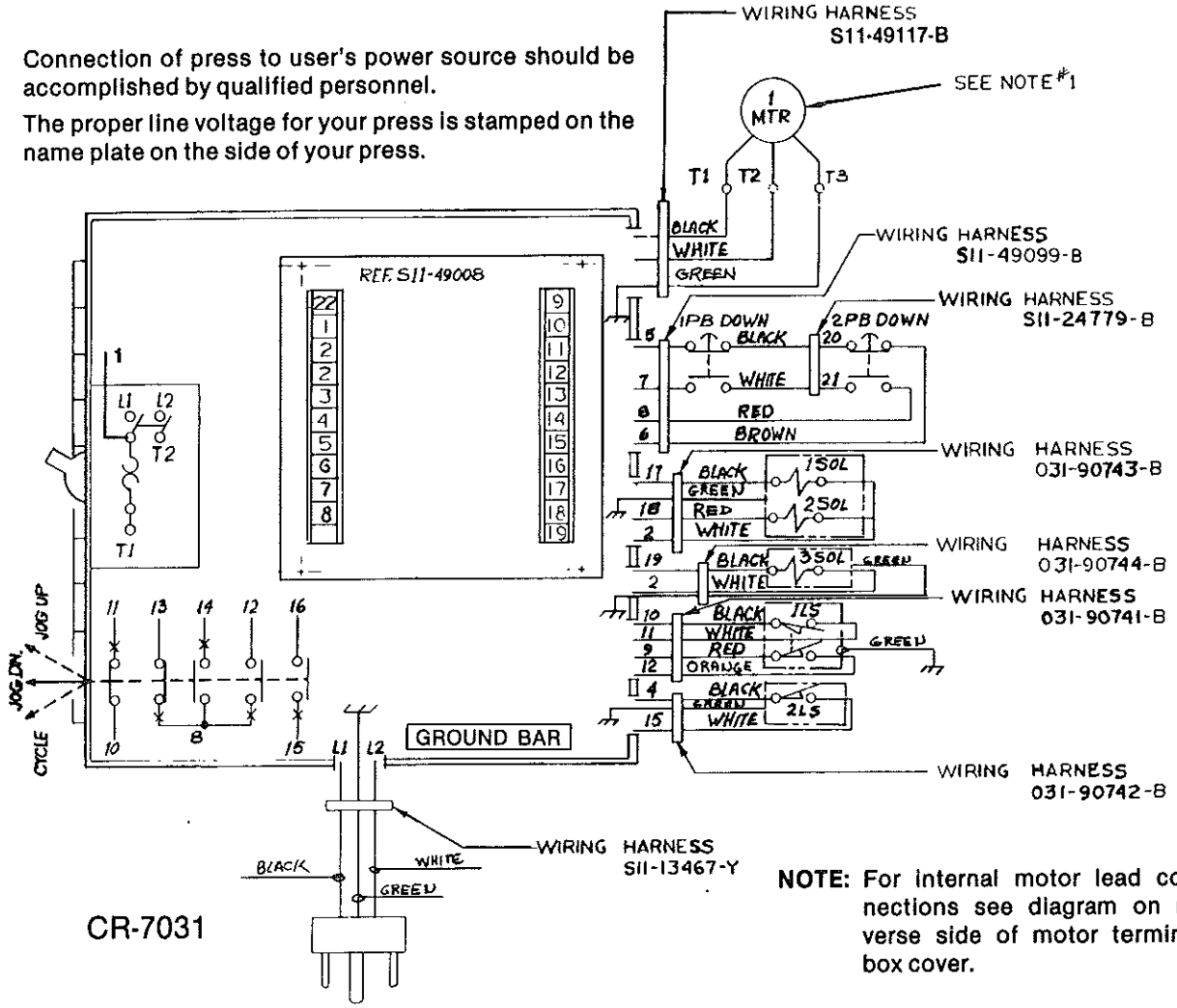
CR-7031

Figure 2

SINGLE PHASE ELECTRICAL CIRCUIT

Connection of press to user's power source should be accomplished by qualified personnel.

The proper line voltage for your press is stamped on the name plate on the side of your press.



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NOTE: For internal motor lead connections see diagram on reverse side of motor terminal box cover.

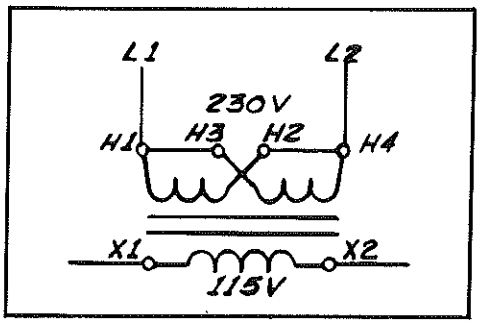
SYM	DESCRIPTION	ITEM	QTY.
1 MTR	Motor—Elect. ¾ HP., 1725 RPM, 115 V , 1 ph., 60 Hz.	135-70001	1
MC	Starter—Manual, Single Phase, 2 Pole, A-B #600 TK X 5	142-10002	1
1 VAR	Varistor	764-30004	1
1 FU	Fuse—Slo-blo, $1\frac{1}{2}$ Amp.	764-20008	1
1 & 2 PB	Pushbutton	S11-14172	2
1 & 2 LS	Switch—Limit	114-20023	2
1 SS	Switch—Selector—3 Position Cycle—Jog-DN-Jog-UP	153-10022	1
1 CR	Relay—3 PDT, 110V DC	766-40032	1
2, 3, 4, & 5 CR	Relay—3 PDT, 120V AC	766-40033	1
1 TR	Timer—DPDT, 120V AC	766-60014	1
1 REC	Rectifier—Diode, 750 MA, 600V	772-00019	1
1 RES	Resistor—100 OHMS, 3 Watt	769-21006	1
1 CAP	Capacitor—Tubular, 10 MFD, 450V	704-51002	1
1, 2, & 3 SUPP.	Suppressor—Transient, 120V input RMS	764-30004	3
	LIMIT SWITCH LOCATIONS		
1 LS	Held tripped until near end of the press ram extending stroke.		
2 LS	Held tripped at top of stroke (stroke adjustment limit switch).		

Figure 3

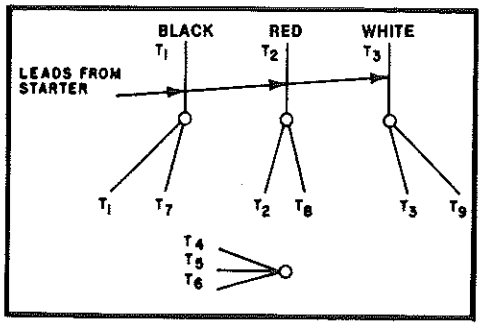
THREE PHASE ELECTRICAL CIRCUIT

Standard (230 volt 3 phase 60 HERTZ)
(460 volt 3 phase 60 HERTZ)

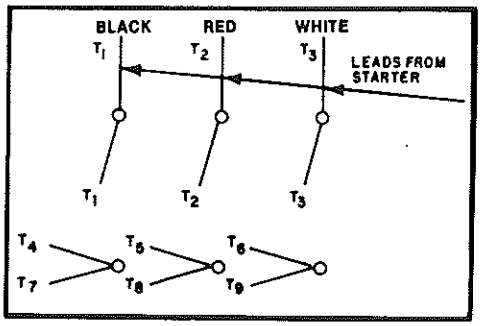
If you received the 230/460 volt 3 phase press, see the wiring diagram in the control box for circuit details or diagram below.



ALTERNATE TRANSFORMER CONNECTION



MOTOR LEAD CONNECTIONS—230 VOLTS



MOTOR LEAD CONNECTIONS—460 VOLTS

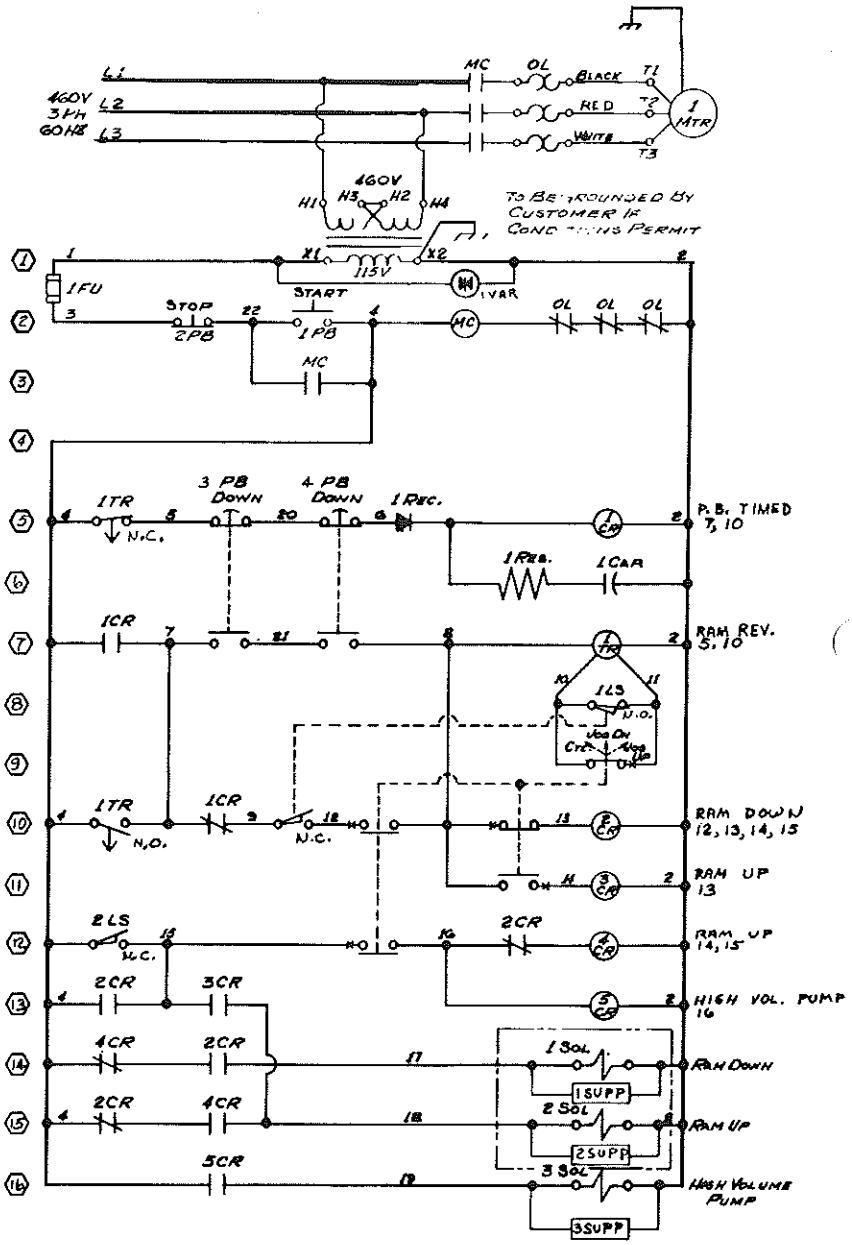


Figure 4

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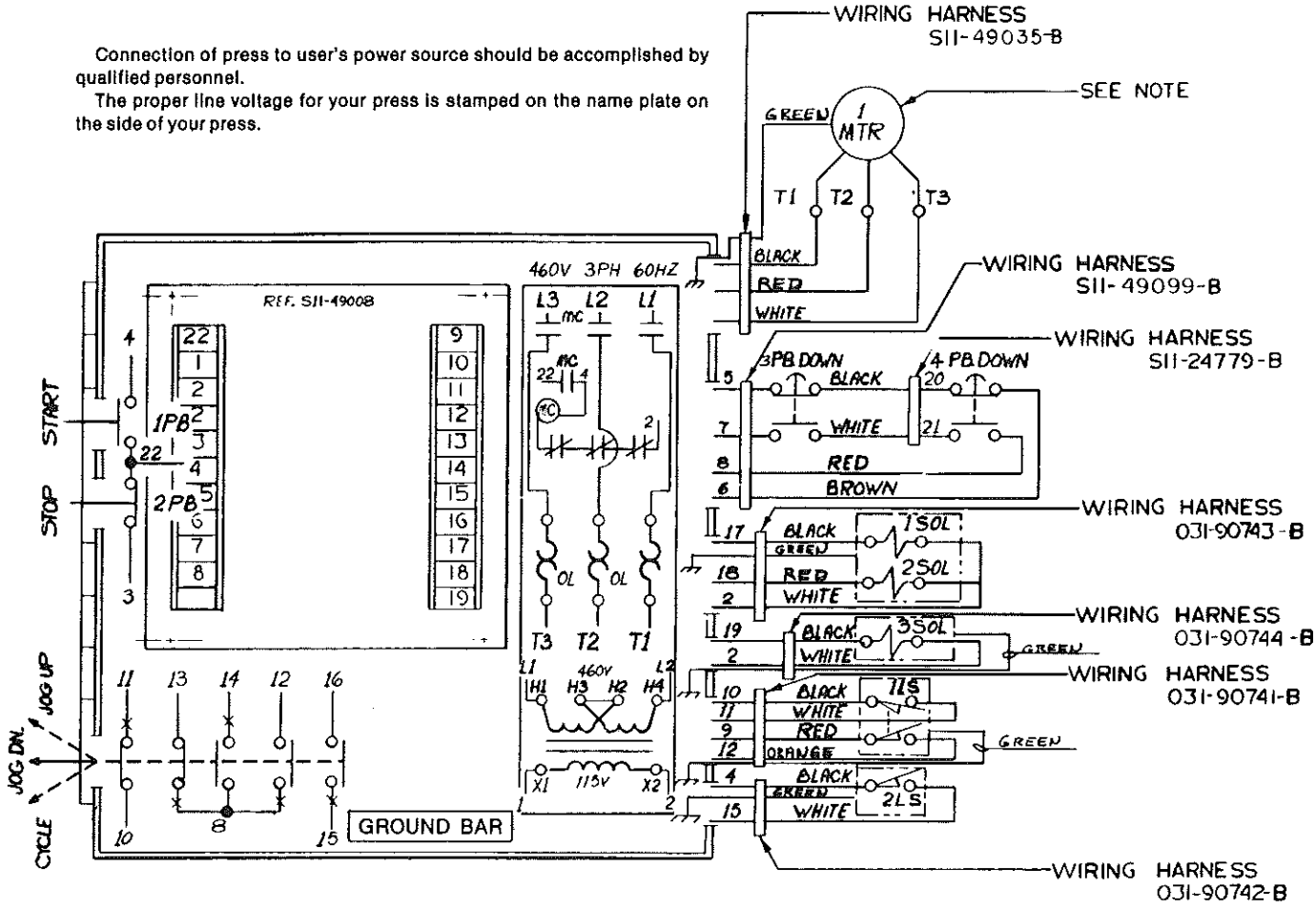
THREE PHASE ELECTRICAL CIRCUIT

Connection of press to user's power source should be accomplished by qualified personnel.

The proper line voltage for your press is stamped on the name plate on the side of your press.



SYM	DESCRIPTION	ITEM	QTY.
1 MTR	Motor—Elect. ¾ HP. 1725 RPM, 230/460V, 3 ph., 60 Hz.	135-70044	1
T	Transformer—150 Va, 240/480V, Prim. 120V Second 60 Hz.	105-15006	1
MC	Starter—Motor, Size "00", 3 Pole	101-45008	1
1 VAR	Varistor	764-30004	1
1 FU	Fuse—Slo-blo, 1.5 Amp.	764-20008	1
1 & 2 PB	Kit—Pushbutton, Start-Stop	152-15070	1
3 & 4 PB	Pushbutton	S11-14172	1
1 SS	Switch—Selector, 3 Pos. "Cycle—Jog-DN-Jog-UP"	153-10022	1
1 & 2 LS	Switch—Limit	114-20023	2
1 CR	Relay—3 PDT, 110V DC	766-40032	1
2, 3, 4, & 5 CR	Relay—3 PDT, 120V AC	766-40033	4
1 TR	Timer—DPDT, 120V AC	766-60014	1
1 REC	Rectifier—Diode, 750 MA, 600V	772-00019	1
1 RES	Resistor—100 OHM, 3 Watt	769-21006	1
1 CAP	Capacitor—Tubular, 10 MFD, 450V	704-51002	1
1, 2, & 3 SUPP.	Suppressor—Transient 120V Input RMS	764-30004	3
	LIMIT SWITCH LOCATIONS		
1 LS	Held tripped until near end of the press ram extending stroke.		
2 LS	Held tripped at top of stroke (stroke adjustment limit switch).		

Note:
For internal motor lead connections see diagram on reverse side of motor terminal box cover.

Figure 5

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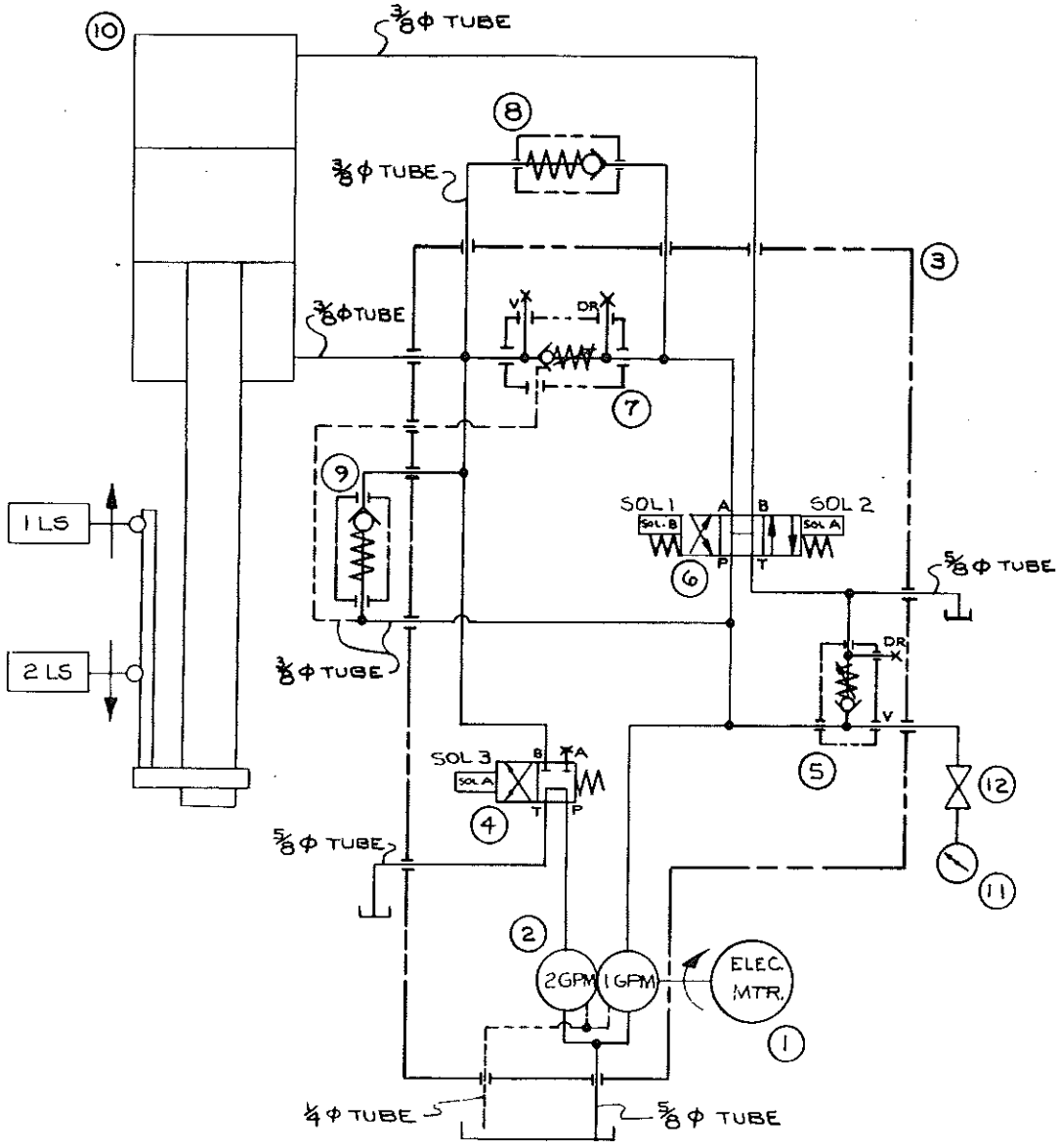
HYDRAULIC CIRCUIT



COMPONENT DESCRIPTION & FUNCTION

Item		
1	Motor-Electric	3/4hp; 1725 rpm; 230/460V; three phase 60hz; #135-70044 OR 3/4hp; 1725 rpm; 115/230V; single phase, 60hz; #135-7001 (drives Hydraulic Pump)
2	Pump, Vane	Two volume (1 GPM & 2 GPM) #014-01260 (Source of Pressure & Flow)
3	Manifold, Hydraulic	#031-90730-D (Eliminates Plumbing)
4	Valve, 4-Way Directional	Model #A3D01-35-107-05-00A5-01A28; #016-46403-S (Unloads 2 Gallon Pump at Idling)
5	Cap, Direct Operating Relief Valve	#S11-49001-B; Set @ 1222 psi for 3-ton (Controls Maximum System Pressure)
6	Valve, 4-Way Directional	Model #A3D01-35-201-03-02-00A5-01A28; #016-44363-S (Directs Flow for Proper Sequencing of Press Cycle)

Item		
7	Cap, Unloaded Valve	#S16-27019; Set @ Approx. 500 psi; (Controls Unloading Pressure of 2 Gallon Pump)
8	Valve, Check	1/4" "Republic" #453-1/4S; 5-10 psi cracking pressure; 500# psi working pressure; #513-25004 (Directs 1 Gallon Pump to Bottom Cylinder on Ram Reversal)
9	Valve, Check	1/4 "Republic" #453-1/4S; 65 psi cracking pressure; 5000 psi working pressure, #513-50108 (Provides for Differential Flow & C-Balance for Tooling up to 160 lbs.)
10	Cylinder-Hydraulic	2-1/2" bore; 1-3/4" rod dia.; & 7" stroke; #507-00030 (Transmits Force to Work)
11	Gauge, Pressure	0-1500 psi, #501-99684 (Indicates Pressure of Pump Discharge)
12	Valve, Needle	"Hoke" 1/8" angle #514-16002 (Protects Pressure Gauge when in "Off" Position)

Figure 6

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MAINTENANCE

GENERAL

The establishment and implementation of maintenance schedules is essential for the reliable operation of hydraulic press equipment. The elapsed time for periodic maintenance and inspection is based upon environmental and operating conditions (including hours of operation) which are known only to the user of the equipment. Therefore it is the responsibility of the user to insure that the instructions outlined in this manual are carried out on a time table which will insure reliable and efficient operation of the equipment.

It is the responsibility of the user to maintain the Multipress® Equipment at all times in day-to-day operation. The manufacturer suggests that the following maintenance and service procedures be implemented and regularly practiced by the user.

WARNING

When malfunction in any Multipress® Equipment is encountered during the operation or inspection of the equipment, operator(s) should immediately stop the equipment, have qualified personnel interrupt the electric power to the equipment and conspicuously tag it, indicating the malfunction, and then report it to the proper authorities. Do not run the equipment until the mal- has been eliminated.

MAINTENANCE AND INSPECTION

The following chart is provided to point out specific check points and the schedule that should be applied for each point. Any ITEM or ROUTINE or PERIODIC inspection points not included in this list but considered to be pertinent to the maintenance of the equipment should be included. If in doubt, consult the factory.

	SCHED. INSPECT.		MALFUNCTIONS							
						Loose Conn. of Elec. Short				
ITEM TO BE INSPECTED	Routine (Daily)	Periodic	Damaged Kinked or Dented	Worn	Broken or Cracked	Hyd.	Mech.	Elec.	Mis-alignment	Out of Adj.
Frame		✓			✓					
Electric Motor		✓	✓					✓	✓	
Starter		✓						✓		
Pumps		✓				✓	✓		✓	
Valves		✓				✓	✓			✓
Gauges		✓	✓		✓					
Switches		✓	✓	✓	✓		✓	✓		
Operating Controls	✓	✓	✓	✓	✓		✓			✓
Tooling	✓	✓	✓	✓	✓		✓		✓	
Feed and/or Ejection Mech.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Oil Leaks	✓	✓								
Hydraulic Lines { Pipe, Tube / Hose }		✓	✓		✓		✓			
Hydraulic Fittings		✓			✓		✓			
Electrical Lines { Wire, Cable / Conduit }		✓	✓	✓	✓		✓	✓		
Gaskets, Seals & O-Rings		✓		✓		✓	✓			
Ram Packing		✓	✓	✓		✓	✓			
Oil Level Too Low or Too High	✓	✓								
Oil Contamination Too High		✓								

ROUTINE (DAILY) MAINTENANCE AND INSPECTION

Before operating Multipress® equipment each operator should make the inspection checks indicated in chart on page 13. These checks should be made after each shift change.

In addition, the following inspection checks should be made by each operator before operating equipment after any break time.

1. Make sure that each equipment component is the proper condition and position for start up and be aware of any movement which will occur during start up procedure.
2. Check for loose items foreign to the operation or function of the machine which might cause damage or injury and clear such items from the equipment before start up.
3. Check for oil leaks.
4. Connect electric power to starter box and then actuate MOTOR START push button. With the motor running and driving the hydraulic pump make the following inspection checks:
   a. Check for oil leaks.
   b. Make sure that each equipment component is in the proper position to start cycling.
   c. Make sure that press operates in manner prescribed in sequence of operations.

SAMPLE ROUTINE LOG

If any check points are found to be malfunctions or could lead to a malfunction, a written report should be made, indicating the problem and what was done to correct it and then made a part of the history of this equipment.

			MALFUNCTION CHECK POINTS						
Date of Inspect.	Oper. Press. (PSI)	Total No. of Cycles	Oil Leaks	Oil Level	Oil Temp.	Hyd. Comp's.	Elec. Comp's.	Mech. Comp's.	Remarks

PERIODIC MAINTENANCE AND INSPECTION

At regularly scheduled intervals the users' maintenance department should check each piece of the Multipress® Equipment for those items listed on page 13 and 14 and record in PERIODIC LOG on page 15.

In addition, each component of the equipment should be checked for proper performance as follows:

1. When equipped with an electrical circuit, make sure that all devices function in accordance with the schematic diagram, and sequence of operations. Repair or replace any faulty device; see electric circuit service manual or circuit drawing for identification of parts.
2. Check all mechanical linkage and adjustments; adjust, repair or replace as necessary to comply with operating and/or adjustment instructions in this manual or manual of the operating control.
3. Check the hydraulic system as follows:
   a. Check pressure setting of pressure control valve; adjust if necessary.
   b. Check operational cycle to insure that all valves function in accordance with the schematic diagram and sequence of operations; repair or replace faulty valves.
   c. Check the entire system for leaks; repair as required to eliminate problem.

SAMPLE PERIODIC LOG

If any check points are found to be malfunctions or could lead to a malfunction, a written report should be made, indicating the problem and what was done to correct it and then made a part of the history of this equipment.

			MALFUNCTION CHECK POINTS							
Date of Inspect.	Oper-Press. (PSI)	Total No. of Cycles	Oil Contam Level	Oil Leaks	Oil Level	Oil Temp.	Hyd. Comp's.	Elec. Comp's.	Mech. Comp's.	Remarks

TROUBLE SHOOTING CHART

TROUBLE	POSSIBLE CAUSE	SUGGESTED REMEDY
Motor stops or will not start.	Thermal cut out or faulty control circuit fuse.	Disconnect press from power source, reset starter and replace FRN1 fuse if necessary.
Press will not hold pressure.	1. Low voltage. 2. Belt not tight enough. 3. Oil may not be 300 SSU. 4. Cap screws on top of pump loose.	1. Check line Voltage. 2. Tighten belt. 3. Drain reservoir and refill with 300 SSU oil. 4. Tighten cap screws.
Ram will not start down	1. Solenoid, No. 1 & 3 not energizing. 2. Solenoid coil No. 1 & 3 burned out. 3. No. 2CR Relay not energizing.	1. Check fuses and switch and replace if defective. Check all connections for looseness. 2. Replace coil. 3. Replace relay.
Ram extends slow.	1. Solenoid No. 3 not energized. 2. 5CR Relay not energized. 3. Unloader valve malfunction. 4. Unloader valve pressure to low.	1. Replace solenoid. 2. Replace relay. 3. Repair or replace unloader valve. 4. Adjust to 500 psi.
Motor stalls when ram contacts work.	1. Unloader valve set too high. 2. System relief valve set too high.	1. Reduce setting. 2. Reduce setting.
Motor stalls when ram is in retracted position.	1. Solenoid No. 2 & 3 not deenergizing. 2. No. 2 L.S. not actuated.	1. Check unloader valve and relays 4 & 5 for malfunction. 2. Adjust limit switch.
Ram will cycle once and then stall in idle.	1. Die set or tooling may not be allowing the ram to return to the extreme retracted position which it must do on EVERY STROKE.	1. Die set or tooling must be provided to allow full retraction (2 L.S. actuated) on EVERY STROKE.
Press is noisy.	1. Defective pump. 2. Pump cavitation caused by air leak in suction line. 3. Tension too tight on "V" belt. 4. Loose Belt Guard.	1. Replace pump. 2. Check tube fitting and replace if necessary. 3. Loosen belt. 4. Tighten belt guard.

WARNING

Before taking any corrective action block the ram to prevent movement and disconnect the press from the power supply.

PRESS ASSEMBLY

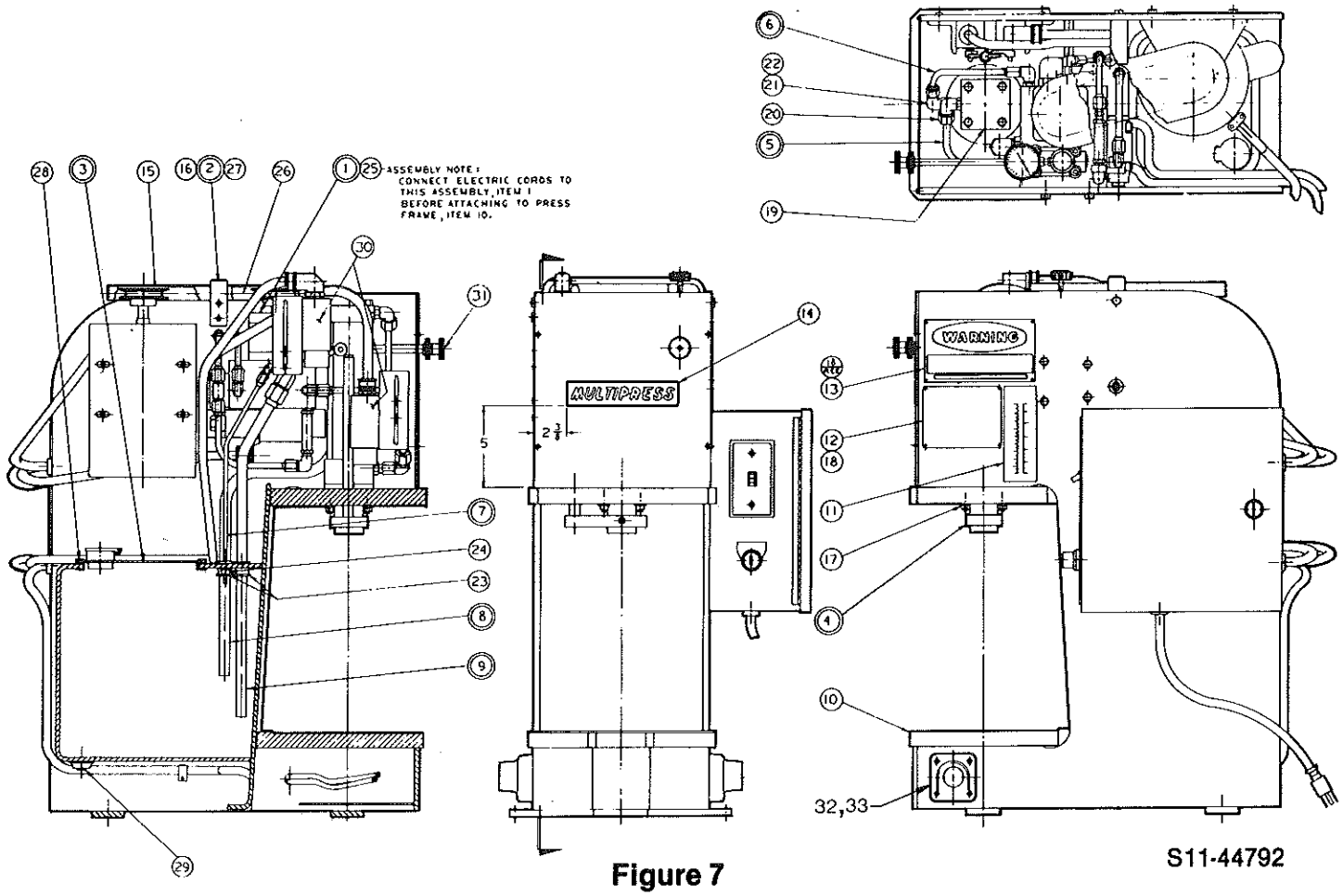


Figure 7

Item	Part No.	Description	Qty.
1	See Fig. 9	Assembly—Manifold	1
2	S11-44794	Assembly—Belt Guard	1
3	S11-13574	Assembly—Reservoir Cover	1
4	S11-44795	Assembly—Ram Guide	1
5	S11-44796	Assembly—Top Cylinder Tube Line	1
6	S11-44797	Assembly—Bottom Cylinder Tube Line	1
7	S11-44798	Assembly—Fluid Pump Drain Line	1
8	S11-44799	Assembly—Tank Line	1
9	S11-49000	Assembly—Suction Line	1
10	031-90723	Frame—Press	1
11	031-90724	Plate—Pressure Gauge Conversion	1
12	031-10131	Plate—Name	1
13	032-48097	Plate—Warning	1
14	031-18823	Plate—Insignia	1
15	031-21242	Pulley—Motor (with set screws)	1
16	031-90725	Tag—Caution	1

Item	Part No.	Description	Qty.
17	340-00041	Nut—External Wrenching, "Allen" Lokon 5/16-24 UNF	4
18	320-10204	Screw—Drive "Parker-Kalon" Type "U" Size #2 x ¼" LG	8
19	507-00030	Cylinder—2½ ¾ Boke; 1¾" Rod 7" Stroke	1
	S11-47544	Cylinder—with Positive Stop Assy.	1
20	494-10609	Fitting—Str. Thrd. Connector "Parker" #6F5BX-S	1
21	493-15002	Fitting—Str. Thrd. Connector "Parker" #8F5BX-S	1
22	496-10609	Fitting—Swivel Nut Elbow "Parker" 606BX-S	1
23	606-20559	Gromet—"Atlantic India" #559	2
24	606-20614	Gromet—"Atlantic India" #614	1
25	307-15140	Screw—H.H.C. 3/8-24 UNF x 7/8" LG	4
26	219-65005	Belt "V", Type "A" Section Neoprene Covered x 26" LG	1
	219-65006	Belt "V", Type "A" x 25" LG (50 HZ Elect.)	1
27	306-14120	Screw—H.H.C. 5/16-18 UNC x 3/4" LG	3
28	606-20391	Strip—"Atlantic India #X391 x 28-7/8" LG	1
29	431-90400	Plug—Soc. Pipe, ¼ NPTF	1
30	114-20023	Limit Switch—Micro #LSA3K-1D	2
31	See Fig. 8	Knob, Control	1
32	s11-14172	Assy. Pushbutton	2
33	320-65014	Screw 8-32 x ¼	8

RELIEF VALVE ASSEMBLY

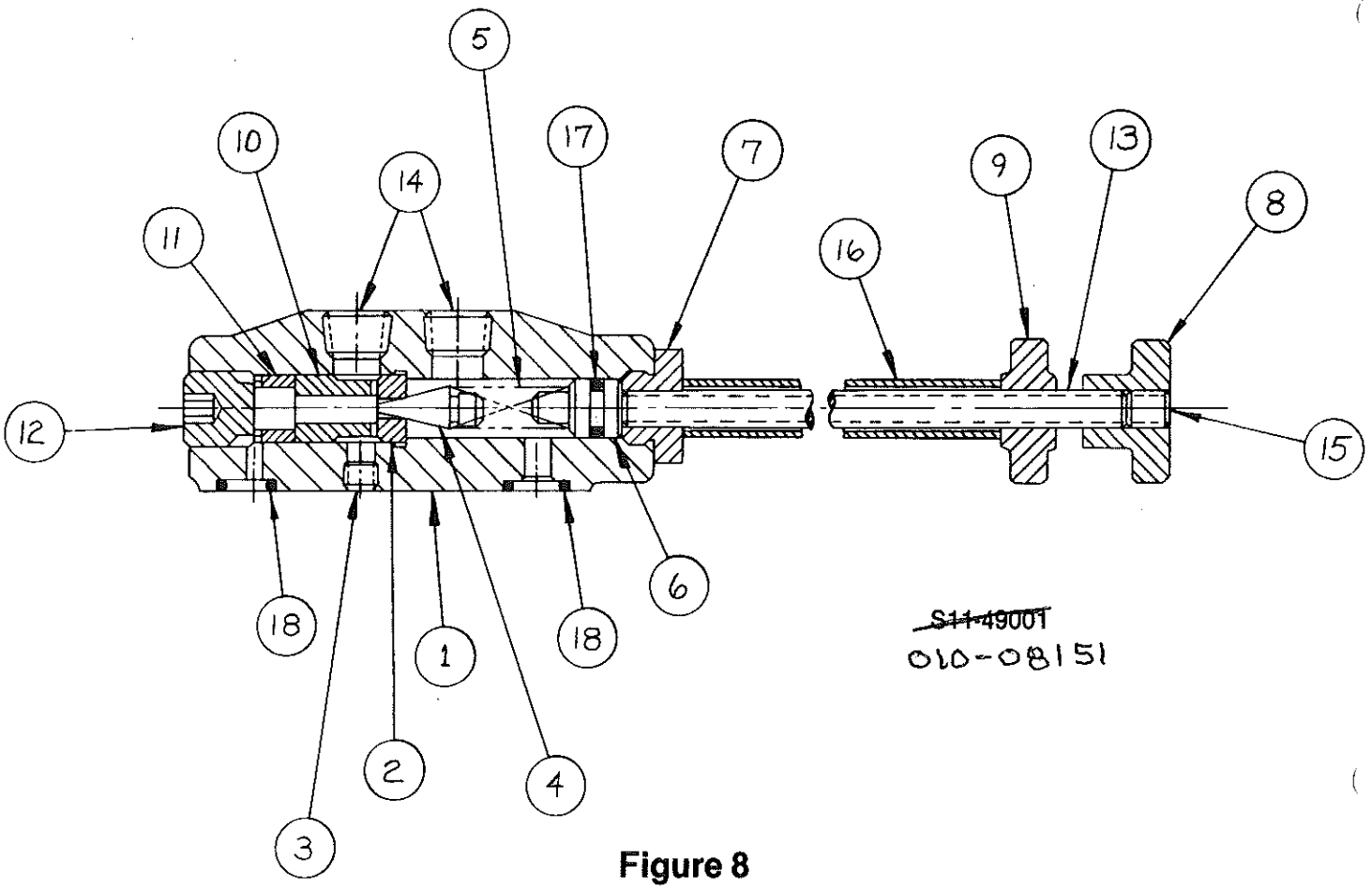


Figure 8

Item	Part No.	Description	Qty.
1	036-42372-Z	Cap, 5000 PSI	1
2	036-11692-E	Seat	1
3	431-90104	Plug—Pipe	1
4	036-12288-Z	Cone	1
5	036-13245-Z	Spring, Compression, 3000 PSI	1
6	036-21767-Z	Piston, Seal	1
7	036-21765-Z	Plug, Adjusting	1
8	036-24504-A	Knob, Control	1
9	032-42927	Knob—Control Locking	1
10	036-11710-Z	Block, Control	1
11	036-27548-Z	Spacer	1
12	312-35018	Screw, S.H.S.	1
13	031-90728-Z	Screw—Adjusting	1
14	431-90400	Plug—Pipe	2
15	312-13080	Screw—Soc. Set	1
16	031-90729-A	Sleve—Adjusting Screw Locking	1
17	675-00012	"O" Ring	1
18	675-00013	"O" Ring	2

RELIEF VALVE SERVICE

See Figure 8.

At times, the relief valve is prevented from operating satisfactorily due to the presence of lint, pipe scale, or some other foreign matter between the control seat (2) and cone (4). This may cause fluctuating pressure or pressure failure.

Quite often this condition may be corrected by starting the pump, releasing the lock nut (9) and sufficiently backing off (CCW) adjusting screw (13) to remove all spring pressure from cone (4). Oil circulating through the cap and discharging to the reservoir quite frequently will eliminate the foreign matter. The adjusting screw should then be turned clockwise until the desired pressure is reached.

If the above operation does not eliminate the trouble, the following procedure should be followed.

1. Remove the socket set screw (15) from cap and cone seat.
2. Remove the cap assembly being careful not to lose or damage the "O" rings.
3. Remove the adjusting screw (13) and adjusting plug (7).
4. Remove seal piston (6) by threading in a 10-24 screw into the tapped end and pulling out.
5. Remove compression spring (5) and cone (4).
6. Examine control seat (2), if the seat appears to be deformed or otherwise damaged, it may be removed by inserting a 7/16" dia. brass rod from the adjusting screw and and then pressed or driven out.
7. Thoroughly clean cap (1) giving special attention to drilled passages which communicate with the body. It is recommended that the cap be washed in stoddard solvent and then all holes blown out with clean compressed air. Do not wipe with rags, as they may leave lint.
8. Clean and inspect all parts removed from cap (1) if cone (4) shows a full sealing ring, it is satisfactory and may be reused, otherwise replace with new part. Examine control seat (2). If seat is damaged, use opposite sealing edge. If that too is damaged, replace part.
9. Reassemble:
   a. Press control seat (2) into cap (1) through the hold where socket set screw (12) was removed until it reaches the shoulder. Tool required for this operation is a 9/16" dia. brass rod having a 3/8" dia. drilled hole in the end contacting the seat. This is done to prevent damage to seat.
   b. Assemble spring (5) on cone (4), add new seal ring (17) to piston (6) which is inserted into opposite end of spring (5). Insert this assembly, cone first, into the end of cap (1) from which it was removed and thread adjusting plug (7) into cap and tighten to hold parts in cap. Assemble lock nut (9) and sleeve (16) onto adjusting screw assy. (8,13,5) and thread into adjusting plug (7).
   c. Install control block (10) and spacer (11) and socket head set screw (12) into cap and tighten.
10. Reassemble cap assembly to manifold assembly. It is advisable to replace all "O" rings. Be sure all "O" rings are in place before completing this assembly. Cap screws anchoring the cap should be drawn down uniformly and tightened securely. Loose cap screw will allow extrusion of the "O" rings.

CYLINDER SERVICE

NOTE

Disrupt electrical service to press before servicing.

Remove all tooling from Ram. Remove Ram Guide Assembly (Item 4). Disconnect hydraulic lines (Items 5 & 6) from Cylinder (Item 19) and loosen or disconnect lines at the manifold to assure lines are not bent or kinked during servicing. Remove the four nuts (Item 17) from anchor bolts and remove Cylinder (Item 19). To install, reverse these procedures.

When ordering cylinder packing and/or parts be sure to include the cylinder brand name, model and serial numbers, and press model and serial numbers to insure receiving the correct parts.

NOTE

When hydraulic lines and fittings have been taken loose or replaced, care must be taken to assure all lines have been securely tightened to prevent leaks and ingestion of air into system which could cause permanent damage to unit.

MANIFOLD ASSEMBLY

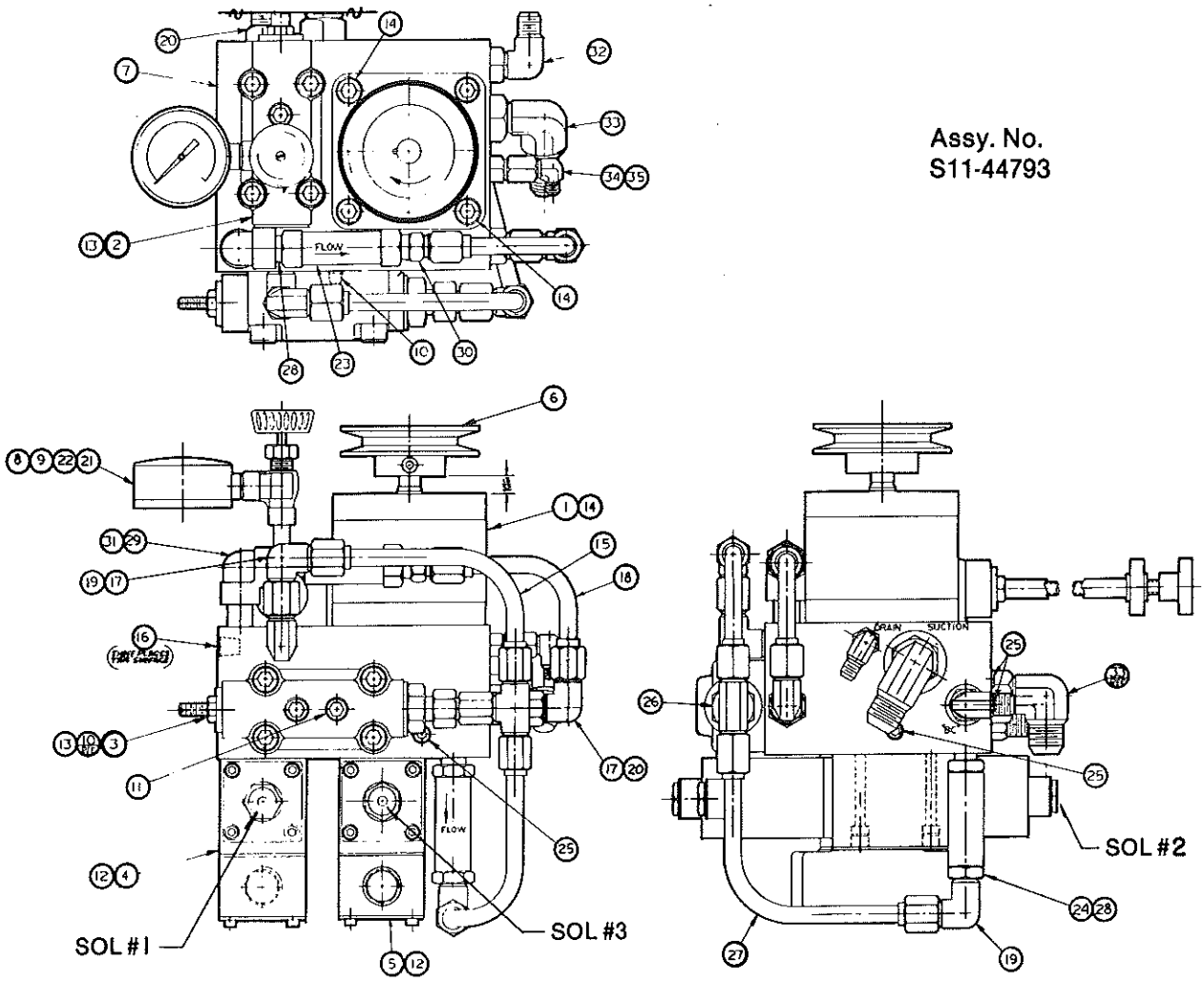
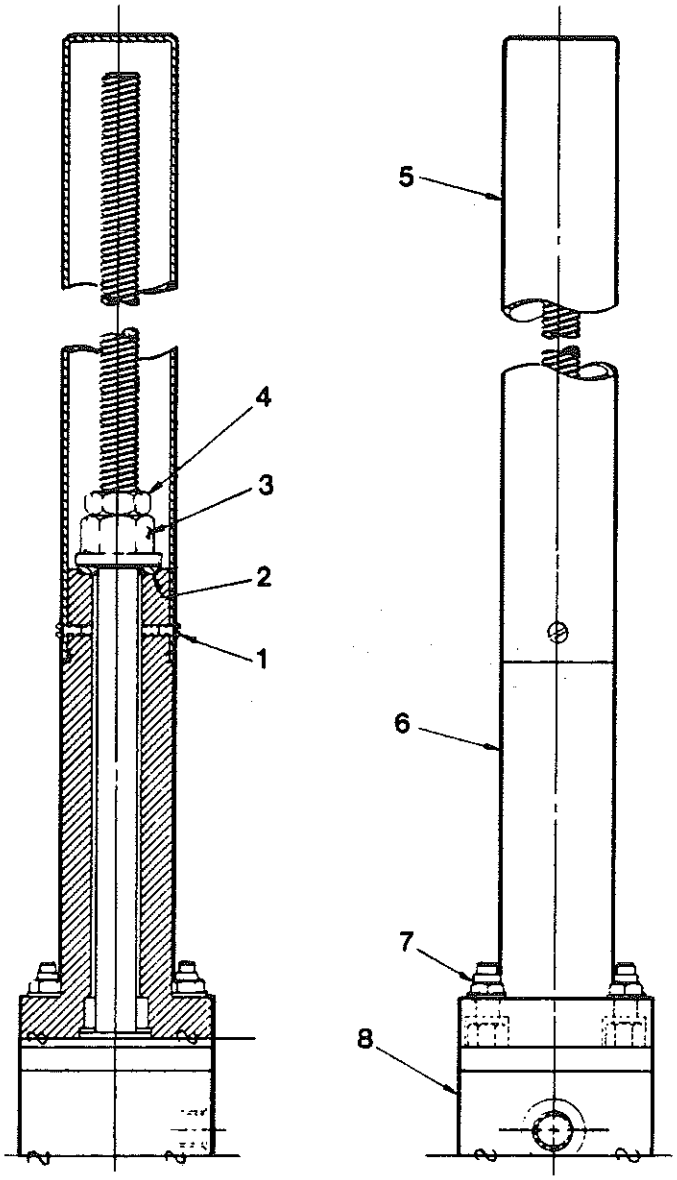


Figure 9

Item	Part No.	Description	Qty.
1	014-01260	Assy. Pump, 2 Volume Vane	1
2	S12-49001	Cap—Direct Oper. Relief	1
3	016-27019	Cap—Unloader Valve	1
4	016-44363-5	Valve—4-Way Direct A3D01-35-201-03-02-00A5-01A28	1
5	016-46403-5	Valve—1/8" 4-Way Directional—8 GPM A3D01-35-107-05-01-00A5-01A28	1
6	031-21241	Pulley—Pump (with set screws)	1
	219-65002	Pulley—Pump (50 HZ Elect.)	1
7	031-90730	Block—Manifold for WUA 3 Ton Press	1
8	501-99684	Gauge—Hyd. Press .2" Dial 1/8" NPT, Bottom Connection Plain Case (0-1500 PSI)	1
9	514-16002	Valve 1/8" Angle Needle	1
10	431-90104	Plug 1/16" Pipe	1
11	431-90400	Plug 1/4" Pipe	1
12	359-09240	Screw—#10-32UNF × 2" S.H.C.	8
13	309-15200	Screw 3/8-24 UNF × 1-1/2" LG. S.H.C.	8
14	359-15320	Screw—3/8-24 UNF × 3" LG. S.H.C.	2
15	S11-49003	Tube Ass'y.	1
16	431-90204	Plug 1/8" Flush	3
17	496-10609	Fitting—Swivel Nut Elbow, "Parker" #6C6BX-S	2
18	S11-49004	Tube Ass'y.	1

Item	Part No.	Description	Qty.
19	473-10604	Fitting—Male Elbow "Parker" 6-CBTX	2
20	493-15002	Fitting—Str. Thrd. Conn. "Parker" 6-F5BX-S	2
21	433-90402	Bushing—Hex. Red. 1/4 × 1/8"	1
22	441-02030	Nipple 1/8" Std. Pipe × 3/4" LG.	1
23	513-25004	Value Check 1/4" "Republic" #453-1/4S 6 PSI Cracking pressure, 5000 PSI Working Pressure	1
24	513-50108	Valve check 1/4" Republic #453-1/4S 65 PSI Cracking Pressure, 5000 PSI Working Pressure	1
25	431-90200	Plug—Hex. Soc. 1/8"	4
26	476-35006	Fitting—Swivel Nut Branch Tee "Parker" 6-S6BX-S	1
27	S11-49002	Tube Sub-Assembly	1
28	441-04010	Nipple—Std. 1/4 × 7/8" LG.	2
29	442-04050	Nipple—Std. 1/4 × 1-1/4" LG	1
30	470-10604	Fitting—Std. 1/4 × 1-1/4" LG	1
31	424-20400	Elbow—1/4" #2000	1
32	494-10609	Fitting—Str. Thrd. Elbow "Parker" 6C5BX-S	1
33	494-11014	Fitting—Str. Thrd. Elbow "Parker" 10C5BX-S	2
34	470-10402	Fitting-Male Conn. "Parker" 4FBTX-5S	1
35	496-15003	Fitting—Swivel Nut Elbow "Parker" 4C6BX-S	1
36	S16-46224	SOL. 1. 2. 3.	3

POSITIVE STOP ASSEMBLY



S11-47544

Figure 10

ITEM	PART Nº	DESCRIPTION	QTY.
1	310-08040	Screw·RHM 8–32 x 1/4	2
2	031-28502	Insert	1
3	340-00045	Nut·Flange 5/8 18	1
4	335-23100	Nut·Jam 5/8–18	1
5	031-72561	Cap·Protective	1
6	031-72560	Retainer	1
7	340-00041	Nut · 5/16-24	4
8	507-00032	Cylinder	1

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