

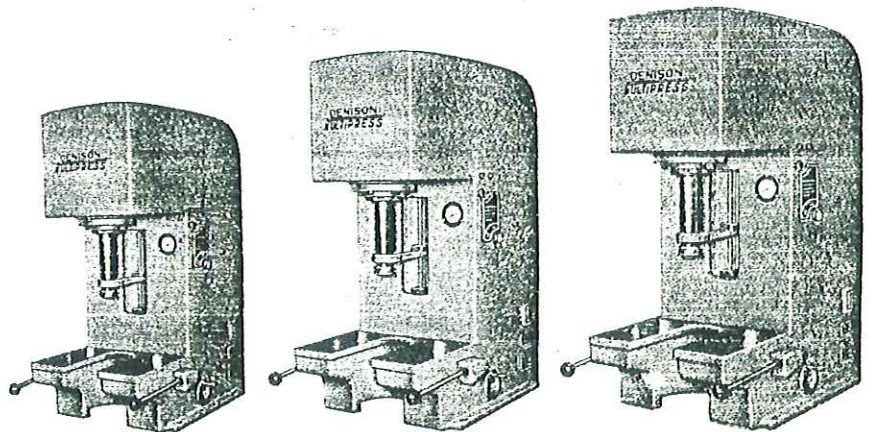
BULLETIN SM-37-A

(614) 228-0185

**MULTIPRESS®**

560 Dublin Avenue, Columbus, Ohio 43215

## SERIES R, S and T MULTIPRESS



### 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.

# TABLE OF CONTENTS

Section	Page
I INTRODUCTION . . . . .	1
General . . . . .	1
Service Policy . . . . .	1
Warranty. . . . .	1
II DESCRIPTION. . . . .	1
Multipress Frames . . . . .	1
Pump Motor Assemblies . . . . .	1
Series R Model Numbers and Basic Part Numbers . . . . .	2
Series S Model Numbers and Basic Part Numbers . . . . .	3
Series T Model Numbers and Basic Part Numbers . . . . .	4
Cylinder and Ram Assemblies . . . . .	5
Multipress Control Valves . . . . .	6
III INSTALLATION . . . . .	7
Installation of Thermostatic Water Regulating Valve with Thermostatic Bulb . . . . .	7
Filling the Oil Reservoir . . . . .	8
Starting the Pump and Motor . . . . .	8
Setting the Relief Valve. . . . .	8
IV MAINTENANCE . . . . .	9
Service on Pump . . . . .	9
To Service and Maintain Relief Valves . . . . .	13
Pressure Adjustment . . . . .	14
Approved Hydraulic Oils. . . . .	16

# 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 1 through 12-ton capacity. See pages 2, 3 and 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: S035L

- S - indicates frame size
- 03 - indicates maximum tonnage
- 5 - indicates motor horsepower
- L - 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.

### 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 parts manufactured by the Denison Engineering Division, American Brake Shoe Company.

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. 3 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 on vertical swing-out mountings. (See Fig. 4 and 5.) These units are interchangeable with all three frame sizes.

# SERIES R

## Model Numbers and Basic Part Numbers

PRESS MODEL	MAX. TONS	MOTOR HP	CYCLE DUTY	PUMP		PUMP MOTOR COUPLING	PUMP MOTOR ASSEMBLY	PRESSURE GAUGE NUMBER	CYLINDER NUMBER	CYLINDER (STROKE 10")		MAX. PRESSURE (PSI)	
				MODEL	GPM					BORE	RAM		
R011L R011M †R011H	1	1½	Light	TMB-14	3.6	212-71001	25-7352	501-99635	25-7626	1⅝	1⅛	965	
Medium			TMB-13	2.5	25-7351								
Heavy													
R012L R012M R012H		2	2	Light	TMB-11		6.3						25-7353
Medium				TMB-14	3.6		25-7352						
Heavy				TMB-13	2.5		25-7351						
R013L R013M R013H	3	3	Light	TMB-15	7.6	212-73003	25-7363						
Medium			TMB-11	6.3	25-7356								
Heavy			TMB-14	3.6	25-7358								
R022L R022M R022H	2	2	Light	TMB-11	6.3	212-71001	25-7353	501-99637	25-7566	2¼	1⅝	1000	
Medium			TMB-14	3.6	25-7352								
Heavy			TMB-13	2.5	25-7351								
R023L R023M R023H		3	3	Light	TMB-12		9.0						25-7360
Medium				TMB-11	6.3		25-7356						
Heavy				TMB-14	3.6		25-7358						
†R025L R025M R025H	5	5	Light	TMB-12	9.0	25-7360							
Medium			TMB-15	7.6	25-7363								
Heavy													
R033L R033M R033H	3	3	Light	TMB-11	6.3	212-73003	25-7356	501-99631	25-7597	2¼	1⅝	1500	
Medium			TMB-14	3.6	25-7358								
Heavy			TMB-13	2.5	25-7357								
R035L R035M R035H	5	5	Light	TMB-12	9.0	25-7360							
Medium			TMB-15	7.6	25-7363								
Heavy			TMB-11	6.3	25-7356								
R043L R043M R043H	4	3	Light	TMB-11	6.3	25-7356	501-99632	25-7597	2¼	2	1350		
Medium			TMB-14	3.6	25-7358								
Heavy			TMB-13	2.5	25-7357								
R045L R045M R045H	5	5	Light	TMB-15	7.6	25-7363	501-99626	25-7566	2¼	1⅝	2000		
Medium			TMB-11	6.3	25-7356								
Heavy			TMB-14	3.6	25-7358								
†R053L R053M R053H	5	3	Light	TMB-14	3.6	25-7358	501-99633	25-7597	2¼	2	1685		
Medium			TMB-13	2.5	25-7357								
Heavy													
R055L R055M R055H	5	5	Light	TMB-15	7.6	25-7363							
Medium			TMB-11	6.3	25-7356								
Heavy			TMB-14	3.6	25-7358								
†R063L R063M R063H	6	3	Light	TMB-14	3.6	25-7358	501-99630	25-7597	2¼	2	2020		
Medium			TMB-13	2.5	25-7357								
Heavy													
R065L R065M R065H	5	5	Light	TMB-15	7.6	25-7363							
Medium			TMB-11	6.3	25-7356								
Heavy			TMB-14	3.6	25-7358								

† - Not available at this time.

Oil Reservoir Capacity 11 gallons

# SERIES S

## Model Numbers and Basic Part Numbers

PRESS MODEL	MAX. TONS	MOTOR HP	CYCLE DUTY	PUMP		PUMP MOTOR COUPLING	PUMP MOTOR ASSEMBLY	PRESSURE GAUGE NUMBER	CYLINDER NUMBER	CYLINDER (STROKE 12")		MAX. PRESSURE (PSI)													
				MODEL	GPM					BORE	RAM														
S032L S032M †S032H	3	2	Light	TMB-14	3.6	212-71001	25-7352	501-99631	25-5803	2¼	1⅝	1500													
Medium			TMB-13	2.5	25-7351																				
Heavy																									
S033L S033M S033H		3	3	Light	TMB-11		6.3						212-73003	25-7356	501-99631	25-5803	2¼	1⅝	1500						
Medium				TMB-14	3.6		25-7358																		
Heavy				TMB-13	2.5		25-7357																		
S035L S035M S035H		5	5	Light	TMB-12		9.0							212-73003						25-7360	501-99631	25-5803	2¼	1⅝	1500
Medium				TMB-15	7.6		25-7363																		
Heavy				TMB-11	6.3		25-7356																		
S042L †S042M S042H	4	2	Light	TMB-14	3.6	212-71001	25-7352	501-99642	25-5802	3¼	2¼	965													
Medium			TMB-13	2.5	25-7351																				
Heavy																									
S043L S043M S043H		3	3	Light	TMB-11		6.3						212-73003		25-7356	501-99626	25-5803	2¼	1⅝	2000					
Medium				TMB-14	3.6		25-7358																		
Heavy				TMB-13	2.5		25-7357																		
S045L S045M S045H		5	5	Light	TMB-15		7.6							212-73003	25-7363						501-99626	25-5803	2¼	1⅝	2000
Medium				TMB-11	6.3		25-7356																		
Heavy				TMB-14	3.6		25-7358																		
S047L S047M S047H		7½	7½	Light	TMC-1	11.5	212-74005	25-7368	501-99626	25-5803	2¼	1⅝			2000										
Medium				TMB-12	9.0	212-74004	25-7366																		
Heavy				TMB-11	6.3	25-7365																			
S063L †S063M S063H		6	3	Light	TMB-11	6.3	212-73003	25-7356					501-34046			25-5802	3¼	2¼	1450						
Medium																									
Heavy				TMB-14	3.6	25-7358																			
S065L S065M S065H	5		5	Light	TMC-1	11.5		212-73002						25-7364						501-34046	25-5802	3¼	2¼	1450	
Medium				TMB-15	7.6	212-73003		25-7363																	
Heavy				TMB-11	6.3	25-7356																			
S067L S067M S067H	7½		7½	Light	TMC-2	13.0		212-74005	25-7369	501-34046	25-5802	3¼		2¼	1450										
Medium				TMC-1	11.5	212-74004		25-7368																	
Heavy				TMB-15	7.6	25-7367																			
†S083L S083M S083H	8	3	Light			212-73003	25-7358	501-99629	25-5802				3¼			2¼	1930								
Medium			TMB-14	3.6	25-7357																				
Heavy			TMB-13	2.5	25-7357																				
S085L S085M S085H		5	5	Light	TMB-12		9.0											212-73003	25-7360	501-99629	25-5802	3¼	2¼	1930	
Medium				TMB-11	6.3		25-7356																		
Heavy				TMB-14	3.6		25-7358																		
S087L S087M S087H		7½	7½	Light	TMC-1		11.5			212-74005	25-7368	501-99629		25-5802	3¼				2¼						1930
Medium				TMB-12	9.0		25-7366																		
Heavy				TMB-11	6.3		25-7365																		

† - Not available at this time.

Oil Reservoir Capacity 17 gallons

# SERIES T

## Model Numbers and Basic Part Numbers

PRESS MODEL	MAX. TONS	MOTOR HP	CYCLE DUTY	PUMP		PUMP MOTOR COUPLING	PUMP MOTOR ASSEMBLY	PRESSURE GAUGE NUMBER	CYLINDER NUMBER	CYLINDER (STROKE 12")		MAX PRESSURE (PSI)					
				MODEL	GPM					BORE	RAM						
T043L T043M T043H	4	3	Light	TMB-12	9.0	212-73003	25-7360	501-99642	25-5802	3 1/4	2 1/4	965					
Medium			TMB-11	6.3	25-7358												
Heavy			TMB-14	3.6	25-7357												
T045L T045M T045H		5	Light	TMB-15	7.6		25-7363					501-99626	25-5803	2 1/4	1 5/8	2000	
Medium			TMB-11	6.3	25-7356												
Heavy			TMB-14	3.6	25-7358												
T047L T047M T047H	7 1/2	Light	TMC-1	11.5	212-74005	25-7368	501-34046	25-5802	3 1/4	2 1/4	1450						
Medium		TMB-12	9.0	25-7366													
Heavy		TMB-11	6.3	212-74004	25-7365												
T063L T063M T063H	6	3	Light	TMB-11	6.3	212-73003					25-7356	501-99636	25-5888	3 5/8	2 1/2	1160	
Medium			TMB-11	6.3	25-7356												
Heavy			TMB-14	3.6	25-7358												
T065L T065M T065H		5	Light	TMC-1	11.5		212-74005	25-7364	501-34046	25-5802	3 1/4					2 1/4	1450
Medium			TMB-15	7.6	25-7363												
Heavy			TMB-11	6.3	25-7356												
T067L T067M T067H	7 1/2	Light	TMC-2	13.0	212-74005	25-7369	501-99629	25-5802				3 1/4	2 1/4	1930			
Medium		TMC-1	11.5	25-7368													
Heavy		TMB-15	7.6	212-74004	25-7367												
†T060L T060M T060H	10	Light	TMC-2	13.0	212-75003	25-7372			501-99634	25-5888	3 5/8			2 1/2	1450		
Medium		TMC-1	11.5	25-7371													
Heavy		TMC-1	11.5	25-7371													
T083L T083M T083H	8	3	Light	TMB-11	6.3	212-73003	25-7356	501-99641				25-5953	4		2 3/4	1580	
Medium			TMB-14	3.6	25-7358												
Heavy			TMB-13	2.5	25-7357												
T085L T085M T085H		5	Light	TMB-12	9.0		212-74005		25-7360	501-99628	25-5888			3 5/8		2 1/2	1930
Medium			TMB-11	6.3	25-7356												
Heavy			TMB-14	3.6	25-7358												
T087L T087M T087H	7 1/2	Light	TMC-1	11.5	212-74005	25-7368	501-99627	25-5953	4			2 3/4	1910				
Medium		TMB-12	9.0	212-74004	25-7366												
Heavy		TMB-11	6.3	25-7365													
T080L T080M T080H	10	Light	TMC-2	13.0	212-75003	25-7372				501-99627	25-5953		4	2 3/4	1910		
Medium		TMC-1	11.5	25-7371													
Heavy		TMB-12	9.0	212-75008	25-7370												
T103L T103M T103H	10	3	Light	TMB-11	6.3	212-73003	25-7356	501-99641	25-5953			4			2 3/4	1580	
Medium			TMB-14	3.6	25-7358												
Heavy			TMB-13	2.5	25-7357												
T105L T105M T105H		5	Light	TMB-12	9.0		212-74005			25-7360	501-99628		25-5888	3 5/8		2 1/2	1930
Medium			TMB-11	6.3	25-7356												
Heavy			TMB-14	3.6	25-7358												
T107L T107M T107H	7 1/2	Light	TMC-1	11.5	212-74005	25-7368	501-99627	25-5953	4	2 3/4		1910					
Medium		TMB-12	9.0	212-74004	25-7366												
Heavy		TMB-11	6.3	25-7365													
T100L T100M T100H	10	Light	TMC-2	13.0	212-75003	25-7372					501-99627	25-5953	4	2 3/4	1910		
Medium		TMC-1	11.5	25-7371													
Heavy		TMB-12	9.0	212-75008	25-7370												
T125L T125M T125H	12	5	Light	TMB-15	7.6	212-73003	25-7363	501-99627	25-5953	4					2 3/4	1910	
Medium			TMB-11	6.3	25-7356												
Heavy			TMB-14	3.6	25-7358												
T127L T127M T127H		7 1/2	Light	TMC-1	11.5		212-74005				25-7368	501-99627	25-5953	4		2 3/4	1910
Medium			TMB-12	9.0	25-7366												
Heavy			TMB-11	6.3	212-74004		25-7365										
T120L T120M T120H	10	Light	TMC-2	13.0	212-75003	25-7372	501-99627	25-5953	4	2 3/4	1910						
Medium		TMC-1	11.5	25-7371													
Heavy		TMB-12	9.0	212-75008	25-7370												

Oil Reservoir Capacity 20 gallons

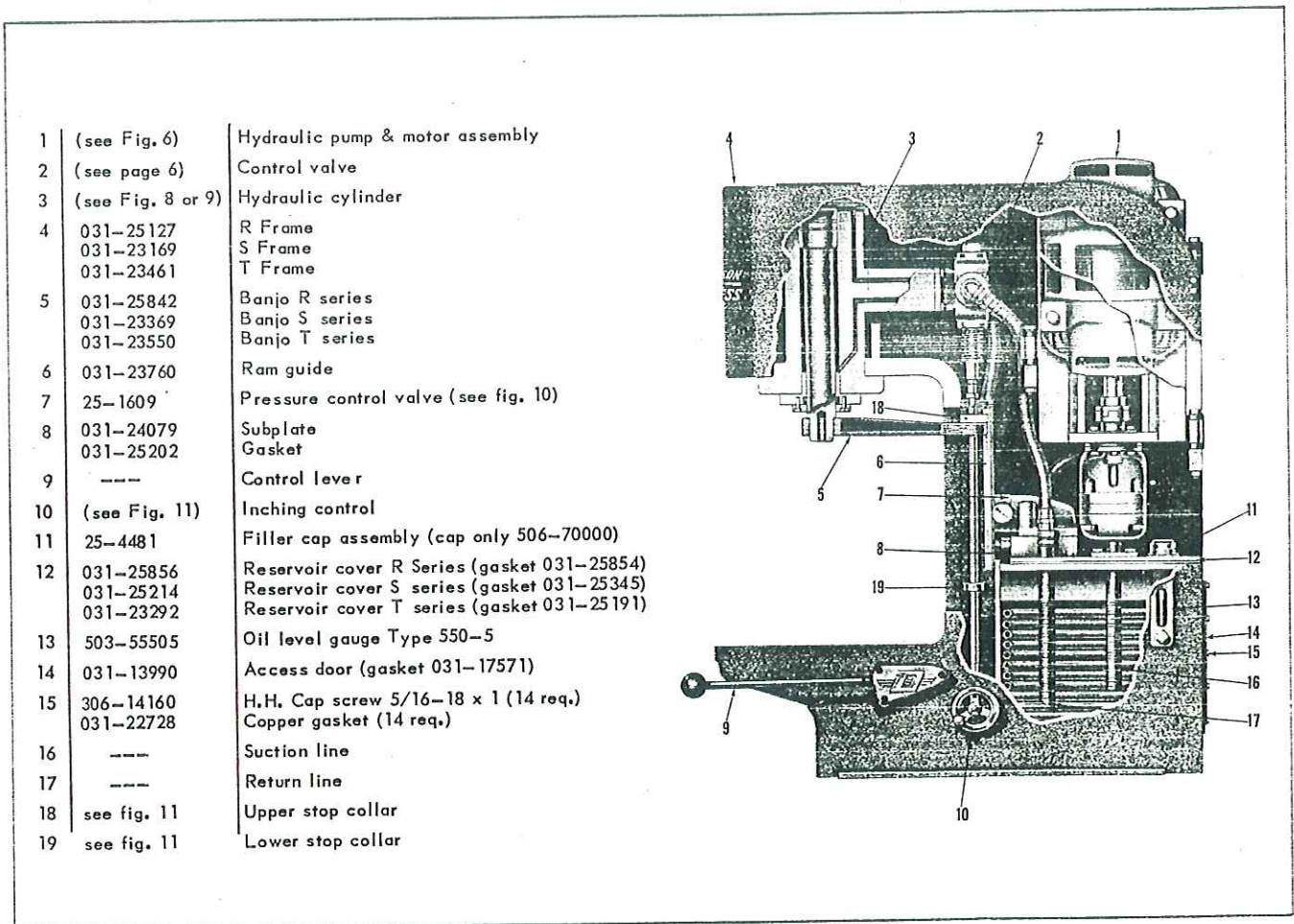


FIG. 1 - CUT-AWAY VIEW OF THE MULTIPRESS  
SHOWING MAJOR COMPONENTS

### 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. 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.



1. Pressure gauge (see page 2, 3 or 4)
2. 3/8-16 x 1 hex hd. cap screws
3. Push button gauge (order 517-00001)
4. Pressure adjustment plate (order 031-25208)
5. Pressure control valve (see fig. 10)
6. Model & specifications plate (order 031-10131)
7. Inching control handle (see fig. 11)

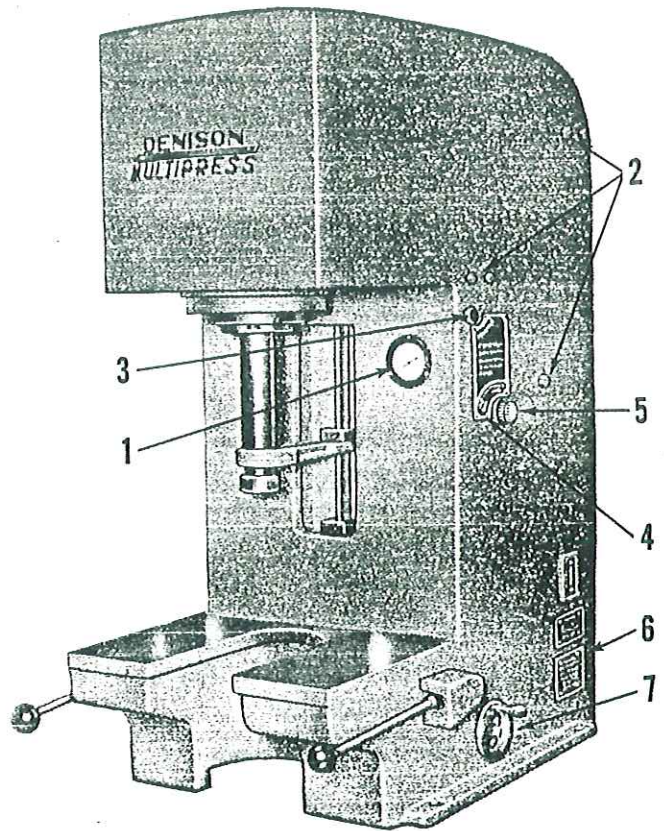


FIG. 2 - GENERAL VIEW OF MULTIPRESS

## SECTION III INSTALLATION

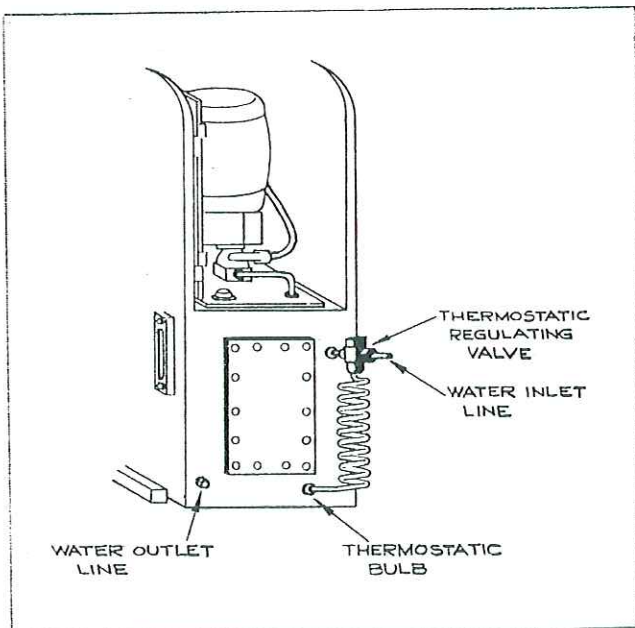


FIG. 3 - REAR VIEW OF PRESS  
SHOWING TYPICAL INSTALLATION OF THERMOSTATIC  
CONTROLS FOR WATER COOLED OIL RESERVOIR SYSTEM

### 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.

## 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 hydraulic 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 16.) 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.

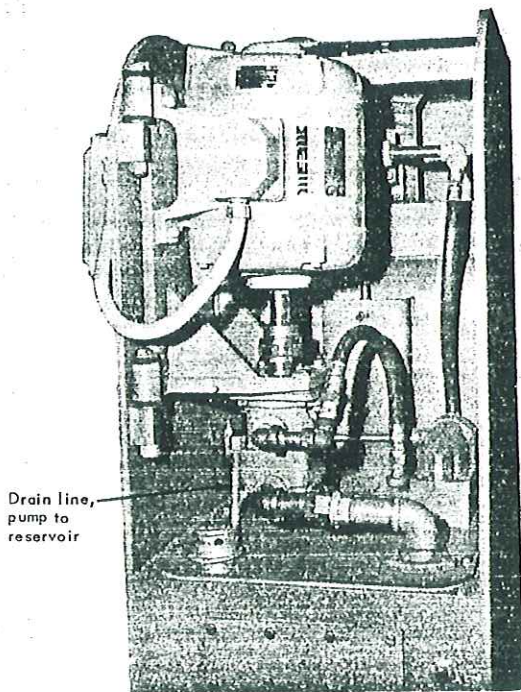


FIGURE 4

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

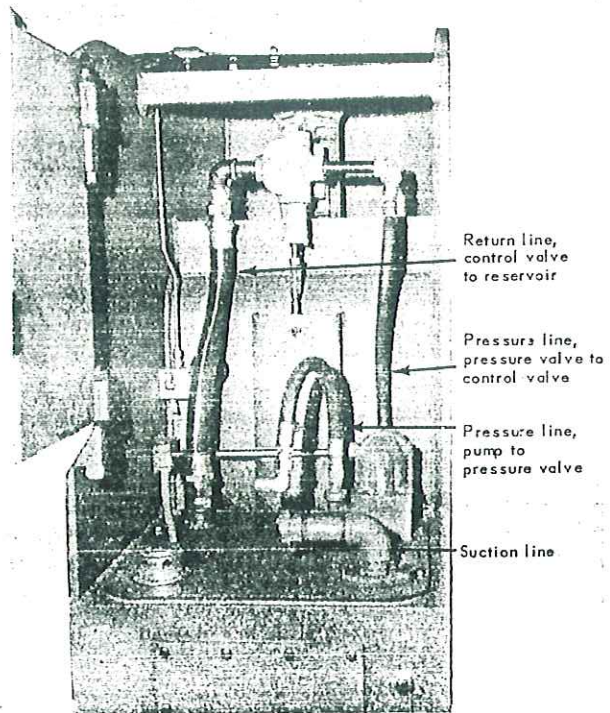


FIGURE 5

Shows pump-motor assembly disconnected from pressure and suction lines and swung out for service.

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. 2), 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.

## 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. Remove the two cap

screws located above the push button gauge from the mounting block and swing entire assembly out (see Fig. 5). Remove coupling guard from bracket and unbolt pump from bracket. See bulletin SP-5 for service on vane pump.

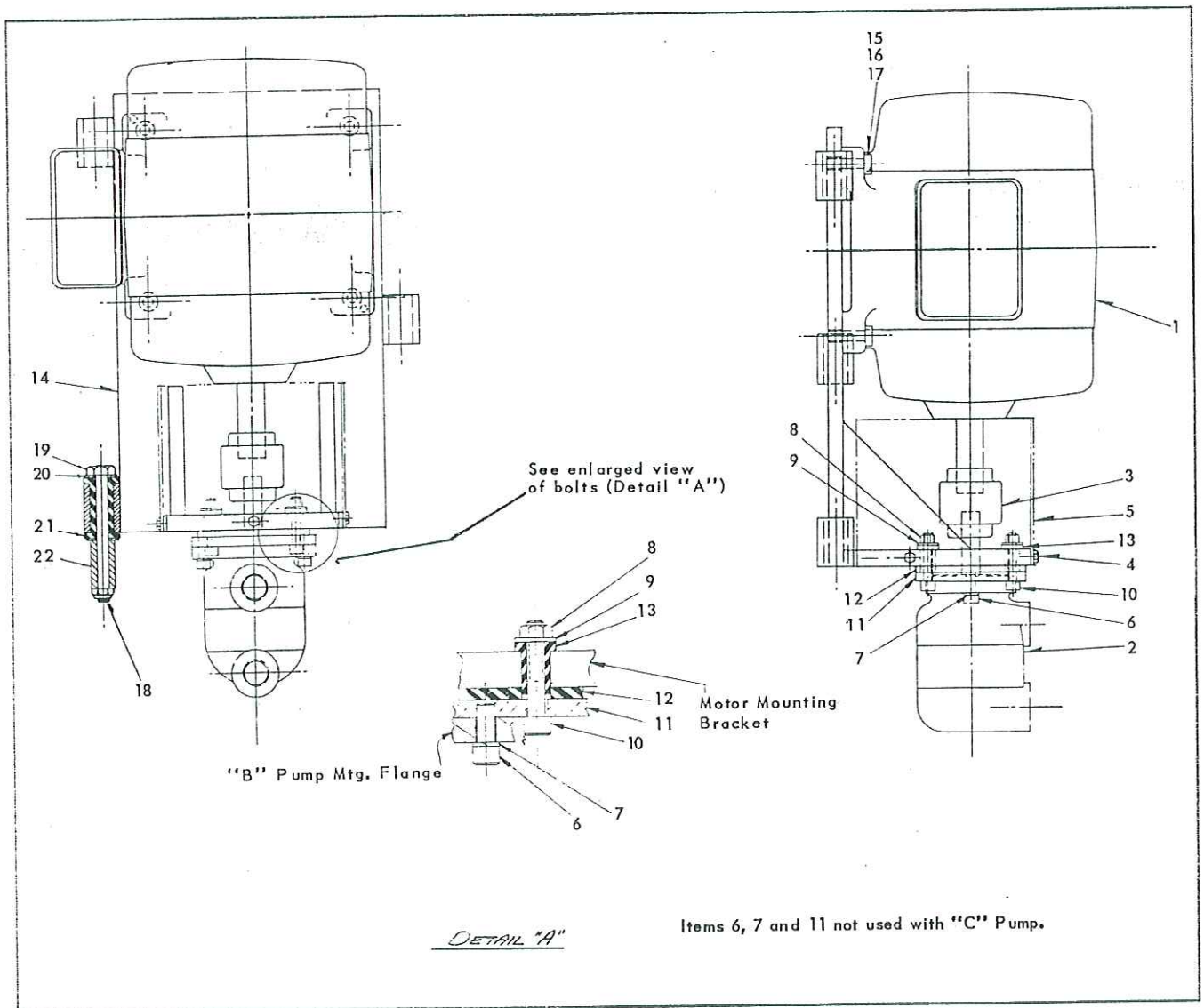


FIG. 6 - PUMP AND MOTOR COMPONENTS

REF. NO.	PART NO.	DESCRIPTION	QTY.	REF. NO.	PART NO.	DESCRIPTION	QTY.
1		Electric motor (see model sheet pages 2, 3 and 4)		(b) 15	308-16180	3/8-16 x 1 1/4" S.H.C. screw	4
2		Vane pump (see model sheet pages 2, 3 and 4)		(c) 308-20180	1/2-13 x 1 1/4" S.H.C. screw	4	
3		Lovejoy coupling (see model sheet pages 2, 3 and 4)		(b) 16	346-10024	3/8" lock washer	4
4	308-12080	1/4-20 x 1/2" S.H.C. screws	3	(c) 346-10032	1/2" lock washer	4	
5	031-25226	Guard	1	(d) 17	031-23941	Motor raising block	1
(a) 6	308-16140	3/8-16 x 7/8 S.H.C. screws	2	18	331-20000	1/2-13 elastic stop nut	3
(a) 7	346-10024	3/8" lock washer	2	19	306-20420	1/2-13 x 5/8" H.H. cap screw	3
8	330-16000	3/8-16 flex-loc nut	4	20	345-10032	1/2" SAE steel washer	6
9	344-10024	3/8" flat washer	4	21	031-25211	Rubber grommet	6
10	308-16240	3/8-16 x 2 S.H.C. screw	4	22	031-24095	Motor mounting block	2
(a) 11	031-25223	Pump adapter	1		031-25665	Motor mounting block	1
12	031-25217	Rubber mounting pad	1				
13	031-25227	Rubber mounting grommet	4				
(b) 14	031-25146	Pump-motor mounting bracket	1				
(c)	031-24086	Pump-motor mounting bracket	1				

- (a) Used on TMB pumps only
- (b) Used with 1 1/2, 2, 3 & 5 h.p. motors only
- (c) Used with 7 1/2 & 10 h.p. motors only
- (d) Used under 1 1/2 & 2 h.p. motors only (not shown)

LEGEND FOR FIG. 6 - PUMP AND MOTOR COMPONENTS

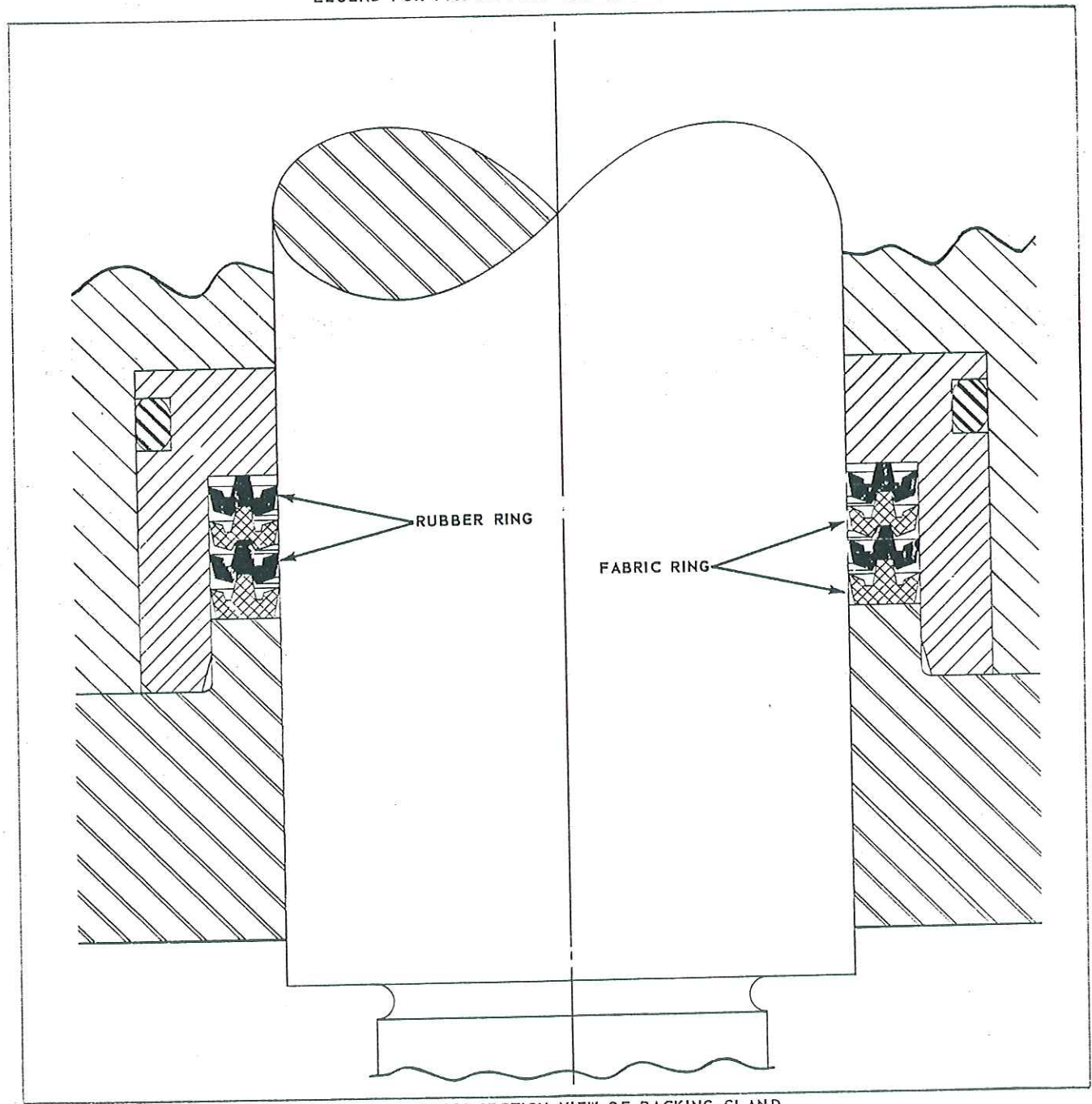
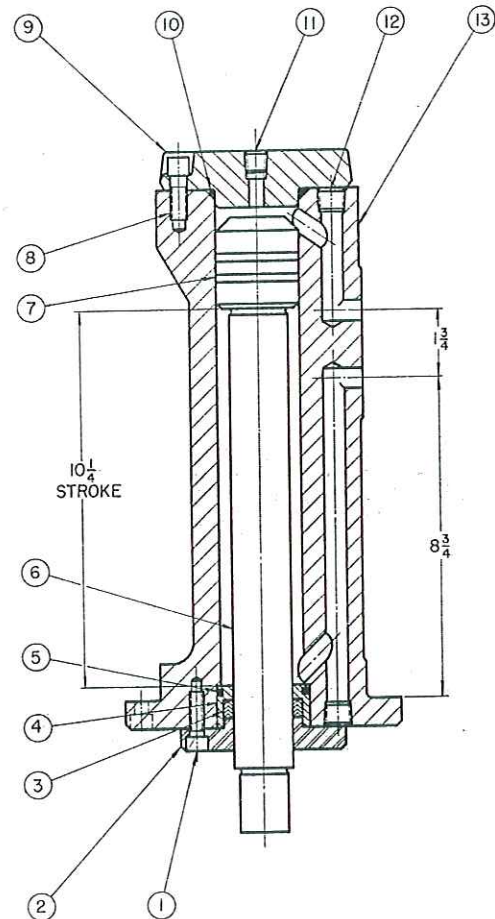


FIG. 7 - CROSS SECTION VIEW OF PACKING GLAND

**"R" PRESS**  
**PARTS LIST FOR CYLINDER AND RAM ASSEMBLIES**  
 Cylinder Numbers 25-7566, 25-7597, 25-7626

Ref. No.	Part No.	Description	Qty
	<b>25-7626</b>	<b>Cylinder assembly 1-5/8" bore 10" stroke</b>	
1	308-14146	5/16-18 x 7/8 S.H.C. screw (Nylok)	6
2	031-25832	Packing gland	1
3	633-00005	"Uneepac" packing (4 ring)	1 set
4	031-25833	Stuffing box	1
5	671-00224	"O" ring 70-6230-2 ARP-224	1
6	031-25831	Ram (1-5/8 x 1 1/4 x 1)	1
7	625-21013	Piston ring (1-5/8" O.D. x 1/8" wide)	2
8		Not used	
9	031-27865	Cylinder head	1
10	691-00924	"O" ring 90-6290-24 ARP-924	1
11		Not used	
12	431-90600	3/8" soc. pipe plug	1
13	031-25830	Cylinder body	1
NS	031-25842	Banjo	1
NS	031-25843	Adapter (banjo to ram)	1
	<b>25-7566</b>	<b>Cylinder assembly 2 1/4" bore 10" stroke</b>	
1	308-16166	3/8-16 x 1 S.H.C. screw (Nylok)	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 (2 1/4 x 1-5/8 x 1-3/8)	1
7	625-23018	Piston ring (2 1/4" O.D. x 3/16" wide)	2
8	308-20200	1/2-13 x 1 1/2 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
	<b>25-7597</b>	<b>Cylinder assembly 2 1/4" bore 10" stroke</b>	
1	308-16166	3/8-16 x 1 S.H.C. screw (Nylok)	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 2 1/4 x 2 x 1-3/8	1
7	625-23022	Piston ring (2 1/4" O.D. x 3/16" wide)	2
8	308-20200	1/2-13 x 1 1/2 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



CYLINDER & RAM ASSEMBLIES - SERIES R MULTIPRESS

FIG. 8

**"S" & "T" PRESSES**  
**PARTS LIST FOR CYLINDER AND RAM ASSEMBLIES**  
 Cylinder Numbers 25-5802, 25-5803, 25-5888, 25-5953

Ref. No.	Part No.	Description	Qty
<b>25-5803 Cylinder assembly 2 1/4" bore 12" stroke</b>			
1	308-12126	1/4-20 x 3/4 S.H.C. screw (Nyllok)	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 3/4 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
<b>25-5802 Cylinder assembly 3/4" bore 12" stroke</b>			
1	308-14106	5/16-18 x 5/8 S.H.C. screw (Nyllok)	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 (3/4 x 2 1/4 x 2)	1
8	625-23026	Piston ring (3/4 O.D. x 3/16 wide)	2
9	431-90600	3/8" soc. pipe plug	1
10	308-24220	5/8-11 x 1 3/4 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
<b>25-5888 Cylinder assembly 3-5/8" bore 12" stroke</b>			
1	308-14126	5/16-18 x 3/4 S.H.C. screw (Nyllok)	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 3/4 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
<b>25-5953 Cylinder assembly 4" bore 12" stroke</b>			
1	308-14126	5/16-18 x 3/4 S.H.C. screw (Nyllok)	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

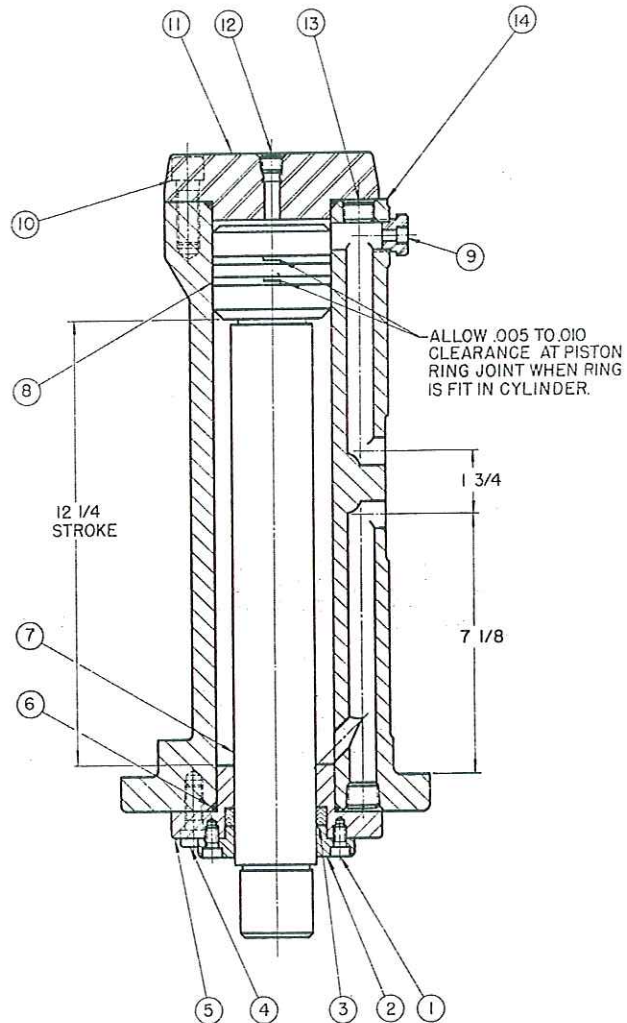


FIG. 9

CYLINDER & RAM ASSEMBLIES - SERIES S & T MULTIPRESSES

## 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 control seat (13) and cone (8). This may cause fluctuating pressure or pressure failure.

Quite often this condition may be corrected by starting the pump, releasing the lock nut (4), and sufficiently backing off (counterclockwise) adjusting screw (3) to remove all spring pressure from cone (8). Oil circulating through the cap and discharging through spool (20) 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 (9) the hex plug from the cap.
2. Remove the cap assembly from the body (23), being careful not to lose or damage the "O" rings.
3. Remove control piston (11) through the hole where (9) was removed from the cap (14). This is accomplished by inserting a wood match stick in the 1/8" dia. drilling and pulling out.
4. Remove the adjusting screw (3).
5. Next remove seal piston (5) by threading in a 10-24 screw into the tapped end and pulling out.

6. Remove compression spring (7) and cone (8).

7. Examine control seat (13) 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 be pressed or driven out. The control block (12) will be ejected with control seat (13).

8. Thoroughly clean cap (14), giving special attention to drilled passages which communicate with the body. Clean the passage furthest from the center of the cap with a No. 54 (.055 dia.) drill. Push the drill through. Do not rotate. 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.

9. Clean and inspect all parts removed from cap (14). Clean control piston (11), axial orifice with a No. 54 (.055 dia.) drill and the cross holes with a 1/16" dia. drill. Push drills, do not rotate. Make sure the orifices are open and free from burrs. Check operation of control piston (11) in bore of control block (12). Piston should move freely in control block, but not be excessively loose. Replace either or both parts if the latter is the case. If cone (8) shows a full sealing ring, it is satisfactory and may be re-used, otherwise replace with new part. Examine control seat (13). If seat is damaged, use opposite sealing edge. If that too is damaged, replace part.

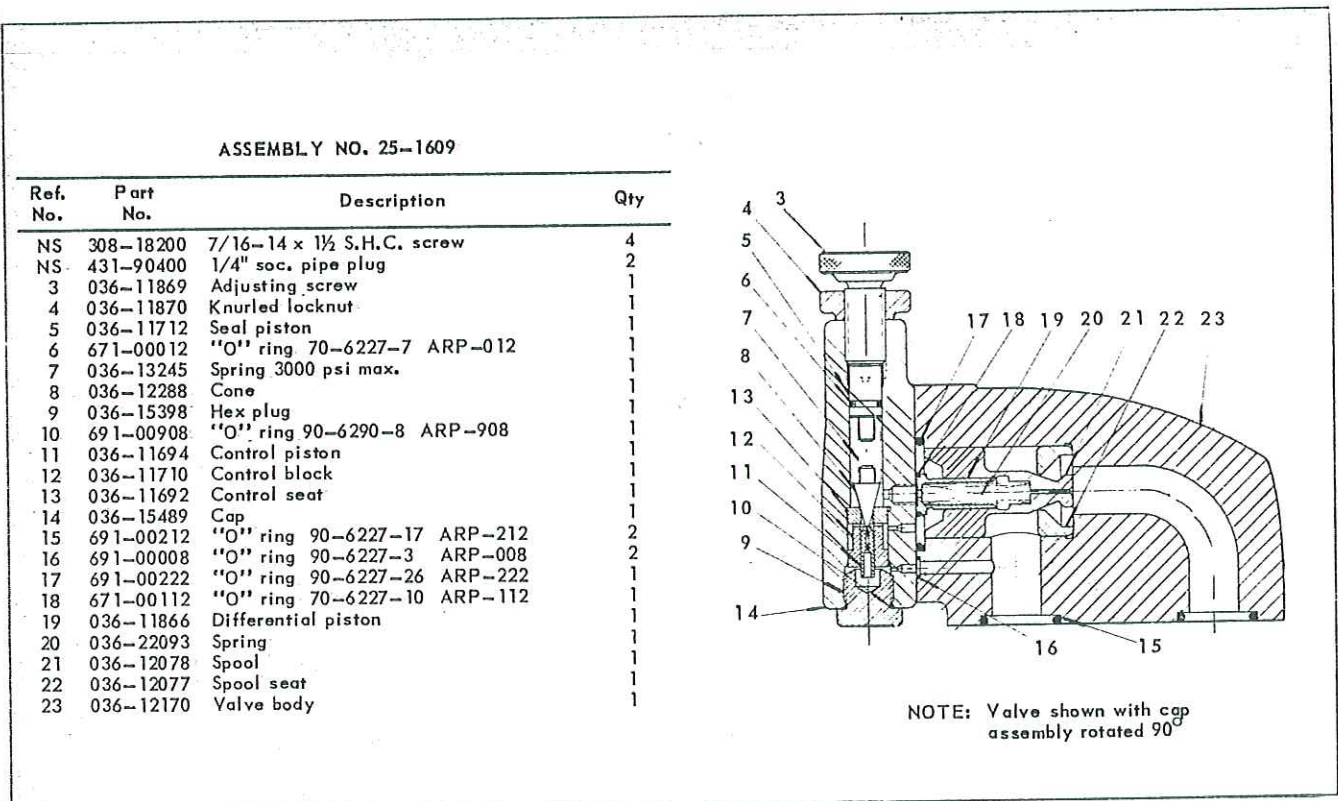


FIG. 10 - MODEL RV-063-333-A VALVE

10. Reassemble.

a. Press control seat (13) into cap (14), through the hole where (9) 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 the seat.

b. Assemble control block (12), slotted end first, adjacent to control seat (13). Assembly done in same manner as step "a" above.

c. Assemble control piston (11) into control block (12). Insert through the tapped opening, for plug (9) in the cap, being careful to insert the shouldered end with 1/16" cross drillings first. Piston should slide freely.

d. Assemble spring (7) on cone (8), add seal ring (6) to piston (5) which is inserted in opposite end of spring (7). Insert this assembly, cone first, into the end of cap (14), from which it was removed. Next assemble lock nut (3) on adjusting screw (4). Thread adjusting screw (4) clockwise into cap as far as the lock nut (3) will permit. Back off counterclockwise. Inspect control block (12) and control seat "B" for movement.

Full spring pressure on these parts should not force them out.

e. Screw plug (9) into cap. Tighten the same after cap is reassembled on body (23).

The cap assembly is now complete. If the valve is a straight relief type, the 1/16" pipe tap in the center of the machined surface should be open. Do not plug.

11. Next remove differential piston (19), spring (20), and spool (21) from the body (23).

12. Clean all parts thoroughly in kerosene. Use clean compressed air to blow out all passages.

13. Examine seat (22), making sure it is clean and that the seating edge does not show defects. If seat (22) is defective, replace. Do not re-grind defective part, as such procedure will unbalance the characteristics of the valve, resulting in unsatisfactory operation of the valve.

14. Examine tapered seat surface of spool (21). This surface should show a perfect seating ring. If inspection indicates improper seating, replace part. A satin appearance near the seating ring does not mean a defective part. Spool erosion does, however, necessitate replacement. Examine differential piston (19). The end grooved for "O" ring (18) should be flat and free from burrs and marks. Now insert differential piston (19) into the bore spool (21). The piston should slide freely in spool (21), the latter should slide freely in body (23). Measure spring (20) for free length. It should measure 1-7/8" long.

15. Reassemble.

a. If seat (22) was defective, press new seat into body, using brass pressing tool which does not contact the 1/2" dia. hole edge. Seat must be assembled into body (23) with the small opening in the seat turned up.

b. Insert spool (21), large end up.

c. Insert spring (20) into its seat in spool (21).

d. Insert differential piston (19) into spool (21) over spring (20).

16. Reassemble cap assembly to body assembly. It is advisable to replace all "O" rings but not absolutely necessary unless they are defective. Be sure all four "O" rings are in place before completing this assembly. Cap screws fastening the cap (14) to the body (23) should be drawn down uniformly and tightened securely. Loose cap screws will allow the extrusion of the "O" rings. When assembling the cap (14) to the body (23), make sure the No. 54 (.055 dia.) drilled hole in the cap, aligns with one of the pressure passages in the body sealed with gaskets (16).

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

**Caution**

Do not remove control seat (13) and control block (12) unless seat is damaged. Numerous removals of these parts cause wear, resulting in loss of press fit holding force. All other inspection and replacement may be done without their removal.

**PRESSURE ADJUSTMENT**

The adjusting screw provides a convenient means of regulating the system pressure within a 3000 P.S.I. range. Whenever a pressure adjustment is made, lock nut (4) must be turned counterclockwise, adjusting screw (3) may then 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 cap (14).

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 the 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 waste horsepower.



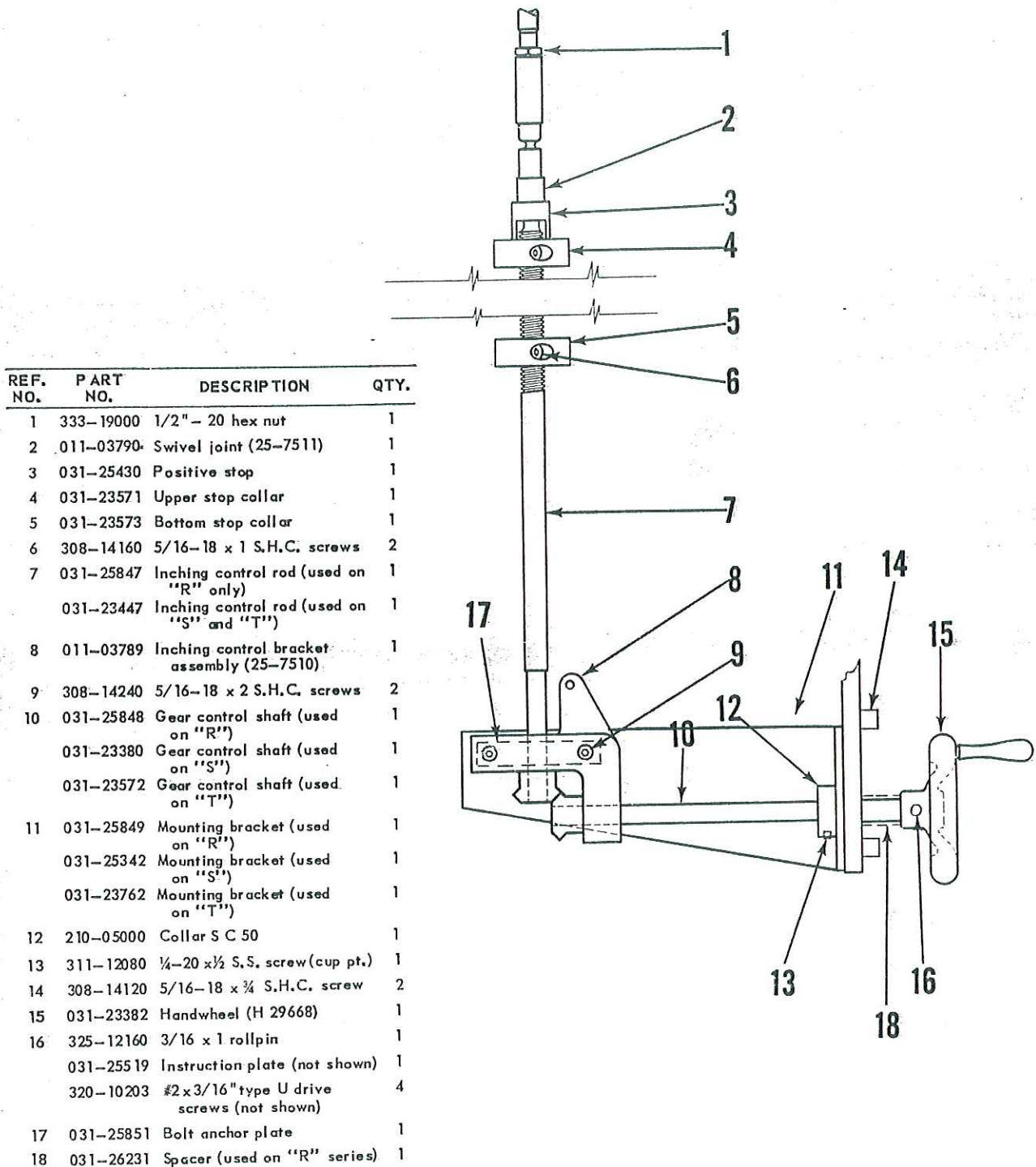


FIG. 11 - INCHING CONTROL  
Models D-266, D-267 and D-268

## APPROVED HYDRAULIC OILS FOR USE IN DENISON PRODUCTS

The controls on most of the multipresses and special equipment manufactured by the Denison Engineering Division, American Brake Shoe Company have one or more hydraulic resistances in the system as part of the controls. In order that the units function properly, it is essential that the correct type of hydraulic oil be used.

It is also essential that the customer use a similar type of oil too, that was used in our plant when the tests were made. This will eliminate any trouble that may occur when the customer uses a heavier or lighter oil than recommended.

Following is a list of approved hydraulic oils of similar viscosities and specifications. We recommend that one of the following oils be used in our products.

MANUFACTURER	TRADE NAME	MANUFACTURER	TRADE NAME
Anderson Oil & Chemical Co.	Winser No. 43, light Winser No. 52, medium	Pure Oil Co.	Puropale, RX Heavy Med. Puropale, Heavy Med.
Atlantic Refining Co.	Hytherm Oil C Hytherm Oil F  Ideal Oil C Ideal Oil D Ideal Oil F	Sanson, Henry E and Sons	No-Gum Hyd. Oil Light No-Gum Hyd. Oil No. 10 No-Gum Hyd. Oil No. 20 No-Gum Hyd. Oil No. 30
Canfield Oil Co.	Canfield Hy. Oil, light Canfield Hy. Oil, medium	Shell Oil Co.	Shell Tellus Oil 33 Shell Vitrea Oil 33
Cities Service Oil Co.	* Pacemaker 300T Pacemaker 200T Pacemaker 3	Sinclair Refining Co.	Duro 150, 160, 200, 250 & *300 Rubilene Oil Light Medium
Continental Oil Co.	Dectel Medium * Turbine Oil Medium Hycom 31	Socony Mobil Oil Co.	Mobil DTE Oil light Mobil DTE Oil Medium Mobil DTE Oil Heavy Med.
The Franklin Oil & Gas Co.	* Franklin HD Spindraulic Oil No. 300	L. Sonneborn Sons	Amalie HD No. 1 Grade 10 -10W
Golden Bear Oil Co.	Protexol Turbine Oils, light light medium medium	Standard Oil Co. of California	* Chevron OC Turbine 15
Gulf Oil Corp.	* Gulfcrest 44, 47 & 55 Gulf Harmony 44, 47 & 53	Standard Oil Co. of Indiana	Indoil 31 * Stanoil 31
E. F. Houghton & Co.	* Hydro Drive MIL-20 Hydro Drive MIL-10 Hydro Drive MIL-30	Standard Oil Co. of New Jersey	Esso Fleet 20-W Teresso 52
Hulburt Oil & Grease Co.	Hulburt No.26 Lubricant	Standard Oil Co. of Ohio	Sohivis 52, 43 & 47 Sohio Turbine Oil Heavy Medium
Kendall Refining Co.	Industrial Oils 41-A & 41-AA R & O Oils 2 & 3	Sun Oil Company	Sunvis HD 720 Sunvis 747 * Sunvis 931 Sunvis 31
Magie Bros. Oil Co.	Hydrodyne HY A, 10 & 20	Texas Company	* Texaco Regal Oil PC (R&O) Texaco Regal Oil PC
Ohio Oil Co.	Inhibited Oil No. 601 Marathon Endurance Premium Motor Oil SAE20W	Tidewater Associated Oil Co.	Veedol Aturbrio 60
Pate Oil Co.	Challenge Light Challenge Medium	United Oil Mfg. Co.	Penn-United Hy. Oil Light
Pennsylvania Refining Co.	Penn Drake No. 12	Valvoline Oil Co.	Valvoline Oil 3103 ETC Oil K-15 ETC Oil K-20 ETC Oil K-30 White Rose A-20
Penola Oil Co.	Nuto 42, 50 Teresstic 43, 47 & 52	Warren Refining & Chemical Co.	Warco E.P. Hydrooil 82 Warco E.P. Hydrooil 82X
Phillips Petroleum Co.	Condor 80220, 80230, 80240 Magnus 80130 & 80140 Baltic 8051, 8052 & 8053	White & Bagley Co.	Hy. Oil 150 Hy. Oil 225 Hy. Oil 300

\*Indicates an inhibited oil which has chemical additives to strengthen its various properties such as anti-foaming, oxidation, stability, anti-corrosion, gum solvency, film strength, and oiliness.

All of the above oils meet with the Denison Engineering Division specifications, they have a minimum viscosity index of 90 and a viscosity at 100° F. of approximately 300.

Consult a Denison Representative before using fluid which does not meet these specifications.



# MULTIPRESS.

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.

Printed in U.S.A.

Print Date	8/82	-50	Replaces		Revision	
------------	------	-----	----------	--	----------	--

**MULTIPRESS**<sup>®</sup>

QPI MULTIPRESS, INC.  
2222 South Third Street • Columbus, Ohio 43207  
Telephone (614) 228-0185 • Fax (614) 228-2358  
[www.multipress.com](http://www.multipress.com)

(614) 228-0185

Columbus, Ohio