

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.

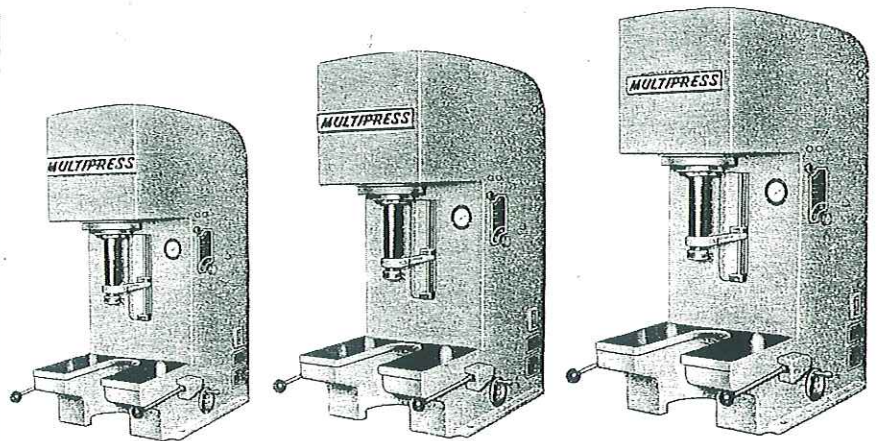
All guarding and safety considerations are the responsibility of the current owner per ANSI B11.2 1995.

BULLETIN SM-50A

MULTIPRESS®

service information

SERIES R, S and T MULTIPRESS



MULTIPRESS®

This Bulletin covers presses starting with Serial No. 20,000.

For presses below No. 20,000 — See Bulletin SM-37.

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SECTION I

INTRODUCTION

GENERAL

This manual is intended for reference when installing and preparing a Multipress for operation and is for use in the normal maintenance, repair and upkeep of the press. Each major component and the parts within that component are shown in the following pages. Complete parts lists are shown for all models from 2 through 12-ton capacity. See page 4 for complete list of models covered in this manual.

The model number of the press indicates the major components used on your press. The nomenclature includes the frame size, rating in tons, horsepower of motor and cycle duty of cylinder.

For example: S045M

- S – indicates frame size
- 04 – indicates maximum tonnage
- 5 – indicates motor horsepower
- M – indicates cycle duty

SERVICE POLICY

The extreme simplicity of a Multipress, the unit construction of its component parts, 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 after expiration of the six month warranty period must be shipped prepaid.

Factory service will be rendered only upon receipt of purchase order for such service.

Current characteristics are required at time of order dictated by the characteristics of the users' current. In any event, a motor starter corresponding to the voltage of the electric motor in the press should be used. A transformer is recommended for use with the motor start and stop pushbutton switch. Motor starter and transformer are not standard Multipress equipment but are supplied upon receipt of specifications.

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WARRANTY

Within a period of six months from date of shipment from our factory, and when owned by the original purchaser and being used in recommended service, any Multipress part of our manufacture which, upon inspection at our factory or by qualified factory representative, is proven defective in workmanship or material, will be replaced free of charge. This Warranty applies only to Multipress-manufactured parts.

Parts other than of our manufacture bear such warranties as their manufacturers allow. When inspection indicates those parts defective, we will endeavor to secure the benefits of such warranties for our customers.

SECTION II

DESCRIPTION

MULTIPRESS FRAMES

All standard R, S and T frames are the "C" frame type of construction and are intended to be bench mounted. The "R" frame is approximately 43" tall with a work stroke of 10". The S and T frames are approximately 49" and 52" respectively with a work stroke of 12".

The oil reservoir is a part of the frame and easily

cleaned and filled. (See Fig. 2 for frame and reservoir cover and access door).

PUMP MOTOR ASSEMBLIES

The R, S and T presses are equipped with motor-pump units which are mounted inside press frame. (See Fig. 3) These units are interchangeable with all three frame sizes.

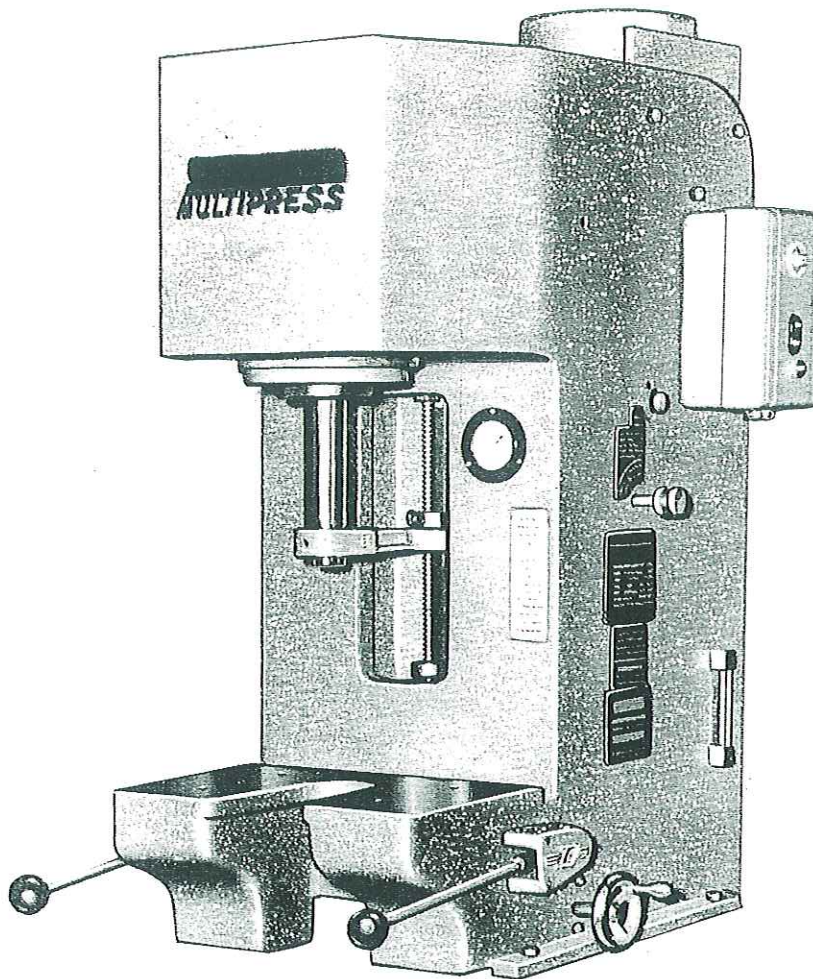


FIGURE 1 - GENERAL VIEW OF MULTIPRESS

SECTION III

INSTALLATION

INSTALLATION OF THERMOSTATIC WATER REGULATING VALVE WITH THERMOSTATIC BULB

All presses with C203 valves and automatic controlled presses should have cooling coils in their oil reservoirs. A thermostatic water regulating valve is furnished to be used with the cooling coils. This valve is not installed on any press before shipment.

Note

Install thermostatic bulb before filling Multipress oil reservoir, or drain reservoir before installing.

1. Remove the two small pipe plugs and the one large pipe plug in the rear of the reservoir.
2. Connect water line to the inlet line thru valve as shown.
3. Connect outlet line to drain.
4. Install thermostatic bulb in the largest hole as shown.

The water regulating valve should be set to open at 110° F.

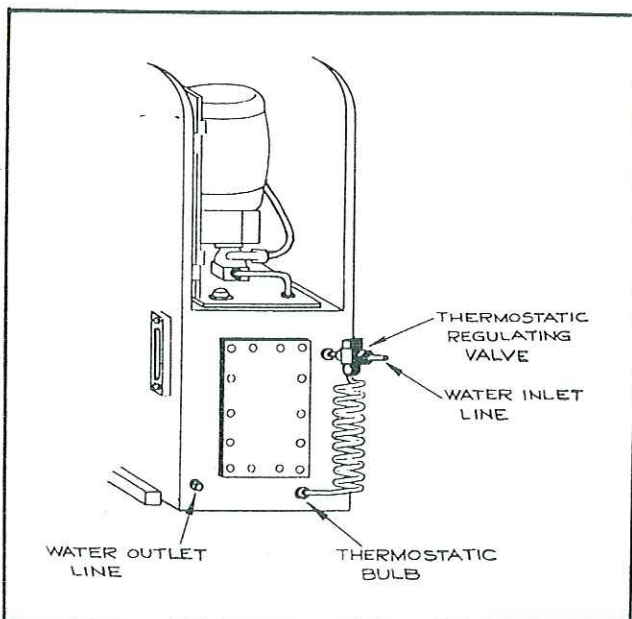


FIGURE 2 - REAR VIEW OF PRESS
SHOWING TYPICAL INSTALLATION OF THERMOSTATIC
CONTROLS FOR WATER COOLED OIL RESERVOIR SYSTEM

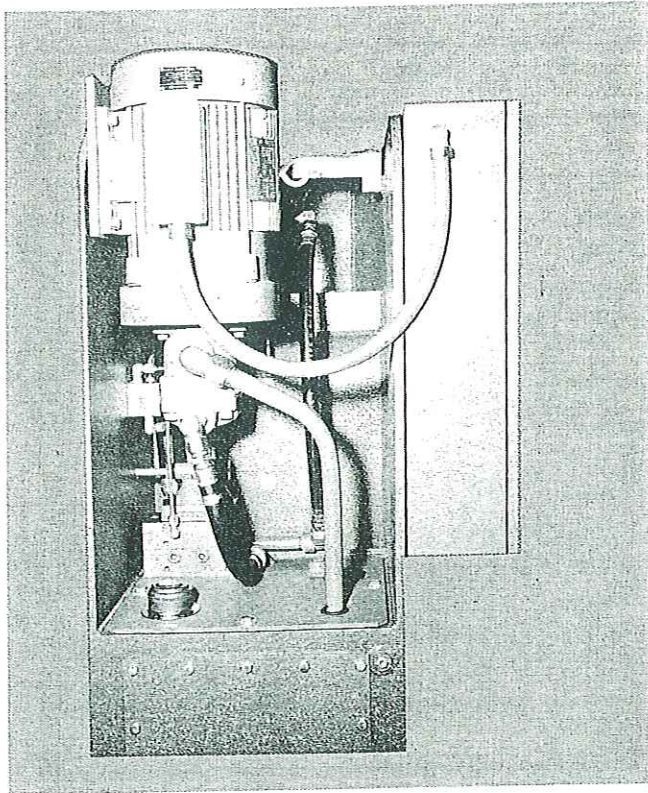


FIGURE 3

Shows pump-motor assembly in position with pressure line from pump to pressure control valve and suction line from reservoir to pump connected.

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 hydroOILic equipment almost all 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 tank and hydraulic system of your 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.

The oil reservoir is filled thru the JIC oil filler assembly which is located on top of the reservoir under the motor and pump assembly. Remove the filler pipe cap and fill the reservoir with any clean oil from our approved list. (See page 12.) Approximately 11 gallons, 17 gallons and 20 gallons are required to fill the R, S and T reservoir to within 1/2" of the top of the oil level gauge on the side of the press. Never operate press if oil is more than 1 1/2" from the top of the oil level gauge.

STARTING THE PUMP AND MOTOR

The direction of the pump rotation is indicated by the arrow on the motor frame at the rear of the press. Do not permit motor to operate in the wrong direction, the pump will seize after a few seconds operation due to lack of oil and pump will be damaged.

The pump utilizes the hydraulic oil for lubrication of its precision machined internal parts. When suction line to the oil reservoir is open and the oil is at the proper level the pump will prime itself and provide adequate lubrication.

If pump and motor are operating in the direction as indicated run the press for a few minutes to remove air from the system.

Note

Check the pipe or hose line for any oil leakage which may have developed since leaving the factory.

SETTING THE RELIEF VALVE

Lower and raise the press ram several full strokes by operating the control mechanism to flush air from the system. This can also be accomplished by running the ram up and down with the inching control while press is idling.

To adjust pressure on ram decrease relief valve pressure (see PRESSURE ADJUSTMENT plate on right side of press, Fig. 1). unlock upper stop collar by loosening all screws, turn the handwheel on the inching control to inch ram down. After ram contacts work turn handwheel approximately 1/2 turn more. Check pressure on ram by pressing button on push button gauge valve on the right side of press and read gauge. If the pressure indicated is more or less than the pressure required either increase or decrease the pressure adjustment to obtain the desired pressure. Turn the handwheel in the opposite direction to return ram to upper position. Upper stop collar must be locked before cycling press. The up stroke is controlled by locking the upper stop collar in the desired position. The down stroke of ram is limited by the position of the bottom stop on the shipper rod.

The relief valve should be adjusted for the minimum pressure needed to perform the required service. If it is set for excessive pressure more power will be used than is necessary.

Do not make changes in tooling setups while press ram is cycling. Stroke adjustments must be made with the inching control while press is idling. The screws in the stop collars must be securely tightened to prevent slippage.

Model Numbers and Basic Part Numbers

Press Model	Max. Tons	Motor H.P.	Cycle Duty.	Pump Model	GPM	Pressure Gauge No.	Cylinder No.	Cylinder		Maximum Pressure PSI
								Bore	Ram	
Series R										
R023L R023M R023H	2	3	Light	TMB-006-21R-4	9.0	501-99659 Decal No. 031-42873	S11-03786	2¼"	1 ⁵ / ₈ "	1000
Medium			TMB-004-21R-4	6.3						
Heavy			TMB-002-21R-4	3.6						
R043L R043M R043H R045L R045M R045H	4	3	Light	TMB-004-21R-4	6.3	501-99650 Decal No. 031-42876	S11-03787	2¾"	2"	1350
Medium			TMB-002-21R-4	3.6	501-99659 Decal No. 031-42874					
Heavy			TMB-001-21R-4	2.5	S11-03786	2¼"				
Light		TMB-005-21R-4	7.6	501-99660 Decal No. 031-42874						
Medium		TMB-004-21R-4	6.3							
Heavy		TMB-002-21R-4	3.6							
R063M R063H	6	3	Medium	TMB-002-21R-4	3.6	501-99660 Decal No. 031-42875	S11-03787	2¾"	2"	2020
Heavy		TMB-001-21R-4	2.5							
Light		TMB-005-21R-4	7.6	501-99660 Decal No. 031-42875						
R065L R065M R065H	6	5	Medium	TMB-004-21R-4	6.3	501-99660 Decal No. 031-42875	S11-03787	2¾"	2"	2020
Heavy		TMB-002-21R-4	3.6							
Light		TMB-005-21R-4	7.6							
Medium	TMB-004-21R-4	6.3								
Heavy	TMB-002-21R-4	3.6								
Series S										
S045M S045H	4	5	Medium	TMB-004-21R-4	6.3	501-99659 Decal No. 031-42872	S11-03783	2¼"	1 ⁵ / ₈ "	2000
Heavy	TMB-002-21R-4	3.6								
S065L S065M S065H S067L	6	5	Light	TMC-007-21R-4	11.5	501-99659 Decal No. 031-42877	S11-03782	3¼"	2¼"	1450
Medium		TMB-005-21R-4	7.6							
Heavy		TMB-004-21R-4	6.3							
S085L S085M S085H S087L S087M	8	7½	Light	TMC-008-21R-4	13.0	501-99660 Decal No. 031-42877	S11-03782	3¼"	2¼"	1930
Medium		TMB-006-21R-4	9.0							
Heavy		TMB-004-21R-4	6.3							
Light	TMB-002-21R-4	3.6								
Medium	TMC-007-21R-4	11.5								
Heavy	TMB-006-21R-4	9.0								
Series T										
T085H T087L T087M T087H T080L T080M	8	5	Heavy	TMB-002-21R-4	3.6	501-99660 Decal No. 031-42877	S11-03782	3¼"	2¼"	1930
Light		TMC-007-21R-4	11.5							
Medium		TMB-006-21R-4	9.0							
Heavy	TMB-004-21R-4	6.3								
Light	TMC-008-21R-4	13.0								
Medium	TMC-007-21R-4	11.5								
T107M T107H T100L T100M	10	7½	Medium	TMB-006-21R-4	9.0	501-99660 Decal No. 031-42878	S11-03784	3 ⁵ / ₈ "	2½"	1930
Heavy		TMB-004-21R-4	6.3							
Light		TMC-008-21R-4	13.0							
Medium	TMC-007-21R-4	11.5								
T125L T125M T127L T127M T127H T120L T120M T120H	12	5	Light	TMB-005-21R-4	7.6	501-99660 Decal No. 031-42879	S11-03785	4"	2¾"	1910
Medium		TMB-004-21R-4	6.3							
Light		TMC-007-21R-4	11.5							
Medium	TMB-006-21R-4	9.0								
Heavy	TMB-004-21R-4	6.3								
Light	TMC-008-21R-4	13.0								
Medium	TMC-007-21R-4	11.5								
Heavy	TMB-006-21R-4	9.0								

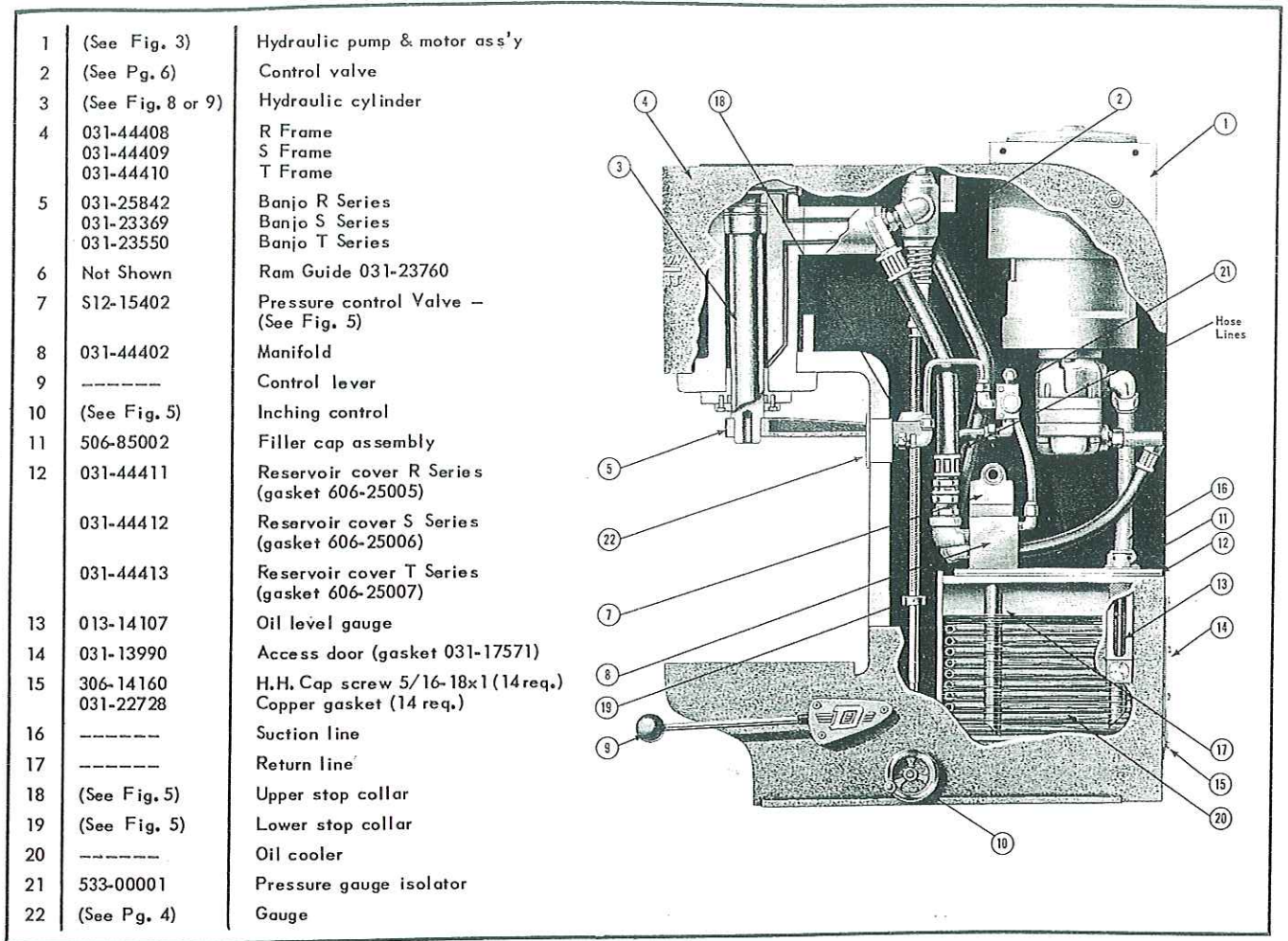


FIGURE 4 - CUT-AWAY VIEW OF THE MULTIPRESS
SHOWING MAJOR COMPONENTS

CYLINDER AND RAM ASSEMBLIES

The cylinders for all R, S and T frame Multipresses are of the double action type and are basically alike, differing only in size as shown in Fig. 8 and 9. The cylinders are drilled to provide oil passage to either end of the cylinder. A banjo traveling vertically on the ram guide in the throat of the press prevents the ram from turning in the cylinder.

The piston has been fitted at the factory with two piston rings for sealing against pressure leakage. If it should ever be necessary to install new rings, extreme care should be exercised in their installation. When installing the rings on the piston as well as inserting piston with rings in the cylinder, inspect piston ring grooves for small nicks or burrs. When present, they should be removed with a hard sharp stone or tool. The parts should then be thoroughly washed and cleaned to remove all foreign matter before putting into operation.

PACKING

The packing for all cylinders used in the R, S and T Multipresses is furnished as a set. Each set contains

two rubber and two fabric rings. If the packing around the ram should ever develop a leak the entire set of packing must be replaced. To install new packing in the cylinder:

Remove all tooling which is attached to the ram.

Remove the banjo from the ram.

Remove the socket head screws from the packing gland and remove the gland.

Remove the four packing rings being careful not to damage ram or stuffing box.

The new packing should be oiled before installation. During the installation of the new packing care should be exercised when sliding lips of packing over banjo relief on ram, then lips should be carefully inserted in stuffing box. These rings should be inserted singularly and carefully pushed to the top of the stuffing box. A wooden tool should be used to press new packing into place. Do not force, tap lightly. (See Fig. 7 for proper arrangement of rubber and fabric packing rings.) Replace packing gland and tighten screws firmly.

MULTIPRESS CONTROL VALVES

Small Series

C201

This is the basic, manual control valve and is available with a choice of controls for the operation of the press ram. Dual hand lever control is standard unless otherwise specified.

C261

Same as C201 except incorporates differential fast approach speed circuit. This feature increases approach speed of ram approximately 65%. Pressing and return speed remain same as standard. The change from approach speed to pressing speed occurs when the ram contacts the work.

C202

Offers controlled pressing speed of ram. Choice of controls. Ram will descend at full speed or at controlled pressing speed, apply preset pressure and return at full return speed when the controls are released.

C203*

Features manual control of ram with adjustable length vibratory strokes - short, repeat strokes that are applied upon the work as long as control levers are depressed. These repeat strokes are of full preset tonnage and are used where consecutive applications of pressure are necessary. Vibratory strokes may be adjusted "out" for action similar to the C201 valve, if desired. A choice of control levers is offered.

C257

The servo control is used where complete control over ram motion and pressure is desired. Depressing the hand lever causes the ram to descend. Ram movement, either up or down is directly proportional to hand lever movement. Moving it rapidly causes the ram to move rapidly. A differential circuit is incorporated to give a fast approach speed. Releasing the lever at any time causes the ram to return to its "up" position and stop. Slow displacement of hand lever when ram is on work will cause a gradual change in the force exerted.

C204

Basic automatic press and featuring choice of either automatic or single cycling of press ram. Ram will reverse automatically upon attaining preset pressure on the work or against stroke length control. This feature provides automatic reversal of ram for either distance or pressure requirements.

C264

Same as C204 except it incorporates differential approach speed circuit. This feature increases approach speed of ram approximately 65%. Pressing and return speeds remain as standard.

C209

Automatic cycling identical to C204 except provision is made for the interlocking of hydraulic accessories through the control system of the press.

C269

Automatic cycling identical to C209 control except it incorporates a differential approach speed circuit. This feature increases approach speed of ram approximately 65%. Pressing and return speeds remain standard.

C208*

Automatic cycling plus vibratory repeat strokes which may be regulated both for length and number. For example, the ram may be preset to descend, exert preset pressure, and then make short repeat strokes upon work of any number between 1 and 10. The ram returns to its retracted position automatically. Speed control with adjustable pressing speed on the down stroke is also a feature for the bottom 2¼ inches of stroke.

C213*

Automatic cycling identical to C208 control (including vibratory repeat strokes) except provision is made for interlocking hydraulic accessories through control system of the press.

(CHOICE OF MECHANICAL AND ELECTRICAL CONTROLS FOR ABOVE VALVES)

* Inching not available with these valves.

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	333-19000	1/2" - 20 hex nut	1
2	011-03790	Swivel joint (25-7511)	1
3	031-25430	Positive stop	1
4	031-23571	Upper stop collar	1
5	031-23573	Bottom stop collar	1
6	308-14160	5/16-18 x 1 S.H.C. screws	2
7	031-25847	Inching control rod (used on "R" only)	1
	031-23447	Inching control rod (used on "S" and "T")	1
8	011-03789	Inching control bracket assembly (25-7510)	1
9	308-14240	5/16-18 x 2 S.H.C. screws	2
10	031-25848	Gear control shaft (used on "R")	1
	031-23380	Gear control shaft (used on "S")	1
	031-23572	Gear control shaft (used on "T")	1
11	031-25849	Mounting bracket (used on "R")	1
	031-25342	Mounting bracket (used on "S")	1
	031-23762	Mounting bracket (used on "T")	1
12	210-05000	Collar S C 50	1
13	311-12080	1/4-20 x 1/2 S.S. screw (cup pt.)	1
14	308-14120	5/16-18 x 3/4 S.H.C. screw	2
15	031-23382	Handwheel (H 29668)	1
16	325-12160	3/16 x 1 rollpin	1
	031-25519	Instruction plate (not shown)	1
	320-10203	#2 x 3/16" type U drive screws (not shown)	4
17	031-25851	Bolt anchor plate	1
18	031-26231	Spacer (used on "R" series)	1

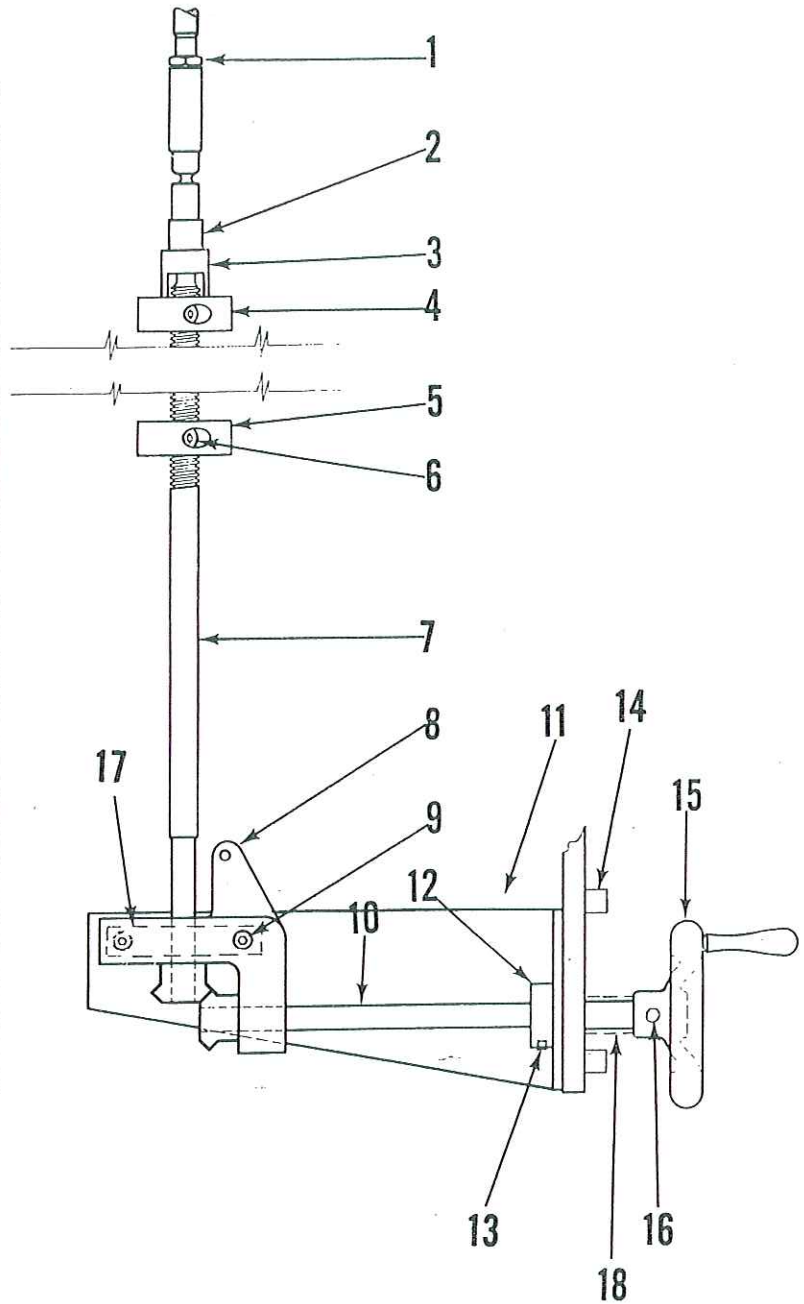


FIGURE 5 - INCHING CONTROL

ASSEMBLY S12-15402 RELIEF VALVE

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	036-24378	Body - 3/4" 3000 PSI	1	15	036-21767	Piston - seal	1
2	691-00013	"O" ring	1	16	671-00012	"O" ring	1
3	691-00215	"O" ring	2	17	036-21765	Plug - adjusting	1
4	036-27547	Spring - compression	1	18	032-42926	Sleeve - adjusting screw locking	1
5	036-27549	Sleeve	1	19	032-42927	Knob - control locking	1
6	671-00125	"O" ring	2	20	032-42928	Screw - adjusting	1
7	312-35018	Screw - soc. set Nylok - half dog	1	21	036-24504	Knob - control	1
8	036-24379	Cap - 3000 PSI	1	22	312-13080	Screw - soc. set.	1
9	671-00026	"O" ring	1	23	691-00008	"O" ring	2
10	036-43794	Spacer - cone seat	1	24	036-27550	Spool	1
11	036-11692	Seat	1	25	036-25528	Plug - orifice	1
12	036-12288	Cone	1	26	036-17035	Plug - orifice	1
13	036-13245	Spring - compression	1	31	431-90400	Plug - soc. pipe - 1/4"	1
14	359-13140	Screw - S.H.C.	4				

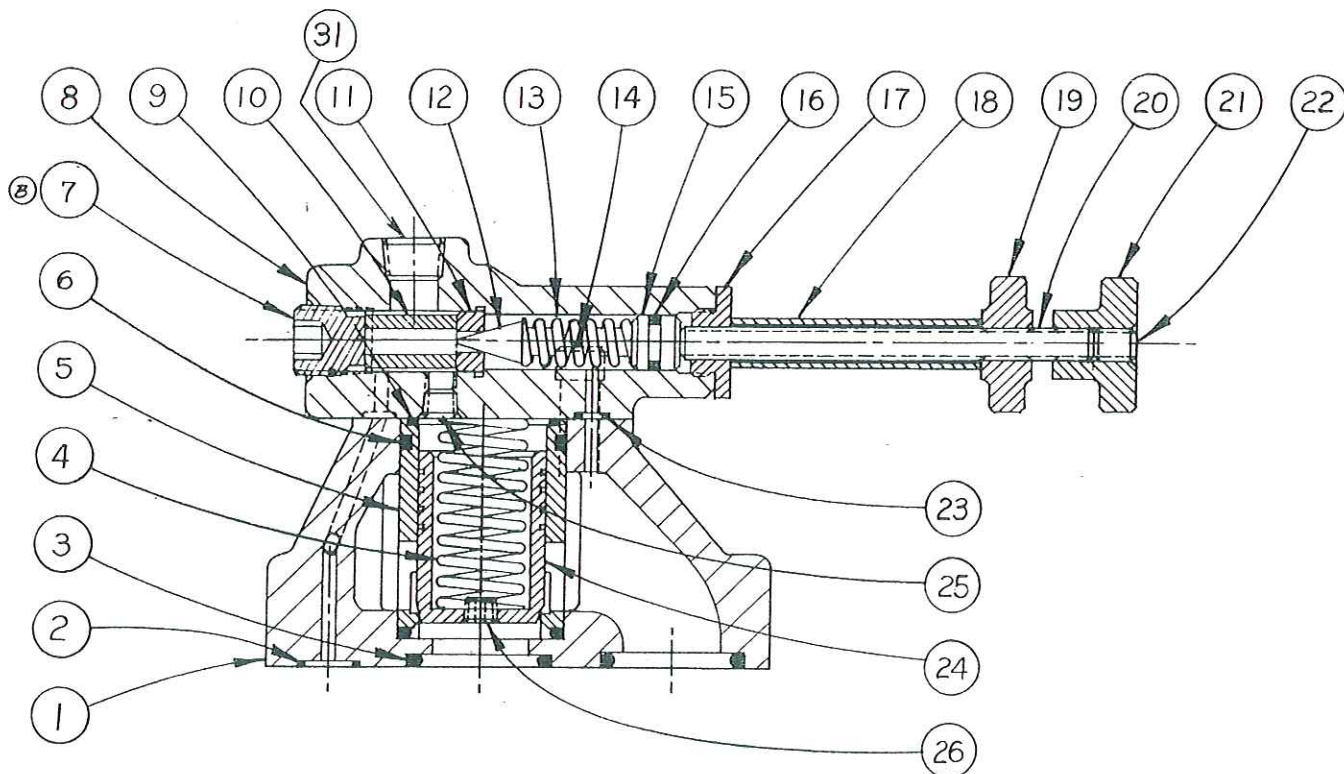


FIGURE 6 - RELIEF VALVE

SECTION IV MAINTENANCE

SERVICE ON PUMP

Disconnect electric power from starter box. Disconnect pressure line between relief valve and pump. Remove suction line which extends from pump into reservoir. Remove drain line from pump. See Bulletin SP-5 for service on vane pump.

TO SERVICE AND MAINTAIN RELIEF VALVES

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 (11) and cone (12). This may cause fluctuating pressure or pressure failure.

Quite often this condition may be corrected by starting the pump, releasing the lock nut (19), and sufficiently backing off (CCW) adjusting screw (21) to remove all spring pressure from cone (12). Oil circulating through the cap and discharging through spool (24) 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 (7) the socket set screw from cap and cone seat.
2. Remove the cap assembly from the body (1), being careful not to lose or damage the "O" rings.
3. Remove the adjusting screw (21) and adjusting plug (17).
4. Next remove seal piston (15) by threading in a 10-24 screw into the tapped end and pulling out.
5. Remove compression spring (13) and cone (12).
6. Examine control seat (11), 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 end and then pressed or driven out.
7. Thoroughly clean cap (8) giving special attention to drilled passages which communicate with the body. It is recommended that the cap be washed in kerosene 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 (8). If cone (12) shows a full sealing ring, it is satisfactory and may be reused, otherwise replace with new part. Examine control seat (11). If seat is damaged, use opposite sealing edge. If that too is damaged, replace part.
9. Reassemble:
 - a. Press control seat (11) into cap (8) through the hole where (7) 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 (13) on cone (12), add seal ring (16) to piston (15) which is inserted in opposite end of spring (7). Insert this assembly, cone first, into the end of cap (8) from which it was removed. Next assemble lock nut (19) on adjusting screw (21). Thread adjusting screw (21) clockwise into adjusting plug. Tighten adjusting plug in cap.
 - c. Install cone seat spacer (10) and screw plug into cap and tighten. The cap assembly is now complete.
10. Next remove spring (4) and spool (24) from the body (1).
 11. Clean all parts thoroughly in kerosene. Use clean compressed air to blow out all passages.
 12. Examine seat in sleeve (5) making sure it is clean and that the seating edge does not show defects. If seat is defective, replace. Do not grind defective part, as such procedure will unbalance the characteristics of the valve, resulting in unsatisfactory operation of the valve.
 13. Examine tapered seat surface of spool (24). This surface should show a perfect seating ring. If inspection indicates improper seating, replace part. A satin appearance near the sealing ring does not mean a defective part. Spool erosion does, however, necessitate replacement.
 14. Reassemble cap assembly to body assembly. It is advisable to replace all "O" rings but not absolutely unless they are defective. Be sure all "O" rings are in place before completing this assembly. Cap screws fastening the cap (8) to the body (1) should be drawn down uniformly and tightened securely. Loose cap screws will allow the extrusion of the "O" rings.

If the above service and maintenance procedure is followed any trouble that may occur in these valves should be corrected.

PRESSURE ADJUSTMENT

The adjusting screw provides a convenient means of regulating the system pressure within a 3000 psi range. Whenever a pressure adjustment is made, lock nut (19) must be turned CCW adjusting screw (21) may be turned. Clockwise rotation of the adjusting screw increases pressure while counterclockwise rotation reduces pressure. After adjustment is made, the lock nut must be turned clockwise until firmly contacting locking sleeve.

Caution must be taken not to turn the adjusting screw too rapidly since the lag in pressure change may cause an eventual magnified change in pressure. This is especially important when pressures are increased. Rapid turning of the screw may increase the pressure to a dangerous amount causing failure of some units

of the system.

In all instances, it is important to adjust the pressure to a minimum for proper operation of the system. Excessive relief pressures are also reflected as wasted horsepower.

CROSS SECTION OF PACKING GLAND

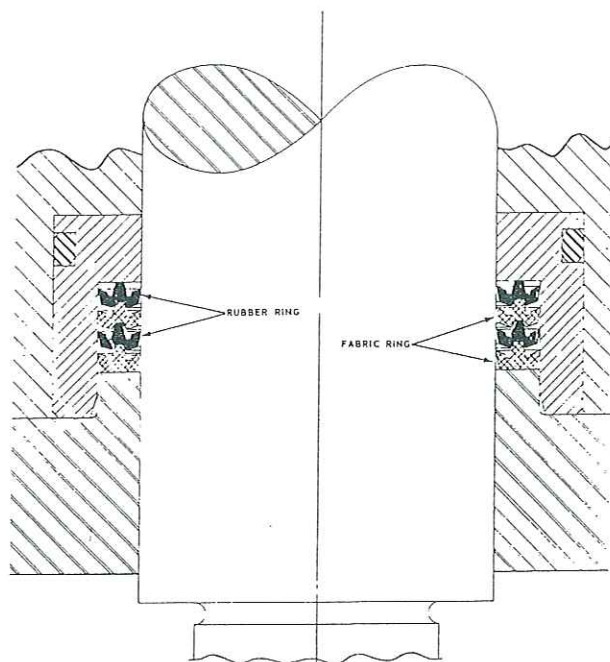


FIGURE 7

"R" PRESS

PARTS LIST FOR CYLINDER AND RAM ASSEMBLIES

Cylinder Code Numbers S11-03786, S11-03787

Ref. No.	Part No.	Description	Qty
	S11-03786	Cylinder assembly 2¼" bore 10" stroke	
1	308-16166	3/8-16 x 1 S.H.C. screw (Nyllok)	6
2	031-25770	Packing gland	1
3	633-00004	"Uneepac" packing (4 rings)	1 set
4	031-25768	Stuffing box	1
5	671-00228	"O" ring 70-6230-6 ARP-228	1
6	031-25769	Ram (2¼ x 1-5/8 x 1-3/8)	1
7	625-23018	Piston ring (2¼" O.D. x 3/16" wide)	2
8	308-20200	1/2-13 x 1½ S.H.C. screws	8
9	031-13047	Cylinder head	1
10	671-00228	"O" ring 70-6230-6 ARP-228	1
11	431-90800	1/2" soc. pipe plug	1
12	431-90600	3/8" soc. pipe plug	2
13	031-25771	Cylinder body	1
NS	031-25842	Banjo	1
	S11-03787	Cylinder assembly 2¾" bore 10" stroke	
1	308-16166	3/8-16 x 1 S.H.C. screw (Nyllok)	6
2	031-25713	Packing gland	1
3	633-00003	"Uneepac" packing (4 rings)	1 set
4	031-25712	Stuffing box	1
5	671-00232	"O" ring 70-6230-10 ARP-232	1
6	031-25714	Ram 2¾ x 2 x 1-3/8	1
7	625-23022	Piston ring (2¾" O.D. x 3/16" wide)	2
8	308-20200	1/2-13 x 1½ S.H.C. screw	8
9	031-26110	Cylinder head	1
10	671-00232	"O" ring 70-6230-10 ARP-232	1
11	431-90800	1/2" soc. pipe plug	1
12	431-90600	3/8" soc. pipe plug	2
13	031-25715	Cylinder body	1
NS	031-25842	Banjo	1

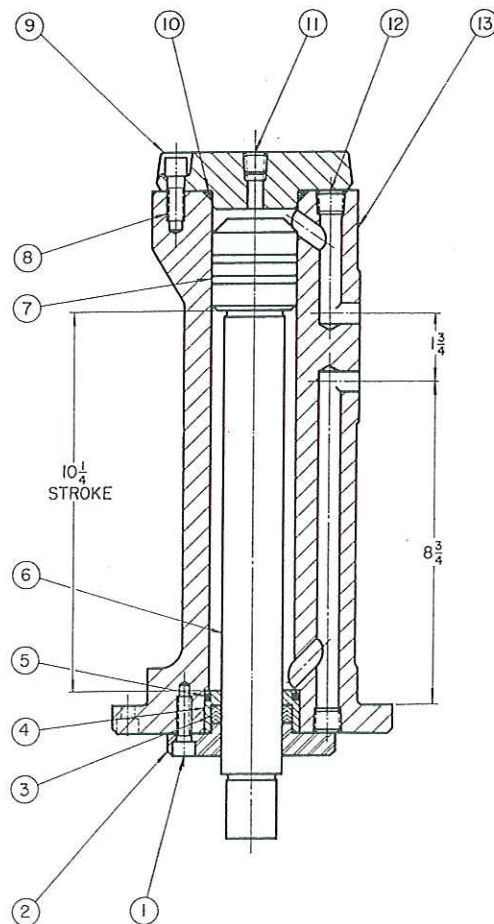


FIGURE 8

"S" & "T" PRESSES
PARTS LIST FOR CYLINDER AND RAM ASSEMBLIES
 Cylinder Code Numbers S11-03782, S11-03783, S11-03784, S11-03785

Ref. No.	Part No.	Description	Qty
	S11-03783	Cylinder assembly 2 1/4" bore 12" stroke	
1	308-12126	1/4-20 x 3/4 S.H.C. screw (Nylok)	6
2	031-23354	Packing gland	1
3	633-00004	"Uneepac" packing (4 rings)	1 set
4	308-20180	1/2-13 x 1 1/4 S.H.C. screws	6
5	031-23349	Stuffing box	1
6	671-00228	"O" ring 70-6230-6 ARP-228	2
7	031-23342	Ram (2 1/4 x 1-5/8 x 1-3/8)	1
8	625-23018	Piston ring (2 1/4 O.D. x 3/16 wide)	2
9	433-90602	Hex bushing 3/8 x 1/8 NPT	1
10	308-24220	5/8-11 x 1 1/2" S.H.C. screw	8
11	031-13872	Cylinder head	1
12	431-90800	1/2" Soc. pipe plug	1
13	431-90600	3/8" Soc. pipe plug	2
14	031-13870	Cylinder body	1
NS	031-23369	Banjo (use on S press only)	1
NS	031-23550	Banjo (use on T press only)	1
NS	031-25502	Adapter (banjo to ram)	1
NS	031-23511	Cylinder adapter (use on T press only)	1
	S11-03782	Cylinder assembly 3 1/4" bore 12" stroke	
1	308-14106	5/16-18 x 5/8 S.H.C. screw (Nylok)	6
2	031-23352	Packing gland	1
3	633-00007	"Uneepac" packing (4 rings)	1 set
4	308-20180	1/2-13 x 1 1/4 S.H.C. screws	6
5	031-23351	Stuffing box	1
6	671-00236	"O" ring 70-6230-14 ARP-236	2
7	031-23350	Ram (3 1/4 x 2 1/4 x 2)	1
8	625-23026	Piston ring (3 1/4 O.D. x 3/16 wide)	2
9	431-90600	3/8" soc. pipe plug	1
10	308-24220	5/8-11 x 1 1/4 S.H.C. screw	8
11	031-10674	Cylinder head	1
12	431-90800	1/2" Soc. pipe plug	1
13	431-90600	3/8" Soc. pipe plug	2
14	031-10669	Cylinder body	1
NS	031-23369	Banjo (use on S press only)	1
NS	031-23550	Banjo (use on T press only)	1
NS	031-23511	Cylinder adapter (use on T press only)	1
	S11-03784	Cylinder assembly 3-5/8" bore 12" stroke	
1	308-14126	5/16-18 x 3/4 S.H.C. screw (Nylok)	6
2	031-23480	Packing gland	1
3	633-00002	"Uneepac" packing (4 rings)	1 set
4	308-20180	1/2-13 x 1 1/4" S.H.C. screw	8
5	031-23485	Stuffing box	1
6	671-00239	"O" ring 70-6230-17 ARP-239	2
7	031-23498	Ram (3-5/8 x 2 1/2 x 2)	1
8	625-23029	Piston ring (3-5/8 O.D. x 3/16 wide)	2
9		Not used	
10	308-26220	3/4-10 x 1 1/4 S.H.C. screw	8
11	031-13703	Cylinder head	1
12	431-90800	1/2" soc. pipe plug	1
13	431-90600	3/8" soc. pipe plug	2
14	031-13700	Cylinder body	1
NS	031-23550	Banjo	1
	S11-03785	Cylinder assembly 4" bore 12" stroke	
1	308-14126	5/16-18 x 3/4 S.H.C. screw (Nylok)	4
2	031-23650	Packing gland	1
3	633-00006	"Uneepac" packing (4 rings)	1 set
4	308-20180	1/2-13 x 1 1/4 S.H.C. screw	8
5	031-23654	Stuffing box	1
6	671-00242	"O" ring 70-6230-20 ARP-242	2
7	031-23659	Ram (4 x 2 1/4 x 2)	1
8	625-33032	Piston ring (4" O.D. x 3/16 wide)	2
9		Not used	
10	308-20220	1/2-13 x 1 1/4 S.H.C. screw	8
11	031-23658	Cylinder head	1
12	431-90800	1/2" soc. pipe plug	1
13	431-90600	3/8" soc. pipe plug	2
14	031-23656	Cylinder body	1
NS	031-23550	Banjo	1

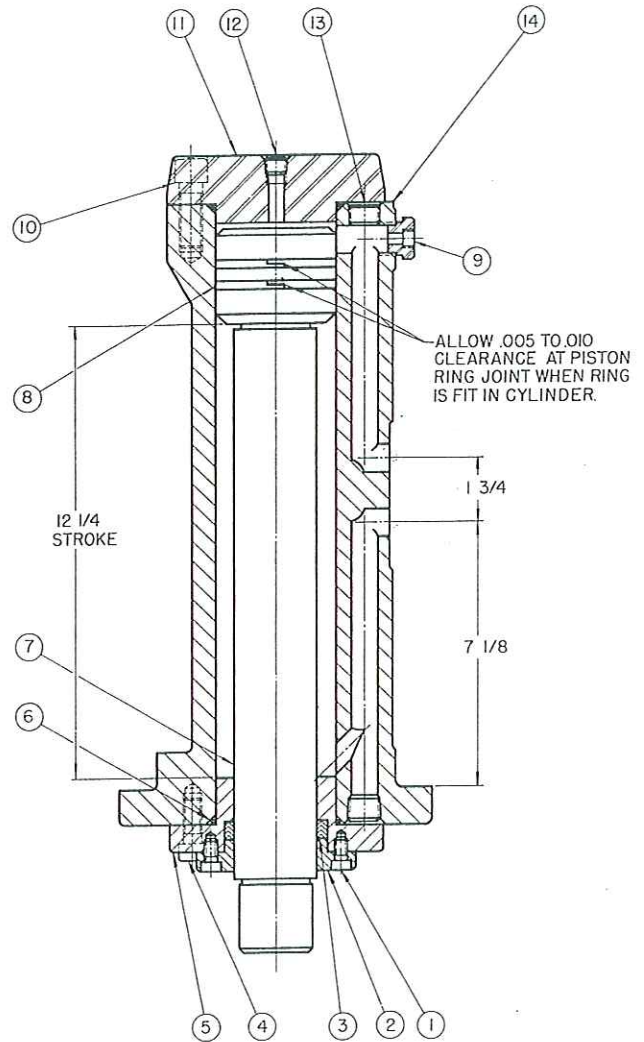


FIGURE 9
 CYLINDER & RAM ASSEMBLIES - SERIES S & T MULTIPRESSES

PARTS LIST FOR R-S-T SERIES MULTIPRESSES (See Page 13)

Item	Part No.	Description	R	S	T	Item	Part No.	Description	R	S	T
1	031-23760	Guide, ram	1	1	1	22A	433-91612	Bushing, Hex. 1 x 3/4 pipe	1	1	1
2	031-23448	Plate, insignia	1	1	1	23	See Page 4	Pump	1	1	1
3	303-00001	Screw, O.H.M. 8-32 UNC x 5/8"	5	5	5	24	433-91208	Bushing, Hex. 3/4 x 1/2 pipe	1	1	1
4	See pg. 4	Gauge	1	1	1		433-91608	Bushing, Hex. 1 x 1/2 pipe	1	1	1
5	S12-15402	Valve, relief	1	1	1	24A	473-15012	Adaptor, tube 10-CCCBTX-S	1	1	1
6	See pg. 4	Plate, pressure gauge conversion	1	1	1	25	804-04035	Tube, 1/4 O.D. copper	1	1	1
7	See pg. 4	Cylinder	1	1	1	26	031-45410	Hose, pressure line (pump to manifold)	1	1	1
8	031-44407	Hose, tank line (control valve to manifold)	1	1	1	27	506-85002	Filler cap assembly	1	1	1
9	S11-03792	Adaptor, cylinder (used on "T" frames only) with S11-03782 cylinder	1	1	1	28	606-25005	Channel-Neoprene 45½ lg.	1	-	-
10	031-25842	"R" series banjo	1	-	-		606-25006	Channel-Neoprene 56 lg.	-	1	-
	031-23369	"S" series banjo	-	1	-		606-25007	Channel-Neoprene 61½ lg.	-	-	1
	031-23550	"T" series banjo	-	-	1	29	013-14107	Gauge, oil level sight	1	1	1
11	474-10404	Adaptor, tube 4-4DBTX-S	5	5	5	30	031-17571	Gasket, reservoir access door	1	1	1
11A	533-00001	Snubber, pressure gauge	1	1	1	30A	031-13990	Door, reservoir access	1	1	1
12	031-25208	Plate, relief valve control	1	1	1	31	404-01200	Elbow, pipe 3/4 x 90° - 300#	1	1	1
13	470-35001	Adaptor tube 16-12 FBTX-S	1	-	-	32	442-12080	Nipple, X-hvy pipe 3/4 x 2	1	-	-
	470-35006	Adaptor tube 16-12-37L-2	-	1	-		442-12130	Nipple, X-hvy pipe 3/4 x 3¼	-	1	-
	470-35007	Adaptor tube 16-12-37LX-2	-	-	1		442-12190	Nipple, X-hvy pipe 3/4 x 4¾	-	-	1
14	406-01200	Elbow - pipe - St. ¾" x 90° - 300#	1	1	1	33	473-11008	Adaptor, tube 10-CBTX-S	1	1	1
15	031-10131	Plate, name	1	1	1	34	031-45467	Hose, pressure line (Manifold to control valve)	1	1	1
16	031-11090	Plate, patent	1	1	1	35	821-01614	Tube, 1" O.D. x 20 lg. (suction line)	1	1	1
17	031-44408	Frame "R" Series	1	-	-	36	606-25001	Grommet	1	1	1
	031-44409	Frame "S" Series	-	1	-	37	031-44411	Plate, reservoir top	1	-	-
	031-44410	Frame "T" Series	-	-	1		031-44412	Plate, reservoir top	-	1	-
18	031-25846	Spacer use with "R" presses	1	-	-		031-44413	Plate, reservoir top	-	-	1
	031-25327	Spacer use with "S" presses	-	1	-	38	306-14161	Screw 5/16-18 UNC x 1 14 req.	1	1	1
	031-25489	Spacer use with T08 presses	-	-	1	38A	031-22728	Gasket, copper 14 req.	1	1	1
	031-13857	Spacer use with T10 & T12 presses	-	-	1	39	426-30800	Elbow, pipe st. 1/2 x 90° - 2000# (2 req.)	1	1	1
19	031-44403	Plate, motor mounting	1	1	1	40	442-08200	Nipple, X-hvy pipe 1/2 x 5	1	-	-
20	804-04035	Tube, 1/4 O.D. copper	1	1	1		442-08240	Nipple, X-hvy pipe 1/2 x 6	-	1	-
21	517-00001	Isolater, gauge	1	1	1		442-08280	Nipple, X-hvy pipe 1/2 x 7	-	-	1
22	473-11612	Adaptor, tube 16-12CBTX-S	1	1	1						

HYDRAULIC FLUID

FOR USE IN THE R, S & T SERIES MULTIPRESSES

Warranty of the Model R, S & T Multipresses applies only when the proper hydraulic fluid has been used.

Certain basic physical and chemical properties of the hydraulic fluid are necessary for proper operation of the Model R, S & T Multipresses.

The following basic properties should be presented to the fluid supplier* for his recommendation of a product for use in your Model R, S & T Multipresses:

Viscosity @ 100° F 300 SUS/plus or minus 15 SUS
 Viscosity Index 90 or higher
 Rust and Oxidation Inhibitors Yes
 Anti-foam Additive Yes
 API Gravity 27 Minimum

NOTE: It is recommended but not necessary that the fluid contain anti-wear additive. To provide minimum noise and greater life the hydraulic fluid for the Model R, S & T Multipresses should contain a minimum of 0.05% by weight of zinc and a minimum of 0.05% by weight of phosphorous content as zinc dithiophosphate or an amount of other anti-wear additive which will impart equal properties to the fluid.

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

MODEL NO.	H.P.	FRAME	PUMP	MODEL NO.	H.P.	FRAME	PUMP
R023-L-M-H				S087-M-			
R043-L-M-H	3	182T	TMB	T087-M-H	7½	213T	TMB
R063-L-M-H				T107-M-H			
R045-L-M-H				T127-M-H			
R065-L-M-H				S087-L-			
S045-M-H	5	184T	TMB	T087-L-	7½	213T	TMC
S065-M-H				T127-L-			
S085-L-M-H				T120-L-	10	215T	TMB
T085-L-H				T080-L-M-			
T125-L-M-				T100-L-M-	10	215T	TMC
S065-L--	5	184T	TMC	T120-L-M-			

NOTE: ALL OF THE ABOVE MOTORS TO BE PURCHASED WITH "TMB", MOUNTING. (MFG TO USE ADAP. TATION KIT, "DECO", CODE NO. 138-30015 FOR "TMC" PUMPS AT ASSEMBLY.)

NOTE: ALL OF THE ABOVE MOTORS TO BE PURCHASED WITH "TMC", MOUNTING. (MFG TO USE ADAP. TATION KIT, "DECO", CODE NO. 138-30014 FOR "TMB" PUMPS AT ASSEMBLY.)

Motor (Ref.): -
 1800 R.P.M.; Frames #182T, #184T, #213T or #215T;
 H.F.M.; Spine coupled hydraulic pump motor,
 with end bell & coupling to accommodate a "DECO"
 "TMB" or "TMC" Series vane pump. (See chart for
 "HP", "Frame" & "Pump" req'd.)

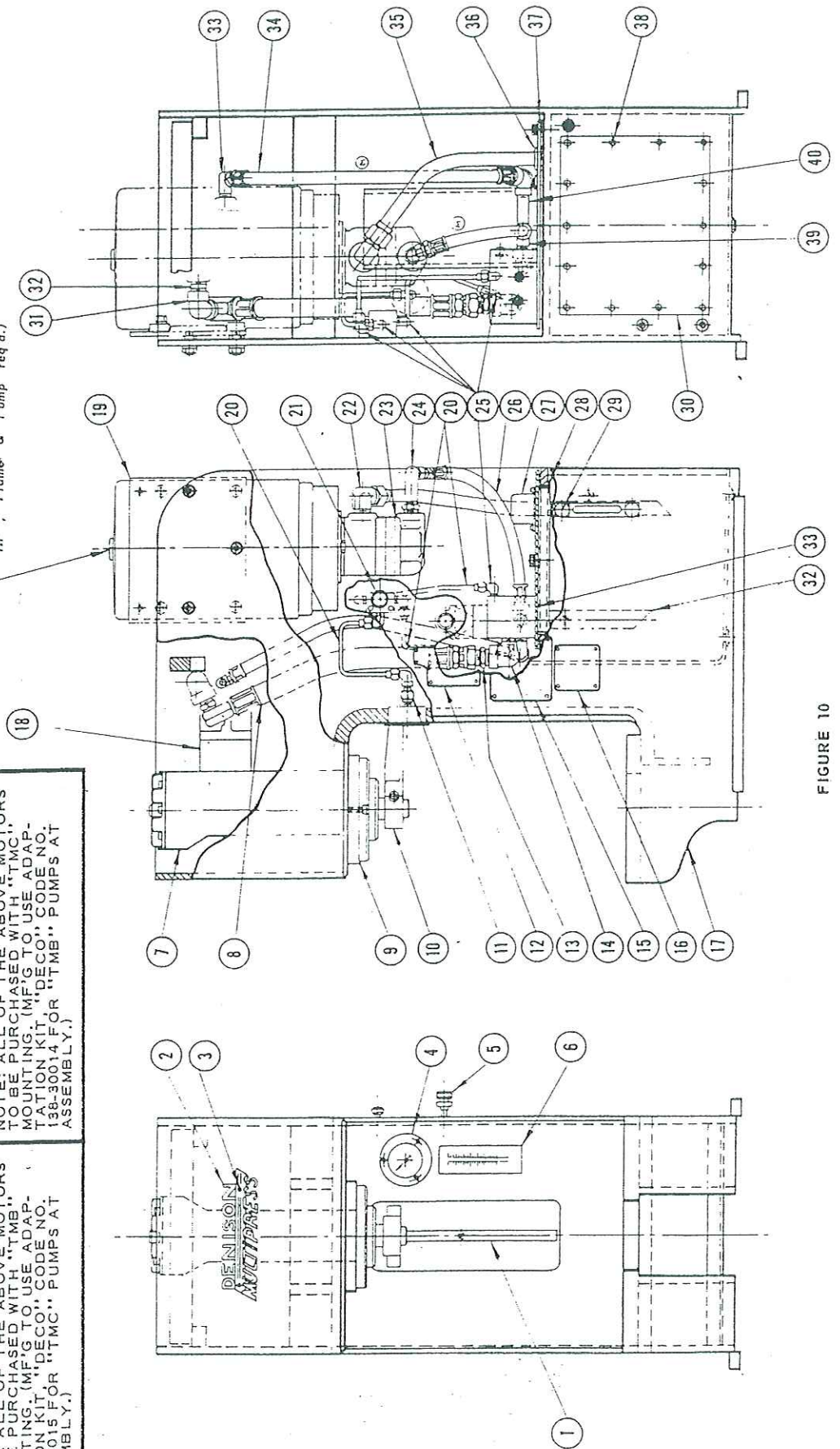


FIGURE 10
 BASIC MULTIPRESS - R, S & T SERIES (See Page 12)