

SAFETY FIRST

1. Read and understand this operator's manual before operating the hoist.
2. Be sure safety decals are clean and in place.
3. **Never** position yourself, or any other person, under any portion of the hoist unless the hoist is firmly resting on the hoist props.
4. **Never** operate this unit unless the hydraulic system, including the cylinders and lines, are full of oil and free of air.



Warning: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

5. Check the area for power lines and overhead obstructions.
6. Be sure the area and container are clear of personnel.
7. Do not load, dump or unload a container on uneven ground.
8. Do not move the truck while the hoist and container are raised. A raised load creates a top heavy unstable load.
9. Do not use a chain between the reeving cable and the container. The chain will not withstand the force applied to the cable.
10. Do not use any method to hold a valve open which will not let the valve automatically close when released.
11. Check the reeving cable for wear and fraying.
12. Always keep the cable centered on the hoist frame. Do not allow the cable to rub on any surface when loading or unloading a container.
13. Do not operate the reeving cylinders to load or unload a container unless the front of the hoist frame is above the top of the truck cab.

OPERATING INSTRUCTIONS

ROLL-OFF HOIST CHECK LIST

1. ___ Hydraulic oil level with all cylinders retracted.
2. ___ Grease all lubrication points.
3. ___ All rollers and sheaves are free to rotate.
4. ___ Tires are properly inflated.
5. ___ The container lock is free to move and works properly.

GENERAL GUIDELINES FOR OPERATION OF THE ROLL-OFF HOIST

LOADING A CONTAINER



Caution: Be sure the area in which the hoist is to be operated is clear of personnel and obstacles overhead, and on the ground.

1. Back the truck up to the container to be loaded and align the hoist rails with the container long sills.
2. Engage the P.T.O. and raise the hoist above the cab for the “dead-lift” models or until the rear roller is on the ground for other models.
3. Set the parking brakes and retract the reeving cylinders to connect the cable to the container.



Caution: Do not attempt to load a container with faulty equipment. Check the condition of the cable, cable end, and container cable connection.

Do not lift a container heavier than the rated capacity of the hoist.

4. Extend the reeving cylinders to pull the container onto the hoist. Release parking brake and allow the truck to roll under the container. The container long sills must be kept on the hoist rollers.
5. Once the center of gravity of the container is in front of the rear hinge, the hoist can be lowered until the front is just above the top of the truck cab.
6. Continue pulling the container forward until it is securely locked into the front stops.



Caution: Rear hold-down devices are required on the hoist and the containers.

7. Lower the hoist to the full-down position and disengage the P.T.O.

DUMPING A CONTAINER



Caution: Be sure that the truck is on firm level ground before dumping. If one side of the load breaks loose in this high center of gravity position, a truck on unstable footing may roll over on its side.

1. While the hoist is in the full-down position, open the container door and secure it.
2. Engage the P.T.O. and raise the hoist until the load slides out of the container.



Caution: Do not pull forward until the hoist is lowered to the full-down position.

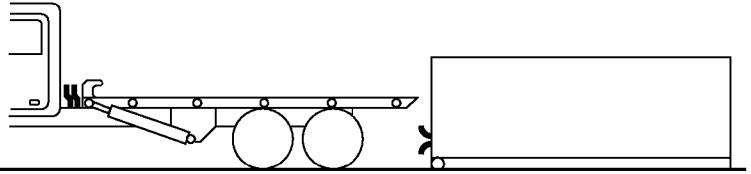
3. Once the rear roller are on the ground,, allow the truck to roll out from under the container.
4. Lock the truck brakes and disconnect the cable and secure it to the hoist.
5. Pull away from the container and lower the hoist (power the hoist down).
6. Disengage the P.T.O. before driving away.

UNLOADING A CONTAINER

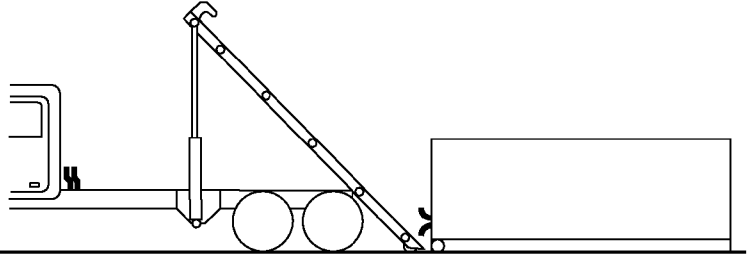
1. Back the truck up in front of where the container is to be spotted. Allow room for the container to roll-off of the hoist.
2. Raise the hoist and retract the reeving cylinders. Allow gravity to pull the container to the ground.
3. Once the rear rollers are on the ground, allow the truck to roll out from under the container.
4. Lock the truck brakes and disconnect the cable and secure it to the hoist.
5. Pull away from the container and lower the hoist (power the hoist down).
6. Disengage the P.T.O. before driving away.

RECOMMENDED LOADING PROCEDURE FOR INSIDE/OUTSIDE & OUTSIDE RAIL HOISTS

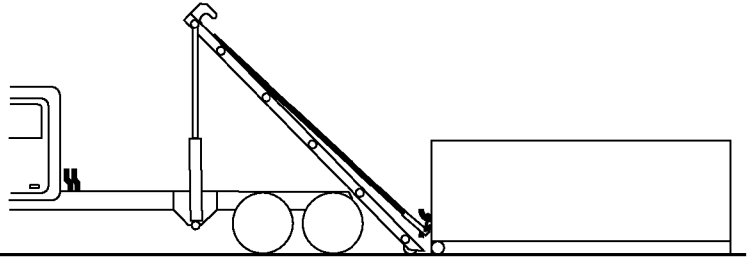
- 1 Align rails of truck with rails of container



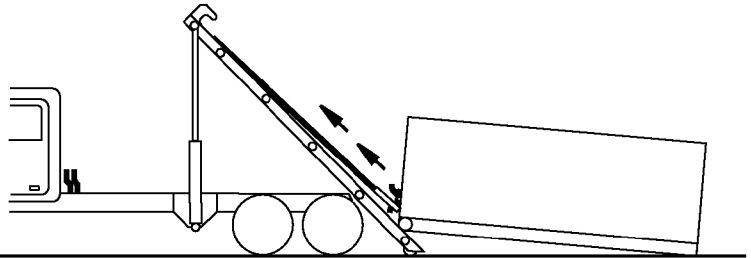
- 2 Lock brakes before hook-up



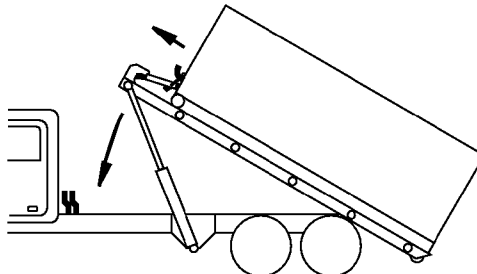
- 3 Secure cable end to the container with the elastic strap provided.



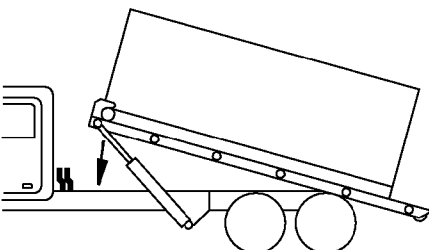
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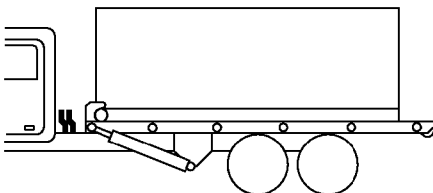
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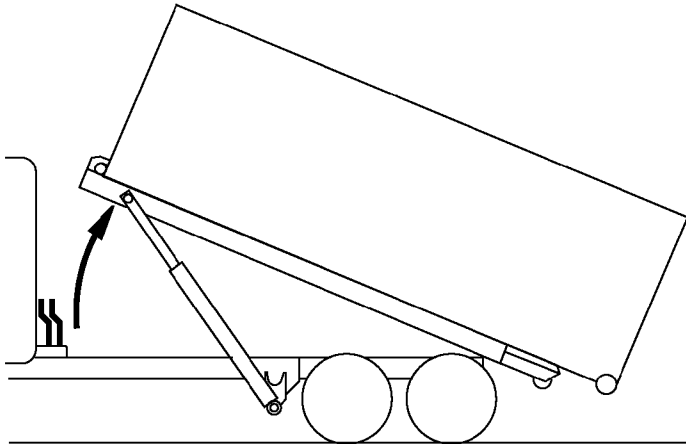
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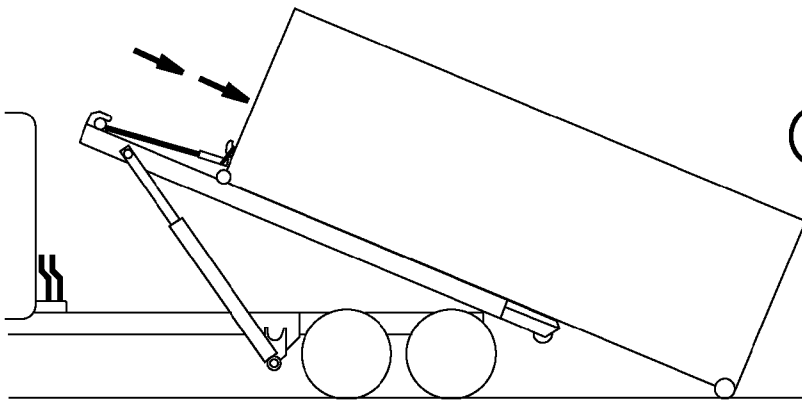
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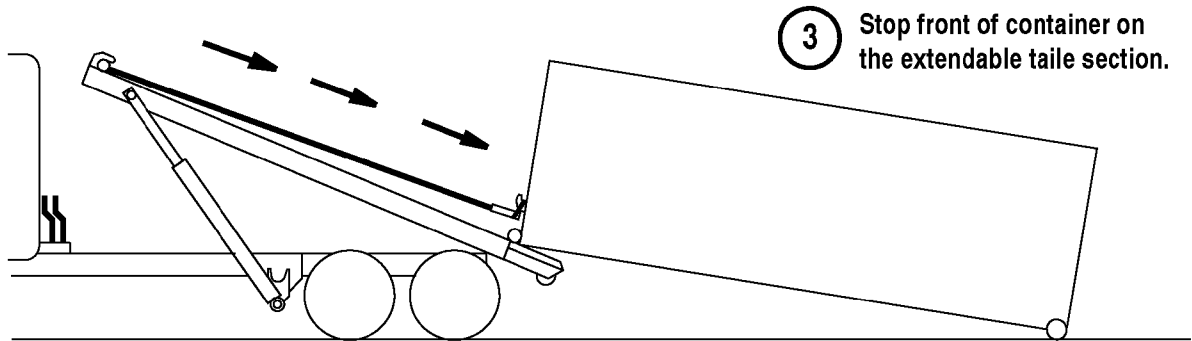
UNLOADING PROCEDURE FORE INSIDE/OUTSIDE & INSIDE RAIL HOISTS WITH EXTENDABLE TAIL



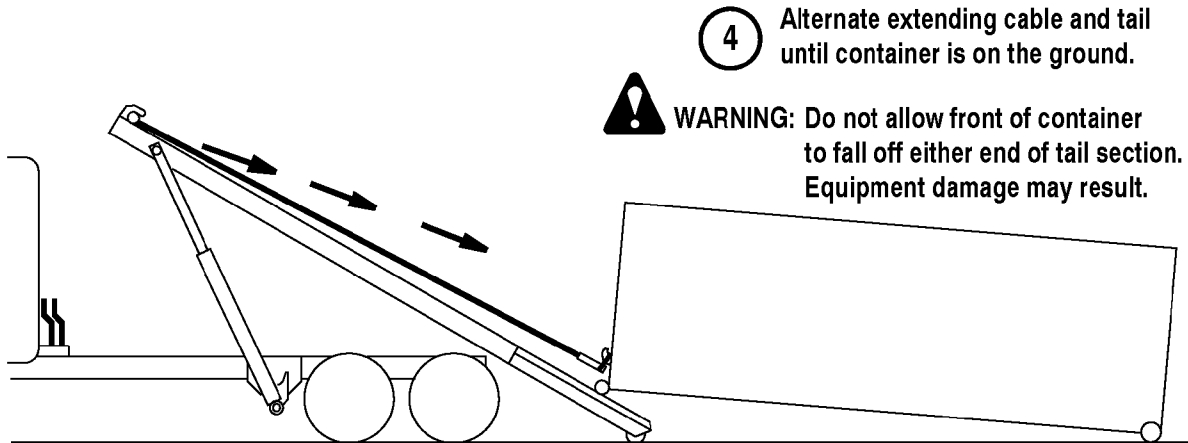
1 Raise hoist.



2 Begin lowering the container.



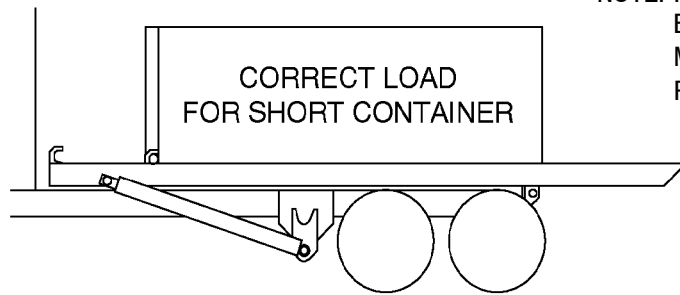
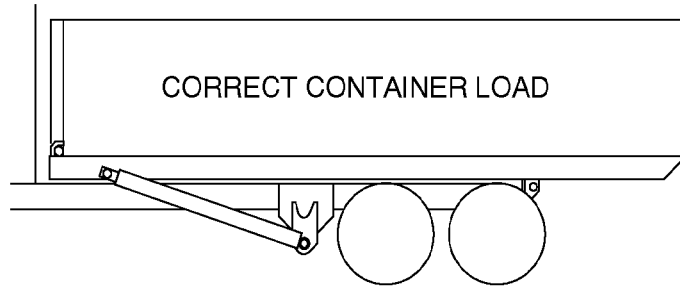
3 Stop front of container on the extendable tail section.



4 Alternate extending cable and tail until container is on the ground.

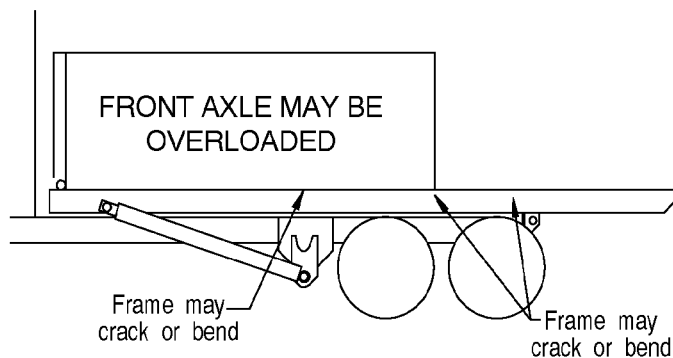
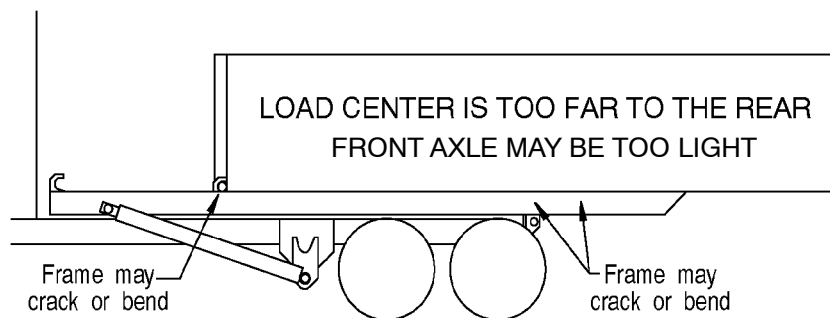
WARNING: Do not allow front of container to fall off either end of tail section. Equipment damage may result.

CORRECT ROLL-OFF CONTAINER LOADS



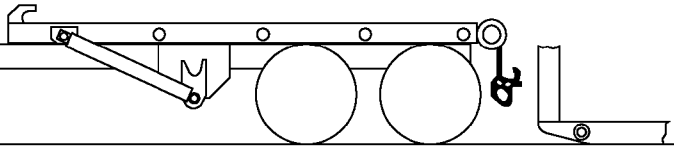
NOTE: REMOVABLE FRONT STOPS MUST BE USED AND REAR HOLD DOWNS MUST MATCH ON CONTAINER AND ROLL-OFF HOIST.

UNSAFE ROLL-OFF CONTAINER LOADS

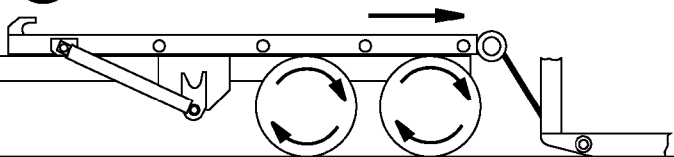


RECOMMENDED LOADING PROCEDURE FOR DEAD LIFT HOIST

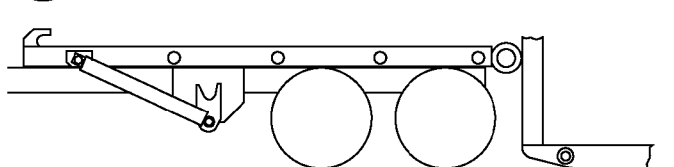
1 Lock brakes before hooking up.



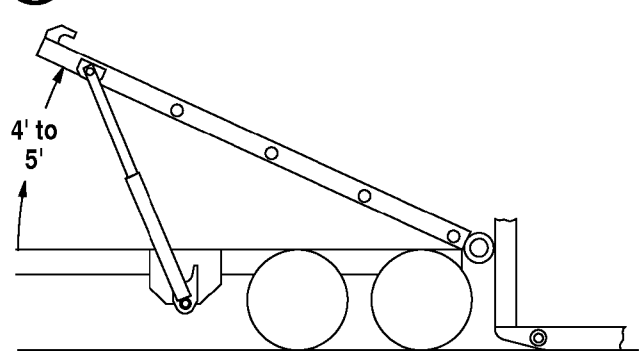
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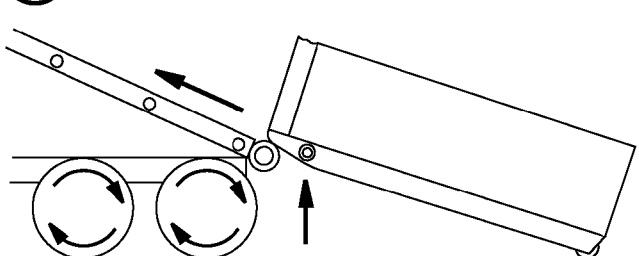
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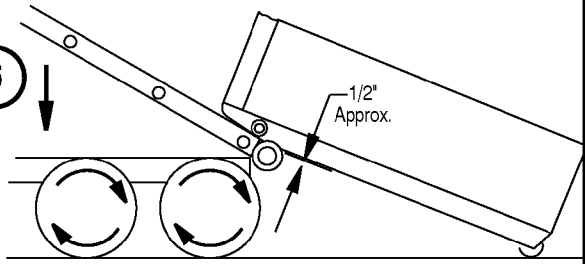
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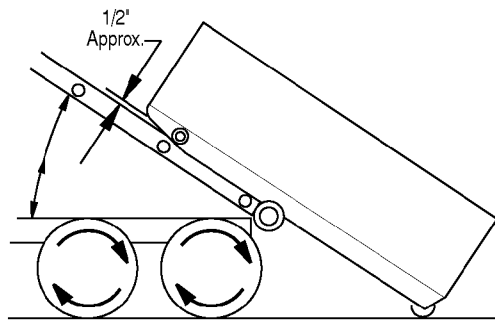
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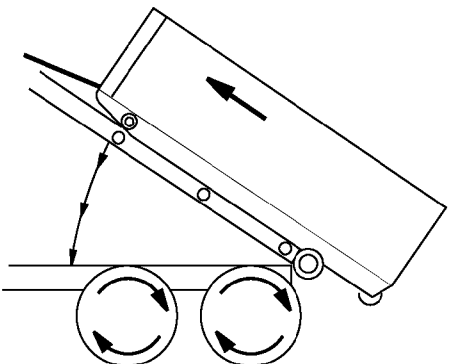
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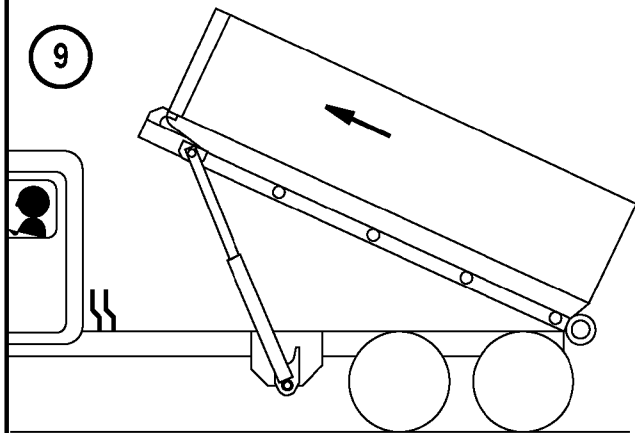


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IMPORTANT: THE HOIST FRAME AND THE CONTAINER SHOULD BE PARALLEL, AND IN THE SAME PLANE.

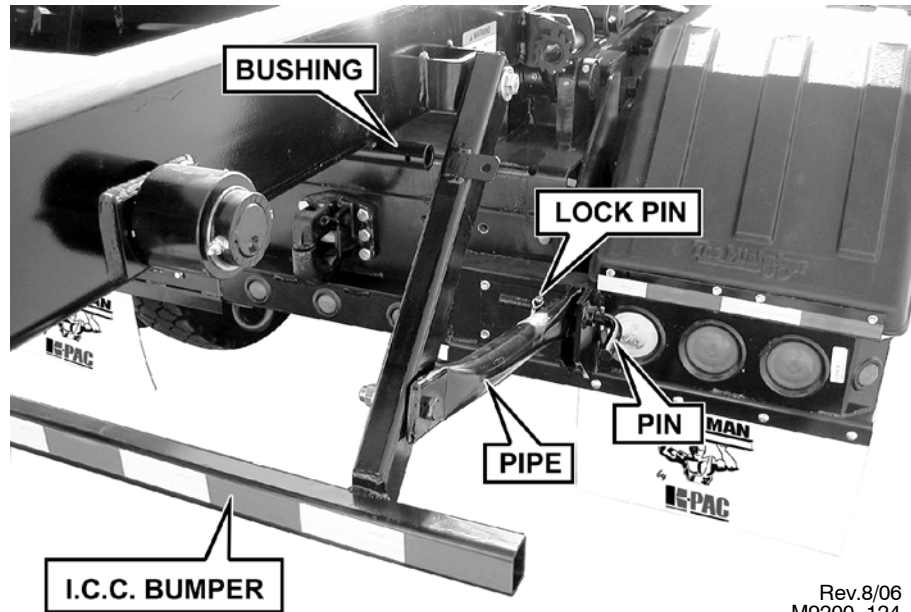
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PINTLE I.C.C. BUMPER FOLDING INSTRUCTIONS

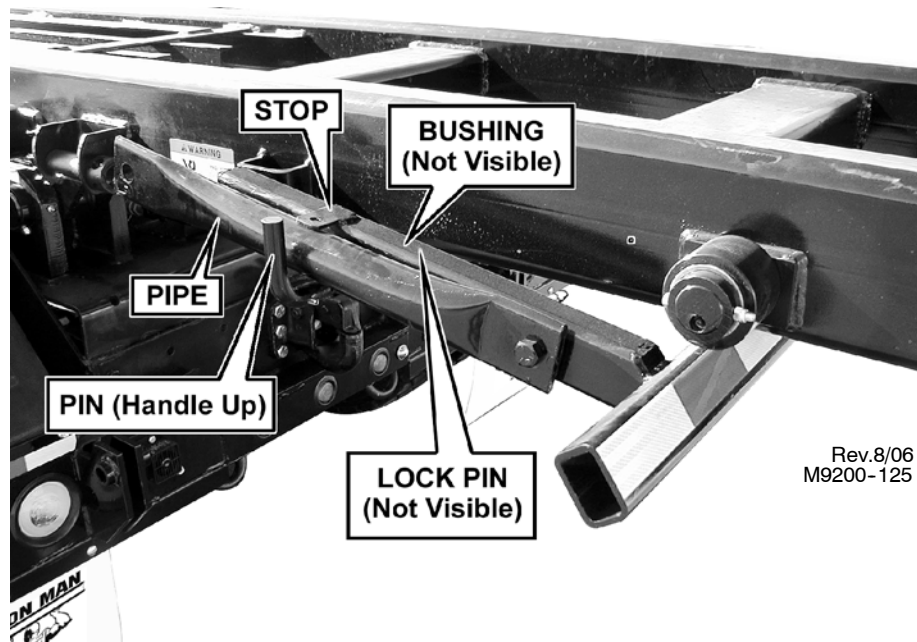
Important: Without a Pup Trailer in tow, the I.C.C. BUMPER **MUST BE IN THE DOWN & LOCKED POSITION.**

Use the following steps to properly fold the I.C.C. BUMPER.



Rev.8/06
M9200-124


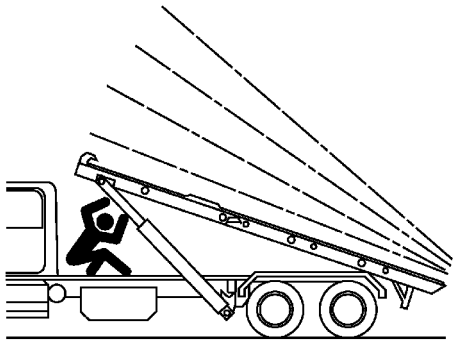
1. Starting at one side of the bumper, remove the LOCK PIN and pull the PIN out of the mounting brackets welded to the truck bumper. USE CARE TO PREVENT PIPE FROM SWINGING DOWN. Repeat procedure on other side. USE CARE TO PREVENT PIPE OR ICC BUMPER FROM SWINGING DOWN.
2. Raise the I.C.C. BUMPER weldment up under the hoist frame and rotate the PIPE up against the STOP on the arm of the I.C.C. BUMPER. Insert the PIN under the PIPE and I.C.C. BUMPER arm and into the BUSHING welded to the underside of the hoist frame. Turn PIN so the handle end is pointing up and install LOCK PIN into cross-hole of the BUSHING and PIN. Repeat procedure on the other side.
3. I.C.C. BUMPER is now in the folded position and the Pup Trailer can be connected to the pintle hitch.



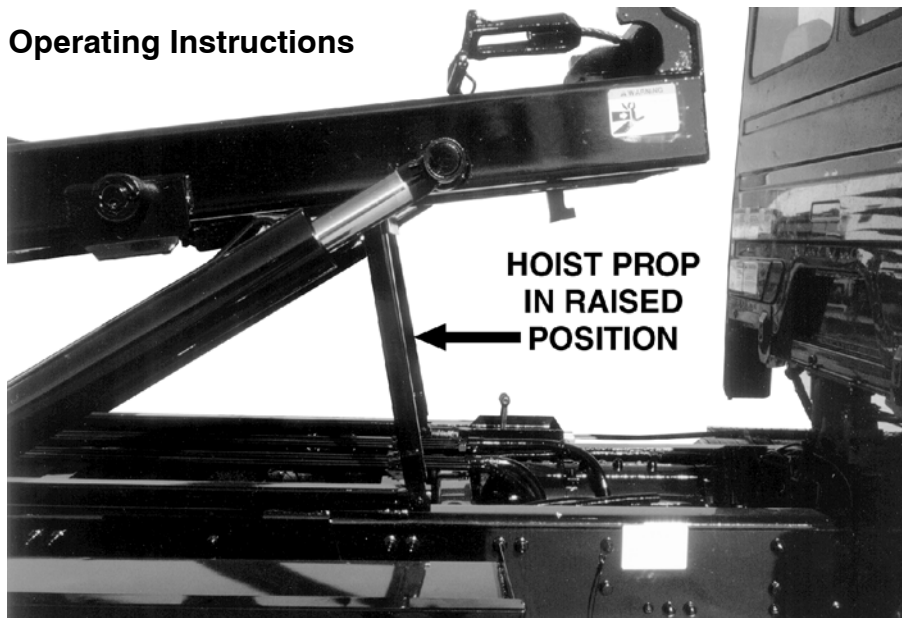
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Important: Without a Pup Trailer in tow, the I.C.C. BUMPER **MUST BE IN THE DOWN & LOCKED POSITION.**

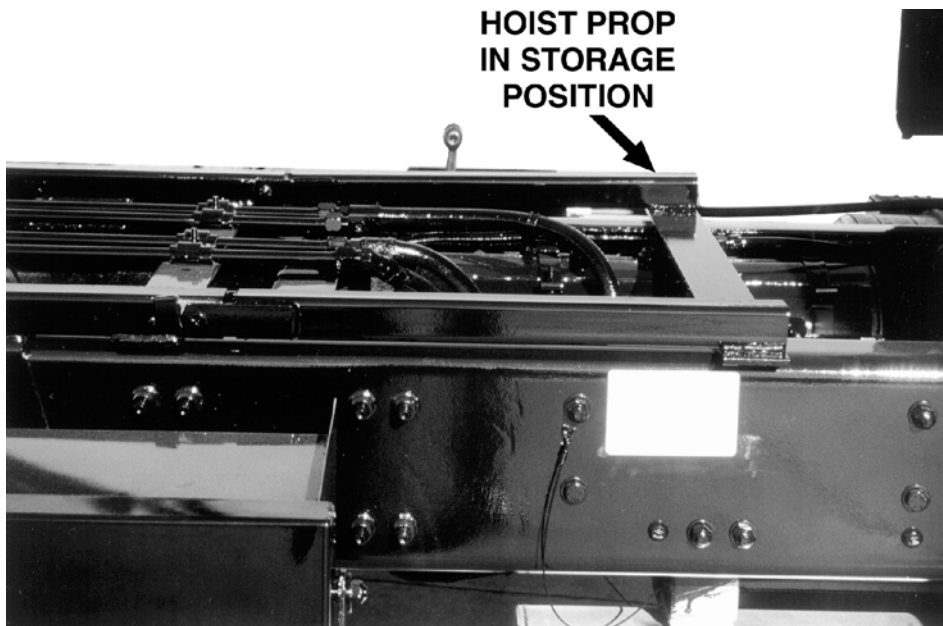
SERVICE SECTION

 WARNING	
	BEFORE WORKING AROUND A RAISED HOIST, THE HOIST MUST BE SUPPORTED BY THE HOIST PROP.
	(SEE HOIST PROP OPERATING INSTRUCTIONS)
	FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.
	IF THE HOIST PROPS CANNOT BE USED, CONSULT THE MAINTENANCE SECTION OF THE OPERATORS MANUAL FOR THE PROPER PRECAUTIONS.
<small>74-288</small>	

Hoist Prop Operating Instructions

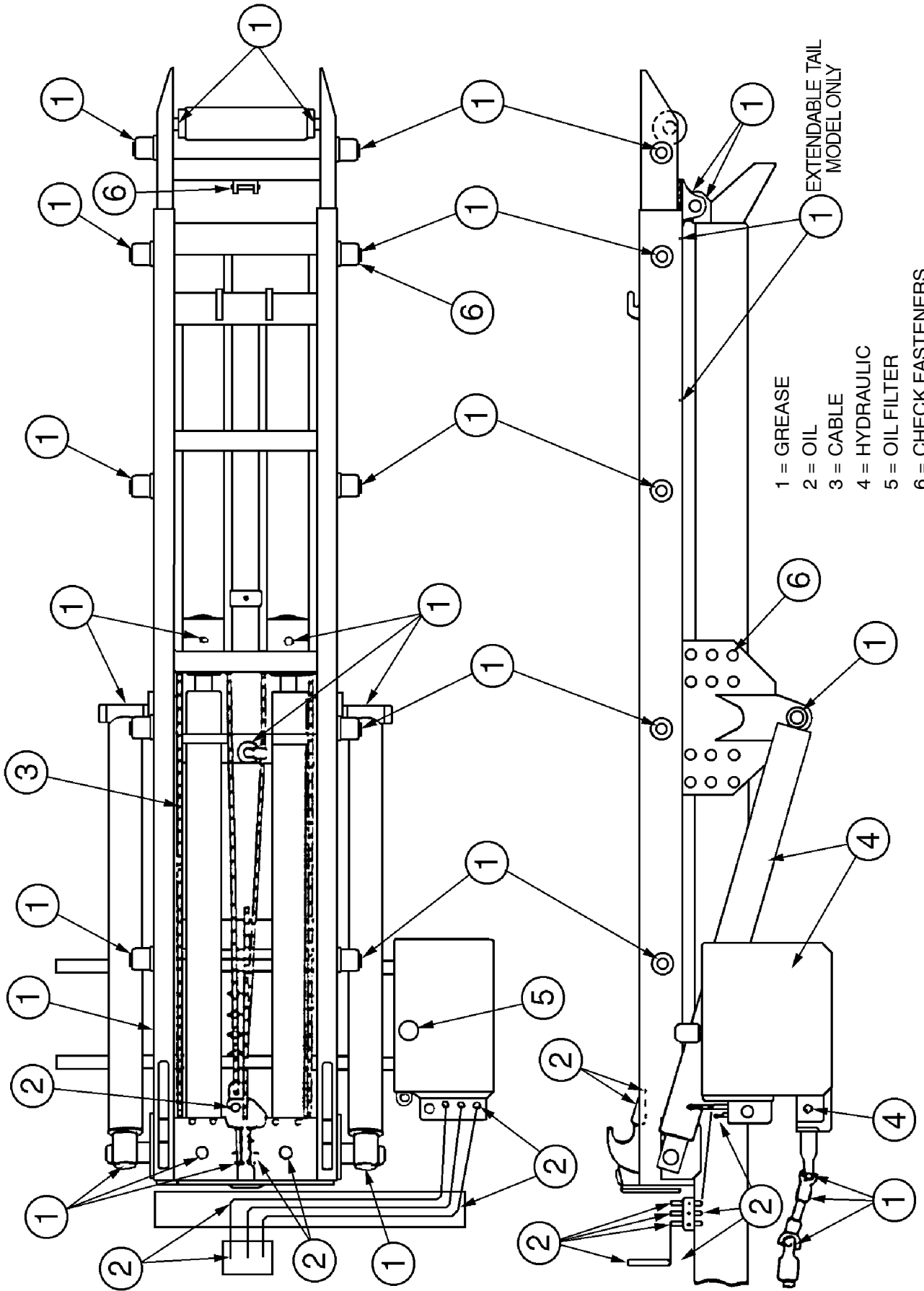


M9200-102



M9200-103

LUBRICATION CHART



- 1 = GREASE
 - 2 = OIL
 - 3 = CABLE
 - 4 = HYDRAULIC
 - 5 = OIL FILTER
 - 6 = CHECK FASTENERS
- EXTENDABLE TAIL MODEL ONLY

SERVICE AND MAINTENANCE FOR THE ROLL-OFF HOIST

1. A daily check should be made of the cable, cable clamps, cable ends, and lights. Inspect all bolts, pins and brackets to insure their safe and proper working condition. (Make repairs if needed before using.)
2. **Grease:** All grease fittings should be properly greased after forty (40) hours of service as a minimum, or once a week for average usage.

Important: After severe or heavy usage, greasing may be required in less than forty (40) hours of service as a minimum, or once a week for average usage. (See page O9)

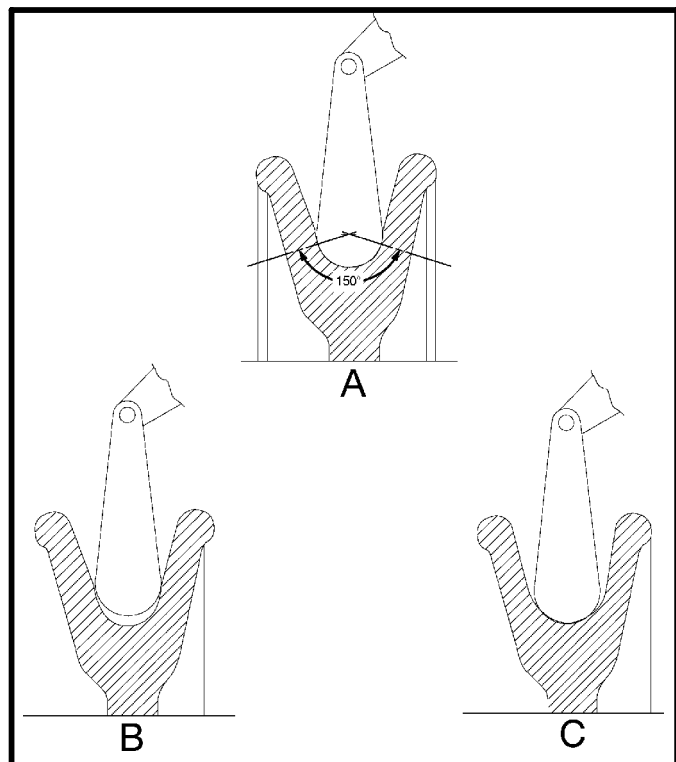
3. **Oil:** Use SAE 30 oil. Lubricate all points every thirty (30) days of service as a minimum or each time the chassis is serviced. (See page O9)
4. **Cable:** The cable should be thoroughly inspected every forty (40) hours for breakage, unraveling, or flat spots as well as cable ends, clamps and pins.
5. **Hydraulic:** The hydraulic oil (equal to Mobil DTE25, Arco Duro 150, or Gulf Harmony 32) in the oil reservoir should be checked daily and added if needed. Oil that is dirty or smells burned should be replaced. If in a cold-weather operation a thinning oil (before thinning check with the oil manufacturer) has been added to the hydraulic system, then all of the oil should be replaced in the spring. SYSTEM OPERATION PRESSURE: 1,850 PSI.
6. **Oil Filter:** The hydraulic oil filter element should be removed and cleaned after thirty (30) days of service and regularly once a year thereafter or whenever the gauge (if equipped) would indicate that the oil filter needs changing.
7. **Mechanical:** All nuts, bolts, shafts, cotter keys, etc., must be checked and properly re-tightened after one week in service and once a month thereafter.

INSPECTION OF SHEAVES

Under normal conditions, machines should receive periodic inspections, and their over-all condition recorded. Such inspections usually include the sheaves, and any other parts that may come into contact with the wire rope and subject it to wear. As an additional precaution, rope related working parts, particularly in the area described below, should be re-inspected prior to the installation of a new cable.

The very first item to be checked when examining the sheaves is the condition of the grooves. To check the size, contour and amount of wear, a groove gage is used. As shown in the illustration to the right of this paragraph, the gage should contact the groove for about 150° of arc.

Two types of groove gages are in general use and it is important to note which of these is being used. The two differ by their respective percentage over nominal.



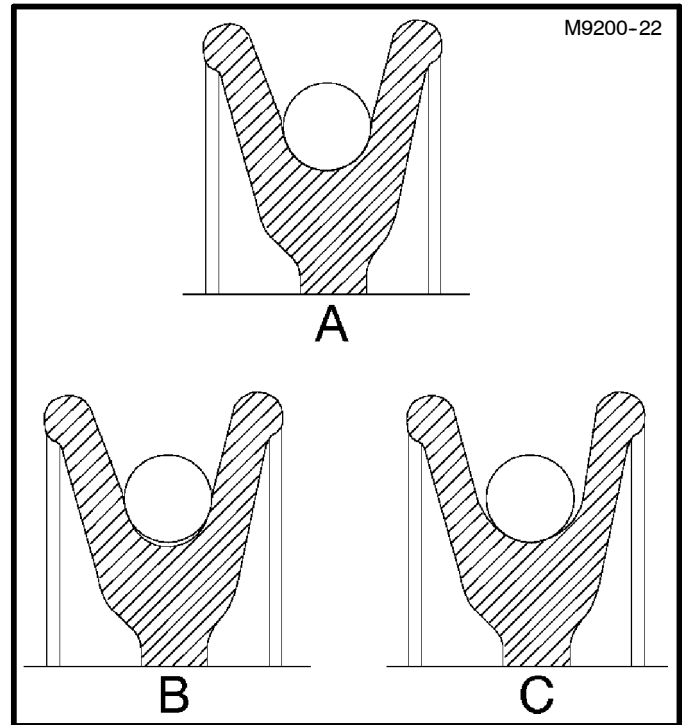
Cross-sections illustrating three sheave-groove conditions. A is correct, B is too tight, and C is too loose.

For new or re-machine grooves, the groove gage is nominal plus the full oversize percentage. The gage carried by most wire rope representatives today is used for worn grooves and is made nominal plus 1/2 the oversize percentage.

This latter gage is intended to act as a sort of "no-go" gage. Any sheave with a groove smaller than this must be replaced or, in all likelihood, the existing rope will be damaged.

Experience has clearly demonstrated that the service life of the wire rope will be materially increased by strict adherence to these standards.

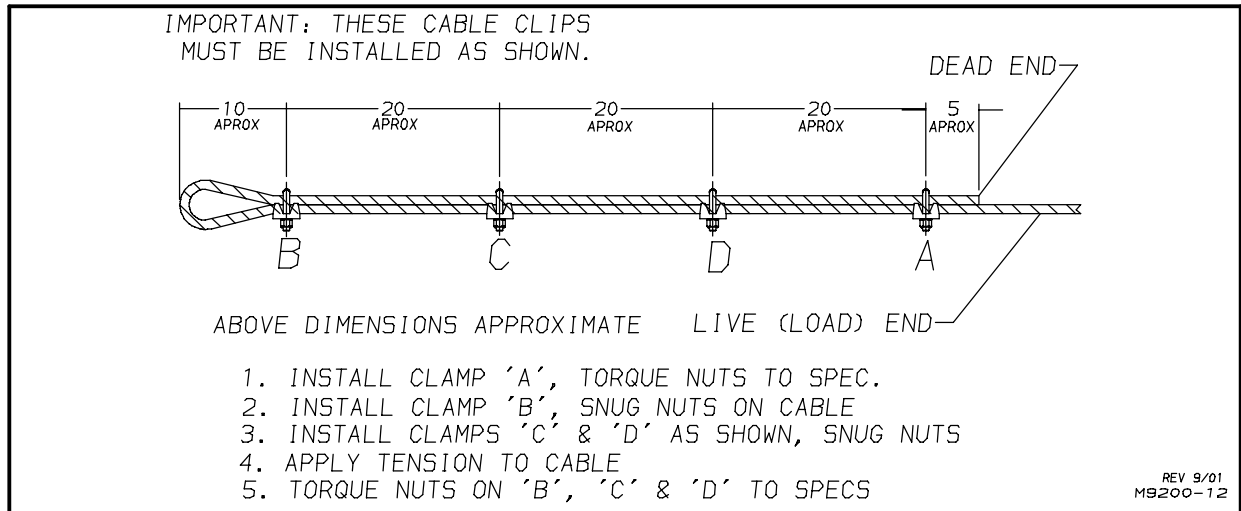
Cross-sections illustrating three sheave-groove conditions. A is correct, B is too tight, and C is too loose.



CABLE REPLACEMENT

Important: Standard replacement cable must be 7/8" Diameter 6 x 37 Extra Improved Plow Steel with steel core (6 x 37 EXIWRC) with a 4.00" swaged button x 75 feet (174" & 182" CT, or) 77 feet (194" CT) in length. 75,000# Hoists and Special order hoists may have 1" Diameter cable. Replace with 1" 6 x 37 cable.

1. Remove the cable clamps and discard the old cable.
2. Inspect all the sheaves (see INSPECTION OF SHEAVES on pages O10 & O11).
3. Install cable end onto cable. Thread cable through sheaves and guides, etc. Loop cable through cable anchor and install clamps following the diagram below. Torque all bolts evenly to 225 Ft. Lbs. Cut off excess cable.



HYDRAULIC CYLINDER SERVICE

THREAD-IN GLAND / RETAINER DISASSEMBLY ~ ASSEMBLY PROCEDURE

With the cylinder removed from the machine, cleaned, retracted and drained of oil, proceed as follows:

DISASSEMBLY:

1. Secure the cylinder in a vise to prevent rotation. Insure that the immediate area is clean so that the parts can be laid out.

2. Using a spanner wrench, unthread the gland in a counter-clockwise direction. (If the gland has been sealed with an adhesive then heat will have to be applied to the threaded area before unthreading.)
3. Pull the rod assembly from the tube. Take care not to damage the threads or rod.
4. To remove the gland from the rod assembly, either remove the rod end fitting (clevis) or the piston. Then slide the gland off of the rod.
5. Remove all seals from the piston and gland.
6. Inspect parts for damage (nicks, scratches, cracks and etc.).

Before assembly install new seals on the piston and gland. Insure that all parts are free of contamination (dirt, etc.).

ASSEMBLY:

1. Coat the ID of the gland with a light grease and replace on the rod. Replace the piston if removed. If the clevis was removed, replace as the final step.
2. Coat the OD of the piston and seal area of the gland with a light grease. Apply a light coat of hydraulic oil to the ID of the tube. Insert the rod assembly into the tube taking care not to damage the threads, rod or seals.
3. Rotate the gland clockwise until the shoulder bottoms or until it is flush with the end of the tube. (Apply an adhesive to the threads if the unit originally had been sealed. Use Loctite 242 or equivalent.)
4. Test the cylinder - the cylinder is now ready for re-assembly in the machine.

DISASSEMBLY OF TELESCOPIC CYLINDER

1. INSURE THAT THE WORK AREA IS CLEAN.
2. Drain all oil from the cylinder - (inspect oil for foreign material)
3. Place the cylinder on a table or bench of adequate size to support the cylinder. Place a vee block or other device under the cylinder on the rod end behind the largest gland cap. This will keep the cylinder from rolling.
4. Strap or tie down the base of the cylinder to keep the unit from rotating.
5. After loosening the set screws, use a pin spanner or strap wrench, turning counter-clockwise, unscrew the smallest gland cap of the cylinder stage that is the problem. If you are working on an intermediate stage, the next smaller stage should be extended somewhat out of the cylinder to allow room to work. After unscrewing the gland cap, remove it from the cylinder if possible, or move it to the furthest point on the rod, and tape it in a position to keep it from damaging the tube.
6. Using two (2) 8-32 threaded rods, insert them into the exposed bearing ring and extract the ring. Remove the packing (packing should be replaced). Repeat the process using a threaded rod to pull the second bearing ring.
7. Using a small bladed screwdriver and a hooked device (like an old button hook), remove the round wire ring. Take care not to score up the inside of the tube when removing the ring.
8. At this point, this stage of the cylinder can be removed from the cylinder.
9. If the piston must be removed - remove the seal from the piston first, restraining the rod so that it will not rotate (make sure that the restraining device will not damage tube surface). Using a spanner wrench remove the piston by rotating it counter-clockwise. If you are unable to move the piston, apply heat to the end opposite the spanner wrench holes.
10. If the stop ring must be removed, Step 9 may have to be completed first if something is welded to the opposite end of the rod. If nothing is welded on, then remove the snap ring in front of the stop ring, and slide the snap ring forward and off the tube. (Be very careful not score or scratch the tube surface. If in doubt snap ring over the piston. Always remove the round wire under the stop ring over the piston end of the cylinder.)
11. Repeat this process for each stage that you desire to disassemble. If you want the complete cylinder disassembled, it is suggested that you work from the smallest stage to the largest.

12. If your cylinder is a double-acting cylinder (hydraulically powered both directions), the smallest stage will have a transfer tube on the inside with soft seals. After removing the piston, remove the loose plug held in by the piston. Pull the small transfer tube from the inside.
13. Take care at all times to protect the surface, the threaded areas and the inside of the tubes from scratches, nicks, dents or other damage.
14. Clean and inspect all parts for damage (nicks, dents, rust, etc.). It is recommended that all soft seals be replaced.
15. Repair or replace damaged parts (consult Prince factory Service Department if in doubt at 712-277-4061).
16. You are now ready to assemble.
17. If you have any problem, please call the factory at the number listed in Step 15 above.

ASSEMBLY OF TELESCOPIC CYLINDER

1. INSURE THAT ALL PARTS AND THE AREA ON THE ASSEMBLY BENCH ARE CLEAN.
2. Follow steps 3 and 4 of the disassembly procedure.
3. Using clean oil from your hydraulic system, apply a thin film to the inside of the largest stage.
4. Start with the largest stage removed and replace removed items;
 - a. Stop ring - slide the ring on the tube forward of the round wire groove, next install the round wire over the piston end of the tube and into its groove. Slide the stop ring back over the round wire and install the snap ring in front of the stop ring.
 - b. Piston - apply locking adhesive to the threads on the tube if indicated. Thread the piston into place and tighten against the end of the tube.
 - c. Replace seals on the piston - carefully insert the cylinder tube with the piston on it into the next larger cylinder tube.
5. Apply a light film of oil to seals and piston - carefully insert the cylinder tube with the piston on it into the next larger cylinder tube.
6. Carefully replace the round wire on the gland end of the tube.
7. Insert the bearing ring, insuring that the tapped holes are out.
8. Soak the soft seals (chevrons) in oil before inserting in position. Insure the open end of vees are facing inward. Seal order - hard adaptor, rubber-fabric vee, rubber vee, hard adapter.
9. Repeat step 7 -- thread the gland cap onto the cylinder tube. DO NOT TIGHTEN THE CAP MORE THAN HAND TIGHT.
10. Repeat this procedure to assemble each successive stage.
11. Before installing the smallest stage of the double acting cylinder, replace the seals on the transfer tube and loosen the plug. Apply a light coat of grease to the seal area on both ends of the transfer tube.
12. Carefully insert the transfer tube into the smallest stage. Insure that it is fully seated. The opposite end should only extend out of the tube approximately 1/4 to 3/8 inch.
13. Insert the loose plug and proceed with step 4B.
14. Test the cylinder for function and leaks. If the gland seals leak, adjust the gland cap approximately 1/8 turn at a time to stop leaking. Over-tightening can cause the seals to burn up due to friction. If the clang cap goes solid with no more adjustment and the unit still leaks, replace the rod packing.

TELESCOPIC CYLINDER MAINTENANCE

1. If erratic lifting is experienced, make sure gland caps are all tightened evenly.
2. To do so, remove the set screws and nylon lock plugs (See item 27 and item 28 on telescopic cylinder parts page in this manual) on all caps (both cylinders).
3. Loosen all caps. Retighten caps to an even torque.

4. Actuate the cylinders and check for even lifting and leaks.
5. If leaks are observed, then tighten all caps to a higher torque level.
6. When cylinders move evenly and no leaks are observed, retighten set screws and nylon lock plug.



! Caution: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.