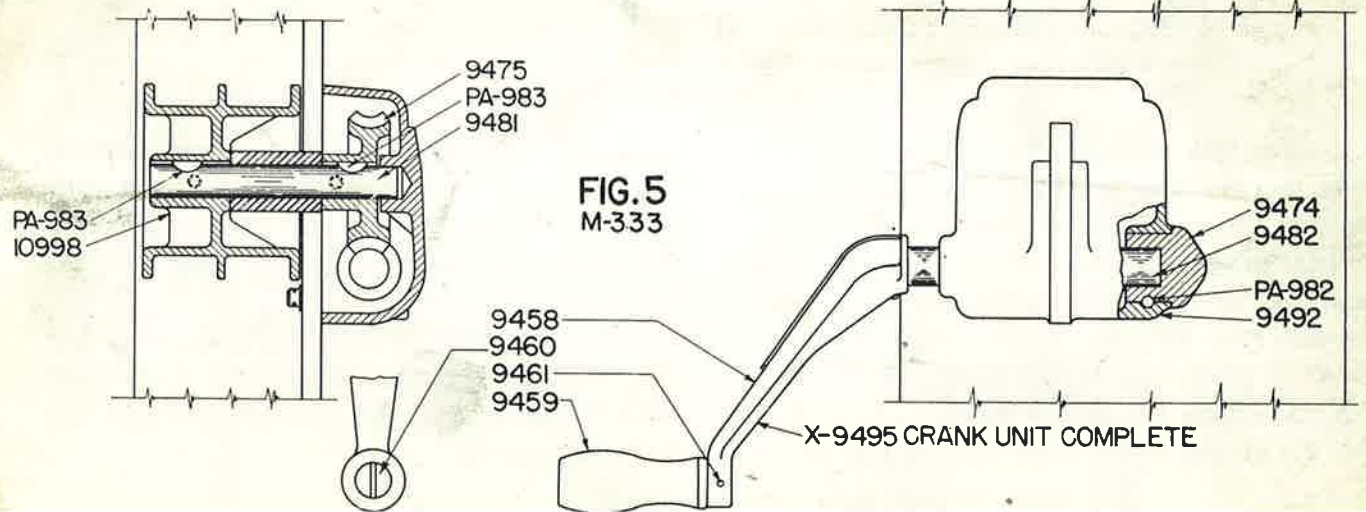
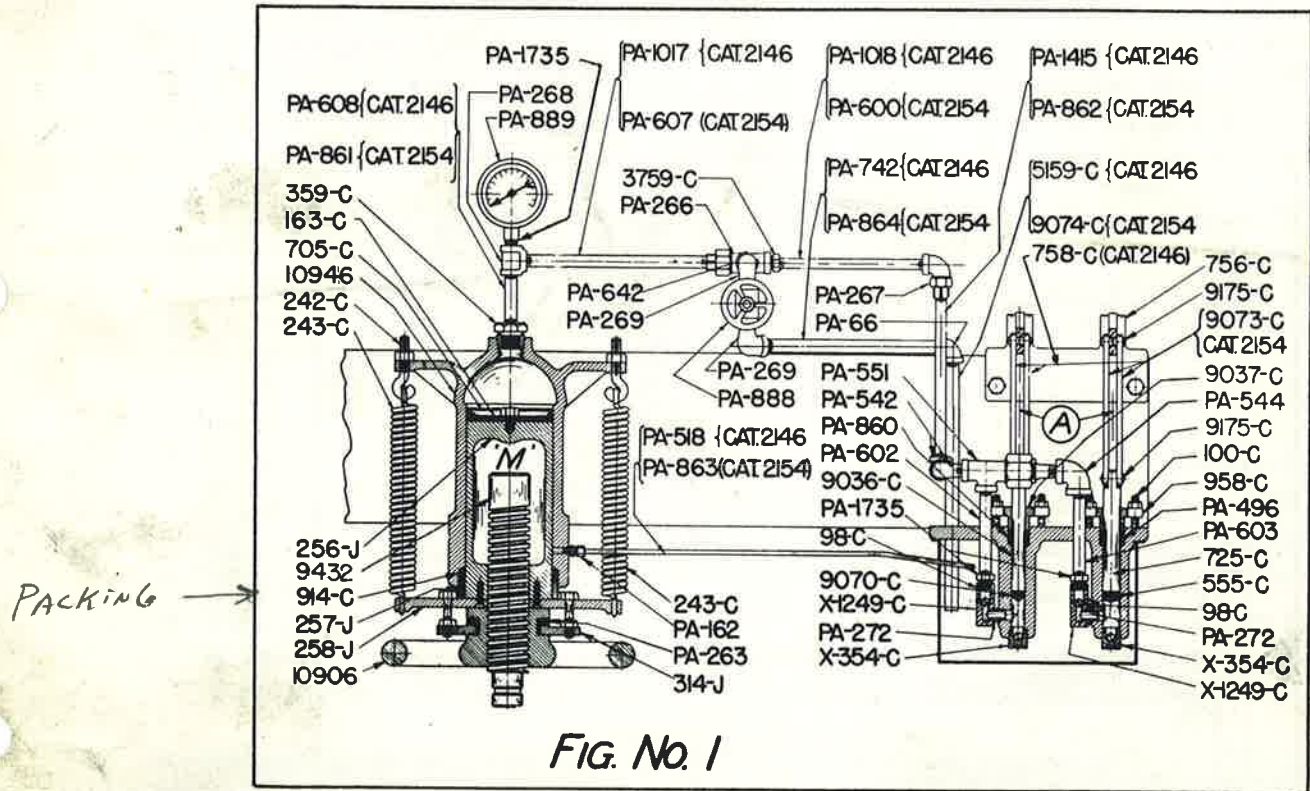


INSTRUCTION AND PARTS LIST FOR 80-TON NEW STYLE HYDRAULIC PRESSES

Catalog No. 2146, Model No. P-991 and P-992 (25" Between Uprights)

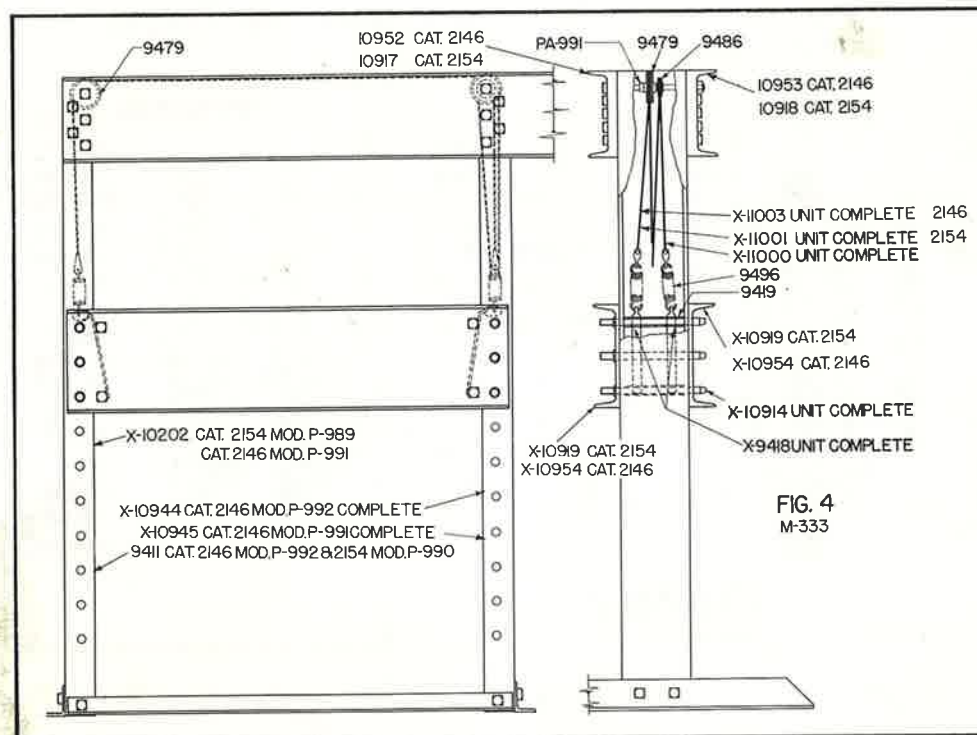
Catalog No. 2154, Model P-989 & P-990 (45" Between Uprights)



UNPACKING

Remove the crate carefully. The following loose fittings are with Press:

- | | |
|------------------------|---------------------------------------|
| 1 Pressure gauge | 2 Channel blocks for table |
| 1 Depth gauge pin | 2 V-blocks for table |
| 1 Release valve handle | 1 Handle for table winch |
| 1 Screw nose cap | 1 Pump handle extension |
| 1 V-nose extension pin | 2 Thumb screws |
| 1 V-nose for screw | 1 Collar for pressing off axle gears. |



ASSEMBLY

Remove the plug in the pipe tee PA-268 (Fig. No. 1) over the cylinder and insert the pressure gauge PA-889 (Fig. No. 1). Use a wrench to do this, as turning the gauge by hand may break the glass. The handle of valve PA-888 may now be attached and the guide pin 87-C (Fig. No. 2) put in place as shown.

Next attach the pump handle (64-J Fig. No. 2) at the right hand end of the upper

channels to the bracket on the rear channel. Then remove the $\frac{3}{4}$ " pipe plug from the pump casting above the oil tank and put in about five (5) quarts of light engine oil SAE No. 20 and replace the plug.

Prime the pumps by giving each pump ten (10) to fifteen (15) strokes with the release valve PA-888 (Fig. No. 1) open to expel the air in the piping.

HOW TO OPERATE

CAUTION

Before using the press, always put the protecting cap 412-C (Fig. No. 2) on end of plunger screw so as not to burr its end.

The table cables are intended for raising and lowering table only. Do not apply pressure on work until table pins have been inserted.

The screw (operated by the hand wheel) is

provided with a stop. Do not force the screw beyond the stop.

When operating the pump, do not drive the hydraulic plunger below the six-inch (6-in.) limit indicated by the depth gauge located in front of the upper channel. Otherwise, the packing may become damaged.

INDEX TO INSTRUCTION CHART (Fig. 1)

A. If the plunger M does not move when the handle A is pumped:

1. Is there sufficient oil in the oil tank?
2. Is valve PA-888 closed (it is sometimes necessary to pump the handle A 10 or 15 times to remove the air that is in the cylinder and piping)?
3. Remove the oil box by taking out the several cap screws and bolts to inspect valves 98-C and X-354-C. Be sure to have the screen on the bottom of valve X-354-C clean.
4. Inspect valve PA-888 by removing the cap and examining the seat to see that it is not pitted or leaking.

B. Pressure will not hold and handle "A" raises:

1. Inspect valve 98-C as this valve, if leaking, will cause handle A to raise after pressure is applied on the plunger M.

C. Pressure will not hold but handle A does not raise:

1. Inspect valve PA-888 for leakage.

D. Oil leaks around plunger "M":

1. Adjust the packing by tightening gland 257-J with the four cap screws.

E. Oil leaks around the pump plungers:

1. Adjust the packing by tightening the glands 958-C and 9037.

PART NUMBERS WITH CIRCLES INSTEAD OF ARROWS INDICATE PARTS NOT SHOWN IN THIS VIEW

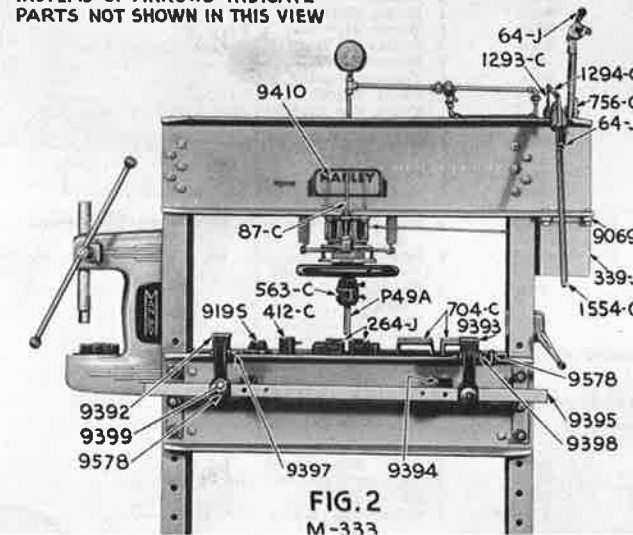
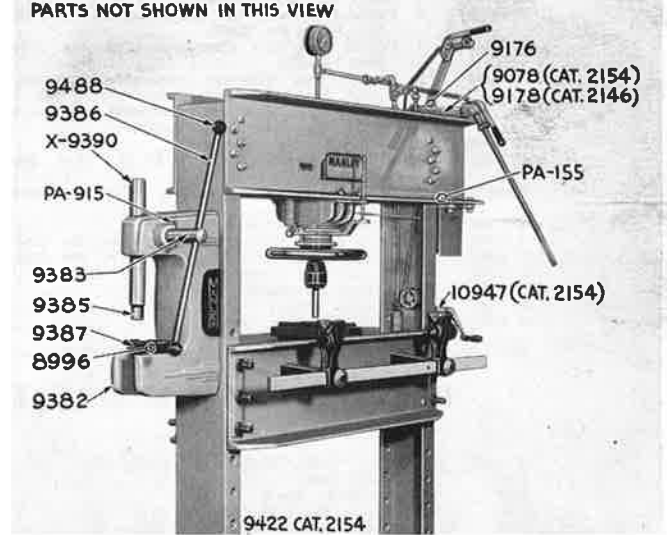


FIG. 2
M-333

PART NUMBERS WITH CIRCLES INSTEAD OF ARROWS INDICATE PARTS NOT SHOWN IN THIS VIEW



9422 CAT. 2154

PARTS LIST FOR CATALOG 2146, MODEL NO. P-991 AND P-992, CATALOG 2154,
MODEL NO. 989 AND P-990

Part No.	No. Req'd.	Description	Part No.	No. Req'd.	Description
PA-62	1	Pipe Plug 3/8"	98-C	2	Check Valve Body
PA-66	1	Std. Ell 3/8"	100-C	4	Packing Gland Stud 3/8" Dia. x 2 1/2" lg.
PA-155	1	Pipe Plug 3/4"	163-C	1	Follower Plate 2 3/4" Dia.
PA-162	1	1/4" Ball Fastener 1/8" P.T.	242-C	2	Spring Adjusting Screw 1/2" Dia. x 5 3/8" lg.
PA-208	2	Taper Pin	243-C	2	Pull Back Spring 1 1/2" Dia. x 10" lg.
PA-219	2	Steel Ball 7/8" Dia.	256-C	1	Ram 5" Dia. x 10 1/4" lg.
PA-263	1	Ball Retainer	257-C	1	Packing Gland
PA-266	1	Combination Tee & Union 3/8"	258-C	1	Pull Back Yoke
PA-267	1	Union Ell 1/4"	264-J	2	Low V-Block
PA-268	1	Ex. Heavy Tee 3/8"	314-J	2	Ball Retaining Collar
PA-269	2	Ex. Heavy Street Ell 3/8"	339-J	1	Tank 8 3/8" x 6 1/8" x 7"
PA-272	2	Ex. Heavy Close Nipple 3/8"	359-C	1	Special Pipe Plug 1 5/8" Hex. x 1 1/2" lg.
PA-496	1	Pump Packing	409-C	1	Screw Key 5/8" x 5/16" x 2"
PA-518	1	Copper Tubing 1/4" O.D. x 3/16" I.D. x 14 1/2" lg. (Cat. No. 2146)	410-C	1	Pin for Screw Key 5/16" Dia. x 1" lg.
PA-542	2	Ex. Heavy Street Ell 1/4"	412-C	1	Screw Cap 2 1/4" Dia. x 2 3/8" lg.
PA-544	1	Ex. Heavy Ell 1/4"	555-C	1	Plunger Cup Washer 1" Dia. x 3/8" lg.
PA-551	1	Heavy Union Tee 1/4"	563-C	1	V-Nose 1 3/4" Bore
PA-600	1	Ex. Heavy Nipple 1/4" x 11"	704-C	2	Raising Block 5" x 14" lg.
PA-602	1	Ex. Heavy Nipple 1/4" x 6"	705-C	1	Cup Washer 5" Dia. x 3/4" x 7/8"
PA-603	2	Ex. Heavy Nipple 1/4" x 6 3/8"	725-C	1	Plunger 1" Dia. x 7"
PA-607	1	Ex. Heavy Nipple 3/8" x 11 1/2"	756-C	1	Fulcrum Bracket
PA-608	1	Ex. Heavy Nipple 3/8" x 3 1/2" (Cat. No. 2146)	758-C	4	Link 3/8" x 1" x 8 3/4" lg. (Cat. No. 2146)
PA-642	1	Ex. Heavy Nipple 3/8" x 2 1/2"	914-C	2	Cylinder Packing
PA-685	1	Washer 1 1/2" I.D. x 3/8" O.D. x 1/16" Th.	919-S	1	Differential Shaft Remover
PA-742	1	Std. Pipe Nipple 3/8" x 9 1/4" lg. (Cat. No. 2146)	958-C	1	Packing Gland 1" Hole
PA-860	1	Pump Packing	1554-C	1	Pump Handle 7/8" Dia. x 26" lg.
PA-861	1	Ex. Heavy Pipe Nipple 3/8" x 6 1/2"	5159	1	Pipe 3/8" Std. x 14 1/2" lg. (Cat. No. 2146)
PA-862	1	Ex. Heavy Pipe Nipple 1/4" x 12 1/4"	9036	1	Plunger 1/2" Dia. x 7"
PA-863	1	Copper Tube 1/4" O.D. x 24 1/2" lg.	9037	1	Packing Gland 1/2" Hole
PA-864	1	Std. Pipe Nipple 3/8" x 13"	9069	1	Pump Cylinder Plate
PA-868	1	Needle Valve 3/8" No. 1040	9070	1	Plunger Cup Washer 1/2" Dia. x 1 1/8" lg.
PA-889	1	Pressure Gauge 100-Ton 5" Ram.	9073	4	Link 1/8" x 1" x 12 1/8" lg. (Cat. No. 2154)
PA-982	1	Groov-Pin 1/4" Dia. x 1 1/2" lg.	9074	1	Std. Pipe 3/8" x 17 1/2" lg.
PA-983	2	Woodruff Key No. 5	9078	2	Beam 1/2" x 1 1/2" x 12" (Cat. No. 2154)
PA-991	1	Shaft Collar	9175	4	Pin 1/2" Dia. x 1 1/2" lg.
PA-1017	1	E. H. Nipple 3/8" x 6 3/8" (Cat. No. 2146)	9176	2	Pin 1/2" Dia. x 2 1/8" lg.
PA-1018	1	E. H. Nipple 1/4" x 7" (Cat. No. 2146)	9178	2	Beam 1/2" x 1 1/2" x 10 1/8" lg. (Cat. No. 2146)
PA-1415	1	E. H. Nipple 1/4" x 10 1/4" (Cat. No. 2146)	9410	1	Name Plate
PA-1735	3	Reducing Bushing 3/8" x 1/2"	9411	1	L. H. End Channel Unit Complete (Cat. No. 2146, Mod. P-992), (Cat. 2154, Mod. P-990)
X-61-N	1	Pump Unit Complete (Cat. No. 2146)	9419	2	Pipe Spacer 3/4" Std. Pipe 8 3/8" lg.
X-354-C	2	Foot Check Valve Unit	9421	2	Base Angle 3 1/2" x 2 1/2" x 1 1/4" x 3'-0" lg. (Cat. No. 2154, Mod. P-990), (Cat. No. 2146, Mod. P-992)
X-1249-C	2	Check Valve Unit	9422	2	Base Tie Angle (Cat. No. 2154)
X-9075	1	Piping Unit Complete (Cat. No. 2154)	9432	1	Screw 2 3/8" Dia. x 13 7/8" lg.
X-9076	1	Pump Unit Complete (Cat. No. 2154)	9458	1	Table Crank
X-9408	1	Table Raising Unit Complete	9459	1	Crank Handle
X-9418	2	Spring Hook Unit Complete	9460	1	Spindle 5/8" Dia. x 3 3/4" lg.
X-9495	1	Crank Unit Complete	9461	1	Pin 3/8" Dia. x 1" lg.
X-10202	1	L. H. End Channel Unit Complete (Cat. No. 2154, Mod. P-989) (Cat. No. 2146, Mod. P-991)	9474	1	Cap
X-10914	6	Table Pin Unit Complete	9475	1	Worm Wheel
X-10919	2	Table Channel Unit Complete (13" x 4'-3" lg.) (Cat. No. 2154)	9479	2	Pulley
X-10941	1	Frame Assembly Complete (Cat. No. 2154, Mod. P-989)	9481	1	Drum Shaft 3/8" dia. x 4 1/4" lg.
X-10944	1	R. H. End Channel Assembly Complete (Cat. No. 2146, Mod. P-992)	9482	1	Worm 1 1/4" Dia. x 5 1/8" lg.
X-10945	1	R. H. End Channel Assembly Complete (Cat. No. 2146, Mod. P-991)	9486	1	Pulley 2" Dia.
X-10950	1	Cylinder Unit Complete	9492	1	Housing
X-10954	2	Table Channel (12" x 2'-7" lg.) (Cat. No. 2146)	9496	2	Tension Spring
X-10982	1	Frame Assembly Complete (Cat. No. 2146, Mod. P-992)	10906	1	Hand Wheel
X-11000	1	Table Cable Unit 9'-2 1/4" lg.	10917	1	Front Top Channel (13" x 4'-11 3/4" lg.) (Cat. No. 2154)
X-11001	1	Table Cable Unit 13'-3 1/4" lg. (Cat. No. 2154)	10918	1	Rear Top Channel (13" x 4'-11 3/4" lg.) (Cat. No. 2154)
X-11003	1	Table Cable Unit 11'-2 1/2" lg. (Cat. No. 2146)	10946	1	Cylinder
X-11010	1	Piping Unit Complete (Cat. No. 2146)	10952	1	Front Top Channel (10" x 3'-3 3/4" lg.) (Cat. No. 2146)
P-49A	1	V-Nose Extension 1" Dia. x 6"	10953	1	Rear Top Channel (10" x 3'-3 3/4" lg.) (Cat. No. 2146)
64-J	2	Handle Socket	10955	2	Base Tie Angle 2" x 2" x 1/4" x 2'-6 3/4" lg. (Cat. No. 2146)
87-C	1	Guide 1/2" Dia. x 9"	10947	1	Coupling 1 1/4" Dia. x 2 3/8" lg. (Cat. No. 2154)
			10998	1	Drum

Parts Nos. 1293-C Eye Bolt and No. 1294-C Coil Spring not standard equipment, may be purchased as extras.

PARTS LIST FOR AP-3 AUXILIARY ARBOR PRESS MODEL No. P-892

(See Fig. 3)

9382	1	Rack Unit Complete	8996	1	Spec. Drive Stud
9387	1	Press Body	9385	1	Plunger Cap—1 5/8" dia. x 1 3/4" lg.
9383	1	Pressing Block	9488	2	Lever Ball
9386	1	Pinion Shaft 1 3/4" dia. x 12 1/8" lg.	PA-915	1	Groov-Pin 3/8" x 2 1/2" lg.
	1	Handle Lever 3/8" dia. x 27 1/8" lg.			