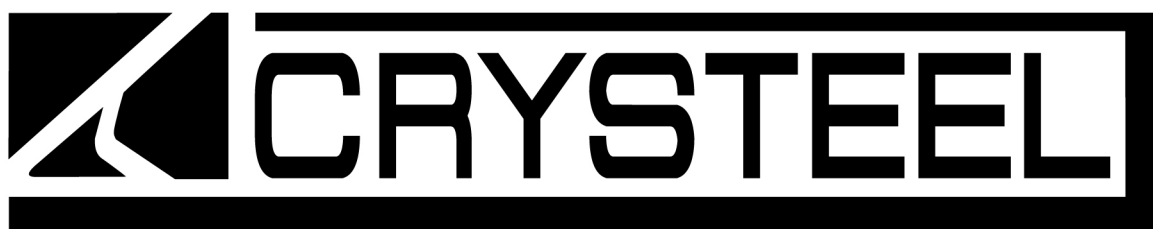




Website: www.TBEI.com
E-mail: sales@TBEI.com

CRYSTEEL'S TURBO TELESCOPIC HOIST



***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 _____

BODY SERIAL NUMBER _____

CYLINDER SERIAL NUMBER _____

DEALER _____

ADDRESS _____

PHONE _____

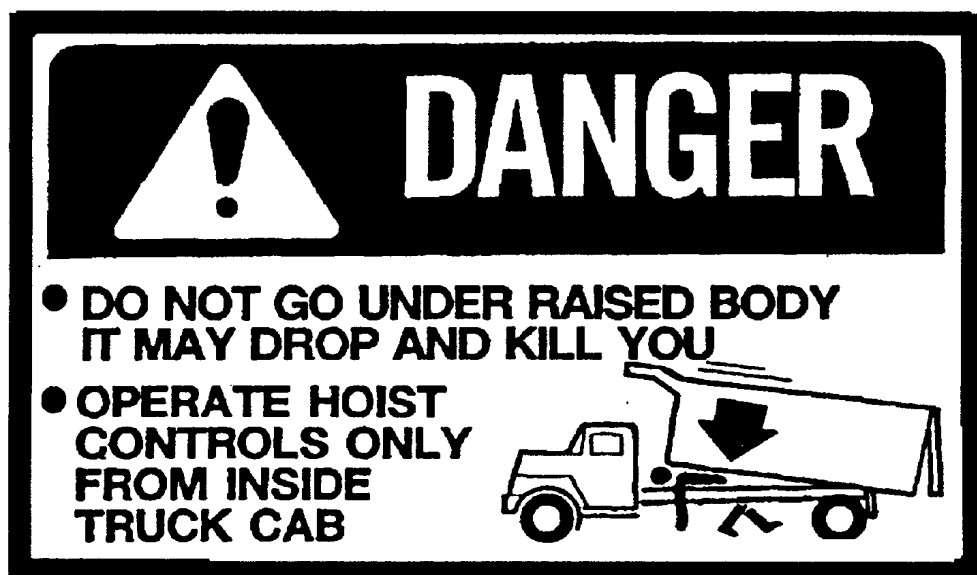
FOREWORD

The Crysteel Turbo Hoists are heavy duty, front mounted, telescopic hoists designed and intended for use under dump bodies. They are designed for single or tandem axle trucks with 9' to 24' bodies. The Turbo Hoist line provides hoists from model T5380 in NTEA class 60, to model T74191 in NTEA class 120.

This manual contains the information needed for the proper installation and operation of these hoists.

These instructions are for standard installations using a pump/valve in conjunction with a separate reservoir. Other hydraulic packages will come with additional instruction sheets. With proper installation, use, and regular maintenance, Crysteel's Turbo Hoists will give many years of trouble free service.

When ordering parts, be sure to give serial number of body and cylinder. The serial number of the body can be found low on the front of the body on the driver's side. 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 position, 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. DO NOT LEAVE THE PTO IN GEAR WHILE TRANSPORTING. THIS CAN CAUSE SEVERE DAMAGE TO THE PTO OR HYDRAULIC PUMP.
7. To use the body prop(s), raise the body high enough to swing the body prop arms to their propping position. Raise the props and pin them in their propping position. Slowly lower the body onto the props.
8. To store the body prop(s), raise the body, lower the prop arms to their storage position, pin in place and lower the body.
9. 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.
10. 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.

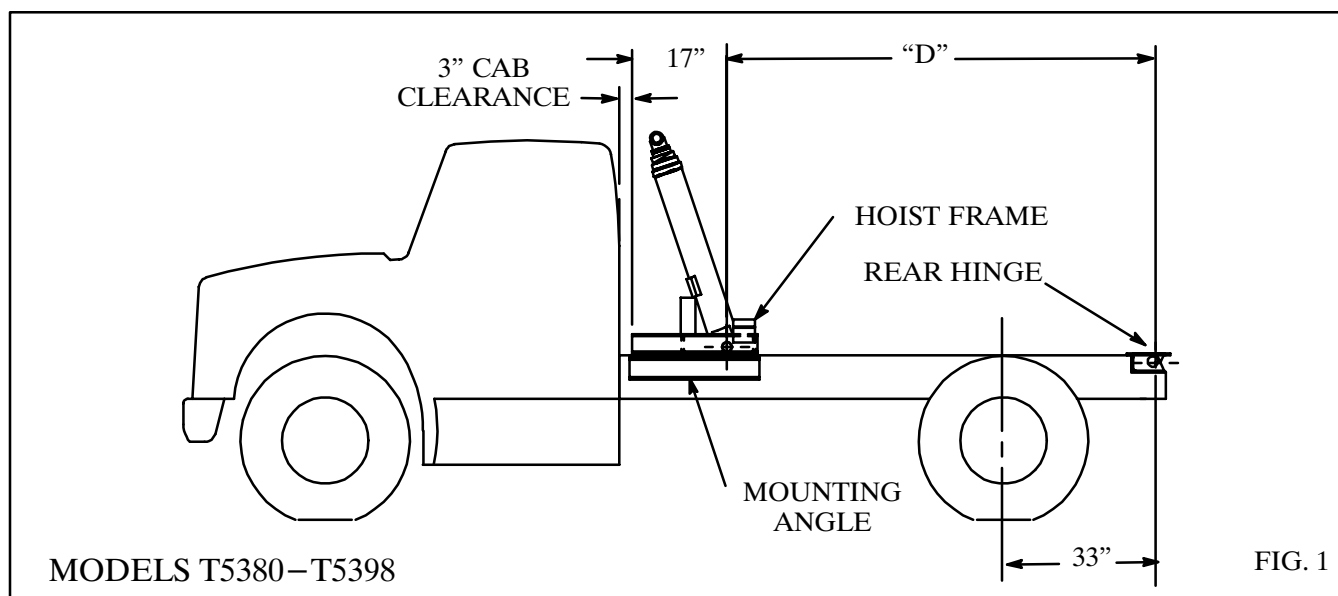
ORBM	O-Ring Boss - Male Thread
NPTM	Pipe - Male Thread
NPTF	Pipe - Female Thread
JICM	JIC 37° - Male Thread
JICF	JIC 37° - Female Thread

LOCATE HOIST FRAME AND REAR HINGE

The hoist frame and the rear hinge must be located relative to each other as shown in Fig. 1 and Fig. 2. These illustrations show the mounting distance “D”, with the actual number found in the corresponding tables. The mounting distance is measured from the center of the rear hinge pin to the center of the lower pin on the cylinder. The mounting distance must never be less than the number given in the OEM table on page 6 under the 60° dump angle column. Mounting the hoist with less distance than this will cause damage to the rear hinge, the cylinder, and VOID THE WARRANTY.

Place the hoist frame and rear hinge on the truck frame and determine the proper placement of both before doing any cutting or drilling.

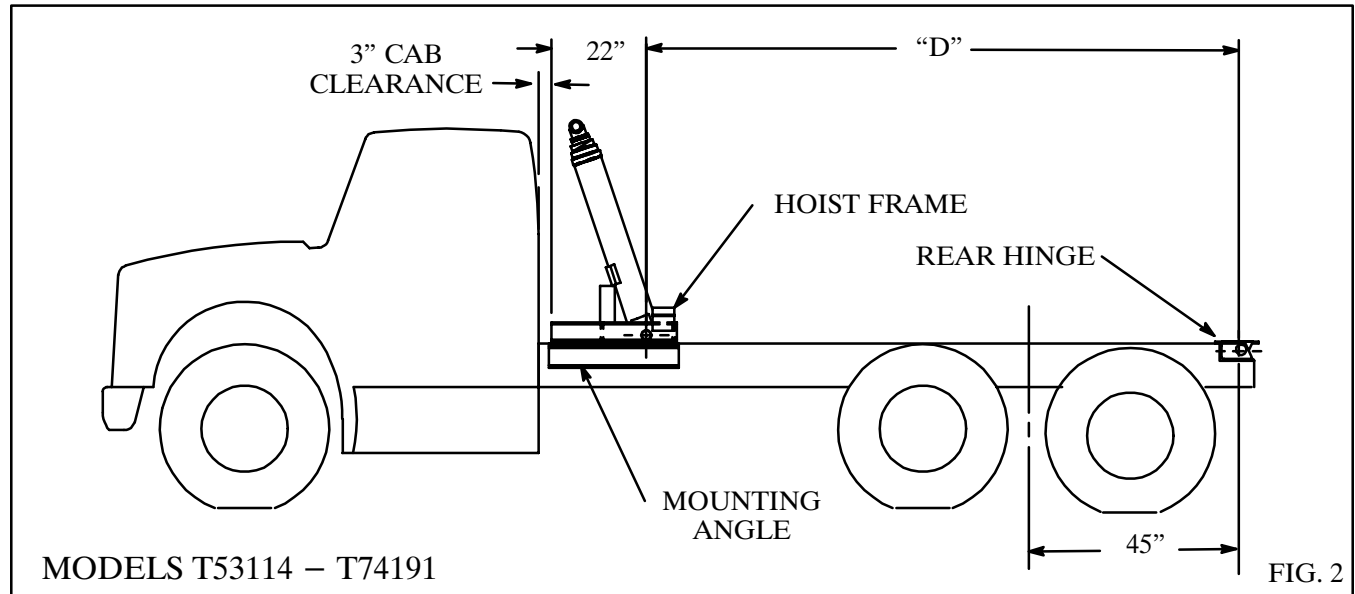
Place the hoist frame on the truck frame with the cylinder mounting holes to the rear and with at least 3” clearance from the cab of the truck as shown in Fig. 1 or 2. The front of the body will be even with the front of the hoist frame. If the body must be moved back to clear the transmission or vertical exhaust stack, move the hoist frame back the same amount so that they will be even in front.



T5380-T5398 MOUNTING INFORMATION					
HOIST MODEL	BODY LENGTH	CA or CT DIM.	OVERHANG	DUMP ANGLE	“D” DIM.
T5380	9'	72" CA	6"	58°	85"
	10'	84" CA	6"	48°	97"
T5398	11'	96" CA	6"	53°	109"
	12'	102" CA	12"	50°	115"
	12'	96" CT	6"	47°	121"

Place the rear hinge on top of the frame and determine its proper location. The rear hinge must be located as close as possible behind the rear spring hanger. For single axle trucks, this will be approximately 33” behind the center of the rear axle, but not greater than 38”. For tandem axle trucks, this will be approximately 45” behind the center of the tandem, but not greater than 50”.

Using the mounting distance given for your particular model of Turbo Hoist (from Fig. 1 or Fig. 2 and the corresponding mounting tables), measure the mounting distance on your truck, after locating the hoist frame and rear hinge as discussed above. If you have a standard type installation these numbers should be similar. Before doing any cutting or drilling make sure the mounting distance, as measured from center of the rear hinge pin to the center of the lower cylinder pin, IS NOT LESS THAN the distance given in the OEM table (page 8) under the 60° dump angle column for your hoist model.



T5314-T74191 MOUNTING INFORMATION					
HOIST MODEL	BODY LENGTH	CA or CT DIM.	OVERHANG	DUMP ANGLE	"D" DIM.
T53114	13'	108" CT	6"	52°	128"
T63113	14'	114" CT	12"	50°	134"
T63131 T73129	15'	126" CT	12"	52°	146"
T63148 T73147	16'	138" CT	12"	55°	158"
	17'	150" CT	12"	51°	170"
T714167	18'	162"	12"	54°	182"
	19'	174"	12"	51°	194"
T74191	20'	186"	12"	55°	206"
	21'	198"	12"	51°	218"
	22'	210"	12"	48°	230"
	23'	222"	12"	46°	242"
	24'	234"	12"	43°	254"

MOUNTING DIMENSIONS FOR DIFFERENT DUMP ANGLES

These “D” dimensions are for non standard installations or as a reference for non-standard truck frames. More information for OEM installations is on page 27.

“D” DIMENSION FOR OEM INSTALLATIONS			
HOIST MODEL	DUMP ANGLE		
	45°	50°	60°
T5380	103”	94”	80”*
T5398	127”	115”	97”*
T53114/T63113	148”	134”	114”*
T63131/T73129	167”	151”	129”*
T63148/T73147	190”	172”	147”*
T74167	216”	196”	166”*
T74191	247”	224”	190”*

*This is absolute minimum “D” dimension. Less than this will result in damage to cylinder and rear hinge and VOID THE WARRANTY. DUMP ANGLE MUST NEVER EXCEED 60 DEGREES!

INSTALL HOIST FRAME

Make sure the hoist frame is correctly located (as determined by the previous instructions), centered, and square with the truck frame. If there are rivets or frame bolts in the way, holes can be drilled in the hoist frame to allow it to sit flat on the truck frame. The mounting angles do not have pre-drilled holes in them to allow the use of existing holes in the truck frame. Clamp the mounting angles against the outside of the truck frame and against the bottom of the hoist frame. Mark the location of the holes in the truck frame on the mounting angles. Remove the mounting angles and drill the holes in the locations marked.

Bolt the mounting angles to the truck frame using the existing holes. The mounting angles must be attached to the truck frame with a minimum of four (4) 5/8” grade 8 cap screws. If the existing holes are not evenly spread over the whole length, additional holes spaced approximately should be drilled as shown in Figure 3.

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

Drill 21/32” diameter holes in the mounting angles and truck frame and bolt the mounting angles in place using 5/8 x 2 grade 8 cap screws and hex lock nuts. Tighten the cap screws to 180 to 190 lb-ft. Securely weld the hoist frame to the mounting angles.

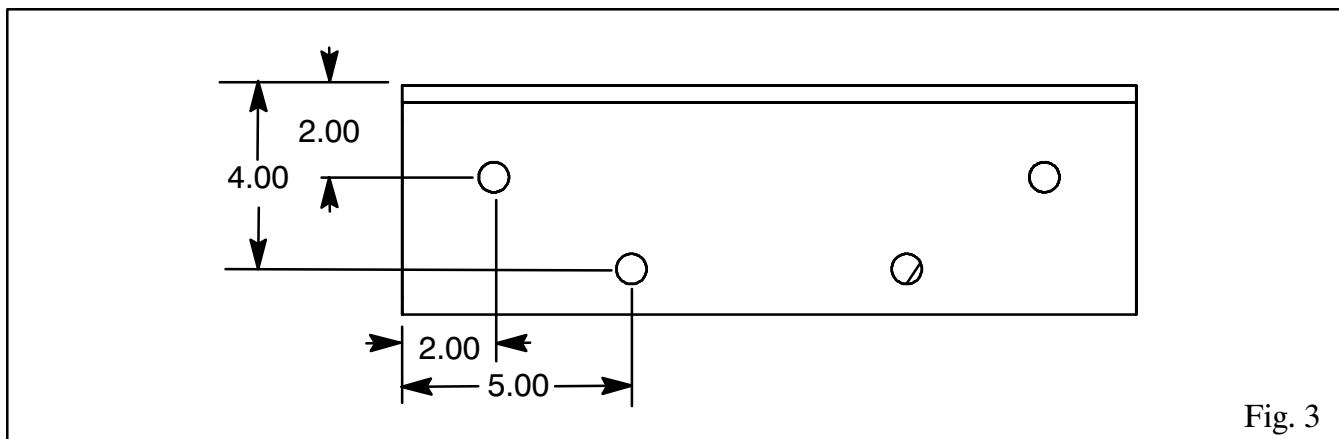


Fig. 3

INSTALL REAR HINGE

If the body longbeams are notched at the front to clear the hoist, mount the rear hinge as shown in Fig.4, style A. If the front of longbeams are not notched, use Fig.4, style B. Notch the truck frame as shown in Fig. 4. Place the rear hinge on the truck frame. Make sure the rear hinge is correctly located, centered and square with the truck frame and the telescopic cylinder mount. Securely weld the rear hinge to the truck frame. Box the end of the truck frame with 1/4" thick plate (not supplied) and weld all around to the truck frame and rear hinge angle. Place the gussets in the corners formed by the truck frame rail and the rear hinge frame angle. Raise the front end of the gusset so it touches the top flange of the truck frame rail. Be sure that the gusset does not interfere with the rear hinge operation. Securely weld the gussets to the rear hinge, the truck frame rail and the top flange of the truck frame rail.

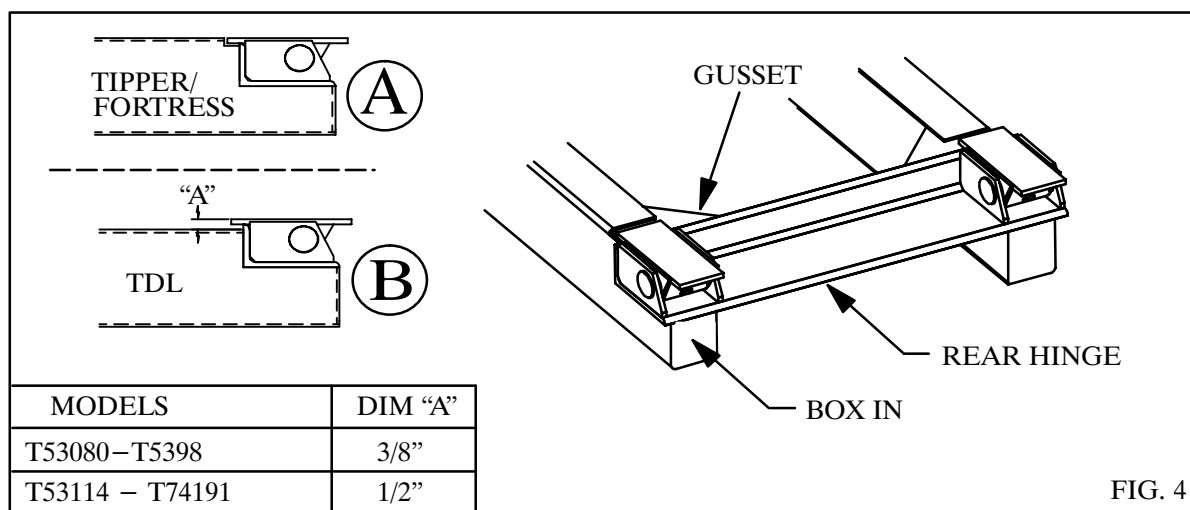


FIG. 4

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!

MOUNT PUMP/VALVE

The standard pump/valve is intended to be mounted directly to a two-gear PTO with a direct mount flange. This saves time and effort and simplifies the installation. The pump/valve has an SAE 'B' 4-bolt flange and a 13 tooth splined shaft.

NOTE: This pump/valve will mount directly to Chelsea's output type "XK" or Muncie's output type "D". Crysteel recommends a PTO ratio of 100-120%. This assures a minimum pump operating speed of 600 RPM.

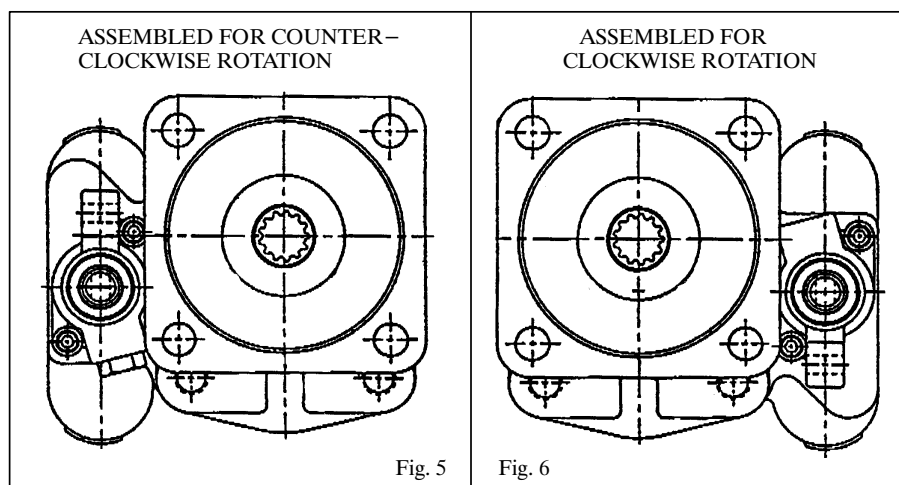
The pump/valve is assembled with a counter-clockwise rotation when looking at the shaft end of the pump/valve. **IMPORTANT:** Before mounting the pump/valve, check the rotation of the PTO and make sure it matches the rotation of the pump. If it is opposite, the pump rotation will have to be reversed. To reverse the pump rotation, follow the pump reversing procedure on page 10. Make sure the pump/valve has plenty of clearance and that the hoses are kept clear of hot exhaust systems.

IMPORTANT: The C102D pump/valve can be mounted directly to a PTO but **MUST** be supported externally to the transmission. Long mounting studs and extra nuts are provided with each unit for this purpose.

REVERSING PUMP/VALVE ROTATION

The pump/valve is assembled with a counter-clockwise rotation when looking at the shaft end of the pump/valve. (Looking at the shaft end of the pump/valve with the drive shaft on top and the idler gear on the bottom, the valve spool will be on the left side. See Fig. 5.) If the pump needs to rotate in the opposite direction, then follow these steps to reverse the pump:

1. Remove the four 9/16-12 capscrews holding the pump together.
2. **CAREFULLY** remove the valve body assembly from the pump.
3. **CAREFULLY** remove the gear housing. Rotate the housing 180° and replace it. The drive shaft gear bore becomes the idler gear bore.
4. Rotate the valve body 180° from its original position and replace it
5. Replace the four 9/16-12 capscrews and torque to 2400in-lbs.
6. To verify that the pump is now assembled for clockwise rotation, look at the shaft end of the pump with the drive shaft on the top and the idler gear on the bottom, the valve spool will be on the right side. (See Fig. 6.)
7. Fill the suction port with hydraulic oil and rotate shaft to fill the gears with oil



SEPARATE VALVE & PUMP KIT

On trucks where the combination pump/valve does not fit, a hydraulic kit with a separate valve and pump is available. The pump in this kit is double-rotation; it works whether driven clockwise or counter-clockwise. This kit contains a bracket for mounting the valve to the truck frame.

MOUNT PUMP - SEPARATE VALVE & PUMP KIT

The separate pump is intended to be mounted directly to a two-gear PTO with a direct mount flange. The pump has an SAE 'B' 4-bolt flange and a 13 tooth splined shaft.

NOTE: This pump will mount directly to Chelsea's output type "XK" or Muncie's output type "D". Crysteel recommends a PTO ratio of 100-120%. This assures a minimum pump operating speed of 600 RPM. Make sure the pump has plenty of clearance and that the hoses are kept clear of hot exhaust systems.

MOUNT VALVE - SEPARATE VALVE & PUMP KIT

The valve mounting bracket is intended to be mounted to the inside of the truck frame on the driver's side. Bolt the valve to the bracket using cap screws and hex lock nuts. Determine where to mount the valve and mark the truck frame for drilling using the mounting bracket as a guide. Drill 13/32" diameter holes in the truck frame. (See caution note below.) Bolt the bracket to the truck frame using 3/8 x 1 1/2 cap screws and hex lock nuts.

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

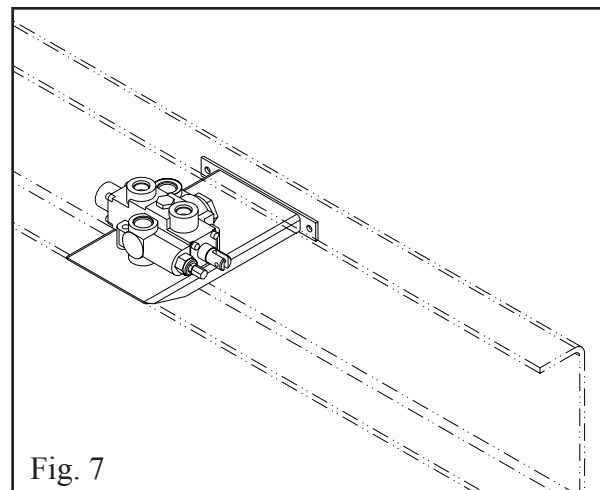


Fig. 7

SEPARATE VALVE & PUMP KIT BLOCK DIAGRAM

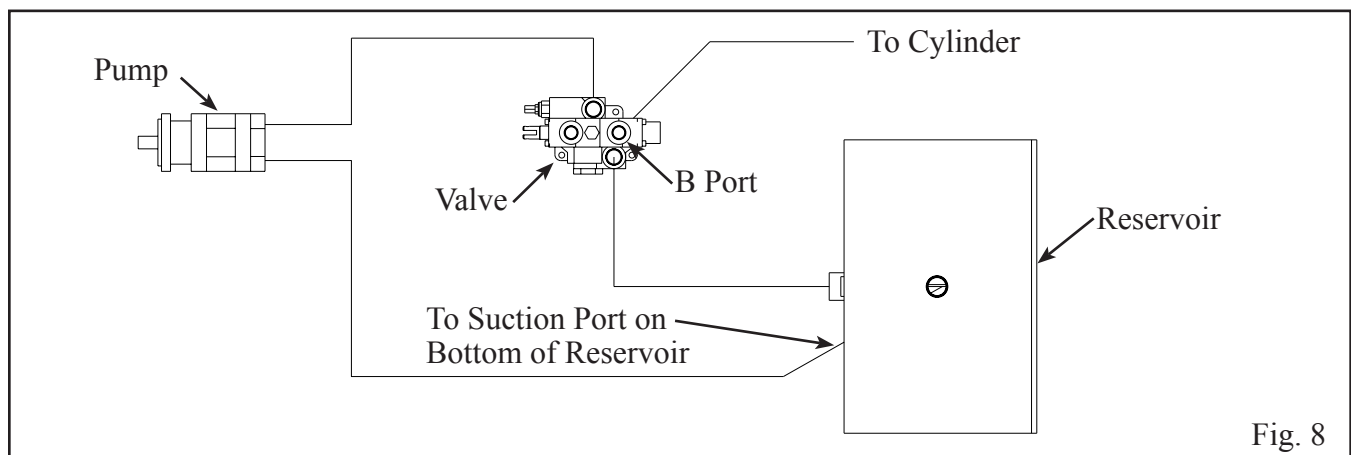
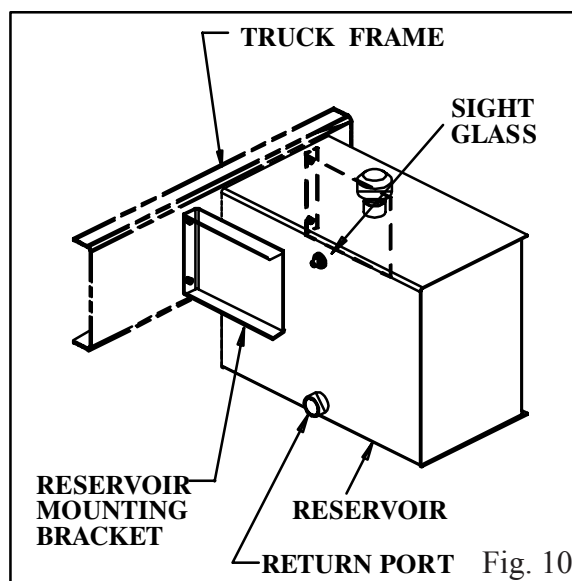


Fig. 8

MOUNT RESERVOIR - SIDE MOUNTED

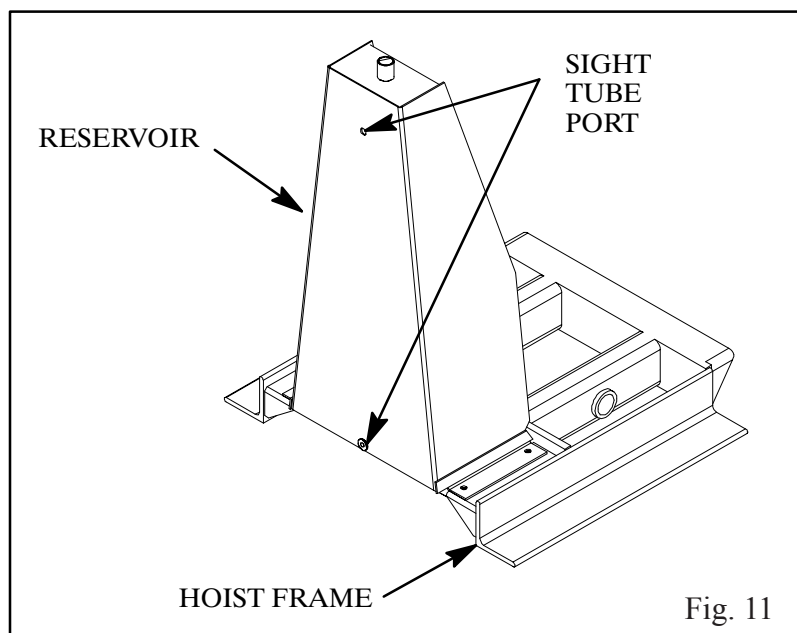
To mount the reservoir, determine which side of the truck to mount the reservoir. There are four ports on the side mounted reservoir - a fill tube on the top, a suction port on the bottom (2" NPT), a return port near the bottom on one side (1 1/4 NPT) and one smaller port near the top on one side for a sight glass. Clamp the reservoir mounting brackets to the sides of the reservoir and place the reservoir against the outside of the truck frame. (See Fig. 7.) Mark the truck frame for drilling using the mounting brackets as guides. Drill 17/32" holes in the truck frame (See caution note below.) and bolt the mounting brackets in place using 1/2 x 2 grade 8 cap screws, and hex lock nuts. Securely weld the reservoir to the reservoir mounting brackets. Install the sight glass in the port provided.

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



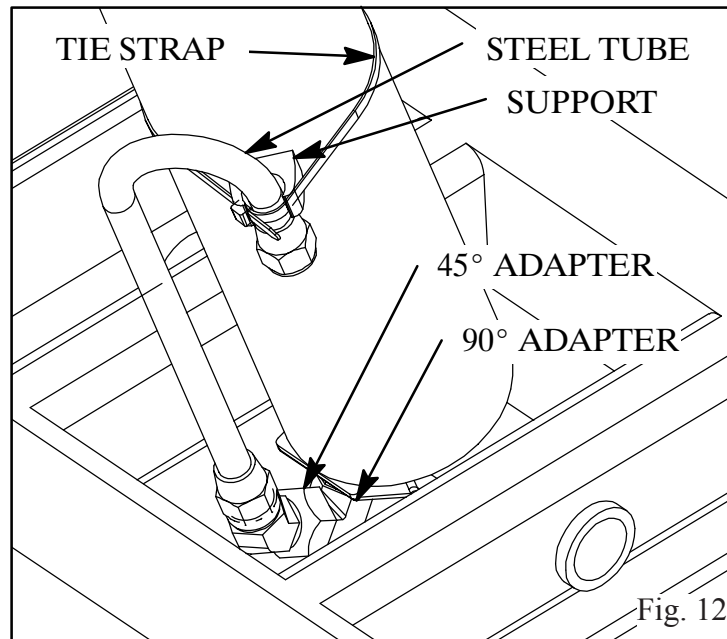
MOUNT RESERVOIR - DOGHOUSE

Place the doghouse mounted reservoir on the mounting brackets in the hoist frame with the flat side of the reservoir to the front, as shown in Fig. 8. Bolt in place using 1/2 x 2 cap screws, and hex lock nuts. Install the sight glass or oil level tube with elbows in the port(s) provided.



INSTALL CYLINDER AND CYLINDER HOSE

Install the cylinder in the hoist frame with the cylinder port towards the cab. The cylinder port is located on the side of the outer barrel for non-self-bleeding and in the base casting for self-bleeding versions. Secure the cylinder to the hoist frame using the longer cylinder pin supplied and bolt the pin in place with a 1/2" cap screw and hex lock nut. Securely brace the cylinder to prevent it from hitting the cab, and with it tilted slightly forward to aid in mounting the body. Install grease fittings in the top and bottom bushings of the cylinder.



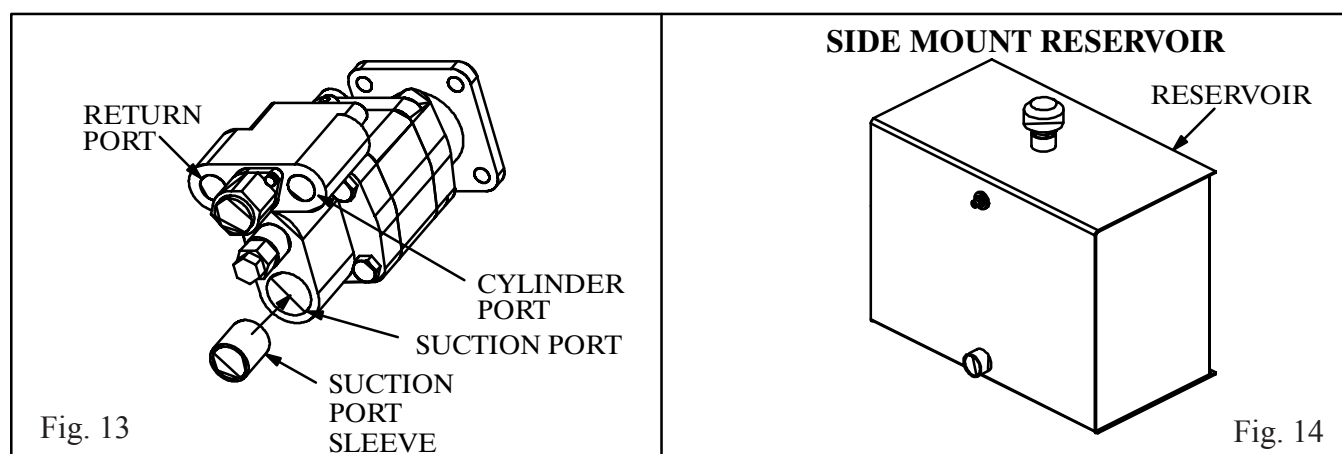
For cylinders with the self-bleeding feature (port in the base end, no bleed valve hole), a steel tube assembly needs to be installed to get the port up on the side of the cylinder. (On some trucks, there may be a crossmember near the bottom of the cylinder which would interfere with the hose routing.) To do this, install a 90° adapter in the cylinder port, install a 45° adapter on it and install the steel tube assembly. Secure the steel tube assembly to the cylinder using the support and tie strap. (See Fig. 9.) The steel tube is shown turned to the drivers side. If the pump/valve is located on the passenger side, turn the steel tube to that side. Install a male JIC x female pipe adapter in the steel tube for connecting the hose.

For cylinders without the self-bleeding feature (port on the side, bleed valve hole), install a male ORB x female pipe swivel adapter in the port. For the T53 series hoists, install a male ORB x female pipe swivel adapter in the work port on the pump/valve. Connect a 72" long hose from the work port on the pump/valve to the port on the cylinder.

INSTALL RETURN AND SUCTION HOSES - PUMP/VALVE

A return line hose must be installed for long pump life. A suction port sleeve has been installed in the suction port on the pump/valve. (See Fig. 10.) This sleeve prevents the oil from recirculating inside the pump/valve and directs the oil flow out the return port. Operating this pump/valve without installing the return line will cause the pump/valve to fail and void the warranty.

Install a swivel adapter in the return port on the control valve. Install a 72" long hose from the return port on the pump/valve to the return port on the reservoir.



Install hose barbs in the bottom of the reservoir and the suction port on the back of the pump/valve. Connect the two hose barbs with the suction hose provided and secure it with hose clamps.

If the cylinder has a 1/8" NPT plug at the top of the cylinder, replace it with the bleed valve assembly supplied. Be sure that the bleed valve points towards the rear of the truck. If the cylinder does not have this pipe plug, it has a self-bleeding feature which automatically removes any air from the cylinder whenever it is cycled.

INSTALL HOSES - SEPARATE VALVE & PUMP KIT

The separate valve & pump kit requires four hoses to be installed - 1) from the valve to the cylinder, 2) from the reservoir to the pump, 3) from the pump to the valve and 4) from the valve to the reservoir. See the block diagram on page 11.

Determine which port on the pump is the suction port. Install a hose barb in this port. Install a straight adapter in the other port. Install a hose barb in the suction port on the bottom of the reservoir. Connect the two hose barbs with the suction hose provided and secure it with hose clamps.

Install 90° adapters in the IN, OUT and B ports on the valve. For T53 series hoists, connect a 3/4" hose from the pressure port on the pump to the IN port on the valve, a 3/4" hose from the valve to the cylinder and a 1" hose from the OUT port on the valve to the return port on the side of the reservoir.

For T63, T73 and T74 series hoists, connect a 1" hose from the pressure port on the pump to the IN port on the valve, a 1" hose from the valve to the cylinder and a 1 1/4" hose from the OUT port on the valve to the return port on the side of the reservoir.

INSTALL VALVE CONTROL

Place the control pedestal assembly on the floor of the cab in a convenient location next to the drivers seat. Mark the floor using the pedestal as a template and drill 1/4 inch holes for the mounting screws and a 3/4 inch hole for the control cable. (Check below the floor for obstructions and cable routing before drilling.)

Insert the control cable through the hole in the bottom of the pedestal and attach it to the valve control. Mount the valve control to the pedestal using 1/4 x 1/2 screws. Install the cover on the side of the pedestal using #10 x 3/8 self-tapping screws. Mount the pedestal to the floor using 5/16 x 3/4 self tapping screws. Make sure the hoist control is in its center, detented position. Connect the other end of the cable to the control valve using the parts and instructions in the valve connection kit.

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. After bleeding the air from the cylinder, refill the reservoir to the sight glass level with the body down. **DO NOT OVERFILL THE RESERVOIR!**

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

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.

SIDE MOUNTED RESERVOIR			AFTER BLEEDING THE AIR FROM THE CYILNDER, REFILL THE RESERVOIR TO THE SIGHT GLASS WITH THE BODY DOWN.
MODEL	RESERVOIR SIZE	INITIAL FILL	
T53 SERIES	16 GALLONS	12 GALLONS	
T63 SERIES	28 GALLONS	21 GALLONS	
T7X SERIES	40 GALLONS	31 GALLONS	
DOGHOUSE RESERVOIR			
MODEL	RESERVOIR SIZE	INITIAL FILL	
T53 SERIES	9.5 GALLONS	7.5 GALLONS	
T63 SERIES	22 GALLONS	16 GALLONS	
T7X SERIES	25.5 GALLONS	18 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.

MOUNT BODY

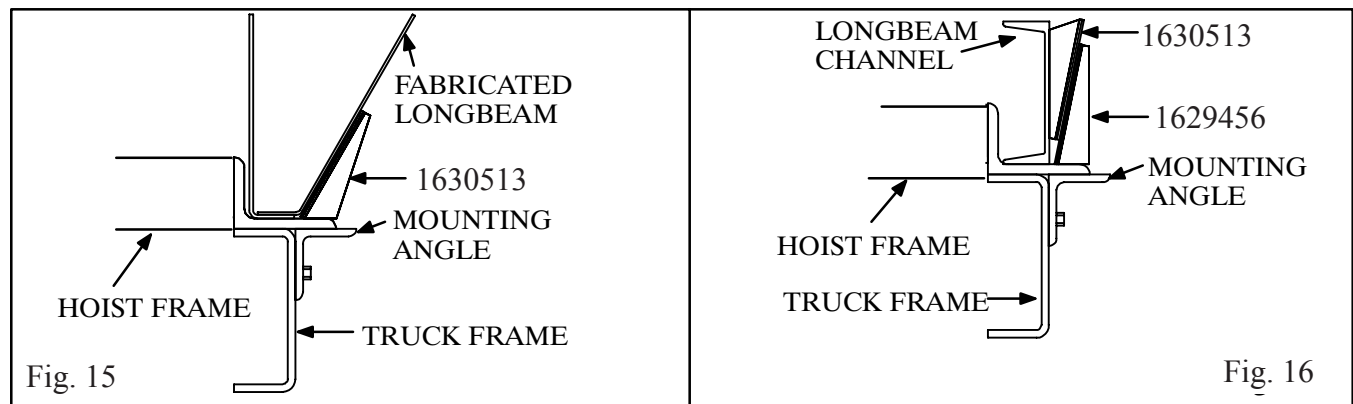
It is recommended that the body be painted before it is mounted on the truck. Remove the top cover of the doghouse. Place the rivet strip mounting pads on the truck frame between the hoist frame and rear hinge. Space them evenly with one over the front spring shackle or over the center tandem pivot. Place the body on the truck with 2" of cab clearance. Attach the body to the cylinder using the shorter cylinder pin and bolt. Slide the body back until the body longbeams are even with the front of the hoist frame. Make sure the body is centered over the truck frame in front and in back. Securely weld the longbeams to the rear hinge, and weld rivet strips (if needed) to the longbeams.

INSTALL BODY GUIDES

The four body guides supplied with your hoist are of two types. Part number 1630513 has an obtuse angle that allows it to match the angle of fabricated longbeams. Position this type as shown in Fig. 12 with wide end down, pushed against the longbeam, and centered over the hoist lower mounting angle. Weld securely to the mounting angles. DO NOT use the other body guides with fabricated longbeams.

Part number 1629456 body guide is used with channel type longbeam and has a right angle that allows it to be positioned as shown in Fig. 13. Position this guide 1/4" away from the longbeam, centered over the lower mounting angle. Place the 1630513 body guide inside of it as shown so that the flat sides of the guides fit together. Weld number 1629456 to the lower mounting angle and 1630513 to the longbeam.

There should be NO SIDEPLAY when the truck body is in the lowered position.



BLEED TELESCOPIC CYLINDER

All of the air must be removed from the cylinder for smooth and safe operation of the hoist. For cylinders equipped with the self-bleeding feature, raise and lower the hoist two or three times to remove the air.

For cylinders without the self-bleeding feature, use the following procedure to bleed the air from the cylinder.

1. Engage the pump at a slow idle.
2. Raise the body to its full height. Shut off the truck engine.
3. Lower the body until only the largest stage is still extended.
4. Loosen the bleed valve on the cylinder to let the trapped air escape. When oil starts to come out, retighten the bleed valve..

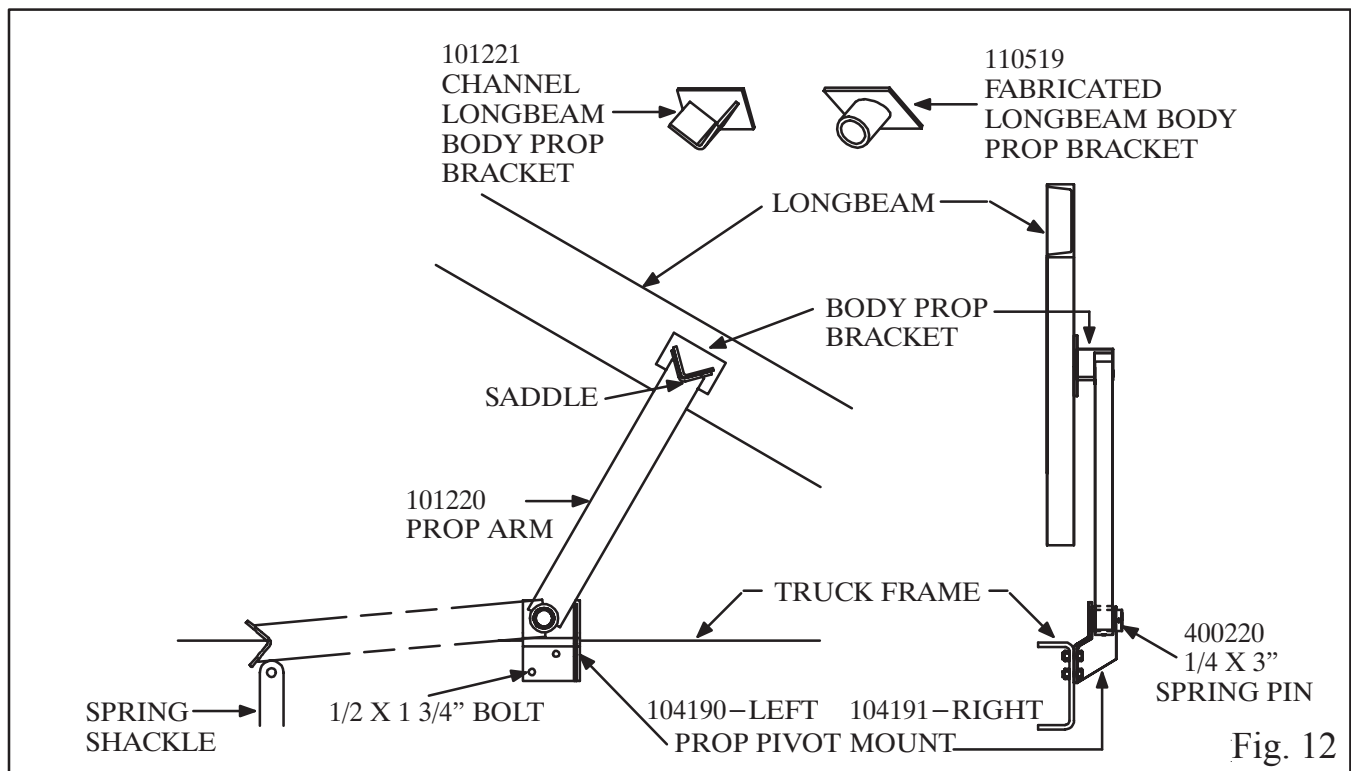
After bleeding the cylinder, check the oil level in the reservoir. There should be 2 or more inches of oil in the bottom of the reservoir when the body is raised to its full height. When the body is down, oil should be visible in the sight glass or at the top of the oil level tube.

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

INSTALL BODY PROPS

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. One body prop is included with Marathon Hoist models M5390 and M5399; two body props (one pair) are included with models M53117 through M63153. Be sure to install each prop on the correct side of the truck as explained below and shown in Fig. 12.

1. Raise the body to a 30° to 35° angle and brace it securely before beginning installation.
2. Assemble the prop arm to the prop pivot mount with a 1/4 x 3 roll pin. Clamp the prop pivot mount against the outside of the truck frame just behind the rear axle. Raise the body prop arm to a free standing position. Place the body prop bracket in the prop arm saddle. Reposition if needed to locate the prop bracket on the longbeam. It may be necessary to raise or lower the body to get the best location for the prop pivot mount. Using the prop pivot mount as a guide, mark the location of holes on the truck frame and drill 17/32 inch holes. Assemble the prop pivot mount to the frame using 1/2 x 2 cap screws, and hex lock nuts, tightening to 90 to 100 lb-ft. Raise the prop arm to a free standing position, place the body prop bracket in the saddle and securely weld the bracket to the longbeam.



3. When mounting two body props, repeat steps 1 and 2 for the other side. Use the body prop already mounted to assure that both body props hold the body at the same height. The left and right body props should pivot toward the front of the truck in the storage position.
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 body prop bracket contacts the prop arm saddle.
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

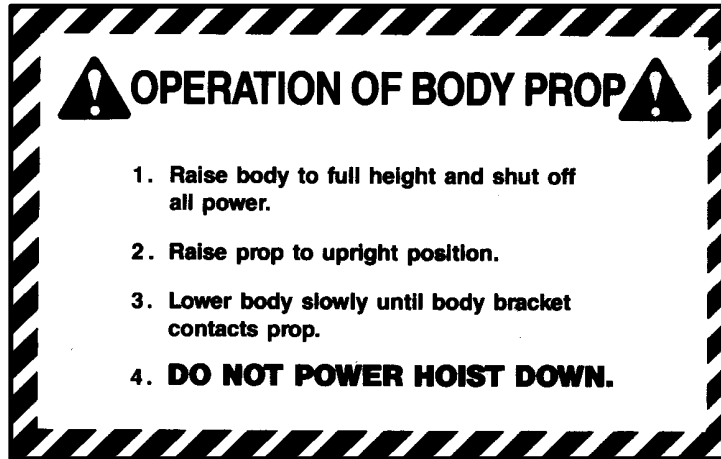
Install grease zerks in the body props. Lubricate all fittings at regular intervals, at least every 150 cycles or every two months. The grease fittings are located as follows:

A. Rear Hinge	2 fittings (Installed)
B. Latch Lever of Air Tailgate Latch Mount	1 fitting
C. Tailgate Latch Pivot	2 fittings
D. Tailgate Hinge Pivot	2 fittings
E. Cylinder Top Pivot	1 fitting under doghouse cover
F. Cylinder Lower Pivot	1 fitting

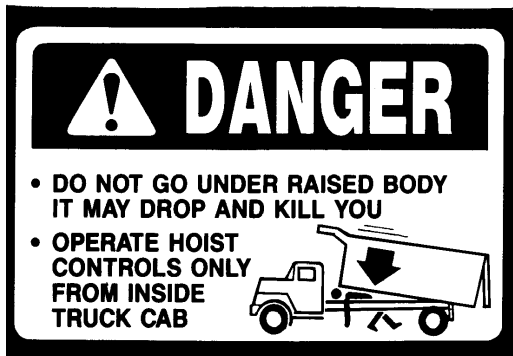
After the air has been bled out of the cylinder and the hoist greased, replace the top cover of the doghouse using 3/8 x 3/4 cap screws and lock washers.

INSTALL LIGHTS, REFLECTORS AND DECALS

Install the lights and wiring harness. Mount the amber reflectors near the front on the sides. Mount the red reflectors near the rear on the sides and on the tailgate near the sides. Slip the rubber hand grip over the end of the latch control lever. MOUNT DECALS IN THE PROPER PLACES. See Fig. 21 for decal identification and placement.



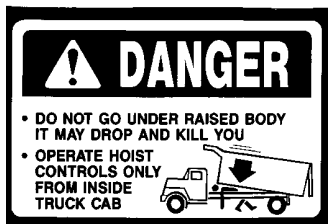
1642848—Mount on the body longbeam near the body prop



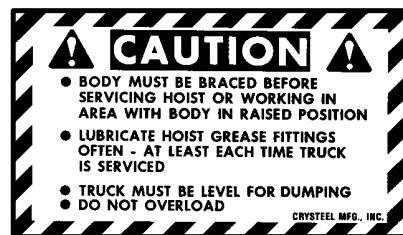
1643067—Mount on the outside of the body longbeams near the front of the body (one on each side).



1642844—Mount on the longbeam on the drivers side.



1643068—Mount in the cab in a prominent location



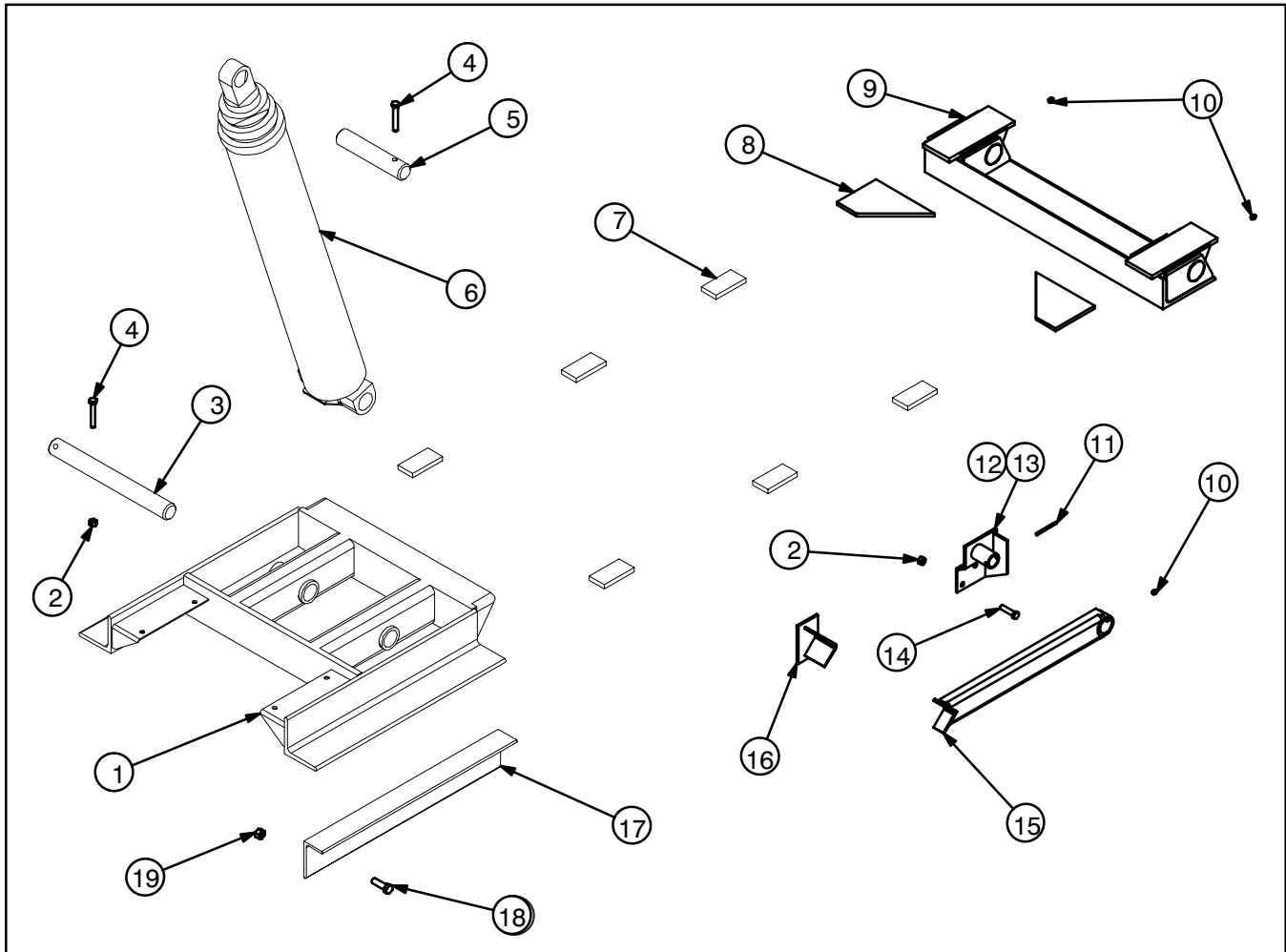
1642843—Mount in the cab in a prominent location'



1642846—Mount on the body prop arm.

Fig. 21

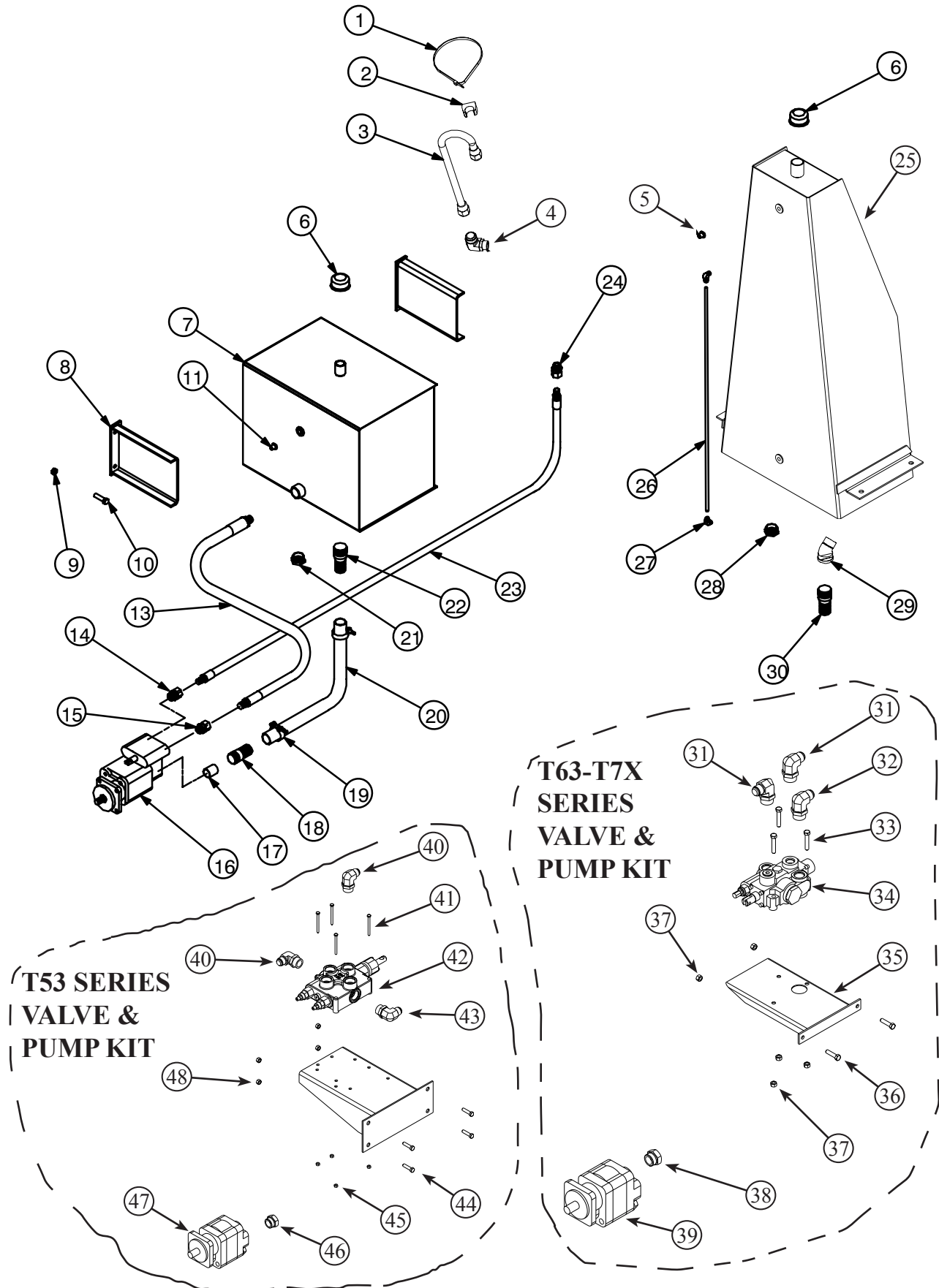
TURBO HOIST PARTS



No.	Description	Model	Item No.	Qty
1.	Assy Lower Mount	T5380-98 T53114 T63-T7x	1621631 1621628 1623741	1 1 1
2.	Hex Lock Nut 1/2-13	All	1642984	1
3.	Pin Lower Hoist Pivot - 1 3/4 Dia x 12.12 Lg Pin Lower Hoist Pivot - 2 Dia x 14.63 Lg Pin Lower Hoist Pivot - 2 Dia x 18.25 Lg	T5380-98 T53114 T63-T7x	1629942 1629935 1631596	1 1 1
4.	Cap Screw, Hex Hd - 1/2-13 x 3 1/4 Gr 8 Cap Screw, Hex Hd - 1/2-13 x 3 3/4 Gr 8	T5380-98 T53114-T7x	1643433 1642721	1 1
5.	Pin Upper Hoist Pivot - 1 3/4 Dia x 10.00 Lg Pin Upper Hoist Pivot - 2 Dia x 10.00 Lg	T5380-98 T53114-T7x	1629943 1629936	1 1

No.	Description	Model	Item No.	Qty
6.	Assy Cylinder - Self-Bleeding	T5380	1423711	1
		T5398	1423712	1
		T53114	1423713	1
		T63113	1423714	1
		T63131	1423715	1
		T63148	1423716	1
		T73129	1423717	1
		T73147	1423718	1
		T74167	1423719	1
		T74191	1423720	1
7.	Spacer, Longbeam - 3/8 x 2 x 4	T5380-98	1629376	6
	Spacer, Longbeam - 1/2 x 2 x 4	T53114-T7x	1629376	6
8.	Gusset Rear Hinge	All	1629894	2
9.	Assy Rear Hinge	T5380-98	1621587	1
		T53114-T7x	1283750	1
10.	Grease Zerk 1/8 NPT	All	1642699	4
11.	Spring Pin 1/4 x 3	All	1642757	1
12.	Assy Prop Pivot - LH	T5380-98	1621523	2
		T53114-T7x		4
13.	Assy Prop Pivot - RH	T5380-98	1621524	0
		T53114-T7x		1
14.	Cap Screw 1/2-13 x 2 HH	T5380-98	1642701	2
		T53114-T7x		4
15.	Assy Body Prop Arm	T5380-98	1621500	1
		T53114-T7x		2
16.	Assy Prop Bracket	T5380-98	1622175	1
		T53114-T7x		2
17.	Angle 5 x 3 x 3/8 x 25.50 Lg	T5380-98	1643298	2
	Angle 5 x 3 x 3/8 x 30.50 Lg	T53114-T7x	1643302	2
18.	Cap Screw, Hex Hd - 5/8-11 x 2 Gr 8	All	1643313	10
19.	Hex Lock Nut 5/8-11	1643070	1643070	10

TURBO HYDRAULIC SYSTEM PARTS

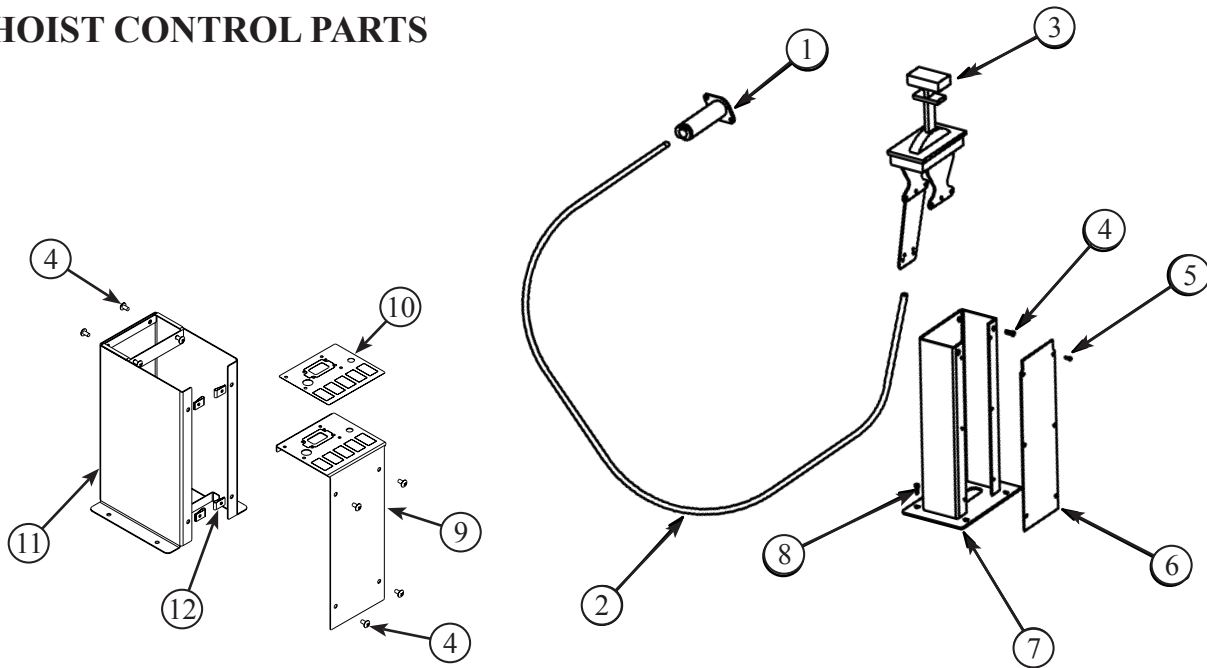


No.	Description	Model	Item No.	Qty
1.	Cable Tie, 0.3 x 24, Black	All	1643056	1
2.	Support Hydraulic Tube	All	1643791	1
3.	Tube Hydraulic U -12	T5380-114	1643792	1
	Tube Hydraulic U -20 - 13" Leg	T63-T7x	1643791	1
4.	Adapter 1 1/16 ORBM x 1 1/16 JICM 90°	T5380-114	1643556	1
	Adapter 1 5/8 ORBM x 1 5/8 JICM 90°	T63-T7x	1643637	1
5.	Sight Glass 1/2 NPT	T63 Series	1332917	1
6.	Breather Cap	All	1644723	1
7.	Assy Reservoir - 16 Gallon	T5380-114	1621834	1
	- 28 Gallon	T63 Series	1621836	1
	- 40 Gallon	T7x Series	1621898	1
8.	Assy Reservoir Mount	All	1622224	2
9.	Hex Lock Nut 1/2-13	All	1642984	4
10.	Cap Screw, Hex Hd - 1/2-13 x 2 Gr 8	All	1642701	4
11.	Sight Glass 1/2 NPT	All	1332917	1
13.	Hose 1 1/4 NPT x 72 RM/RM	All	1643858	1
14.	Swivel 1 NPTM X 3/4 NPTF	T5380-114 T63-T7x	1643324 Not Req'd	1
15.	Swivel 1 NPTM X 1 1/4 NPTF	All	1643885	1
16.	Pump/Valve 20 GPM 2500 PSI 'C' SERIES	T5380-T63148	1644752	1
	Pump/Valve 25 GPM 2500 PSI 'C' SERIES	T7x Series	1644753	1
17.	Sleeve, Suction Port	All	1643055	1
18.	Hose Barb 1 1/4 NPTM X 1 1/2	All	1643118	1
19.	Hose Clamp 2" T-Bolt	All	1643240	2
20.	Suction Hose 1 1/2" ID x 72" Lg	All	1643119	1
21.	Pipe Plug 3/4 NPT Magnetic	All	1642794	1
22.	Hose Barb 1 1/2 NPTM X 1 1/2	All	1643229	1
23.	Hose 3/4 NPT x 72 RM/RM	T5380-T53114	1643165	1
	Hose 1 NPT x 72 RM/RM	T63-T74x	1643166	1
24.	Adapter 1 1/16 JICM x 3/4 NPTF	T5380-T53114	1643795	1
	Adapter 1 5/8 JICM x 1 NPTF	T63-T74x	1643796	1
25.	Assy Reservoir Doghouse - 22 Gallon	T63	1621619	1
	Assy Reservoir Doghouse - 25.5 Gallon	T7x	1621624	1
26.	Tube 3/8" OD Nylon	T7x	1643283	3.5'
27.	Elbow Male 1/4 NPTM x 3/8 OD Tube	T7x	1643282	2
28.	Bushing Hex 1 1/2 NPTM x 1 1/4 NPTF	T63-T7x	1643230	1
29.	Elbow Pipe 1 1/2 45° Street	T63-T7x	1643273	1
30.	Hose Barb 1 1/2 NPTM X 1 1/2	T63-T7x	1643229	1
31.	Adapter 1 1/16 ORBM x 3/4 NPTF 90°	T53 Series	1642971	2
32.	Adapter 1 1/16 ORBM x 1 NPTF 90°	T53 Series	1643751	1
33.	Cap Screw, Hex Hd - 3/8-16 x 2 Gr 8	T53 Series	1643202	3
34.	Control Valve 30 GPM SA 2500 PSI	T53 Series	1643541	1

No.	Description	Model	Item No.	Qty
35.	Assy Valve Mount - Prince	T53 Series	1621637	1
36.	Cap Screw, Hex Hd - 3/8-16 x 1 1/2 Gr 8	T53 Series	1642710	2
37.	Hex Lock Nut 3/8-16	T53 Series	1643177	5
38.	Adapter 1 1/16 ORBM x 3/4 NPTF	T53 Series	1630637	1
39.	Gear Pump 15 GPM DM 'B' Mounting	T53 Series	1644776	1
40.	Adapter 1 5/16 ORBM x 1 NPTF 90°	T63-T7x	1643802	2
41.	Cap Screw, Hex Hd - 1/4-20 x 3 Gr 5	T63-T7x	1644809	4
42.	Control Valve 50 GPM SA 2500 PSI	T63-T7x	1645003	1
43.	Adapter 1 5/16 ORBM x 1 1/4 NPTF 90°	T63-T7x	1644193	1
44.	Cap Screw, Hex Hd - 3/8-16 x 1 1/2 Gr 8	T63-T7x	1642710	4
45.	Hex Lock Nut 1/4-20	T63-T7x	1643315	4
46.	Adapter 1 5/8 ORBM x 1 NPTF, Swivel	T63-T7x	1643167	1
47.	Gear Pump 25 GPM DM 'B' Mounting	T63-T7x	1644754	1
48.	Hex Lock Nut 3/8-16	T63-T7x	1643177	4

NOTES

HOIST CONTROL PARTS



No.	Description	Model	Item No.	Qty
1.	Valve Connection Kit - 'C' Series Valve Connection Kit - Prince 5100 Valve Connection Kit - blb BM180	All T53 Series T63-T7x	1643465 1643215 1645005	1 1 1
2.	Control Cable - 84" Control Cable - 120"	All	1644733 1644734	1 1
3.	Hoist Control - Shifter Style	All	1417635	1
4.	Screw Mach 1/4-20 x 1/2 Pan Hd	All	1644840	4
5.	Screw #10 x 3/8 Self-Tapping	All	1642704	6
6.	Panel Pedestal Side	All	1630110	1
7.	Assy Shifter Pedestal	All	1621659	1
8.	Screw 5/16 x 3/4 Self-Tapping	All	1642708	4
9.	Panel, Control Tower Side	All	1638357	1
10.	Decal	All	1644843	1
11.	Assy Control Tower	All	1419604	1
12.	Nut, U-Type 1/4-20	All	1644841	4
Available Switches for Control Tower #11/#9				
	Switch - Axle (On-Off)		1644870	
	Switch - Tarp (Mom On-Off-Mom On)		1644871	
	Switch - On-Off		1644873	
	Switch - Mom On-Off		1644874	

NOTES

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.
