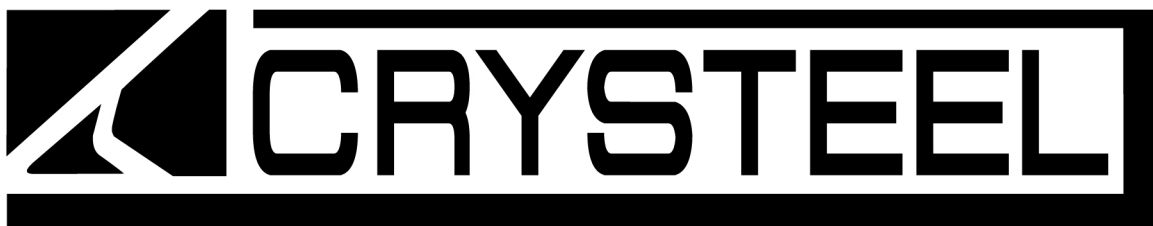




Website: www.TBEI.com
E-mail: sales@TBEI.com

CRYSTEEL'S LO-BOY TRUCK HOIST

**LB400, LB500
& LB510**



***THIS MANUAL MUST BE INCLUDED WITH THE VEHICLE
AFTER COMPLETING THE INSTALLATION.***

Web Site
www.crysteel.com

E-Mail
crysteel@tbei.com

Phone (507) 726-2728
Toll Free (800) 533-0494

DATE PURCHASED _____

HOIST SERIAL NUMBER _____

CYLINDER SERIAL NUMBER _____

DEALER _____

ADDRESS _____

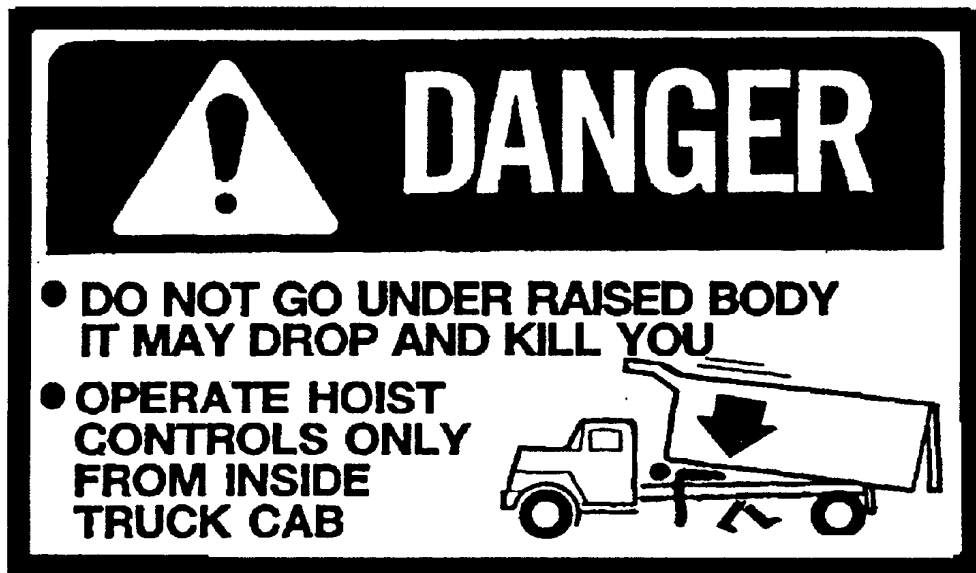
PHONE _____

FOREWORD

Crysteel's LB400, LB500 and LB510 hoists are designed and intended for use on single-axle trucks with cab-to-axle dimensions of 60 to 120 inches and body lengths of 8 to 14 feet.

This manual contains the information needed for the proper installation and operation of Crysteel's LB400, LB500 and LB510 hoists. Study it carefully before attempting to mount or use any of these hoists. With proper installation, use, and regular maintenance, these hoists will give many years of trouble free service.

When ordering parts, be sure to give serial number of hoist and cylinder. The serial number of the hoist is stamped into the hoist frame near the base end of the cylinder. 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.



OPERATION AND USE

1. Engage PTO from cab and adjust engine speed to fast idle.
2. ALWAYS operate the hoist from inside the cab of the truck.
3. If the hydraulic hose connections are correct, the hoist should raise when the hoist control lever is pulled back, hold when the lever is in the center detent, and lower when the lever is pushed forward.
4. To raise the hoist, pull the control lever back. To hold the body in a raised position, place the control lever in its center detent position. To lower the hoist, push the control lever forward.
5. ALWAYS return the hoist control lever to its center detent position after each use.
6. When the hoist cylinder reaches the end of the stroke, oil will flow through the automatic bypass valve built into the piston inside the cylinder and return to the reservoir.
7. It is advisable to run the PTO to “power down” or lower the hoist because this will act as an hydraulic lock to hold the hoist in the lowered position. It is not necessary to do this, however, because the reservoir has sufficient capacity whether or not the hoist is powered down. You will benefit from the advantages of the double acting hoist only if you power down.
8. To make use of the hydraulic lock feature, place the hoist control lever in the center hold position after the hoist is powered down. This places the pressure on the valve, where it belongs, not on the pump.
9. **DO NOT LEAVE THE PTO IN GEAR WHILE TRANSPORTING. THIS CAN CAUSE SEVERE DAMAGE TO THE PTO OR HYDRAULIC PUMP.**
10. 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.**
11. After adding or replacing the hydraulic fluid, cycle the hoist several times to remove air from the cylinders and hydraulic hoses.

SOME DO’S AND DON’TS FOR SAFE AND LONG SERVICE

1. Use the proper hydraulic fluid. **KEEP IT CLEAN.** Remember to change it regularly.
2. Lubricate all grease fittings every 100 cycles or every two months. Infrequent or insufficient lubrication will cause hoist failure and possibly injury or death.
3. ALWAYS carefully block up the body, using the body prop, before working under it.
4. Do not “race” the engine when unloading.
5. Do not load the hoist beyond its capacity.
6. **DO NOT** tamper with the hydraulic relief valve. This will void the warranty. It can cause severe damage to the hoist and cylinder.
7. Never leave the PTO in gear while transporting. It could ruin the hydraulic pump, the PTO or the transmission.
8. Check all bolts and fittings regularly. Keep them tight. See table on page 4 for torque values.
9. Always operate hoist on a firm and level surface.
10. Always make sure area around truck is clear and safe for hoist operation and dumping.

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


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INSTALLATION INSTRUCTIONS

GENERAL INFORMATION

It is a good idea to look through these installation instructions before beginning to mount the hoist and hydraulic system.

When welding, protect the truck's electrical, air and brake systems by disconnecting, removing or covering. Tighten all nuts and bolts to a consistent level. Use the following table for torque values.

Size	Grade 2 Torque	Grade 5 Torque	Grade 8 Torque
			
1/4-20	3-4 lb-ft	6-7 lb-ft	10-11 lb-ft
1/4-28	4-5 lb-ft	8-9 lb-ft	11-12 lb-ft
5/16-18	8-9 lb-ft	14-15 lb-ft	21-22 lb-ft
5/16-24	9-10 lb-ft	15-16 lb-ft	21-22 lb-ft
3/8-16	17-18 lb-ft	24-26 lb-ft	37-40 lb-ft
3/8-24	19-20 lb-ft	28-30 lb-ft	40-43 lb-ft
1/2-13	38-42 lb-ft	60-65 lb-ft	90-100 lb-ft
1/2-20	43-47 lb-ft	70-75 lb-ft	95-105 lb-ft
5/8-11	75-80 lb-ft	122-130 lb-ft	180-190 lb-ft
5/8-18	85-90 lb-ft	145-150 lb-ft	200-210 lb-ft
3/4-10	132-140 lb-ft	220-230 lb-ft	315-330 lb-ft
3/4-16	152-160 lb-ft	250-260 lb-ft	355-370 lb-ft

The following abbreviations are used in describing hydraulic fittings.

ORBM	O-Ring Boss - Male Thread
NPTM	Pipe - Male Thread
NPTF	Pipe - Female Thread
JICM	JIC 37° - Male Thread
JICF	JIC 37° - Female Thread

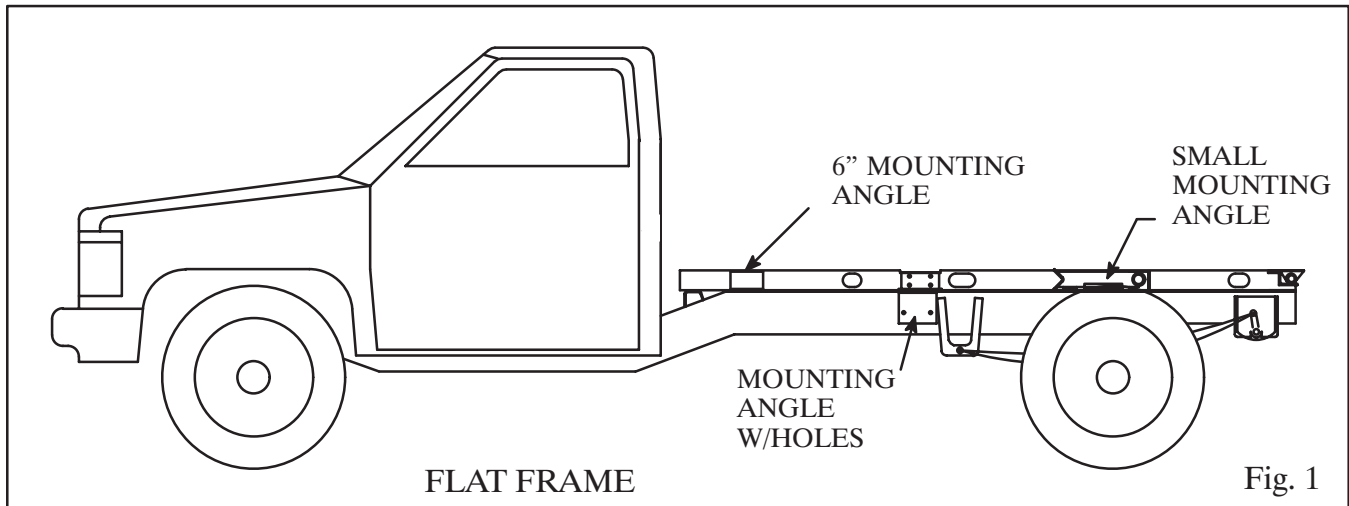
INSTALLATION INSTRUCTIONS

LOCATE HOIST-SUBFRAME ASSEMBLY ON TRUCK

The hoist-subframe assembly is normally mounted to the truck before attaching it to the body.

For Ford trucks, with a 40 gallon rear fuel tank, place the end of the subframe even with the end of the truck frame, 47 1/2 inches behind the center of the rear axle.

For Ram trucks, with a 52 gallon rear fuel tank, and GM trucks, with a 40 gallon rear fuel tank, place the end of the subframe 3 inches ahead of the end of the truck frame.

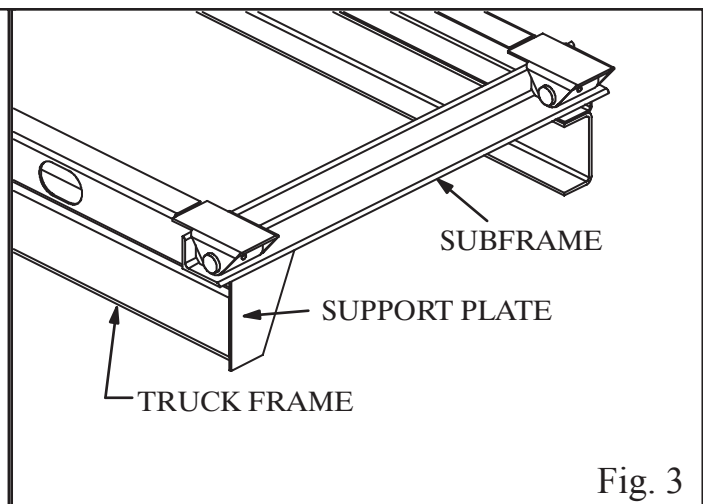
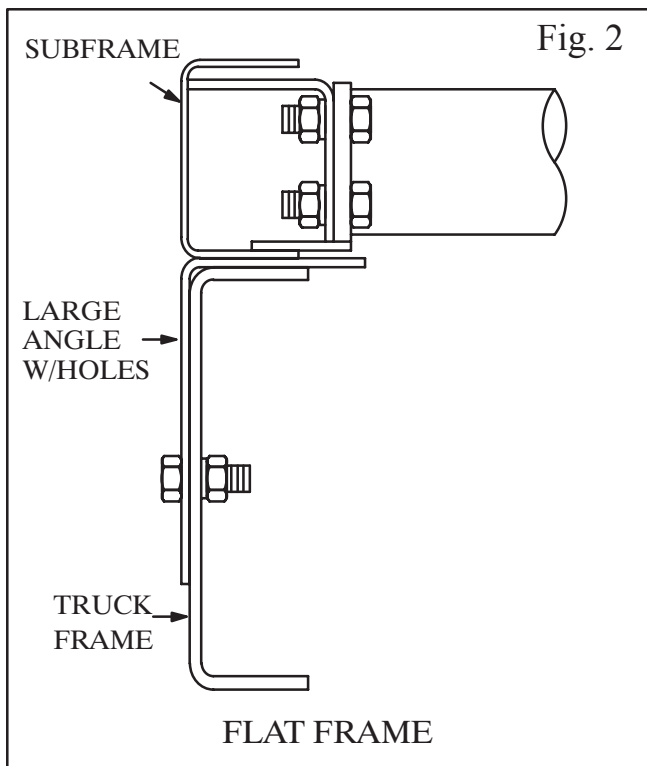


Make sure the marks for cutting the truck frame are accurate and even from side to side. Cut off the truck frame and grind the ends smooth. Place the subframe on the truck making sure it is even with the end of the truck frame, centered side to side and square with the truck frame. There should be 3 or 3 1/2 inches clearance between the back of the cab and the front end of the subframe.

NOTE: If the truck frame has rivets in the top flange, add spacers between the truck frame and subframe, or counter sink the rivet heads into the subframe by drilling holes in the subframe. Do not remove the rivet heads!

MOUNT HOIST/SUBFRAME ASSEMBLY TO TRUCK

Use the mounting angles with holes in them placed as shown in Figures 1 and 2. Position them as directly under the hoist's lower mount as possible. Clamp them to the truck frame and the subframe. Position and clamp the 6" mounting angles as near the front of the subframe as possible, positioned with the long leg up. They will be welded to the subframe only. Use the smaller mounting angles as spacers under the subframe over the center of the axle. These angles will only be welded to the subframe. Mark the truck frame for drilling using the mounting angles as guides.



CAUTION: BE CAREFUL OF BRAKELINES, WIRING, ETC. INSIDE THE TRUCK FRAME WHEN DRILLING THE TRUCK FRAME.

Drill 17/32 holes through the truck frame and bolt the mounting angles to the truck frame with 1/2 x 2 grade 8 hex head cap screws and hex lock nuts. Make sure the subframe is correctly positioned front to back, centered side to side, and square with the truck frame. Weld the subframe to the bolted mounting angles. Weld the small angles over the center of the axle to the subframe only. Weld the 6" mounting angles to the subframe only, not the truck frame.

Place the rear hinge support plates against the rear of the truck frame and slide them up to the bottom of the rear hinge frame, see Figure 3. Securely weld them to the truck frame, the subframe, and the rear hinge. Trim off any excess material below the truck frame.

SUPPORT FUEL FILL TUBE

On Chevrolet, GMC, Ford and Ram trucks, the fill tube passes through a hole in the truck frame. After the body has been installed, construct a support for the fuel tank fill tube. Construct the support so that it does not interfere with any portion of the body or hoist operation.

HYDRAULIC PUMPS

Crysteel offers three different hydraulic systems for use with the Model LB400, LB500 and LB510 Hoists. Mounting instructions can be found on the page shown:

PTO driven Gear Pump with Remote Reservoir/Valve	Page 8
Electric Pumps - General	Page 10
Electric Pumps - Single-Acting	Page 11
Electric Pumps - Double-Acting	Page 12

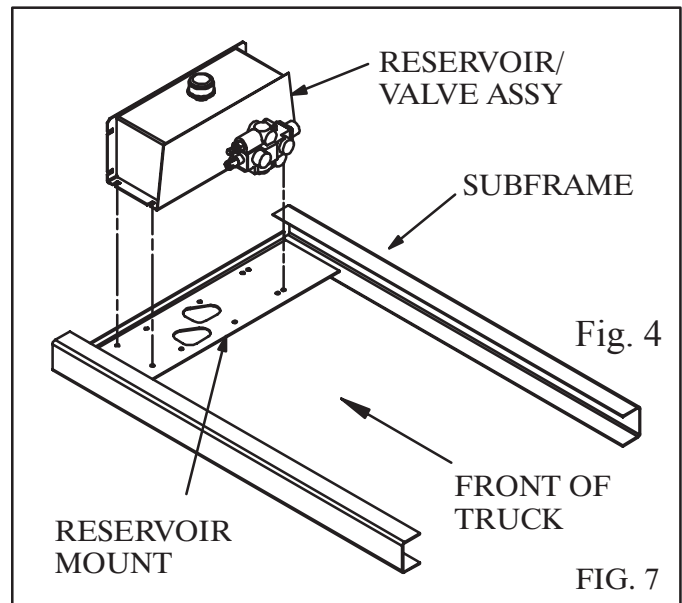
MOUNT GEAR PUMP

The gear pump has an SAE 'A' mounting configuration, a 9 tooth splined shaft and a two-bolt mounting flange, and is assembled for counterclockwise rotation. NOTE: This pump will mount directly to Chelsea's output type 'XE' or Muncie's output type 'R'. Crysteel Manufacturing recommends a PTO ratio of 100-120%. This assures a minimum pump operating speed of 600 RPM. CHECK THE ROTATION OF THE PTO! If it is opposite of the engine, then the pump can be used as it is. If the PTO rotation is the same as the engine, then the pump will need to be reversed. (See instructions included with the pump.) Bolt the gear pump to the PTO output flange using 3/8 x 1" cap screws and lock washers.

Gear pumps are also available to fit the Muncie and Chelsea PTOs with 11-tooth splined outputs.

MOUNT RESERVOIR/VALVE ASSEMBLY

The reservoir/valve assembly is intended to be mounted just behind the cab, between the long-beams of the body with the control valve to the back side of the reservoir. Bolt the reservoir/valve assembly to this mounting bracket using 3/8 x 1" cap screws, flat washers and hex lock nuts. See Figure 4.



INSTALL REMOTE VALVE CONTROL

Temporarily assemble the valve control head to the pedestal using 5/16 x 2 1/4" machine screws and hex nuts. Place this assembly on the floor of the cab. Make sure there is enough room to operate the valve control and the gear shift lever and to adjust the seat. Check below the floor for obstructions and cable routing. Relocate the valve control if necessary. Mark the floor using the pedestal as a template and drill 5/16" holes for the mounting screws and a 3/4" hole for the control cable. Assemble the control cable to the valve control head and assemble the valve control head and cover to the pedestal using 5/16 x 2 1/4" machine screws and hex lock nuts. Insert the control cable through the hole in the floor and mount the pedestal to the floor using 5/16 x 1/2 machine screws and hex lock nuts. Make sure the valve control lever is in its center detent position. Keep the control cable away from hot exhaust pipes and rotating drive shafts. The control cable should not have any sharp bends or kinks in it (these will make the control harder to operate). Install the 3/4" hex jam nut onto the valve end of the control cable and turn it past the threads. Insert the end of the cable through the bonnet clamp. Install the bonnet onto the control cable and turn it past the threads also. Install the 1/4" hex jam nut and terminal eye on the core rod of the cable. Lock the terminal eye to the core rod of the cable using the hex jam nut. Place the terminal eye in the slot of the valve spool; insert the short pin through the valve spool and terminal eye and secure it in place with the 'E' ring.

Thread the bonnet onto the end of the cable so it firmly touches the end of the valve. (Do not over- or under-tighten the bonnet as either would move the valve spool out of its neutral position.) Remove two cap screws from opposite corners of the seal retainer plate. Slide the bonnet clamp onto the bonnet and secure it to the valve using the 1/4 x 1 1/4" cap screws, lock washers and flat washers. Lock the bonnet to the cable using the 3/4" hex jam nut. See Fig. 5.

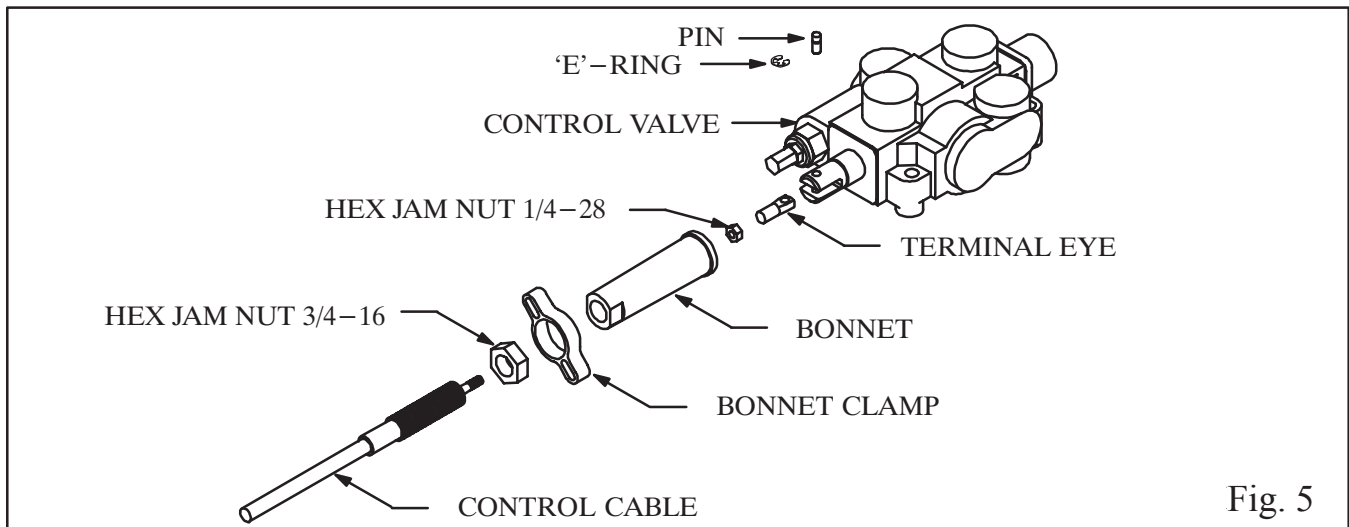


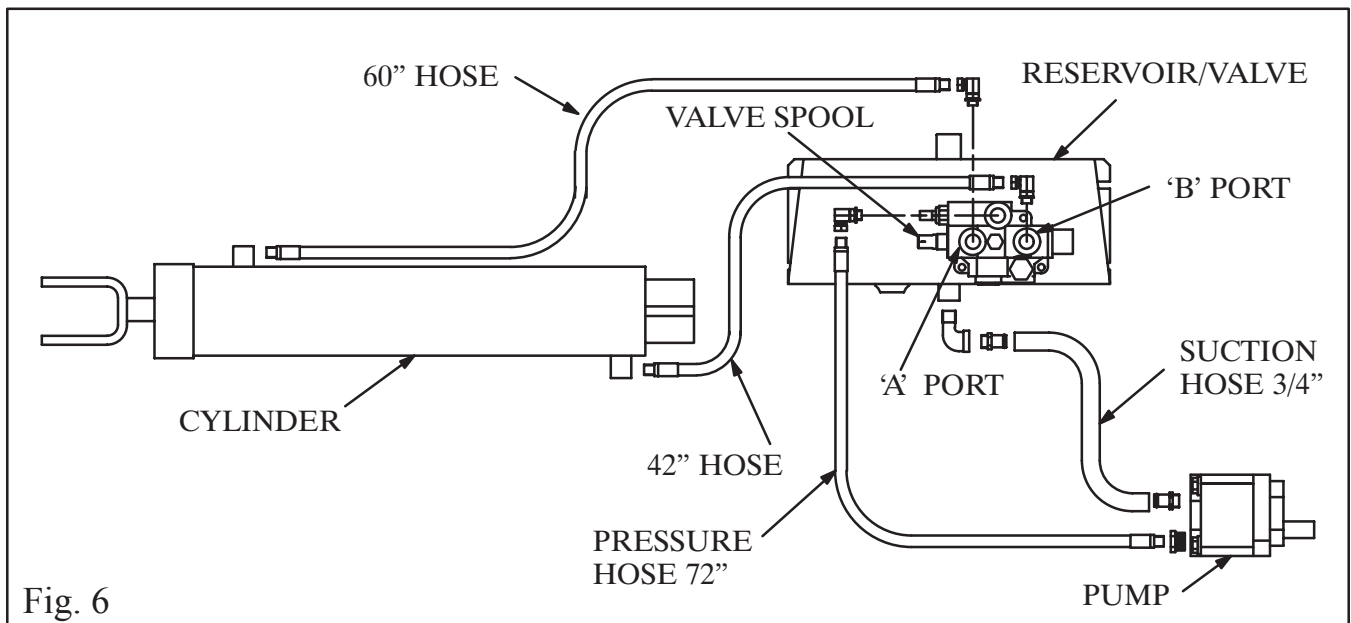
Fig. 5

INSTALL HOSES

Study Fig. 6 very carefully before connecting the hoses. Install a 3/4" 90° street elbow and a 3/4" hose barb in the suction port on the bottom of the reservoir. Install a 1 1/16 ORB x 3/4" hose barb in the suction port of the pump and install a 3/4" ID suction hose. Secure the suction hose in place using hose clamps. Install a 7/8 ORB x 3/8 NPT 90° adapter in the 'IN' port of the control valve and a 7/8 ORB x 3/8 NPT adapter in the pressure port of the pump. Connect a 72" long 3/8" hose between the pump and the valve.

Install straight adapters in both cylinder ports. Install 90° swivel adapters in the work ports of the control valve. Connect the shorter 3/8" hose from the 'B' port on the control valve to the base end port on the cylinder; connect the longer 3/8" hose from the 'A' port to the rod end port. This will raise the hoist when the control lever is pulled back and lower it when pushed forward.

NOTE: The 'A' port is the 'power-down' port and has a pressure of only 500-1000 PSI; the 'B' port has full system pressure.



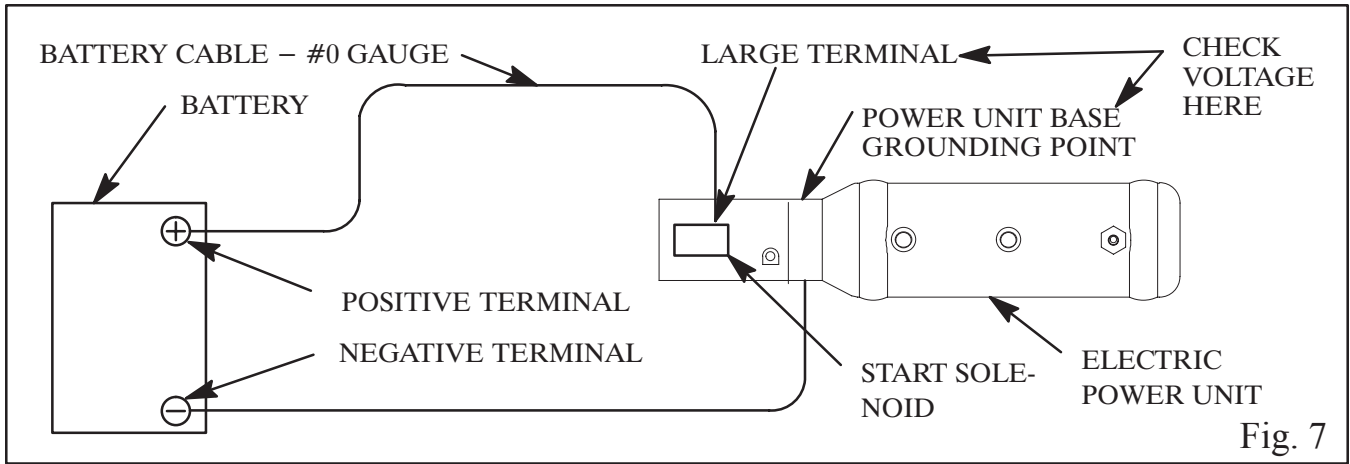
ELECTRIC PUMP MOUNTING - GENERAL

The electric pump is intended to be mounted just behind the cab, between the longbeams of the body. (The same place as the reservoir/valve assembly, as shown in Figure 4.) Bolt the pump to the bracket provided using the 3/8 x 1 cap screws, flat washers and hex lock nuts.

For rated performance, the voltage at the power unit must be a minimum of 12VDC. This should be measured between the large terminal of the start solenoid (where the battery cable is connected) and the power unit base, where it is bolted to the mounting bracket. NOTE: Grounding of the power unit is just as important as the installation of the positive battery cable. It is easier to get a good ground by using a second battery cable.

Connect the large terminal on the motor start solenoid to the positive terminal on the battery with a #0 gauge battery cable. Grounding of the power unit can be completed either through the vehicle chassis or by a second battery cable. If grounding through the vehicle chassis, be sure to replace the light ground

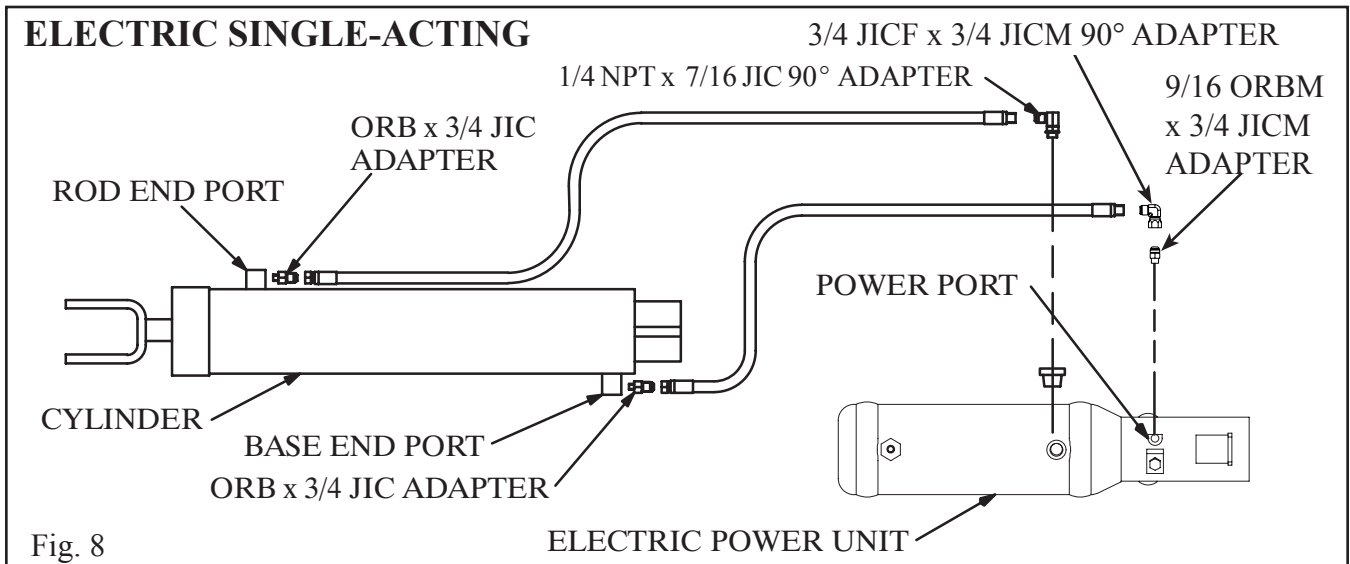
strap between the battery and the vehicle chassis with a #0 gauge cable. If grounding with a second battery cable, connect the negative terminal on the battery to the grounding hole on the power unit base using an #0 size battery cable. See Figure 7. Check the voltage between the large terminal on the start solenoid and the power unit base.



Locate the push-button control in the cab and route the cable out of the cab through a hole in the back of the cab. Connect the push-button control to the electric power unit using the 3- or 4-pin connector set.

ELECTRIC PUMP INSTALLATION - SINGLE-ACTING

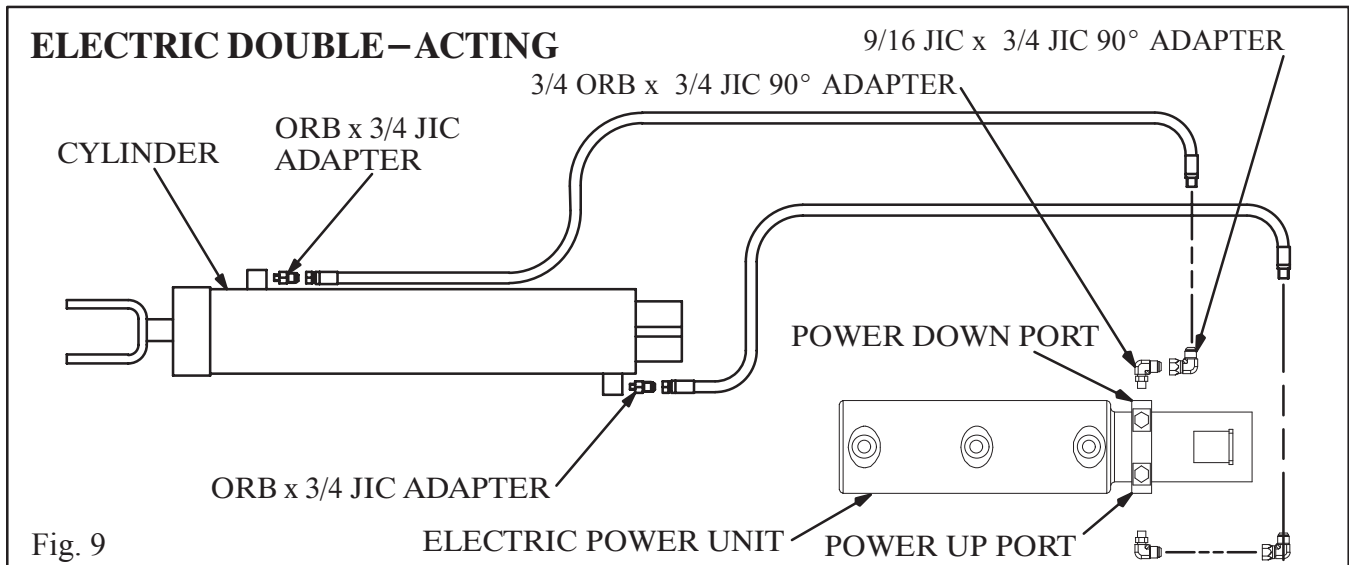
Install a 9/16 ORBM x 3/4-16 JIC male straight adapter in the power port on the pump; install a 3/4 JICF x 3/4 JICM 90° adapter on this adapter. Install a 1/4 NPT x 3/4-16 JIC male elbow in the port on the top of the reservoir. Connect the shorter hose from the power port on the pump to the base end port on the cylinder; connect the longer hose from the port on the top of the reservoir to the rod end port on the cylinder.



ELECTRIC PUMP INSTALLATION - DOUBLE-ACTING

Install 9/16 ORB x 3/4 JIC 90° swivel adapters in both work ports on the electric pump. If needed, for good hose routing, install 3/4 JIC x 3/4 JIC 90° swivel adapters to both of these adapters. Connect the shorter 3/8 ID hose with 3/4 JIC fittings from the 'C1' port on the pump to the base end port on the cylinder. Connect the longer 3/8" ID hose with 3/4 JIC fittings from the 'C2' port to the rod end port.

NOTE: The 'C2' port is the power down port and has only 500 PSI maximum pressure.



ADD HYDRAULIC OIL

Use a quality hydraulic fluid of 150 SSU @ 100° F which contains corrosion and oxidation inhibitors and a foam depressant. This is approximately the equivalent of SAE 10W or lighter weight oil. Dexron automatic transmission fluid should be used in the electric pumps. Fill the hydraulic reservoir using the following table.

Standard Gear Pump w/Valve Tank	10 Qts.
Electric - Single Acting	7 Qts.
Electric - Double Acting	7 Qts.

KEEP THE OIL CLEAN. USE CLEAN CONTAINERS, FUNNELS AND OTHER EQUIPMENT!

POWER HOIST DOWN

Before mounting the body, the hoist must be completely closed to make certain that the hoist gives full lift height and performance. Make sure the lift angles are straight up and down.

For hydraulic systems with the direct mount gear pump, start the truck engine, engage the PTO and power down the hoist to "bottom-out" the hydraulic cylinder and the hoist frame. Place the hoist valve control in the "hold" position. Both the hoist frame and the hydraulic cylinder are now completely closed.

For hydraulic systems with the single-acting electric pump, press and hold the 'DOWN' push-button on

the control while pushing the hoist frame closed. Release the 'DOWN' push-button. Both the hoist frame and the hydraulic cylinder are now completely closed.

For hydraulic systems with the double-acting electric pump, press and hold the 'DOWN' push-button on the control to "bottom-out" the hydraulic cylinder and the hoist frame. Release the 'DOWN' push-button. Both the hoist frame and the hydraulic cylinder are now completely closed.

INSTALL TIPPER BODY ON TRUCK

Place the Tipper body on the truck with the front of the body even with the front of the subframe. Align the body longbeams to the subframe rails. Securely weld the rear hinge brackets and the hoist lift brackets to the longbeams. Raise the body, block it in a raised position and securely weld the hoist lift brackets to the fill plates on the inside of the longbeams.

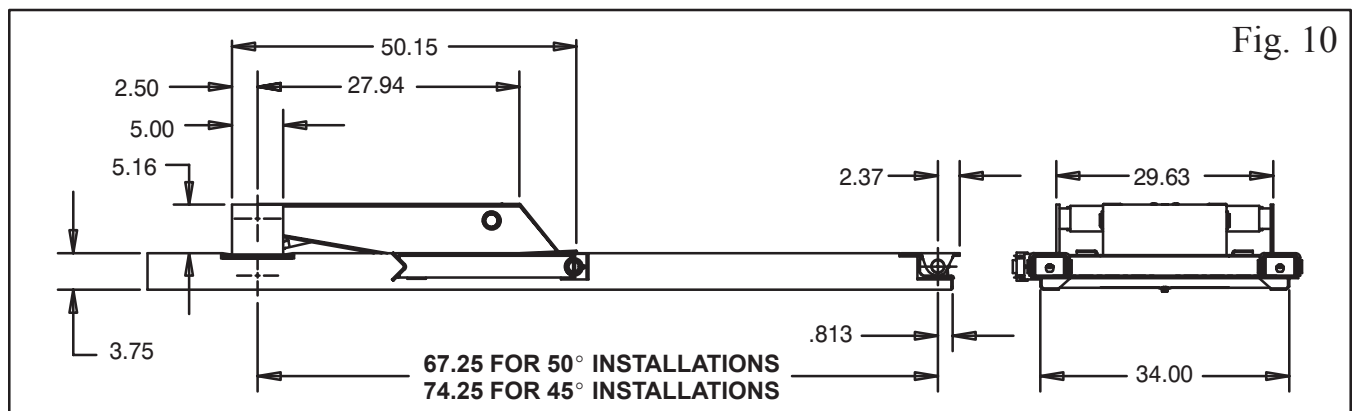
DO NOT WORK UNDER A RAISED BODY UNLESS THE BODY IS SECURELY BLOCKED OR PROPPED IN THE RAISED POSITION.

If the body and subframe have been assembled at the factory, finish welding the hoist lift brackets to the fill plates on the inside of the longbeams.

INSTALL OTHER BODY ON TRUCK

The LB400, LB500 and LB510 hoists require 6-inch longbeams on the body. Carefully measure the location of the hoist lift plate. Mark this location on the inside of the longbeams and box in the inside of the longbeams. This will provide a flat surface for welding the body and hoist together. There should be 29 7/8 inches between the longbeams to provide clearance for the hoist. Place the body on the truck so the front of the body is even with the front end of the subframe. Make sure there is sufficient clearance between the body and the reservoir/valve assembly or electric power unit. Relocate the reservoir/valve assembly or electric power unit if necessary. Carefully align the body longbeams to the subframe rails. Securely weld the rear hinge bracket to the longbeams. Securely weld the hoist lift plates to the boxed-in sections of the longbeams. (See Fig. 10.)

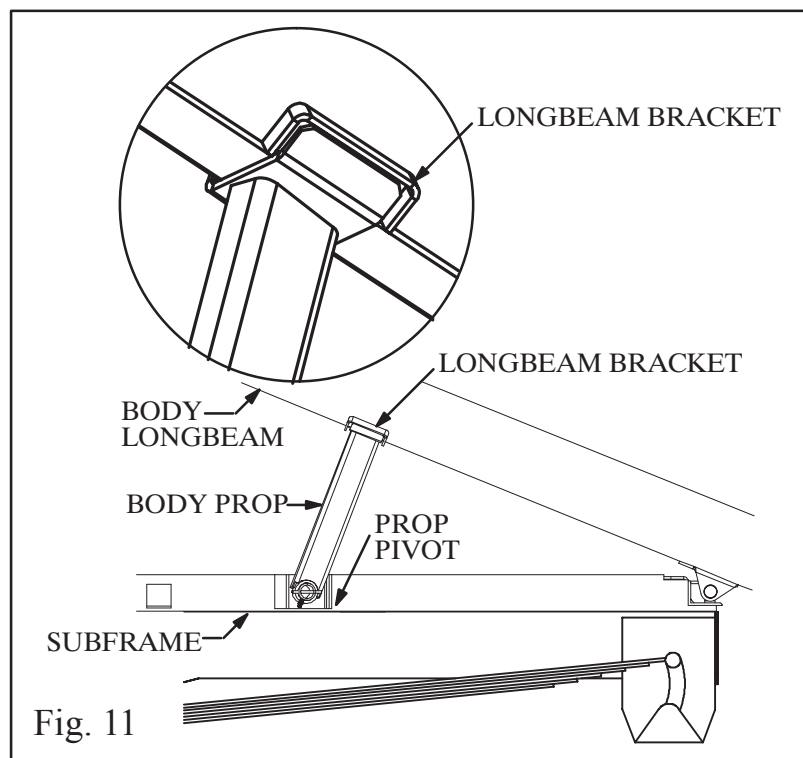
DO NOT WORK UNDER A RAISED BODY UNLESS THE BODY IS SECURELY BLOCKED OR PROPPED IN THE RAISED POSITION.



INSTALL BODY PROP BRACKET ON BODY LONGBEAM

The body prop is designed and intended to support an EMPTY truck body in the raised position. Using the body prop permits service work to be performed safely beneath a raised body. It is mounted on the outside of the subframe on the driver's side.

1. Raise the body more than half way up.
2. Raise the prop arm to a free standing position by allowing the prop arm to rest against the rear flange of the prop pivot. The top of the prop arm will swing in under the longbeam.
3. Slowly lower the body until the bottom of the longbeam rests on the body prop saddle. Place the longbeam bracket against the outside of the longbeam so the legs straddle the prop arm saddle. Securely weld this bracket to the body. (See Fig. 11.)
4. To operate the body prop, raise the body to the desired height, shut off all power, raise the prop arm to a free standing position. Lower the body slowly until the longbeam bracket contacts the prop arm saddle. **DO NOT POWER HOIST DOWN!**
5. To place the body prop in the storage position, raise the body to clear the body prop saddle, lower the body prop to the storage position and lower the body.



INSTALL GREASE ZERKS AND LUBRICATE HOIST

Install grease zerks on the hoist and lubricate the hoist in the following locations:

Upper Crosstube.....	2 Fittings
Lower Crosstube	2 Fittings
Cylinder Base Pivot	1 Fitting
Rear Hinge	(already installed) 2 Fittings
Body Prop	(already installed) 1 Fitting

Lubricate all fittings at regular intervals, at least each time the truck chassis is lubricated. There are extremely high forces on the bearings surfaces within the hoist frame. It pays to be generous in lubricating the hoist to insure proper operation and long life.

The center hinge and the cylinder crosshead do not need to be greased. These pivot points are equipped with self lubricating composite bearings that do not need lubrication.

ONE OF THE MOST COMMON REASONS FOR HOIST PROBLEMS IS FAILURE BY THE OPERATOR TO LUBRICATE THE HOIST.

INSTALL DECALS

After the body and hoist have been installed and painted, install the decals in the following locations:

1. Decal 1642842 Mount in the cab above the valve control.
2. Decal 1642848 Mount on the body longbeam near the body prop. (one on each side)
3. Decal 1642846 Mount on the body prop arm.
4. Decal 1643067 Mount on the outside of the body longbeams near the front of the body. (one on each side).
5. Decal 1642844 Mount on the body longbeam on the drivers side.
6. Decal 1643068 Mount in the cab in a prominent location.
7. Decal 1642843 Mount in the cab in a prominent location.

See the illustrations on the following page for decal identification. (See Fig. 11.)


! OPERATION OF BODY PROP !

1. Raise body to full height and shut off all power.
2. Raise prop to upright position.
3. Lower body slowly until body bracket contacts prop.
4. **DO NOT POWER HOIST DOWN.**

1642848

! DANGER

- DO NOT GO UNDER RAISED BODY IT MAY DROP AND KILL YOU
- OPERATE HOIST CONTROLS ONLY FROM INSIDE TRUCK CAB



1643067

! 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.

1642844

! DANGER

- DO NOT GO UNDER RAISED BODY IT MAY DROP AND KILL YOU
- OPERATE HOIST CONTROLS ONLY FROM INSIDE TRUCK CAB



1643068

! 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.

1642843

DOUBLE ACTING VALVE
OUT - RAISE; CENTER - HOLD; IN - LOWER
TO USE HYDRAULIC LOCK-DOWN

CONTINUE POWER DOWN UNTIL RELIEF VALVE BY-PASSES; THEN SET IN "HOLD" POSITION.

1642842

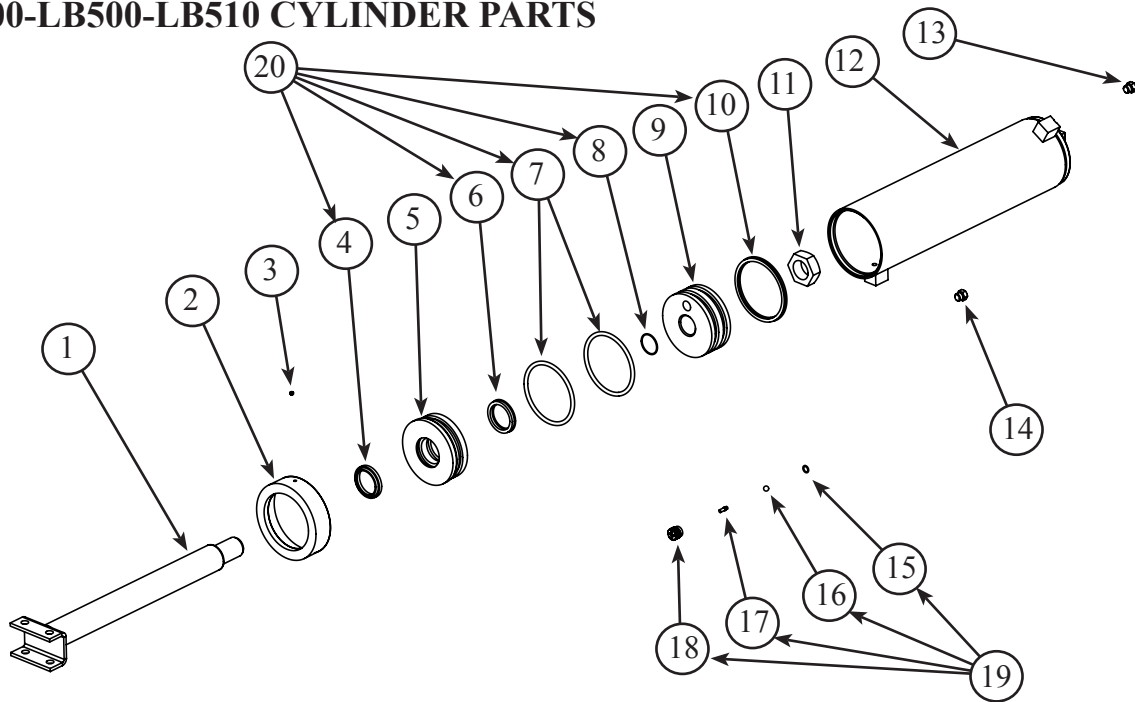
! CAUTION !

UNLOAD BODY BEFORE USING BODY PROP.

1642846

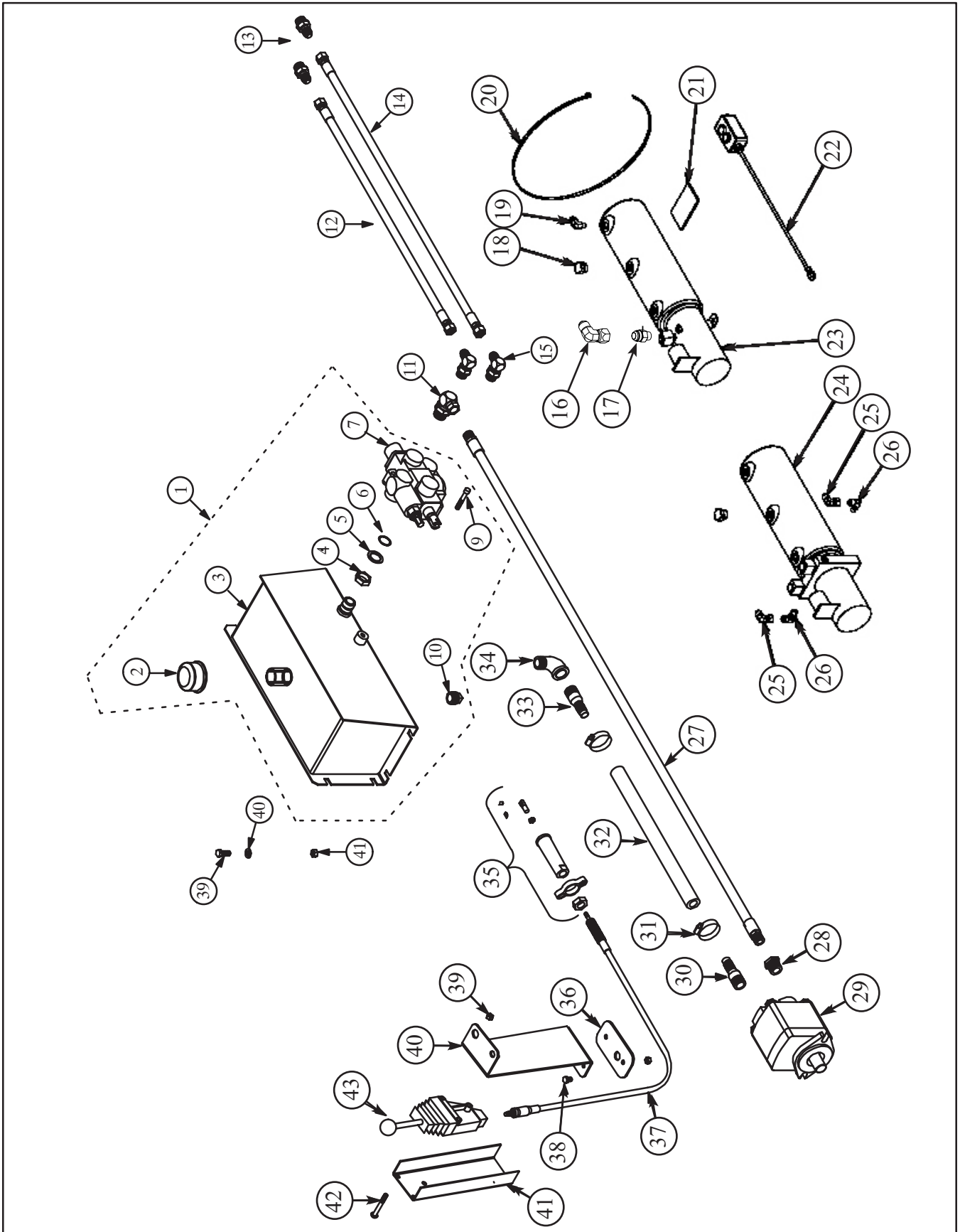
Fig. 12

LB400-LB500-LB510 CYLINDER PARTS



ITEM	DESCRIPTION	LB400	LB400	LB500	LB510	QTY
		Up To S/N 1234567	After S/N 1234567			
1.	Cylinder Shaft Assy	1621574	1309671	1621727	1621727	1
2.	Cap Ring	1635170	1635170	1635171	1634978	1
3.	Set Screw 1/4 x 3/16	1642724	1642724	1642724	1642724	1
4.	Wiper	1642942	1642942	1642878	1642878	1
5.	Cylinder Head	1634980	1634980	1637938	1634982	1
6.	Shaft Seal	1642941	1642941	1642765	1642765	1
7.	O-Ring	1642774	1642774	1642766	1642779	2
8.	O-Ring	1642940	1644927	1642767	1642767	1
9.	Cylinder Piston	1629848	1309672	1629601	1629802	1
10.	Piston Seal	1642773	1642773	1642764	1642780	1
11.	Hex Jam Nut		1642948	1642995	1642995	1
12.	Cylinder Tube Assy	1621573	1621573	1621726	1622031	1
13.	Plug 9/16-18 ORB	1642793	1642793	1642793	1642793	1
14.	Plug 9/16-18 ORB	1642793	1642793	1642793	1642793	1
15.	Ball 3/8			1642679	1642679	1
16.	Bypass Valve Pin			1642894	1642894	1
17.	O-Ring			1642907	1642907	1
18.	Bypass Valve Body			1642893	1642893	1
19.	Bypass Valve Kit			1621569	1621569	1
20.	Cylinder Seal Kit	1621639	1621639	1621640	1621641	1
21.	Cylinder Assy	1621572	1621572	1621725	1622030	

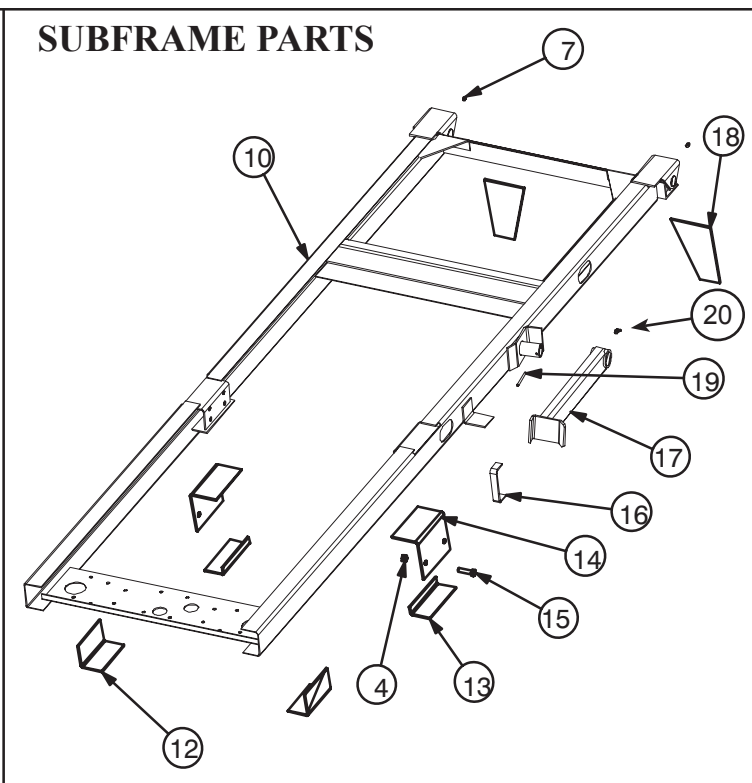
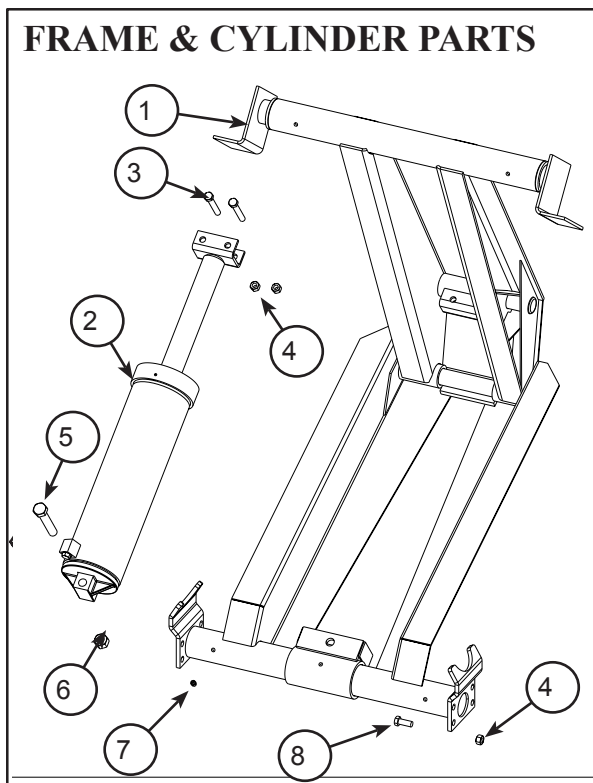
HYDRAULIC SYSTEM PARTS



ITEM	DESCRIPTION	PART NO.	QTY.
1.	Reservoir/Valve Carton 15 Qt 3250 PSI (includes items 2 through 10)	1622192	1
2.	Breather Cap	1644723	1
3.	Reservoir Weldment 15 Qt	1622166	1
4.	Hex Jam Nut 7/8-14	1643196	1
5.	Cone Washer 7/8	1643197	1
6.	O-Ring .755 ID x .097 CS	1643198	1
7.	Control Valve 12 GPM 3250 PSI -8 Port	1643398	1
9.	Cap Screw 1/4-20 x 1 3/4 Gr 5	1643058	1
10.	Pipe Plug 3/4 Magnetic	1642794	1
11.	Adapter 7/8 ORBM x 3/8 NPTF 90°	1642954	1
12.	Hose 3/4 JIC x 30" SF/SF 4000 PSI	1644004	1
	Hose 3/4 JIC x 54" SF/SF 4000 PSI	1644005	1
13.	Adapter 9/16 ORBM x 3/4 JICM	1643375	2
14.	Hose 3/4 JIC x 48" SF/SF 4000 PSI	1643360	1
	Hose 3/4 JIC x 72" SF/SF 4000 PSI	1643804	1
15.	Adapter 3/4 ORBM x 3/4 JICM 90°	1643357	2
16.	Adapter 3/4 JICM x 3/4 JICM 90°	1643545	1
17.	Adapter 9/16 ORBM x 3/4 JICM	1643375	1
18.	Breather Cap, Splash Resistant	1644498	1
19.	Adapter 3/4 JICM x 1/4 NPTM 90°	1643374	1
20.	Cable Tie - 33"	1643817	1
21.	Rubber Pad 1/4 x 3 x 5	1643881	1
22.	Push-Button Control - DA 78"	1200095	1
	Push-Button Control - SA 78"	1200093	1
23.	Electric Power Unit - SA	1200094	1
24.	Electric Power Unit - DA	1200097	1
25.	Adapter 3/4 JICM x 3/4 JICM 90°	1643545	2
26.	Adapter 9/16 ORBM x 3/4 JICM 90°	1643544	2
27.	Hose 3/8 NPT x 72" RM/RM 4000 PSI	1643014	1
28.	Adapter 7/8 ORM x 3/8 NPTF	1642813	1
29.	Gear Pump 4 GPM - 9 Tooth	1644648	1
	Gear Pump 4 GPM -11 Tooth	1644649	1
30.	Hose Barb 1 1/16 ORBM x 3/4	1643228	1
31.	Hose Clamp #24	1643011	2
32.	Suction Hose 3/4 ID x 72"	1643805	1
33.	Hose Barb 3/4 NPTM x 3/4	1643017	1
34.	Pipe Elbow 3/4 Street	1643226	1
35.	Valve Connection Kit - Prince 4100	1643467	1
36.	Clamp Plate, Pedestal	1631026	1
37.	Cable, Valve Control - 96"	1643210	1
	Cable, Valve Control - 72"	1643209	1
	Cable, Valve Control - 84"	1643332	1
	Cable, Valve Control - 120"	1643211	1
	Cable, Valve Control - 144"	1643212	1
	Cable, Valve Control - 180"	1643213	1

ITEM	DESCRIPTION	PART NO.	QTY.
38.	Machine Screw 5/16-18 x 1/2	1643329	2
39.	Hex Lock Nut 5/16-18	1642962	5
40.	Pedestal Bracket, Short - RVC	1630850	1
41.	Pedestal Channel, Short - RVC	1630851	1
42.	Machine Screw 5/16-18 x 2 1/2	1643233	3
43.	Remove Valve Control w/ Center Detent (RVC)	1643208	1

NOTES



ITEM	DESCRIPTION	LB400	LB500	LB510	QTY
1.	Hoist Frame Assy	1621745	1621745	110458	1
2.	Cylinder Assy	1621572	1621725	1622030	1
3.	Cap Screw 1/2-13 x 3 1/4 Gr 8	1643433	1643433	1643433	2
4.	Hex Lock Nut 1/2-13	1642984	1642984	1642984	14
5.	Cap Screw 3/4-10 x 4 Gr 8	1642961	1642961	1642961	1
6.	Hex Lock Nut 3/4-10	1642957	1642957	1642957	1
7.	Cap Screw 1/2-13 x 1 1/4 Gr 8	1642726	1642726	1642726	8
8.	Grease Zerk 1/8 NPT	1642699	1642699	1642699	7
9.	Frame & Cylinder Assy	1621571	1621744	1622053	1
10.	Subframe Assy - 8' 50°	1623914	1623914	1623914	1
	Subframe Assy - 9' 50°	1623915	1623915	1623915	1
	Subframe Assy - 10' 50°	1623916	1623916	1623916	1
	Subframe Assy - 11' 50°	1623917	1623917	1623917	1
	Subframe Assy - 10' 45°	1623951	1623951	1623951	1
12.	Angle Front Subframe Support	1630828	1630828	1630828	2
13.	Angle Subframe Mount	1629509	1629509	1629509	2
14.	Angle Subframe Mount Support	1629509	1629509	1629509	2
15.	Cap Screw 1/2-13 x 2 Gr 8	1642701	1642701	1642701	4
16.	Body Prop Longbeam Bracket	1634760	1634760	1634760	1
17.	Body Prop Arm Assy - Left	1623886	1623886	1623886	1
18.	Rear Hinge Support	1629849	1629849	1629849	2
19.	Roll Pin 1/4 x 3	1642757	1642757	1642757	1
20.	Grease Zerk 1/8 NPT 90°	1642713	1642713	1642713	1

**CRYSTEEL MANUFACTURING'S
5 YEAR CUSTOMER SATISFACTION PLEDGE
& WARRANTY**

Crysteel offers the most comprehensive warranty in the truck equipment industry. Crysteel warrants each product against defects in material and workmanship for 60 months from the in-service date.

For the full Customer Satisfaction Pledge and Warranty information, please visit our website.

<http://www.crysteel.com>

! 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.

CRYSTEEL MANUFACTURING, INC.
