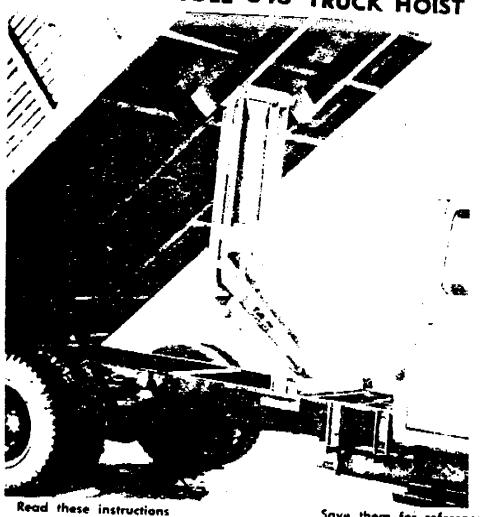
OPERATOR'S MANUAL

INSTRUCTIONS and REPAIR PARTS LIST

FOR ASSEMBLING AND OPERATING THE LO-BOY MODEL 545 TRUCK HOIST



Save them for reference

Crysteel Manufacturing, Inc.

Telephone: (507) 726-2728

Highway 60 East LAKE CRYSTAL, MINNESOTA 56055

DATE P	JRCHASEI			
SERIAL	NUMBER	ON	HOIST	
SERIAL	NUMBER	ON	CYLINDER	
SERIAL	NUMBER	ON	PUMP	

FOREWORD

This manual contains information necessary for the proper installation and operation of this truck hoist. Study it carefully before attempting to mount the hoist. With proper installation and maintaintance the Lo-Boy Model 545 truck hoist will give many years of trouble free service.

When ordering parts, be sure to give serial number of both pump and cylinder. The serial number of the pump is found on the plate on the front of the pump. The serial number of the cylinder is stamped on the barrel of the cylinder near the base. For future reference, copy these numbers NOW in the space provided above. Order parts by number and description as given in the parts listing in this manual.

If you prefer, parts for the pump may be ordered directly from the manufacturer of the pump as per the information supplied with the pump, which can be considered to be part of this manual. If you do this, specify that the built-in relief valve be set to operate at 3250 P.S.I. and that your pump is part of the Lo-Boy 545 truck hoist.

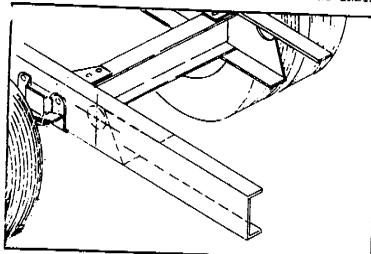
THE LO-BOY MODEL 545 TRUCK HOIST IS DESIGNED AND INTENDED FOR USE ON SINGLE AXLE TRUCKS WITH CABTO-AXLE DIMENSIONS OF 84 INCHES THROUGH 108 INCHES AND BODY LENGTHS OF 12 FEET THROUGH 16 FEET.

KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE'REFERENCE

SAFETY FIRST

NEVER EXCEED THE G.V.W. (GROSS VEHICLE WEIGHT) RATING, NOR THE G.A.W. (GROSS AXLE WEIGHT) RATING SPECIFIED FOR YOUR TRUCK.

MOUNTING INSTRUCTIONS

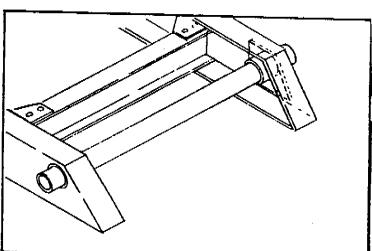


LOCATE REAR HINGE

Use the rear hinge truck frame brackets No. 5 and 44 as a guide to mark the location of the rear hinge. Mark the hole Just below the top flange of the truck frame. The bracket has the correct slant on it for the angle of truck frame cut-off. The center of the rear hinge pin should be from 32 inches to 36 inches behind the center of the rear axle. If rear hinge is located more than 38 inches behind the rear axle, the truck frame must be strengthened.

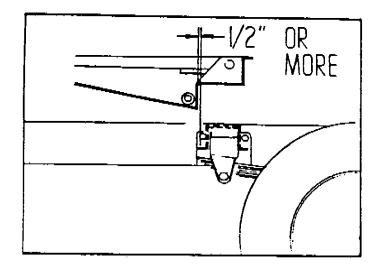
TORCH-CUT HOLE AND TRUCK FRAME

Cut the frame as marked, leaving the top flange intact. It is to be bent down and welded later.



WELD BRACKETS TO TRUCK FRAME

Install the truck frame brackets No. 5 and 44 on the rear hinge pin No. 10 for alignment. Weld them to truck frame at all contact points. Bend the top flange of the truck frame down and weld in place. Be sure to weld the top flange of the truck frame to the bracket tube.



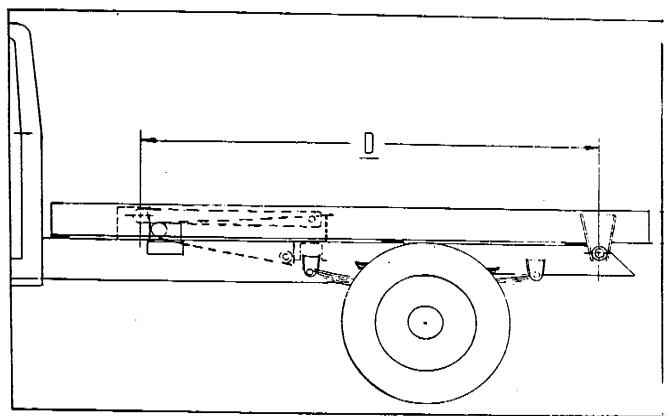
LOCATE HOIST ON TRUCK FRAME

The rear end of the main hoist frame No. 13 is designed to rest on the truck frame crossmember that supports the forward spring shackle. There must be at least 1/2 inch clearance at the closest point between the hoist and crossmember. Refer to the chart below for desired dump angle.

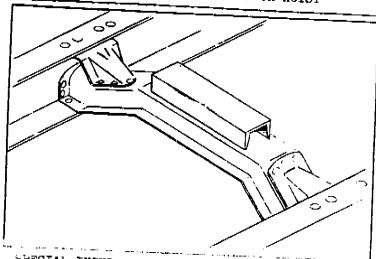
Measure forward from the center of the rear hinge pin to the center of the upper crosstube of the hoist. The following dimension 'D' from the rear hinge to lift point will provide the corresponding dump angle:

> 94 inches - 47 degrees 98 inches - 45 degrees 106 inches - 40 degrees

Center the hoist in the truck frame and make certain it is square with the truck.

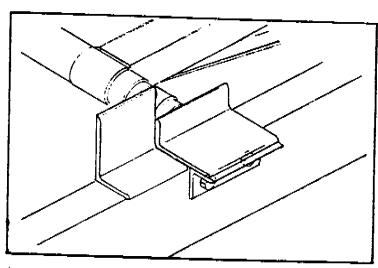


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SPECIAL INSTRUCTIONS FOR SOME INSTALLATIONS

- 1. On certain models of Chevrolet and GMC trucks, the truck frame crossmember at the forward spring shackle is lower than the frame. In this case, weld a short length of three inch channel iron on top of this crossmember as shown, to support the hoist.
- On some trucks it will be necessary to reshape the vacuum lines to the two speed axle, to clear the hoist.
- 3. In some rare cases there may not be quite enough room for the hoist between truck frame crossmembers. Cut part of the front flange off the crossmember under the rear of the hoist to permit the hoist to move to the rear. If this is not enough, notch the top rear corner of the truck frame crossmember under the front of the hoist. Re-inforce after notching.



MOUNT HOIST TO TRUCK FRAME

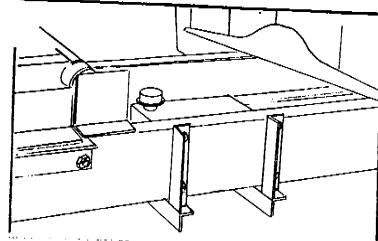
The angle mounting brackets must rest flat on truck frame. If rivets are encountered in truck frame and hoist cannot be moved to clear them, countersink the rivet heads into the brackets. Center the mounting angles No. 17 under the brackets, clamp them in place and drill 21/32 holes in truck frame. Bolt mounting angles to truck frame with 5/8 by 1-3/4 machine bolts and lockwashers. CAUTION: When drilling in truck frame be careful of brakelines, wiring, etc. inside truck frame.

WELD BRACKETS TO MOUNTING ANGLES: Recheck to make sure hoist is square with truck frame. Weld brackets very securely to mounting angles.

PLUMBING AND USE OF TEFLOR TAPE

Use teflon tape on all hydraulic connections. Properly done, this will assure absolutely leakproof connections. All connections are 3/8 inch pipe. One wrap of teflon tape is enough -- use it sparingly. Rather than cutting, break off about 2 inches of teflon tape. This provides a feathered edge, for easier assembly. Stretch it tight so that it sinks deeply into the threads. Be sure to wrap the tape in the same direction the fitting screws on so it will stay ing is threaded on. It is not necessary to tighten the connections excessively.

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ATTACH MOUNTING ANGLES TO FUMP

Determine on which side of the truck frame to mount the pump. (Same side as the PTO). Bolt the pump mounting angles No. 24 to the pump No. 38, using 3/8 by 1 machine bolts, flat washers and lock washers. Mount the control bracket to front of pump. Note that two of the bolts have two washers each. The control bracket must be mounted between these two washers.

MOUNT HYDRAULIC PUMP

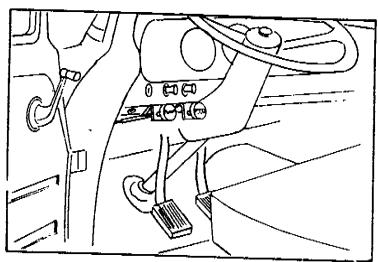
Temporarily clamp the pump mounting angles to the truck frame, with the pump inside the truck frame a few inches behind the cab. Check to be sure of sufficient clearance and that PTO drive shaft is long enough. In some cases it will be necessary to re-work the exhaust system for clearance. UNDER NO CIRCUMSTANCES SHOULD THE ENGINE EXHAUST BE PERMIT TED TO BLOW DIRECTLY ONTO THE PUMP. The PTO driveline must never exceed 15 degrees angularity. After locating the pump, drill 17/32 diameter holes through the truck frame and bolt tight, using 1/2 by 1-3/4 inch machine bolts and lock washers.

ADD HYDRAULIC FLUID - 3 U.S. GALLONS

The capacity of the pump reservoir is 15 U.S. quarts. Three U.S. gallons or 12 qts. are required for operation. KEEP IT CLEAN. USE CLEAN CONTAINERS, FUNNELS AND OTHER EQUIPMENT. Use a quality hydraulic fluid of 150 SSU @ 100 degrees F. which contains corrosion and oxidation inhibitors and a foam depressant. For general use, a good quality SAE 10W non-detergent motor oil with the proper additives, or type A automatic transmission fluid can be used.

INSTALL CABLE CONTROL NO. 31

Remove control wire from cable housing and oil inside of cable housing before installing. Attach control mounting angle No. 25 at a convenient location under the dash, using 1/4 by 3/4 machine bolts and lockwashers. Install cable through fire wall and connect to control lever. Check and adjust for proper operation. Be sure there are no sharp bends in cable.



PLUMBING HYDRAULIC CYLINDER

Remove port plugs. Connect coupling to each street elbow on the inside of the upper channels of the hoist frame. Connect an 18 inch hose No. 6 from each coupling to a cylinder next as shown. (See Page 5) note that each mose crosses over to the opposite side of the cylinder. The swivel end of the hoses connects to the cylinder port. The head port can be connected loosely, tightened later when the hoist can be raised.

COMPLETE HYDRAULIC PLUMBING

Install a 90 degree street elbow to each valve port. Connect the 42 inch hose No.41 to the hydraulic line assembly on the same side of the truck as the pump. Connect the 48 inch hose No. 43 to the other side. Connect the that is connected to the cylinder port at the base of the cylinder. Swivel end of the hoses should be connected to the valve.

INSTALL PTO DRIVELINE

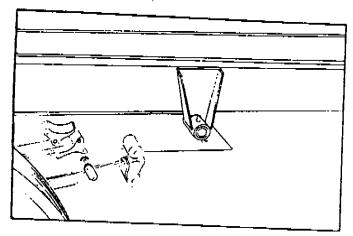
Install the long U-slip joint No. 37 on the pump driveshaft, and the short U-joint No. 35 on the PTO driveshaft so that the inner edge of the hub of each is flush with the end of the shaft. DO NOT TIGHTEN SETSCREWS. Measure the exact length of the square driveshaft No. 36 needed between the two joints so that the shaft will be flush with the inner edge of both hubs. Cut the square driveshaft to proper length with a hacksaw and grind off any burr. Insert shaft into the slip joint hub. Slide both joints farther onto the shafts, and insert the square driveshaft into the short U-joint hub. Re-locate the joints in their proper positions. Tighten the setscrews very tight and secure with a safety wire.

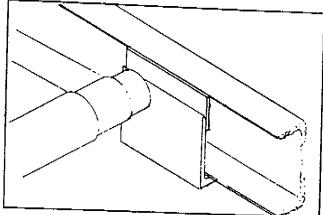
INSTALL TRUCK BODY

Assuming that six or seven inch longbeams are attached to the body, place the body in position on the truck WITH AT LEAST TWO INCHES OF CLEARANCE BEHIND THE CAB. Use the rivet strip mounting pads No. 8 between longbeams and truck frame. Use three on each side, spaced as seen on Page 4. Weld them to the longbeam. Align body longbeams carefully with the truck frame.

ATTACH REAR HINGE LONGBEAM BRACKETS

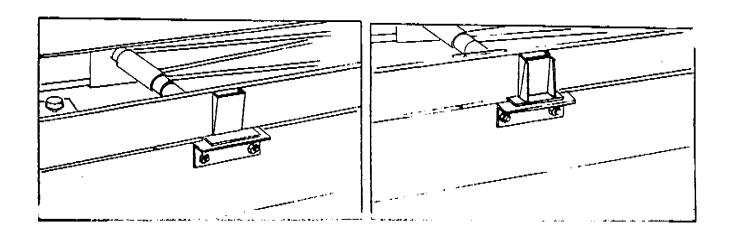
Install the rear hinge pin No. 10 in place and clamp the rear hinge longbeam brackets No. 4 to the longbeams. Align them carefully and weld them very securely to the longbeams as shown. Normally, the brackets will lay flat on the longbeams, but if the truck frame has been reinforced and is over-width, it will be necessary to shim between the brackets and the longbeams with a flat plate of proper thickness. Install the 3/8 by 3 inch cotter pin through the hinge pin. Since this is usually quite a permanent installation, it is advisable to also weld the hinge pin to both longbeam brackets with small welds that can be broken loose if need be in the future.





ATTACH LONGBEAMS TO HOIST LIFT BRACKETS

Weld the longbeams securely to the angle lift brackets of the hoist. On the inside of the longbeams, use the flat spacer No. 1 to connect the upper flange of the longbeam channel to the lift bracket as shown. Weld the flat spacer securely to both the bracket and the flange of the longbeam. The spacer can be used with either six inch of seven inch channel longbeams.



INSTALL BODY GUIDES

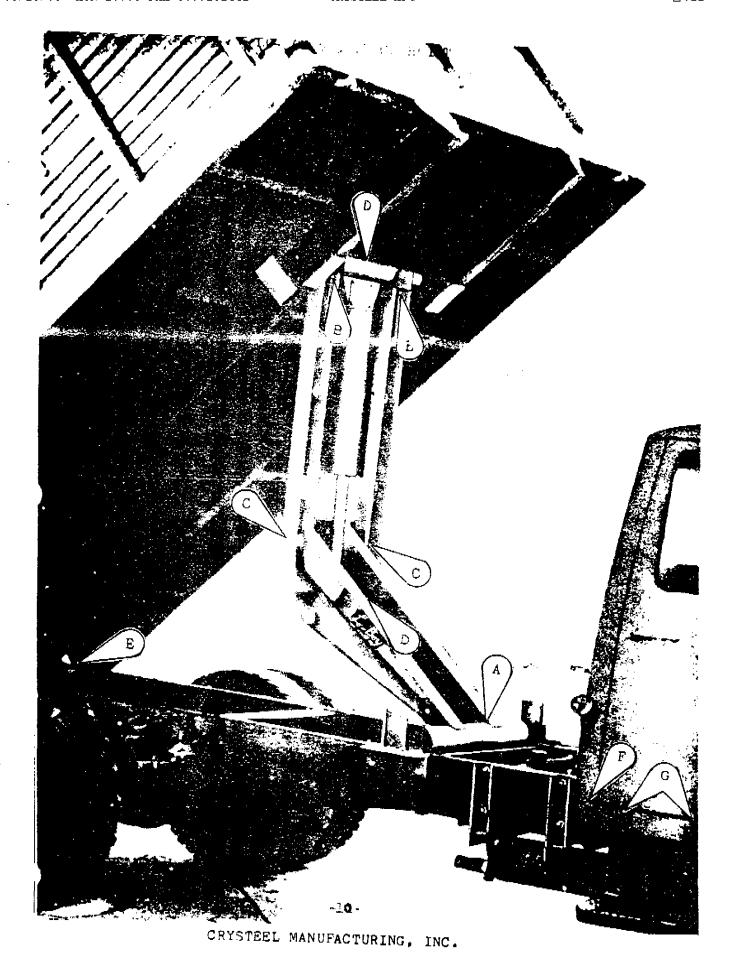
The four body guides No. 16 are all identical. Weld one to each longbeam as shown, with the wide end of the body guide at the top and centered over the truck mounting brackets. Now weld the other pair of body guides to the truck mounting brackets, and tight against the first body guides as shown. There should be NO sideplay between body guides when the truck body is in the lowered position.

LUBRICATION INSTRUCTIONS

Install and lubricate grease zerks in the following locations:

- A Truck mount pivot pin - 2 fittings
- B Longbeam pivot pin - 2 fittings
- C Main center hinge - 2 fittings
- D Cylinder pivots - - 2 fittings
- E Rear hinge - - 2 fittings
- F U-slip joint - - 1 fitting
- G Each U-joint - 2 fittings (These are already installed)

Lubricate all fittings at regular intervals, at least each time the truck chassis is lubricated. There are tremendous forces on the bearing surfaces within the hoist frame, especially the main center hinge and cylinder crosshead. It pays to be generous with the grease gun, to insure proper operation and long life.



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OPERATION AND USE

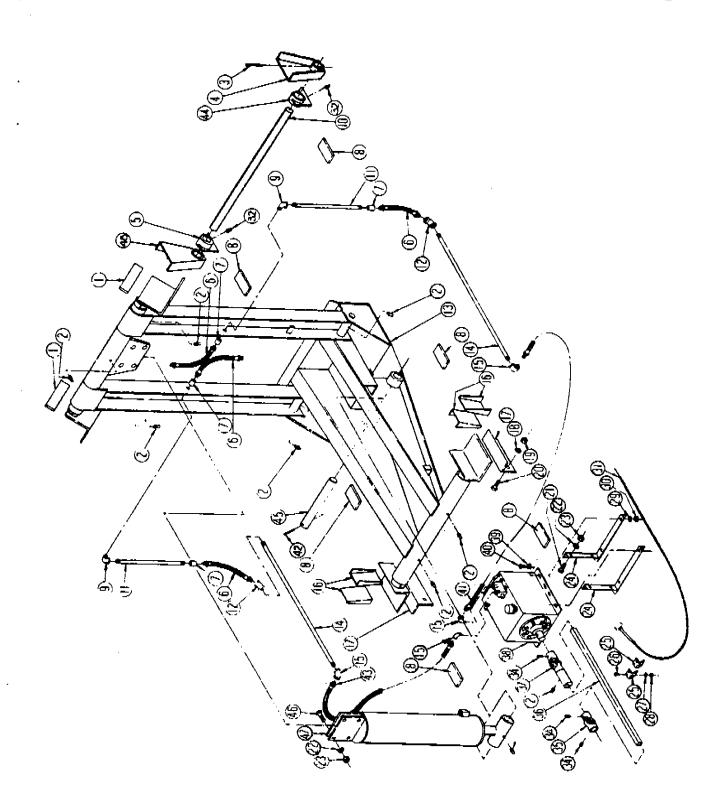
- 1. Engage PTC from cab and adjust engine speed to fast idle.
- 2. If hydraulic plumbing is correct, hoist should raise when pump knob is out, hold when knob is centered, and lower with knob in.
- Cycle the hoist several times to remove air from the cylinder
- 4. When hoist cylinder reaches the end of it's stroke, oil will bypass through the relief valve. Do not permit this for any length of time as it places unnecessary strain on the hydraulic system. Put pump knob in hold position or disengage the PTO.
- It is advisable to run the PTO to lower the hoist because this will act as a hydraulic lock to hold the hoist closed. It is not necessary to do this, however, because the reservoir has sufficient capacity whether you pump the oil back into the cylinder or not, but you will not benefit from the advantages of double action.
- 6. To make use of the hydraulic lock feature, place knob in center hold position after hoist is pumped all the way down. This places the pressure on the valve where it belongs, not on the pump.
- 7. DO NOT LEAVE THE PTO IN GEAR WHILE TRANSPORTING. CAUSE SEVERE DAMAGE TO THE HYDRAULIC PUMP AND/OR DRIVE LINE.
- 8. The hydraulic system should be drained, flushed, and refilled with proper hydraulic fluid at regular intervals.

CAUTION: NEVER USE HYDRAULIC BRAKE FLUID IN THE HYDRAULIC SYSTEM.

The capacity a of the truc	f any hoist will k, body length,	vary according	to the C.A. dimension and dump angle.
C.A. length		Dump angle	Capacity (level load)
84" 84"	12'	40 degr 45	ees 15 tons
102" 102"	13'6"	$-\frac{45}{45}$	21
102" 102"	14' 15'	45 45	12
108"	15'6"	45	. 15 16
108"	15' 15'6"	45 45	12
	16"	45	14 15

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PARTS LIST

KEY NO. PART NO.		DESCRIPTION	QUARTITY
1	200900	Flat Spacer 3/8 x 2 x 6	
2	400103	1/8-27 Straight Grease Fitting	1
3	400210	3/8 x 3 Cotter Pin	9 1
ŗ.	100172	Rear Hinge Longbeam Bracket	1
5 6	100167	Rear Hinge Truck Bracket, Right	i
	400509	3/8 Hydraulic Hose, 18 inch, SAE 100R2	14
7	400415	3/8 Pipe Coupling	ī.
8	200892	Rivet Strip, 3/8 x 2 x 4	2
9	400412	3/8 Pipe 90 Degree Street Elbow	6 1 2
10	202218	Rear Hinge Pin	7
11	400565	3/8 Hydraulic Pipe, 14 inch	5
12	400414	3/8 Pipe 45 Degree Elbow	5
13	100152	Main Hoist Frame	ī
Ιħ	400567	3/8 Hydraulic Pipe, 30 inch	2
15	400413	3/8 Pipe 90 Degree Elbow	2
16	201415	Body Guide	4
17	201422	Mounting Angle	2
18	400160	5/8 Lock Washer	14
19	400181	5/8 N.C. Hex Nut	4
20	400100	5/8 x 1-3/4 N.C. Cap Screw	i,
21	400104	1/2 x 1-3/4 N.C. Cap Screw	8
22	400161	1/2 Lock Wasner	8
23	400182	1/2 N.C. Hex Nut	ĕ
24	100511	Pump Mounting Angle	ő
25	201391	Dash Control Mounting Angle	5 5
26	400101	1/4 x 3/4 N.C. Cap Screw	<u>.</u>
27	400163	1/4 Lock Washer	Ĭ.
28	400184	1/4 N.C. Hex Nut	ı.
29	400162	3/8 Lock Washer	<u>L</u>
30	400183	3/8 N.C. Hex Nut	ķ
31	400025	Pump Control Cable, 12 Foot	1
32	400117	1/8-27 90 Degree Grease Fitting	2
3#	400102	3/8 x 1/2 Setscrew, Drilled Head	3
35	400578	Standard Short U-Joint	ĩ
36	200885	PTO Driveshaft, 7/8 Sq. x 4 Feet	ī
37	400583	Long U-Slip Joint	ī
38	400309	Hydraulic Pump & Reservoir, 4 Piston 1 Valve	ī
39	400164	3/8 Flat Wrought Washer	<u>1</u>
40	400121	3/8 x 1 N.C. Cap Screw	Ĭ.
41	400513	3/8 Hydraulic Hose, 42 inch, SAE 100R2	ī
7 5	400208	7/16 x 2-1/2 Roll Pin	ī
43	400514	3/8 Hydraulic Hose, 48 inch. SAE 100R2	ī
<u> 14 14</u>	100165	Rear Hinge Truck Bracket, Left	1 1
45	201158	Cylinder Cross-Head Shaft	ĩ
46	100202	Cylinder Assembly	1
47	100176	Rear Hinge Longbeam Bracket	1

	OPTIONAL PARTS LIST		
ART NO.	DESCRIPTION	REPLACES KEY NO.	YTITMAUŞ
400311 400334 100174	Hyd. pump & res. 8 GPM l valve Electric pump unit Electric pump mounting angle	38 38	1 1 2
400517 400518 400519	Hyd. hose extension 12 inch long Hyd. hose extension 24 inch long Hyd. hose extension 42 inch long		5 5 5

SOME DO'S AND DON'TS FOR SAFETY AND LONG SERVICE LIFE

- Use the proper hydraulic fluid, KEEP IT CLEAN. Remember to change it regularly. See page 6.
- 2. Lubricate all grease fittings at regular intervals. See page 10.
- 3. ALWAYS BLOCK UP THE HOIST BEFORE WORKING UNDER IT.
- 4. Do not race the engine when unloading.
- 5. Do not overload the hoist beyond it's capacity.
- DO NOT TAMPER WITH THE HYDRAULIC PELIEF VALVE. This will void the warranty. It can cause severe damage to hoist and cylinder.
- 7. NEVER LEAVE THE PTO IN GEAR WHILE TRANSPORTING. IT WILL RUIN THE HYDRAULIC PUMP.
- 8. Check all bolts and setscrews regularly. Keep them tight.

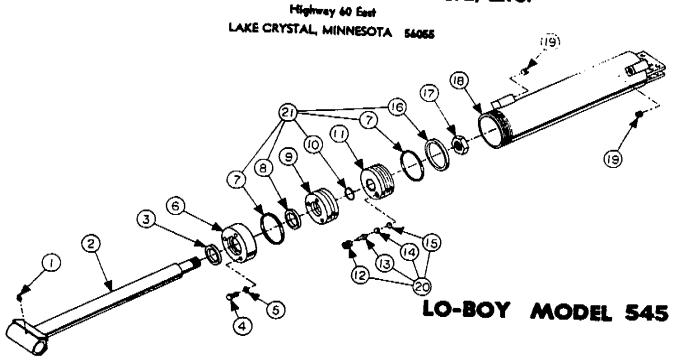
CAPACITY FORMULA FOR LO-BOY MODEL 545 HOIST

To determine the capacity of the Lo-Boy Model 545 hoist for applications other than those shown on the capacity chart, use the following formula:

- (1) Measure the distance in inches from the center of the rear hinge pin to the center of the body. Call this dimension "A".
- (2) Measure the distance in inches as shown on page 3. from the center of the rear hinge pin to the center of lift point. This is dimemsion "D".
- (3) Multiply dimension "D" by 13.
- (4) Divide this total by dimension "A". Result will be the level load capacity of the hoist in thousands of pounds, including body weight.

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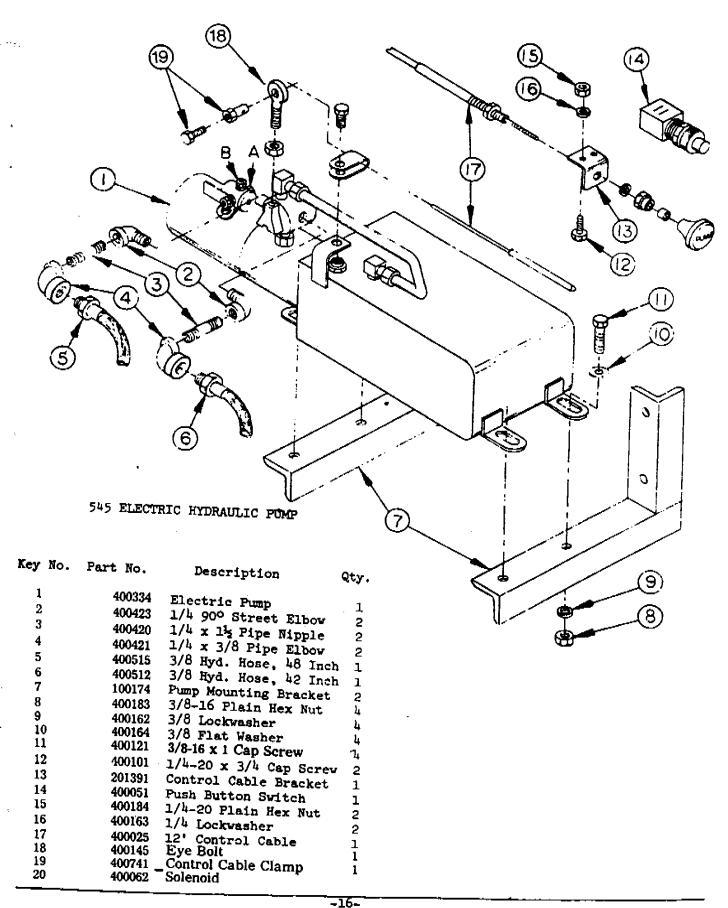
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CYLINDER PARTS LIST MODEL 545 (SERIAL NUMBER 2-545-001 AND UP

KEY NO.	PART NO.	DESCRIPTION	QUANTITY
1	400103	Grease Zerk, 1/8-27 NPT	
2	100207	Cylinder Shaft Assembly	1
3	400256	Wiper Seal, 2 inch	1
4	400121	Cap Screw 3/8 x 1	1
5 [.]	400162	Lockwasher 3/8	3
6	100209	Cylindae Con Annual Li	3
7	400254	Cylinder Cap Assembly	1
8	400253	O-Ring 4 1/2 x 5	2
ğ	202445	Poly Seal 2 x 2 1/2	1
10	400255	Head	1
ii	202443	O-Ring 1 1/2 x 1 5/8	1
12	400300	Piston_	ī
13		Valve Plug	ī
	400301	Valve Pin	î
14	400013	Ball 3/8	ī
15	400279	O-Ring	î
16	400252	Poly Seal 4 1/2 x 5	;
17	400200	Lock Nut 1 1/2	†
18	100205	Cylinder Tube Assembly	ţ
19	400422	Pipe Plug 3/8	1 2
20	100093	Valve Kit	z
21	100070	Seal Kit	

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CRYSTEEL MANUFACTURING, INC.

LO-ROY MODEL 545 TRUCK HOIST

12 VOLT ELECTRIC HYDRAULIC POWER UNIT

Special Instructions to Install Monarch Electric pumps with Model 445, 545, 645, 655, and ST-560 Lo-Bcy hoists.

- 1. Mount pump unit just ahead of hoist between frame rails of truck or trailer.
- Mount control cable under the dash or in a convenient place in the cab. For trailers, mount control cable to a suitable bracket near front of trailer. Connect cable to pump valve control with small parts supplied.
- 3. Mount push-button switch just above control cable so one hand can operate both cable and push button.
- 4. The solenoid on the MONARCH pump will energize the pump motor when the small terminal on the solenoid is grounded. Connect one terminal of the push-button switch to ground, and the other terminal to the solenoid. Connect battery cable to the heavy terminal on the solenoid. For trailers, use a heavy duty coupler of the type used for welding cable extensions to disconnect the battery cable at the trailer hitch.
- 5. For trailers, install a separate heavy duty ground cable that can be disconnected at the trailer hitch. <u>DO NOT</u> depend on the hitch to carry the ground connection.
- 6. IMPORTANT On all electric installations install a heavy duty ground cable from the truck battery direct to the truck frame. The light cable normally used from the engine to the frame is not heavy enough. Recommended battery cable size is No. O. Never, under any circumstance, use cable lighter than No. 1.

Monarch Model 310 - Double acting (2 types)
12" reservoir (445), 3 gal. approx., 3600 P.S.I.
22" " 545 through ST-560, 6 gal. approx.,
3250 P.S.I.

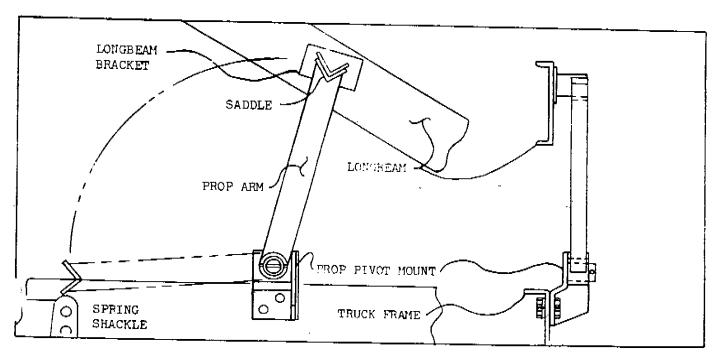
CRYSTEEL TRUCK BODY PROP

Crysteel's Body Prop is designed and intended for use to support an empty truck body in the raised position to permit service work to be performed safely beneath a raised body. As a general rule, one prop will support a farm type body of 16 feet or less. With longer bodies, two props should be used, one on each side. Crysteel's Body Props come in pairs, driver's side and curb side. Single cylinder hoists come with the prop for the driver's side; twin cylinder hoists come with both props.

INSTALLATION OF TRUCK BODY PROP

Refer to drawings as shown below:

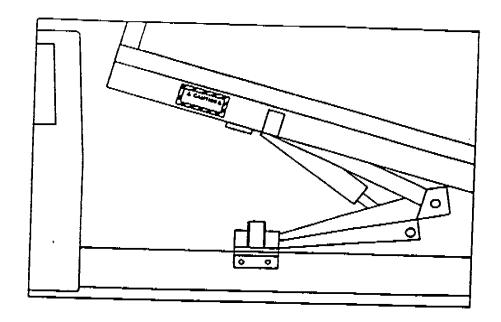
- 1. Raise body to desired height and brace it securely before beginning installation.
- 2. Assemble prop arm to prop pivot mount with 1/4 x 3 roll pin. Position prop pivot mount against outside of truck frame just behind rear axle, allowing saddle end of prop arm to rest a top front rear spring shackle as shown. Using prop pivot mount as a guide, mark location of holes on truck frame and drill. Fasten prop pivot mount to truck frame with 1/1 x 1 3/4 colts,
- 3. Raise prop arm to free standing position by allowing prop arm to rest against rear flange of prop pivot mount. Place longbeam bracket in prop arm saddle. Position longbeam bracket against the upper outside of body longbeam in order to allow room for clearance when body is in the lowered position. Weld longbeam bracket securely in place.
- 4. To operate Truck Body Prop raise body to desired height, shut off all power, raise prop arm to free standing position. Lower body slowly until longbeam bracket contacts prop arm saddle. DO NOT POWER HOIST DOWN!!!!!!
- 5. To place Truck Body Prop in storage position simply reverse the above procedure.



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SAFETY DECALS

SAFETY DECALS ARE SUPPLIED IN TWO SIZES, ONE OF EACH WITH EACH HOIST.



- (1) Attach the large safety decal to the body longbeam on the left side (driver's side) just shead of the hoist installation.
- (2) Attach the small safety decal to the dashboard in a prominent place near the hoist controls.

NOTES

WARRANTY

Crysteel Manufacturing, Inc., warrants its products for a period of one year from date of purchase.

The warranty provides that our products must perform satisfactorily or we will repair, replace, or refund the purchase price at the option of the purchaser Hydraulic pumps, valves, hoses, and other purchased parts are covered by the warranties of their respective manufacturers.

Any parts returned to Crysteel Manufacturing, inc. shall be shipped prepaid, and will be returned F.O.B. Lake Crystal, Minnesota.

We will not assume responsibility for shipping, labor, or travel expenses.

The warranty is void if the product has been obviously abused, or subjected to other than normal usage.

We reserve the right to make improvements without notice or obligation regarding models previously sold.

SPECIALLY DESIGNED — WITH QUALITY IN MIND



- BODY MUST BE BRACED BEFORE SERVICING HOIST OR WORKING IN AREA WITH BODY IN RAISED POSITION
- LUBRICATE HOIST GREASE FITTINGS OFTEN - AT LEAST EACH TIME TRUCK IS SERVICED
- TRUCK MUST BE LEVEL FOR DUMPING
- DO NOT OVERLOAD

CRYSTEEL MFG_ INC



HIGHWAY 60 EAST . LAKE CRYSTAL, MINNESOTA 56055 . TELEPHONE 507-726-2728

FORM 400004 0990