THESE INSTRUCTION SHEETS AND

PARTS DRG 'S ARE ISSUED TO USERS OF

ELMES HYDRAULIC EQUIPMENT

TO PROPERLY INSTALL AND MAINTAIN
THIS EQUIPMENT AT MAXIMUM OPERATING
EFFICIENCY AND MINIMUM MAINTENANCE
EXPENSE.

WHEN ORDERING SPARE OR REPLACEMENT PARTS

PLEASE REFER TO: SHOP ORDER # N-8763

SERIAL # 12192

YEAR 1956

INSTRUCTIONS

FOR

INSTALLATION-OPERATION & MAINTENANCE

300 TON

HOBBING PRESS

#758 - PA2

Designed & Built By:	Elmes Engineering Works American Steel Foundries Cincinnati, Ohio
Shipped To:	Brigham Young University
Customer's Purchase Order:	#007403
Elmes Shop Order:	N-8763

PRESS SPECIFICATIONS

Type:	3 Column
Purpose:	Hobbing
Capacity:	300 Tons
Platen Dia:	16"
Distance Between Columns:	17"
Opening, Platen to Tophead:	18"
Stroke:	12"
Ram Diameter:	12" Single Acting
Operating Pressure:	5300 P.S.I.
Height, Floor To Platen:	46"
Operating Speeds:	
Advance:	1" per min.
Press:	1" per min.
Return:	By Gravity
Pumping Unit:	SECO 20 LAH #0503 Unit .5 G.P.M. Delivery Complete with 3 H.P., 1800 R.P.M., 3 Ph., 60 Cy., 440 V. Motor and Magnetic across-the-line type Starter. 20 Gallon oil Reservoir.

OPERATING INSTRUCTIONS OF PRESS

The press is of the single acting moving up type, controlled by means of a 1-1/2" plug type angle valve.

The closing (clockwise rotation of the handwheel) of the 1-1/2" angle valve, allows pressure from pump to go to cylinder, where it acts on the ram, closing the press. When the 1-1/2" angle valve is opened, (counterclockwise roation of the handwheel) the oil from the pump is directed to the tank. Pressure in the cylinder is released and the platen is returned by gravity.

Operating pressure may be regulated by the SECO Relief Valve located on the pumping unit. Relief pressure is set by means of the adjusting screw on the valve. Pressure is increased by turning clockwise. Relief Pressure is decreased by turning counterclockwise. The adjusting screw may be locked by the locknut provided. (See Parts Dwg. #).

The Hydraulic cylinder is of the single acting type. The stuffing box is packed with "V" Leather Packings. If leakage occurs around the Ram, the Gland nuts should be tightened sufficiently until leakage ceases.

Occasional repacking of the stuffing box may be necessary. For cylinder section see Std. Sheet #103.

It is of utmost importance that the oil used as a pressure medium be kept clean at all times. Periodic draining of the oil tank and filtering the oil is necessary.

With proper care and attention, this hydraulic equipment will give many years of service with the minimum maintenance expense.

The press is equipped with a set of guards, including a sliding shutter and 1-3/16" thk. bullet proof glass window.

ordered 30 gal from Utah oil @ 93¢/gal

GENERAL INSTRUCTIONS FOR PRESS

In many instances, it may be necessary that the Pumping Unit, Oil Reservoir Valves have to be separated from the Press to facilitate shipment.

Whenever a Press is shipped partially dismantled, all pipes and fittings are plainly tagged showing their exact location, thereby making it convenient as possible to re-assemble.

The enclosed Drawings will enable you to identify and locate the various parts.

After the Press has been levelled and securely fastened to floor or foundation, it should be thoroughly cleaned to remove all dirt and grit that may have accumulated in transit. The Platen Guides should be well oiled or greased.

Make sure that the Oil Reservoir or Pump Tank is absolutely clean and free from all dirt, or other foreign material of any kind.

NEVER USE KEROSENE, GASOLINE OR WASTE. USE ONLY CLEAN DRY RAGS.

When removing coverings from pipe connections, be sure that the pipes are thoroughly clean and that no dirt or grit is lodged in them. It is advisable to blow out all pipes with air before putting them in place.

All connections should be drawn up tightly so as to prevent any possibility of leakage.

If the Oil Reservoir is equipped with a cooler, it should be piped to the cold water system of the Plant. A Throttle Valve should be installed on the exhaust side to check flow of water through the cooler sufficiently to maintain the oil at approximately 160 to 200 degrees F. (See cooler installation Drawing).

The Pump Tank has a capacity of 20 gallons and should be kept filled to center of oil sight gauge with a good grade of Hydraulic Oil having a viscosity range of 275 to 315 S.S.U. at 100 degrees F for ambient temperatures above 60 degrees F.

Hydraulic Pressure Pump and controls depend entirely upon the fluid medium for their lubrication. A good grade of Hydraulic Oil must be used to prevent undue trouble; because of water affinity, sludge or foaming.

Never operate Pumping Unit above 155 degrees F. (Maximum safe operating temperature.)

IMPORTANT:

Before starting Motor, it is important that all Stop Valves, with the exception of the drain valve, are fully opened unless otherwise specified.

Suitable Dies or Blocks should be placed in the Press so that Platen does not exceed the maximum travel for which it is designed.

Generally, when column stops are furnished with the Press, they are intended to indicate to the Operator the amount of stroke that is available. These stops will serve also to stop the Platen in an emergency, and are not designed to carry the full tonnage of the Press for continuous operation.

PUMPS:

Before running Press, it is advisable to allow the Pumps to run idly and circulate the Oil for a few minutes. Care and service of Pumps is described in the enclosed bulletin.

IMPORTANT:

Motor must rotate in direction indicated by arrows on Pumps. NEVER operate Press or run Pumps if the Motor is operating in the wrong direction. This would cause serious damage to the Pumping Unit.

MOTOR:

Care and lubrication of the Motor is to be in accordance with instructions of Motor manufacturer attached to the Motor.

RELIEF VALVE:

This unit protects the Pumping Unit from overload. The pressure setting of this valve has been checked before shipment. It is, however, advisable to recheck the pressure setting before the Press is put into operation.

To re-set Relief Valve, loosen lock-nut on pressure adjusting screw located on cover of Valve. Clockwise rotation of adjusting screw increases pressure, while counter-clockwise rotation decreases pressure.

The setting of the Relief Valve should never exceed the working pressure specified for the capacity of the Press.

PRESS:

The only attention the press will require is to keep the guides lubricated and the packing gland tightened if leakage should occur at Ram. Never tighten glard any more than is necessary to stop leakage. Column Nuts should be tightened occasionally.

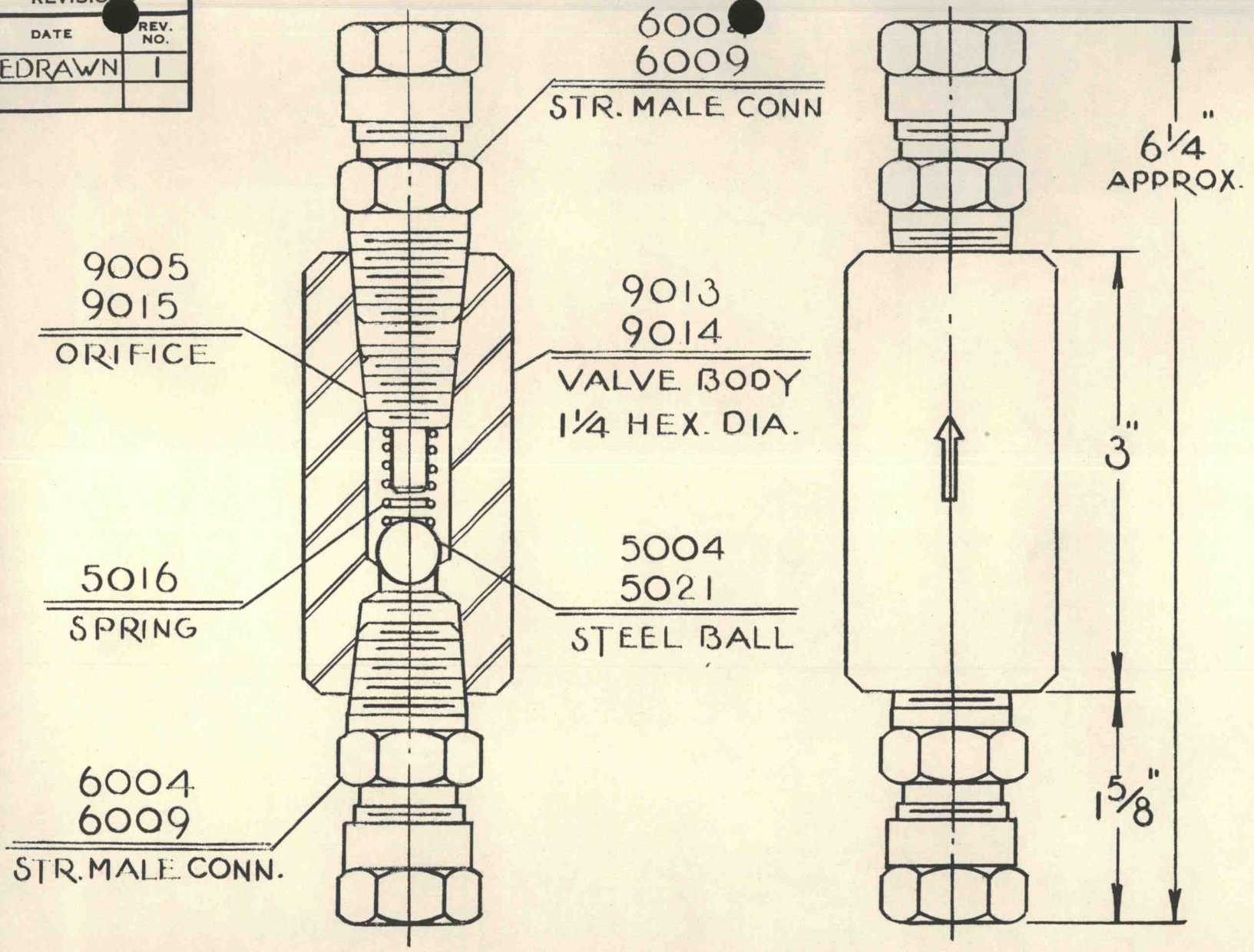
HYDRAULIC GAUGE:

This Gauge is of the Bourdon tube type. The life and accuracy of this instrument can be prolonged with proper use. The Gauge is provided with a shut-off valve. This valve should be kept closed (except when making or checking pressure adjustments) to prolong life and accuracy of the Gauge.

When pressure readings are required, Gauge shut-off Valve should be opened only about 1/8 of a turn, or just sufficiently to allow pressure gauge to operate.

REVISIONS	
DATE	REV. NO.
REDRAWN	1

22CA



CV-2-S	
NO. REQ.	PART NO.
1	5004
1	5016
2	6004
1	9005
1	9013

CV-6-S	
NO. REQ.	PART NO.
1	5016
1	5021
2	6009
1	9014
1	9015

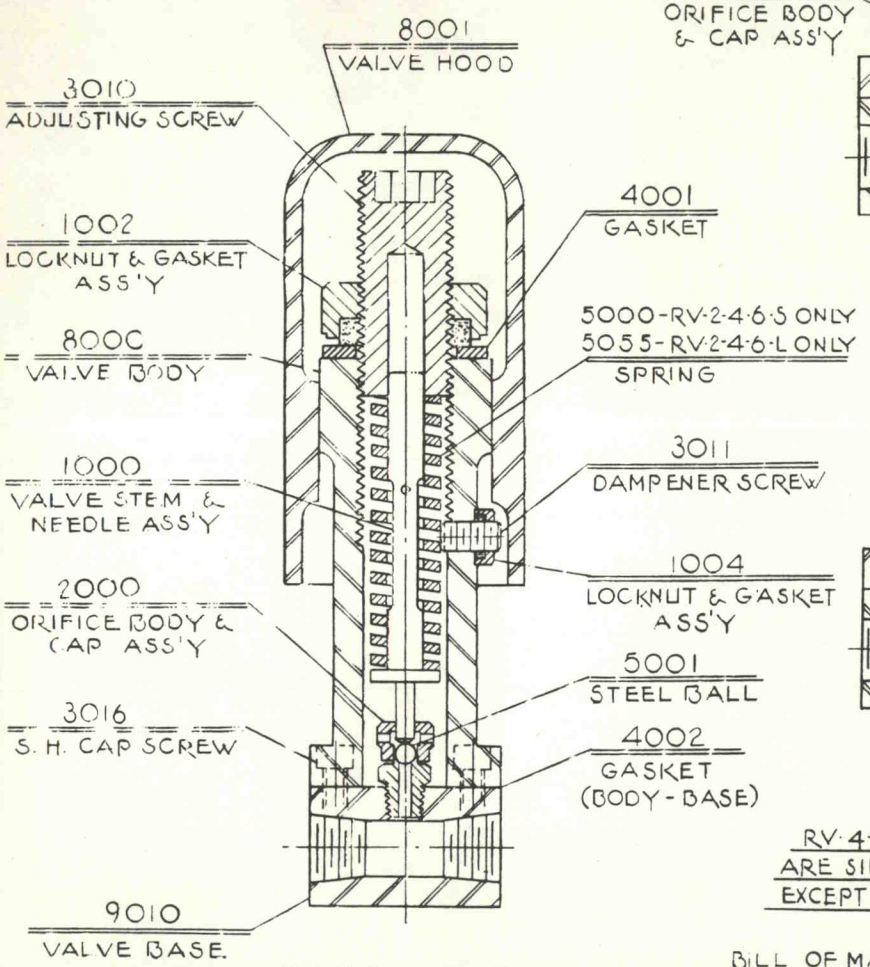
MODEL	PIPE TAP		MAX. G.P.M.	MAX. PRESSURE P.S.I.
	INLET	OUTLET		
CV-2-S	¼	¼	2	10,000
CV-6-S	⅜	⅜	6	6,000

SIMPLEX ENGINEERING
ZANESVILLE, OHIO

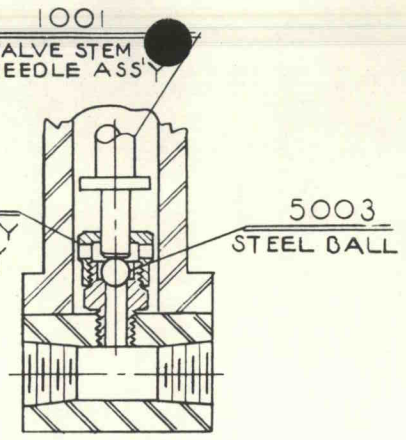
SCALE	DATE	DRAWN	CHECKED	APPROVED
1=1	9-26-52	REC		

SECO HIGH PRESSURE CHECK VALVES 22CA

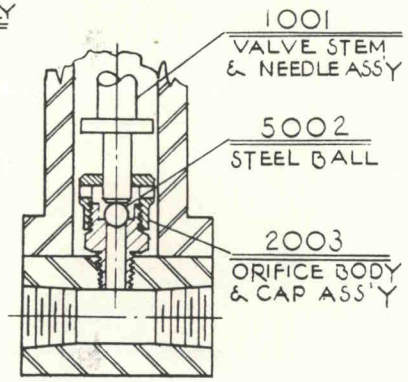
MODEL	PIPE TAP		MAX GPM	ADJUSTABLE PRESSURE RANGE P.S.I.
	INLET	RETURN		
RV-2-S	3/8	[illegible]	2	3000 - 10000
RV-4-S	3/8	3/8	4	2000 - 5000
RV-6-S	3/8	3/8	6	1000 - 3000
RV-2-L	3/8	3/8	2	500 - 4000
RV-4-L	3/8	3/8	4	500 - 3000
RV-6-L	3/8	3/8	6	500 - 2000



RV-2-S RV-2-L
SECTION A-A



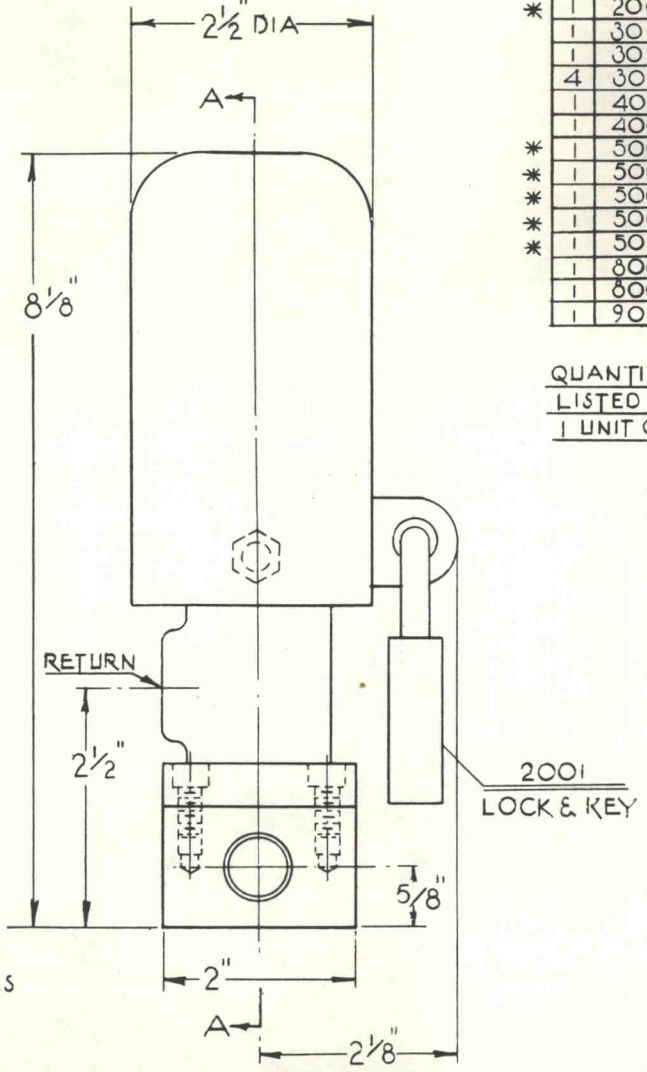
RV-6-S
RV-6-L



RV-4-S
RV-4-L

RV-4-S, RV-4-L, RV-6-S, RV-6-L ARE SIMILAR TO RV-2-S, RV-2-L EXCEPT FOR ABOVE MODIFICATIONS

BILL OF MATERIAL COMMON TO ALL MODELS EXCEPT THOSE INDICATED * ON PARTS LIST



RV-10 CA	
NO. REQ.	PART NO.
1	1000
* 1	1001
1	1002
1	1004
* 1	2000
1	2001
* 1	2003
* 1	2004
1	3010
1	3011
4	3016
1	4001
1	4002
* 1	5000
* 1	5001
* 1	5002
* 1	5003
* 1	5055
1	8000
1	8001
1	9010

QUANTITIES LISTED FOR 1 UNIT ONLY

THE SECO RELIEF VALVE IS USED WHERE IT IS DESIRABLE TO LIMIT THE MAXIMUM OPERATING PRESSURE. THE SIX MODELS COVER THE RANGE OF 500 P.S.I. TO 10,000 P.S.I. EACH VALVE IS ADJUSTABLE WITHIN THE LIMITS SHOWN ON THE ABOVE TABLE. IT WILL OPERATE IN ANY POSITION.

RELIEF PRESSURE IS SET BY MEANS OF THE ADJUSTING SCREW (PT. 3010). PRESSURE IS INCREASED BY TURNING CLOCKWISE. LOCKING IS ACCOMPLISHED BY LOCKNUT (PT. 1002) WHICH IS EQUIPPED WITH INTEGRAL PACKING FOR SEALING OFF LEAKAGE PAST THREADS.

VALVING IS BY MEANS OF AN UNRESTRICTED FLOATING BALL FREE TO FIND A PERFECT SEAT. THE SEAT (PT. 2000, 2003, OR 2004) IS RENEWABLE. A HARDENED STEEL NEEDLE RESISTS THE PRESSURE OF THE BALL. THIS NEEDLE IS CLOSELY GUIDED IN A BAFFLE TO PREVENT HIGH VELOCITY PRESSURE FROM EXERTING ITSELF ON THE SPRING ASSEMBLY.

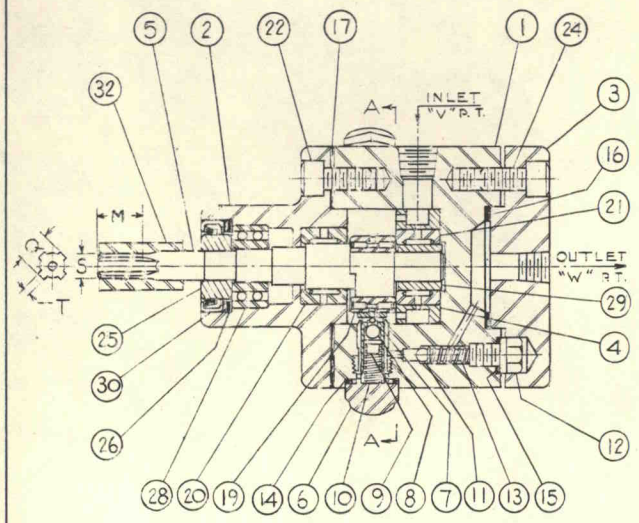
A DAMPENER SCREW (PT. 3011) PERMITS ADJUSTMENT FOR CHATTERLESS OPERATION. THE VALVE ASSEMBLY IS HOODED & PROVIDED WITH LOCK & KEY

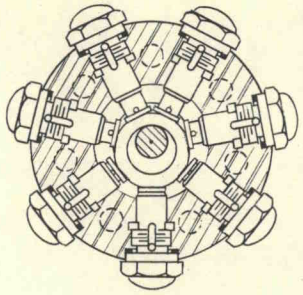
SIMPLEX ENGINEERING
ZANESVILLE, OHIO

SCALE	DATE	DRAWN	CHECKED	APPROVED
NONE	5-23-52	REC	TCK	

SECO RELIEF VALVE — RV-10CA

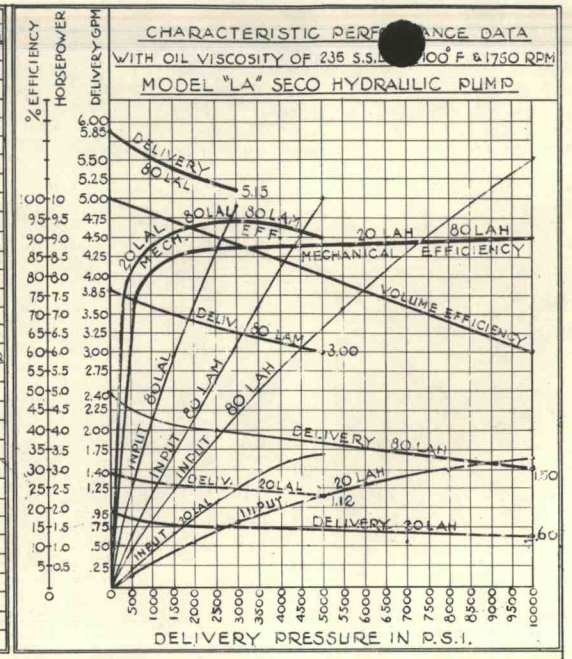
REV #1 4-11-53 REC

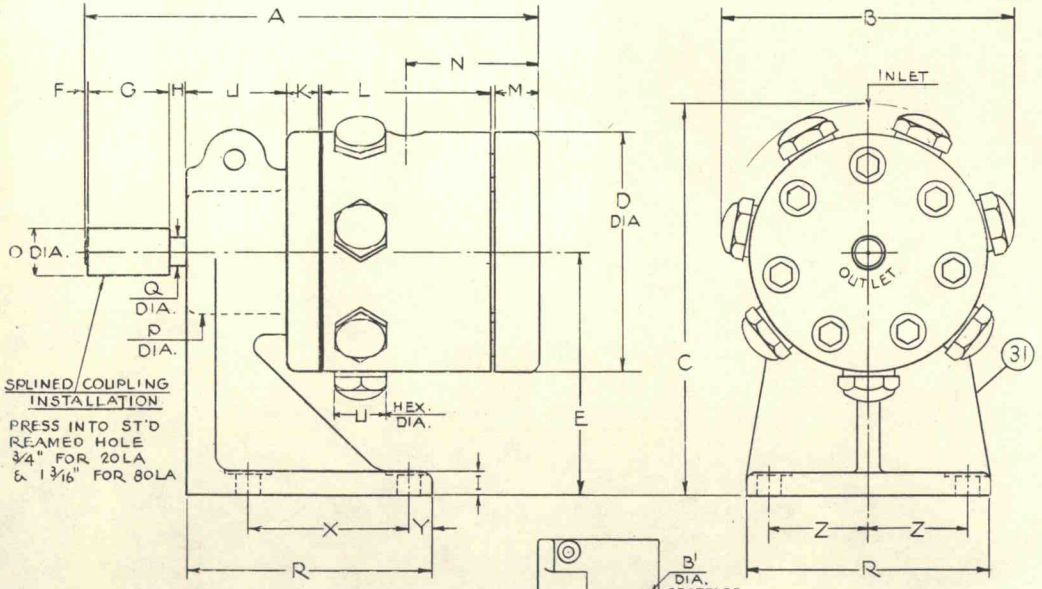




SECTION A-A

ITEM NO	PART NAME	NO REQ'D
1	PUMP BODY	1
2	MOTOR END COVER	1
3	HYDRO END COVER	1
4	INLET CAGE	1
5	ECCENTRIC SHAFT	1
6	CYLINDER SLEEVE	7
7	HOLLOW PISTON	7
8	INLET CHECK BALL	7
9	INLET CHECK BALL STOP	7
10	CAM FOLLOWER SPRING	7
11	OUTLET CHECK BALL	7
12	OUTLET CHECK BALL STOP	7
13	OUTLET CHECK SPRING	7
14	CYL. SLEEVE COPPER GASKET	7
15	OUTLET CH'K COPPER GASKET	7
16	HYD. END COVER COPPER GASKET	1
17	MOTOR END COVER PAPER GASKET	AS REQ.
19	ECCENTRIC CT'R ROLLER BEARING	1
20	MOTOR END ROLLER BEARING	1
21	HYDRO END ROLLER BEARING	1
22	S.H. CAP SCREW - MOTOR END	7
24	S.H. CAP SCREW - HYDRO END	7
25	OIL SEAL SHAFT COLLAR	1
26	RADIAL THRUST B'RG RETAINER	1
28	RADIAL THRUST BALL BEARING	1
29	INNER RACE HYD. ROLLER BEARING	1
30	ECCENTRIC SHAFT OIL SEAL	1
31	FOOT MTG. BRACKET - OPTIONAL	1
32	SPLINED COUPLING	1





PLAN OF FOOT MT'G B'KT

NOTES

SECO RADIAL PUMPS SHOULD BE MOUNTED BELOW THE OIL RESERVOIR WHICH SUPPLIES OIL TO THE PUMP IN ORDER TO INSURE CONSTANT PRIMING BY GRAVITY.

OIL SPECIFICATION - GOOD GRADE OF HYDRAULIC OIL WITH VISCOSITY OF 235 S.S.U. AT 100° F. IS RECOMMENDED

KEEP OIL CLEAN - FILTER OIL THRU SCREEN OF NOT LESS THAN 120 MESH PLACED IN INTAKE TO PUMP PREFERABLY OF THE MECHANICAL CLEANING TYPE OF AT LEAST TWICE THE CAPACITY OF THE PUMP

THE HYDRAULIC FLUID FURNISHES COMPLETE LUBRICATION TO ALL PARTS; NO OTHER LUBRICATION IS NEEDED.

THIS PUMP WILL RUN EITHER DIRECTION AT WILL

RECOMMENDED MOTOR SPEED
MAXIMUM 1750 RPM
MINIMUM 200 RPM
PUMP PERFORMANCE DATA BASED ON 1750 RPM. LOWER SPEEDS APPROXIMATELY PROPORTIONAL.

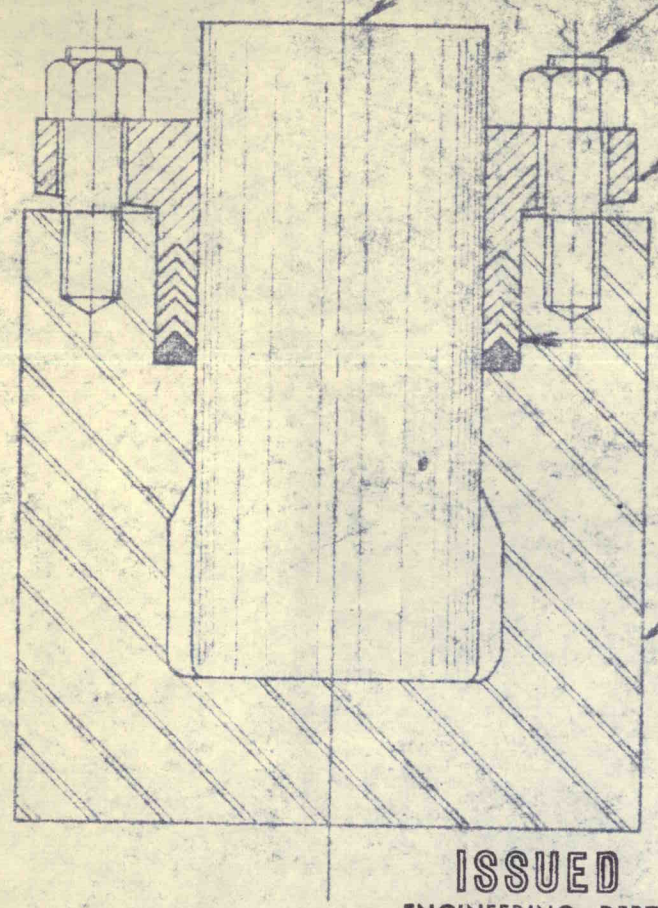
MODEL		20 LAL	20 LAH	80 LAL	80 LAH	80 LAM
MAX. PRESSURE - SPOT RATING - PSI		5000	10000	3000	10000	5000
MAX. PRESSURE CONT. RATING - PSI		3000	6000	2000	6000	3000
DELIVERY AT MAX. PRESSURE - GPM		1.12	.60	5.15	1.50	3.00
SPEED - RPM		1750	1750	1750	1750	1750
H.P INPUT AT MAX. PRESSURE		3.4	3.3	9.75	11.00	10.00
GENERAL DIMENSIONS IN INCHES	A	7 1/2	7 1/2	10	10	10
	B	4 3/4	4 3/4	6 3/8	6 3/8	6 3/8
	C	6 13/32	6 13/32	8 5/32	8 5/32	8 5/32
	D	3 15/16	3 15/16	5 3/8	5 3/8	5 3/8
	E	4	4	5	5	5
	F	1/32	1/32	1/32	1/32	1/32
	G	1 1/8	1 3/4	1 3/4	1 3/4	1 3/4
	H	11/32	11/32	3/8	3/8	3/8
	I	3/8	3/8	1/2	1/2	1/2
	J	1 5/8	1 5/8	2	2	2
	K	1/2	1/2	3/4	3/4	3/4
	L	2 3/4	2 3/4	4	4	4
	M	3/4	3/4	1	1	1
	N	2 3/16	2 3/16	3 1/16	3 1/16	3 1/16
	O	.7520	.7520	1.1895	1.1895	1.1895
	P	2	2	2 1/2	2 1/2	2 1/2
	Q	.499	.499	.749	.749	.749
	R	4	4	5	5	5
	S	3/8	3/8	9/16	9/16	9/16
	T	.1205	.1205	.1808	.1808	.1808
	U	7/8	7/8	1 1/8	1 1/8	1 1/8
	V	3/8	3/8	3/4	3/4	3/4
	W	1/4	1/4	3/8	3/8	3/8
	X	25/8	25/8	3 1/4	3 1/4	3 1/4
	Y	3/8	3/8	1/2	1/2	1/2
	Z	15/8	15/8	2	2	2
	A'	25/64	25/64	31/64	33/64	33/64
	B'	3/4	3/4	1	1	1
WEIGHT OF PUMP IN POUNDS						
STEEL PUMP ONLY		14	14	36	36	36
C.I. FOOT MT'G BRACKET ONLY		5	5	9	9	9
PUMP WITH FOOT MT'G B'KT.		19	19	45	45	45

PAT. NO. 2,461,235

SUPERSEDES SECO DWG. NOS. 329 AND 366

SIMPLEX ENGINEERING
ZANESVILLE, OHIO

SCALE NONE	DATE 11-20-50	DRAWN REC	CHECKED R.D.P	APP'D
MODEL "LA" SECO HYD RADIAL PISTON PUMP				35-39 CA



(2) RAM

(4) STUDS

(3) GLAND

(3-A) V-PACKING - 10 -RINGS & CONVEX FILLER RING 13" O.D 12" I.D. 1/8" LEATHER

(1) CYLINDER

ISSUED
ENGINEERING DEPT.
MAY 31 1953
ELMES ENGINEERING DIVISION
AMERICAN STEEL FOUNDRIES

TOLERANCE ON FRACTIONAL DIMENSIONS ±.010 UNLESS OTHERWISE SPECIFIED.

AMERICAN STEEL FOUNDRIES
ELMES ENGINEERING WORKS
CHICAGO

ISSUE No. 1

SINGLE ACTING CYL. WITH "V" LEA. PACKING

DR. BY L.O | SCALE NONE | DRWG. NO. STD.
CK. BY | DATE 8-29-46 | SHEET 103-C