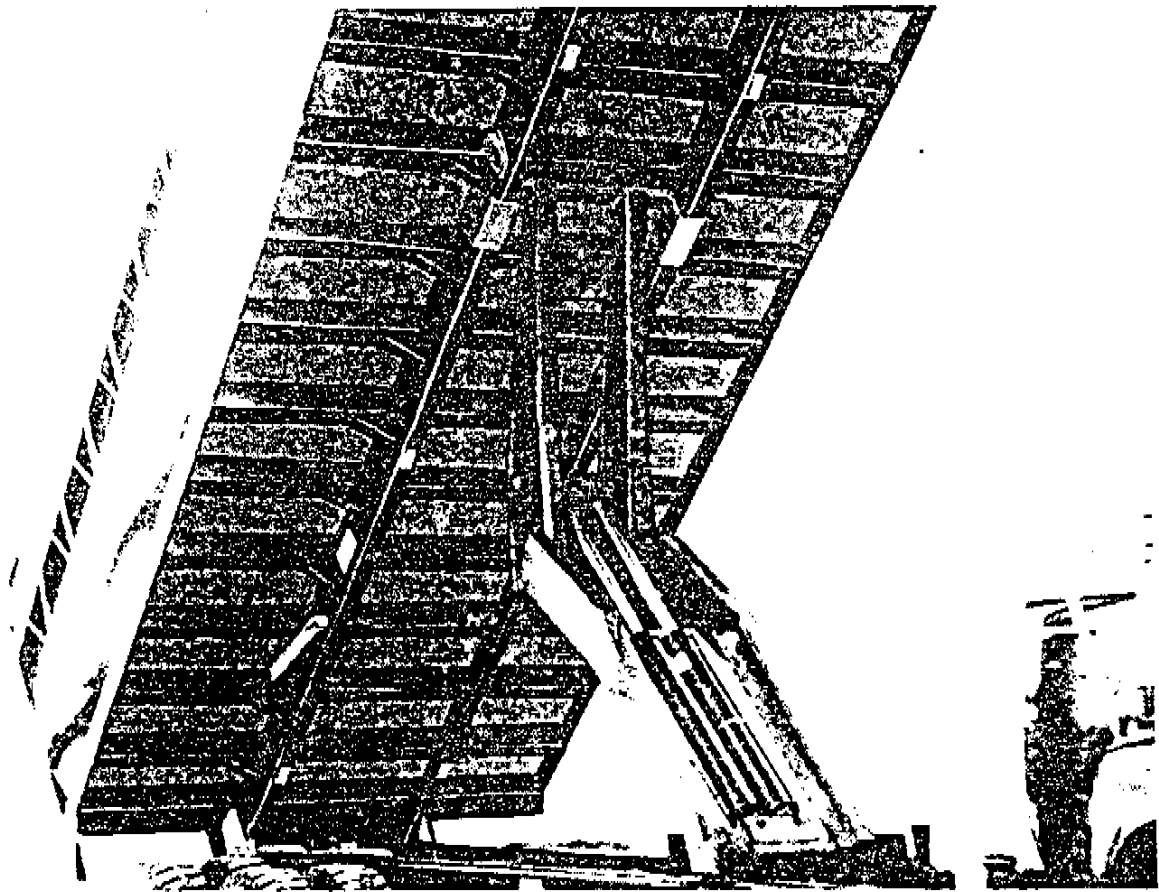


# OPERATOR'S MANUAL

*Handwritten:* New design

## INSTRUCTIONS and REPAIR PARTS LIST

**FOR ASSEMBLING AND OPERATING  
THE LO-BOY MODEL ST-5000 TRUCK HOIST**



Read these instructions

Save them for reference

### **Crysteel Manufacturing, Inc.**

Telephone: 507-726-2728

Highway 60 East  
LAKE CRYSTAL, MINNESOTA 56055

LO-BOY ST-5000 TRUCK HOIST

DATE PURCHASED \_\_\_\_\_

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 maintenance, the Lo-Boy Model ST-5000 truck hoist will give many years of trouble-free service.

When ordering parts, be sure to give serial number of hoist, 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 hoist is found on the outer side of the inner frame.) 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.

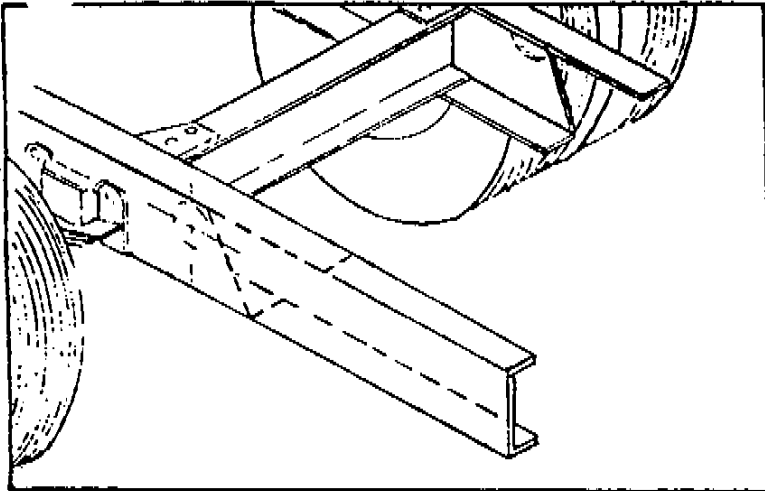
If you prefer, parts for the pump may be ordered directly from the manufacturer of the pump as per the information supplied with the pump, which can be considered to be part of this manual. If you do this, specify that the built-in relief valve be set to operate at 5000 P.S.I. and that your pump is part of the LO-Boy Model ST-5000 truck hoist.

THE LO-BOY MODEL ST 5000 TRUCK HOIST IS DESIGNED AND INTENDED FOR USE ON TANDEM AXLE TRUCKS WITH CAB-TO-TRUNION DIMENSIONS OF 150 INCHES THROUGH 221 INCHES AND BODY LENGTHS OF 18 FEET THROUGH 26 FEET.

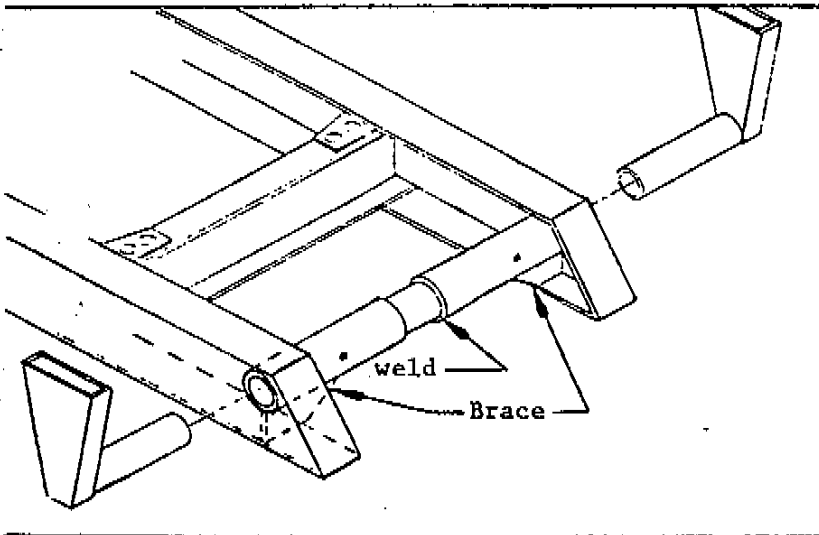
KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE.

# 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.

LO-BOY ST-5000 TRUCK HOISTMOUNTING INSTRUCTIONS**LOCATE REAR HINGE**

The rear hinge is pre-assembled for shipping. Remove the Extension Tube Brackets No. 1 from the Center Hinge Tubes No. 2 and 3. Mark the truck frame as shown by using the Center Hinge Tube as a guide. Mark the hole just below the top flange of the truck frame. (This will usually be from 42 to 45 inches behind the CT.) The rear hinge should never be more than 50 inches behind the CT.

**TORCH-CUT HOLE IN TRUCK FRAME**

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

**WELD HINGE TUBE TO FRAME**

The center hinge tube is made in two pieces and designed to slide one inside the other making it adjustable for various widths of frames. Tack one end to frame flush with outer edge, then slide other end out so it is also flush with outer edge of frame. Again, tack this end. (NOTE: Rotate tubes so grease zerks are either facing down or to rear of truck for ease in greasing.) Then insert the Extension Tube Brackets No. 1 into the hinge tube to make sure they are properly aligned and no binding problem could occur. Weld to frame at all contact points. The center of the center hinge tube must also be welded in place. Install a brace (not furnished) between hinge tube and lower flange of frame as shown. Bend the top flange of the truck frame down and weld in place. Be sure the angle at the rear of the truck frame is at least equal to dump angle, so longbeams will not strike truck frame when hoist is fully extended.

LO-BOY ST-5000 TRUCK HOIST

LOCATE HOIST ON TRUCK FRAME

The rear end of the main hoist Frame No. 8 is designed to rest on the truck frame crossmember approximately in line with the front edge of the front tires of the tandem. This will result in a normal installation with a dump angle of about 45 Degrees. For steeper dump angles it can be mounted farther back.

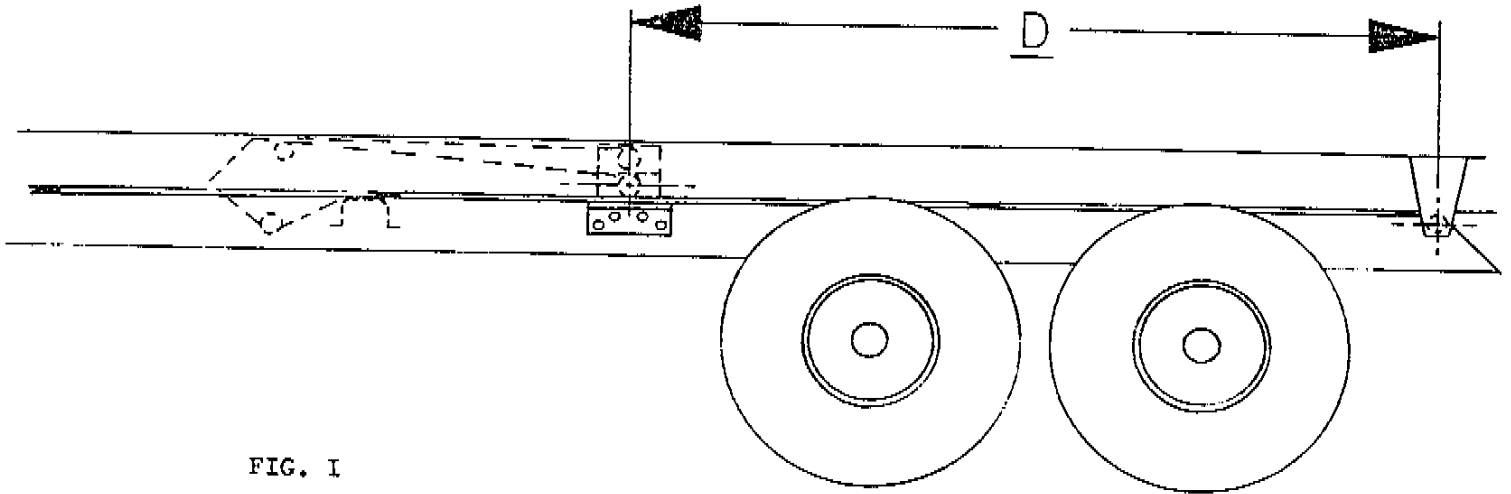


FIG. I

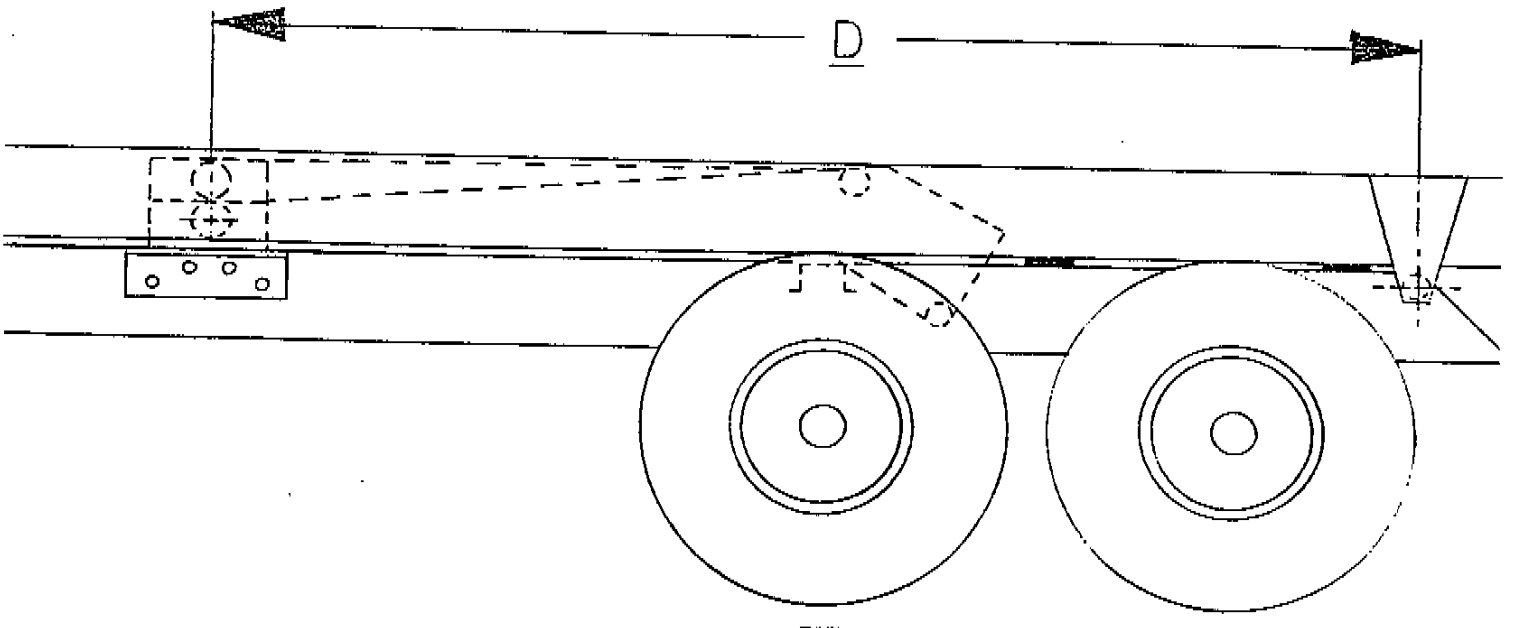


FIG. II

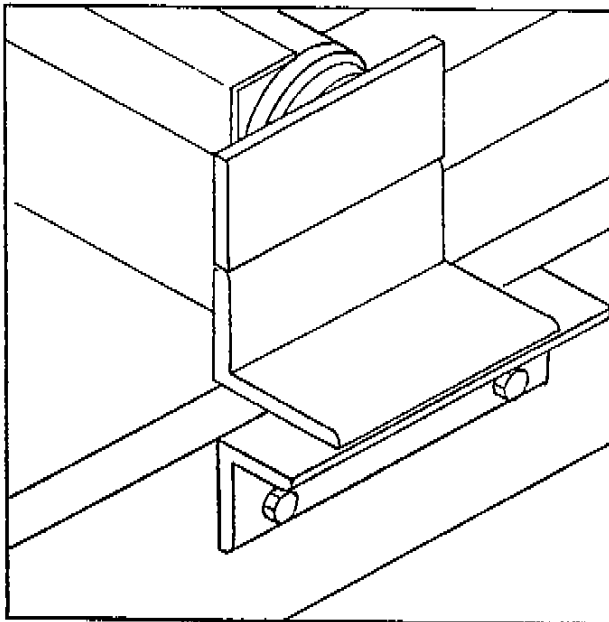
LO-BOY ST-5000 TRUCK HOISTDETERMINE DUMP ANGLE

Measure the distance "D" as shown on Page 3 in Fig. I from the center of the rear hinge tube to the center of the front crosstube shown in the following chart:

114 inches - 61 Degrees	138 inches - 50 Degrees
122 inches - 57 Degrees	146 inches - 47 Degrees
130 inches - 53 Degrees	154 inches - 45 Degrees

SPECIAL INSTRUCTIONS FOR SOME INSTALLATIONS

In some cases the hoist may fit the truck frame better if mounted "backward" or end for end, as shown on Page 3 in Fig. II. It will operate just as well and has the added advantage of the weight of the hoist being carried farther forward. In this position there may be some conflict with pump location. In all cases make sure there is sufficient driveshaft clearance below the hoist.

MOUNT HOIST TO TRUCK FRAME

The angle brackets of the hoist must rest flat on the truck frame. If rivets are encountered in truck frame and the hoist cannot be moved to clear them, countersink the rivet heads into the brackets. Center the mounting angles No. 10 under the hoist cross-tube, rather than centered on the brackets. Clamp them in place and drill  $21/32$  holes in truck frame. Bolt the mounting angles No. 10 to truck frame, using  $5/8 \times 1 \ 3/4$  machine bolts and lockwashers. CAUTION: When drilling in truck frame be careful of brakelines, wiring, etc. inside the truck frame.

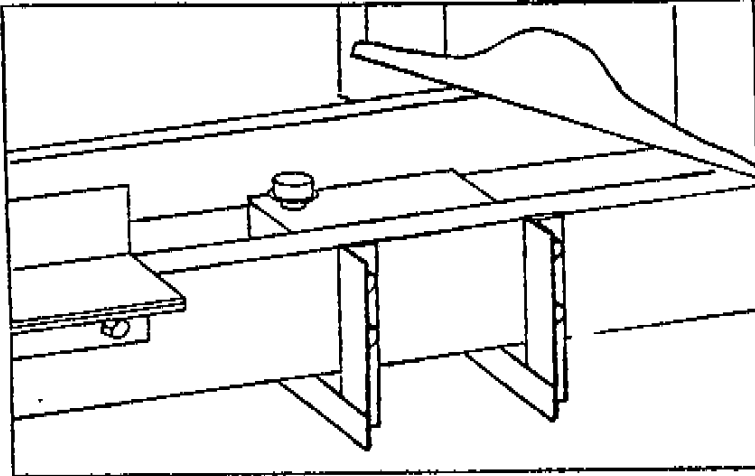
WELD BRACKETS TO MOUNTING ANGLES

Recheck to make sure hoist is centered and square with truck frame. Weld the angle brackets of the hoist very securely to mounting angles

## LO-BOY ST-5000 TRUCK HOIST

### ATTACH MOUNTING ANGLES TO PUMP

Determine on which side of the truck frame to mount the pump. (Same side as the PTO). Bolt the mounting angle No. 36 to the pump No. 11 using 3/8 x 7/8 machine bolts, flat washers and lockwashers.

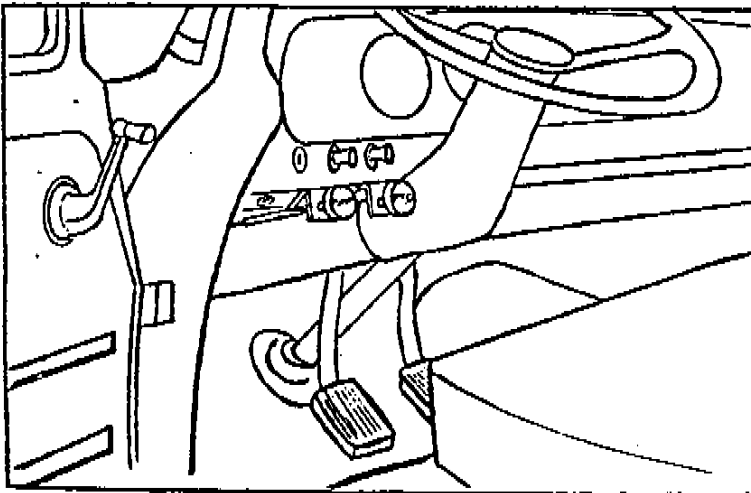


### MOUNT HYDRAULIC PUMP

Temporarily clamp the pump mounting angle 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 the PTO driveshaft is long enough. In some cases it will be necessary to rework the exhaust system for clearance. **UNDER NO CIRCUMSTANCES SHOULD THE ENGINE EXHAUST BE PERMITTED TO BLOW DIRECTLY ONTO THE PUMP!** The PTO drive-line 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 x 1-1/2 inch machine bolts and lockwashers.

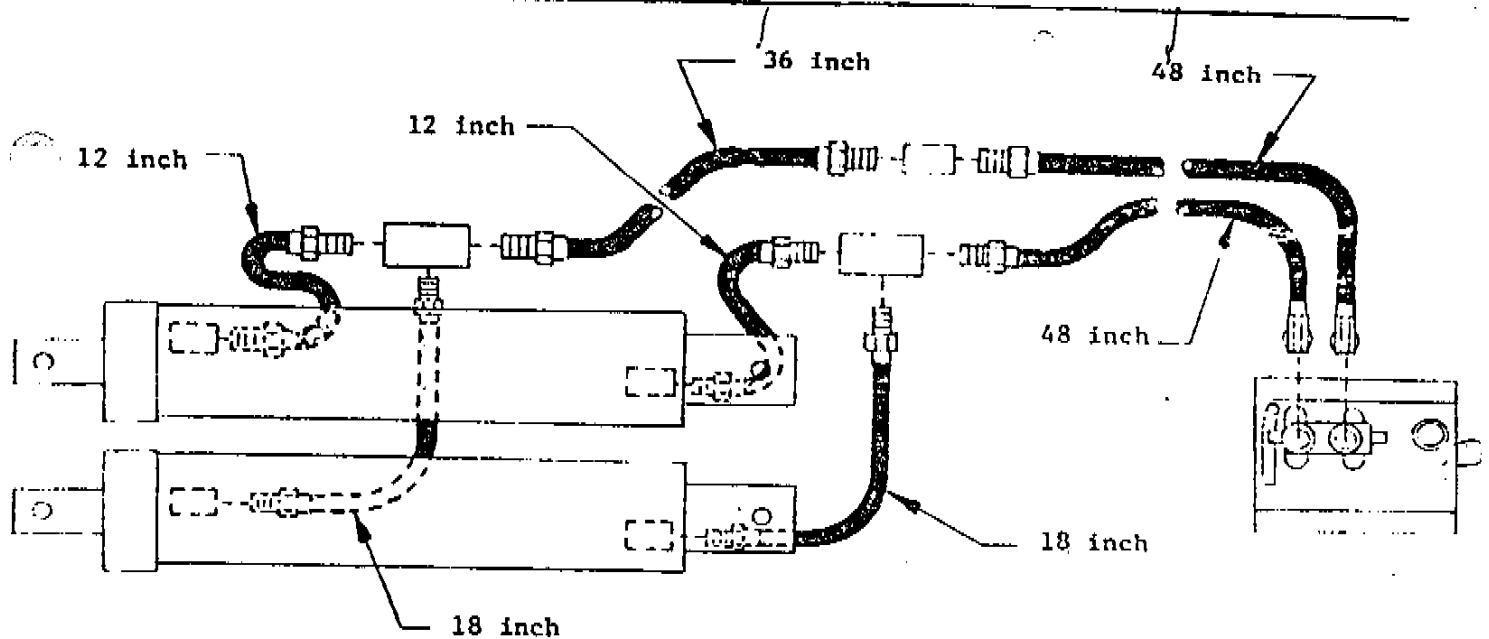
### ADD HYDRAULIC FLUID - 8 U.S. GALLONS

The capacity of the pump reservoir is 21 U.S. quarts. 8 U.S. gallons (32 quarts) are required for proper operation. It will be necessary, since the reservoir is smaller than the total requirement, to fill the reservoir and add more later with the hoist partially extended. **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 transmission fluid can be used.



### INSTALL CABLE CONTROL

Remove control wire from cable housing and oil inside of cable housing before installing. Attach control mounting angle No. 37 at a convenient location under the dash, using the 1/4 x 3/4 machine bolts and lockwashers. Install cable through fire-wall and connect to valve control lever. Check and adjust for proper operation. Be sure there are no sharp bends in the cable.



### PLUMBING HYDRAULIC CYLINDER

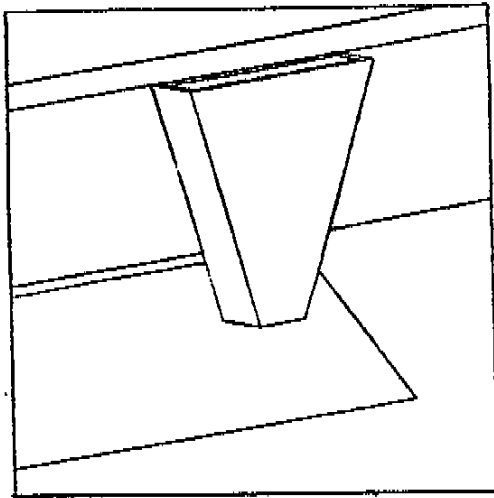
Study the diagram shown above very carefully and follow it EXACTLY. Remove port plugs from cylinders. From the shaft end of the cylinder on the left side (or drivers side) connect a 12 inch hose No. 26 to a tee No. 27. From the shaft end of the cylinder on the right hand side connect an 18 inch hose No. 28 and connect to same tee as previous step. On third connection of the tee install a 36 inch hose No. 25, then a coupling, then a 48 inch hose and attach that to the front port on the pump. Using the same procedure connect a 12 inch hose and 18 inch hose to the butt end of the cylinders, then to the other tee and on the third connection of the tee install a 48 inch hose and connect the other end to the rear port (nearest to the rear of the truck). This is very important because the rear port has full hydraulic pressure, the front port only half as much pressure. NOTE: The swivel end of the hoses should be connected to cylinder ports and the ports of the pump.

NOTE: Because of the higher operating pressure, hoses are special three wire triple braid high pressure hose. Also, hose ends and fittings are not pipe thread. They have 3/4-16 ORB thread to provide a positive O-ring seal and avoid leakage. IMPORTANT: If hose extensions are required, use only three wire hoses and couplings available from Crysteel in 12 inch, 18 inch, and 36 inch lengths.

### INSTALL PTO DRIVELINE

Install the long U-slip joint No. 21 on the pump driveshaft, and the short U-joint No. 17 on the PTO driveshaft so that the inner edge of the hub of each is flush with end of the shaft. DO NOT TIGHTEN SETSCREWS. Measure the exact length of driveshaft needed between the two U-joints so that the shaft will be flush with the inner edge of both hubs. Cut the driveshaft assembly to proper length with a hacksaw and deburr inside of tubing. Insert short driveshaft No. 15 into the driveshaft assembly tube and turn until both key ways are in line with each other. Remember in cutting driveshaft assembly to length that the shaft slides inside of the tubing. Weld driveshaft assembly to short shaft. Re-locate the driveshaft assembly to pump and PTO. Tighten setscrews No. 18 very tight and secure with a safety wire.

Assuming that nine 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. 4 between the longbeams and the truck frame. Use four on each side as shown on Page 3. Weld them to the underside of the longbeams. Align body longbeams carefully with the truck frame.

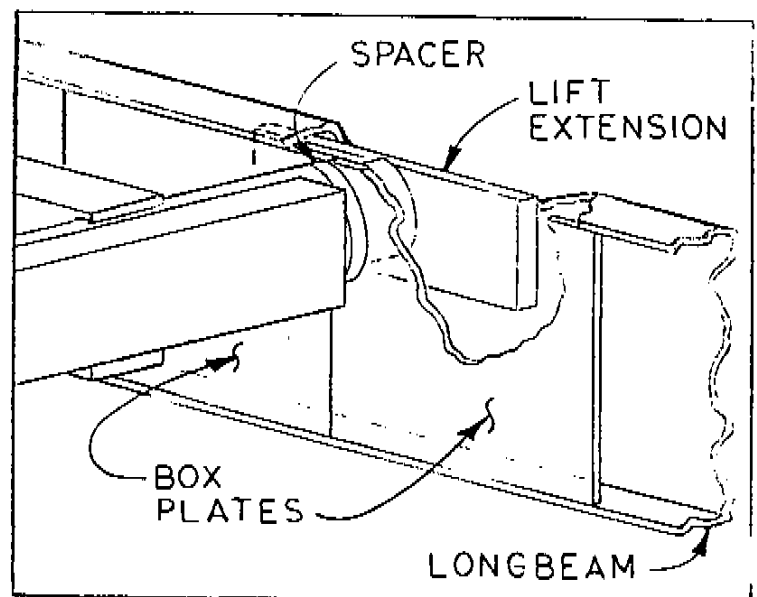


#### ATTACH LONGBEAMS TO REAR HINGE EXTENSION TUBE BRACKETS

Slide rear hinge extension tube brackets No. 1 into rear hinge tube. Align them carefully with the longbeams and clamp them in place against the longbeams. Weld securely in place. Normally, the rear hinge brackets will lay flat against the longbeams, but if the truck frame is slightly wider than the body longbeams it will be necessary to shim between the brackets and the longbeams with a flat plate of proper thickness. THERE MUST BE NO SIDEPLAY IN THE REAR HINGE.

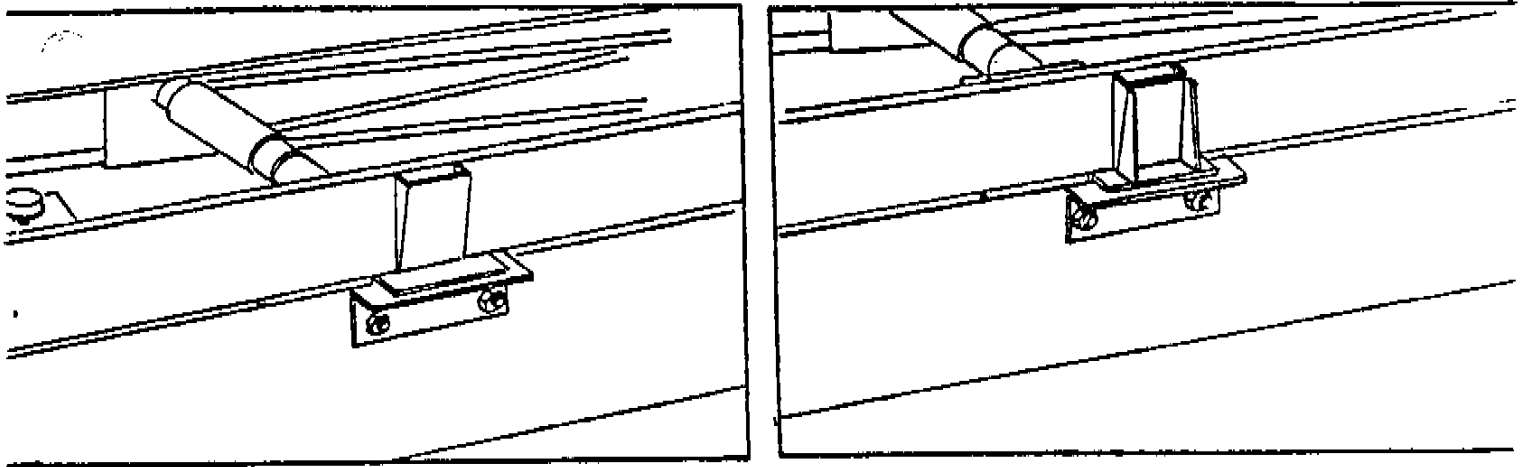
#### ATTACH LONGBEAMS TO HOIST LIFT BRACKETS

Assemble Lift Extension Assemblies No. 7 with Upper Pivot Spacer No. 6. Slide Lift Extension Assemblies into Upper Pivot Tube of Hoist. Extend Lift Extension pads against inside of the longbeams and weld securely in place. Position longbeam box plates No. 5 one on each side of lift extension tubes. Make sure Upper Pivot Spacer fit between Hoist Pivot and Box Plates. IT IS IMPORTANT that the Box Plates fit between the flanges of the longbeams. Weld securely to both top and bottom flanges and to the Lift Extension Tubes. Weld Upper Pivot Spacers No. 6 to Lift Extension tubes so they fit against Hoist Pivot Tube to help center hoist.





## LO-BOY ST-5000 TRUCK HOIST



## INSTALL BODY GUIDES

The four body guides No. 9 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 the body guides when the truck body is in the lowered position.

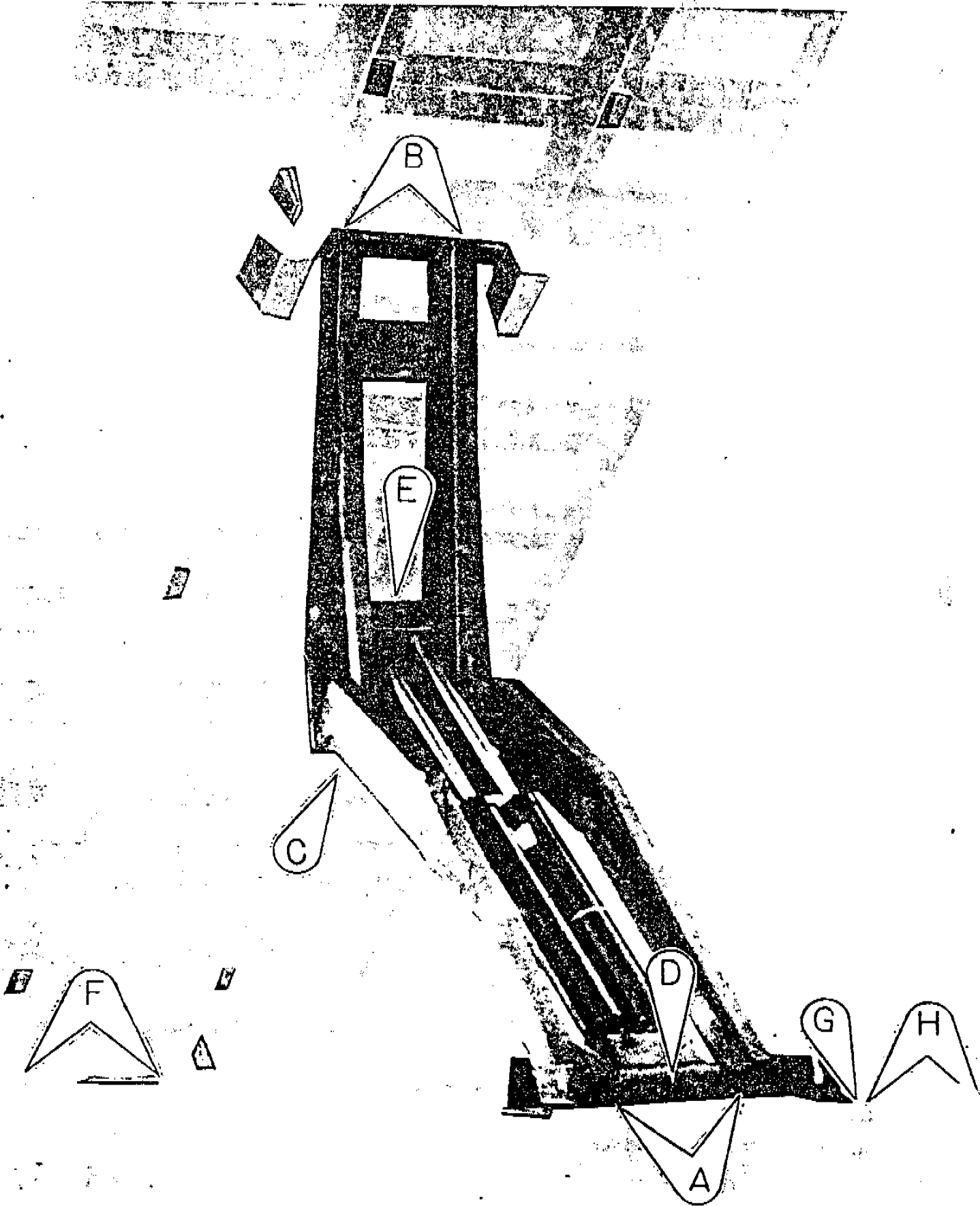
## LUBRICATION INSTRUCTIONS (See Page 9)

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-----	1 fitting
D-Cylinder base pivot-----	1 fitting
E-Cylinder crosshead-----	1 fitting
F-Rear hinge-----	2 fittings
G-U-slip joint-----	1 fitting
H-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.

LO-BOY ST-5000 TRUCK HOIST



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**LO-BOY ST-5000 TRUCK HOIST**

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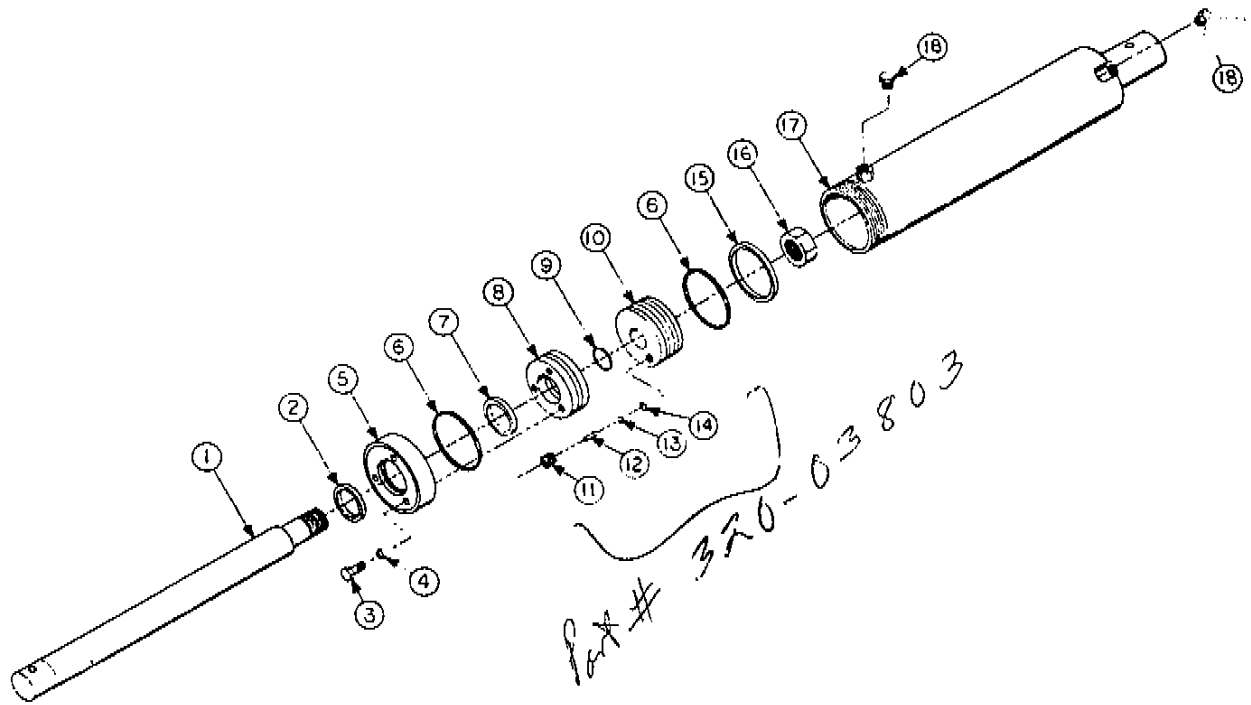
**OPERATION AND USE**

1. Engage PTO 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.
3. Cycle the hoist several times to remove air from the cylinders and hydraulic lines.
4. When hoist cylinders reach the end of the stroke, oil will bypass through the special automatic bypass valves built into each piston inside each cylinder, and return to the reservoir. Place pump knob in hold position or disengage the PTO.
5. It is necessary to run the PTO while lowering the hoist. It will not come down otherwise after unloading. A loaded body will come down without running the PTO, but will overflow the reservoir and lose hydraulic fluid. This is because the reservoir is smaller than hoist capacity and the head end of the cylinders act as reservoirs. A special re-cycle check valve pre-set at 800 PSI is built into the control valve to force hydraulic oil to the head end of the cylinders. This also assures full double-acting control and hydraulic lock-down.
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. This will cause severe damage to the hydraulic pump and/or driveline.
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.

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

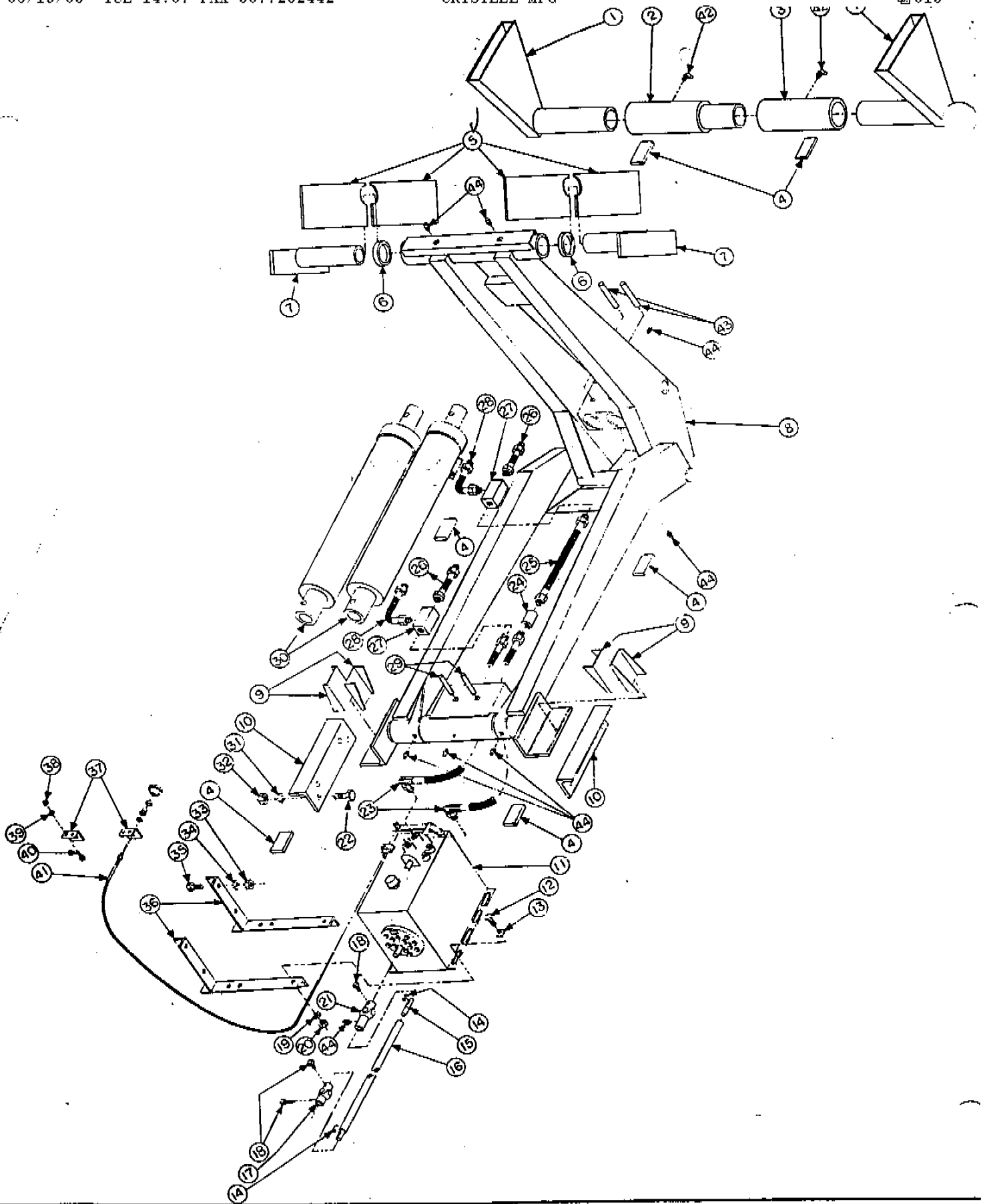
1. Use the proper hydraulic fluid. **KEEP IT CLEAN.** Remember to change it regularly.
  2. Lubricate all grease fittings at regular intervals.
  3. Always carefully block up the hoist, using body prop, before working under it.
  4. Do Not race the engine when unloading.
  5. Do Not overload the hoist beyond its capacity.
  6. Do Not tamper with hydraulic relief 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.
-

LO-BOY ST-5000 TRUCK HOIST



CYLINDER PARTS LIST  
 MODEL ST-5000 (SERIAL NUMBER 5000-001 AND UP)

KEY NO.	PART NO.	DESCRIPTION	QUANTITY
1	330-07343	Shaft	1
2	150-03049	Wiper Seal, 2 1/2 x 3	1
3	100-03018	Cap Screw, 3/8-16 x 1 1/4	3
4	110-03021	Lockwasher 3/8	3
5	320-06245	Cap Assembly	1
6	150-03042	O-Ring, 4 1/2 x 5	2
7	150-03047	Moly Seal, 1 1/2 x 3	1
8	450-06252	Head	1
9	150-03043	O-Ring, 1 1/2 x 1 5/8	1
10	450-06249	Piston	1
11	190-03576	Valve Plug	1
12	190-03618	Valve Pin	1
13	020-03001	Ball Bearing, 3/8	1
14	150-03635	O-Ring	1
15	150-03040	Moly Seal, 4 1/2 x 5	1
16	120-03029	Locknut, 1 1/2-12	1
17	320-07341	Tube Assembly	1
18	260-03493	Plug Straight Thread 3/4-16 O-Ring	2
19	160-03244	Seal Kit	1



## LO-BOY ST-5000 TRUCK HOIST

## PARTS LIST

<u>KEY #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1	320-07409	Rear Hinge Extension Tube Bracket	2
2	320-07512	Rear Hinge Tube Assembly	1
3	350-07408	Rear Hinge Tube	1
4	310-06161	Rivet Strip 1/2 x 2 x 4	8
5	340-07412	Longbeam Box Plate	4
6	310-07771	Upper Pivot Spacer	2
7	320-07465	Lift Extension Assembly	2
8	320-07410	Main Hoist Frame	1
9	340-06152	Body Guide	4
10	340-07411	Mounting Angle	2
11	250-03483	Hydraulic Pump & Reservoir One Valve	1
12	100-03389	Cap Screw 3/8-16 x 1"	4
13	110-03023	Flat Wrought Washer 3/8	4
14	130-03495	Straight Key 1/4 Sq. x 2	2
15	330-03436	U-Joint Shaft	1
16	305-07413	Driveshaft	1
17	300-03410	U-Joint	1
18	100-03012	Set Screw Drilled 1/2 Sq. Head 3/8-16	3
19	110-03021	Lockwasher 3/8	4
20	120-03027	Hex. Nut 3/8-16	4
21	300-03411	Slip U-Joint	1
22	100-03007	Cap Screw 5/8-11 x 1 3/4	8
23	270-03419	Hose 3/8 x 48", 3/4-16 Male Swivel One End 90°	2
24	265-07407	Coupling 3/4-16	1
25	270-03418	Hose 3/8 x 36", 3/4-16 Male	1
26	270-03416	Hose 3/8 x 12", 3/4-16 Male	2
27	265-07406	Tee 3/4-16	2
28	270-03417	Hose 3/8 x 18", 3/4-16 Male	2
29	130-03414	Spiral Roll Pin 3/4 x 4 1/2 -	2
30	320-07340	Cylinder Assembly	2
31	110-03019	Lockwasher 5/8"	8
32	120-03025	Hex. Nut 5/8-11	8
33	120-03026	Hex. Nut 1/2-13	4
34	110-03020	Lockwasher 1/2	4
35	100-03014	Cap Screw 1/2-13 x 1 3/4	4
36	300-06199	Pump Mounting Bracket	2
37	300-06132	Control Cable Bracket	2
38	120-03028	Hex. Nut 1/4-20	4
39	110-03022	Lockwasher 1/4	4
40	100-03010	Cap Screw 1/4-20 x 3/4	4
41	050-03003	Pump Control Cable 12 Foot	1
42	100-03270	90° Grease Fitting 1/8-27	2
43	130-03413	Spiral Roll Pin 3/4 x 3 1/2	2
44	100-03013	Straight Grease Fitting 1/8-27	8

## OPTIONAL PARTS LIST

<u>PLACES KEY NUMBER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
41	050-03004	Pump Control Cable 15 Foot	1
11	250-03487	Hydraulic Pump & Reservoir Two Valve	1
	270-03416	Hydraulic Hose Extension 12"	1
	270-03417	Hydraulic Hose Extension 18"	1
	270-03418	Hydraulic Hose Extension 36"	1
	265-07407	Coupling (One Reg'd with each hose exten.)	1

**LO-BOY ST-5000 TRUCK HOIST**
**CAPACITY CHART FOR LO-BOY MODEL ST-5000 HOIST  
 LEVEL LOAD CAPACITY IN TONS**

THE CAPACITY OF ANY HOIST WILL VARY ACCORDING TO THE C.T. DIMENSION  
 OF THE TRUCK, BODY LENGTH, REAR OVERHANG, AND DUMP ANGLE.

C.T. LENGTH	BODY LENGTH	CAPACITY 45°	CAPACITY 50°
150"	18'	29 Tons	27 Tons
150"	19'	32 Tons	29 Tons
150"	20'	35 Tons	33 Tons
156"	19'	29 Tons	27 Tons
156"	20'	32 Tons	29 Tons
168"	19'	26 Tons	24 Tons
168"	20'	28 Tons	25 Tons
168"	22'	32 Tons	29 Tons
180"	20'	24 Tons	22 Tons
180"	22'	28 Tons	25 Tons
180"	24'	32 Tons	29 Tons
192"	22'	25 Tons	22 Tons
192"	24'	29 Tons	25 Tons
192"	26'	32 Tons	29 Tons
204"	24'	25 Tons	22 Tons
204"	26'	29 Tons	25 Tons
221"	24'	22 Tons	20 Tons
221"	26'	25 Tons	22 Tons

**CAPACITY FORMULA FOR LO-BOY MODEL ST-5000 HOIST**

To determine the capacity of the Lo-Boy Model St-5000 Hoist for applications other than those shown on the capacity chart, use the following formula:

- (1) Measure the distance in inches from 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 dimension "D".
- (3) Multiply dimension "D" by 38.
- (4) Divide this total by dimension "A". Result will be the level load capacity of the hoist in thousands of pounds, including body weight.

**LO-BOY ST-5000 TRUCK HOIST****WARRANTY****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***

**CAUTION**

- 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

CRYSTEEL MANUFACTURING, INC.