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Installation Instructions

E-15 (Ernie) ***TRUCK HOIST***



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

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Toll Free (800) 533-0494

DATE PURCHASED _____

HOIST SERIAL NUMBER _____

CYLINDER SERIAL NUMBER _____

DEALER _____

ADDRESS _____

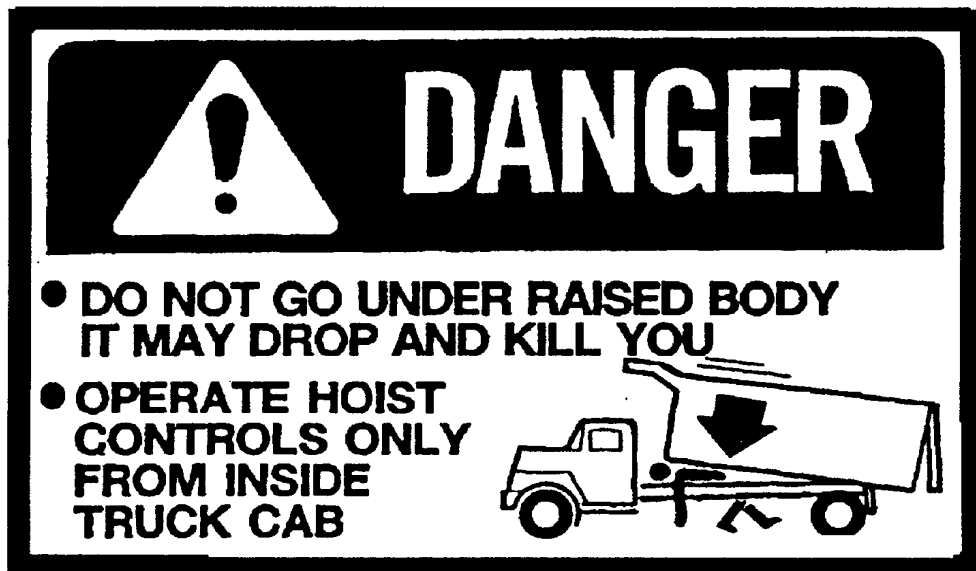
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FOREWORD

The Crysteel E-15 hoist has been designed for use on single-axle trucks with cab-to-axle dimensions of 60 to 102 inches for use with bodies of 8 through 12 feet in length. This manual contains the information needed for the proper installation and operation of this hoist.

These instructions are for installing and maintaining the E-15 model hoist. With proper installation, use, and regular maintenance, the Crysteel E-15 hoist 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.

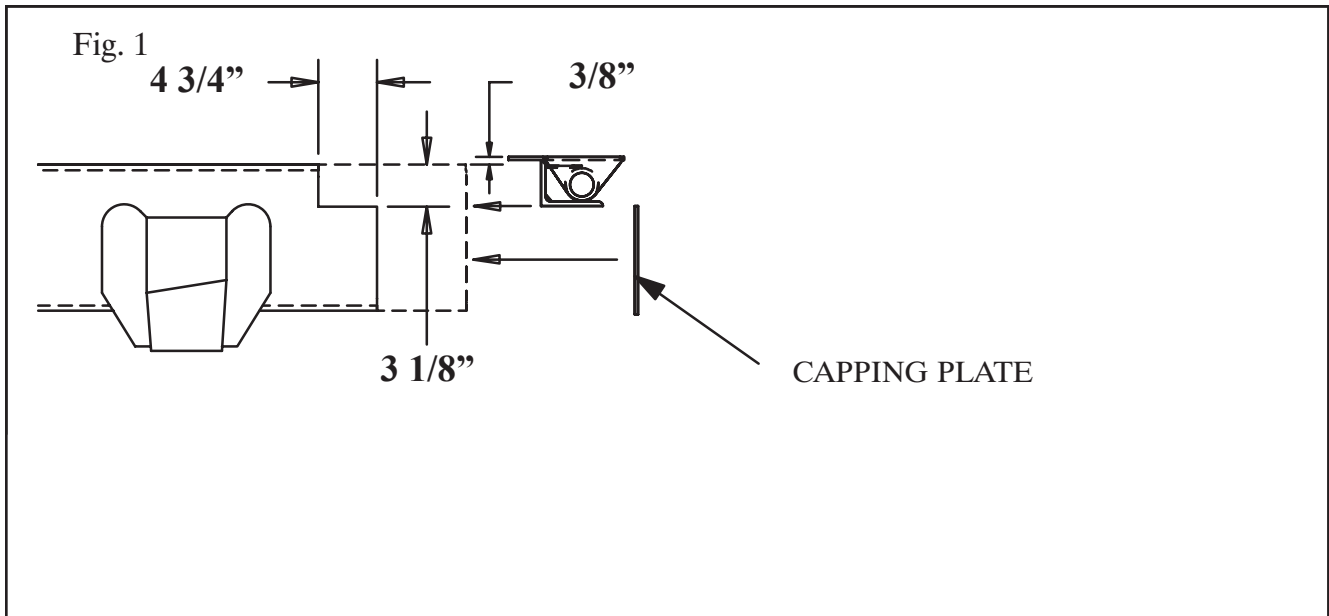
Size	Grade 2 Torque	Grade 5 Torque	Grade 8 Torque
			
1/4-20	3-4 lb-ft	6-7 lb-ft	10-11 lb-ft
1/4-28	4-5 lb-ft	8-9 lb-ft	11-12 lb-ft
5/16-18	8-9 lb-ft	14-15 lb-ft	21-22 lb-ft
5/16-24	9-10 lb-ft	15-16 lb-ft	21-22 lb-ft
3/8-16	17-18 lb-ft	24-26 lb-ft	37-40 lb-ft
3/8-24	19-20 lb-ft	28-30 lb-ft	40-43 lb-ft
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

LOCATE AND INSTALL REAR HINGE

On single-axle trucks, the rear hinge must be located as close as possible behind the rear spring hanger. This will be 32 to 36 inches behind the center of the rear axle. Mark the rear of the truck frame for notching as shown in Figure 1. Notch the truck frame as marked. Make sure the rear hinge is square with the truck frame and at the correct height. The top surface of the rear hinge bracket should be flush with the top of the angle mounting brackets of the hoist frame as shown in Figure 1. Securely weld the rear hinge to the truck frame. Cap the ends of the truck frame under the rear hinge. Weld the capping plates to the ends of the truck frame and to the bottom side of the rear hinge angle.



WARNING! LOCATING THE REAR HINGE FARTHER BACK THAN RECOMMENDED MAY CAUSE UNDUE STRESS IN THE TRUCK FRAME, AND MAY CAUSE INSTABILITY DURING THE LIFTING CYCLE!

LOCATE HOIST

Determine where to mount the hoist on the truck. Please refer to the chart in Fig. 4 for the relationship between dump angle and “D” dimension. Measure forward from the center of the rear hinge pin and mark, on the truck frame, the location of the front crosstube of the hoist frame. Place the hoist on the truck frame and clamp the hoist pivot pads to the truck frame. The back end of the hoist must be supported by a crossmember in the truck frame. The top of this crossmember may be up to 1” below the top of the truck frame. The “CM” dimension shows the location for this crossmember. Make sure the hoist frame is centered on and square with the truck frame.

If desired, the hoist can be turned end for end for a ‘Reverse’ mount. This does not affect the lifting capacity.

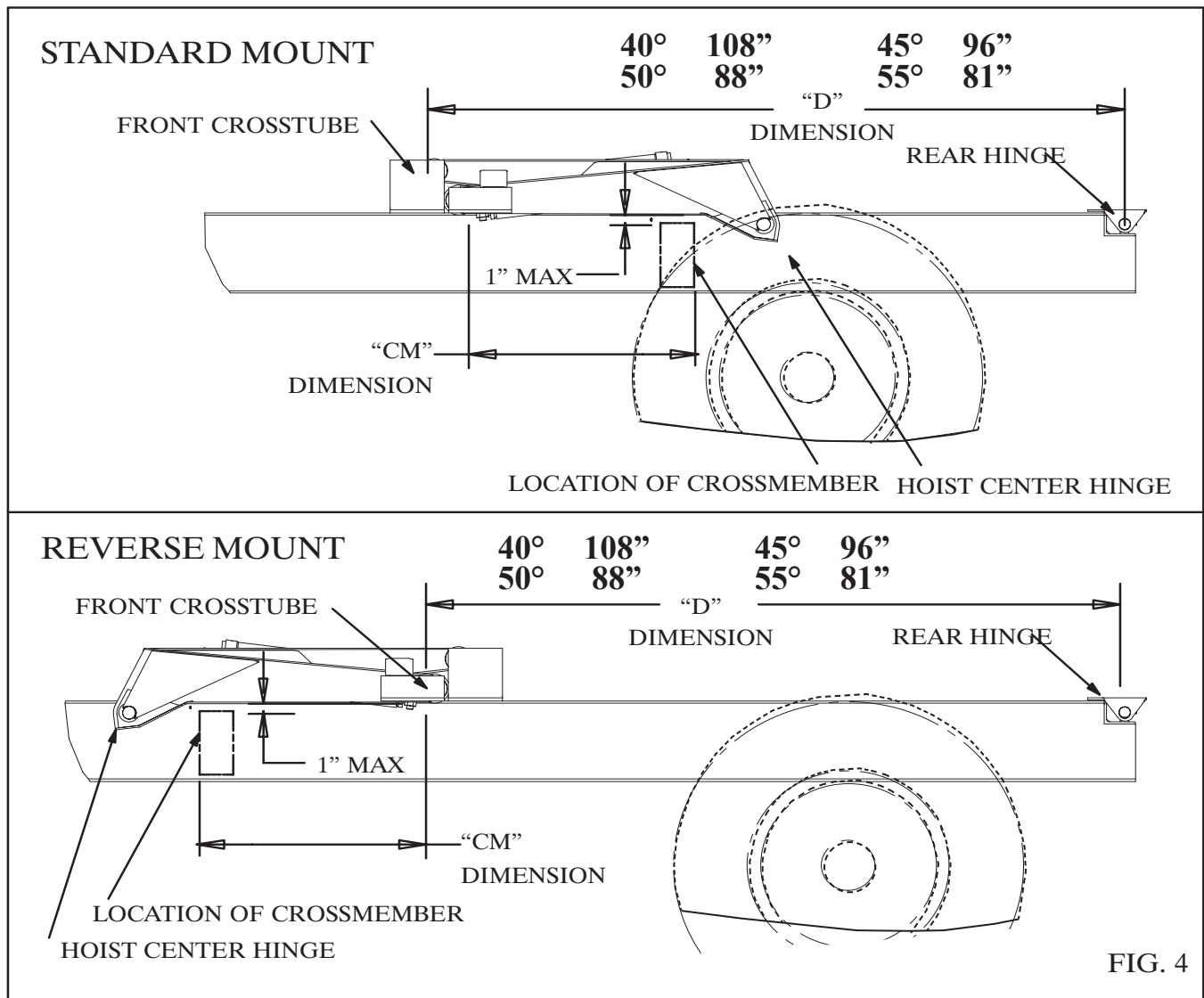
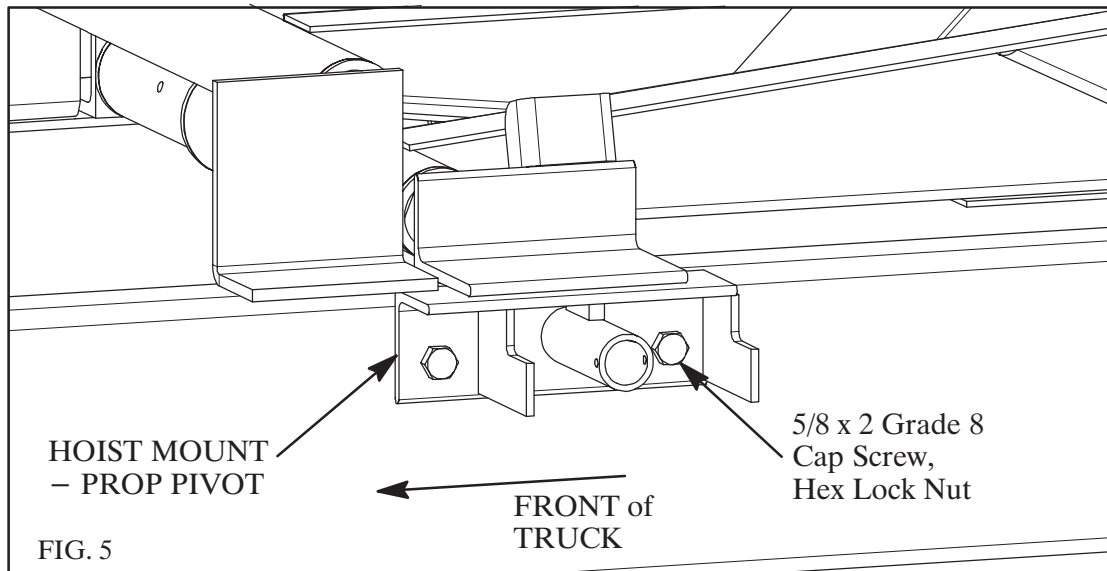


FIG. 4

MOUNT HOIST FRAME

The hoist pivot pads must rest flat on the truck frame. If the hoist pivot pads sit on rivet heads in the truck frame, either move the hoist or drill holes in the pivot pads to clear the rivets. On the driver's side, clamp the hoist mount/prop pivot the lower hoist pivot pad and to the outside of the truck frame. On the passenger side, clamp a hoist mounting angle to the lower hoist pivot pad and to the outside of the truck frame. Mark the truck frame for drilling. See Figure 5.



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

Drill 21/32 diameter holes in the truck frame using the hoist mounting angles as guides. Bolt the prop pivot and mounting angle to the truck frame using 5/8 x 2 hex bolts and hex lock nuts, tightening to 180 to 190 lb-ft. Securely weld the lower hoist pivot pads to the mounting angles. **DO NOT WELD THE HOIST PIVOT PADS TO THE TRUCK FRAME!** Remove the clamps.

HYDRAULIC SYSTEMS

Crysteel offers PTO driven, gear pump hydraulic systems for use with the E-15 hoist. Crysteel also offers a double-acting electric power unit. Mounting instructions can be found on the pages shown:

PTO driven Gear Pump with Remote Reservoir/Valve
Electric Pumps - General
Electric Pumps - Double-Acting

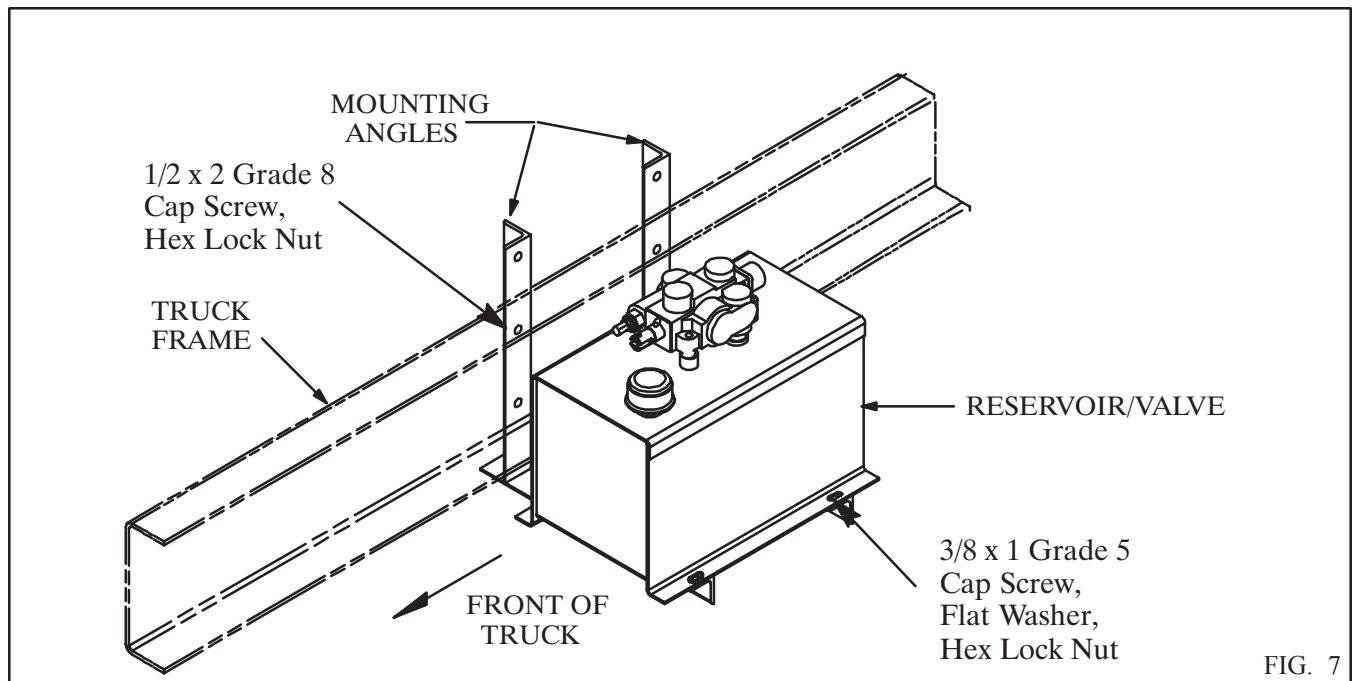
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INSTALL GEAR PUMP - E-15 (ERNIE)

The gear pump for the E-15 (Ernie) hoist has an SAE 'B' mounting configuration, a 13 tooth splined shaft and a four-bolt mounting flange, and is assembled for rotation in either direction. NOTE: This pump will mount directly to Chelsea's output type 'XK' or Muncie's output type 'D'. Crysteel Manufacturing recommends a PTO ratio of 100-120%. This assures a minimum pump operating speed of 600 RPM. Bolt the gear pump to the PTO output flange using 1/2 x 1 1/4 cap screws and lock washers.

MOUNT RESERVOIR/VALVE ASSEMBLY - E-15 (ERNIE)

The reservoir/valve assembly should be mounted on the same side of the truck as the pump with the exposed end of the valve spool toward the front. Bolt the mounting angles to the reservoir/valve assembly using 3/8 x 1 cap screws, flat washers and hex lock nuts, tightening to 24 to 26 lb-ft. Place the reservoir/valve assembly inside the truck frame and raise it as high as possible. See Figure 5. (There is no drive line to align and the reservoir should be higher than the pump for reliable performance.) Make sure there is enough clearance for the truck drive line and hot exhaust pipes. THE ENGINE EXHAUST MUST NEVER BLOW DIRECTLY ONTO THE RESERVOIR/VALVE ASSEMBLY. Clamp the mounting angles to the truck frame and mark the truck frame for drilling using the pump mounting angles as guides.



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

Drill 17/32" holes in the truck frame and bolt the reservoir/valve assembly in place using 1/2 x 2" cap screws and hex lock nuts, tightening to 90 to 100 lb-ft.

INSTALL HOIST CONTROL

Mount the Hoist Control decal on the pedestal taking care to align the holes for the PTO cable and indicator light. Temporarily assemble the valve control head to the pedestal using 5/16 x 2 1/2 machine screws and hex nuts. Place this assembly on the floor of the cab. The pedestal and valve control should angle forward. This makes it convenient for the operator to pull the hoist control lever back to raise the hoist. Make sure there is enough room to operate the valve control and 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 11/32" 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 1/2 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 hex head cap screws, clamping plate (under the floor) 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. 8.)

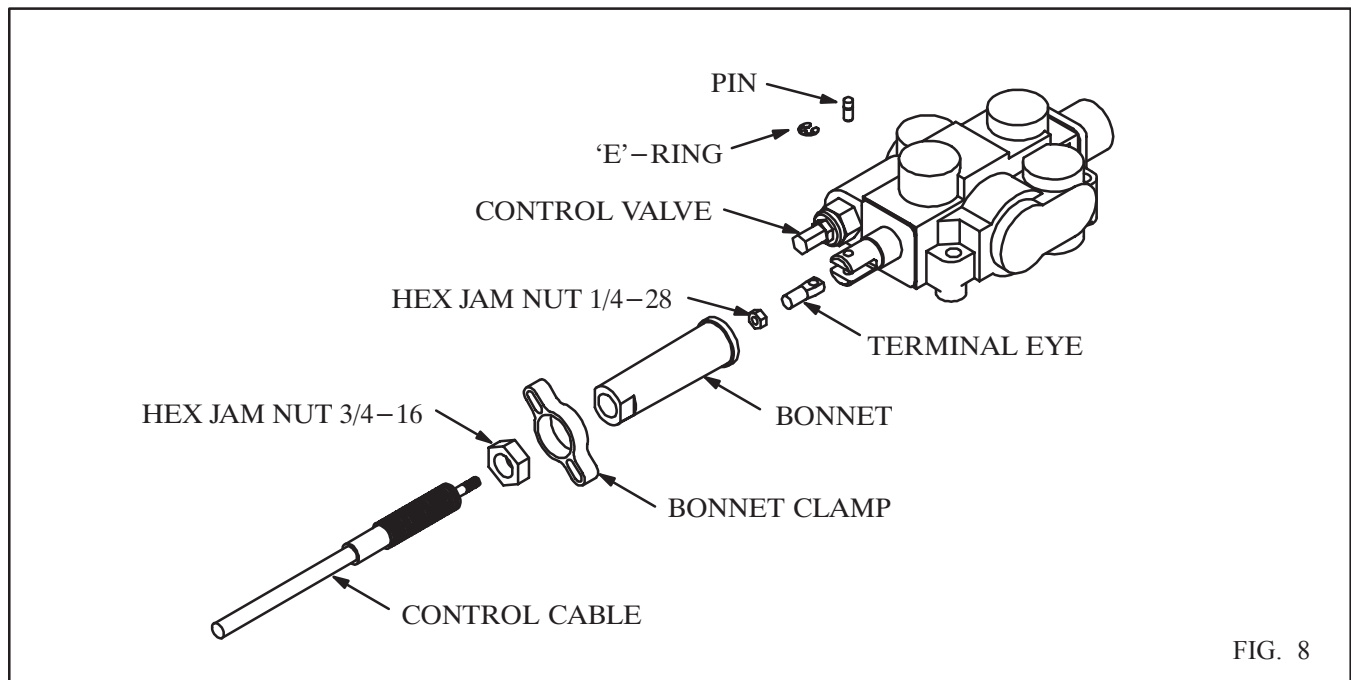


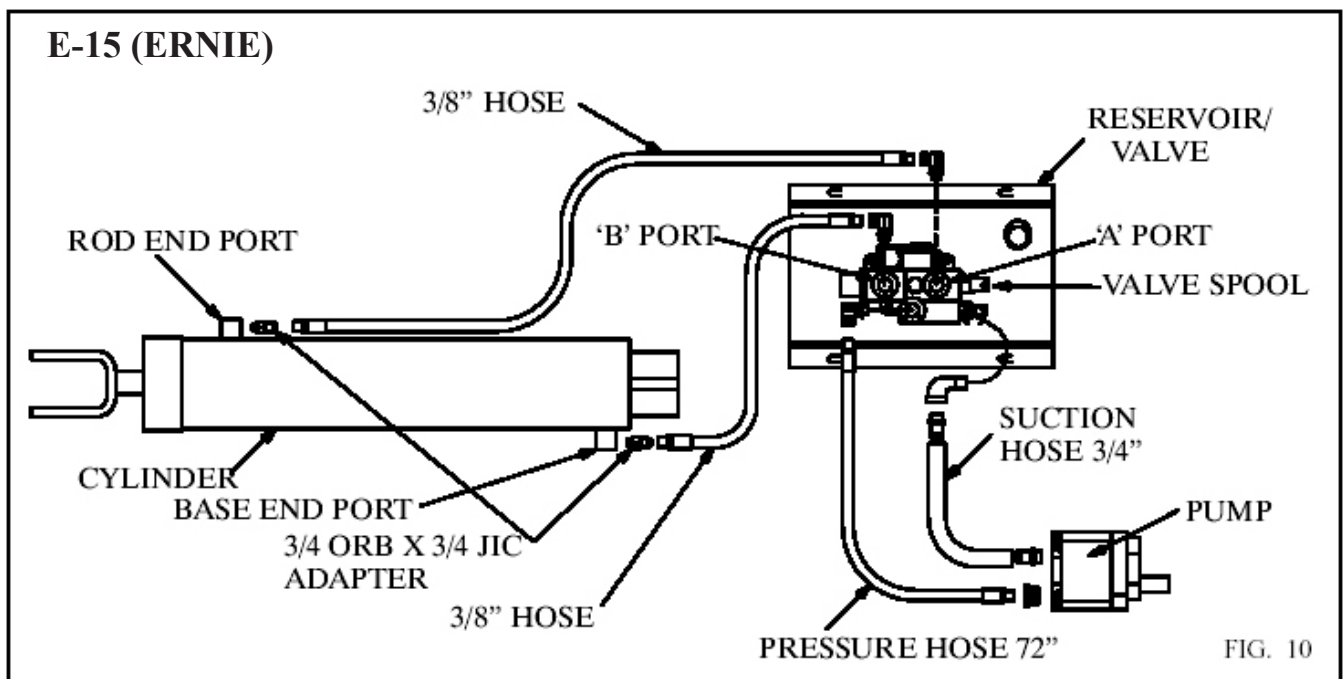
FIG. 8

INSTALL HOSES - E-15 (ERNIE)

Study Fig. 10 very carefully before connecting the hoses. Install a 90° street elbow and a hose barb in the suction port on the bottom of the reservoir. Install a hose barb in the suction port of the pump and install the suction hose. Secure the suction hose in place using hose clamps.

Install a 90° swivel adapter in the 'IN' port of the control valve and install a reducing adapter in the pressure port of the pump. Install the 1/2" ID, 72" long hose (3500 psi minimum pressure rating) from the pump to the valve. Install 7/8 ORB male x 3/4 JIC male 90° adapters in the work ports of the control valve. Install 3/4 ORB male x 3/4 JIC male straight adapters in the ports on the cylinder.

Connect the shorter 3/8" hose with 3/4 JIC fittings from the base end port of the cylinder to the 'B' port on the control valve. Connect the longer 3/8" hose with 3/4 JIC fittings from the rod end port of the cylinder to the 'A' port on the control valve. 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.

ADD HYDRAULIC FLUID

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. Initially fill the reservoir with the quantities given below. **DO NOT OVERFILL THE RESERVOIR!**

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

HOIST MODEL	RESERVOIR SIZE	FLUID REQUIRED
E-15 (ERNIE)	6 GALLONS	4 GALLONS

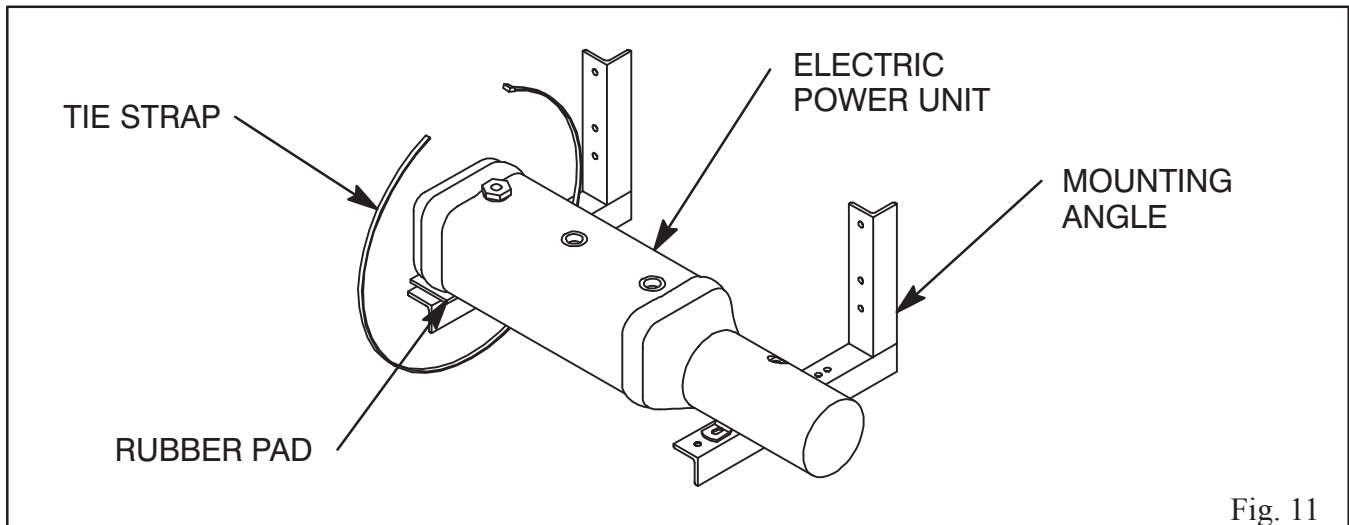
NOTE: If the pump does not pump oil, pressurize the reservoir and engage the pump with the engine at slow idle. Once the pump is working, release the pressure and install the breather cap.

For the E-15 (Ernie) hoist, fully raise the hoist and hold the hoist control in the 'RAISE' position for 20 to 30 seconds. This will remove the air that is inside the cylinder(s). Lower the hoist and check the fluid level in the reservoir; the reservoir should be 2/3 full with the body down.

With normal use and working conditions the hydraulic oil should be changed annually. The breather cap should be cleaned every time the hydraulic oil is changed. With heavy use or very dusty working conditions the hydraulic oil should be changed more often.

ELECTRIC POWER UNIT MOUNTING - GENERAL

The electric power unit should be mounted close behind the cab, either inside or outside the truck frame. After determining where to mount the power unit, bolt one mounting angle to the power unit using the 3/8 x 1 hex head cap screws, tightening to 24 to 26 lb-ft. (See Fig. 11.) Clamp the mounting bracket to the truck frame. Clamp the second mounting angle to the truck frame so it supports the far end of the reservoir. Insert a rubber pad between the mounting angle and the reservoir; and secure it in place with a tie strap. Mark the truck frame for drilling using the pump mounting angles as guides.

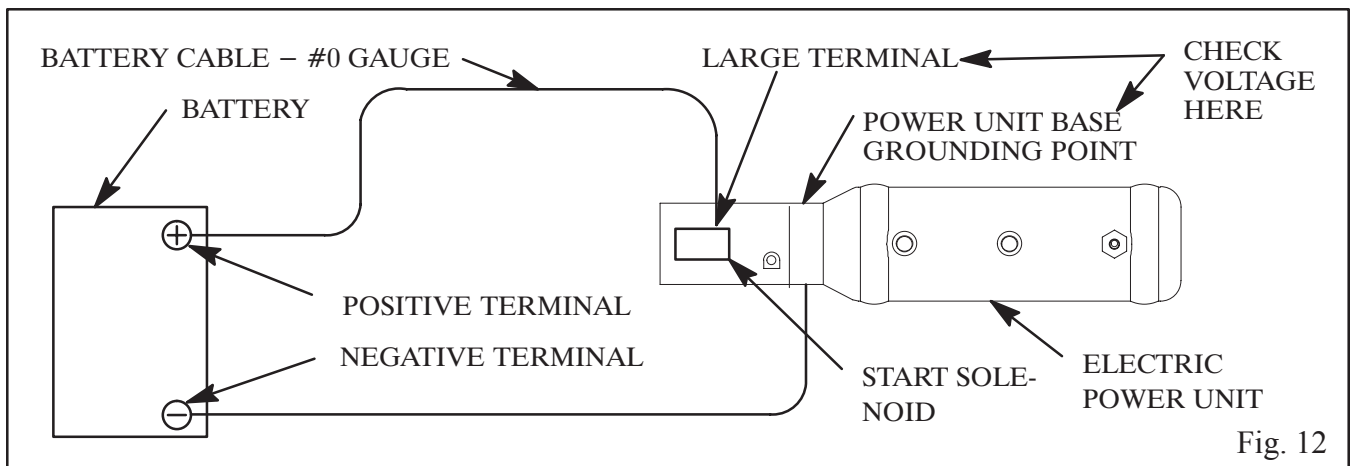


CAUTION: BE CAREFUL OF BRAKELINES, WIRING, ETC. INSIDE THE TRUCK FRAME WHEN DRILLING THE TRUCK FRAME.

Drill 17/32" holes in the truck frame and bolt the reservoir/valve assembly in place using 1/2 x 2 cap screws and hex lock nuts, tightening to 90 to 100 lb-ft.

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. 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 10. 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-pin connector set. Clamp the motor solenoid cover to the motor using the long tie-strap included with the electric power unit.

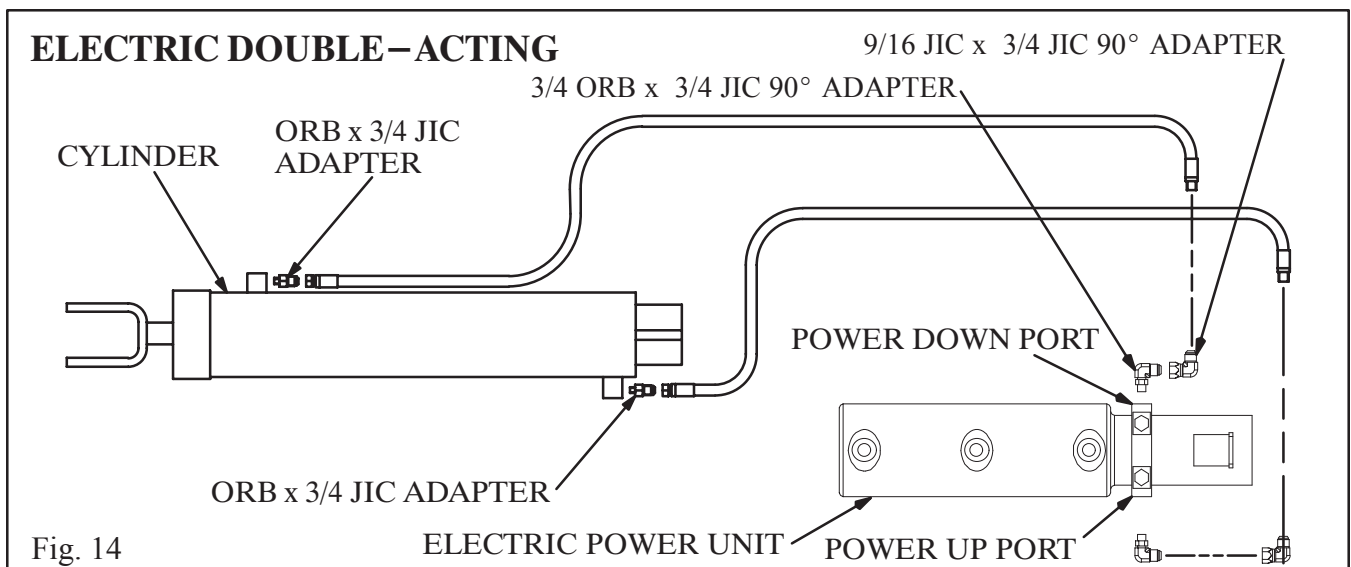
INSTALL HOSES - DOUBLE-ACTING

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.

For the B-5 (Bert), C-8 (Charlie) & D-9 (Daniel) models, install 9/16 ORB male x 3/4 JIC male adapters in both ports on the cylinder. For the D-10 (David), E-15 (Ernie) & F-18 (Floyd) models, install 3/4 ORB male x 3/4 JIC male adapters in both ports on the cylinder.

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. (See Fig. 14.)

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



ADD AUTOMATIC TRANSMISSION FLUID

Initially fill the reservoir with DEXRON III automatic transmission fluid. Refer to the following table for the amount. **DO NOT OVERFILL THE RESERVOIR!** Raise and lower the hoist several times and check the fluid level in the reservoir. Add fluid as needed.

HOIST MODEL	RESERVOIR SIZE	FLUID REQUIRED
E-15 (ERNIE)	7 QUARTS	7 QUARTS

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

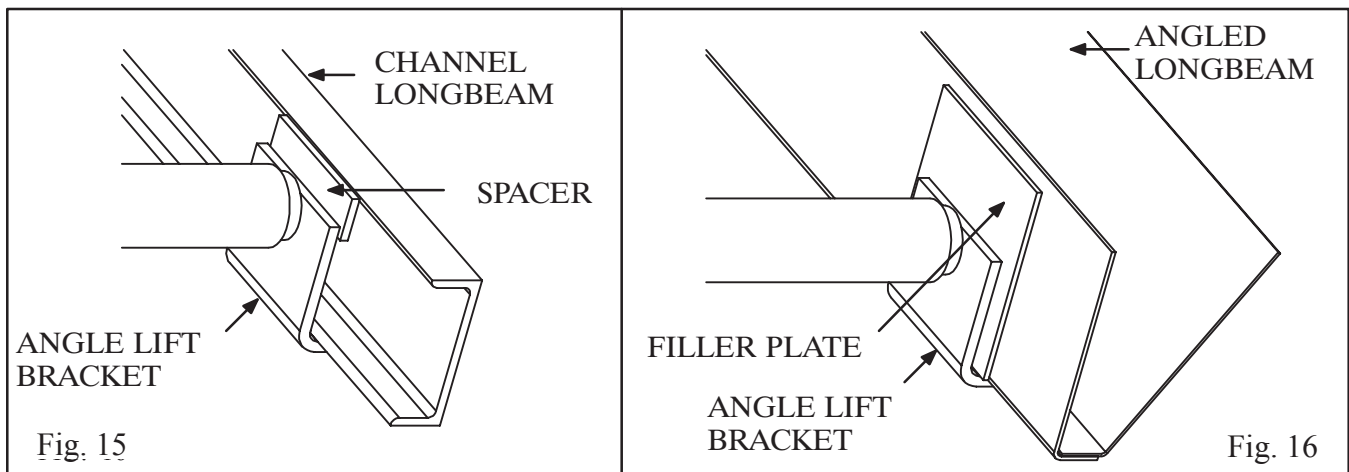
For the E-15 (Ernie) hoist with double-acting power unit, raise the hoist until there is 2” of ATF in the reservoir. Add 2 quarts and raise the hoist until there is 2” of ATF in the reservoir. Repeat this until the hoist can be fully raised. Fully raise the hoist and hold the `UP` button for 20-30 seconds. This will remove the air that is inside the cylinder. Lower the hoist and check the fluid level in the reservoir; the fluid level should be within 1” of the top of the reservoir with the body down.

With normal use and working conditions the automatic transmission fluid should be changed annually. The breather cap should be cleaned every time the fluid is changed. With heavy use or very dusty working conditions the fluid should be changed more often.

MOUNT BODY

It is recommended that the body be painted before it is mounted on the truck. Place the body in position on the truck with three inches of clearance behind the cab. Use the rivet strips to fill the space between the longbeams and the truck frame. Use three on each side, one near the front of the body and two evenly spaced between the hoist mount and the rear hinge. Weld them to the longbeams. Align the body longbeams carefully with the truck frame. Securely weld the longbeams to the rear hinge brackets and to the upper hoist pivot pads.

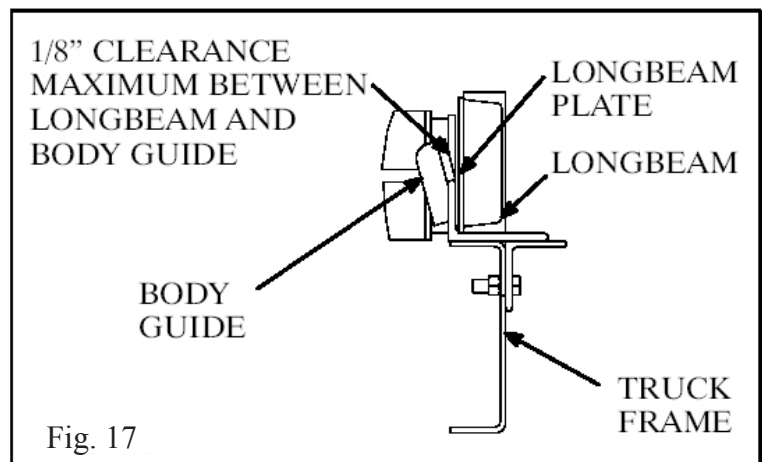
On the inside of the longbeams, securely weld the longbeam fillers to the top of the upper hoist pivot pads and to the top flange of the longbeam channels as shown in Figure 15. Be sure to do this on both sides.



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

INSTALL BODY GUIDE PLATES

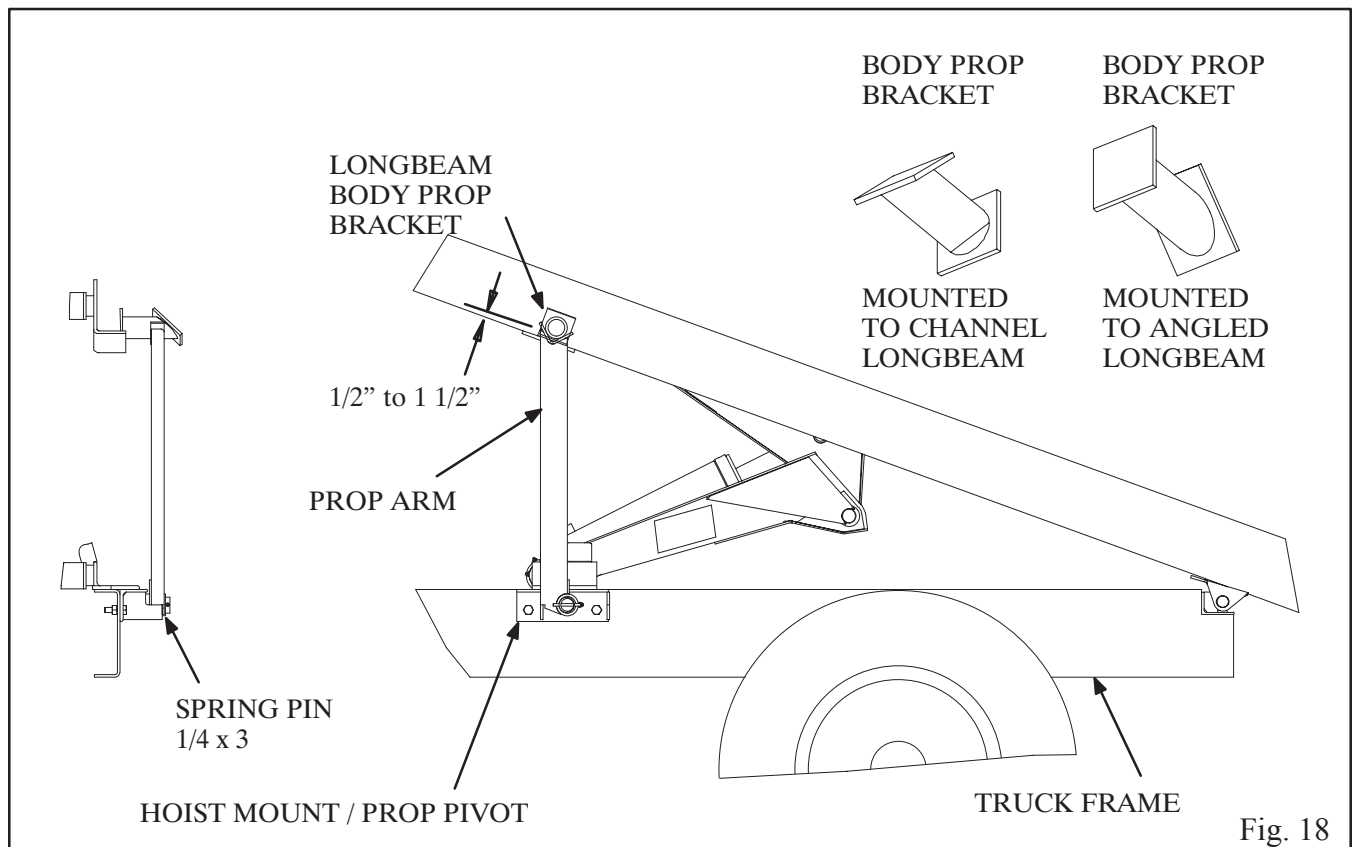
Crysteel recommends that plates be installed on the inside of the body longbeams to work with the body guides built into the hoist frame to keep the body and truck frame aligned when the body is down. (See Fig. 17.)



INSTALL BODY PROP

The body prop is designed and intended to support an EMPTY truck body in the raised position. Use of the body prop permits service to be performed safely beneath a raised body. It is mounted on the outside of the truck frame on the drivers side.

1. Raise the body half way up and brace it securely before beginning installation.
2. Install the prop arm on the hoist mount / prop pivot with a 1/4 x 3 roll pin. Raise the body prop arm to the vertical, free standing position. Place the body prop bracket in the prop arm saddle. Lower the body so the bottom of the longbeam body prop bracket is between 1/2" and 1 1/2" up from the bottom of the body longbeam. For bodies with angled longbeams, keep the longbeam body prop bracket as low as possible. Securely weld the bracket to the longbeam.
3. 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 body prop bracket contacts the prop arm saddle.
4. 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.



An optional passenger's side prop kit is available.

5. When mounting the passenger's side prop, replace the hoist mounting angle with the hoist mount/prop pivot. Prop the body in the raised position using the driver's side prop. This will ensure that both props are supporting the empty body.

INSTALL GREASE ZERKS AND LUBRICATE

Install grease zerks in the hoist frame. Lubricate all fittings at regular intervals, at least every 100 cycles or every two months. The grease fittings are located (See Fig. 19.) as follows:

- | | | |
|----|----------------------------|--------------------|
| A. | Rear Hinge | 2 fittings |
| B. | Lower Cylinder Mount | 2 fittings |
| C. | Lower Crosstube | 1 fitting per prop |
| D. | Upper Crosstube | 2 fittings |
| E. | Cylinder Crosshead | 1 90° fitting |
| F. | Center Hinge | 1 fitting |
| G. | Body Prop | 1 90° fitting |

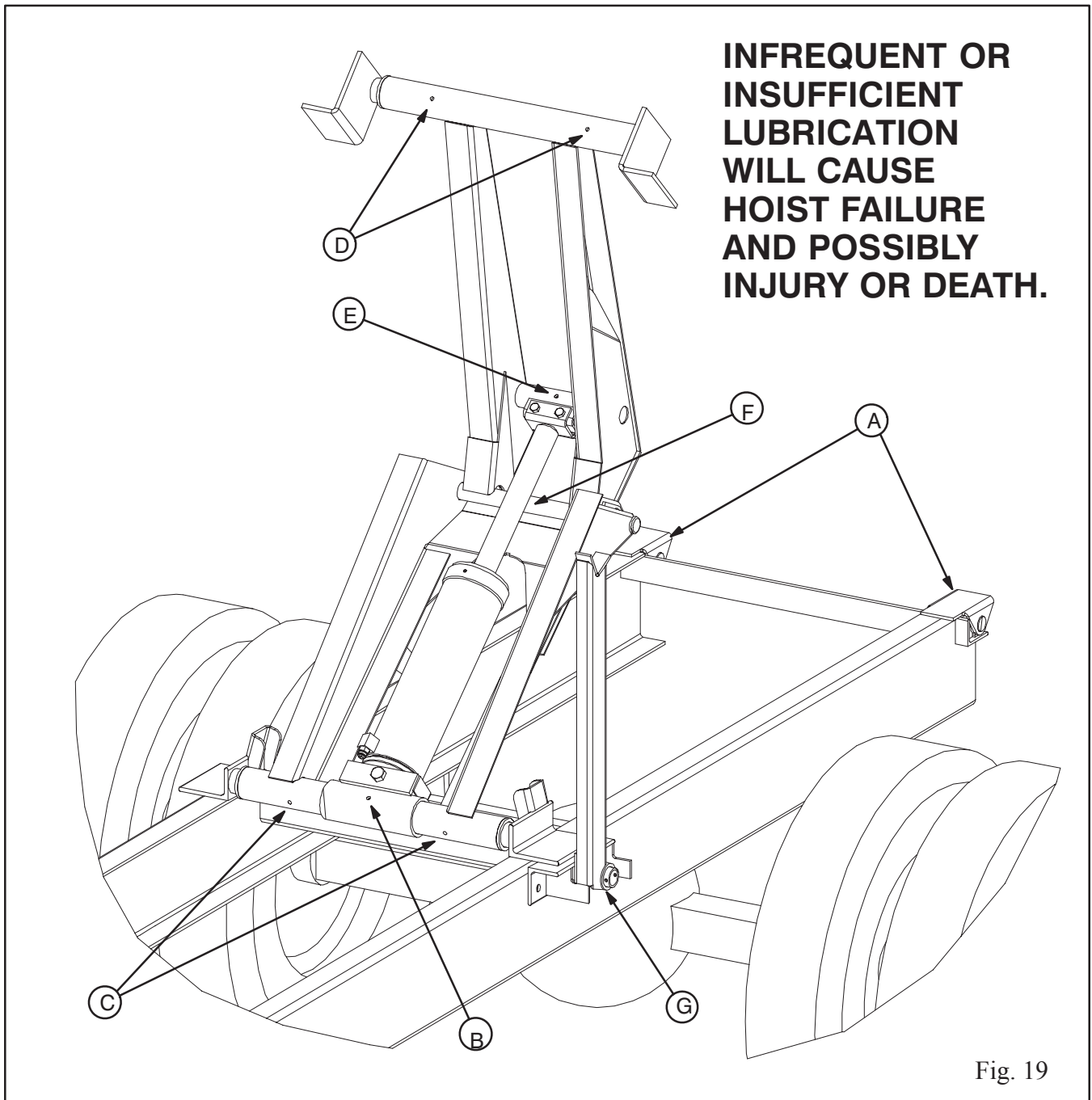
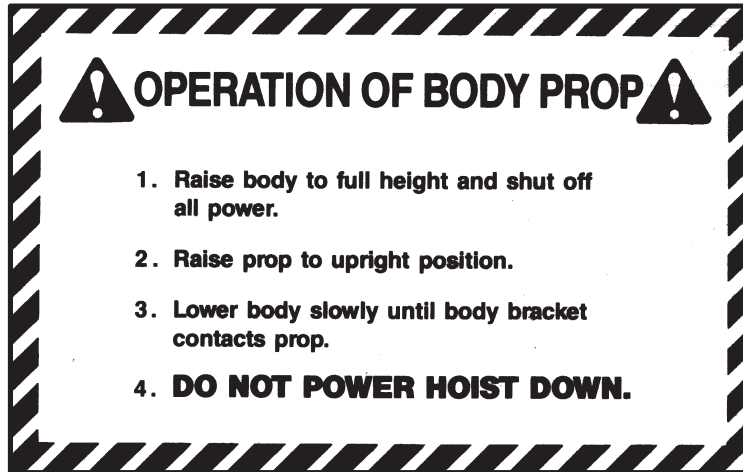


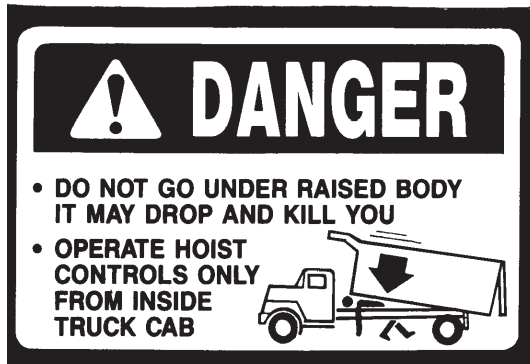
Fig. 19

MOUNT DECALS

Mount decals in the proper places as shown in Figure 20.



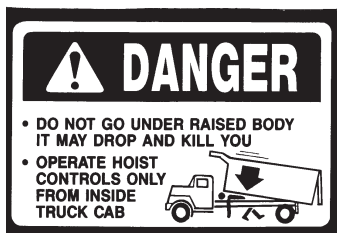
1642848 Mount on the body longbeam near the body prop



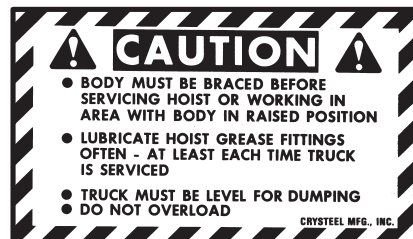
1643067 Mount on the outside of the body longbeams near the front of the body (one on each side).



1642844 Mount on the longbeam on the drivers side.



1643068 Mount in the cab in a prominent location



1642843 Mount in the cab in a prominent location'



1642846 Mount on the body prop arm.

Fig. 20

E-15 (ERNIE) HOIST PARTS

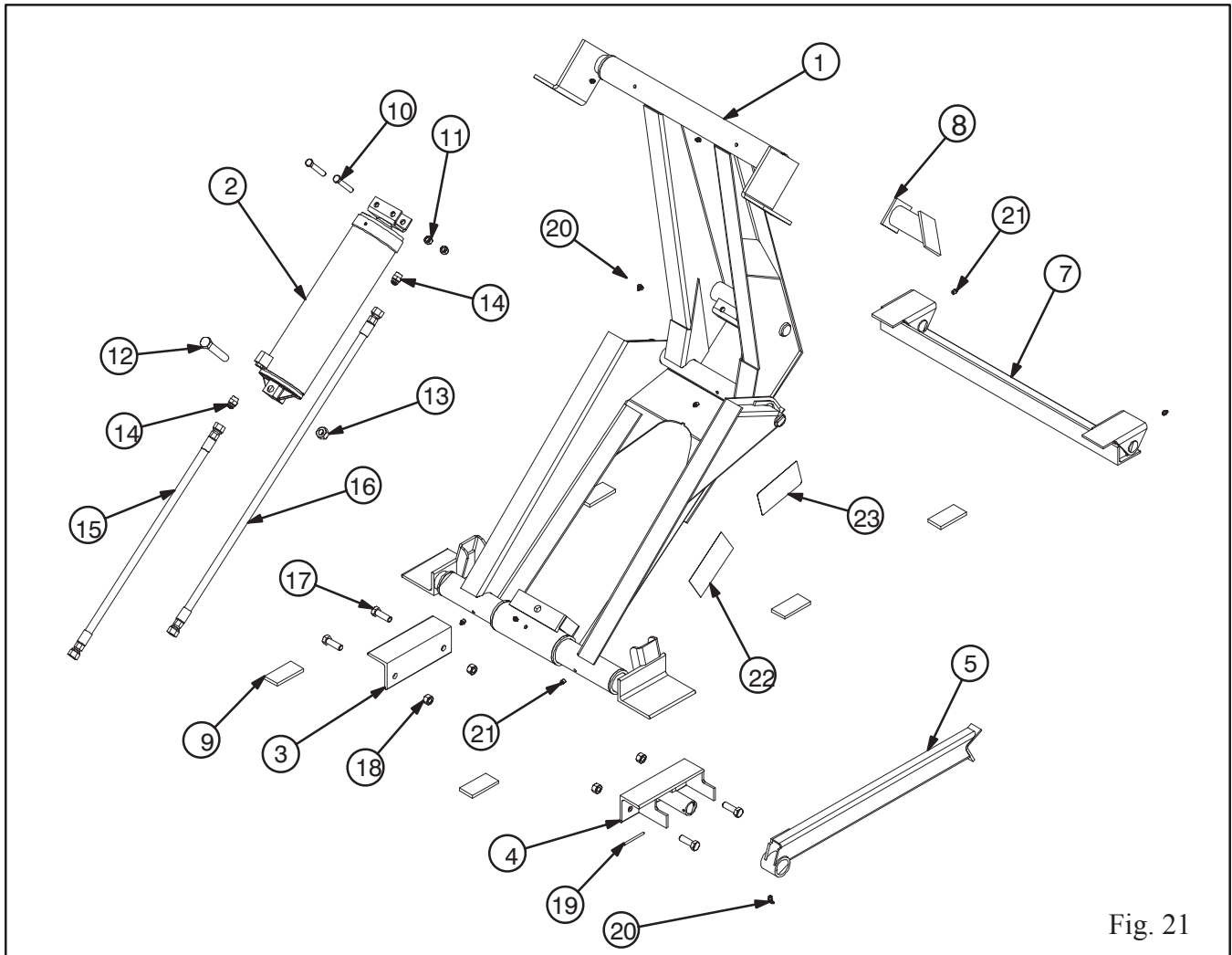


Fig. 21

No.	Description	Model E-15 (Ernie)	Qty
1.	Assy Frame	1624264	1
2.	Assy Cylinder	1624266	1
3.	Mounting Angle	1629458	1
4.	Assy Mount/Pivot - Driver's Side	1625146	1
	Assy Mount/Pivot - Passenger Side	1625147	1
5.	Assy Prop Arm 30" - Driver's Side	1625101	1
	Assy Prop Arm 30" - Passenger Side	1625102	1
7.	Assy Rear Hinge	1621587	1
8.	Assp Prop Bracket	1622175	1
9.	Spacer Longbeam	1629377	6
10.	Cap Screw, Hex Hd - 1/2-13 x 4 Gr 8	1642958	2

No.	Description	Model E-15 (Ernie)	Qty
11.	Hex Lock Nut 1/2-13	1642984	2
12.	Cap Screw, Hex Hd - 3/4-10 x 5 1/2 Gr 8	1368341	1
13.	Hex Lock Nut 3/4-10	1642957	1
14.	Adapter 3/4 ORB x 3/4 JIC	1643586	2
15.	Hose 3/4 JIC x 42"	1643359	1
16.	Hose 3/4 JIC x 60"	1643376	1
17.	Cap Screw, Hex Hd - 5/8-11 x 2 Gr 8	1643313	4
18.	Hex Lock Nut 5/8-11	1643070	4
19.	Roll Pin 1/4 x 3	1642757	1
20.	Grease Zerk 1/8 NPT 90°	1642713	2
21.	Grease Zerk 1/8 NPT	1645187	8
22.	Decal LoBoy	1644452	1
23.	Decal Lubrication	1644617	1
24.	Decal Kit	1621809	1
25.	Body Prop Kit - Driver's Side	1625185	1
26.	Body Prop Kit - Passenger Side	1625186	1

CYLINDER PARTS

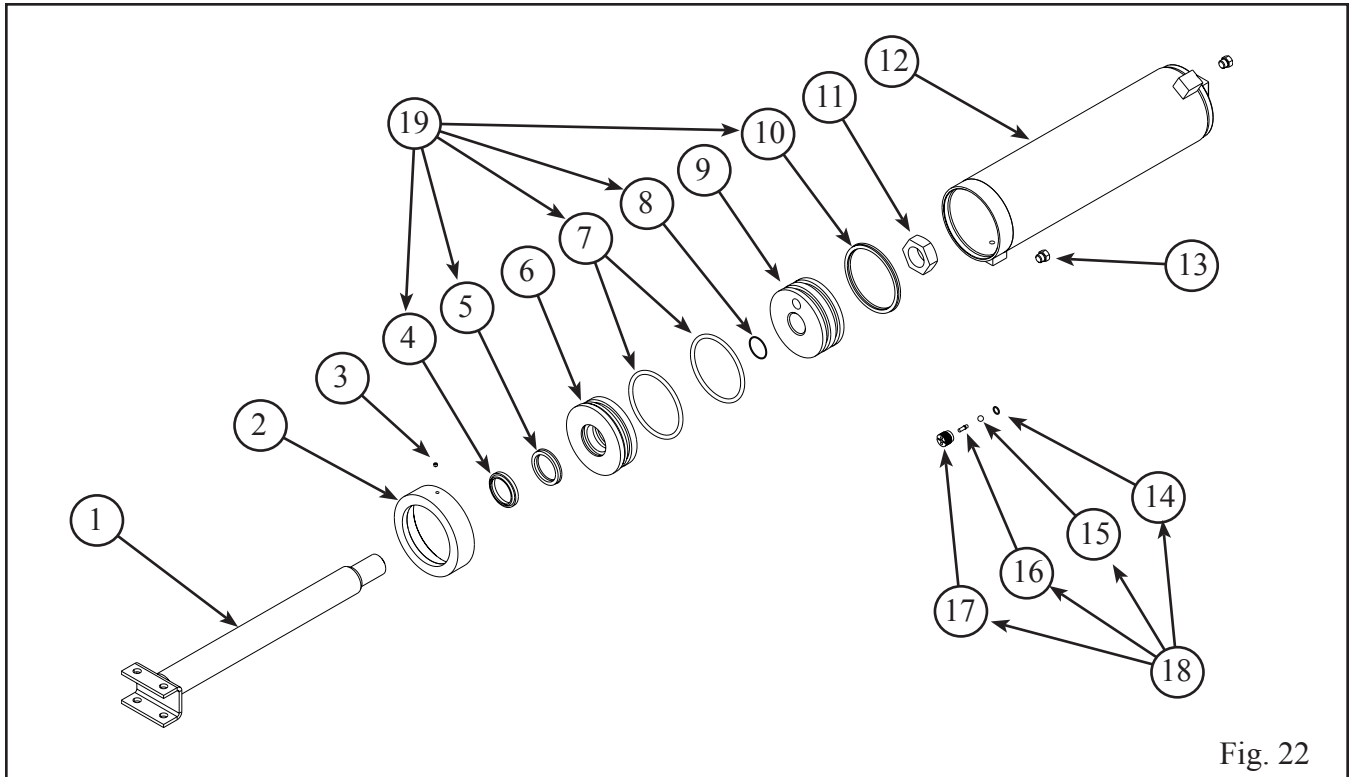


Fig. 22

No.	Description	Model E-15 (Ernie)	Qty
1.	Assy Shaft	1624218	1
2.	Cap Ring	1414738	1
3.	Set Screw, Nylon Tip - 1/4"	1642724	1
4.	Wiper	1642878	1
5.	Shaft Seal	1642765	1
6.	Cylinder Head	1634983	1
7.	O-Ring	1642770	2
8.	O-Ring	1642767	1
9.	Cylinder Piston	1629604	1
10.	Piston Seal	1642769	1
11.	Hex Jam Nut 1 1/2-12	1642995	1
12.	Assy Cylinder Tube	1624297	1
13.	Plug ORB	1642805	1
14.	O-Ring 7/16	1642907	1
15.	Ball - 3/8	1642679	1
16.	Bypass Valve Pin	1642894	1
17.	Bypass Valve Body	1642893	1
18.	Bypass Valve Kit	1621569	1
19.	Seal Kit	1621642	1

**E-15 (ERNIE)
HYDRAULIC SYSTEM PARTS**

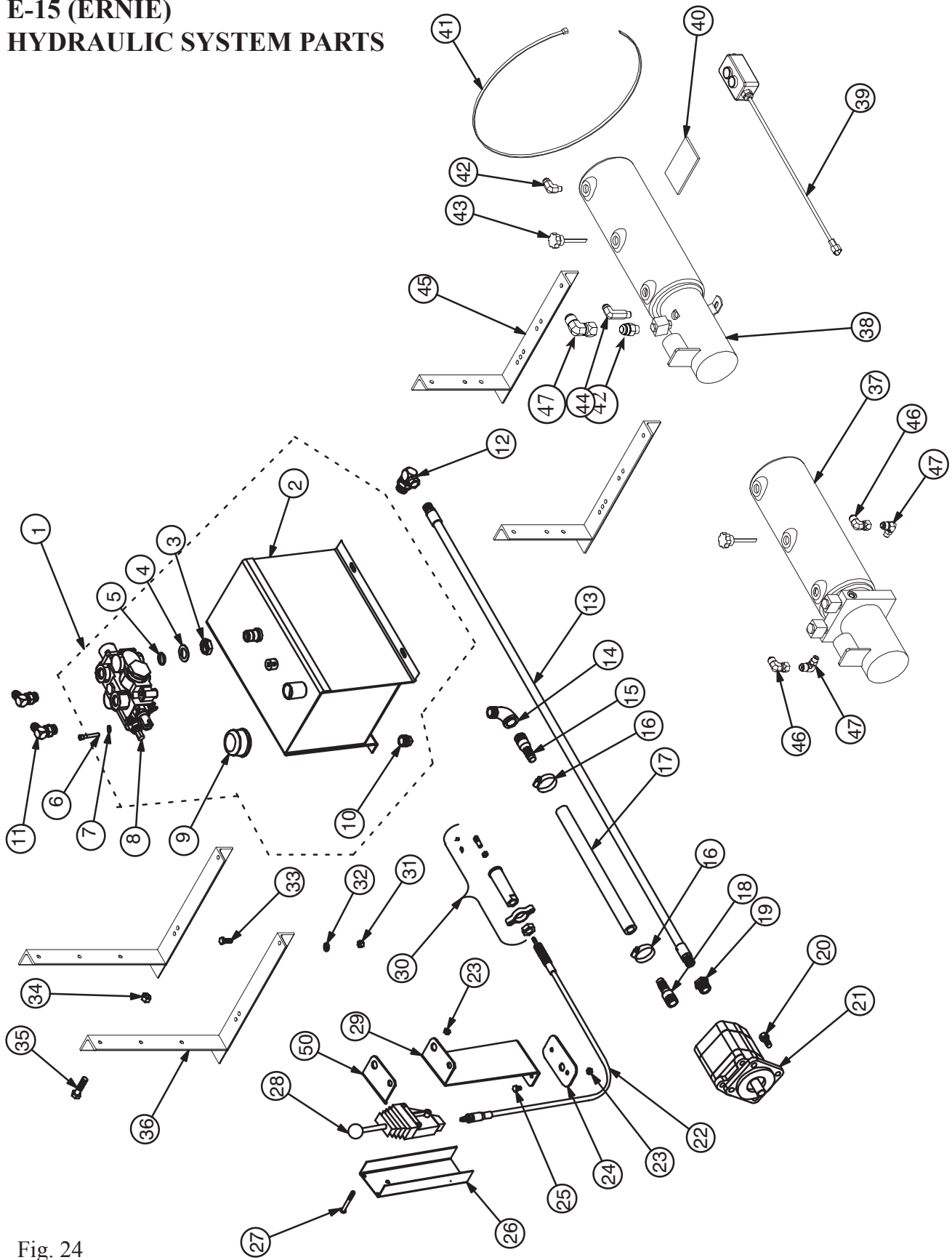


Fig. 24

ITEM	DESCRIPTION	E-15 (Ernie)	QTY
1.	Assy Reservoir/Valve (Carton) 3250 DA	1621943	1
2.	Assy Reservoir Weldment	1621925	1
3.	Hex Jam Nut 1 1/16-12	1643194	1
4.	Cone Washer 1 1/16	1643195	1
5.	O-Ring .924 ID x .116 CS	1642922	1
6.	Cap Screw, Soc Hd 5/16-18 x 2	1643205	1
7.	Lock Washer 5/16	1642733	1
8.	Control Valve 3250 DA	1643185	1
9.	Breather Cap	1644723	1
10.	Pipe Plug 3/4" Magnetic	1642794	2
11.	Adapter 7/8 ORM x 3/4 JICM 90°	1643356	2
12.	Adapter 1 1/16 ORM x 1/2 NPTF 90°	1642969	1
13.	Hose 1/2 NPT x 72 RM/RM 3500 PSI	1643015	1
14.	Pipe Street Elbow 3/4 90°	1643226	1
15.	Hose Barb 3/4 NPT x 3/4	1643017	1
16.	Hose Clamp #24	1643011	2
17.	Suction Hose 3/4" ID x 72"	1643805	1
18.	Hose Barb 1 1/16 ORBM x 3/4	1643228	1
19.	Adapter 1 1/16 ORBM x 1/2 NPTF	1283139	1
20.	Cap Screw, Hex Hd 1/2-13 x 1 1/4 Gr 8	1642726	4
21.	Gear Pump 6 GPM - P20	1644773	1
22.	Cable, Valve Control - 96"	1643210	1
	Cable, Valve Control - 72"	1643209	1
	Cable, Valve Control - 84"	1643332	1
	Cable, Valve Control - 120"	1643211	2
	Cable, Valve Control - 144"	1643212	1
	Cable, Valve Control - 180"	1643213	1
	Cable, Valve Control - 240"	1643214	1
23.	Hex Lock Nut 5/16-18	1642962	5
24.	Clamp Plate - Pedestal	1631026	1
25.	Cap Screw, Hex Hd 5/16-18 x 1/2 Gr 2	1643329	2
26.	Channel Pedestal, Tall	1630873	1
27.	Machine Screw 5/16-18 x 2 1/2 Rd Hd	1643233	3
28.	Remote Valve Control w/ Center Detent	1643208	1
29.	Pedestal Bracket, Tall	1630872	1
30.	Valve Connection Kit - Prince 5100	1643215	1
31.	Hex Lock Nut 3/8-16	1643177	4
32.	Flat Washer 3/8	1642732	4
33.	Cap Screw, Hex Hd 3/8-16 x 2 Gr 5	1642714	4
34.	Hex Lock Nut 1/2-13	1642984	4

ITEM	DESCRIPTION	E-15 (Ernie)	QTY
35.	Cap Screw, Hex Hd 1/2-13 x 2 Gr 8	1642701	4
36.	Reservoir Mounting Angle	1621472	2
37.	Monarch Pump, DA 3250 PSI	1200097	1
39.	Push-Button Control - DA 78"	1200095	1
40.	Rubber Pad 1/4 x 3 x 5	1643881	1
41.	Cable Tie - 33"	1643817	1
42.	Adapter 3/4 JICM x 1/4 NPTM 90°	1643374	1
43.	Breather Cap - Splash Resistant	1644498	1
44.	Adapter 9/16 ORBM x 3/4 JICM	1643375	1
45.	Pump Mounting Angle	1621438	2
46.	Adapter 3/4 JICM x 3/4 JICM 90°	1643545	2
47.	Adapter 9/16 ORBM x 3/4 JICM 90°	1643544	2
48.	Adapter 3/4 JICM x 3/4 JICM 90°	1643545	1
50.	Decal - Hoist Control	1643216	1

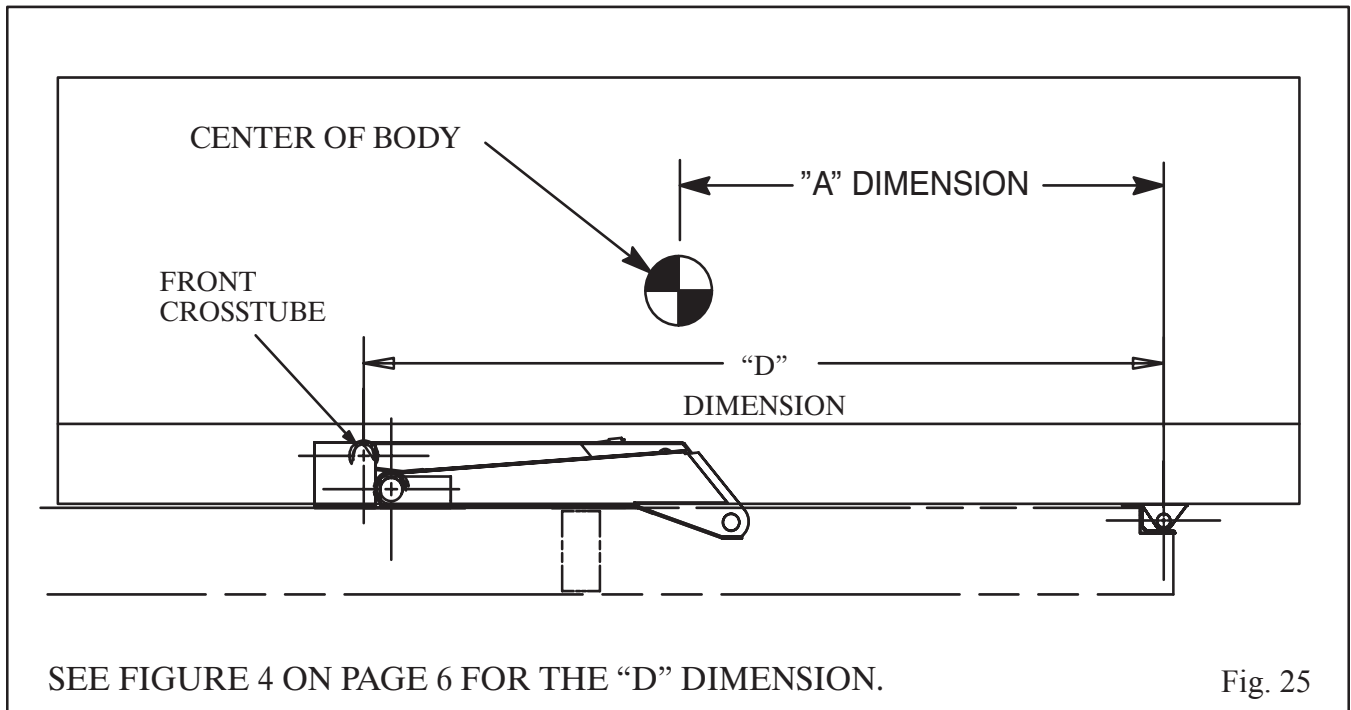
SPECIFICATIONS

Hoist Model	Cylinder Bore	Cylinder Stroke	Cylinder Shaft	Operating Pressure	Minimum Floor Height
D-15 (ERNIE)	6.000"	20.69"	2.000"	3250 PSI	8"

CAPACITY FORMULA

The capacity of the LoBoy truck hoists can be calculated using the following steps.

1. Measure the distance, in inches, from the center of the rear hinge to the center of the body. Call this "A".
2. Measure the distance, in inches from the center of the rear hinge to the forward crosstube on the hoist. Call this "D". (See Figures 2, 3 & 4 for "D" dimensions for the various models.)
3. For Model E-15 (ERNIE), multiply "D" by 8.87.
4. Divide the result of Step 3 by "A". This is the capacity in tons for an evenly distributed load (over the whole length of the body) and includes the weight of the body.



NOTES

WARRANTY

- Crysteel's Warranty for the E-15 (Ernie) hoist, provided with this 1000 Series Package, covers for a period of one (1) year after the date of hoist manufacturer's invoice.
- This warranty covers the E-15 (Ernie) hoist for defective material and/or workmanship at a rate of 100%.
- This warranty is limited to product manufactured by Crysteel Mfg. and does not cover modifications. Repair or replacement is at Crysteel's option. Crysteel will not assume responsibility for travel, loss of use, or downtime expenses. This warranty is void if the product has been obviously abused, subjected to other than intended usage, or modified from its original design. There are no other warranties except as described above, and Crysteel makes no warranty of fitness for a particular purpose.

! 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.