



# FIXED SKID HOE

## OPERATOR'S AND PARTS MANUAL



PALADIN LIGHT CONSTRUCTION

SERIAL NUMBER: \_\_\_\_\_

MODEL NUMBER: \_\_\_\_\_

Manual Number: OM731  
Part Number: 75631  
Rev.



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# PREFACE

## GENERAL COMMENTS

Congratulations on the purchase of your new BRADCO product! This product was carefully designed and manufactured to give you many years of dependable service. Only minor maintenance (such as cleaning and lubricating) is required to keep it in top working condition. Be sure to observe all maintenance procedures and safety precautions in this manual and on any safety decals located on the product and on any equipment on which the attachment is mounted.

This manual has been designed to help you do a better, safer job. Read this manual carefully and become familiar with its contents.

**WARNING!**  **Never let anyone operate this unit without reading the "Safety Precautions" and "Operating Instructions" sections of this manual. Always choose hard, level ground to park the vehicle on and set the brake so the unit cannot roll.**

Unless noted otherwise, right and left sides are determined from the operator's control position when facing the attachment.

**NOTE: The illustrations and data used in this manual were current (according to the information available to us) at the time of printing, however, we reserve the right to redesign and change the attachment as may be necessary without notification.**

## BEFORE OPERATION

The primary responsibility for safety with this equipment falls to the operator. Make sure the equipment is operated only by trained individuals that have read and understand this manual. If there is any portion of this manual or function you do not understand, contact your local authorized dealer or the manufacturer.

## SAFETY ALERT SYMBOL



This is the "Safety Alert Symbol" used by this industry. This symbol is used to warn of possible injury. Be sure to read all warnings carefully. They are included for your safety and for the safety of others working with you.

## SERVICE

When servicing your product, remember to use only manufacturer replacement parts. Substitute parts may not meet the standards required for safe, dependable operation.

To facilitate parts ordering, record the model and serial number of your unit in the space provided on the cover of this manual. This information may be obtained from the identification plate located on the product.

The parts department needs this information to insure that you receive the correct parts for your specific model.



# SAFETY STATEMENTS



THIS SYMBOL BY ITSELF OR WITH A WARNING WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



## DANGER

THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH WILL RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



## WARNING

THIS SIGNAL WORD IS USED WHERE SERIOUS INJURY OR DEATH COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



## CAUTION

THIS SIGNAL WORD IS USED WHERE MINOR INJURY COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.

## NOTICE

NOTICE INDICATES A PROPERTY DAMAGE MESSAGE.

## GENERAL SAFETY PRECAUTIONS

### WARNING!

#### READ MANUAL PRIOR TO INSTALLATION



Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual, as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVER'S MANUAL(S).**



#### READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws, and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing, or operating this equipment.



#### KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions, and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to ensure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued, or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn or hard to read.

## GENERAL SAFETY PRECAUTIONS

### WARNING!



### PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles, or a face shield when driving pins in or out, or when any operation causes dust, flying debris, or any other hazardous material.

### WARNING!



### LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels, or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or on blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

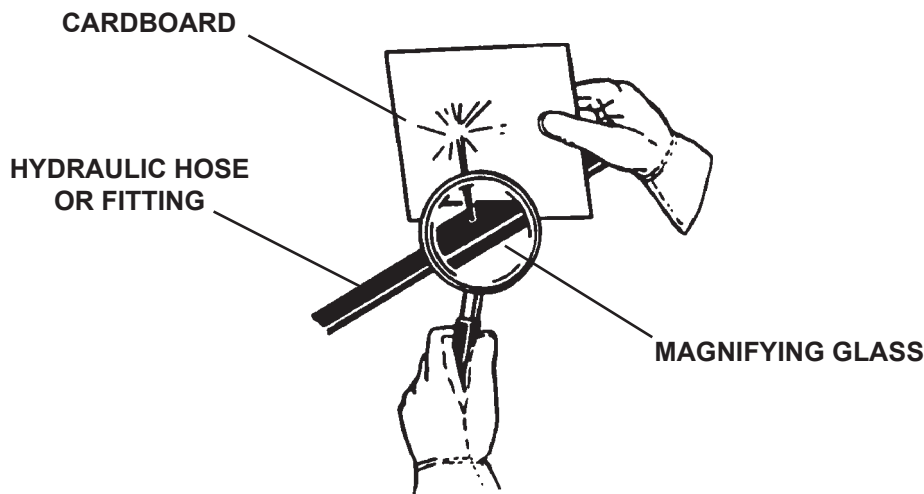
### WARNING!



### USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime mover's operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings.

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS!** **SEE ILLUSTRATION.**



## GENERAL SAFETY PRECAUTIONS

### WARNING!



### DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life, and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection Structure) or FOPS (Falling Object Protective Structure) equipment or device. Any modifications must be authorized in writing by the manufacturer.

### WARNING!



### SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tools for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective equipment specified by the tool manufacturer.



### SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your machine's manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operator's position.
- Never leave equipment unattended with the engine running, or with this attachment in a raised position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

# EQUIPMENT SAFETY PRECAUTIONS

## **WARNING! KNOW WHERE UTILITIES ARE**



Observe overhead electrical and other utility lines. Be sure equipment will clear them. When digging, call your local utilities for location of buried utility lines, gas, water, and sewer, as well as any other hazard you may encounter.

## **WARNING! EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.**



It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust.



## **OPERATING THE SKID HOE**

- Block off work area from bystanders, livestock, etc. Allow plenty of room for skid hoe swing.
- Operate only from the operator's station.
- Use the skid hoe only for digging. Do not use the skid hoe to pull things, as a battering ram, or attach ropes, chains etc., to the unit.
- Do not lift loads in excess of the capacity of the skid hoe or prime mover.
- When operating on slopes, dig with the skid hoe uphill, and avoid swinging the skid hoe to the downhill side. Avoid steep hillside operation, which could cause the prime mover to overturn.
- Reduce speed when driving over rough terrain, on a slope, or turning, to avoid overturning the vehicle.
- An operator must not use drugs or alcohol, which can change his or her alertness or coordination. An operator taking prescription or over-the-counter drugs should seek medical advice on whether or not he or she can safely operate equipment.
- Before exiting the prime mover, lower the skid hoe to the ground, turn off the prime mover's engine, remove the key and apply the brakes.



## **TRANSPORTING THE SKID HOE**

- Travel only with the attachment in a safe transport position to prevent uncontrolled movement. Drive slowly over rough ground and on slopes.
- When driving on public roads use safety lights, reflectors, Slow Moving Vehicle signs etc., to prevent accidents. Check local government regulations that may affect you.
- Do not drive close to ditches, excavations, etc., cave in could result.
- Do not smoke when refueling the prime mover. Allow room in the gas tank for expansion. Wipe up any spilled fuel. Secure cap tightly when done.



## **MAINTAINING THE SKID HOE**

- Before performing maintenance, lower the attachment to the ground, turn off the engine, remove the key and apply the brakes.
- Never perform any work on the attachment unless you are authorized and qualified to do so. Always read the operator service manual's before any repair is made. After completing maintenance or repair, check for correct functioning of the skid hoe. If not functioning properly, always tag "DO NOT OPERATE" until all problems are corrected.
- Worn, damaged, or illegible safety decals must be replaced. New safety decals can be ordered from BRADCO.
- Never make hydraulic repairs while the system is under pressure, or cylinders under load. Serious personal injury or death could result.
- Never work under a raised attachment.

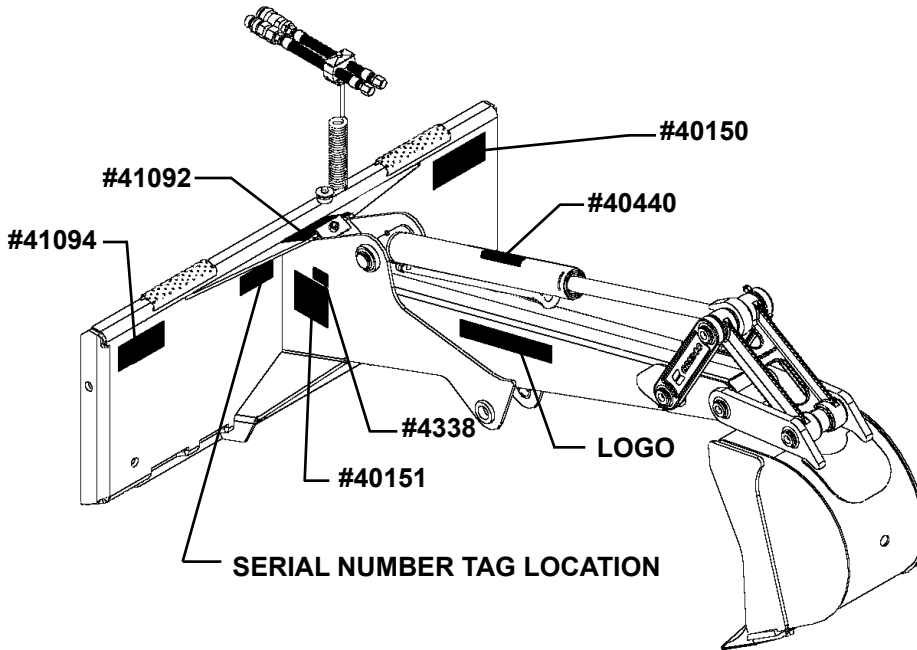
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# DECALS

## DECAL PLACEMENT

### GENERAL INFORMATION

The diagrams on this page show the location of the decals used on the BRADCO Fixed Skid Hoe. The decals are identified by their part numbers, with reductions of the actual decals shown. Use this information to order replacements for lost or damaged decals. Be sure to read all decals before operating the attachment. They contain information you need to know for both safety and longevity.



**PART #40440**  
**CALL BEFORE YOU DIG**

# 46F

**PART #41094**  
**46F MODEL NUMBER**

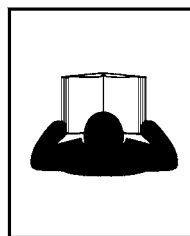
**NOTE: CONTACT YOUR LOCAL DEALER TO PURCHASE LOGO DECALS.**



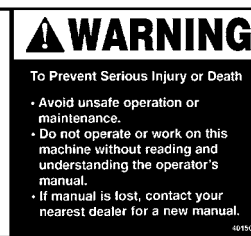
**PART #4338**  
**MADE IN USA**



**PART #41092**  
**CAUTION DECAL**



**PART #40150**  
**WARNING!**  
**READ MANUAL**



**PART #40151**  
**WARNING!**  
**HIGH PRESSURE FLUID**


**IMPORTANT:** Keep all safety signs clean and legible. Replace all missing, illegible, or damaged safety signs. When replacing parts with safety signs attached, the safety signs must also be replaced.

**REPLACING SAFETY SIGNS:** Clean the area of application with nonflammable solvent, then wash the same area with soap and water. Allow the surface to fully dry. Remove the backing from the safety sign, exposing the adhesive surface. Apply the safety sign to the position shown in the diagram above and smooth out any bubbles.

# PREOPERATION

## GENERAL INFORMATION


The BRADCO Skid Hoe was designed to be easy to use and maintain.

**WARNING!**  Never let anyone operate this equipment without first reading this manual, as well as all manuals related to this equipment and the prime mover. Follow all safety and operating instructions.

Operate the skid hoe only when properly seated in the skid steer's operating station. Any other method could result in serious personal injury or death.

Check the prospective digging area for hidden utility lines before operating the backhoe. If in doubt of their location, contact the local utility companies. When operating the unit in an area where utility lines are expected to be present, proceed with caution. If the bucket makes contact with anything out of the ordinary, stop digging at once. Have the obstruction checked by hand. If a utility line has been damaged, contact the affected utility company at once.

## PREPARING THE SKID STEER LOADER

**CAUTION!**  THIS ATTACHMENT REQUIRES BASE END BUCKET CIRCUIT PORT RELIEF VALVE TO BE INSTALLED IN THE LOADER CONTROL VALVE. CONFIRM PORT RELIEF VALVE INSTALLATION BEFORE OPERATING THIS ATTACHMENT.

If your unit does not have a factory installed relief in the base end of the loader control valve bucket cylinder circuit, contact your local dealer and have one installed before installing and operating the skid hoe. This cartridge is in addition to any existing rod end relief cartridge and protects the skid steer from hydraulic failure and/or loader bucket cylinder damage.

**Bobcat:** Units with BICS (Bobcat Interlock Control System) do not require additional relief. Units without BICS but with a plug and relief on the tilt spool, require Bobcat part #6599161 cartridge to replace the plug.

**Case:** Order Case #87445935 on all early production manual control units. Later production manual control machines have port relief valve included. All pilot controlled units, track models and all 450 models have factory installed port relief valve since first production. Confirm port relief valve installation before operating this attachment. (See Installation Instructions)

**Gehl:** Models 7600, 7610, 7800 and 7810 install Gehl #138703 cartridge. Installed into main control valve opposite the existing cartridge on the bucket circuit spool.

**John Deere:** Models 4475, 5575, 6675, 7775 and 8875 require John Deere #MG86529091. The following models require Bradco #LAF4495: Model 240 (up to SN#440000), 250 (up to SN#450000), 260 (up to SN#460000) and 270 (up to SN#470000). All others along with Model 280 (SN#480001 and up) require no additional relief.

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# PREOPERATION

**Mustang:** Models 2095 and 2105 install Gehl #138703 cartridge. Installed into main control valve opposite the existing cartridge on the bucket circuit spool.

**New Holland:** Order NH #86529091 for all Eaton valve equipped units (LX models plus LS140, LS150, LS160, LS170, LS180, LS190, L140 and L150 and manual control L160, L170, L175. Order NH #87445939 for Husco valve equipped units (LS180.B, LS185.B, LS190.B and early production manual control L180, L185 and L190. Later production L180, L185, L190 manual control machines have port relieve valves included. All pilot controlled L160 and larger plus track models LT and C have had factory installed port relief valve since first production. Confirm port relief valve installation before operating. (See Installation instructions)

**Others:** There is a secondary relief valve #LAF4264 available from your Bradco dealer for all units that do not have a base end port relief available. (See the following installation instructions for installing this valve onto your skid steer loader.)

## SECONDARY RELIEF VALVE INSTALLATION (PART #LAF4264)

The purpose of this valve is to relieve high pressure in the loaders bucket cylinder circuit when the loader control valve does not have a port relief for this circuit. Read these instructions and your loader manual before attempting installation.

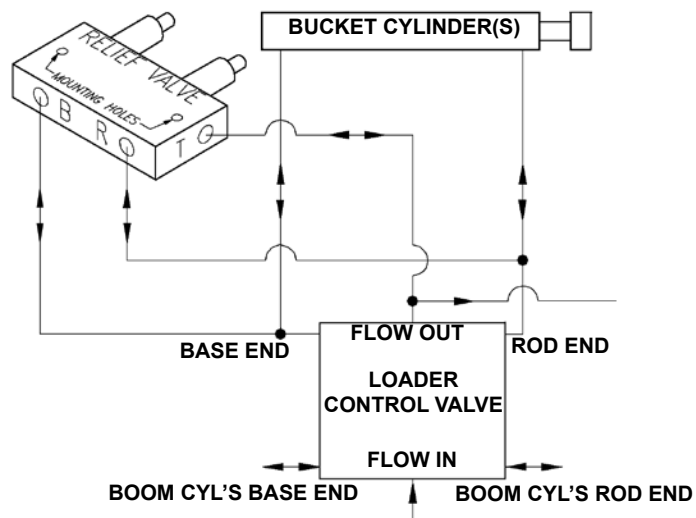
1. Clean the power unit before working on the hydraulic system.
2. Remove any attachments from the skids steer loader and park on a level surface.
3. Shut off the engine, set the parking brake and relieve any hydraulic pressure in the system before connecting or disconnecting hydraulic lines.
4. Locate a convenient place to “tee” into the loader’s bucket circuit lines after they have passed through any self leveling devices or any other devices which may be present on these lines. Refer to your loaders service manual.
5. Locate a convenient area to “tee” into a return to tank line.
6. Once these areas have been located, find an area in close proximity for mounting the relief valve. Although the valve can be mounted in any position, every effort should be made to ensure accessibility to the valve, its cartridges, fittings and any lines that will be added. Careful consideration should also be made as to the type and size of the fittings and hoses that will be required before dismantling any hydraulic circuitry. Keep any added fittings, hoses, and the valve a safe distance from all moving parts of the machine. Any .38” SAE o’ring fittings, JIC fittings and .38” hydraulic hoses are all adequate for the amount of flow required. The valve’s ports accept #6 SAE o’ring (.38”).
7. Install the line from the base end of the loader’s bucket cylinders into port “B” on the valve. Install the line from the rod end of the cylinder into port “R” on the valve and return to the tank line into port “T”. Made sure all fittings and hoses are tightened securely and no hoses are stretched, bent, or kinked before mounting the valve.
8. Using the valve as a template, mark and drill two .25” holes.

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## PREOPERATION

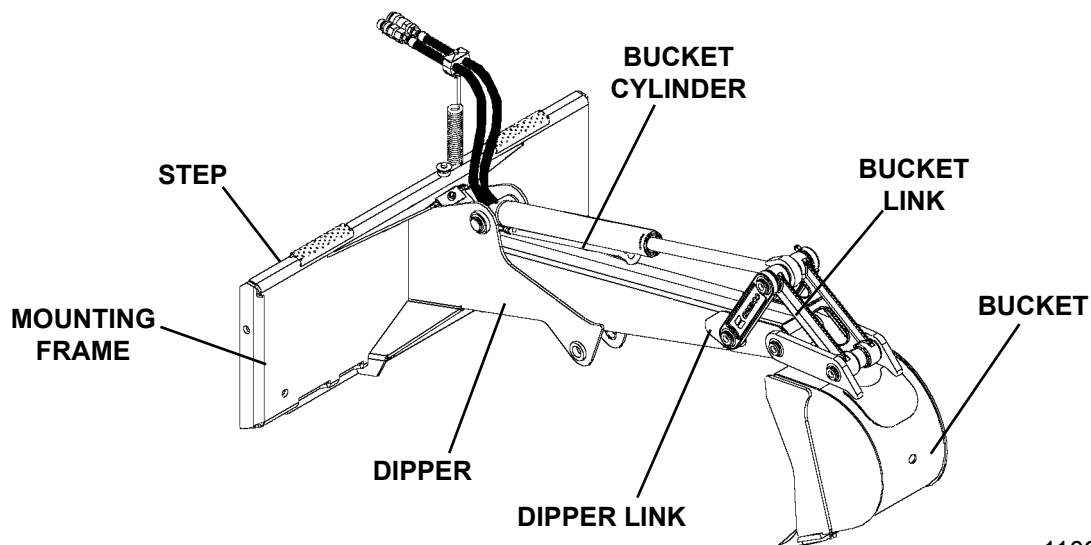
**IMPORTANT:** When drilling holes, be sure that you are not drilling into a reservoir or any other sealed compartment. Also be careful not to damage any hydraulic lines, fitting or components.

9. Secure the valve to the loader using .25" hardware. Check all connections for proper fit and tightness.
10. Replace any guards, shields or covers that were removed.
11. Replace any hydraulic fluid that may have been lost. See your loader's manual for specifications. (Start loader, reposition the loader arms and bucket cylinders according to the loader manufacturer's recommendations for checking fluid levels. Add fluid as needed.)



## NOMENCLATURE

Throughout this manual, reference is made to various skid hoe components. Study the following diagrams to acquaint yourself with the various names of these components. This knowledge will be helpful when reading through this manual or when ordering service parts. There is a complete parts breakdown for the skid hoe at the back of this manual.



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# INSTALLATION

## ATTACHING

Install the skid hoe by following your power units operator's manual for installing an attachment.

**WARNING!** To Avoid Serious Personal Injury, make sure the skid hoe is securely latched to the attachment mechanism of your unit. Failure to do so could result in separation of the attachment from the unit.



## FIXED SKID HOE HYDRAULICS

When installing a fixed skid hoe onto your unit, finish the installation by connecting the couplers on the skid hoe to the auxiliary hydraulic couplers on your prime mover. Start the engine and slowly cycle the cylinder several times to purge system of air and check for proper hydraulic connection, hose routing and hose length. Check for any hydraulic leaks and correct if necessary.

## DETACHING

On firm level ground, lower the skid hoe to the ground. Turn off the engine.

Move the control levers back and forth to relieve pressure in the line. Disconnect couplers.

**NOTE: Connect couplers together or install dust caps to prevent contaminants from entering the hydraulic system.**

Follow your power unit operator's manual for detaching (removing ) an attachment.

**NOTE: Frequent lubrication of grease fittings at the end of the cylinders and/or pivot points with a multi-purpose grease will greatly increase the life of the product.**

## SUPPLEMENTAL

**CAUTION!** THIS ATTACHMENT REQUIRES BASE END BUCKET CIRCUIT PORT RELIEF VALVE TO BE INSTALLED IN THE LOADER CONTROL VALVE. CONFIRM PORT RELIEF VALVE INSTALLATION BEFORE OPERATING THIS ATTACHMENT.

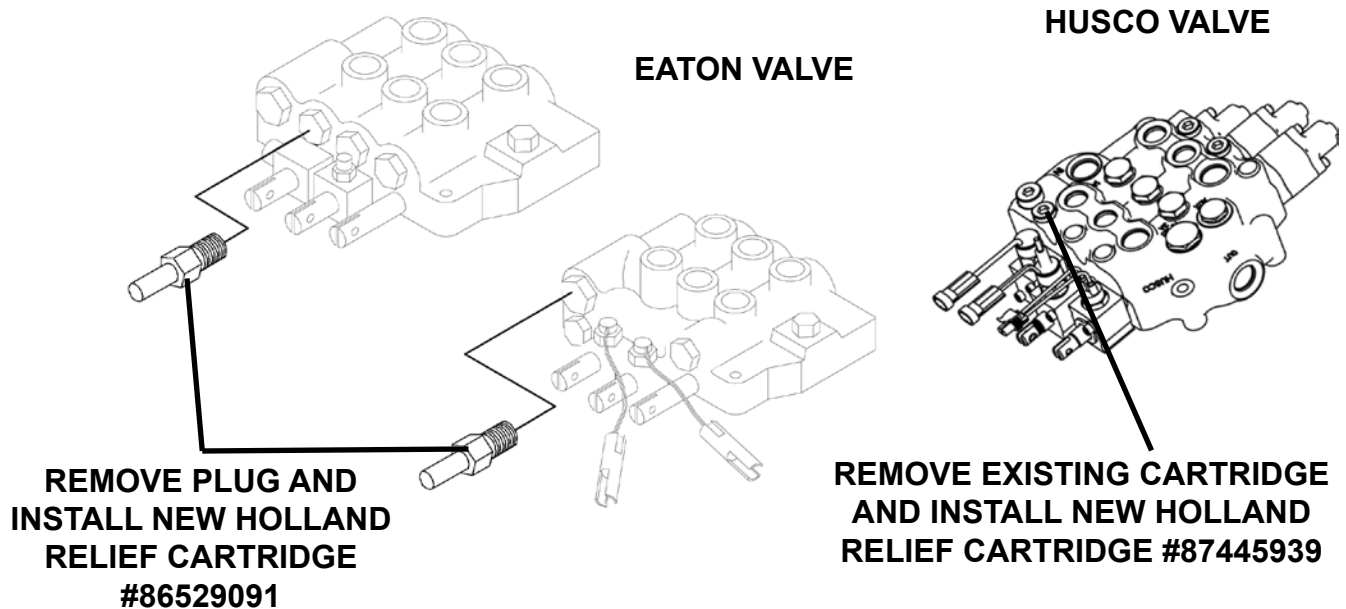


If your unit does not have a factory installed relief in the base end of the loader control valve bucket cylinder circuit, contact you local dealer and have one installed before installing and operating the skid hoe. This cartridge is in addition to any existing rod end relief cartridge and protects the skid steer from hydraulic failure and/or loader bucket cylinder damage.

# INSTALLATION

## NEW HOLLAND LOADERS:

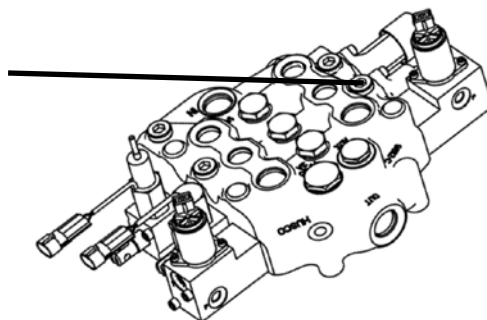
Order NH #86529091 for all Eaton valve equipped units (LX models plus LS140, LS150, LS160, LS170, LS180, LS190, L140 and L150 and manual control L160, L170, L175). Order NH #87445939 for Husco valve equipped units (LS180.B, LS185.B, LS190.B and early production manual control L180, L185 and L190). Later production L180, L185, L190 manual control machines have port relieve valves included. All pilot controlled L160 and larger plus track models LT and C have had factory installed port relief valve since first production. Confirm port relief valve installation before operating.



## CASE:

Order Case #87445935 on all early production manual control units. Later production manual control machines have port relief valve included. All pilot controlled units, track models and all 450 models have factory installed port relieve valve since first production. Confirm port relief valve installation before operating this attachment. (See Installation Instructions)

**FOR CASE 400 SERIES MODELS  
REMOVE EXISTING CARTRIDGE  
AND INSTALL RELIEF CARTRIDGE  
#87445935**



See "PREPARING THE SKID STEER LOADER" in the Preoperation section of this manual for additional loader information.

# OPERATING INSTRUCTIONS

## GENERAL INFORMATION

When operating the backhoe, smoothness of technique should be strived for at all times. Smoothness will come with experience and practice at feathering the controls. Establish a flowing digging cycle to increase operator efficiency and save unnecessary wear on the machine.

Observe the following instructions to obtain the best results and to fully utilize the digging force of the backhoe.

**WARNING!** Read and understand the Safety Precautions section of this manual before beginning any backhoe operation.



**Operate the attachment only from the operator's station. Any other method could result in serious personal injury or death.**

**Check the prospective digging area for hidden utility lines before operating the skid hoe. If in doubt of their location, contact the local utility companies. When operating the unit in an area where utilities are expected to be present, throttle the hoe down and proceed with caution. If you feel the bucket make contact with anything out of the ordinary, stop digging at once. Have the obstruction checked by hand. If a utility line has been damaged, contact the affected utility company at once.**

## BEFORE YOU START DIGGING

Before any excavating is started, it is always a good idea to plan out the job first. Various things need to be considered and taken into account prior to the actual digging. The operator should inspect the job site and take notice of any potential hazards in the area. He should have a complete understanding of the tasks he is expected to perform. Figure out what will be done with the spoil (excavated soil), will it be used to backfill? What are the soil conditions? Will you have to work around others? Etc.

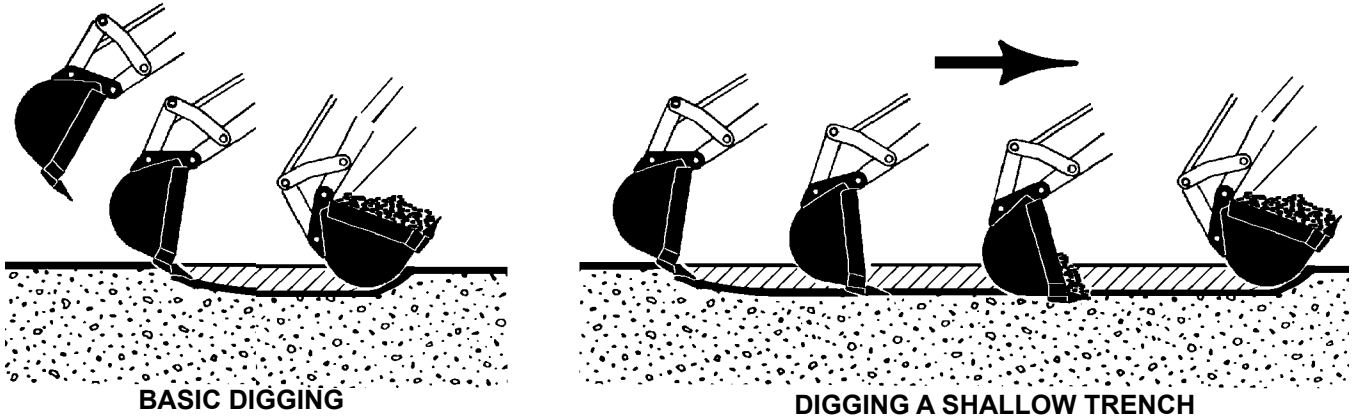
## BASIC DIGGING TECHNIQUE

When starting an excavation, make the first cut of each section shallow, being careful to follow the exact layout of the excavation. The reason for the shallow cut is to minimize damage to the sod and to facilitate replacement. These first cuts are also important because they will act as guides for the remaining cuts, thus getting the first few cuts as accurate as possible will help in keeping all future cuts accurate.

When digging with the skid hoe, the loader arms should be partially raised and the bucket out, away from the operator. Lower the dipper and start the digging process. The bucket teeth should be at a 30° to 45° entry angle. With the bucket on the ground, simultaneously curl the dipper toward the loader (using the loader arms) and roll the bucket until the bucket is full. (If the bucket stalls (wheels slide) raise the loader arms slightly and continue to dig until the bucket is full.) With the bucket full, raise the bucket out of the trench, and rotate the skid steer and dump the spoil in the desired location.

# OPERATING INSTRUCTIONS

To dig a shallow trench, reach the desired depth by following the basic digging techniques and then slowly back up the loader, keeping the bucket height constant.



**WARNING!** To prevent serious personal injury or death from cave-in or vehicle overturn;  
 **Always back away from trenches before turning.**  
**Do not dig close to the loader wheels or under the loader.**

The depth of the hole or trench will be controlled by dipper extension and loader arm height.

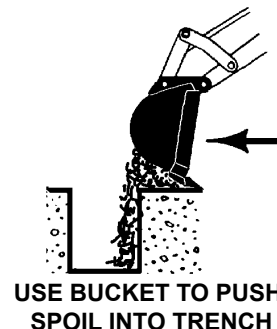
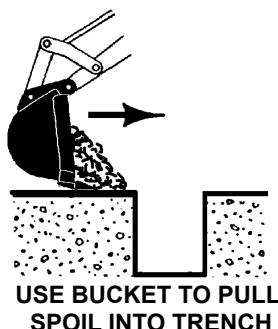
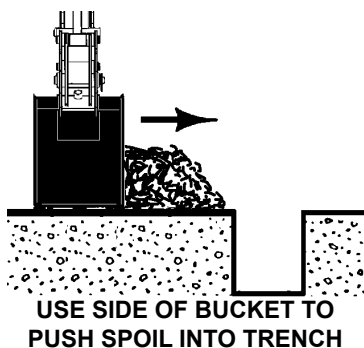
Use caution when working close to fences, ditches or on uneven ground and slopes. Always dump a loaded bucket on the uphill side of the hoe to minimize the possibility of turnover.

Use the flat sides of the bucket to scrape off any high spots on the sides of the excavation.

## BACKFILLING

There are several options available for backfilling a hole or trench. The spoil location and job at hand will determine which procedure is best for your application.

- Use the side of the bucket and pivot the loader toward the trench or hole.
- Use the bucket to reach beyond the trench and travel in reverse to PULL the spoil into the trench or hole.
- Use the back of the bucket and travel forward to PUSH the spoil into the trench or hole.



# OPERATING INSTRUCTIONS

**WARNING!** MAKE SURE THE TRENCH OR HOLE IS FULL BEFORE TRAVELING OVER IT WITH THE LOADER AND SKID HOE. MOVING OVER AN UNSTABLE SURFACE CAN RESULT IN TIPOVER.



Always lower the bucket to the ground, set the parking brake, stop engine and remove the key before leaving the operator's station.

## TRANSPORTING

Follow all transporting instructions in your power unit operator's manual.

Always keep the skid hoe close to the ground when transporting between sites on the loader. Keep the heavy end of the machine uphill. Avoid abrupt starts, stops and turns. Be sure skid hoe is securely tied down when transporting on a truck or trailer bed.

## STORAGE

1. Clean the skid hoe thoroughly, removing all mud, dirt and grease.
2. Touch up all unpainted surfaces to prevent rust.
3. Lubricate all grease fittings and coat the exposed portions of the cylinder rods with grease.
4. Store the unit in a dry and protected place. Leaving the skid hoe outside, exposed to the elements, materially shortens the life of the unit.
5. Make sure the hydraulic system is properly sealed against contaminants entering the unit.

## REMOVING FROM STORAGE

1. Remove all protective coverings.
2. Check hydraulic hoses for deterioration and replace if necessary.
3. Lubricate all grease fittings.
4. Tighten all loose bolts and fittings.
5. Inspect bucket teeth and replace if necessary.

# MAINTENANCE AND SERVICE

## GENERAL INFORMATION

Regular maintenance is the key to long equipment life and safe operation. Maintenance requirements have been reduced to an absolute minimum. However it is very important that these maintenance procedures be performed as described in this section.

**WARNING!** Read the Safety Precautions section of this manual before performing any maintenance procedure.



Follow any Safety Shutdown procedures outlined in the loader operator's manual before performing maintenance.

## BEFORE EACH USE OR AFTER EVERY 8 HOURS OF OPERATION

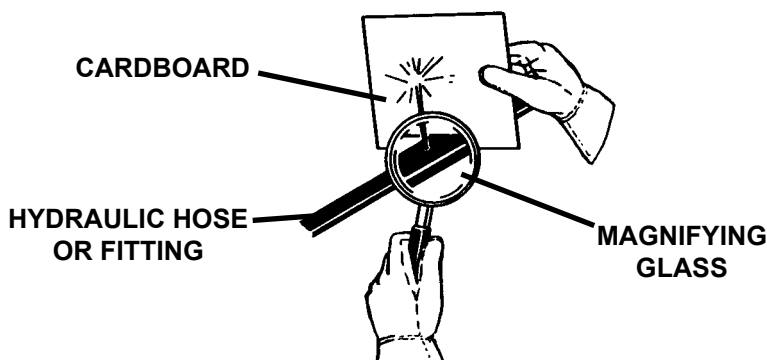
- Lubricate all grease fittings.
- Check all bolts are properly tightened and all pins are securely in place.
- Check hydraulic fittings for proper tightness and leaks.
- Check hydraulic hoses for leaks or deterioration.
- Check all safety signs are clean and legible.
- Replace any damaged or excessively worn parts.

**WARNING!** Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin causing serious personal injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood rather than your hands to search for suspected leaks.



Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.

In injured by injected fluid see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research it immediately to determine proper treatment.

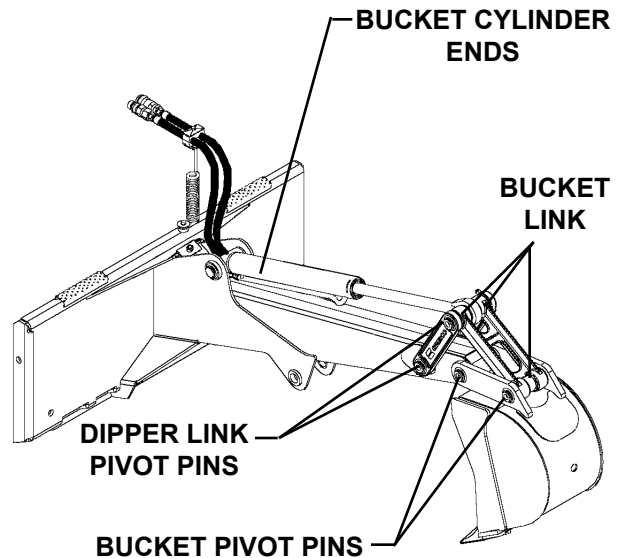


# MAINTENANCE AND SERVICE

## LUBRICATION

Economical and efficient operation of any machine is dependent upon regular and proper lubrication of all moving parts with a quality lubricant. Neglect leads to reduced efficiency, heavy draft, wear, breakdown and needless replacement parts. All parts provided with grease fittings should be lubricated every 8 hours. If any grease fittings are missing, replace them immediately. Clean all fittings thoroughly before using grease gun.

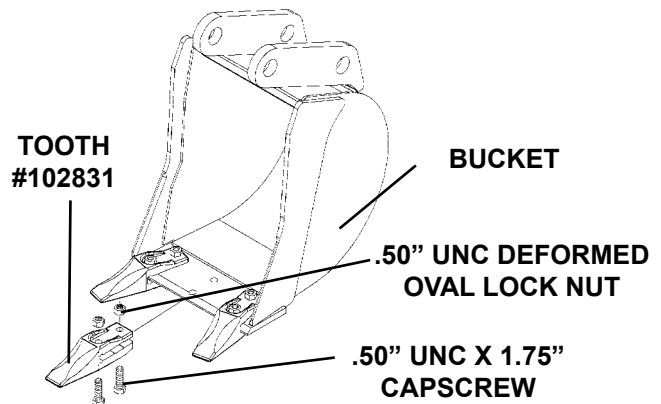
**IMPORTANT: Avoid excessive greasing. Dirt collects on exposed grease and greatly increases the wear. After greasing, wipe off excessive grease from fittings.**



## REPLACING BUCKET TEETH

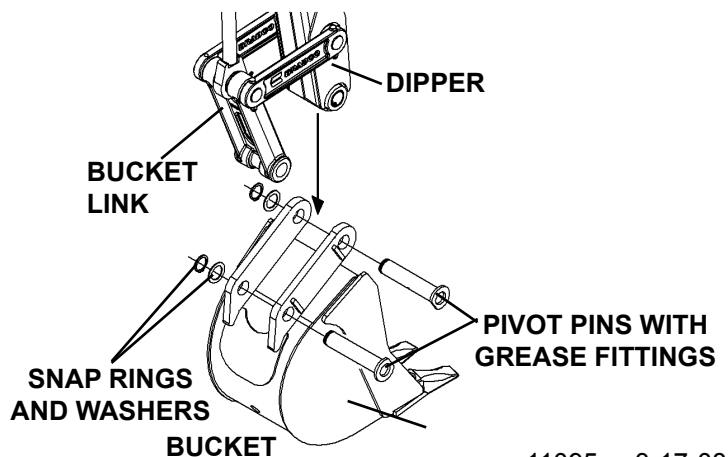
The bucket teeth are self-sharpening and require little attention: however, they can be replaced when they become worn or broken.

Remove the two capscrews and lock nuts securing the tooth to the bucket and replace with new bucket teeth and hardware.



## CHANGING BUCKETS

The bucket is connected to the dipper and bucket link with snap ring style pins. To change buckets, remove the snap rings and washers from one side of the pivot pins, slide the pins out and then remove the old bucket. Position the new bucket in its place. Install the pivot pins and secure with snap rings and thrust washers. Lubricate both pivot pin grease fittings before operating.



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# MAINTENANCE AND SERVICE

## CYLINDER SEAL REPLACEMENT

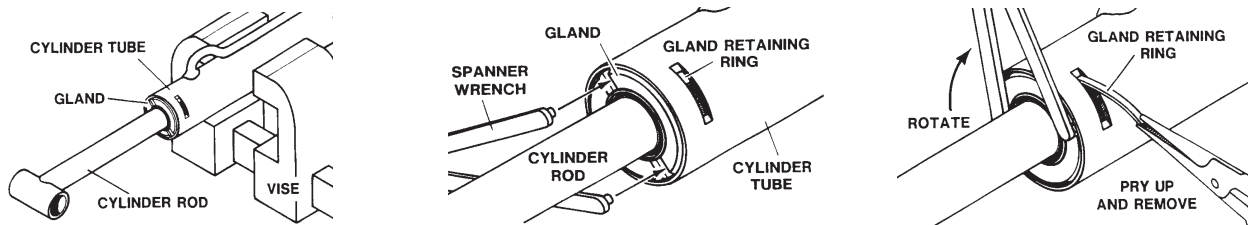
The following information is provided to assist you in the event you should need to repair or rebuild a hydraulic cylinder. When working on hydraulic cylinders, make sure that the work area and tools are clean and free of dirt to prevent contamination of the hydraulic system and damage to the hydraulic cylinders. Always protect the active part of the cylinder rod (the chrome section). Nicks or scratches on the surface of the rod could result in cylinder failure. Clean all parts thoroughly with a cleaning solvent before reassembly.

### DISASSEMBLY PROCEDURE

**IMPORTANT: Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.**

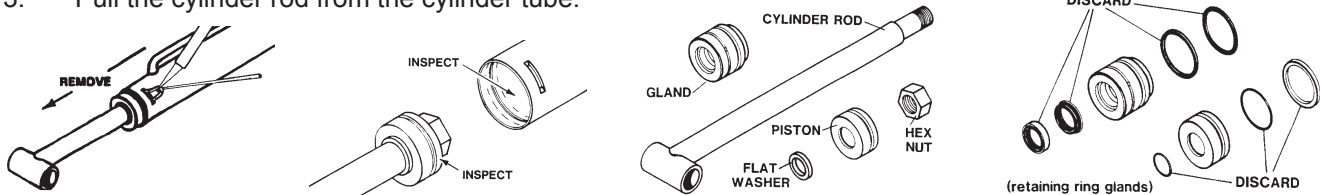
#### RETAINING RING TYPE GLAND

1. Mount the cylinder tube securely in a vise. **NOTICE: Do not clamp too tight and distort the tube.**
2. Rotate the gland with a spanner wrench (available from your dealer), until the gland retaining ring appears in the milled slot.



Pry up the end of the gland retaining ring with a pointed tool. Rotate the gland with a spanner wrench while removing the retaining ring. **NOTE: The gland and piston seal(s) can be pulled out and cut as they appear in the milled slot during disassembly. After cutting, pull them on out through the milled slot.**

3. Pull the cylinder rod from the cylinder tube.

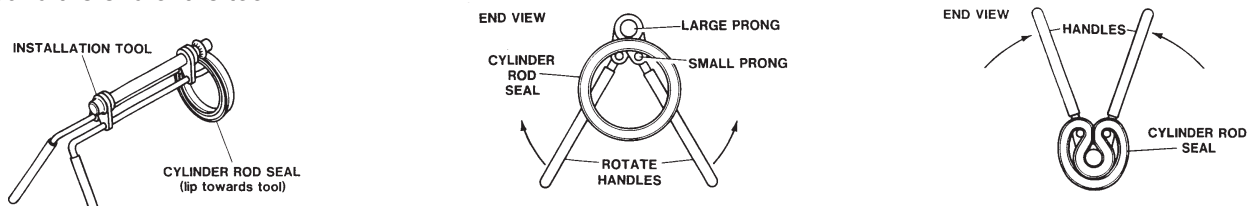


4. Inspect the piston and the bore of the cylinder tube for deep scratches or galling. If damaged, the piston and cylinder tube must be replaced.
5. Remove the hex nut, piston, flat washer or spacer tube (if so equipped), and gland from the cylinder rod. If the cylinder rod is rusty, scratched, or bent, it must be replaced.
6. Remove and discard all old seals.

### ASSEMBLY PROCEDURE

**IMPORTANT: Replace all seals even if they do not appear to be damaged. Failure to replace all seals may result in premature cylinder failure.**

1. Install the cylinder rod seal in the gland first. Be careful not to damage the seal in the process as it is somewhat difficult to install. A special installation tool is available to help with installing the seal. Simply fit the end of the tool over the seal so that the large prong of the tool is on the outside of the seal, and the two smaller prongs on the inside. The lip of the seal should be facing towards the tool. Rotate the handles on the tool around to wrap the seal around the end of the tool.



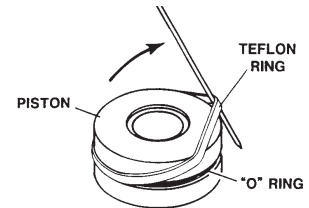
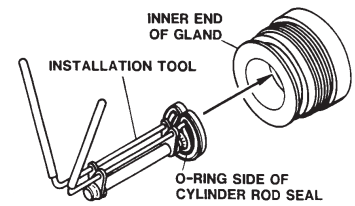
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# MAINTENANCE AND SERVICE

Now insert the seal into the gland from the inner end. Position the seal in its groove, and release and remove the tool. Press the seal into its seat the rest of the way by hand.

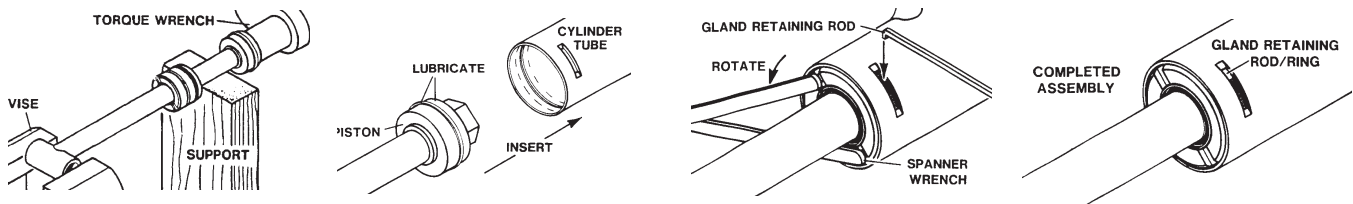
NOTE: Threaded gland is shown in diagram for reference only.

2. Install the new piston ring, rod wiper, O-rings, and backup washers, if applicable, on the piston. Be careful not to damage the seals. Caution must be used when installing the piston ring. The ring must be stretched carefully over the piston with a smooth, round, pointed tool.
2. Slide the gland onto the cylinder rod being careful not to damage the rod wiper. Then install the spacer, or flat washer (if so equipped), small O-ring, piston, and hex nut onto the end of the cylinder rod.
3. Secure the cylinder rod (mounting end) in a vise, with a support at its center. Torque the nut to the amount shown on the chart for the thread diameter of the cylinder rod. (see chart)



Thread Diameter	POUNDS - FEET
7/8"	150-200
*1"	230-325
1-1/8"	350-480
1-1/4"	490-670
1-3/8"	670-900

**\* 1" Thread Diameter WITH 1.25" Rod Diameter**  
**Min. 230 ft. lbs. Max. 250 ft. lbs.**



**IMPORTANT:** Do not contact the active surface of the cylinder rod with the vise. Damage to the rod could result.

**IMPORTANT:** Ensure that the piston ring fits squarely into the cylinder tube and piston groove, otherwise the ring may be damaged and a leak will occur.

4. Apply a lubricant (such as Lubriplate #105) to the piston and teflon ring. Insert the cylinder rod assembly into the cylinder tube.
5. Rotate the gland with a spanner wrench until the hole (drilled into the retaining slot of the gland) appears in the milled slot of the cylinder tube. Insert the hooked end of the gland retaining rod into the hole.

Rotate the gland until the gland retaining rod forms a ring between the gland and the cylinder tube. When complete, the bent end of the gland retainer ring should be hidden (not turned so it is exposed in the slot) to prevent it from popping out.

**WARNING!** Cylinders serviced in the field are to be tested for leakage prior to the attachment being placed in work. Failure to test rebuilt cylinders could result in damage to the cylinder and/or the attachment, cause severe personal injury or even death.

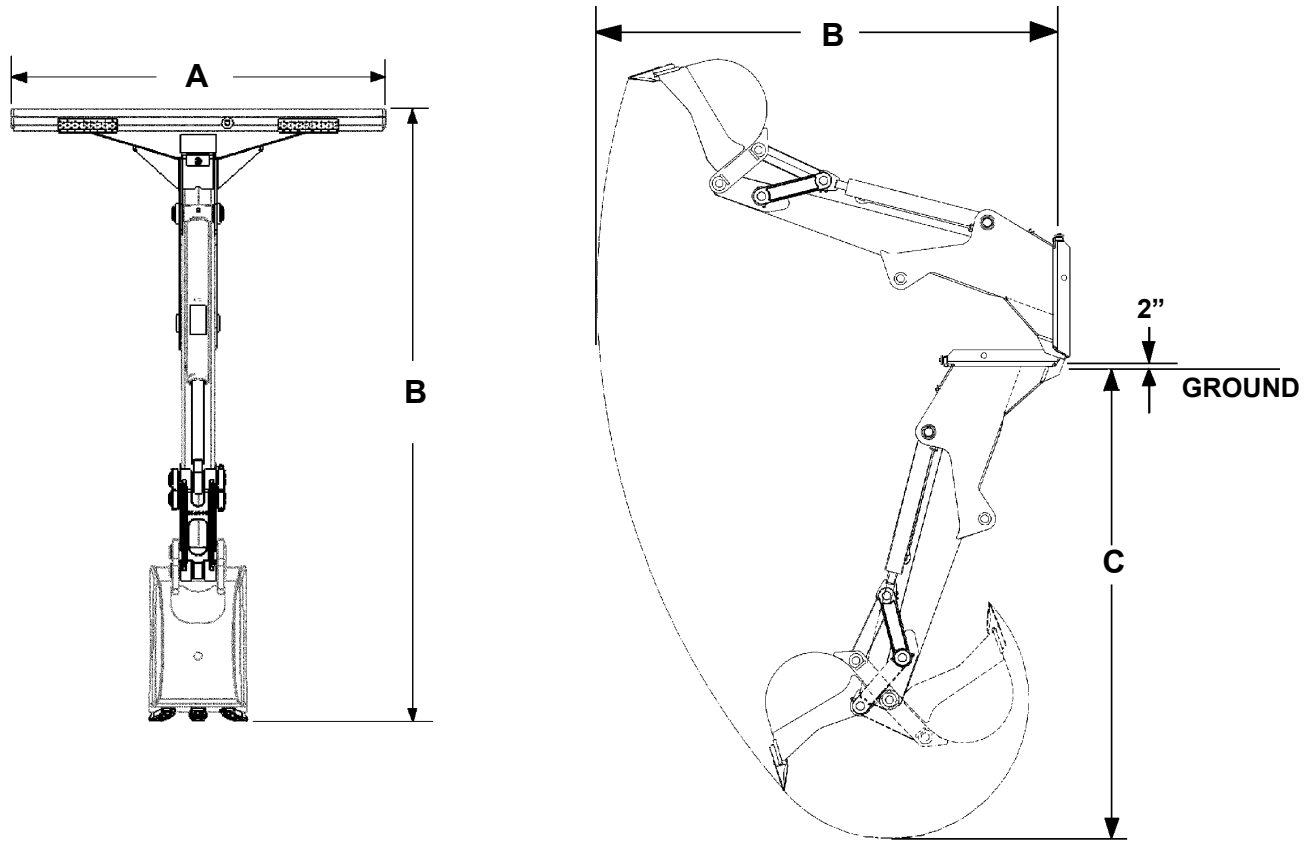


# TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Bucket fails to curl	Low oil supply	Add oil
	Obstruction in hydraulic line	Remove obstruction or replace
	Bent cylinder rod	Replace
	Damaged hydraulic cylinder	Replace
	Hydraulic couplers malfunctioning or non compatible.	Replace
	Hydraulic couplers not completely engaged	Check and tighten couplers
Bucket fails to maintain curl	Oil leaking past cylinder seals	Replace cylinder seals
	Broken or leaking hydraulic lines	Replace and check for leaks
	Malfunctioning valve	Replace
Bucket operating too slowly	Malfunctioning Valve	Replace
	Oil leaking past cylinder seals	Replace cylinder seals
	Hydraulic couplers not completely engaged	Check and tighten couplers
	Obstruction in hydraulic line	Remove obstruction or replace
External leaking	Cylinder seals damaged	Replace and repair
	Broken or loose hydraulic lines or fittings	Check for leaks and repair or replace

# SPECIFICATIONS

## SKID HOE



DESCRIPTION	FIXED HOE
A. OVERALL WIDTH	47.50"
B. OVERALL REACH (From Mounting Plate)	75.00"
C. DIGGING DEPTH (With Mounting Plate 2" Above Ground.)	73.00"
DIGGING FORCE (Bucket Cylinder)	3895#
WEIGHT (Approx. with 12" bucket)	395#

### BUCKET CYLINDER

Cylinder #.....	105306
Bore .....	2.25"
Stroke .....	18.23"
Rod Diameter.....	1.25"



## LIMITED WARRANTY

All new Bradco products are warranted to be free from defects in materials or workmanship which may cause failure under normal usage and service when used for the purpose intended.

In the event of failure within twenty four (24) months from initial retail sale, lease or rental date (excluding cable, ground engaging parts such as sprockets, digging chain, bearings, teeth, tamping and demolition heads, blade cutting edges, pilot bits, auger teeth, auger heads & broom bristles), if after examination, Bradco determines failure was due to defective material and/or workmanship, parts will be repaired or replaced. Bradco may request defective part or parts be returned prepaid to them for inspection at their place of business at Delhi, Iowa, or to a location specified by Bradco.

Any claims under this warranty must be made within fifteen (15) days after the Buyer learns of the facts upon which such claim is based. All claims not made in writing and received by Bradco within the time period specified above shall be deemed waived.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED AND THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL BRADCO BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGE.**

**BRADCO'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES TO BUYER, RESULTING FROM ANY CAUSE WHATSOEVER, INCLUDING BRADCO'S NEGLIGENCE, IRRESPECTIVE OF WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCTS WITH RESPECT TO WHICH LOSSES OR DAMAGES ARE CLAIMED, OR, AT THE ELECTION OF BRADCO, THE REPAIR OR REPLACEMENT OF DEFECTIVE OR DAMAGED PRODUCTS.**



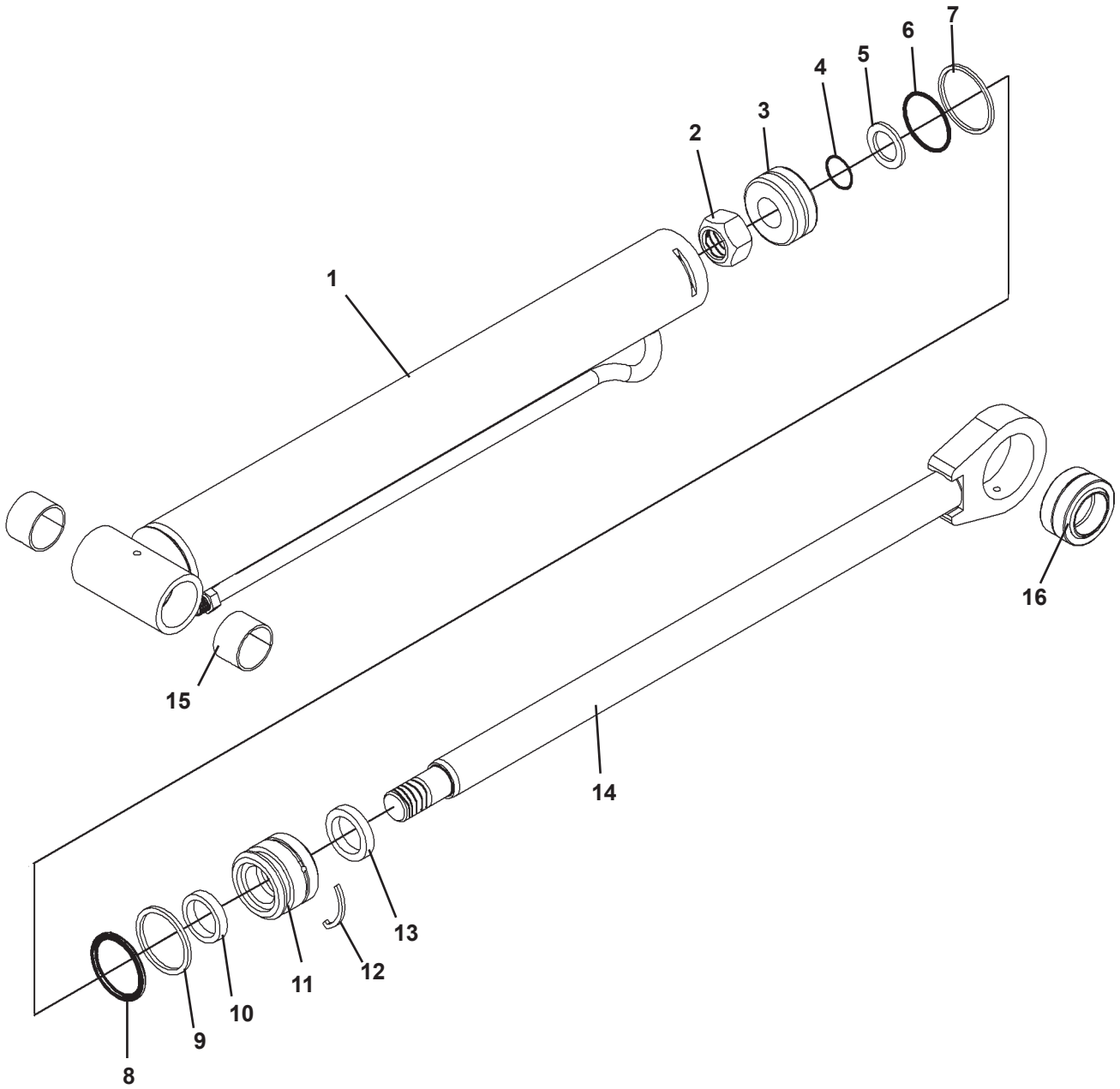
# SKID HOE ASSEMBLY

ASSEMBLY #111637

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	111632	Backhoe Frame
2	1	1502	.31" Lock Washer
3	1	1022	.31" UNC X 1.00" Hex Capscrew
4	1	103178	Hose Clamp Assembly
5	1	14176	Male Coupler .50" Body 8FBo
6	1	14175	Female Coupler .50" Body 8FBo
7	2	38033	Hose .38" x 87" 6FJX-8MBo
8	6	1650	Snap Ring
9	6	6623	Thrust Washer
10	1	105370	Cylinder Pin
11	1	105306	Cylinder Assembly
		45478	Replacement Seal Kit
12	2	1536	.38" UNC Nylock Hex Nut
13	2	1052	.38" UNC X 3.25" Hex Capscrew
14	2	105373	Cylinder Pin
15	2	105391	Dipper Link
16	1	105390	Bucket Link
	3	6616	Grease Fittings
17	2	105375	Bucket Pin
18	Option	81710	10" Bucket (Three Teeth)
		81712	12" Bucket (Three Teeth)
		81716	16" Bucket (Four Teeth)
		81718	18" Bucket (Four Teeth)
		81724	24" Bucket (Four Teeth)
19	9	6616	Grease Fitting

# BUCKET CYLINDER ASSEMBLY

ASSEMBLY #105306



# BUCKET CYLINDER ASSEMBLY

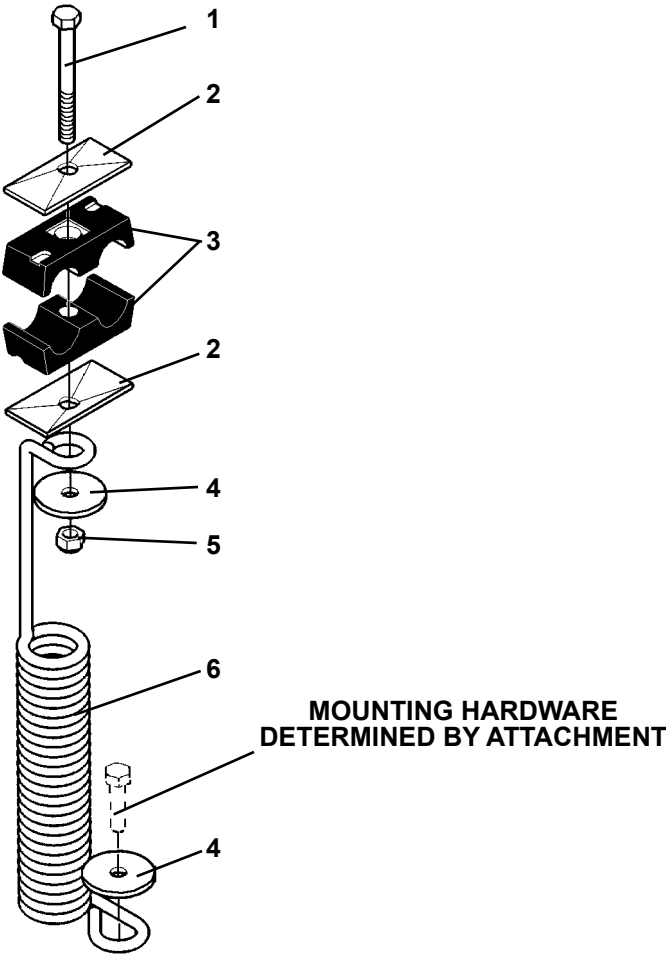
ASSEMBLY #105306

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	105309	Cylinder Tube
2	1	1483	Hex Nut (Torque to 230-325 ft. lbs.)
3	1	86509	Piston
4	1	4641*	O'Ring
5	1	5421	Washer
6	1	45443*	O'Ring
7	1	45701*	Piston Ring
8	1	45699*	O'Ring
9	1	45700*	Back-Up Washer
10	1	86508	Gland
11	1	45219*	Poly-Pak Seal
12	1	7165*	Gland Retainer Rod
13	1	4974*	Rod Wiper
14	1	105307	Cylinder Rod
15	2	85772	Bushing
16	1	6615	Self-Aligning Bearing

**NOTE: Seal Kit #45478 includes all parts marked with an asterisk(\*). Parts are not sold separately.**

# SPRING CLAMP ASSEMBLY

ASSEMBLY #103178



# SPRING CLAMP ASSEMBLY

ASSEMBLY #103178

<u>ITEM</u>	<u>REQ'D</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	1030	.31" UNC X 3.00" Hex Capscrew
2	2	103184	Top Plate
3	2	103181	Hose Clamp (.75" ID Hose)
4	2	105840	Fender Washer
5	1	1753	.31" UNC Nylock Nut
6	1	RHW8618	Mounting Spring

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