

# HELPING HAND™ LONG REACH MAINTENANCE MANUAL





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# **INTRODUCTION**

## **LIABILITY**

Labrie Environmental Group assumes no liability for any incidental, consequential or other liability from the use of this information. All risks and damages, incidental or otherwise, arising from use or misuse of the information contained herein are entirely the responsibility of the user. Although careful precaution has been taken in the preparation of this material, we assume no responsibility for errors or omissions.

## **COMPLEMENTARY MANUALS**

Before operating the HELPING HAND™ LONG REACH or performing maintenance on this system, the personnel operating the unit **MUST** have completely read and understood this booklet but also the Expert(t) 2000™ *Operator Manual* and *Maintenance Manual*.

## **INTRODUCING THE HELPING-HAND™ LONG REACH**

The HELPING HAND™ LONG REACH is a hydraulically-powered automated arm that allows collecting waste from roller carts.



## **TO CONTACT LABRIEPLUS**

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Technical support service  
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**Web Site:** [www.labriegroup.com](http://www.labriegroup.com)

**E-mail:** [sales@labriegroup.com](mailto:sales@labriegroup.com)

## IMPORTANT

FOR TECHNICAL SUPPORT AND PARTS ORDERING, THE SERIAL NUMBER OF YOUR VEHICLE IS REQUIRED, THEREFORE, LABRIE ENVIRONMENTAL GROUP RECOMMENDS TO KEEP RECORD OF THE INFORMATION FOUND ON THE VIN PLATE WHICH IS LOCATED IN THE CAB.

# **SAFETY**

Safety is always of prime importance when operating any type of equipment. All operators working with this unit **MUST** be aware of the safety practices and features detailed in the Safety section of the Expert(t) 2000™ Operator and Maintenance manuals.

## **SAFETY IS EVERYONE'S BUSINESS**

Personnel are not to use the equipment if they are not well acquainted with the operations as well as all the safety precautions of such operations.

## **SAFETY CONVENTIONS**

### **DANGER**

INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN SERIOUS INJURY OR DEATH.

### **WARNING**

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN SERIOUS INJURY OR DEATH.

### **CAUTION**

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY.

## CAUTION

INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN PROPERTY DAMAGE.

## GENERAL SAFETY INSTRUCTIONS

### WARNING

IT IS MANDATORY TO COMPLETELY READ AND UNDERSTAND THE SAFETY SECTION OF THE EXPERT(T) 2000™ OPERATOR AND MAINTENANCE MANUALS BEFORE USING THE EQUIPMENT.

- Stay clear of the path of the HELPING HAND™ LONG REACH at all time.
- Make sure that nobody is near the vehicle before activating the arm.
- Immediately report to the employer any damage or malfunction.



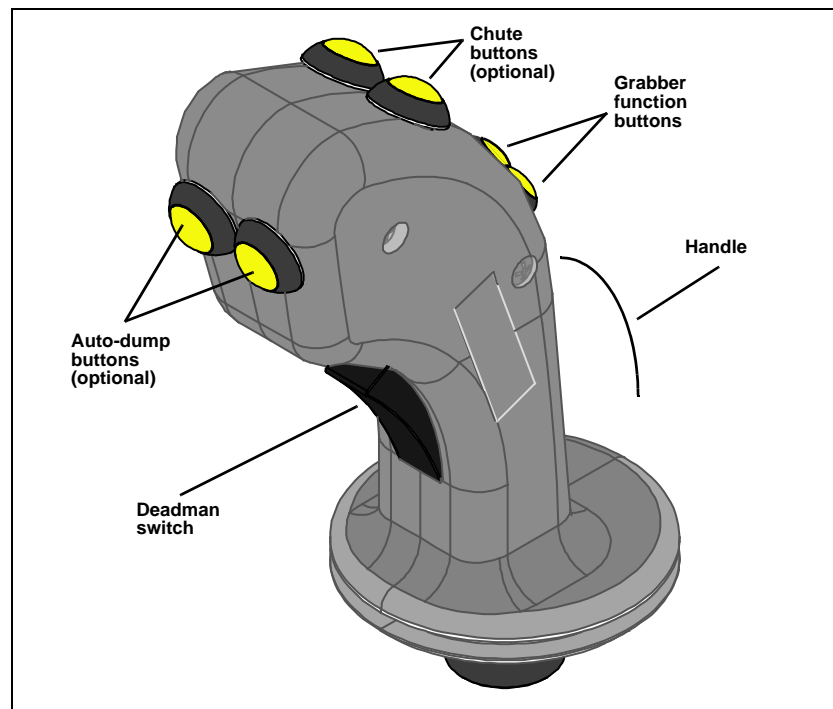
# OPERATION

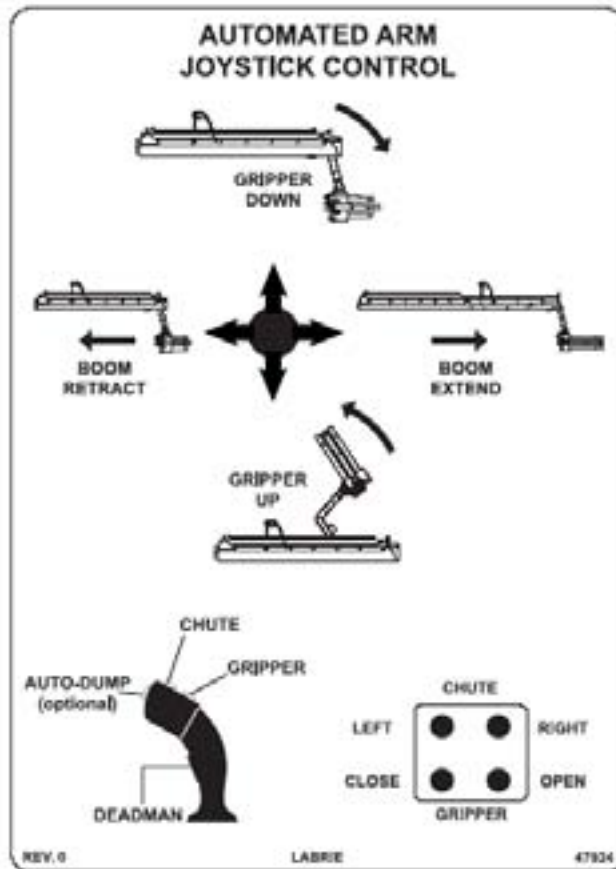
## OPERATING THE HELPING-HAND™ LONG REACH

The HELPING HAND™ LONG REACH is a reliable and productive arm that has a maximum reach of 120 inches, allowing the operator to reach carts that are faraway from the truck. It can pick up 32 to 96-gallon carts.



The HELPING HAND™ LONG REACH is activated by a joystick located in the cab.





The joystick can perform two functions at the same time. For example, you can extend the arm and lower the grabber (or gripper) simultaneously.

- Shift the joystick forward at 90° towards the gripper down lettering to lower the gripper only.
- Shift the joystick forward at 45° between the gripper down and boom extend lettering to lower both the gripper and the extend the arm.
- Shift the joystick towards the streetside at 90° to the boom retract lettering to retract the arm only.
- Shift the joystick backward at 45° between the boom retract and gripper up lettering to retract the arm and raise the gripper.
- Shift the joystick backward at 90° to the gripper up lettering to raise the gripper only.
- Shift the joystick towards the curbside at 90° to the boom extend lettering to extend the arm only.

## DEADMAN SWITCH

The deadman switch on the joystick is used as a safety device to ensure that every movement of the HELPING HAND™ LONG REACH is absolutely wanted and controlled by the operator. That is, if the operator is not pressing the deadman switch while trying to move the arm with the joystick, no movement will occur. With such a safety feature, an accidental movement of the joystick will not be transmitted to the arm.

### CAUTION

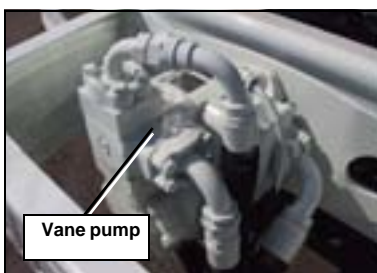
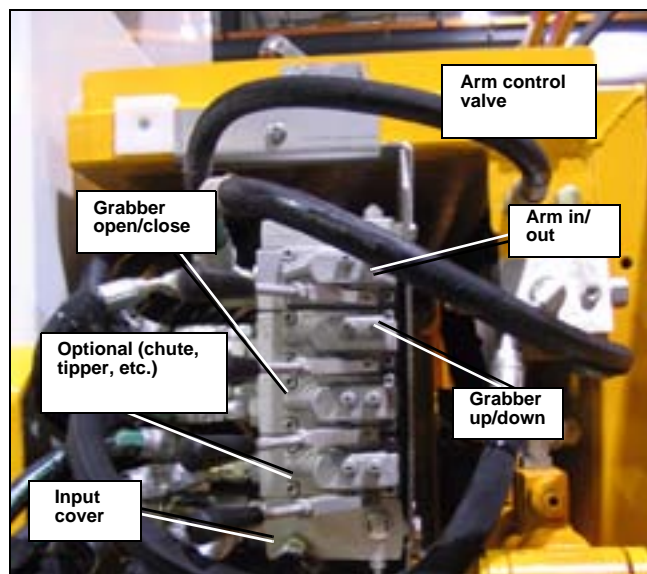
THE BUTTONS ON THE JOYSTICK ARE STILL OPERATIONAL EVEN IF THE OPERATOR DOES NOT PRESS ON THE DEADMAN SWITCH.



# MAINTENANCE

## HYDRAULIC SYSTEM GENERAL DESCRIPTION

The Labrie Expert(t) 2000™ side loader equipped with the HELPING HAND™ LONG REACH automated arm, uses an independent hydraulic valve to control all arm functions. This valve is on/off (grabber section) or proportional type (arm section), meaning that the amount of flow coming out of it depends on the position of the spool.



The hydraulic flow required to feed the valve comes from the dual vane pump. Refer to the unit hydraulic schematics for more information.

## VALVE PRESSURE ADJUSTMENT

The following pressure adjustment procedure explains how to adjust the pressure of each function of the HELPING HAND™ LONG REACH.

The lockout/tagout procedure explained in the *Operator Manual* must be performed each time maintenance has to be done on the vehicle.

Before adjusting the valve, make sure to identify each section and its adjustment screws.

**Note: Extra personnel may be needed to perform the arm pressure adjustment. Use any precaution necessary around the vehicle to work safely at all times.**

## **WARNING**

STAY OUT OF THE PATH OF THE ARM WHILE MANUALLY MOVING THE HELPING HAND™ LONG REACH. SERIOUS INJURY OR EVEN DEATH MAY OCCUR.

### **Pressure Adjustment Table**

Arm Function	Pressure Setting	Cycle Time <sup>a</sup>
Arm Extend/Retract	2000 PSI	10.5 sec.
Grabber Up/Down	2000 PSI	6 sec.
Grabber Close	1200 PSI	2 sec.
Grabber Open	750 PSI	Less than 2 sec.

- a. Cycle time is defined as the time required for a function to complete a full back and forth movement. Cycle time may vary by cold weather.

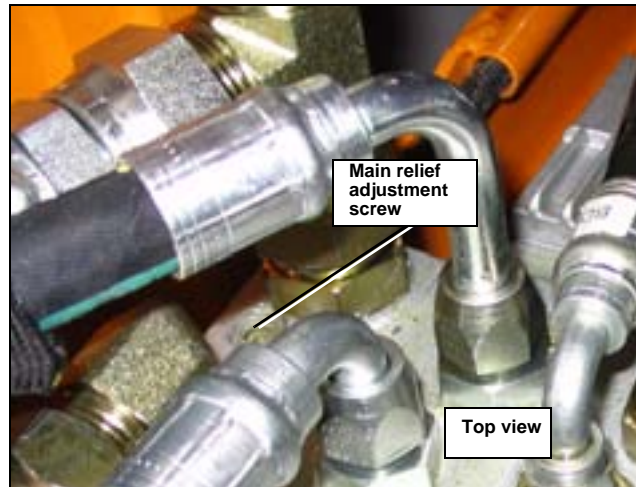
## **WARNING**

BEFORE MAKING ANY ADJUSTMENTS, SECURE THE ARM WORKING AREA USING SAFETY TAPE OR BARRICADES.

#### **Valve main relief adjustment procedure:**

1. Remove any residual hydraulic pressure in the system by moving the levers back and forth.
2. Connect a 0-4000 PSI gauge on the quick coupler located on the valve.
3. Make sure the transmission is in neutral.
4. Start the engine.
5. Engage the hydraulic system.

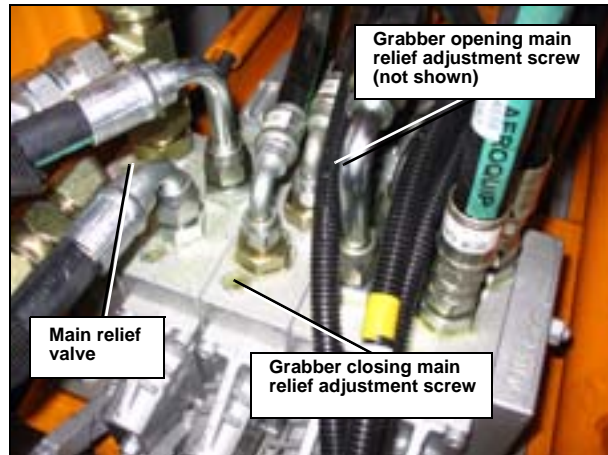
6. Retract and maintain the arm to the end of its stroke in order to make the pressure rise on the gauge.
7. Adjust the main relief to 2000 PSI using the adjustment screw. Turn the hex key clockwise or counterclockwise to adjust the pressure properly.



## ARM FUNCTIONS ADJUSTMENT PROCEDURE

The operating pressure of the arm (retract/extend) and the grabber (up/down movement) are the same as the main relief (2000 PSI). No adjustment is required for these functions. Only the grabber closing and opening pressures require adjustment to prevent crushing the roller carts and damaging the grabber.

Apply the following procedure to adjust the relief valves on the grabber section (refer to *Pressure Adjustment Table* on previous page).

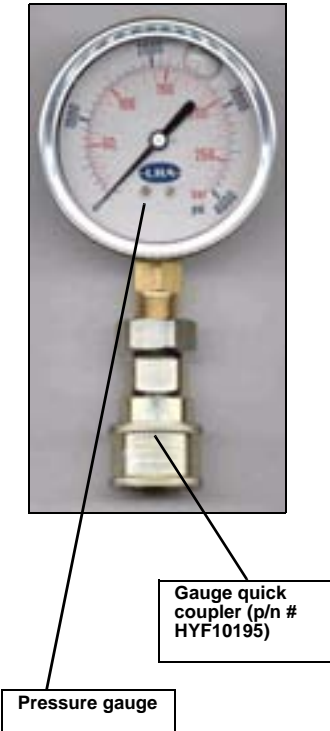


**⚠ WARNING**

DO NOT STAND DIRECTLY IN THE PATH OF THE ARM WHILE CARRYING OUT THESE ADJUSTMENTS.

***Grabber pressure adjustment procedure:***

1. Secure the arm working area using safety tape or barricades.
2. Remove any residual hydraulic pressure in the system by moving the levers back and forth.
3. Connect a 0-4000 PSI pressure gauge on the quick coupler located on the hydraulic valve.
4. Put the transmission in neutral.
5. Start the engine.
6. Engage the hydraulic pump.
7. Close the grabber using the appropriate lever on the valve.
8. Adjust the relief valve for the “grabber closing” side of the valve section at 1200 PSI (screw or unscrew depending on the gauge readout).
9. Open the grabber and adjust the relief valve for the “grabber opening” function of the valve section to 750 PSI.





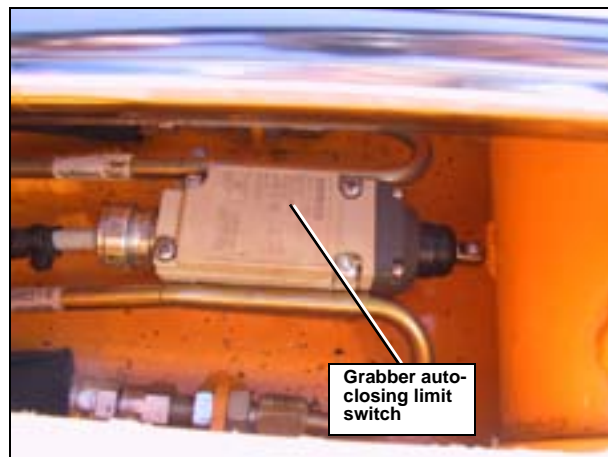
## GRABBER AUTO-CLOSING SYSTEM

The HELPING HAND™ LONG REACH automated arm is equipped with a safety system that closes the grabber automatically when the arm is returning to the hopper. The auto-closing system prevents the grabber from hitting the hopper walls, causing damage to the grabber.

If the operator raises the arm without closing the grabber, the system will automatically close the grabber when the grabber reaches a certain height.

***Note: If the arm is stored inside the hopper for a certain period of time, the grabber may open by itself due to pressure loss in the system. The auto-closing system will close the grabber automatically as soon as the joystick is moved off of its center (or neutral) position.***

The auto-closing system is controlled by a non-adjustable limit switch located under the grabber arm.





When the joystick rests in neutral position, no signal from the limit switch is sent to the valve coil to close the grabber.

***How it works:***

When the grabber arm is moved up (without closing the grabber), the limit switch located under the arm sends an electrical signal to the solenoid mounted on the valve making the grabber close (works the same as pressing the grabber closing button on the joystick). Then, the hydraulic pressure is sent to the cylinder, closing the grabber before it collides with the hopper walls.

**⚠ WARNING**

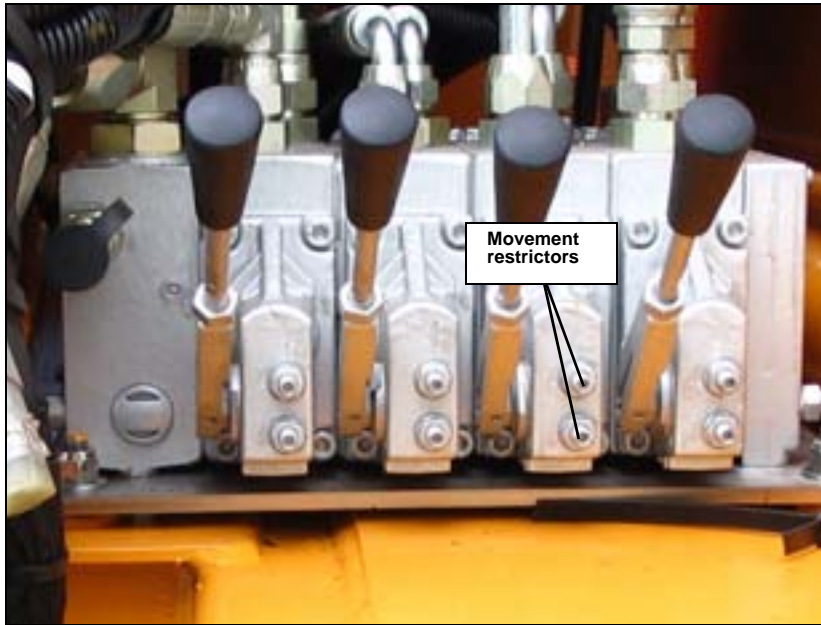
STAY OUT OF THE PATH OF THE ARM WHILE MANUALLY MOVING THE HELPING HAND™ LONG REACH. SERIOUS INJURY OR EVEN DEATH MAY RESULT.

**CAUTION**

BEFORE PERFORMING PRESSURE ADJUSTMENTS ON THE VALVE, MAKE SURE THAT THE ARM DUMP VALVE IS PROPERLY SET.

## ARM SPEED ADJUSTMENT

The arm speed adjustment is controlled by the amount of hydraulic fluid that is being sent to the arm cylinder. The valve spool can let through up to 28 gallons of hydraulic oil per minute (GPM), depending on the valve section. The flow is also limited by a mechanical movement restrictor (stopper).



### **⚠ WARNING**

PERFORM THE LOCKOUT/TAGOUT PROCEDURE AT ALL TIMES.

***Note: The arm movements, extension/retraction and tilt, are preset in factory to the maximum speed. The grabber speed (opening and closing) has also been set in factory to its optimal value in order to allow smoother grabbing of the cart.***

#### ***Speed adjustment procedure:***

1. Secure the arm working area using barrier tape or barricades.
2. Put the transmission in neutral.
3. Start the engine and engage the hydraulic system.
4. Clearly identify the stopper screw on the valve that corresponds to the proper function (boom extension/

retraction, grabber opening/closing). Move the lever to evaluate the speed of the arm, then release the lever.

## CAUTION

WHEN ADJUSTING TILT MOVEMENT SPEED, MAKE SURE THE AUTO-CLOSING FEATURE ALLOWS THE GRABBER TO CLOSE SUFFICIENTLY TO AVOID GRABBER FINGERS HITTING THE HOPPER WALLS.

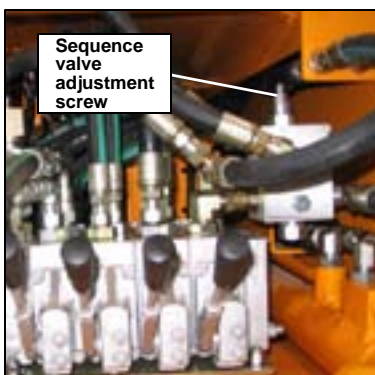
5. Loosen the lock nut.
6. Screw in the restrictor adjustment only one eighth (1/8) of a turn at a time to see a significant change of the arm speed.
7. Move the lever again to evaluate the arm speed. Repeat until cycle times are properly set.
8. Tighten the lock nut.

**Note:** *Limiting the stroke of the spools is limiting the amount of oil (flow) going through them. Controlling the oil flow means controlling arm speed.*

## SEQUENCE VALVE

The valve section that controls the extend/retract movement of the Helping-Hand™ Long Reach is equipped with a sequence valve. This sequence valve makes sure that the inner rail of the arm is always the first one to be extended. If the inner rail is completely extended, the pressure builds up on piston side of the cylinder, which activates the sequence valve. Once the sequence valve is activated, oil is supplied to the the outer rail cylinder, extending the outer rail.

When the arm retracts, there is no rail sequence. Both can retract at the same time or sequentially, depending on the amount of friction that is applied on both rails.



## Sequence Valve Adjustment

The sequence valve must be properly set. Once the pressure reaches the sequence valve setting, the latter opens to let the oil flow towards the second cylinder. The pressure setting depends on the amount of friction that is applied to inner rail.

If sequence valve pressure is too high, the cylinder will knock at the beginning of the sequence and the Helping-Hand™ Long Reach extension will jerk while it is being extended.

If the sequence valve pressure is too low, the inner rail may extend at the same time as the outer rail.

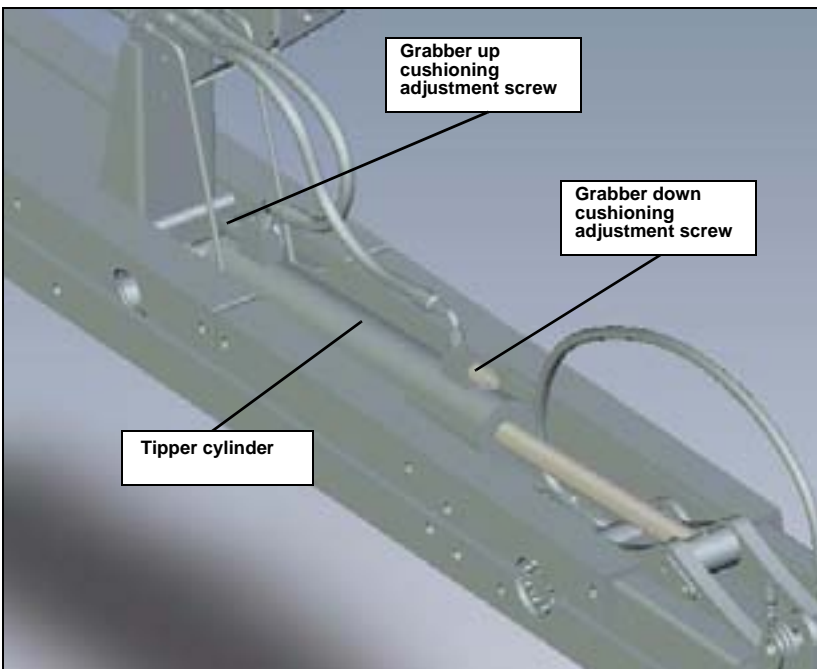
***Note: Ideally, the sequence valve pressure setting must be as high as possible, without allowing any jerky movements or knocking.***

## **CYLINDER CUSHION ADJUSTMENT**

The tipper and extension cylinders are cushioned at the end of their strokes to give a smoother movement. The cushioning speed is adjustable directly on the cylinders using two adjustment screws. If the grabber or the arm hits hard at the end of its strokes, apply the following procedure.

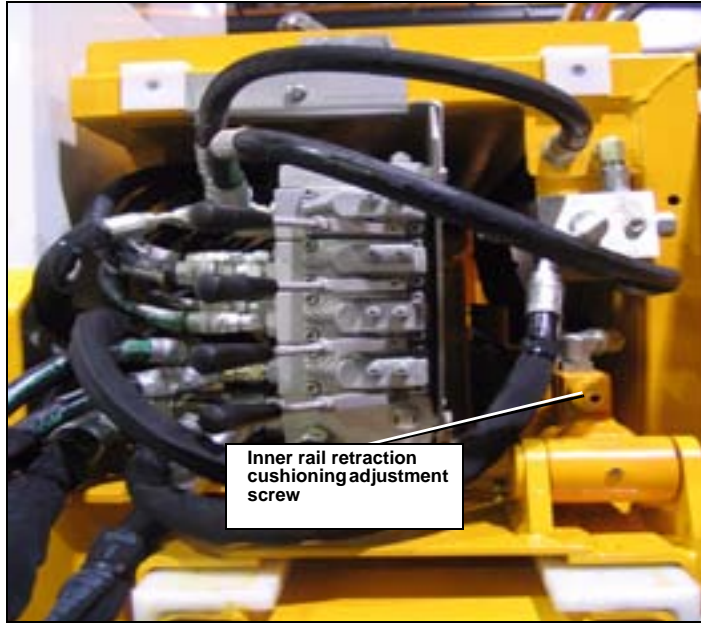
### ***Tipper cylinder cushioning adjustment:***

1. Secure the arm working area using barrier tape or barricades.
2. Put the transmission in neutral.
3. Start the engine and engage the hydraulic pump.
4. Fully extend the HELPING HAND™ LONG REACH to access the arm tipping cylinder from the top.
5. Cycle the grabber arm up and down functions for a full cycle to evaluate the amount of cushion.
6. If adjustments are necessary, stop the hydraulic pump and turn off the engine.
7. Tighten the corresponding adjustment screw to obtain a smoother movement at the end of the stroke or loosen the screw if the movement is too slow (no shock should occur).



***Inner rail cylinder cushioning adjustment:***

1. Secure the arm working area using barrier tape or barricades.
2. Put the transmission in neutral.
3. Start the engine and engage the hydraulic pump.
4. Extend and retract the arm for a full cycle to evaluate the amount of cushion.
5. If adjustments are necessary, stop the hydraulic pump and turn off the engine.
6. To adjust the inner rail retraction movement cushioning, open the doghouse door. Tighten the retraction cushioning adjustment screw to obtain a smoother movement at the end of the stroke or loosen it if the movement is too slow (no shock shall occur).



7. To adjust the inner rail extension movement cushioning, tighten the extension cushioning adjustment screw to obtain a smoother movement at the end of the stroke or loosen it if the movement is too slow (no shock shall occur).



## **⚠ WARNING**

DO NOT STAND DIRECTLY IN THE PATH OF THE ARM WHILE CARRYING OUT THESE ADJUSTMENTS.

8. To adjust the outer rail retraction movement cushioning, open the doghouse door. Tighten the retraction cushioning adjustment screw (if equipped) to obtain a smoother movement at the end of the stroke or loosen it if the movement is too slow (no shock shall occur).
9. To adjust the outer rail extension movement cushioning, tighten the extension cushioning adjustment screw (if equipped) to obtain a smoother movement at the end of the stroke or loosen it if the movement is too slow (no shock shall occur).

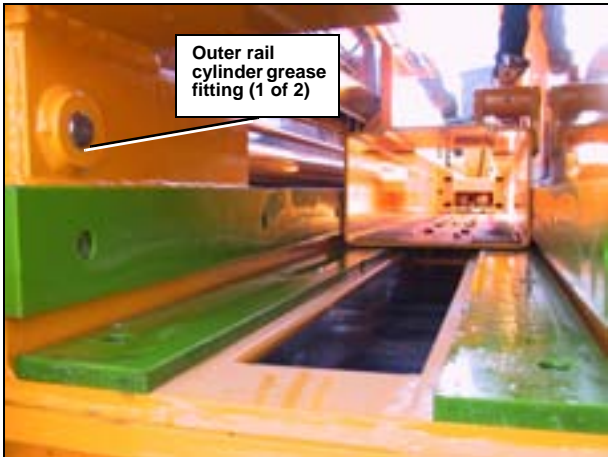
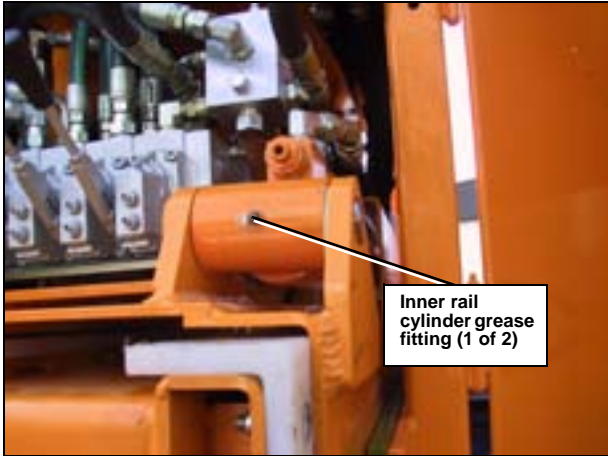
## **IMPORTANT**

SINCE TWO CYLINDERS ARE INVOLVED WHEN EXTENDING THE HELPING-HAND™ LONG REACH, MAKE SURE TO IDENTIFY THE PROBLEMATIC CYLINDER BEFORE ADJUSTING CUSHIONING.

## **HELPING-HAND™ LONG REACH CYLINDER LUBRICATION**

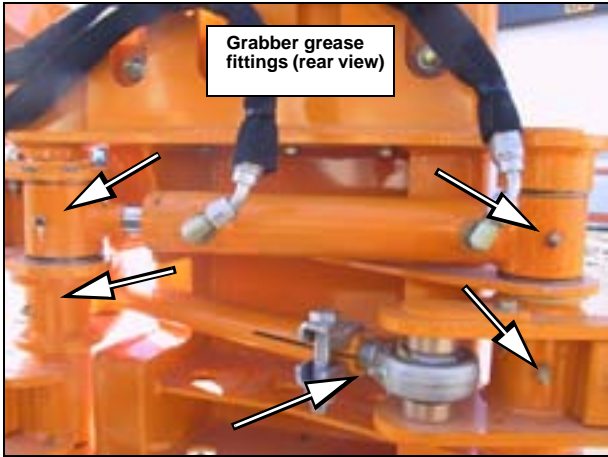
It is very important to lubricate Helping-Hand™ Long Reach cylinders weekly to ensure its optimal performance. Please note that there is a grease fitting at each cylinder end.



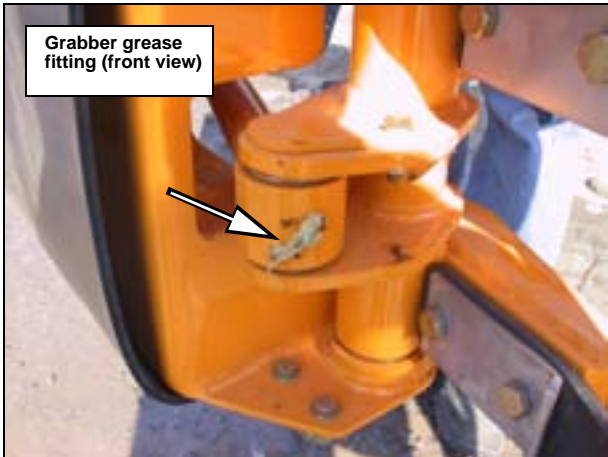




Outer rail  
cylinder grease  
fitting (2 of 2)



Grabber grease  
fittings (rear view)



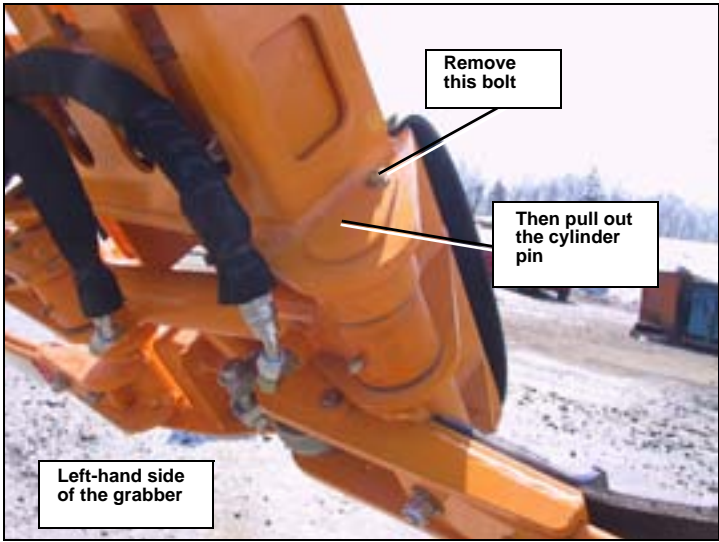
Grabber grease  
fitting (front view)

# GRABBER CYLINDER BUSHINGS MAINTENANCE

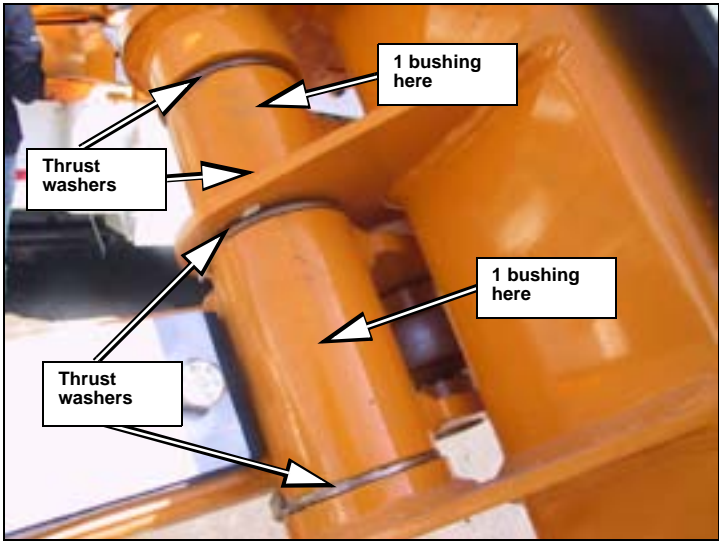
Visual inspection of grabber bushings must be performed at least once a year.

***When left-hand side grabber bushings need to be replaced, perform the following procedure:***

1. Remove the bolt.
2. Pull out the cylinder pin.



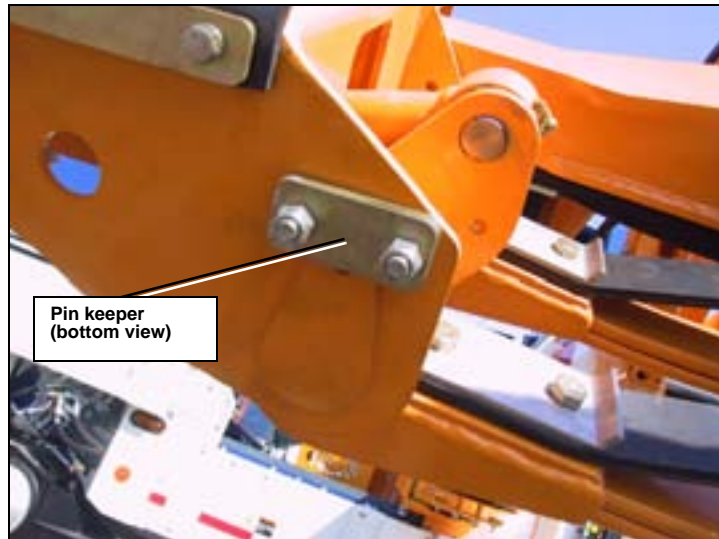
3. Inspect the bushings and thrust washers and replace if necessary.



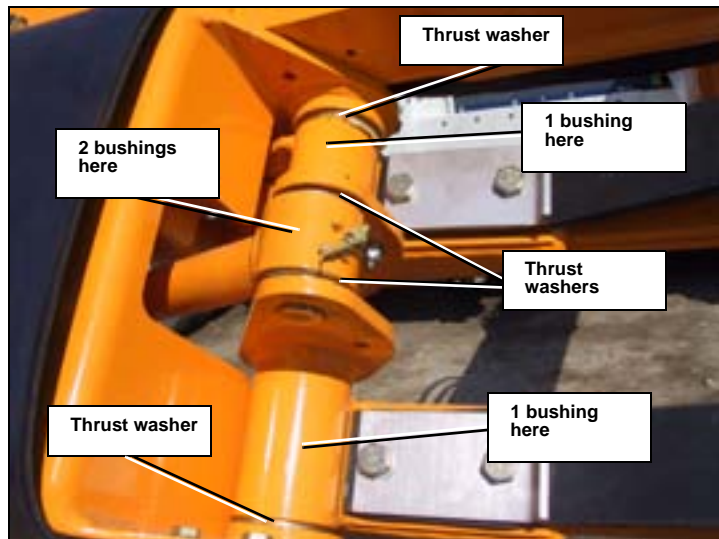
4. Perform the reverse procedure to reinstall bushings, thrust washers and pin.

***When right-hand side grabber bushings need to be replaced, perform the following procedure:***

1. Remove the pin keeper.



2. Pull out the pin.
3. Inspect the bushings and thrust washers and replace if necessary.



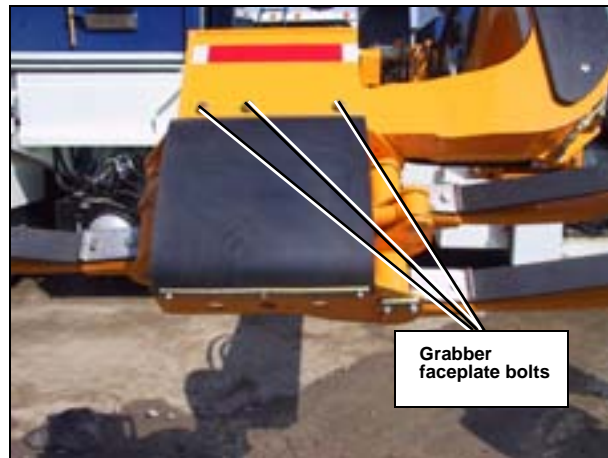
4. Perform the reverse procedure to reinstall bushings, thrust washers, pin and keeper.

## GRABBER HEIGHT SETTING

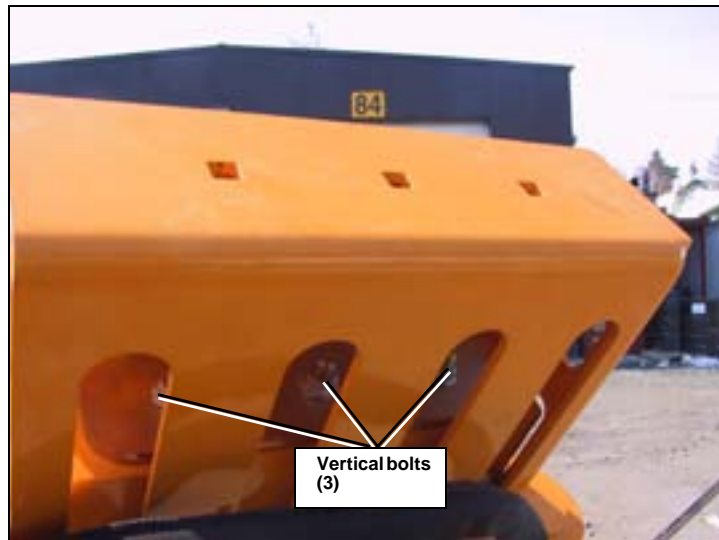
Grabber height is preset in factory, however, there are two possible height settings.

### ***To change grabber position:***

1. Using appropriate hardware, secure the grabber.
2. Remove bolts on grabber faceplate (3).

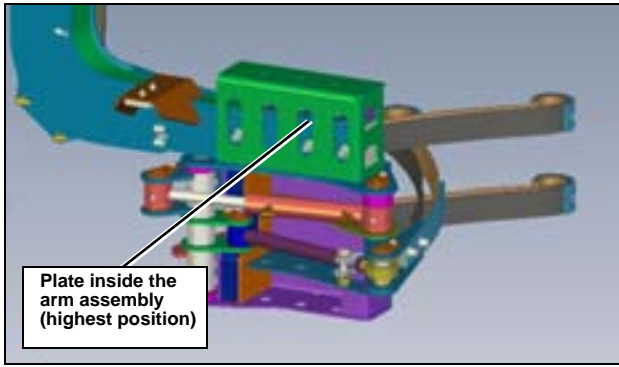
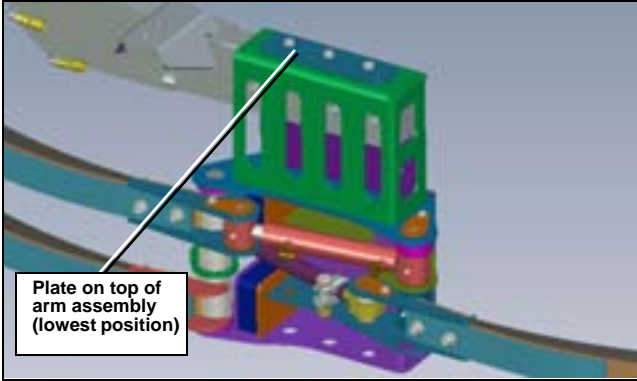


3. Remove vertical bolts (3).

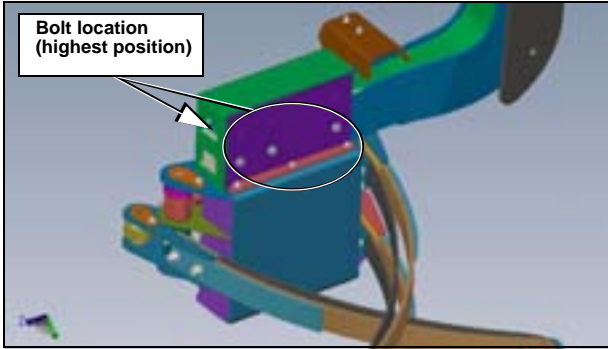
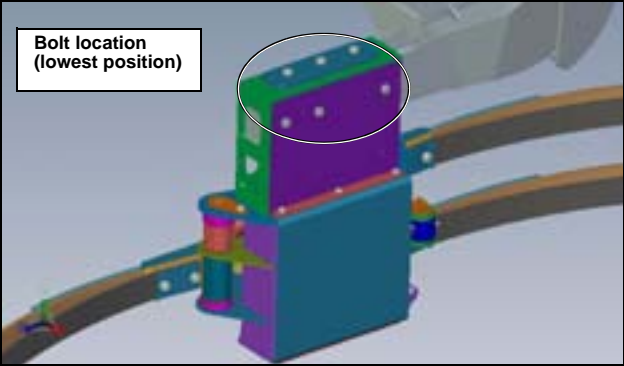


4. Raise or lower the grabber (according to the original grabber position).

5. Reposition the plate correctly (on top of the arm assembly when the grabber is at its lowest position; inside the arm assembly when the grabber is at its highest position).



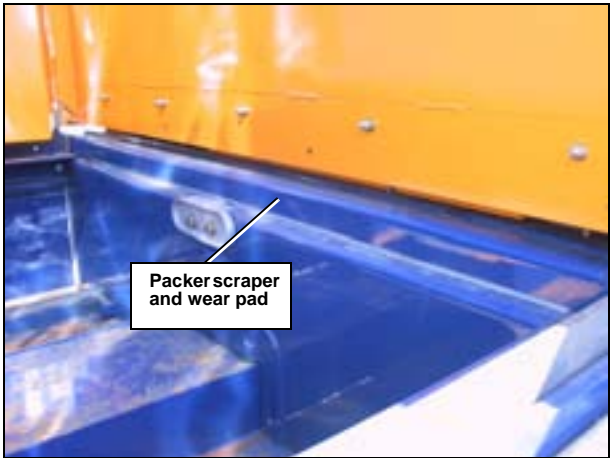
6. Reinstall all the bolts (6).



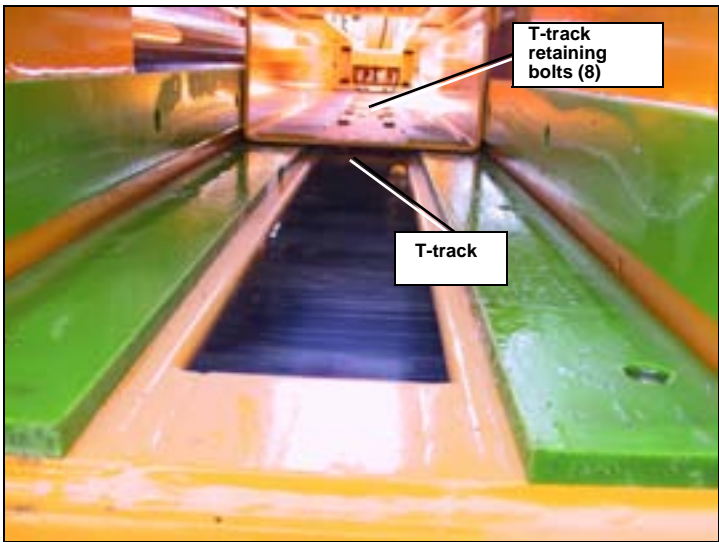
# NYLOIL WEAR PAD REPLACEMENT PROCEDURE (GREEN)

When Nyloil wear pads are worn out, they must be replaced. Please perform the following procedure:

1. Fully extend the Helping-Hand™ Long Reach.
2. Using appropriate equipment, secure the arm to keep it from falling.
3. Remove packer scraper and its wear pad (refer to Expert(t) 2000™ *Maintenance Manual*) to access T-track retaining bolts (8).



4. Remove T-track bolts and slide it out through the access left by the packer scraper.

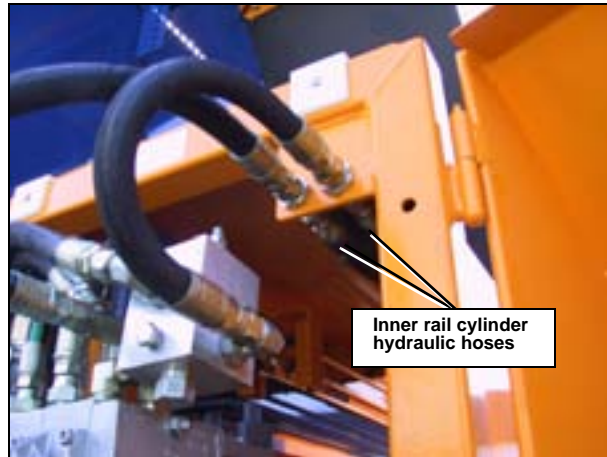


5. Replace T-track wear pads.

## IMPORTANT

AS DUST PARTICLES AND SAND STICK TO GREASE, NEVER LUBRICATE HELPING-HAND™ LONG REACH WEAR PADS. FAILURE TO DO SO MAY JAM THE MOVING PARTS AND/OR CAUSE PREMATURE WEAR.

6. Open the doghouse on the street side.
7. Remove both hydraulic hoses from inner rail cylinder.

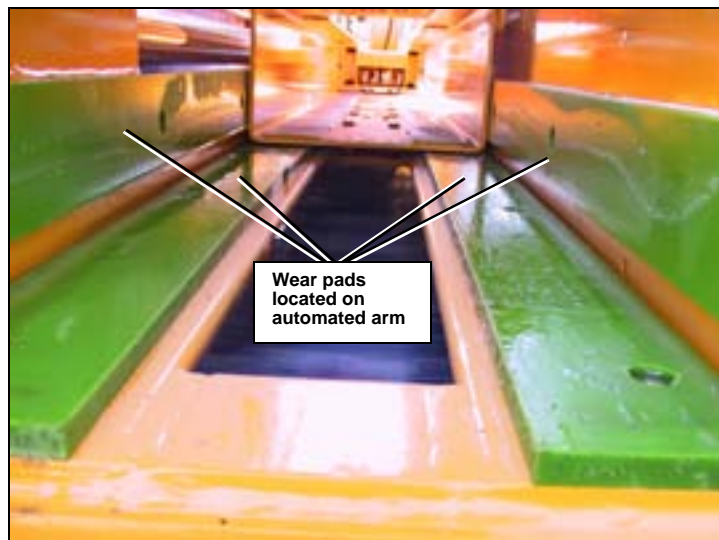


8. To avoid oil leaks, cap each hose and fitting as soon as the hoses are removed.
9. Clearly identify the hoses and fittings to avoid an inversion during the reinstallation.
10. Remove the outer rail cylinder bolt and pull out the pin.





11. Using the appropriate lifting devices, pull out the Helping-Hand™ Long Reach of the hopper.
12. Replace wear pads located on automated arm base.



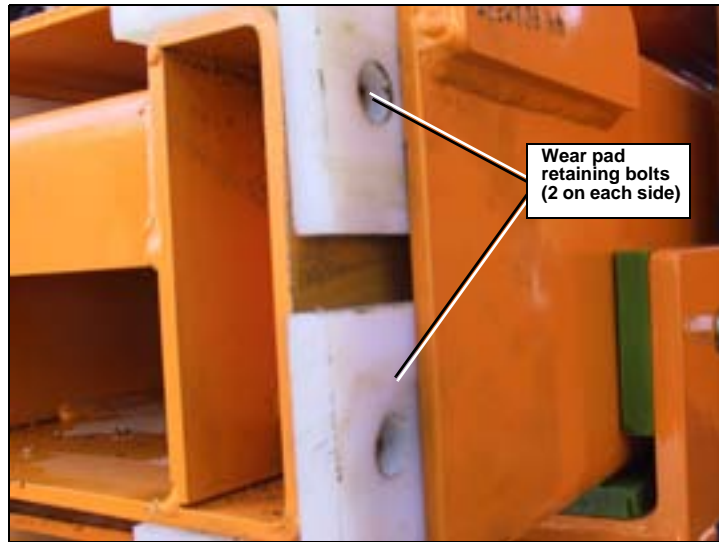
13. Once all wear pads have been replaced, perform the reverse procedure.

## **INNER RAIL WEAR PAD REPLACEMENT PROCEDURE (WHITE)**

***To replace inner rail wear pads:***

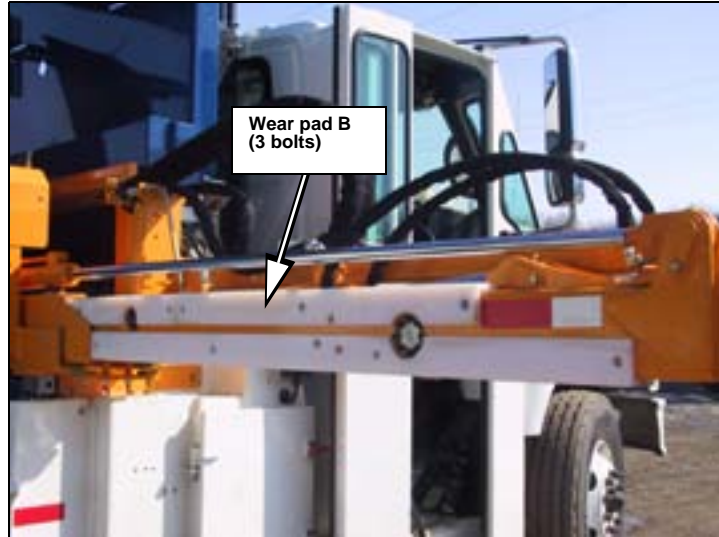
1. Fully retract the Helping-Hand™ Long Reach.

2. Open the doghouse located on the street side and remove the 4 wear pad retaining bolts.

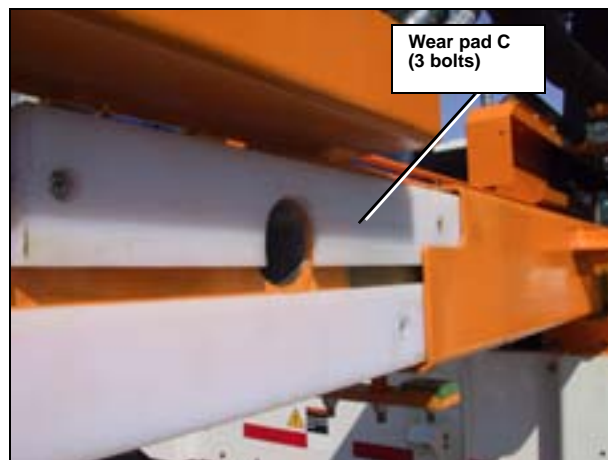


3. Fully extend the Helping-Hand™ Long Reach.
4. Remove wear pads A and B (3 bolts each). Do not install the new wear pads at this time.





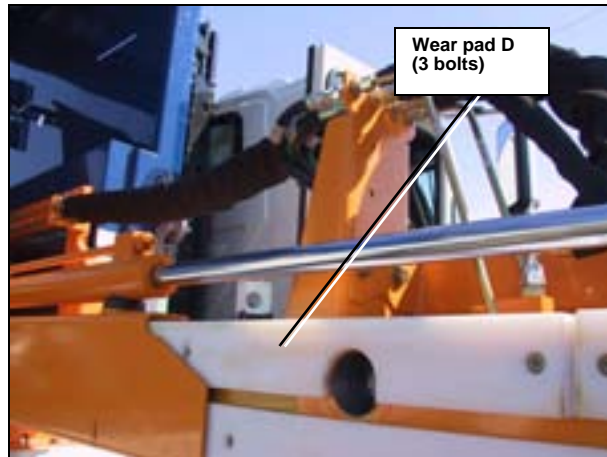
5. Remove wear pad C (3 bolts) and replace it by a new one.



## IMPORTANT

AS DUST PARTICLES AND SAND STICK TO GREASE, NEVER LUBRICATE HELPING-HAND™ LONG REACH WEAR PADS. GREASE MAY JAM THE MOVING PARTS AND/OR CAUSE PREMATURE WEAR.

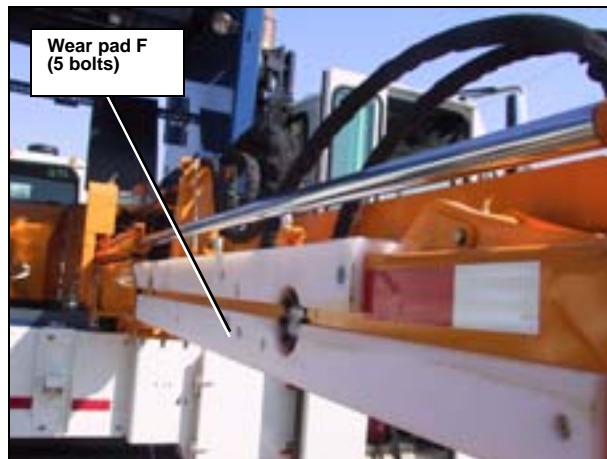
6. Remove wear pad D (3 bolts) and replace it by a new one.



7. Remove wear pad E (5 bolts) and replace it by a new one.



8. Remove wear pad F (5 bolts) and replace it by a new one.



9. Now you may install new wear pads A and B.