

**CRYSTEEL'S**

**TWO-YARD**

**TRIPLE**

**TIPPER**

**MOUNTING AND OPERATING INSTRUCTIONS**



**P.O. BOX 178  
HIGHWAY 60 EAST  
LAKE CRYSTAL, MN., 56055-0178  
TELEPHONE: (507) 726-2728  
OUT OF MN. 800-533-0494**

**DATE PURCHASED** \_\_\_\_\_  
**BODY SERIAL NUMBER** \_\_\_\_\_  
**CYLINDER SERIAL NUMBER** \_\_\_\_\_  
**DEALER** \_\_\_\_\_  
**ADDRESS** \_\_\_\_\_  
**PHONE** \_\_\_\_\_

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## FOREWORD

Crysteel's Two-Yard Triple Tipper is designed and intended for landscapers, contractors and others who need a versatile dump body capable of operating in cramped quarters. The Triple Tipper is capable of dumping in three directions – to the left, to the right and to the rear. The folding sides allow the operator to load and unload the Triple Tipper from the side with ease. The bulkhead with built-in cabshield protects the cab from damage.

The Two-Yard Triple Tipper includes a subframe mounted, five stage telescopic cylinder especially designed for the Triple Tipper. The Triple Tipper body is available in 8 and 10 foot lengths.

This manual contains information necessary for the proper installation and operation of Crysteel's Two-Yard Triple Tippers. Study it carefully before attempting to mount or use the Triple Tipper. With proper installation and maintenance, the Crysteel Triple Tipper will give many years of trouble-free service.

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## WARRANTY

- Crysteel Manufacturing, Inc. warrants its products for a period of five (5) years from date of purchase.
  - This warranty covers our products for defective material and/or workmanship at a rate of 100% for the first (3) years and at a rate of 50% for years (4) and (5).
  - This warranty is all encompassing and covers all areas of our product including: Crysteel manufactured product, OEM products purchased by Crysteel, the repair of the warranted product, the replacement of warranted product, the labor to replace the warranted product, and both in and outbound freight for the replacement of the warranted product. This warranty is limited to products supplied under the Crysteel Mfg. name and does not cover distributor modifications. Primer warranty is limited to adherence to metal surfaces only and does not include the inside or understructure of the dump body or hoist.
  - We will not assume responsibility for travel, loss of use, or downtime expenses.
  - This warranty is void if the product has been obviously abused, or subjected to usage it was not designed for.
  - Please contact your Crysteel Distributor for additional details.
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KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE

# OPERATION AND MAINTENANCE INFORMATION

## OPERATION AND USE

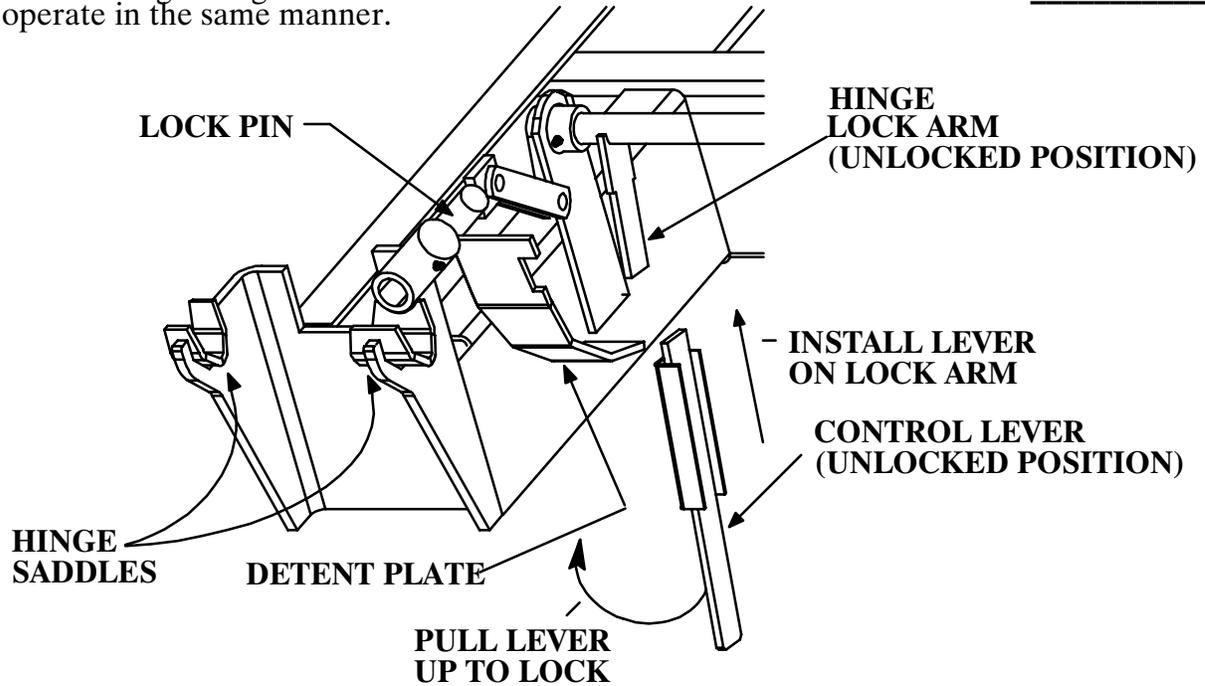
1. Start engine and engage PTO.
2. To **RAISE** the body, pull the hoist control knob out. To hold the body in a raised position, return the hoist control knob to the center detent position.
3. To **LOWER** the body, push the hoist control knob all the way in.
4. Always return the hoist control knob to its center detent position after raising and lowering the Triple Tipper.
5. The body **MUST** be all the way down before changing dumping direction. To change the dumping direction, pull handle out of notch in detent plate and pull down. Remove handle and install it on the desired hinge. Pull the handle up and into the notch in the detent plate.
6. **DO NOT LEAVE THE PTO IN GEAR WHILE TRANSPORTING. THIS WILL CAUSE SEVERE DAMAGE TO THE HYDRAULIC PUMP AND/OR DRIVELINE.**
7. The hydraulic system should be drained, flushed and refilled with proper hydraulic fluid at regular intervals. **CAUTION: NEVER** use hydraulic brake fluid in the hydraulic system.

## SOME DO'S AND DON'TS FOR SAFE AND LONG SERVICE

1. **ALWAYS** carefully block up the body, using the body prop, before working under it.
2. **NEVER** disengage rear hinges while body is resting on the body prop. One set of hinges must always remain engaged.
3. Lubricate all grease fittings at regular intervals.
4. Check the body hinge pins and bushings often. The pins should rotate freely in the bushings. During dumping, the pins should rotate in the bushings, not in the saddles on the subframe. Keep the hinge bushings well greased.
5. Use the proper hydraulic fluid. **KEEP IT CLEAN.** Remember to change it regularly.
6. Do not race the engine when unloading.
7. Do not load the Triple Tipper beyond its capacity.
8. **DO NOT** tamper with the hydraulic relief valve. This will void the warranty. It can cause severe damage to the telescopic cylinder and body.
9. Never leave the PTO in gear while transporting. This will cause severe damage to the hydraulic pump and/or driveline.
10. Check all bolts and set screws regularly. Keep them tight.

NOTE: Left hinge lock shown.  
Rear and right hinge locks  
operate in the same manner.

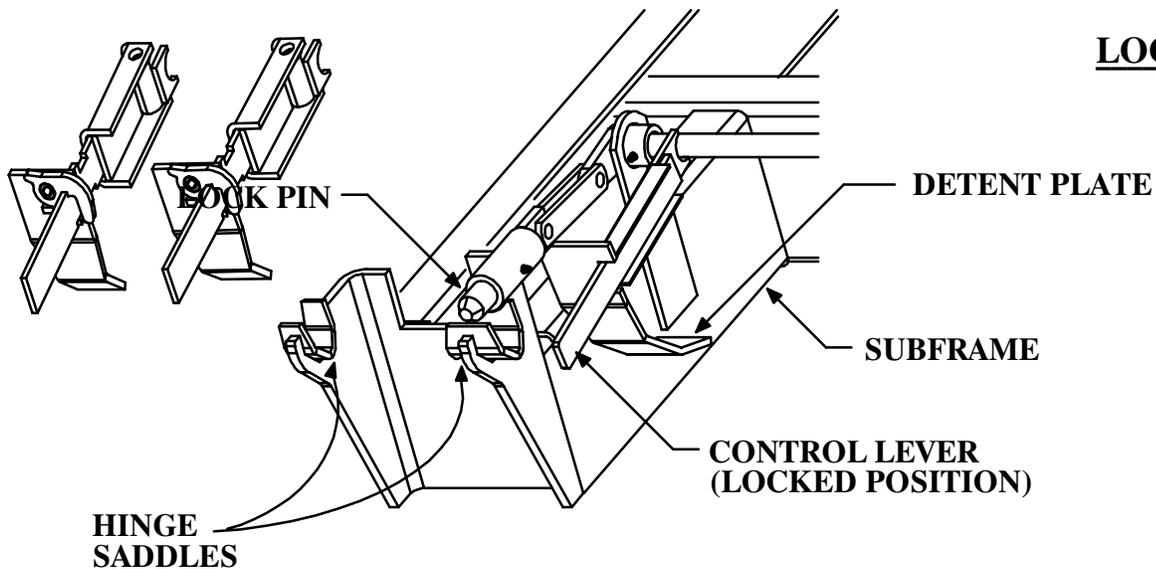
**UNLOCKED**



### SELECTING DUMPING DIRECTION

Before selecting a different dumping direction, make sure the body is all the way down! To select a different dumping direction, pull the handle out of the detent notch and down to unlock the hinge. Remove the handle from the hinge lock arm. There are springs on each hinge lock to hold the hinge locks open. Install the handle on the hinge lock arm on the new dumping direction and pull it up until it snaps into the detent notch. This locks the hinge for the new dumping direction. NOTE: Be sure to install the handle properly, as shown above. If it is installed backwards, the hinge lock cannot be operated with out damage. One set of hinges must be engaged at all times.

**LOCKED**



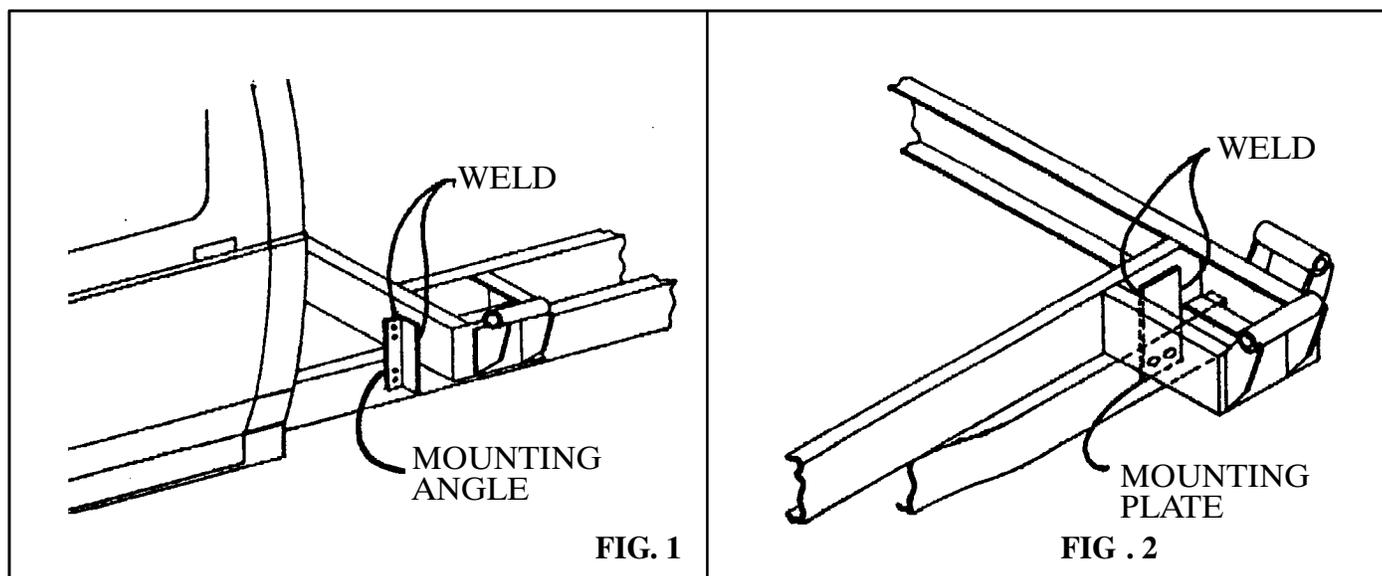
# INSTALLATION INSTRUCTIONS

## CHASSIS REQUIREMENTS

Crysteel mfg. Inc. recommends a 60" CA chassis for 8' bodies and 84" CA for 10' bodies.

## MOUNT TRIPLE TIPPER

Assemble the tailgate to the body using the removable tailgate hinge pins and cotterless pins. It is recommended that the body be painted before it is mounted on the truck. Place the Triple Tipper on the truck with 3 inches of cab clearance. Make sure the subframe is centered on and square with the truck frame. Check for adequate clearance around cylinder trunnion. Raise body height with spacers and or move body to provide clearance for hoist trunnion if necessary. Clamp the mounting angles to the truck frame and to the front of the subframe (See Fig 1.). Clamp the flat mounting plates to the truck frame and to the subframe at the rear (See Fig. 2). For trucks with wide frames, add spacers between the subframe and the flat mounting plates. Mark the truck frame for drilling using the mounting angles and flat plates as guides.



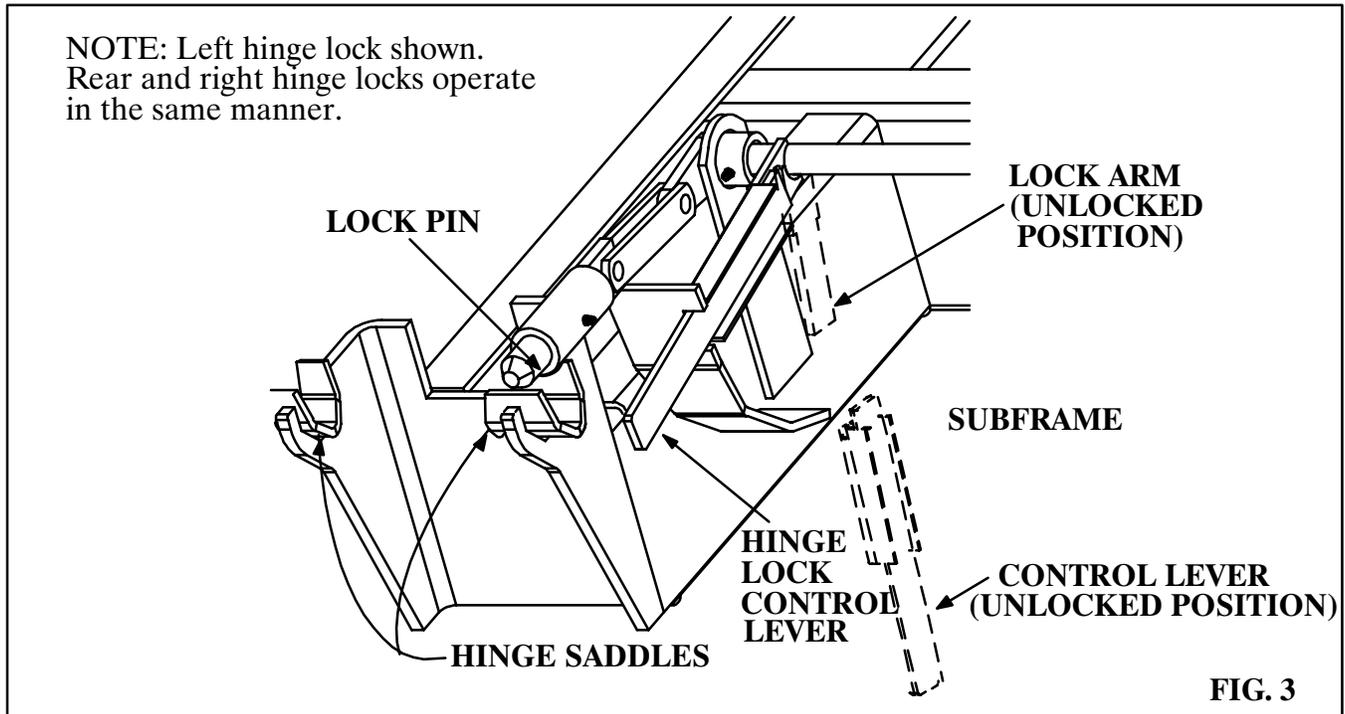
**CAUTION: BE CAREFUL OF BRAKELINES, WIRING, ETC. INSIDE THE TRUCK FRAME WHEN DRILLING THE TRUCK FRAME.**

Drill 21/32 inch holes in the truck frame and bolt the mounting angles in place using 5/8 x 1 3/4 cap screws, lock washers and hex nuts. Weld the subframe to the mounting angles and flat mounting plates.

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

## RAISE BODY

All three hinge locks are wired closed for shipping. Only the rear hinge lock should be closed for the remainder of the Triple Tipper installation. Remove the wire from all three hinge locks. Springs should pull the hinge locks open. Install the hinge lock control lever on the rear hinge lock, and pull up until it snaps into the notch in the detent plate. (See Fig.3) The rear hinge is now engaged. **MAKE SURE THE SIDE HINGE LOCKS ARE FULLY RETRACTED.** Remove the plug from the port on the telescopic lift cylinder. Raise the body using an overhead crane.



## PROP THE BODY UP

Raise the body prop to a free standing position and slowly lower the body to rest on the body prop. !! **IMPORTANT !! THE BODY PROP IS FOR USE ONLY WITH THE BODY IN THE REAR HINGE POSITION, WITH THE BODY EMPTY!**

## MOUNT RESERVOIR AND VALVE ASSEMBLY

Mount the reservoir and valve assembly to the reservoir mounting bracket inside the subframe using 3/8 x 3/4 capscrews, lock washers and hex nuts. (See Fig. 4.)

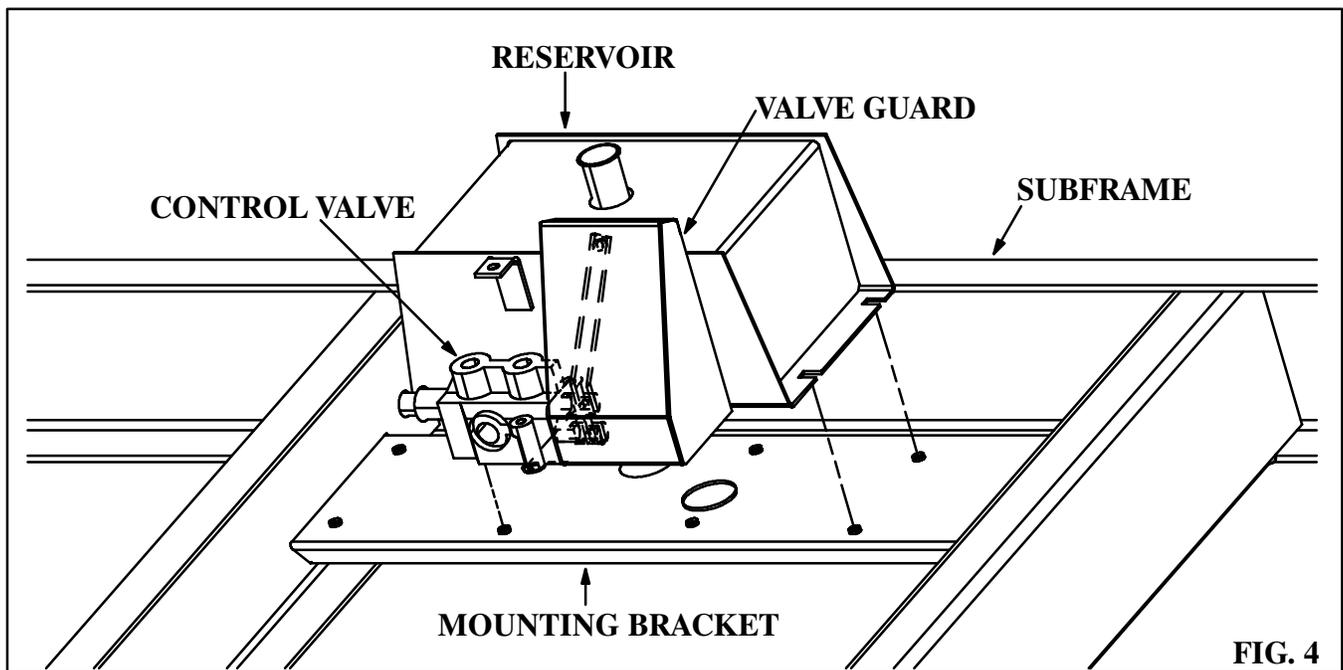


FIG. 4

## INSTALL CONTROL CABLE

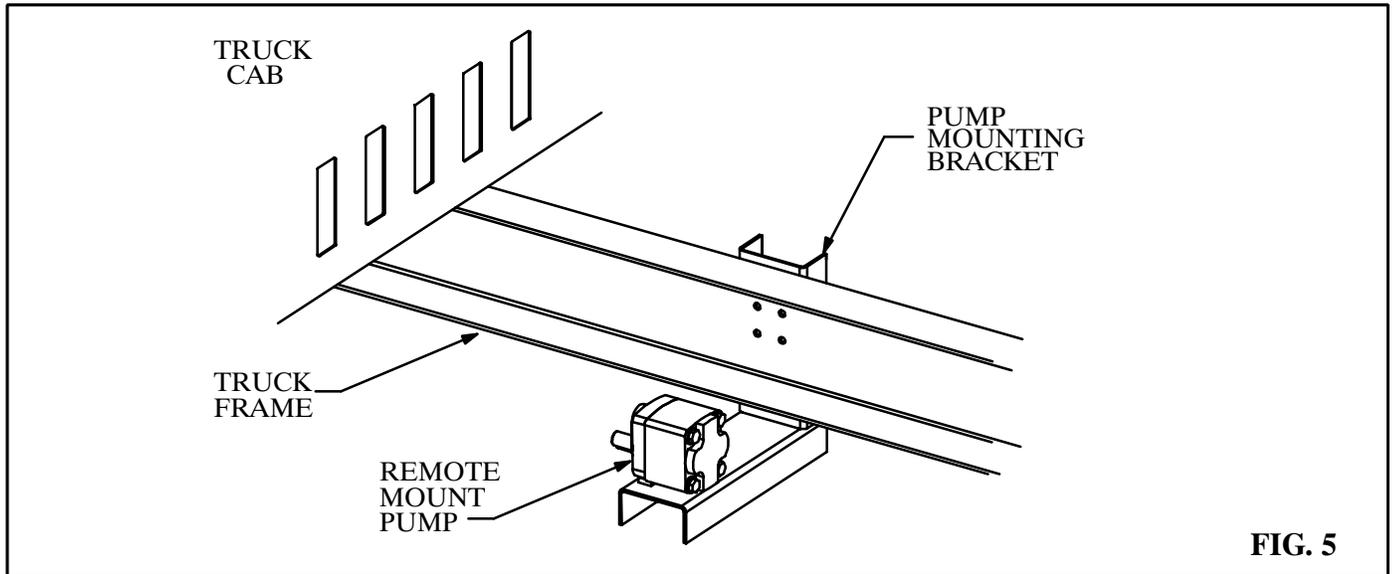
Remove the control wire from the control cable housing and oil the inside of the cable housing and reassemble. Attach the control mounting angle at a convenient location under the dash using 1/4 x 3/4 cap screws, lock washers and hex nuts. Insert the control cable through a hole in the firewall, and attach the control knob end of the cable to the control mounting angle. The valve control cable has a detent lock to keep the control valve in neutral when it is not being used. Place the control cable in the center detent position and attach the other end of the cable to the control valve lever using the parts supplied. The control valve should be in neutral when the control cable is attached. Check for proper operation and adjust if necessary. Be sure that there are no sharp bends in the control cable. Keep the control cable away from hot exhaust pipes. After the cable has been installed, mount the valve guard to the valve mounting holes using 5/16 x 2 1/4 cap screws, lock washers and hex nuts. (See Fig. 4.)

## MOUNT PUMP – DIRECT MOUNT

The direct mount pump is bi-rotational and is intended to be mounted directly to a two-gear PTO with an SAE “B” 4-bolt flange. This saves time and effort and simplifies the installation. Make sure the pump has plenty of clearance and that the hoses are kept clear of hot mufflers and exhaust pipes.

## MOUNT PUMP – OPTIONAL REMOTE MOUNT

Determine which side of the truck frame to mount the pump. (Same side as the PTO opening on the transmission.) Bolt the pump to the pump mounting bracket using 1/2 x 1 cap screws and lock washers. Clamp the pump mounting bracket to the truck frame with the pump inside the truck frame and 14 to 18 inches behind the PTO (See Fig. 5). Check that the PTO drive shaft is long enough and does not exceed 15 degrees in angularity. Check for sufficient clearance around the pump. Reposition the pump for the best location.



**NOTE: UNDER NO CIRCUMSTANCES SHOULD THE ENGINE EXHAUST BE PERMITTED TO BLOW DIRECTLY ONTO THE PUMP!**

After locating the pump, drill 17/32 holes through the truck frame using the pump mounting bracket as a guide and bolt in place using 1/2 x 1 3/4 cap screws, lock washers and hex nuts. (See frame drilling caution note on page 3.)

## INSTALL PTO DRIVE SHAFT

Install the long slip U–joint on the pump driveshaft and the short U–joint on the PTO driveshaft so that the inner edge of the hub of each is flush with the end of the shaft. **DO NOT TIGHTEN THE SET SCREWS!** Measure the distance from the inner edge of the hub of one U–joint to the inner edge of the other U–joint. This is the length the driveshaft needs to be. Cut the driveshaft to the proper length and deburr. Install the driveshaft and tighten all set screws. Retighten the set screws and secure them with a safety wire.

## MOUNT OPTIONAL ELECTRIC PUMP

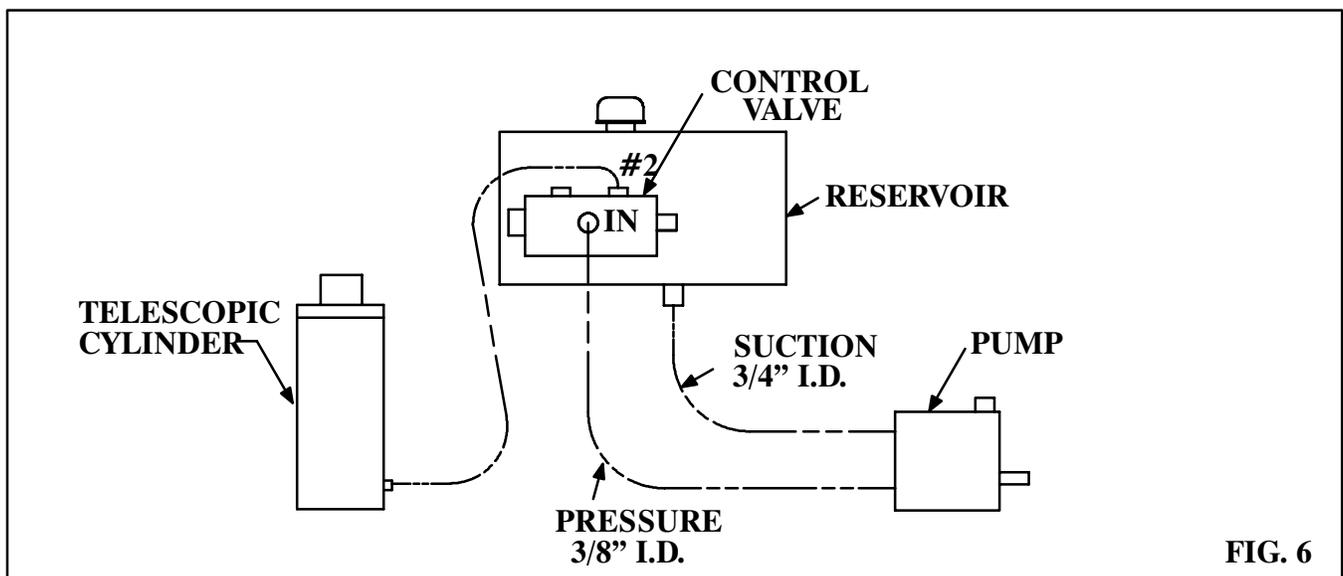
An electric pump is available for use on trucks with automatic transmissions. Mount the pump on the reservoir mounting bracket inside the subframe using 3/8 x 1 cap screws, flat washers and hex nuts.

Connect the large terminal on the solenoid to the positive terminal on the battery using a No. 0 Gauge cable. It is also necessary to install a heavy duty ground cable (No. 0 Gauge) between the battery and the truck frame.

## CONNECT HOSES

Connect a suction hose (3/4" ID, SAE 100R4) from the suction port on the reservoir (3/4 NPT port on bottom) to the pump. For electric pump installation, use a 3/8" I.D. suction hose. (On the electric pump, the suction port is on the end, the pressure port is on the top side.) Connect a pressure hose (3/8" ID, SAE 100R2, rated at 3500 PSI) from the pump to the "IN" port on the control valve.

Install the 3/8 NPT 90° adapter in the "#2" port on the control valve. Install the 7/8-14 ORB 90° adapter in the port on the telescopic cylinder. Connect the 3/8 NPT x 24" long hose from the telescopic cylinder to the "#2" port on the control valve.



For electric pump installations, install a 3/8 x 2 pipe nipple in the work port on the pump and a 3/8 90° pipe elbow on this nipple. Install a 7/8-14 ORB 90° adapter in the port on the telescopic cylinder. Connect the 3/8 NPT x 24" long hose from the telescopic cylinder to the work port on the pump.

## ADD HYDRAULIC OIL

Nine quarts of hydraulic oil are required to operate the hoist. 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, or use Type A automatic transmission fluid for improved performance in cold weather.

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

## **BLEED TELESCOPIC CYLINDER**

Air must be bled from the telescopic cylinder to insure smooth and safe operation. Raise the body using an overhead hoist, lower the body prop and lower the body. Leave the rear hinge locked. Start the truck engine and raise the body to its full height. Place the control cable in its center detent position and stop the engine. Raise the body prop to the support position. There is a 1/8" pipe plug on the front side of the pivot head at the top of the telescopic cylinder. Very carefully, loosen this plug slightly, just enough to allow trapped air to escape from the cylinder. Tighten the plug when hydraulic oil begins to seep out around the plug.

## **INSTALL GREASE ZERKS AND LUBRICATE**

Install grease zerks and lubricate the Triple Tipper in the following locations:

A. U-joint	3 fittings (2 already installed)
B. Body Prop	1 fitting
C. Tailgate Hinge Bushing	2 fittings (already installed)
D. Tailgate Latch Pivot	3 Fittings (already installed)
E. Folding Side Hinges	4 fittings on each side (already installed)
F. Body Hinge Bushing	6 fittings
G. Lock Pin Bushing	6 fittings
H. Hinge Lock Shaft Bushing	8 fittings on subframe

Lubricate all fittings at regular intervals, at least each time the truck chassis is lubricated.

Note: The telescopic hoist cylinder pivots, both top and bottom, do not require lubrication. They are greaseless, self-lubricating composite bearings that rotate on chromed shafts. If they are ever disassembled (to repair or replace the cylinder), extreme care must be used to avoid damage to the composite bearings.

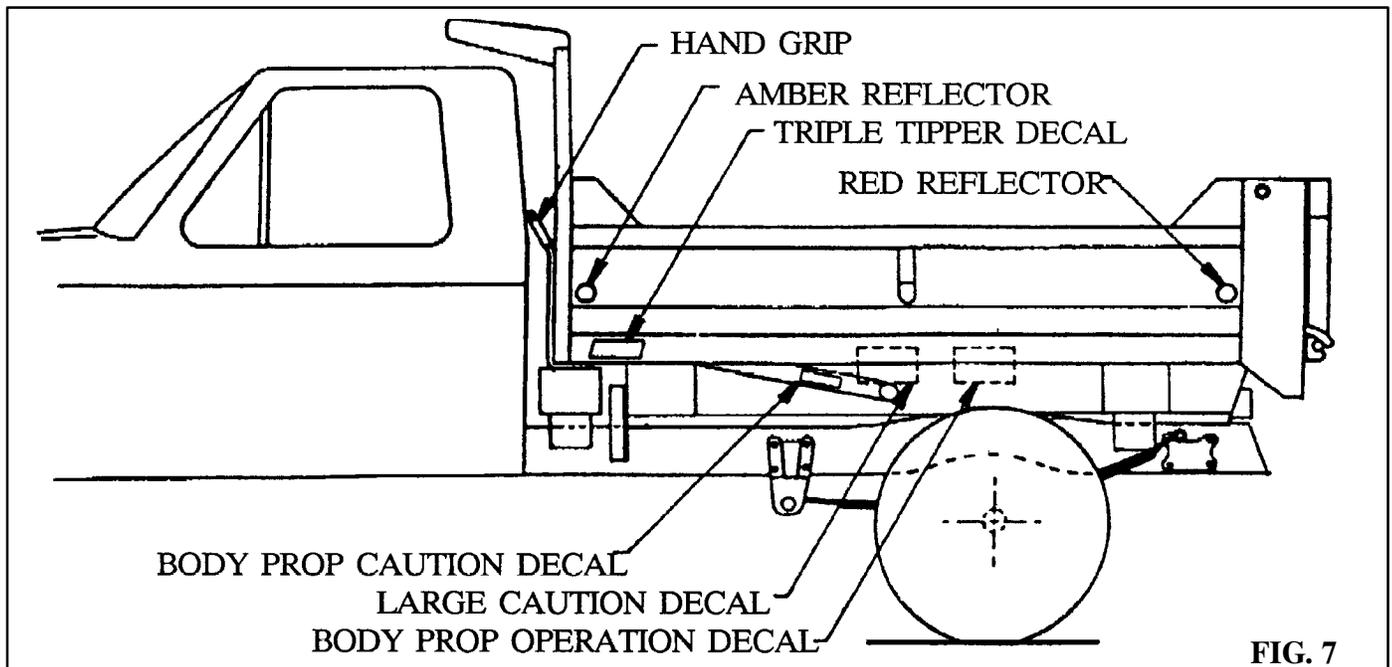
## **INSTALL BODY-UP INDICATOR LIGHT**

The body-up sensor is already installed on the body at the front of the subframe. The body-up sensor is a magnetic reed switch mounted on the subframe and is turned on by a magnet mounted on the body. There should be 1/4" clearance between the magnet and sensor for proper operation. Locate the body-up decal on the dash in the cab in a prominent location and mark the dash for drilling using the decal as a guide. Drill a 5/16" diameter hole in the dash, mount the decal and install the indicator light. Connect a wire from the cold side of the ignition switch to the red wire on the indicator light. Connect a wire from the black wire on the indicator light to the white wire on the body-up sensor at the front of the Triple Tipper subframe and ground the blue wire to the subframe. The red wire on the body-up sensor is not used and should be taped so it does not short out against the subframe of the Triple Tipper. NOTE: The indicator light will not work if the red and black wires are reversed.

## MOUNT DECALS, REFLECTORS, HAND GRIP

There are eight decals to be placed on various parts of the body and two decals to be placed in the cab. Place one “TRIPLE TIPPER” decal on each side, near the front of the body (See Fig. 12). Place the large CAUTION decal and the BODY PROP OPERATION decal on the long beam near the body prop. Place the CAUTION–Hinge Damage decal on the left side near the folding side handle. Place one “Folding Side Down” decal on each side near the folding side handle. Place the small body prop CAUTION decal on the body prop arm. Place the Operating Instructions decal and the small CAUTION decal in the truck cab in a prominent location.

Mount one amber reflector on each side near the front of the body. Mount one red reflector on each side near the rear of the body. Mount two red reflectors on the tailgate, one near each end. Slip the rubber hand grip over the end of the tailgate latch control lever.



## INSTALL MARKER LIGHTS

Install the marker lights and connect the wiring using the connectors and grounding screws provided. The coiled electrical cable at the back of the body has 5 conductors. The red wire is used for the marker lights on the body, the other four wires can be used as needed for strobe lights, work lights, etc.

# ROUTINE MAINTENANCE

## LUBRICATE REGULARLY

Lubricate all grease fittings on the body and subframe regularly, at least every 150 cycles or every two months.

Subframe:		Body:	
A. U-Joints	3 fittings	E. Folding Side Hinge	4 fittings
B. Body Prop	1 fittings	F. Body Hinge Bushing	6 fittings
C. Tailgate Hinge Bushing	2 fittings	G. Lock Pin Bushings	6 fittings
D. Tailgate Latch Pivot	3 fittings	H. Hinge Lock Shaft Bushing	6 fittings

Note: The telescopic hoist cylinder pivots, both top and bottom, do not require lubrication. They are greaseless, self-lubricating composite bearings that rotate on chromed shafts. If they are ever disassembled (to repair or replace the cylinder), extreme care must be used to avoid damage to the composite bearings.

## CHANGE HYDRAULIC OIL

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.

To change the hydraulic oil, select the rear hinge and raise the body, raise the body prop to its support position and lower the body onto the prop. Stop the truck engine. Remove the magnetic drain plug on the bottom of the reservoir. Clean the drain plug before reinstalling it in the reservoir.

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

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, or use Type A automatic transmission oil for improved performance in cold weather. Add 3 quarts of hydraulic oil to the reservoir. **DO NOT OVERFILL THE RESERVOIR!** There is approximately 5 quarts of hydraulic oil in the telescopic cylinder that cannot be drained when the body is raised and resting on the body prop. If more oil is added, the reservoir may overflow when the body is lowered.

If you wish to change ALL of the hydraulic oil, the cylinder can be drained while the body is resting on the body prop. Disconnect the hydraulic hose from the base of the cylinder and remove the bleed plug from the top of the cylinder. Reinstall the bleed plug, reconnect the hose and follow the instructions on pages 9 and 10 to refill the reservoir and bleed the cylinders.

## LUBRICATE VALVE CONTROL CABLE

With normal use and working conditions the control cable should be oiled annually. With heavy use or very dusty conditions it should be oiled more often. Disconnect the control cable from the control valve lever, remove the control wire from the control cable housing and oil the inside of the control cable housing. Reinsert the control wire in the control cable housing to center detent position and reattach the control cable to the control valve lever. Check for proper operation and adjust if necessary.

## *SPECIALLY DESIGNED – WITH QUALITY IN MIND*

### **CUSTOMER SATISFACTION PLEDGE**

Crysteel's Customer Satisfaction Pledge is designed to be the most comprehensive warranty in the truck equipment industry. This pledge covers new products for a period of five (5) years, and is not restricted by vehicle mileage or when product is invoiced to our distributors. Our warranty begins when our product is put into service by the final customer.

This warranty covers our products for defective material and/or workmanship at a rate of 100 % for the first (3) years and at a rate of 50 % for years 4 and 5. This warranty covers:

- Crysteel Manufactured product
- OEM Products purchased by Crysteel as part of our product
- The repair of warranted product
- The replacement of warranted product
- Labor to replace warranted product
- Freight for replacement product
- Warranted product return freight (if required)

This warranty is limited to product supplied under the Crysteel Mfg. name and does not cover distributor modifications. Repair or replacement is at Crysteel's option. Primer warranty is limited to adherence to metal surfaces only and does not include the inside or understructure of dump bodies. Crysteel will not assume responsibility for travel, loss of use, downtime expenses or other incidental or consequential damages. This warranty is void if the product has been obviously abused or subjected to other than normal usage. 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.**

P.O. Box 178 52182 Ember Road  
Lake Crystal, MN 56055

1902 Route 57 South  
Fulton, NY 13069

(507) 726-2728 (800) 533-0494