SERVICE MANUAL

LOADER BACKHOE GENERAL LB-620

40062010

NEW HOLLAND

INTRODUCTION

This manual provides the technical information needed to properly service and maintain the Model LB-620 loader backhoe. Use this manual in conjunction with the operator's manual which is supplied with the loader. Keep both manuals available for ready reference.

On New Holland equipment, left and right are determined by standing behind the unit, looking in the direction of travel.

For information on engine repair, refer to the manufacturer's service manual.

The easiest and least time-consuming removal, disassembly, and reassembly procedures are detailed in this manual. Modifying these procedures is not recommended.

The LB-620 loader backhoe was designed with emphasis on safety for operator protection. However, careless and negligent operation can still result in serious injury to persons or property. Be sure to read and follow all safety instructions in this manual.

Your New Holland dealer will be glad to answer any questions you may have about your loader backhoe. When major service is required, his staff of trained service technicians is ready to serve you.

When in need of parts, always order genuine New Holland service parts from your New Holland dealer. Be prepared to give your dealer the model and serial number of the engine and loader. Locate these numbers now and record them below.

Loader Backhoe Model _____

Loader Backhoe Serial Number _____

Engine Model _____

Engine Serial Number _____

CAUTION: THIS SYMBOL IS USED THROUGHOUT THIS BOOK WHENEVER PERSONAL SAFETY IS INVOLVED. TAKE TIME TO READ AND FOLLOW THE INSTRUCTIONS. BE CAREFUL!

IMPROVEMENTS

New Holland is continually striving to improve its products. We reserve the right to make improvements or changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

CONTENTS

PLEASE READ CAREFULLY!

INCLUDED THROUGHOUT THIS MANUAL AND ON MACHINE DECALS YOU WILL FIND PRECAUTIONARY STATEMENTS SUCH AS "CAUTION", "WARNING" AND "DANGER", FOLLOWED BY SPECIFIC INSTRUCTIONS.

THESE PRECAUTIONS ARE INTENDED FOR THE PERSONAL SAFETY OF YOU AND THOSE WORKING WITH YOU. PLEASE TAKE THE TIME TO READ THEM.

PERSONAL SAFETY!

CAUTION: THE WORD "CAUTION" IS USED WHERE A SAFE BEHAVIORAL PRACTICE ACCORDING TO OPERATING AND MAINTENANCE INSTRUCTIONS AND COMMON SAFETY PRACTICES WILL PROTECT THE OPERATOR AND OTHERS FROM ACCIDENT INVOLVEMENT.

WARNING: THE WORD "WARNING" DENOTES A POTENTIAL OR HIDDEN HAZARD WHICH HAS A POTENTIAL FOR SERIOUS INJURY. IT IS USED TO WARN OPERATORS AND OTHERS TO EXERCISE EVERY APPROPRIATE MEANS TO AVOID A SURPRISE INVOLVEMENT WITH MACHINERY.

DANGER: THE WORD "DANGER" DENOTES A FORBIDDEN PRACTICE IN CONNECTION WITH A SERIOUS HAZARD.

ADDITIONAL PRECAUTIONARY STATEMENTS SUCH AS "ATTENTION" AND "IMPORTANT" ARE FOLLOWED BY SPECIFIC INSTRUCTIONS. THESE STATEMENTS ARE INTENDED FOR MACHINE SAFETY.

MACHINE SAFETY!

ATTENTION: THE WORD "ATTENTION" IS USED TO WARN THE OPERATOR OF POTENTIAL MACHINE DAMAGE IF A CERTAIN PROCEDURE IS NOT FOLLOWED.

IMPORTANT: THE WORD "IMPORTANT" IS USED TO INFORM THE READER OF SOMETHING HE NEEDS TO KNOW TO PREVENT MINOR MACHINE DAMAGE IF A CERTAIN PROCEDURE IS NOT FOLLOWED.

IMPORTANT!

FAILURE TO FOLLOW THE "CAUTION", "WARNING", AND "DANGER" INSTRUCTIONS MAY POSSIBLY RESULT IN SERIOUS BODILY INJURY OR DEATH.

SECTION 1
BRAKES

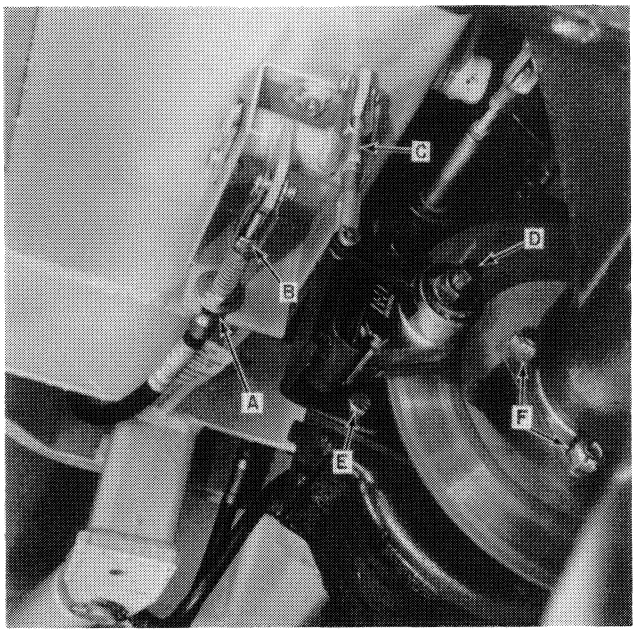

FIGURE 1-1

CAUTION: BEFORE SERVICING THE MACHINE OR ANY OF ITS ATTACHED EQUIPMENT, BE SURE THE ATTACHMENTS ARE LOWERED TO THE GROUND OR THE BOOM ARMS ARE SUPPORTED BY THE BOOM LOCK PINS.

PARKING BRAKE (on and below serial number 732878)

The parking brake is mechanically actuated by a handle in the operator's cab.

The brake assembly, Figure 1-1, has two brake pads that are replaceable when worn out.

Pad Replacement

1. Remove the pin from link, C, Figure 1-1, through the yoke and brake lever.
2. Remove cap screws, E, that attach the brake mounting bracket to the support.
3. Slide the brake calipers off the mounting bracket.
4. Remove bolts, B, Figure 1-2, and separate the caliper halves, F-J.
5. Remove the worn pads, I, Figure 1-2, and install new ones.
6. Turn adjusting screw, D, Figure 1-1, out 3/16"-1/4" (4.76 mm-6.35 mm) and bolt the brake caliper halves back together. Tighten bolts, B, Figure 1-2, to 53 ft. lbs. (71 N·m) torque.

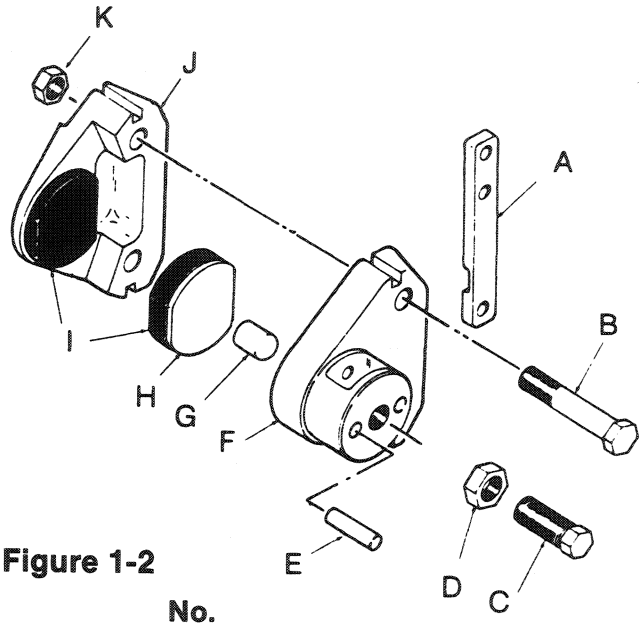

Figure 1-2

Ref.	No. Used	Description
		Brake caliper assembly, parking
A	1	Lever
B	2	Cap screw, hex head, Grade 5, UNF, ⅜" x 12¼"
C	1	Screw, adjuster
D	1	Hex nut, UNF, 7/16"
E	1	Pin, groove
F	1	Housing
G	1	Pin, actuator
H	1	Plate, backing
I	2	Brake pads
J	1	Anvil
K	2	Hex locknut, Grade C, UNF, ⅜"

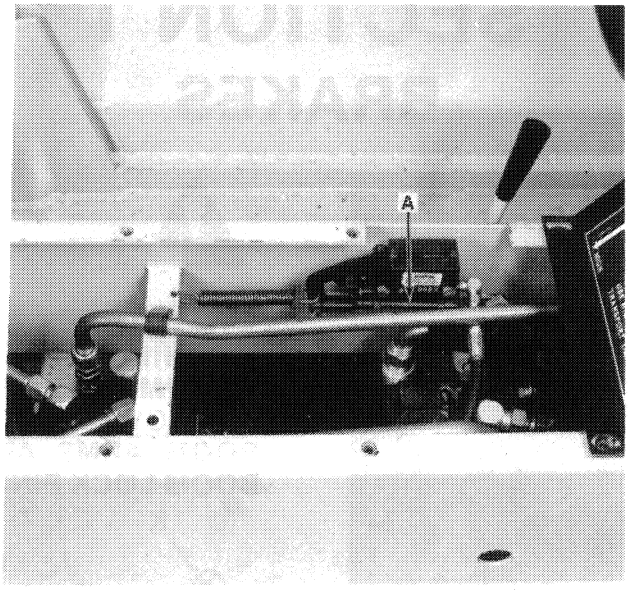

FIGURE 1-3

7. Install the caliper assembly in the mounting bracket and reinstall on the machine. Connect link, C, Figure 1-1.
8. Adjust screw, D, Figure 1-1, to obtain 0.015"-0.035" (0.38 mm-0.89 mm) clearance between the pad and brake disc.
9. Adjust link, C, and yoke, B, Figure 1-1, as required to adequate tension on the brake when the handle is locked over center in the cab.

FOOT BRAKE (on and below serial number 732878)

The foot brake is hydraulically operated by the pedal in the cab.

Master Cylinder

The master cylinder, Figure 1-3, is located below the console cover in the operator's cab. Remove the 8 bolts holding the seat support and console cover.

The master cylinder piston cup, K, Figure 1-4, can be replaced without removing the master cylinder from the unit.

1. Disconnect the spring and link, A, Figure 1-3, from lever, F, Figure 1-4.
2. Remove screw, P, Figure 1-4, and take out parts J through 0.
3. Install a new cup, K, Figure 1-4, and reinstall all parts. Adjust link, A, Figure 1-3, to obtain ¾"-1" (19 mm-25 mm) free play in the pedal.

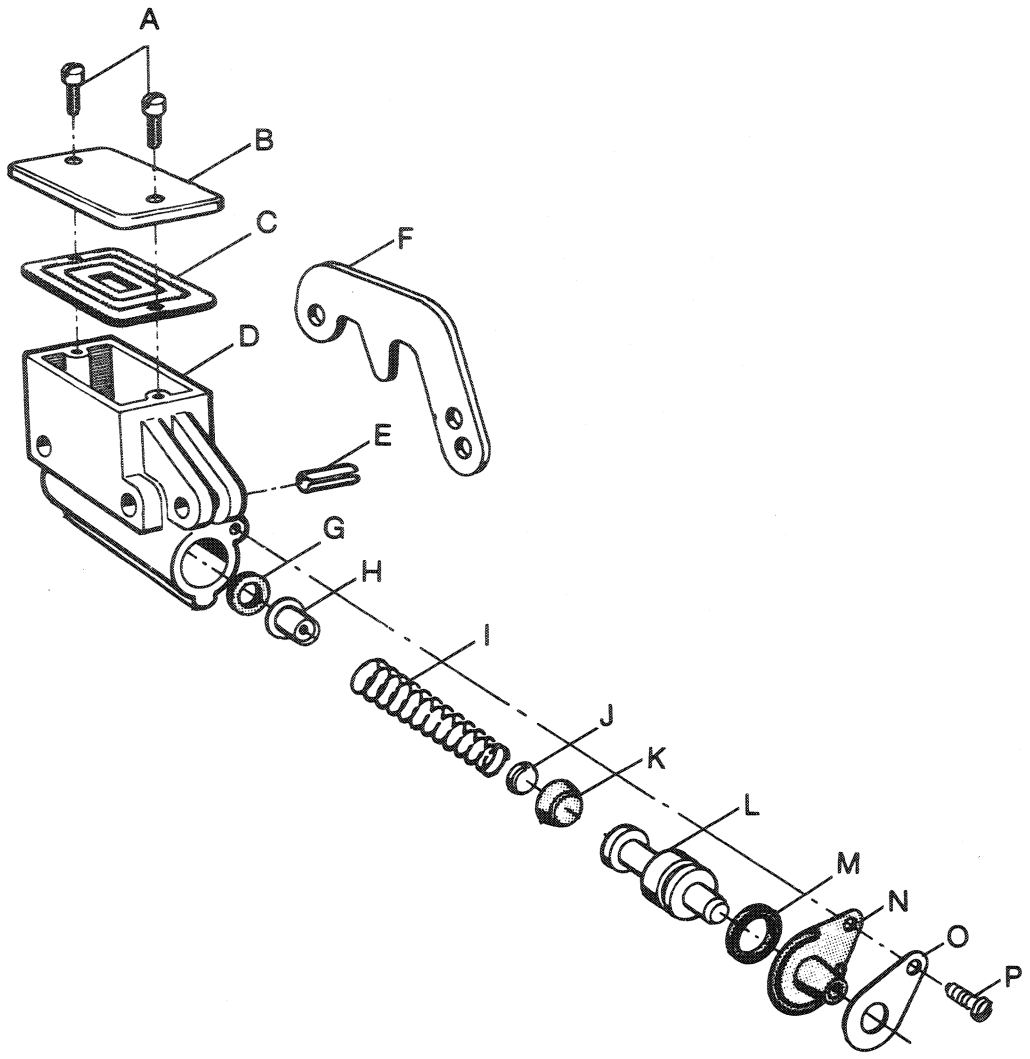

FIGURE 1-4

Figure 1-4

Ref.	No. Used	Description
		Master brake cylinder assembly
A	2	Screw, cover
B	1	Cover
C	1	Diaphragm, rubber
D	1	Housing
N.S.S.*		
E	1	Roll pin
F	1	Lever
G	1	Seat, rubber
H	1	Valve, residual pressure
I	1	Spring
J	1	Cup protector
K	1	Cup
L	1	Piston
M	1	Quad seal
N	1	Boot, rubber
O	1	Retainer
P	1	Screw, retainer

*N.S.S. - Not Serviced Separately

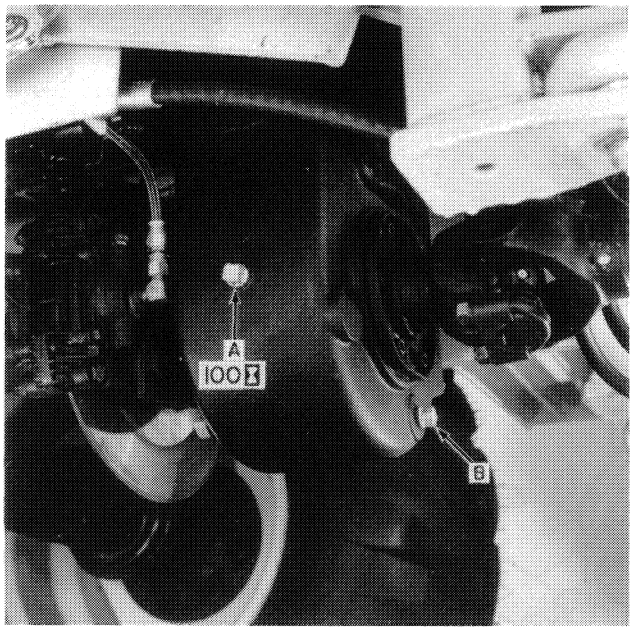

FIGURE 1-5

4. Fill the master cylinder reservoir with brake fluid rated DOT 3 and bleed the brakes at the caliper, Figure 1-5. Be sure to open the bleed screw for each piston in the caliper.

Brake Pad Replacement

NOTE: Do not remove caliper.

1. Remove the cotter pin holding the pads in place.
2. Pull out the brake pads. See Figure 1-6.
3. Use a screwdriver or other pry bar to push the pistons all the way into the housings.
4. Install the new brake pads making sure the back plates are in place. See Figure 1-6.

HYDRAULIC BRAKE CALIPER REPAIR

Caliper Removal

1. Back out the two special cap screws, Figure 1-5, and disconnect the hydraulic line.
2. Remove the caliper assembly. It may be necessary to use a screwdriver to push the pry between the brake disc and pad to push the pistons all the way into the housings.
3. The brake pads, I, Figure 1-6, can be removed by removing the cotter pin. Remove both brake pads and both spacers.
4. If it is necessary to replace the seals, the caliper assembly can be taken apart by removing bolts, C, D, and K, Figure 1-6. See the note in the Service Parts Catalog if the complete caliper assembly is replaced on units on and below serial number 706071.
5. Reassemble the caliper assembly and install it on the machine.
6. Fill the reservoir with new brake fluid of a DOT 3 rating. Bleed both cylinders by opening bleed fittings, A, Figure 1-6.

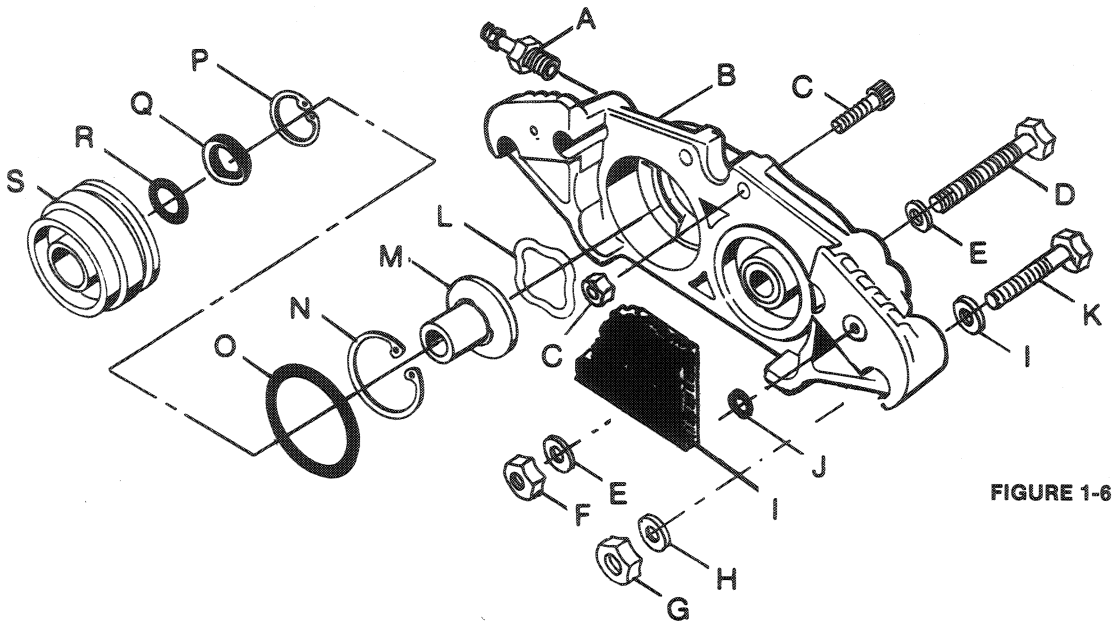

FIGURE 1-6

Figure 1-6

Ref.	No. Used	Description
A	2	Bleed fitting
B		Inboard and outboard housings
C	2	Socket feed screw and nut
D	2	Cap screw
E	4	Hardened washer
F	2	Locknut, ¼"
G	2	Locknut, ⅜"
H	4	Hardened flat washer
I	2	Brake pad
J		O ring
K	2	Cap screw
L	2	Wave spring
M	2	Retractor body
N	2	Snap ring
O	2	O ring
P	2	Snap ring
Q		Drag ring
R	2	O ring
S	2	Piston

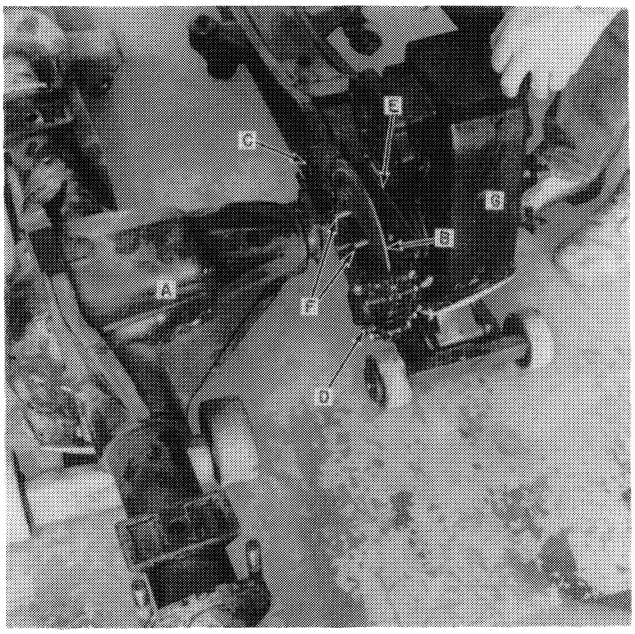

FIGURE 1-7

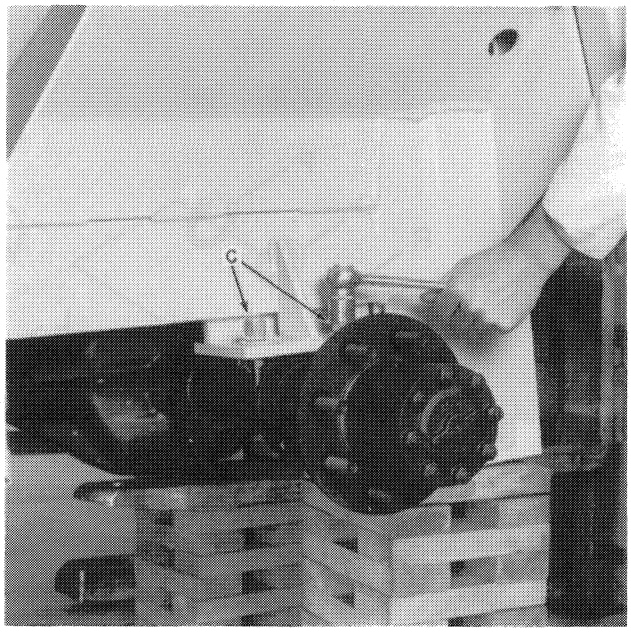

FIGURE 1-8

BRAKE DISC REPLACEMENT

The brake disc used on the LB-620 can be of two different thicknesses. Only the thicker disc is stocked in Service Parts.

Figure 1-7 shows the differential, A, brake disc, B, mechanical caliper, C, hydraulic caliper, D, brake mounting bracket, E, brake disc mounting bolts, F, and the transfer gearbox, G, all removed from the machine for pictures only. It is not necessary to remove these completely from the machine as shown.

Brake Disc Removal

1. Raise the rear of the machine either with the stabilizers or a jack. Block up securely as shown in Figure 1-8.
2. Remove the nuts from the brake mounting bolts, F, Figure 1-7. Also see F, Figure 1-1.
3. Remove the pin from link, C, Figure 1-1, connecting the link to the caliper lever.
4. Remove the hydraulic line, Figure 1-5.
5. Remove the nuts from the rear axle U-bolts, Figure 1-8. Move the rear axle rearward far enough to have space to pull off the brake disc with the calipers.
6. Replace the disc mounting bolts when replacing a disc.

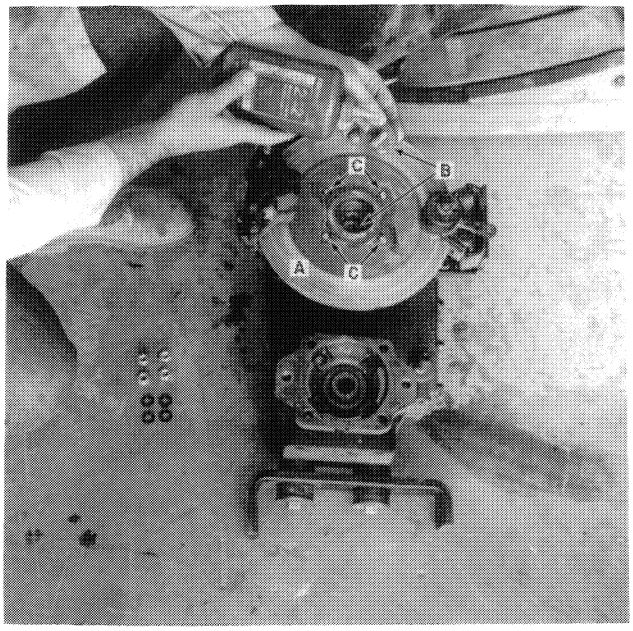

FIGURE 1-9

7. Remove the Grade 8 ½" x 1½" cap screw, B, in the gearbox output shaft, Figure 1-9, so that the drive flange can be moved rearward. Replace the disc mounting bolts.
8. Reinstall the Grade 8 ½" x 1½" cap screw using medium strength Loctite®. Tighten to 115 ft. lbs. (155 N·m) torque.
9. Install the calipers on the new disc and replace as a unit. The calipers slide in a bracket on the left side and on studs on the right side.
10. Shift the rear axle back into position and push bolts, Figure 1-7, through the drive flange. Use a new Class C fine thread nut, F, Figure 1-7 and 1-1. Tighten to 75 ft. lbs. (101 N·m) torque.
11. Install the U-bolts and their nuts and tighten to 140 ft. lbs. (190 N·m).
12. Connect link, C, Figure 1-1, and hydraulic line, Figure 1-5.
13. Bleed the hydraulic brakes and refill the brake reservoir with approved brake fluid.

FOOT BRAKE AND PARKING BRAKE (on and above serial #732879)

The brake is a combination foot and parking brake mechanically actuated disc type.

A locking mechanism is engaged by hand while pushing down on the pedal to lock the brake for parking.

Adjustment

Adjust the linkage until the pedal arm can be pushed down ¾" below the pedal stop bolt.

Pad Replacement

Remove the two caliper mounting bolts and pull out the worn pads. Slide in new pads. It may be necessary to lengthen the linkage in order to have space to install new pads.

SECTION 2
HYDRAULIC CYLINDERS
BACKHOE BUCKET CYLINDER AND STABILIZER CYLINDER

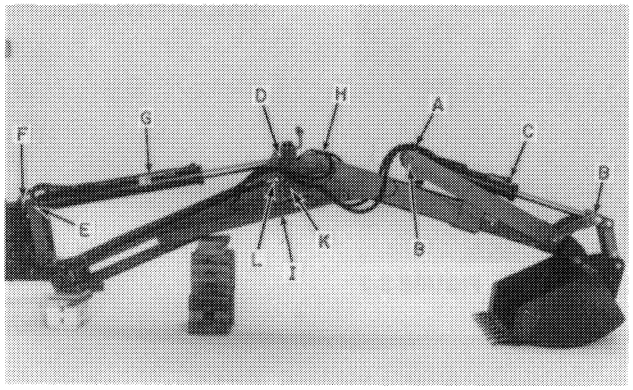

FIGURE 2-1

CAUTION: BEFORE SERVICING THE LOADER BACKHOE OR ANY OF ITS ATTACHED EQUIPMENT, BE SURE THE ATTACHMENTS ARE LOWERED TO THE GROUND OR THE BOOM ARMS ARE SUPPORTED BY THE BOOM LOCKS. OTHERWISE, THE BOOM MAY FALL UNEXPECTEDLY AND CRUSH OR KILL YOU.

CAUTION: SUPPORT THE BOOM SECURELY WITH JACK STANDS, WOOD BLOCKS, OR A CHAIN HOIST BEFORE REMOVING THE BUCKET CYLINDER.

The backhoe bucket cylinder and the stabilizer cylinders have the same design, but the parts are a different size.

BACKHOE BUCKET CYLINDER REMOVAL

1. Lower the stabilizers.
2. Extend the dipper and lower the boom until the bucket rests on the ground. The bucket teeth should be parallel to the ground as shown in Figure 2-1. Shut off the engine.
3. Remove the cylinder hoses at the swivel coupling on the hydraulic tube, A.
4. Remove the cylinder pivot pin retainers and drive out the cylinder pivot pins, B. You may have to extend or retract the boom cylinder to take the load off the pins.
5. Lift off the cylinder assembly, C, and cap the hoses and the cylinder ports.

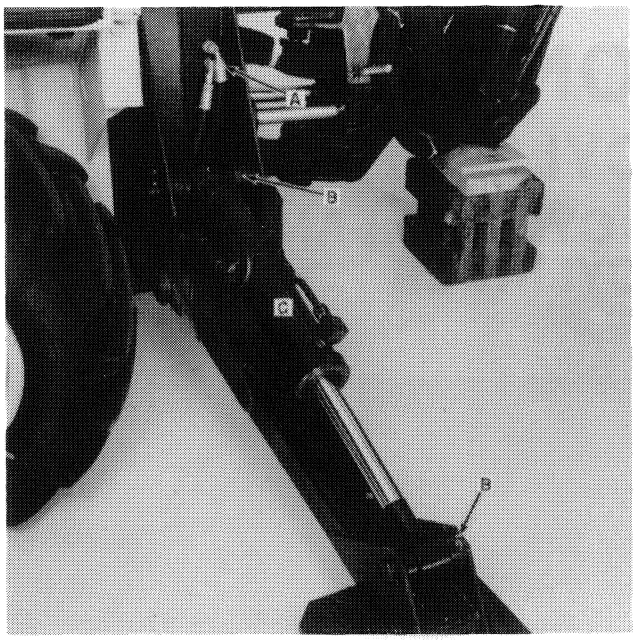

FIGURE 2-2

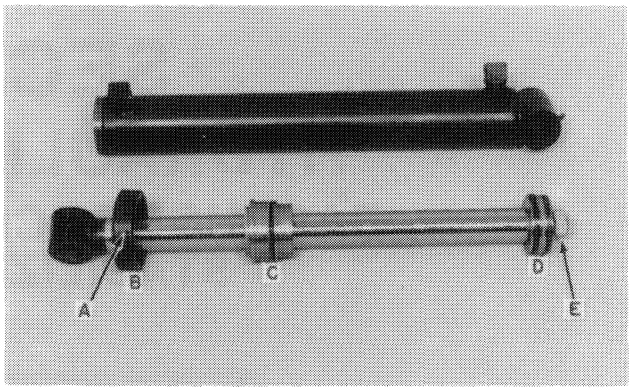

FIGURE 2-3

STABILIZER CYLINDER REMOVAL

1. Lower the stabilizer until it just touches the ground as shown in Figure 2-2. Shut off the engine.
2. Remove the hydraulic lines at the lockout valve or at A.
3. Remove the cylinder pivot pins, B, and lift off the cylinder, C. Cap all lines and ports.

BACKHOE, BUCKET AND STABILIZER CYLINDER REPAIR

Disassembly

1. Clean the outside of the cylinder.
2. Loosen setscrew, A, Figure 2-3, in the cylinder head cap and unscrew the cap.
3. Pull the piston rod assembly out of the barrel. In Figure 2-3, B is the head cap; C is the head; D is the piston.
4. Remove locknut, E, and slide the piston and the head off the piston rod.
5. Remove the wear rings, Teflon ring, and O ring from the piston. Remove the O ring from the head and the wiper and U-cup seal from the interior of the head.

Figure 2-4 shows all parts of the bucket/cylinder assembly.

The seals, wear rings, and O rings are not sold separately. They are sold only as a seal repair kit.

Remove any nicks and burrs with fine emery cloth. Inspect the cylinder bore. If the cylinder bore is scratched or worn, replace the complete cylinder assembly. Check the rest of the parts and replace any that are scratched or worn.

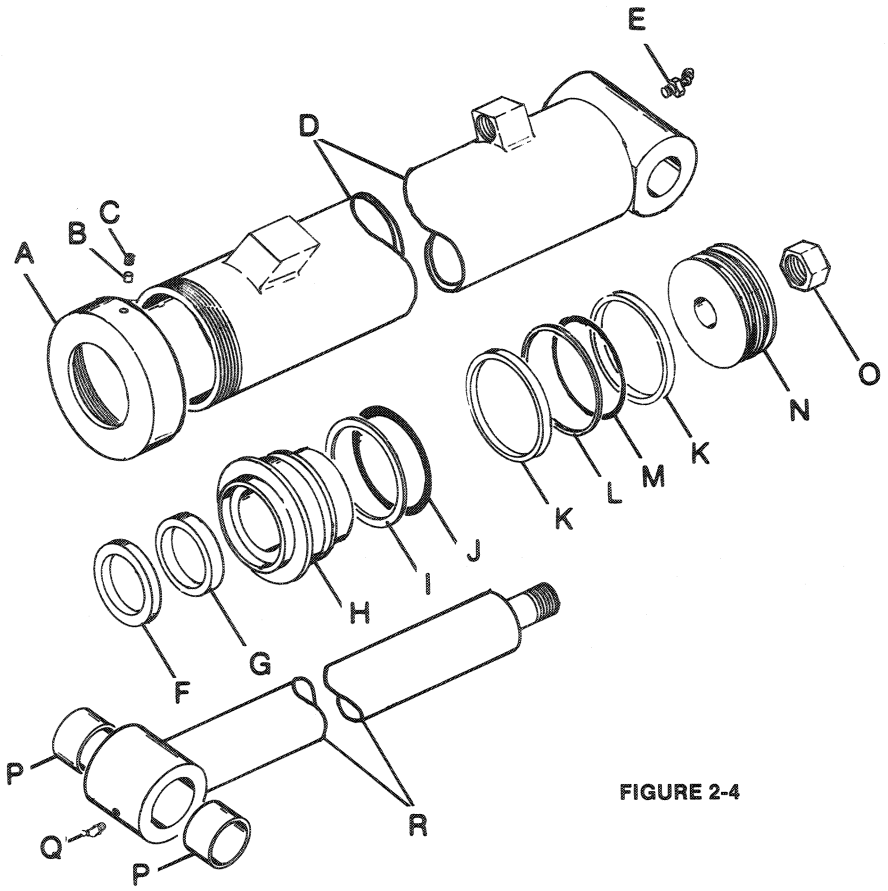

FIGURE 2-4

Figure 2-4

Ref.	No. Used	Description
		Bucket cylinder assembly (Cross #WS0350-02200-0200-027101); includes references A through R)
A	1	Cap, head
B	1	Nylon plug
C	1	Setscrew
D	1	Barrel weld assembly
E	1	Lube fitting, 45°
F N.S.S.*	1	Wiper
G N.S.S.*	1	U-cup
H	1	Head
I N.S.S.*	1	Washer, back-up
J N.S.S*	1	O ring
K N.S.S.*	2	Wear ring
L N.S.S.*	1	Teflon ring
M N.S.S.*	1	O ring
N	1	Piston
O	1	Hex nut
P	2	Bushing
Q	1	Lube fitting
R	1	Piston rod assembly (includes two bushings, P)
*	AR	Seal repair kit (includes all items with asterisk [*])

AR - As Required

*N.S.S. - Not Serviced Separately

FIGURE 2-5

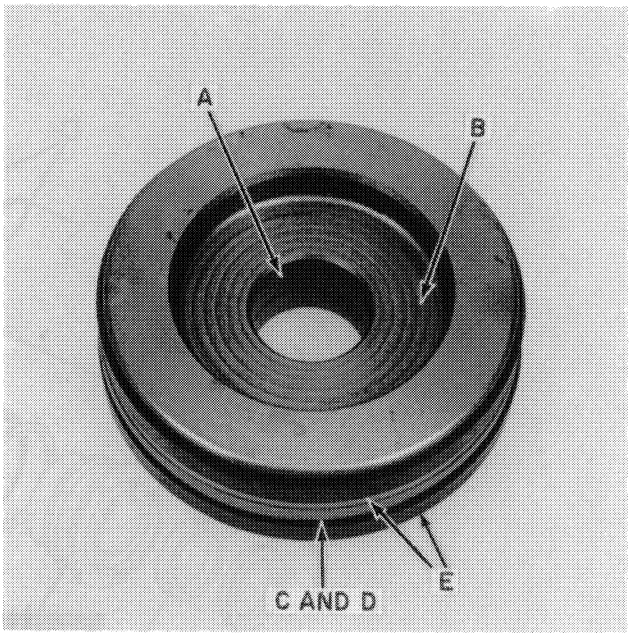

FIGURE 2-6

Assembly

Thoroughly clean and oil all parts and install the seal kit.

1. Install the new wiper seal, A, Figure 2-5, SO THE LIP POINTS TOWARDS THE OUTSIDE in the head.
2. Install the U-cup seal, G, Figure 2-4, with the raised lip towards the piston inside the head and the back-up washer, I, and O ring, J, (B and C, Figure 2-5) with the back-up washer, Figure 2-6, next to the head cap.
3. Install O ring, D, Figure 2-6, and M, Figure 2-4, in the groove in the piston and then install the Teflon ring, C, Figure 2-6, and L, Figure 2-4, over the O ring. Install two wear rings, E, Figure 2-6, on the piston.

CAUTION: ALWAYS SECURELY BLOCK THE LOADER/BACKHOE COMPONENTS BEFORE DISASSEMBLY AND ASSEMBLY.

4. Put Loctite hydraulic sealant in the piston bore at A, Figure 2-6. Install the piston on the piston rod with the recessed side, B, towards the piston rod. Install nut, E, Figure 2-3, and tighten to 320 ft. lbs. (434 N·m) torque.
5. Reinstall the piston assembly in the cylinder. Install and tighten the head cap to 25 ft. lbs. (34 N·m) torque. Lock in place with the setscrew.

   Check the condition of the cylinder pivot pin bushing, P, Figure 2-4, in the piston rod and replace if necessary.

   Reinstall the cylinder in the reverse order of cylinder removal. Check for leaks and replenish the oil reservoir with the correct type of oil.

BOOM CYLINDER

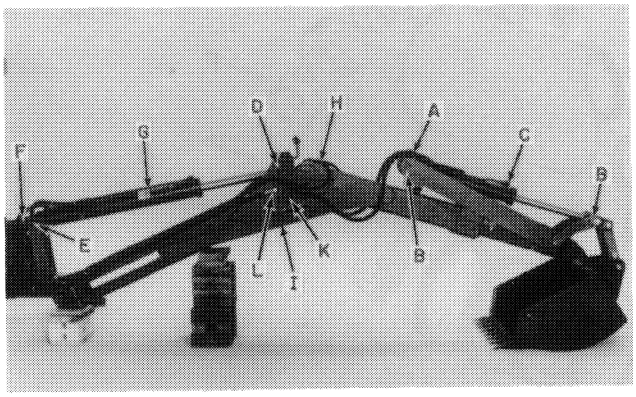

FIGURE 2-7

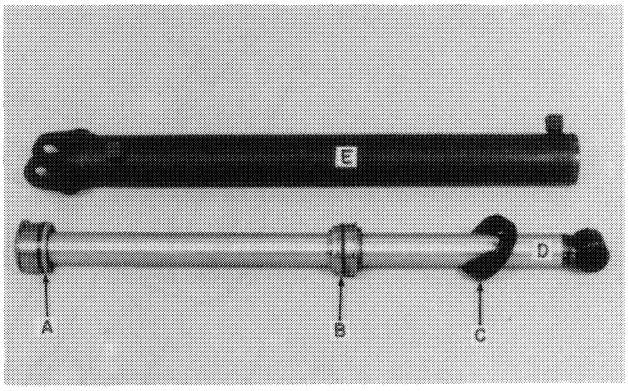

FIGURE 2-8

Removal

1. Position the backhoe as shown in Figure 2-7 with the stabilizers down, the dipper fully extended, and the bucket touching the ground with the bucket teeth parallel to the ground. Secure the blocking under the base of the boom.
2. Remove the cylinder pivot pin, D, at the piston end. Retract the piston and remove the hoses at the cylinder. Cap the hoses and ports.
3. Remove the upper pins, E, through the links. Remove cylinder pivot, F, after removing the snap ring on one side.
4. Lift off the cylinder, G.

   NOTE: The cylinder weighs 200 lbs. (91 kg). Use a suitable lifting means.

Disassembly

1. Clean the outside of the cylinder.

CAUTION: BLOCK THE BOOM, CROWD AND BUCKET SECURELY BEFORE ASSEMBLY OR DISASSEMBLY.

2. Loosen the setscrew in the head cap, A, Figure 2-9, and unscrew the cap. Pull out the piston assembly.
3. The construction of the boom cylinder is very similar to the backhoe bucket cylinder and the stabilizer cylinder; however, the piston is different.

   Figure 2-8 shows piston, A; cylinder head, B; head cap C; piston rod, D; and cylinder, E.

   Figure 2-9 shows all the components. The cylinder barrel is not available. If it is damaged, the complete cylinder assembly must be replaced. All seals, etc., are not available individually. A seal repair kit must be used.

CAUTION: ALWAYS MAKE SURE THE LIFTING DEVICE HAS ADEQUATE CAPACITY TO SUPPORT ANY PARTS OR ASSEMBLIES BEING DISASSEMBLED OR ASSEMBLED ON THE LOADER/BACKHOE.

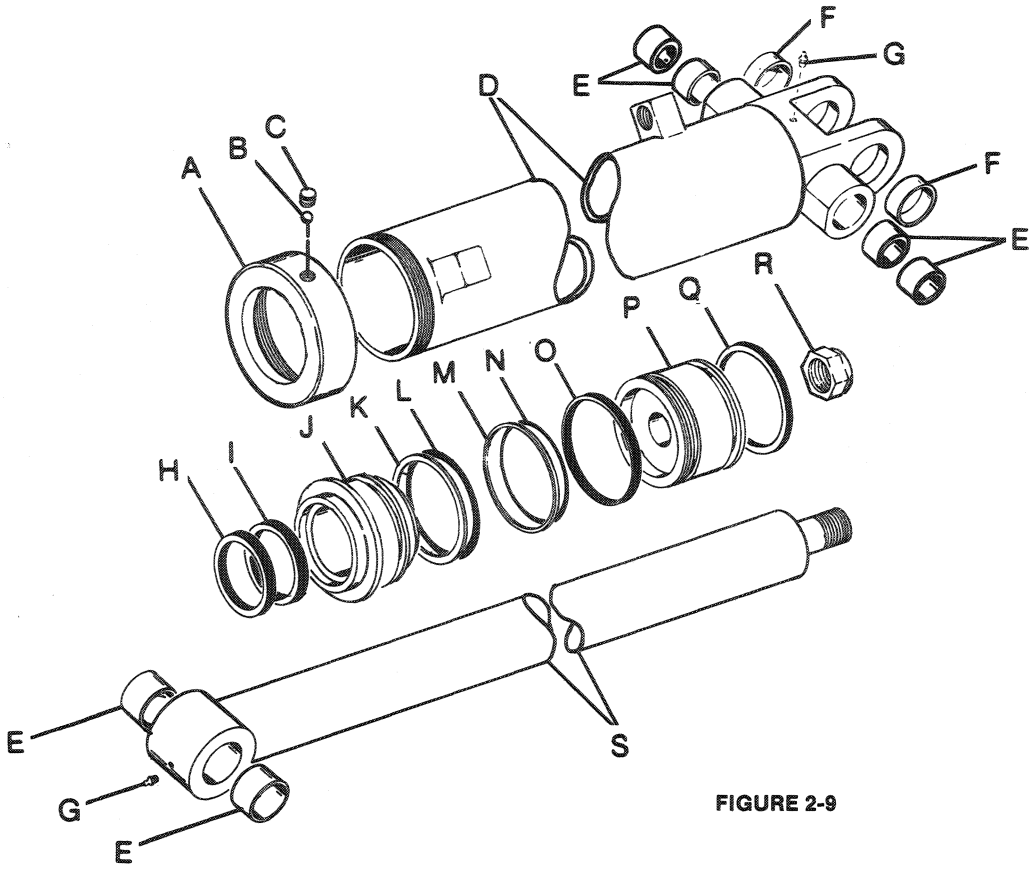

FIGURE 2-9

Figure 2-9

Ref.	No. Used	Description
		Boom cylinder assembly (Cross #WC0400-03700-0250-027103; includes references A through S)
A	1	Cap, head
B N.S.S.*	1	Nylon ball
C	1	Setscrew
D N.S.S.*	1	Barrel weld assembly
E	6	Bushing 1½" ID
F	2	Bushing 1¼" ID
G	2	Lube fitting
H N.S.S.*	1	Wiper
I N.S.S.*	1	U-cup
J	1	Head
K N.S.S.*	1	Washer, back-up
L N.S.S.*	1	O ring
M N.S.S.*	1	Teflon ring
N N.S.S.*	1	O ring
O N.S.S.*	1	Wear ring
P	1	Piston
Q N.S.S.*	1	C. I. ring
R	1	Hex nut
S	1	Piston rod assembly (includes two bushings, E)
*	AR	Seal repair kit (includes all items with asterisk [*])

AR - As Required

*N.S.S. - Not Serviced Separately.

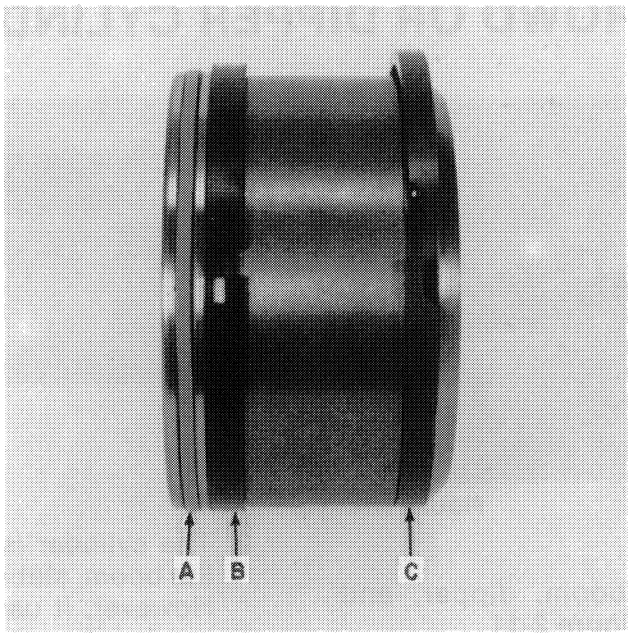

FIGURE 2-10

4. Remove nut, R, Figure 2-9, and remove the piston, head, and head cap from the piston rod.
5. Inspect all parts and remove any nicks or burrs with fine emery cloth. If the cylinder bore is worn or damaged, replace the complete cylinder. Replace any other worn or damaged parts.

ASSEMBLY

1. Thoroughly clean all parts. Oil all parts before assembly.
2. Install a new wiper seal, A, Figure 2-5, (H, Figure 2-9) with the lip of the seal to the outside of the cylinder head. Install U-cup seal, I, Figure 2-9, inside the head, with the raised lip towards the piston.
3. Install back-up washer, K, and O ring, L, Figure 2-9. The back-up washer must be closest to the head cap.
4. Install the head cap and head on the piston shaft.
5. Install O ring, N, Figure 2-9, in the groove in the piston. Install Teflon ring, M, over O ring, A, Figure 2-10.
6. Install wear ring, O, Figure 2-9 or B, Figure 2-10, and C. I. ring, Q, Figure 2-9 or C, Figure 2-10.
7. Put Loctite hydraulic sealant in the bore of the cylinder, A, Figure 2-8, and install as shown with the C. I. ring next to the nut.
8. Install the piston nut and tighten to 660 ft. lbs. (895 N·m) torque.
9. Tighten the head cap to 25 ft. lbs. (34 N·m) torque and lock the setscrew. Tighten setscrew, A, Figure 2-9.
10. Replace the bushings, E and F, Figure 2-9, if they are worn.

REPLACEMENT

Replace the cylinder in the reverse order of removal and connect the hydraulic hoses.

Test for leaks. Replenish any lost oil in the reservoir with the correct type of oil.

CROWD OR DIPPER CYLINDER

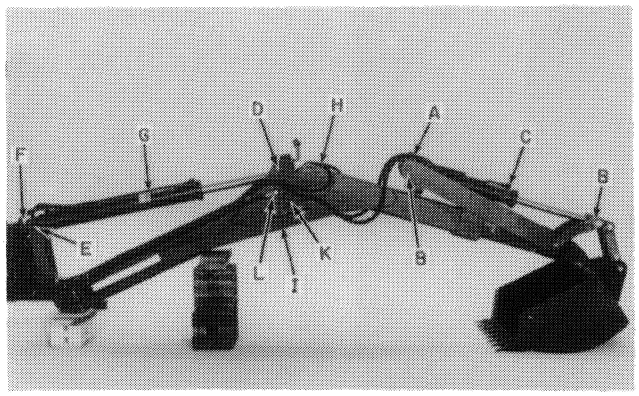

FIGURE 2-11

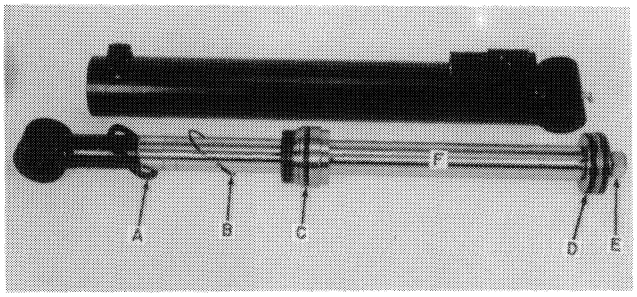

FIGURE 2-12

REMOVAL

1. Position the back boom, dipper, and bucket as shown in Figure 2-11.
2. Disconnect lines, H, to the extendable dipper at the hydraulic tubes.
3. Disconnect the hoses to the bucket cylinder at the hydraulic tubes, A.
4. Disconnect the long links, I, where they attach to the piston end of the dipper cylinder and to the dipper frame.
5. Use a suitable support, hoist, or other lifting means to hold the dipper arm and bucket assembly. Remove one of the snap rings and drive out the cylinder pivot pin at K.
6. Move the dipper arm and bucket assembly away.
7. Disconnect the hydraulic tube from the elbows, L, on the cylinder. Remove the elbows from the cylinder and pull the cylinder out of the boom arm. Cap all hoses and ports.

DISASSEMBLY

1. Clean the outside of the cylinder.
2. The cylinder is similar in construction to the boom, stabilizer, and bucket cylinders. However, it uses threads on the cylinder head and a wire internal retaining ring to hold the head in the cylinder barrel. It also has a retaining nut to hold the head against the snap ring.
3. Use a punch to unscrew the retaining nut.
4. Use a punch to drive the head into the barrel far enough so that the retaining ring can be removed. Do not damage the threads.
5. Pull the piston rod assembly from the cylinder barrel as shown in Figure 2-12.
6. Figure 2-12 shows retaining nut, A; retaining ring, B; head, C; piston, D; nut, E; piston rod, F; and cylinder barrel.
7. Remove nut, E, and take all parts off the piston rod, F.

   Check all parts for wear or scratches. Smooth nicks and burrs with fine emery cloth. Check the piston rod, the inside of the cylinder barrel, and the piston for wear. Replace the complete cylinder assembly if the cylinder barrel is damaged.
8. Figure 2-13 shows all individual parts.

CAUTION: ALWAYS SECURELY BLOCK THE LOADER/BACKHOE COMPONENTS BEFORE DISASSEMBLY AND ASSEMBLY.

CAUTION: BLOCK THE BOOM, CROWD AND BUCKET SECURELY BEFORE ASSEMBLY OR DISASSEMBLY.

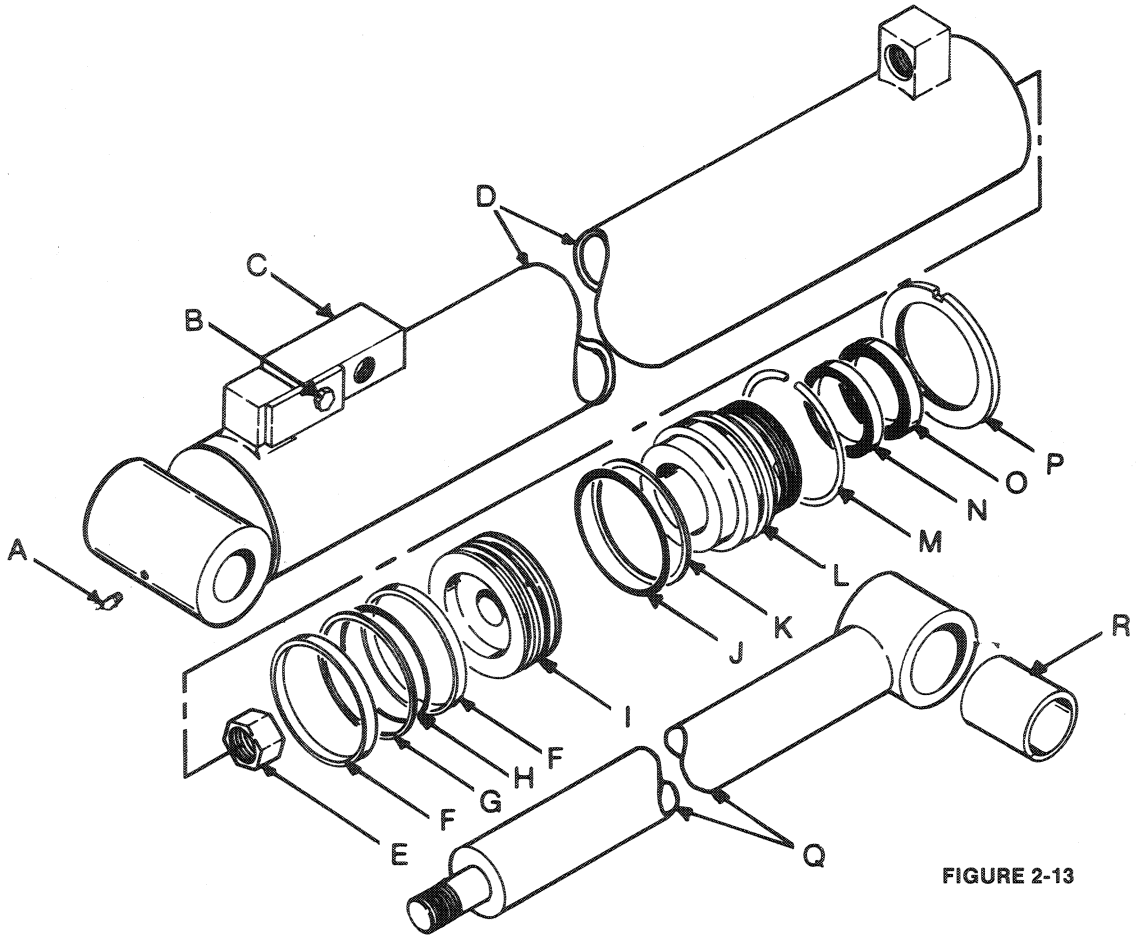

FIGURE 2-13

Figure 2-13

Ref.	No. Used	Description
		Crowd cylinder assembly (Cross #WS0350-02262-0200-027102; includes references A through Q)
A	1	Lube fitting, 45°
B	1	Cap screw, hex head (Block Retaining)
C	1	Block, port
D	1	Barrel weld assembly
E	1	Hex nut
F N.S.S.*	2	Wear ring
G N.S.S.*	1	Teflon ring
H N.S.S.*	1	O ring
I	1	Piston
J N.S.S.*	1	O ring
K N.S.S.*	1	Washer, back-up
L	1	Head
M N.S.S.*	1	Retaining ring
N N.S.S.*	1	U-cup
O N.S.S.*	1	Wiper
P	1	Retaining nut, bearing
Q	1	Piston rod assembly (includes one Ref. R)
R	1	Bushing
*	AR	Seal repair kit (includes all items with asterisk [*])

AR - As Required

*N.S.S. - Not Serviced Separately

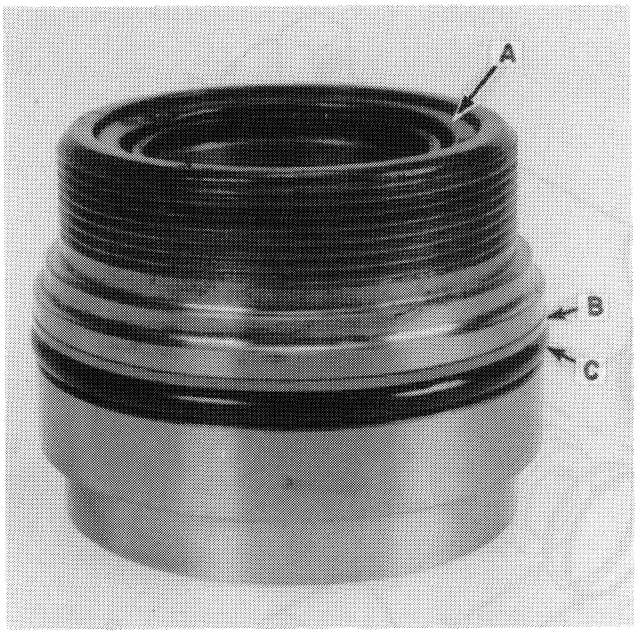

FIGURE 2-14

FIGURE 2-15

REASSEMBLY

1. Clean all parts and coat them with oil.
2. Use a new seal kit as seals are not available as separate items.
3. Install a new U-cup seal, N, Figure 2-13, with the raised lip towards the piston in the head. Install a new wiper seal, O, Figure 2-13, and A, Figure 2-14. The lip must point toward the threaded end of the head.
4. Install the back-up washer, K, Figure 2-13, and B, Figure 2-14, and O ring, J, Figure 2-13, and C, Figure 2-14. The back washer must be closest to the threads of the head.
5. Install a new O ring, H, Figure 2-13, in the groove in the piston and install Teflon ring, G. Also see Figure 2-6.
6. Install the two wear rings, F, Figure 2-13.
7. Reassemble the parts on the piston shaft as shown in Figure 2-12, using Loctite hydraulic sealant on the piston bore. Put the recessed side of the piston toward nut, E. Tighten the nut to 320 ft. lbs. (434 N·m) torque.
8. Reassemble the piston assembly in the cylinder barrel. Be sure the retaining ring, B, Figure 2-12, is fully seated. Tighten the retaining nut to 25 ft. lbs. (34 N·m) torque.

INSTALLATION

1. Reinstall the cylinder on the machine in the reverse order of removal. Put Loctite hydraulic sealant on the threads of the elbows and install the elbows in their proper location.
2. Check the wear on the wear blocks, A, Figure 2-15. Attach the slide blocks on the piston end of the cylinder. Replace the wear block, if necessary, and add or remove shims to obtain 0.030" clearance. See Figure 2-15.
3. Install the dipper arm and bucket assembly. Put Loctite on the thread of the bolts and attach the links.
4. Connect the hoses and tighten all connections securely. Operate the hydraulic system and check for leaks. Replace any lost oil with the proper type of oil.

CAUTION: ALWAYS MAKE SURE THE LIFTING DEVICE HAS ADEQUATE CAPACITY TO SUPPORT ANY PARTS OR ASSEMBLIES BEING DISASSEMBLED OR ASSEMBLED ON THE LOADER/BACKHOE.

SHIMMING PROCEDURE FOR THE EXTENDABLE DIPPER

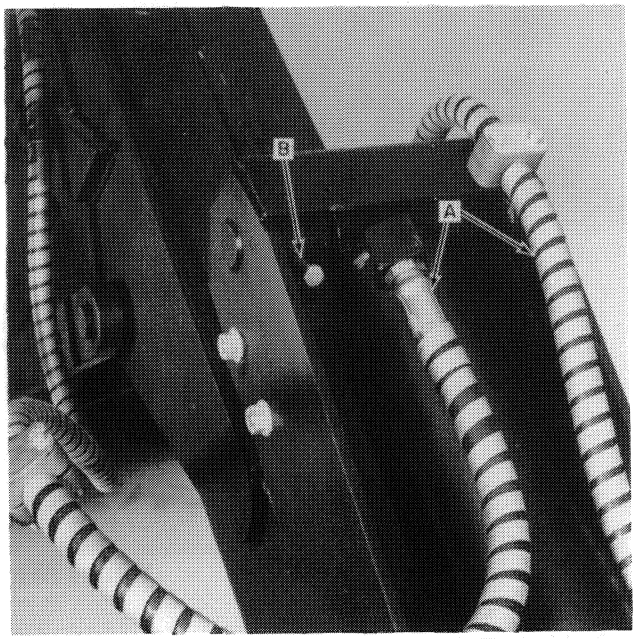

FIGURE 2-15A

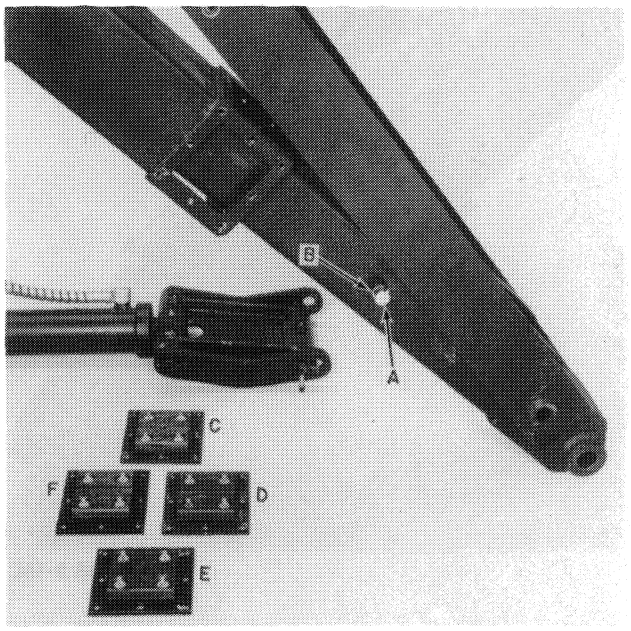

FIGURE 2-15B

The dipper extension will eventually wear the nylatron wear pads to a point where shimming and/or replacement is necessary. Shim and/or replace the wear pads when total clearance top to bottom and side to side exceeds 0.125" (3.17 N·m).

Raise the bucket clear of the ground by 1" with the dipper extended halfway and in a near vertical position. Use a pry bar and a feeler gauge to check the total clearance side to side and top to bottom.

Proceed as follows if shimming and/or pad replacement is necessary:

1. Curl the bucket completely.
2. Extend the dipper (crowd) arm about halfway, resting the bucket on the ground.
3. Remove the bucket hydraulic lines, A, Figure 2-15A. Remove the rear bucket cylinder clevis pin after removing retainer bolt, B.
4. Raise the boom and extend the dipper extensions until the lower extendable dipper cylinder pin, A, and snap ring, B, Figure 2-15B, can be removed. Lower the boom until the bucket just rests on the floor. Use the hydraulic system to manipulate the cylinder so the pin can be driven out.
5. Remeasure the clearance between the lower wear pads and the side of the dipper (crowd) tube at A and at B on the top or bottom, Figure 2-15C. Record these measurements as they are needed to determine the shims needed when replacing pad support plates, C, D, E and F, Figure 2-15B.
6. Pivot the bucket cylinder over the bucket and remove the eight socket-head setscrews in support plates, C, D, E and F, Figure 2-15B. The setscrews are held with Loctite, so use a good allen wrench.
7. Attach a hoist to the upper part of the bucket cylinder support to hold the position of the bucket and dipper extension.

   Raise the boom until the dipper extension is in the position shown in Figure 2-15D. Recheck the clearance side to side and top or bottom. Pry the extension against one side and measure the clearance at the other side. Do the same with the top. Record these figures to use to determine the shims needed.
8. With the bucket and dipper extension held up with a suitable hoist, raise the boom until the dipper extension assembly is free. Move the boom aside.

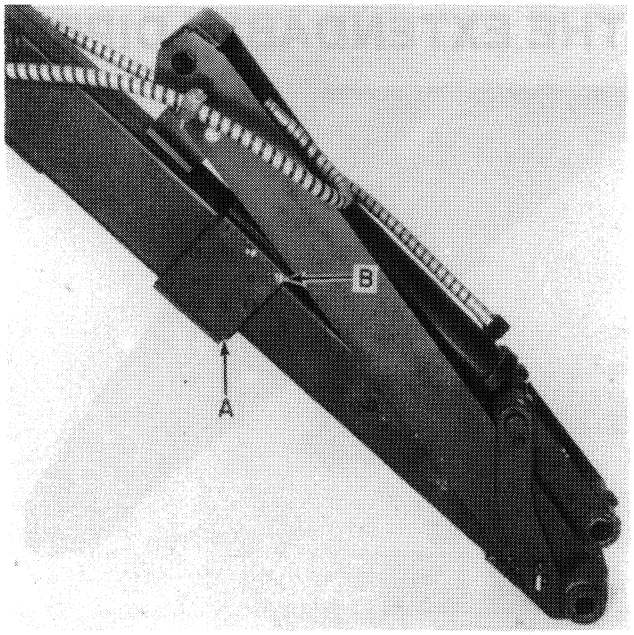

FIGURE 2-15C

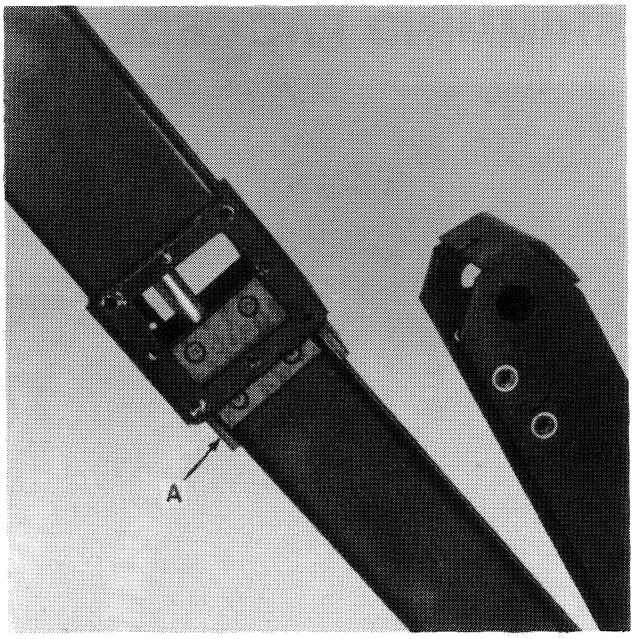

FIGURE 2-15D

9. Determine whether the four nylatron pads, A, Figure 2-15D, need to be replaced or only shimmed. Use 0.105" (2.67 mm) and 0.060" (1.52 mm) shims to obtain 0.035"-0.065" (0.89 mm-1.65 mm) clearance side to side and top to bottom according to the clearance measured in step 7. Install the socket-head setscrews with Loctite 242 on the threads.

   IMPORTANT: If more than one shim is required per side or top and bottom, add all additional shims either to the top or the bottom or one side.

10. If the pads are worn out, replace them and use the original shims. Install the pads with the socket-head setscrews and Loctite 242 on the threads.

11. Manipulate the dipper (crowd) tube over the end of the dipper extension and slide the piston into the extension. Then slide the extension into the dipper (crowd) tube.

    Slide the dipper extension halfway into the dipper tube.

CAUTION: DO NOT GET YOUR HANDS OR FINGERS BETWEEN THE DIPPER (CROWD) TUBE AND EXTENSION. USE A PRY BAR LONG ENOUGH TO KEEP YOUR HANDS AWAY.

12. Use the figures recorded in step 5 to determine the shims required between the wear pads and the support plates, C, D, E, and F, Figure 2-15B. Use 0.060" (1.5 mm) and 0.105" (2.67 mm) shims between the plates and the pads to obtain the required 0.035"-0.065" (0.89 mm-1.65 mm) clearance side to side and top to bottom. Install the pads with the socket-head setscrews with Loctite 242 on the threads. Install the plate supports, C, D, E and F, Figure 2-15B, with socket-head setscrews with Loctite on their threads.

    IMPORTANT: Add any additional shims in the same position that the shims were added to the upper pads to eliminate binding. Also make sure the pads are installed with the groove over the weld head.

13. If the pads were worn out, install new pads using the original shims. Be sure to use Loctite 242 on the socket-head setscrew threads.

14. Install the lower extendable dipper cylinder pin, A, and snap ring, B, Figure 2-15B.

    Install the bucket cylinder upper cylinder pin and retaining bolt, B, Figure 2-15A. Connect the hydraulic hoses to the bucket cylinder.

15. Move the dipper extension in and out to make sure it does not bind.

SWING CYLINDER

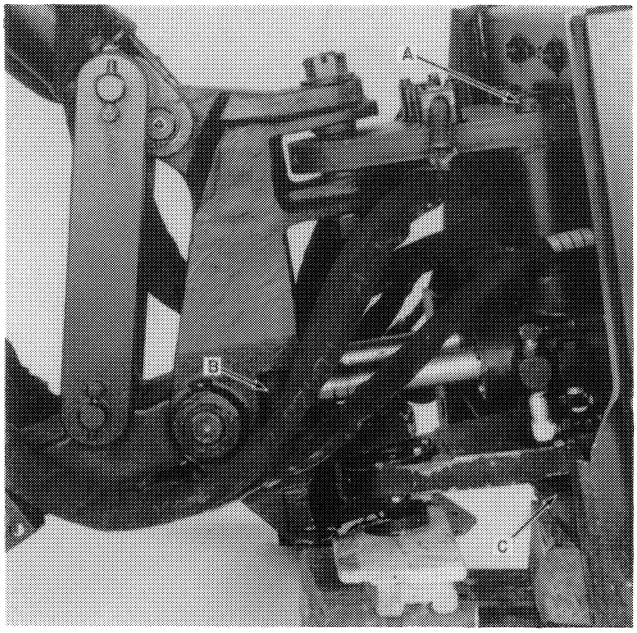

FIGURE 2-16

REMOVAL

1. The swing cylinder SHOULD NOT be removed for service unless the cylinder barrel must be replaced.
2. If the cylinder barrel must be replaced, proceed as follows:
   a. Remove the pivot pin from the piston rod end, B, Figure 2-16.
   b. Remove the upper pivot at A. If the pin is tight, it may be necessary to weld something on the end of the pin so pullers can be attached. The pin is in a blind hole.
   c. Remove the lower pivot pin, C. The same problem can be encountered here as with the upper pin.
   d. Remove the hoses. Cap all hoses and ports.
3. For disassembly on the machine, disconnect the hoses and remove cylinder pivot pin, B.

CAUTION: ALWAYS SECURELY BLOCK THE LOADER/BACKHOE COMPONENTS BEFORE DISASSEMBLY AND ASSEMBLY.

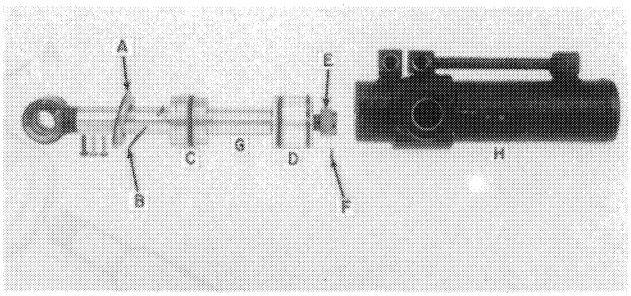

FIGURE 2-17

DISASSEMBLY

1. Clean the outside of the cylinder either on or off the machine.
2. If the cylinder is disassembled on the machine, remove the three cap screws holding the head cap to the head, Figure 2-17.
3. Use a punch to drive the head into the barrel enough to allow removal of the retaining ring. Remove the ring.
4. Pull the piston assembly out of the barrel, Figure 2-17.
5. Remove the roll pin, F, and nut, E. Pull the piston and head from the piston rod, G.
6. Figure 2-17 shows the latest components - head cap, A; retaining ring, B; head, C; piston, D; nut, E; roll pin, F; piston rod, G; and cylinder, H.

NOTE: Two different heads and seal kits are used on the LB-620. Figure 2-17 shows the head used on and above serial number 706175. Figure 2-18 shows the head and seals used on and below serial number 706174.

Inspect all parts and remove any burrs or nicks with fine emery cloth. If the barrel is worn or scratched, remove it and install a new cylinder assembly.

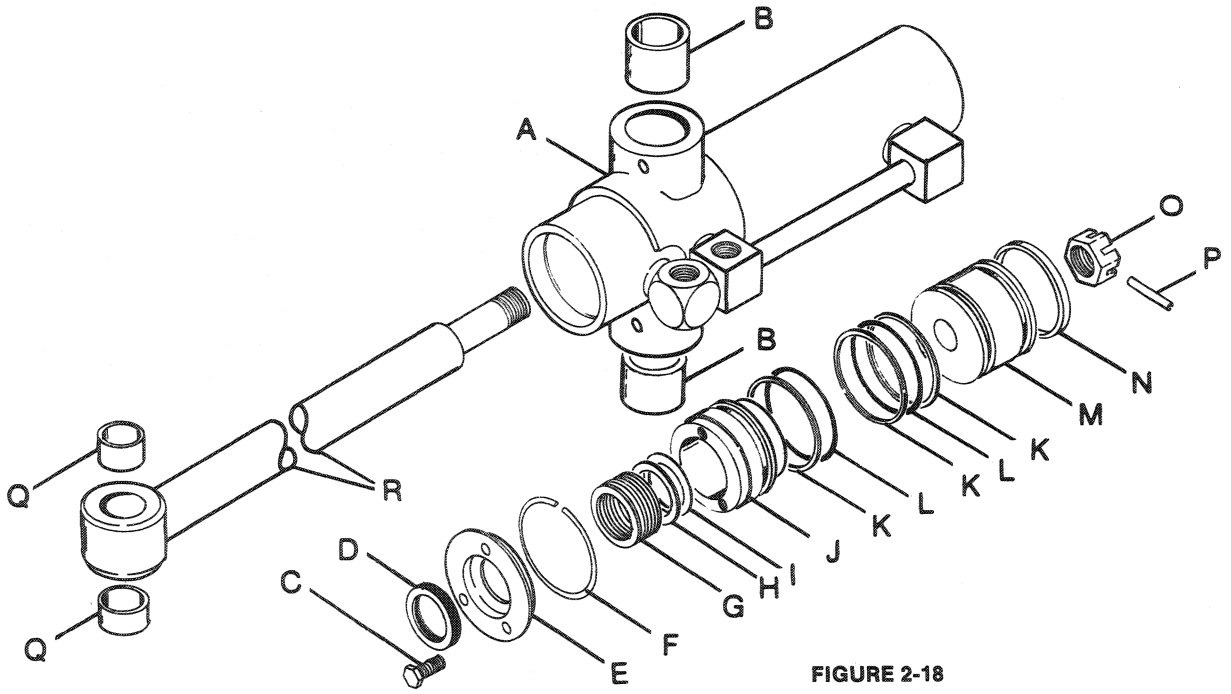

FIGURE 2-18

Figure 2-18

Ref.	No. Used	Description
		Swing cylinder assembly (Cross #WC0300 00850-0150-027380)
A N.S.S.	1	Barrel weld assembly
B	2	Bushing
C	3	Hex head cap screw, cap retaining
D N.S.S.	1	Wiper
E (a)	1	Cap, head
E (b)	1	Cap, head
F N.S.S.*	1	Retaining ring
G (a) N.S.S.*	1	Vee set
N.S.S.* (b)	1	U-cup
H (a)	1	Washer
I (a)	1	Wave washer
J (a)	1	Head
J (b)	1	Head
K N.S.S.*	3	Back-up washer
L N.S.S.*	2	O ring
M	1	Piston
N N.S.S.*	1	C. I. ring
O	1	Hex nut
P	1	Roll pin
Q	2	Bushing
R	1	Piston rod assembly (includes [two] Ref. Q)
*	AR	Seal repair kit vee set (includes Ref. D, G, K, L, and N)
*	AR	Seal repair kit U-cup (includes Ref. D, G, K, L, and N)

AR - As Required
*N.S.S. - Not Serviced Separately
(a) Used on and below serial no. 706174
(b) Used on and above serial no. 706175

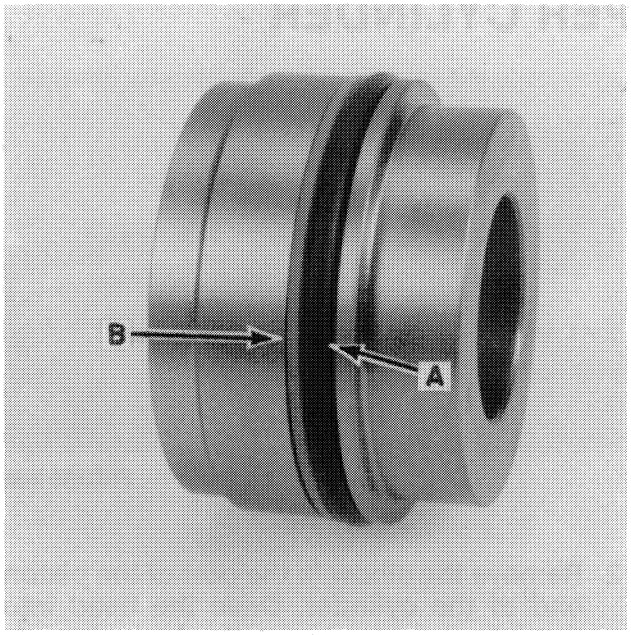

FIGURE 2-19

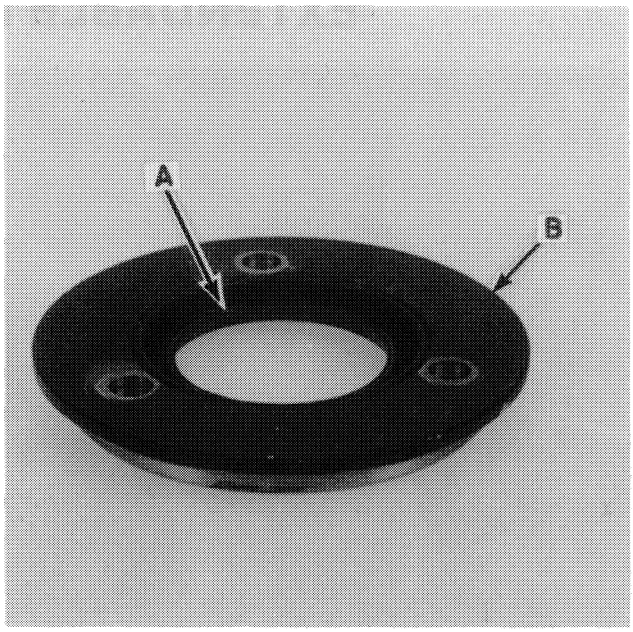

FIGURE 2-20

ASSEMBLY

1. Make sure the correct seal kit is being used.
2. Install the U-cup seal in the head so that the raised lip is towards the piston on units on and above serial number 706175. On serial number 706174 and below, install washer, H, and wave washer, I, Figure 2-18, in the bore in the head. Then install the vee seals, G, with the lips facing the piston. There are seven pieces in this seal.
3. Install the new O ring, A, and back-up washer, B, as shown in Figure 2-19. The back-up washer should be nearest the head cap.
4. Install a new lip seal, A, Figure 2-20, in head cap, B. Make sure the lip on the seal faces out.
5. Install a back-up washer, B, Figure 2-21, then an O ring, A, and another back-up washer, B, on piston, D. Install a C. I. ring at C.
6. Slide all the parts shown in Figure 2-17 on the piston rod. The piston must be installed with the recessed side next to nut, E.
7. Tighten the nut to 320 ft. lbs. (434 N·m) torque and install the roll pin through the nut and shaft.

NOTE: If a new piston rod is installed, drill a hole for the roll pin after the nut has been tightened.

8. Install the piston rod assembly in the cylinder barrel taking care to squeeze the C. I. ring together so that it is not damaged. Tighten the head cap to 25 ft. lbs. (34 N·m) torque.
9. Reinstall the pivot pin and connect the hoses. Test for leaks. Replace any lost oil with the correct type of oil.

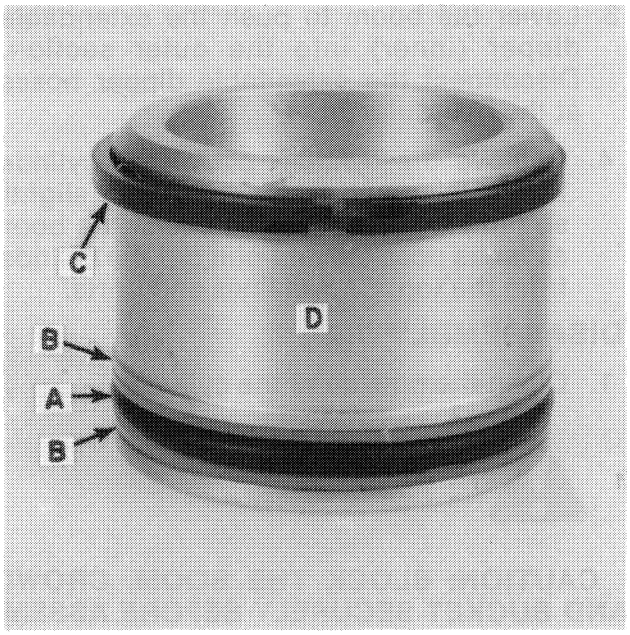

FIGURE 2-21

EXTENDABLE DIPPER CYLINDER

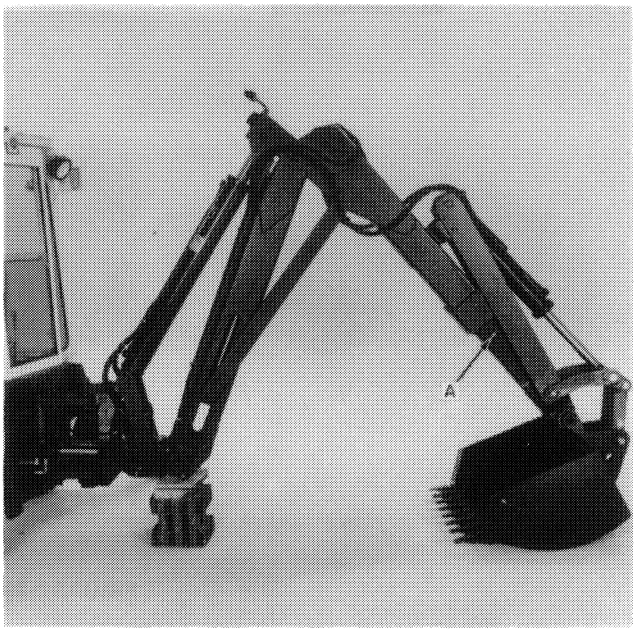

FIGURE 2-22

REMOVAL

1. Lower the stabilizers to the ground and extend the dipper (crowd) cylinder about halfway. Extend the extendable dipper cylinder until the piston pivot pin, A, Figure 2-22, is accessible. Lower the boom until the curled bucket rests on the ground as shown in Figure 2-22.
2. Remove the snap ring at A, and drive out the rod end cylinder pivot pin.
3. Lower the boom to push the extendable dipper (inner) into the outer section. Disconnect the extendable dipper hoses at the hydraulic tubes.
4. Remove the cylinder pin at the cylinder base. Raise and lower the boom slightly so the pin will come out. Lower the boom as far as possible and pull out the cylinder from the top. Cap all lines and ports.

DISASSEMBLY

1. Clean the outside of the cylinder.

CAUTION: BLOCK THE BOOM, CROWD AND BUCKET SECURELY BEFORE ASSEMBLY OR DISASSEMBLY.

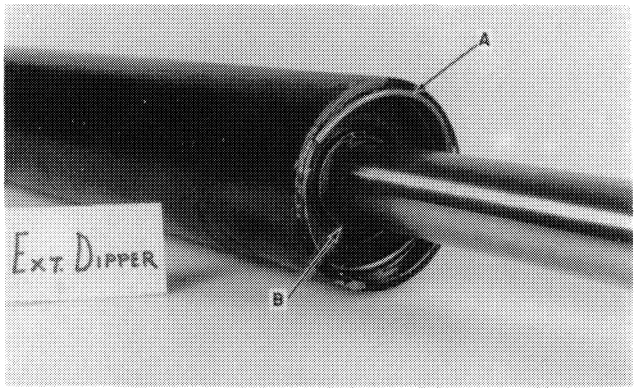

FIGURE 2-23

2. Remove the elbow in the port of the piston end of the cylinder. Drive the head into the barrel and remove the lock ring, A, Figure 2-23.
3. Pull the piston assembly from the barrel as shown in Figure 2-24. Figure 2-24 shows retaining ring, A; head, B; piston, C; nut, D; piston shaft, E; and cylinder barrel, F.
4. Remove nut, D, and slide piston, C, and head, B, off the piston rod, E.
5. Inspect all parts and remove old seals. Inspect the cylinder barrel for wear and scratches. Remove any nicks and burrs with fine emery cloth. Replace worn or damaged parts and all seals. If the cylinder barrel is damaged, the complete cylinder assembly must be replaced.

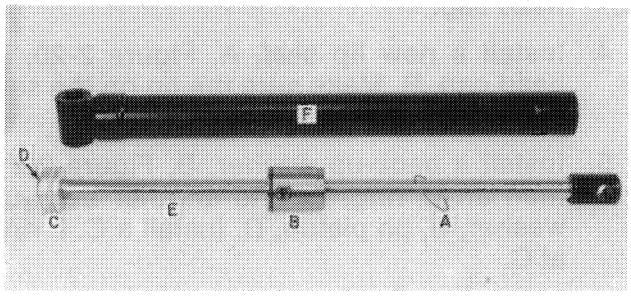

FIGURE 2-24

CAUTION: ALWAYS MAKE SURE THE LIFTING DEVICE HAS ADEQUATE CAPACITY TO SUPPORT ANY PARTS OR ASSEMBLIES BEING DISASSEMBLED OR ASSEMBLED ON THE LOADER/BACKHOE.

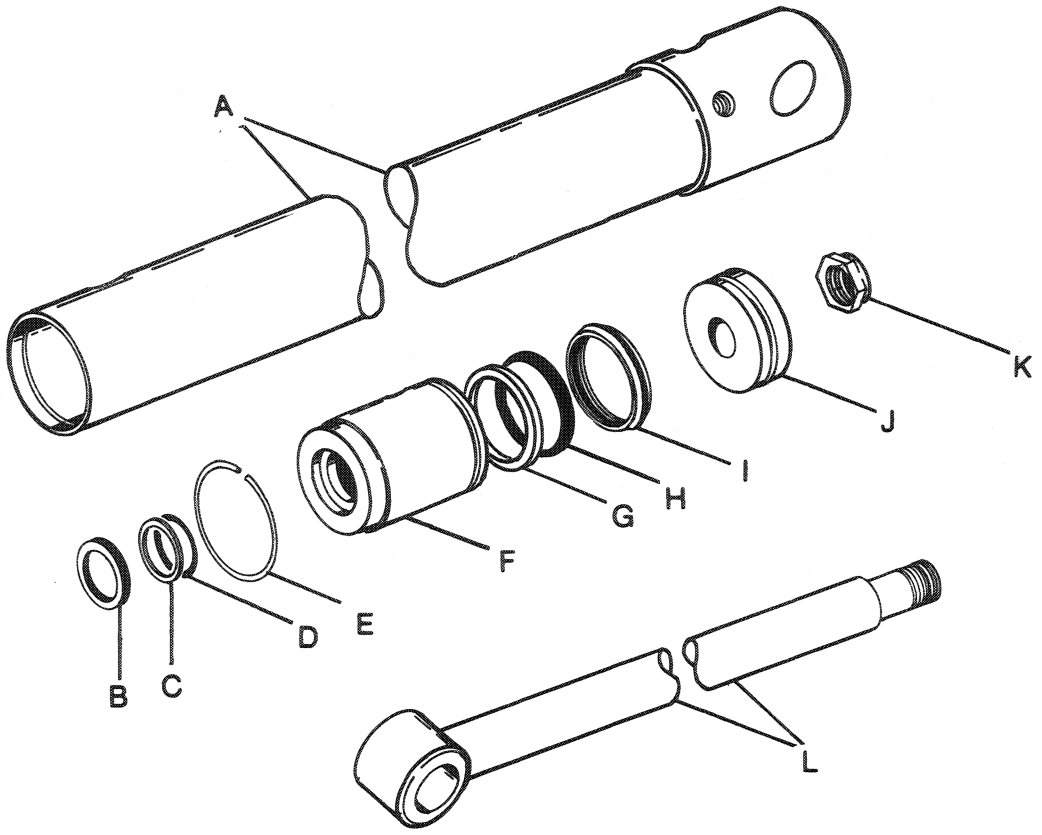

FIGURE 2-25

Figure 2-25

Ref.	No. Used	Description
		Extendable dipper cylinder weld assembly (New Holland manufactured)
A N.S.S.*	1	Cylinder weld assembly
B N.S.S.*	1	Seal, wiper
C N.S.S.*	1	Washer, back-up
D N.S.S.*	1	O ring
E N.S.S.*	1	Retaining ring
F	1	Cylinder head
G N.S.S.*	1	Washer, back-up
H N.S.S.*	1	O ring
I N.S.S.*	1	Seal, piston
J	1	Piston
K	1	Hex locknut, ¾" UNF
L	1	Piston rod weld assembly
*	AR	Seal repair kit (includes all items with asterisk [*])

AR - As Required
*N.S.S. - Not Serviced Separately

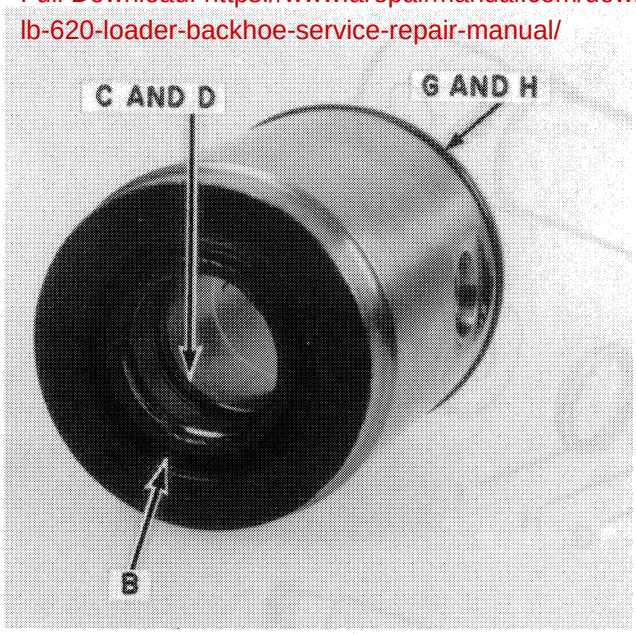

FIGURE 2-26

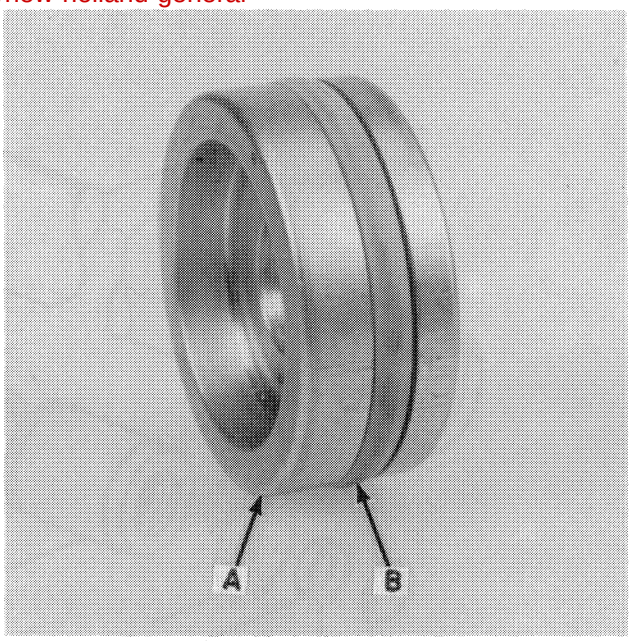

FIGURE 2-27

REASSEMBLY

1. Clean and oil all parts.
2. Install O ring, D, Figure 2-25, in the cylinder head, then back-up washer, C, with the concave side next to the O ring. Install the back-up washer, G, and O ring, H. The O ring is closest to the inside of the cylinder, Figures 2-25 and 2-26.
3. Install wiper seal, B, Figures 2-25 and 2-26, with the lip pointing out.
4. Install piston seal, I, Figure 2-25, and B, Figure 2-27, on the piston.
5. Slide head, B, Figure 2-24, on the piston rod, E. Put Loctite hydraulic sealant around the base of the piston, C, and install it with the recessed side, A, Figure 2-27, next to nut, D, Figure 2-24.
6. Tighten the nut to 167 ft. lbs. (226 N·m) torque.
7. Install the piston rod assembly in the cylinder barrel. Push the head in far enough to install the retaining ring in its groove. Pull out on the piston to force the head against the retaining ring.
8. Install the elbow in the head and reinstall the cylinder on the machine. Connect the hydraulic hoses. Operate the hydraulic system and check for leaks.
9. Replace any lost oil with the proper type of oil.