

JOHNSON

"Work Horse"



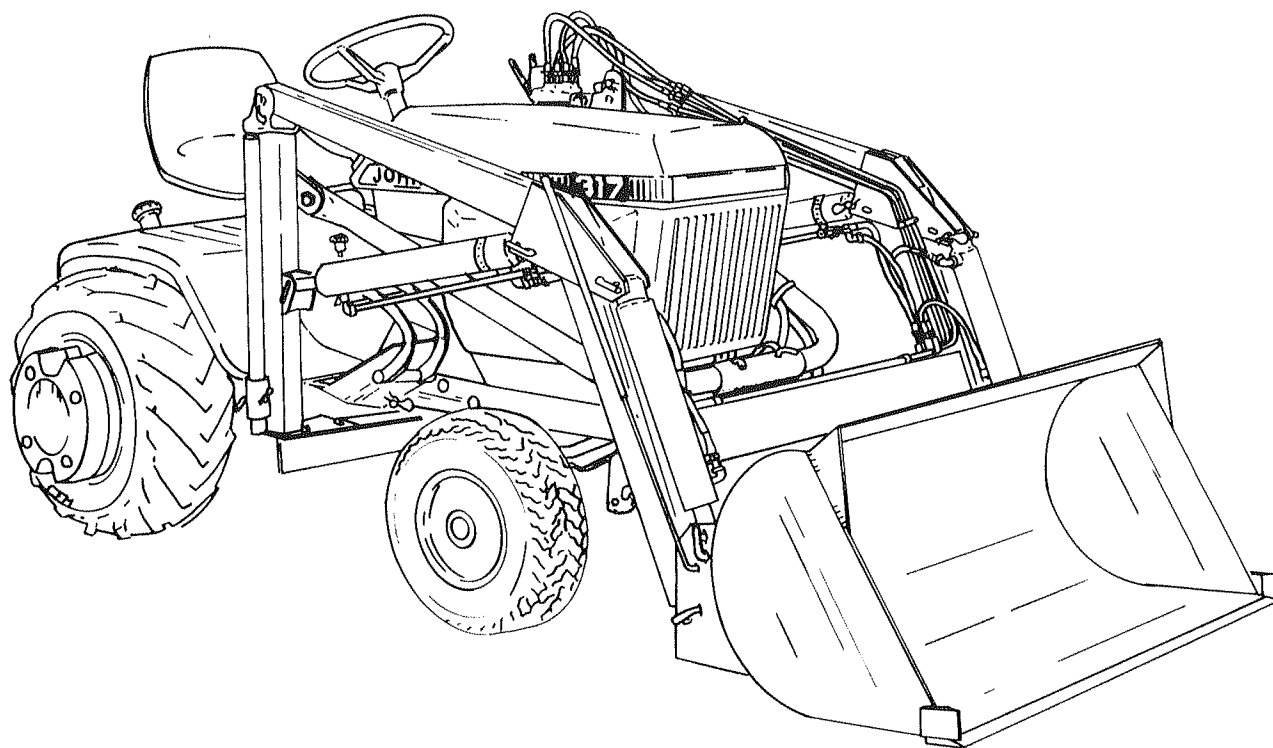
OWNER'S MANUAL MODEL 27 LOADER fits JOHN DEERE 300 SERIES

Includes:

**B237 MODEL 27 LOADER with QUICK DISCONNECT FEATURE -
500 POUND PAYLOAD**

Optional Attachments:

B269 MATERIAL BUCKET, 42"
B270 MATERIAL BUCKET, 48"
B271 LIGHT MATERIAL BUCKET, 60"
B306 BALLAST BOX CATEGORY O, THREE-POINT HITCH
B309 BALLAST BOX (FRAME MOUNTING)



Safety, Assembly, Operation, and Maintenance

to the Purchaser

CONGRATULATIONS - on your purchase of this Johnson grounds maintenance equipment. Please take a few minutes to review this manual to familiarize yourself with the unit, its features, and its operation.

This is a safety operation and general maintenance manual which does not attempt to cover major repairs. This equipment is carefully designed, engineered, and manufactured to give good performance if properly maintained and operated.

The name plate is located on the loader right hand upright. Fill in the model number and the serial number below and give this information to your authorized dealer when in need of parts or service.

MODEL _____ SERIAL _____

General

This loader is designed to attach easily to your tractor. The loader is rigidly mounted to the tractor with a full length underframe which applies forces directly to the strongest parts of the tractor.

The loader uses an independent hydraulic system in conjunction with an auxiliary valve which controls frame lift, down pressure, and bucket tilt. The control

valve also features a FLOAT position which allows the bucket to follow the land contours.

This loader is equipped with a QUICK DISCONNECT feature. This feature enables the operator to remove the loader and the loader hydraulic system in a few minutes so the tractor is available for use with other implements.

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THIS SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY INFORMATION IN THIS MANUAL. WHEN YOU SEE THE SYMBOL BE ALERT TO THE POSSIBILITY OF INJURY AND CAREFULLY READ THE INFORMATION THAT FOLLOWS.

Safety Precautions



READ and follow the instructions shown on the decals attached to the loader.

This Caution decal is located on the loader upright read it carefully.



CAUTION

1. Add recommended wheel ballast or rear weight for stability.
2. Move wheels to widest recommended settings to increase stability.
3. Move and turn tractor at low speeds.
4. In transport carry the working unit low.
5. Lower loader arms when parked.
6. Before servicing or adjusting equipment:
 - a. Lower working unit to the ground.
 - b. Shut off engine.
 - c. If loader must be in a raised position, block loader securely to prevent dropping.
7. Relieve hydraulic pressure before disconnecting oil lines.
8. Observe safety recommendations in loader operator's manual.



KNOW your controls. Read this manual and the operator's manual provided with your tractor. Learn how to stop the tractor quickly in an emergency.



KNOW your tractor and loader. Be aware of pinch points and wrap points which can not be shielded. Awareness can prevent accidents.



ALWAYS wear snug fitting, belted clothing so entanglement with moving parts or controls will be avoided.



NEVER allow unqualified people to operate tractor/loader. Make sure all operators read this manual and are shown safe and proper loading techniques.



DO NOT operate tractor/loader unless all bystanders are a safe distance from the area of operation.



NEVER operate the loader controls from the ground. Always operate the loader from the correct position on the tractor seat.



NEVER allow anyone other than the operator on the tractor/loader when it is in operation.



WHEN operating tractor/loader travel at a speed at which you are in complete control at all times. Operate at a ground speed consistent with working conditions and terrain.



KNOW your work area. Inspect for hidden holes, rocks, tree stumps, drop-offs, or other obstacles which could be dangerous if encountered.



WHEN turning close to buildings or passing through narrow areas, be sure to allow sufficient clearance for the loader.



DO NOT use loader as a battering ram.



BEFORE dismounting from the tractor; always lower the loader bucket to the ground, turn off the engine, remove the ignition key, and set the parking brake.



CHECK that all shields, bolts, and pins are properly secured prior to operating the loader. Check occasionally for cracks in frame members or any unusual signs of wear. Replace defective part if necessary.



DAILY inspect hydraulic hoses for signs of wear or puncture. Replace them if they are defective.



ESCAPING fluid under pressure can have sufficient force to penetrate the skin and cause serious injury. Use a piece of cardboard or wood (*not your hands*) to search for leaks. See your doctor at once if injured by escaping fluid.

Assembly

NOTE - Two people are needed for safe, easy installation of the implement. Be sure the tractor is parked on a level surface with the engine off, the ignition key removed, and the parking brake set.

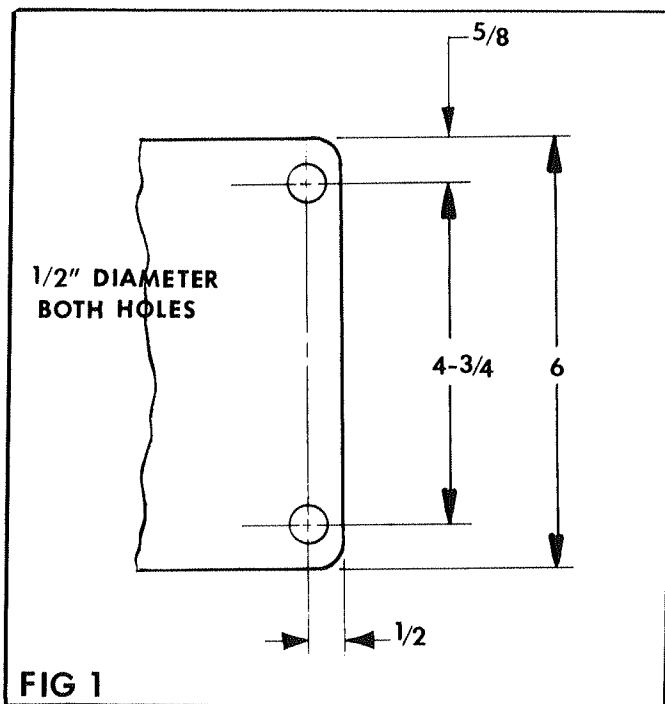
The terms; RIGHT, LEFT, FORWARD, and REAR are determined when in the correct operating position on the tractor.

IMPORTANT - For ease of assembly do not tighten any hardware until specified in the following instructions.

FOR THE ASSEMBLY INSTRUCTIONS WHICH FOLLOW - REFER TO Fig 2.

I. TRACTOR PREPARATION -

- A. Remove the grille to expose the electric clutch.
- B. Remove the front bumper.
- C. Remove the two 3/8 carriage bolts, holding the mower hitch lugs, and one 1/2 bolt from each side of the main frame.
- D. Drill two 1/2 diameter holes through each side of main frame as shown in Fig 1.



II. LOADER SIDE BAR INSTALLATION -

- A. Attach one side bar (40, 41) to each side of the tractor main frame. Use hardware (1, 6, 9, 12) in front slots and (4, 7, 10) in the rear holes.

NOTE - Be sure to reattach mower hitch lugs to tractor main frame when installing side bars (40, 41).

- B. Attach cross angle (42), with flange facing forward, to side bars (40, 41) with two L-pins (44) and two hair pin clips (16).

NOTE - The handle of the L-pins (44) must be to the inside of the side bars.

III. FRONT MOUNT INSTALLATION -

Attach the front mount (45) to the front of the tractor main frame at the 1/2 diameter holes which were drilled, see Tractor Preparation, step D, using hardware (3, 7, 10).

IV. UPRIGHT INSTALLATION -

- A. Slide a support pipe (50) into the guide tube on each of the loader uprights (48, 76).
- B. Lock support pipes (50) in place with L-pins (46) and hair pin clips (15).
- C. Attach loader uprights (48, 76) to the cross angle (42) with hardware (3, 7, 10).

V. FRONT PIPE INSTALLATION -

- A. Slide the front pipes (43) into locking tube on the front mount (45).
- B. Loosely bolt front pipes (43) to uprights (48, 76) using hardware (5, 8, 11).
- C. Using holes in the locking tube as a template, scribe a circle on the front pipes (43).
- D. Remove front pipes (43) from loader and drill a 1/2 diameter hole into each front pipe (43) where circles are scribed.
- E. Attach front pipes (43) to loader following steps A and B.
- F. Secure front pipes (43) to locking tube with L-pins and hair pin clips (15, 47).
- G. Tighten all hardware to torque requirements specified in Torque Chart, Maintenance Section, in this manual.

VI. PUMP INSTALLATION -

- A. Attach a 45 degree adapter union (26), 90 degree street elbow (54), and hose barb (27) to pump (19), as shown.

NOTE - USE TITSEAL, JOINT
COMPOUND, WHEN ATTACHING
FITTING 26, 27, AND 54.

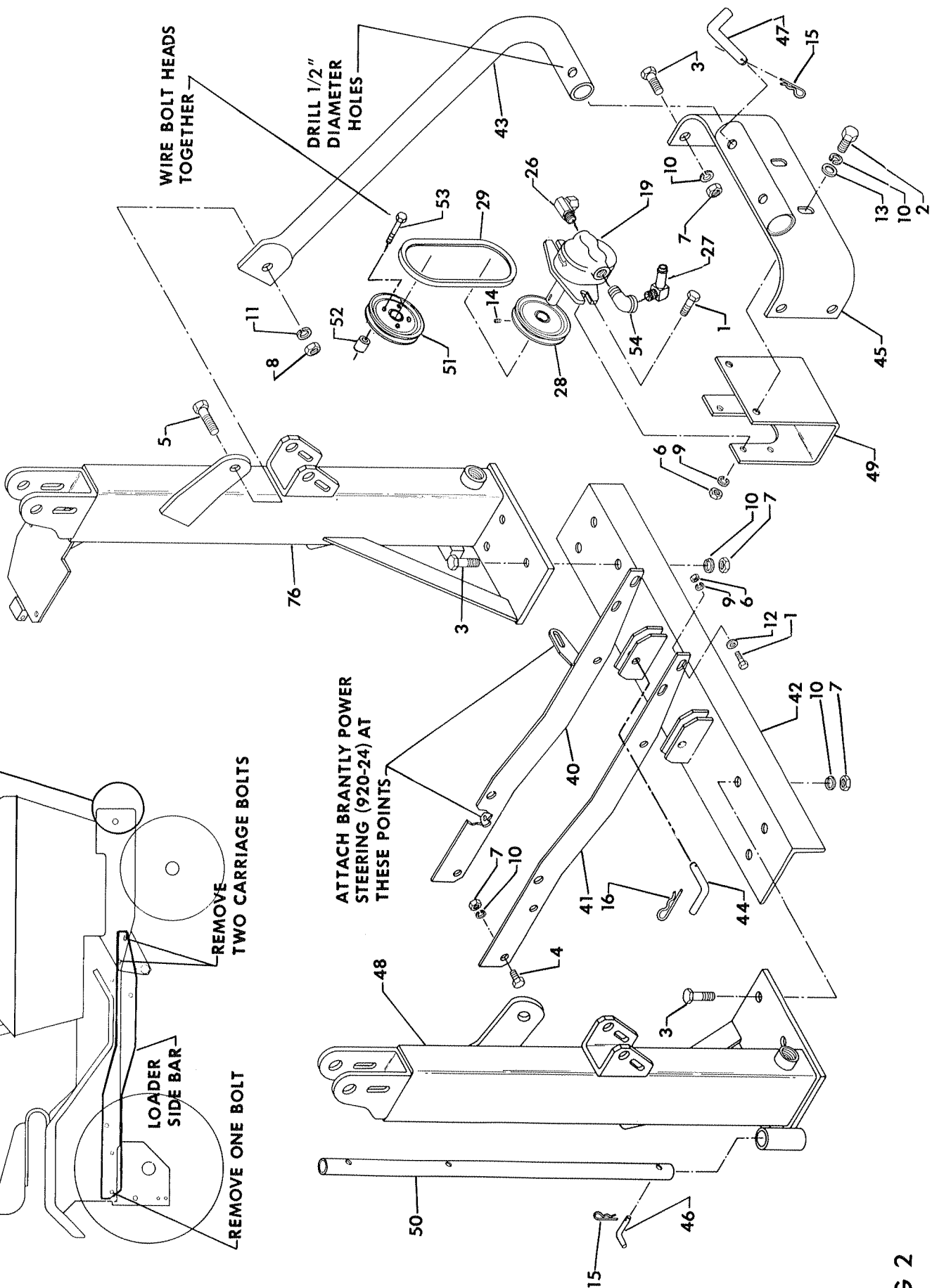
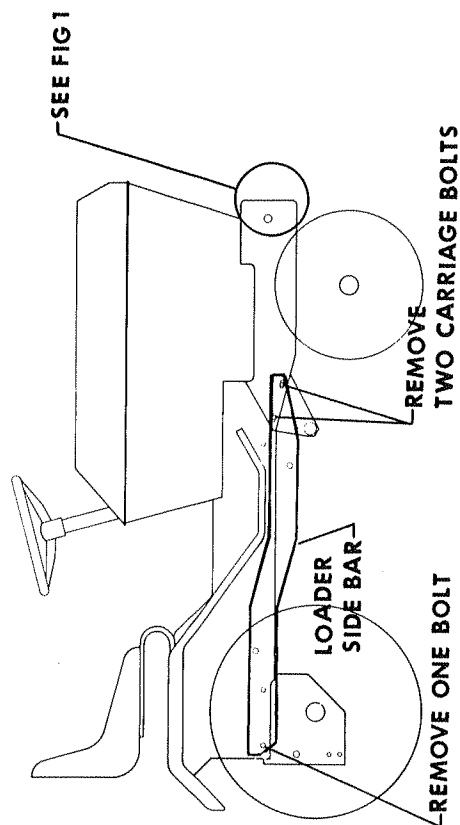


FIG 2

Assembly - Lift Frame and Hydraulic Hook-Up

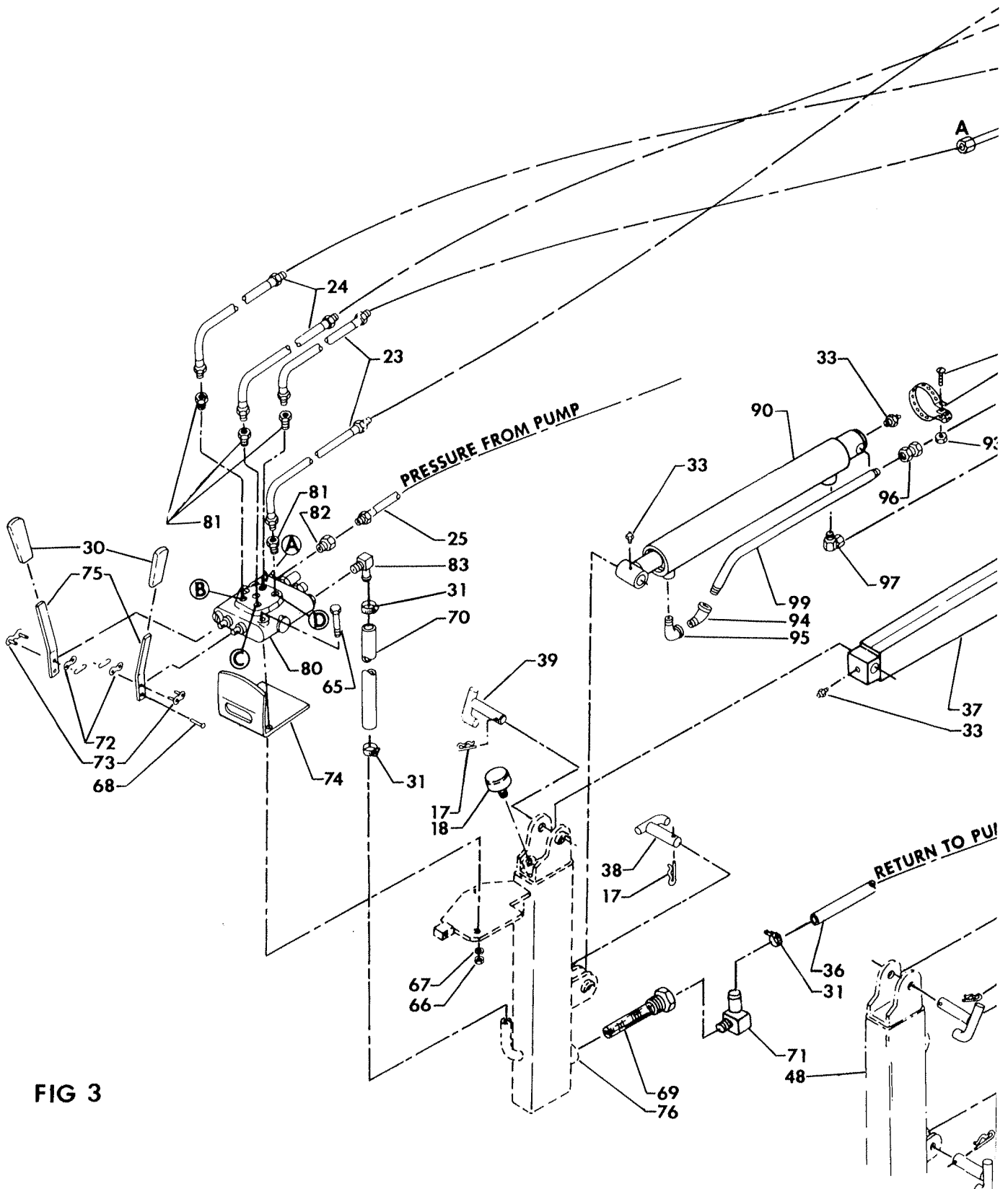
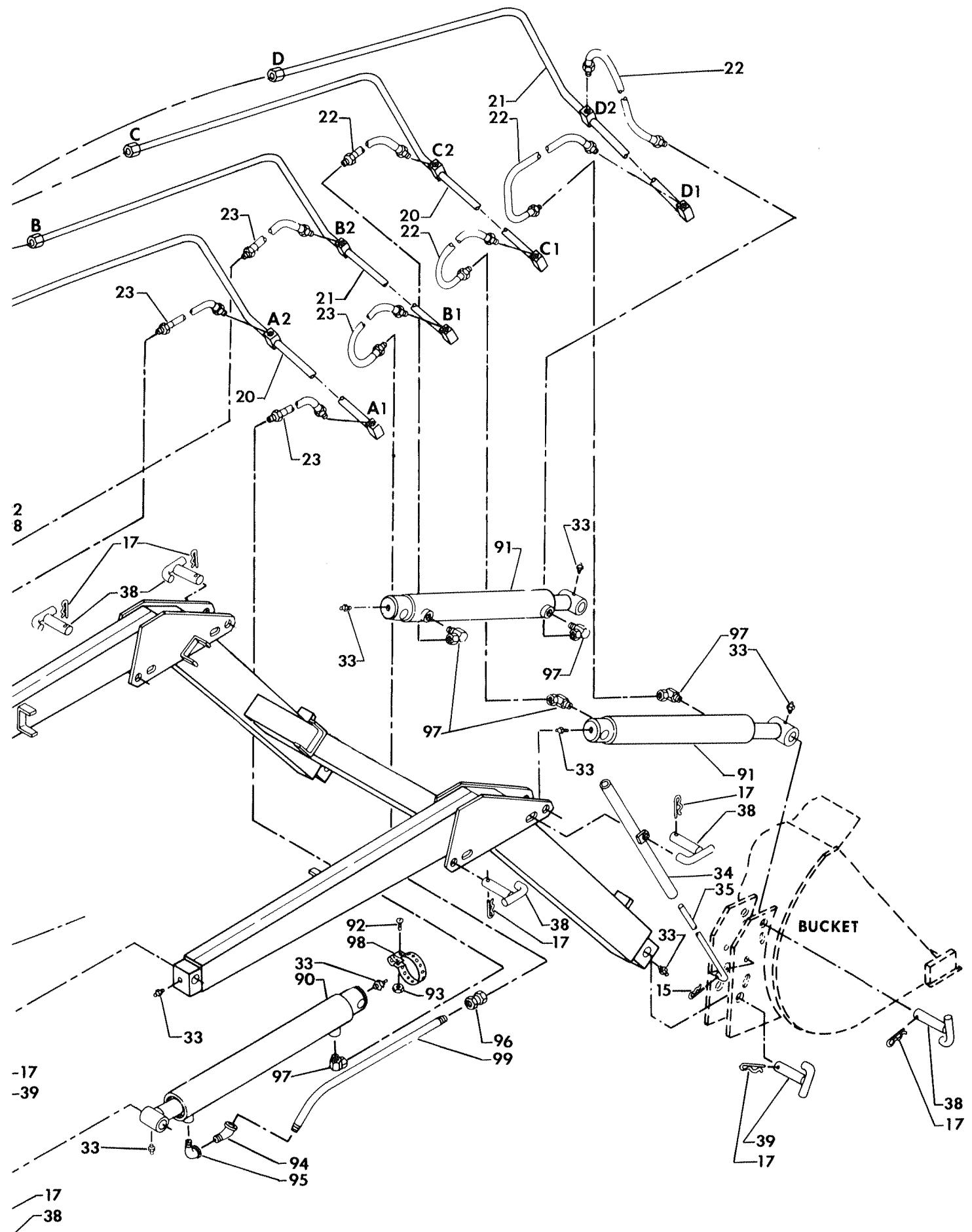


FIG 3



Assembly - continued

B. Attach the assembled pump to the pump mount (49) with hardware (1, 6, 9).

NOTE - For the JD314 Tractor attach pump to bottom set of holes on pump mount. For the JD317 Tractor attach pump to the top set of holes on pump mount.

C. Insert setscrew (14) into the hub of the vee-pulley (28).

D. Remove the plastic protection cap from the pump shaft and slide the vee-pulley (28) onto the shaft of the pump (19).

NOTE - The hub of the pulley must be facing away from the pump.

E. Loosely attach pump mount assembly to the inside of the front mount (45) with hardware (2, 10, 13).

F. Attach four spacers (52) between pulley assembly (51) and tractor electric clutch, securing with drilled head bolts (53).

NOTE - the heads of the bolts are drilled. After the bolts have been tightened, wire heads together with baling wire to prevent any loosening of bolts.

G. Attach V-belt (29) to pulleys (28, 51). Align the pump pulley (28) with pulley assembly (51) by moving pump pulley in or out. After the two pulleys (28, 51) are aligned, tighten the setscrew (14) on the pump pulley (28).

H. Adjust tension of V-belt (29) by pressing down on the pump assembly. Torque pump mount bolts to specification in Torque Chart, in this manual.

IMPORTANT - Running the pump without oil will cause serious damage to the pump. DO NOT start tractor engine and engage the electric clutch with pump V-belt installed until loader has been completely assembled and the loader reservoir filled with hydraulic oil.

I. Reattach the grille to tractor.

FOR THE HYDRAULIC HOOK-UP INSTRUCTIONS WHICH FOLLOW - REFER TO Fig 3:

VII. LIFT FRAME AND CYLINDER INSTALLATION -

A. Install the loader lift frame (37) to the loader uprights (48, 76) using two lock pins and two hair pin clips (17, 39).

B. Install the rod end of the lift cylinders (90) to the RH and LH uprights

(48, 76) using two lock pins and two hair pin clips (17, 38).

C. Attach the base end of the lift cylinders (90) to the loader lift frame (37) using two lock pins and two hair pin clips (17, 38).

D. Attach the base end of the tilt cylinders (91) to the loader lift frame (37) using two lock pins and two hair pin clips (17, 38).

VIII. BUCKET AND LEVEL ROD INSTALLATION - Fig 2:

A. Attach bucket to the loader lift frame (37) and to the tilt cylinders (91) using lock pins and hair pin clips (17, 38, 39).

B. Retain the indicator tube (34) with the RH tilt cylinder lock pin (38). Insert the indicator rod (35) into the tube (34) and attach the hook end to the bucket with one hair pin clip (15).

IX. HYDRAULIC HOOK-UP - VALVE TO PUMP - Fig 2 and 3:


A. Attach pressure hose (25) to 45 degree adapter union (26) in pump (19) and route it up along LH front pipe (43) to adapter union (82) in valve port marked IN.

B. Attach suction hose (36) to hose barb (27) in pump (19) using one hose clamp (31). Route suction hose (36) next to pressure hose (25) and attach the opposite end of this hose (36) to hose barb (71) at the bottom of the LH upright (76) using one hose clamp (31).

C. Secure hoses (25, 36) to LH front pipe (43) using hose clamp (32).

D. Remove plastic pipe plug from filler port at the top of the LH upright (76). Fill upright reservoir with approximately five quarts of hydraulic oil. Refer to the Maintenance Section of this manual for the correct type of hydraulic oil.

E. Replace plastic pipe plug with breather (18) in top of reservoir upright (76).

 **CAUTION** - Be sure pressure and return hoses are hooked up correctly, this is extremely dangerous. Incorrect hook-up will burst some part of the hydraulic system.

X. HYDRAULIC HOOK-UP - VALVE TO WORK PORTS -

All components marked by an asterisk (*) are to be assembled with Titesal, joint compound, supplied with the loader.

A. Attach a 16" hose (23)* to oil line ports (A) and (D).

B. Attach a 20" hose (24)* to oil line ports (B) and (C).

C. Attach opposite end of 16" hose (23) from oil line port (A) to adapter union (81) in valve port (A).

D. Attach opposite end of 20" hose (24) from oil line port (B) to adapter union (81) in valve port (B).

E. Attach opposite end of 20" hose (24) from oil line port (C) to adapter union (81) in valve port (C).

F. Attach opposite end of 16" hose (23) from oil line port (D) to adapter union (81) in valve port (D).

G. Install handle grips (30) to valve levers (75).

XI. HYDRAULIC HOOK-UP - LIFT CYLINDERS -

A. Attach hose (23) to adapter union (97) in base end of RH lift cylinder (90). Attach opposite end of hose (23)* to oil line (20) port marked A1.

B. Attach hose (23) to adapter union (96) in rod end of RH lift cylinder (90). Attach opposite end of hose (23)* to oil line (21) port marked B1.

C. Attach hose (23) to adapter union (97) in base end of LH lift cylinder (90). Attach opposite end of hose (23)* to oil line (20) port marked A2.

D. Attach hose (23) to adapter union (96) in rod end of LH lift cylinder (90). Attach opposite end of hose (23)* to oil line (21) port marked B2.

XII. HYDRAULIC HOOK-UP - TILT CYLINDERS -

A. Attach hose (22) to adapter union (97) in base end of RH tilt cylinder (91). Attach opposite end of hose (22)* to oil line (20) port marked C1.

B. Attach hose (22) to adapter union (97) in rod end of RH tilt cylinder (91). Attach opposite end of hose (22)* to oil line (21) port marked D1.

C. Attach hose (22) to adapter union (97) in base end of LH tilt cylinder (91). Attach opposite end of hose (22)* to oil line (20) port marked C2.

D. Attach hose (22) to adapter union (97) in rod end of LH tilt cylinder (91). Attach opposite end of hose (22)* to oil line (21) port marked D2.

XIII. FUNCTIONS TEST -

A. Be sure all fittings are correctly installed and secure.

B. Check the hose routings to be sure the hoses are free of kinks and areas which could wear or puncture them.

C. Lubricate all grease fittings and pivot points with correct grease, refer to Maintenance Section of this manual.

D. Operate the loader through all functions fully several times. Refer to the Operation Section, of this manual, be sure lever positions and the lever functions correspond to the loader control decal.

E. Lower the bucket to the ground, shut off the tractor engine, remove the ignition key, and put on the parking brake. Check the loader hydraulic system and add the correct hydraulic fluid if necessary, refer to Maintenance Section of this manual.

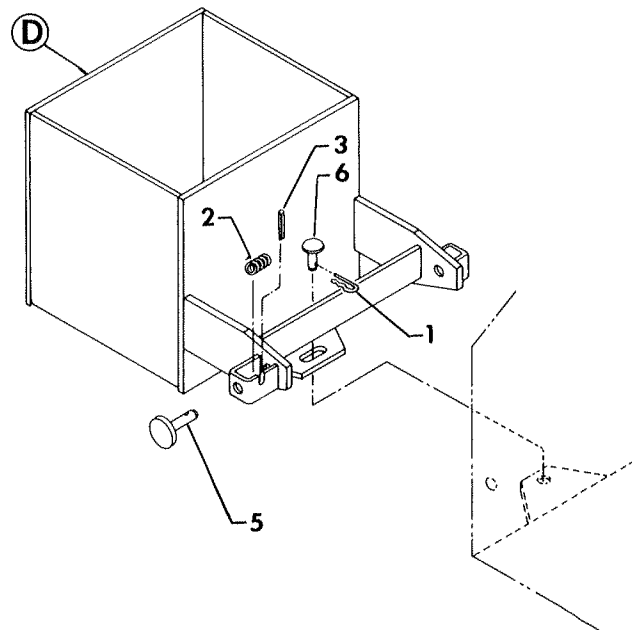
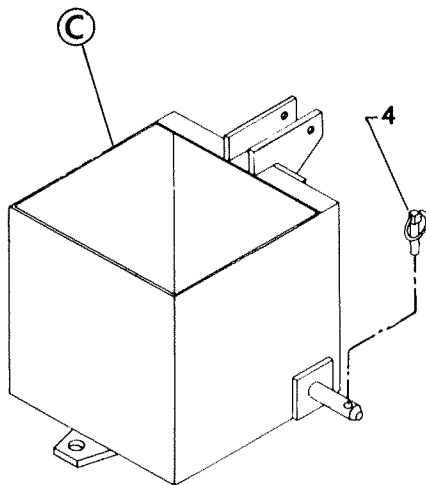
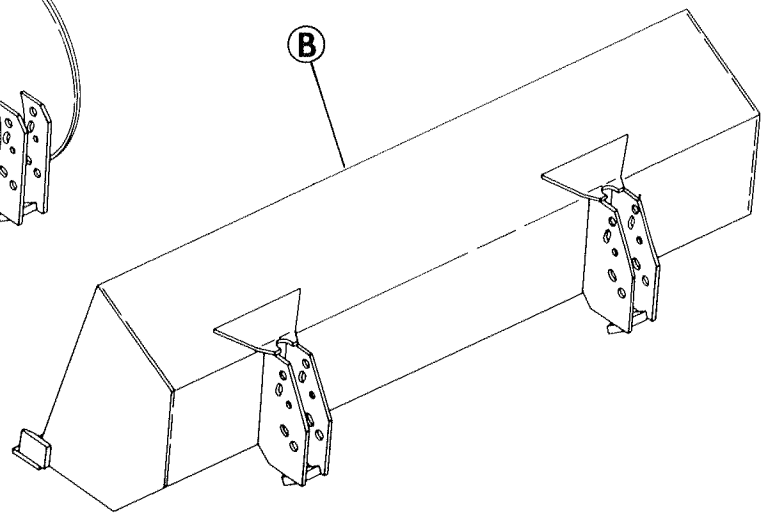
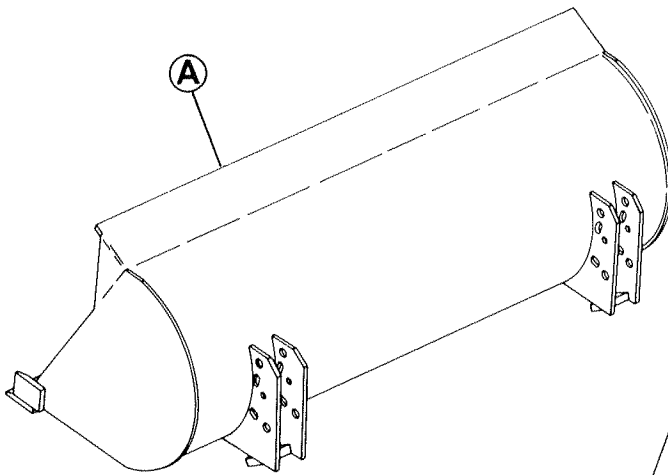
Parts List

Index	Description	Part No.	Index	Description	Part No.
1	Bolt, 3/8 NF x 1-1/4.....	6859	49	Pump Mount Plate.....	608451
2	Bolt, 1/2 NF x 7/8.....	7005	50	Support Pipe.....	608456
3	Bolt, 1/2 NF x 1-1/4.....	7017	51	Pulley Assembly.....	608475
4	Bolt, 1/2 NF x 1-1/2.....	7028	52	Spacer.....	608477
5	Bolt, 5/8 NF x 1-1/2.....	7130	53	Bolt, 5/16 NC x 2", Drilled Head.....	608478
6	Nut, 3/8 NF SAE 5.....	7461	54	Street Elbow, 1/2 NPT x 90°.....	7921
7	Nut, 1/2 NF.....	7501			
8	Nut, 5/8 NF.....	7536			
9	Lockwasher, 3/8.....	8079		LH Upright Assembly:	
10	Lockwasher, 1/2.....	8101	31	Hose Clamp.....	14120
11	Lockwasher, 5/8.....	8111	65	Bolt, 1/4 NC x 2".....	6759
12	Flat Washer, 3/8.....	8156	66	Nut, 1/4 NC.....	7401
13	Flat Washer, 1/2.....	8171	67	Lockwasher, 1/4.....	8061
14	Setscrew, 1/4 NC x 5/16.....	8319	68	Rivet, 3/16 x 1-1/2.....	8427
15	Hair Pin Clip, #3.....	8618	69	Strainer.....	10364
16	Hair Pin Clip, #6.....	8623	70	Hose, 1/2 ID x 15".....	10807
17	Hair Pin Clip, #10.....	8624	71	Insert Adapter, 3/4 NPT M x 1/2 HB x 90°.....	11262
18	Breather.....	10366	72	Side Bar only, ASA 50.....	11361
19	Hydraulic Pump.....	10368	73	Connector Link, ASA 50.....	11362
20	LH Oil Line, Long.....	10556	74	Decal Mount Plate.....	607676
21	LH Oil Line, Short.....	10557	75	Valve Lever.....	608037
22	Hydraulic Hose, 1/4 NPT x 13-1/2.....	10855	76	LH Upright Reservoir.....	608440
23	Hydraulic Hose, 1/4 NPT x 16".....	10856	77	Valve Assembly, w/fittings, set at 900 PSI.....	609930
24	Hydraulic Hose, 1/4 NPT x 20".....	10857	80	Valve, less fittings, set at 900 PSI.....	604678
25	Hydraulic Hose, 3/8 NPT x 52".....	10929	81	Adapter Union, 7/16-20 M x 1/4 NPT F.....	11090
26	Adapter Union, 3/8 NPT M x 3/8 NPT F x 45°.....	11135	82	Adapter Union, 9/16-18 M x 3/8 NPT F.....	11091
27	Insert Adapter, 1/2 NPT x 1/2 HB x 90°.....	11261	83	Insert Adapter, 9/16-18 M x 1/2 HB x 90°.....	11265
28	Vee Pulley.....	12702			
29	V-Belt, 4L310.....	12780		LH Lift Cylinder Assembly, Complete.....	608180
30	Handle Grip.....	14070		RH Lift Cylinder Assembly, Complete.....	608185
31	Hose Clamp.....	14120		90 Hydraulic Cylinder, 2" Diameter.....	074
32	Hose Clamp.....	14140		Tilt Cylinder Assembly, Complete.....	607620
33	Grease Fitting.....	14505	33	Grease Fitting.....	14505
34	Indicator Tube Weldment....	604050	91	Hydraulic Cylinder, 2" Diameter.....	073
35	Indicator Rod.....	605216			
36	Hose, 1/2 ID x 50".....	606051			
37	Lift Frame Weldment.....	607635			
38	Lock Pin, 5/8 Diameter.....	607650			
39	Lock Pin, 3/4 Diameter.....	607655			
40	Side Bar Weldment.....	608425			
41	Side Bar.....	608426			
42	Cross Angle Weldment.....	608430			
43	Front Pipe.....	608433			
44	Locator Pin, 3/4 Diameter..	608434			
45	Front Mount Weldment.....	608435			
46	Locator Pin, 3/8 Diameter..	608438			
47	Locator Pin, 1/2 Diameter..	608439			
48	RH Upright Weldment.....	608450			

Optional Attachments

- A - 42" Bucket, Complete.....B269
 48" Bucket, Complete.....B270
- B - 60" Light Material Bucket,
 Complete.....B271
- C - Ballast Box, Complete.....B306
 (Cat. 0 Pins)
- D - Ballast Box, Complete.....B309
 (Frame Mounting)

Index	Description	Part No.
1	Hair Pin Clip, #6.....	8623
2	Spring.....	8795
3	Roll Pin, 1/4 x 2".....	8998
4	Linch Pin.....	13486
5	Lock Pin Weldment.....	606660
6	Ditch Bar Pin.....	755353



Quick Disconnect Instructions

⚠ *BEFORE removing loader from the tractor; lower the loader bucket to the ground, turn off the engine, remove the ignition key, and set parking brake.*

A. Remove the six bolts that hold the left and right hand uprights to the cross angle weldment, see Fig 2.

B. Remove two bolts that hold the pipe braces to the uprights, see Fig 2.

C. Remove the hose clamp that secures the suction and pressure hoses to the LH pipe brace.

D. Remove the two bolts that hold the pump assembly to the front mount weldment, see Fig 2.

E. Remove the V-belt and pump assembly from the tractor and place to one side.

F. Remove the L-pins from the upright guide tubes and lower the support pipes to the ground, see Fig 4.

G. Grasp the gusset on the base of the uprights. Lift uprights approximately 1/2 inch to line up the holes in guide tube and support pipes. Insert the L-pins, see Fig 4.

H. Start tractor and back up slowly until the front wheel is about one inch from the upright base.

I. Turn off the tractor engine, remove the ignition key, set the parking brake, and dismount from tractor.

J. Grasp gusset on upright and remove L-pins. Elevate the uprights approximately six inches lining up holes on guide tube and support pipe. Reinsert the L-pins, see Fig 5.

K. Mount tractor, disengage brake and slowly back out of lift frame, see Fig 6.

L. Remove pipe braces and cross angle from tractor by disconnecting L-pins.

M. The loader is now removed from the tractor, see Fig 7.

NOTE - The side bars and the front mount can remain on the tractor without disturbing the operation of the lawn mower attachment.

N. To mount the loader reverse above procedure.



FIG 4



FIG 5

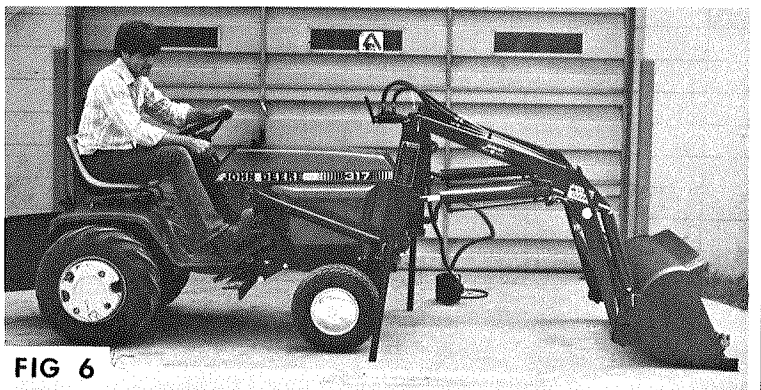


FIG 6

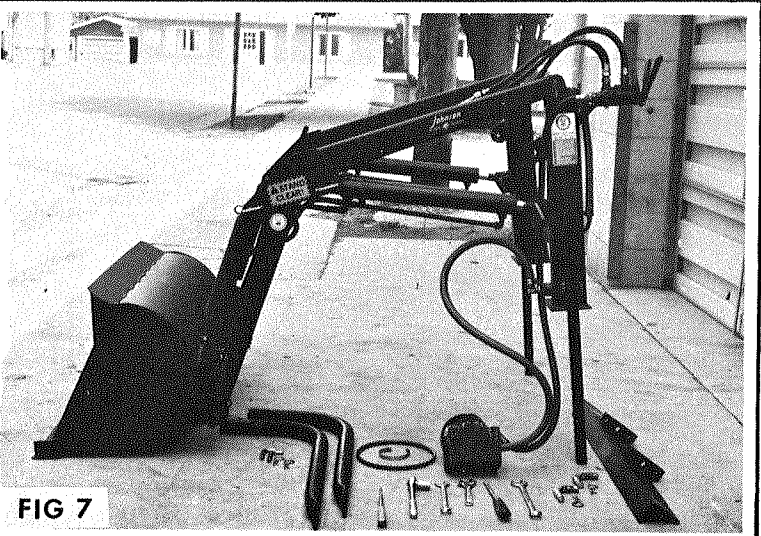



FIG 7


Operation


TRACTOR PREPARATION -

 Counter-weight or ballast must be added to the rear of the tractor for safe loader operation. The added counter-weight or ballast will counter-balance the loader providing stable loader operation.

Minimum effective counter-balance weight to be added - 400 pounds.

Ballast can be added by mounting rear wheel weights, filling the rear tires with fluid, adding a ballast box, or a combination of these methods.

 If heavy solid objects, such as stones or wheel weights are used in the ballast box, they should be secured to prevent them from rolling out and striking an operator in case the loader unit should tip over on a side hill.

 The tractor rear wheels must be adjusted to the widest recommended setting for safe loader operation. The additional width in the wheel settings will greatly increase the side-tip stability of the tractor.

For best loader operation, inflate tires to the maximum operating pressure as recommended in the tractor manual.

PRESTART INSPECTION -

Be sure that the loader has been correctly installed, proper ballast added, rear wheels adjusted, and all bolts tightened prior to using the loader. See loader Assembly instructions and Tractor Preparation.

Refer to the tractor Operator's Manual and follow all tractor safety and operating instructions.

Read this loader manual carefully and follow all safety precautions and operating instructions.

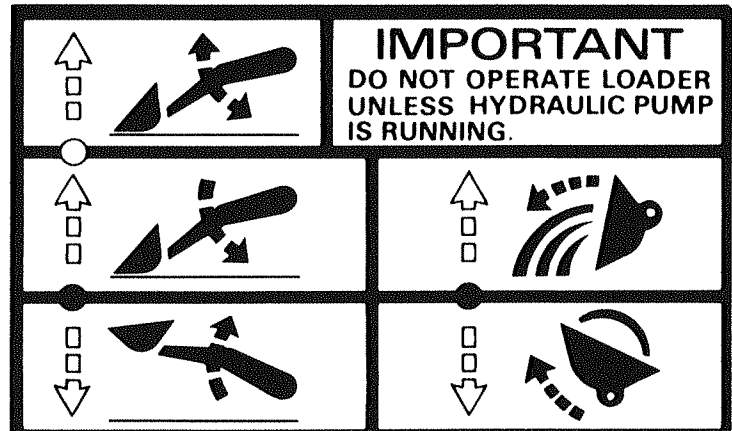
LOADER CONTROLS -

KNOW YOUR CONTROLS. . .

NOTE - The terms; RIGHT, LEFT, FORWARD, and REAR are determined when in the proper operating position on the tractor.

The hydraulic control valve is mounted on the loader LH upright. The control levers are close together so that both levers can be operated simultaneously with one hand. This permits the operator to control the loader with one hand while operating the tractor with the other hand.

LOADER CONTROL DECAL -



The LH lever controls the frame lift. Moving the lever to the rear raises the frame, while moving the lever forward lowers the frame. The lever returns to the NEUTRAL position when released.

To set the lift control into the FLOAT position, move the LH lever to the extreme forward position. This allows the bucket to FLOAT or follow the contours of the ground. The lever must be manually returned to NEUTRAL from the FLOAT position.

The RH lever controls the bucket tilt. Moving the lever to the rear retracts the bucket, while moving the lever forward dumps the bucket. The lever returns to NEUTRAL position when released.

IMPORTANT - Do not operate the loader unless the tractor is running. If the tractor engine is stopped with the loader raised, start the engine before lowering the loader. If the loader is lowered without the hydraulic pump operating the hydraulic oil lines will fill with air, causing jerky loader operation, and oil will be forced out of the breather on the hydraulic reservoir.

Before operating the loader in cold weather, start the engine and operate

Operation - continued

the loader control levers several times to warm the hydraulic oil. This will help to assure smooth loader operation.

OPERATING PROCEDURES -

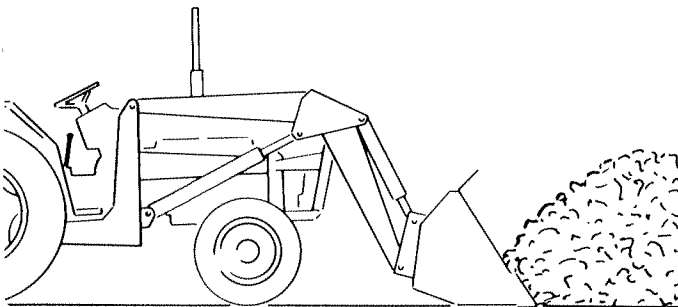
The following procedures must be studied and used to insure safe, correct loader operation.

! *CAUTION - Operate the loader only when sitting on the tractor seat; never while standing beside the loader. Before operating the loader, be sure no one is standing near it.*

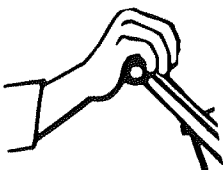


FILLING THE BUCKET -

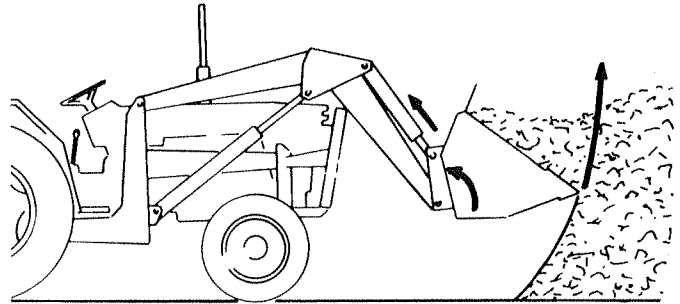
Approach and enter the pile with a level bucket.



Ease both levers back to lift and roll back the bucket.

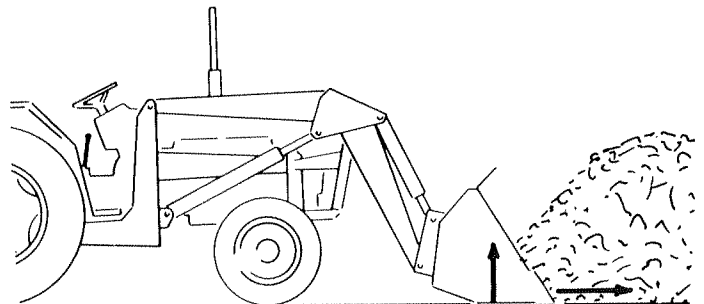


The lift and roll back of the bucket will increase efficiency because. . .



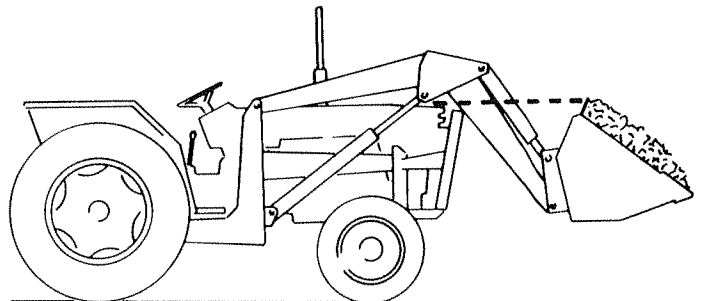
. . . a level bucket throughout the lift-cycle resists bucket lift and increases breakaway effort.

NOTE - Do not be concerned if the bucket is not completely filled during each pass. Maximum productivity is determined by the amount of material loaded in a given period of time. Time is lost if two or more attempts are made to fill the bucket on each pass.



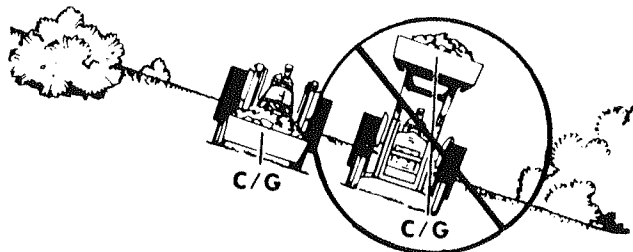
CARRYING THE LOAD -

Position the bucket just below the level of the tractor hood, for maximum stability and visibility, whether the bucket is loaded or empty.

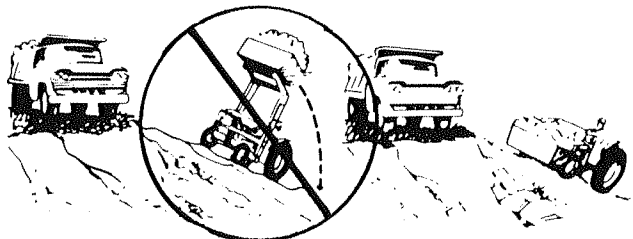


Operation - continued

! When operating the loader on a hill or slope, keep the bucket as low as possible. This keeps the bucket center of gravity as low as possible and will give you maximum tractor stability.

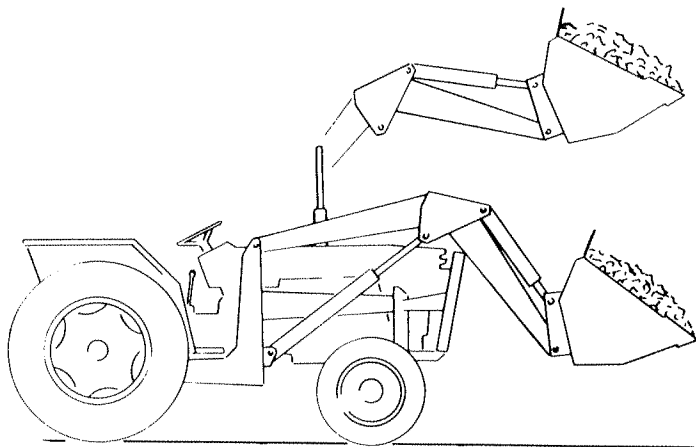


! When transporting the load, keep the bucket as low as possible to increase side-tip stability.



LIFTING THE LOAD -

When lifting the load, keep the bucket positioned so as to avoid spillage.

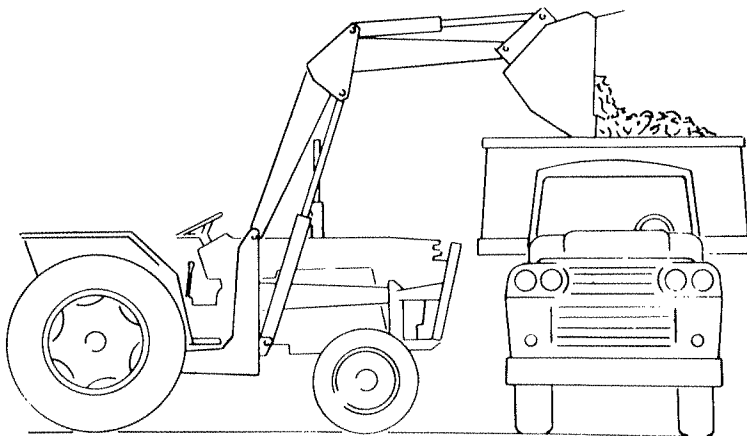


NOTE - Do not attempt to lift bucket loads in excess of the loader capacity.

Remember that the loader lift and break-away capacities diminish rapidly as loading height is increased.

DUMPING THE BUCKET -

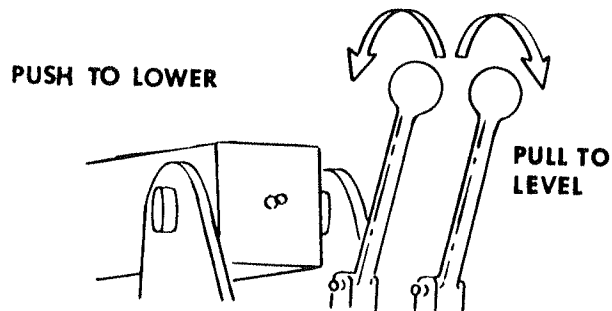
Lift the bucket high enough to clear the side of the vehicle. Move the tractor in as close to the side of the vehicle as possible, then dump the bucket.



! When it is necessary to lift a load to a high position and then lower it to another position before dumping, be sure to operate the lift lever with a slow, steady motion. Move the LH lever forward to ease the load down slowly, to the desired position in a safe, controlled manner.

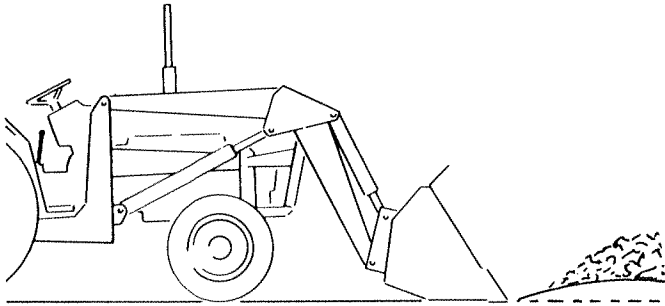
LOWERING THE BUCKET -

After the bucket is dumped, back away from the vehicle while lowering and leveling the bucket.



OPERATING WITH FLOAT CONTROL -

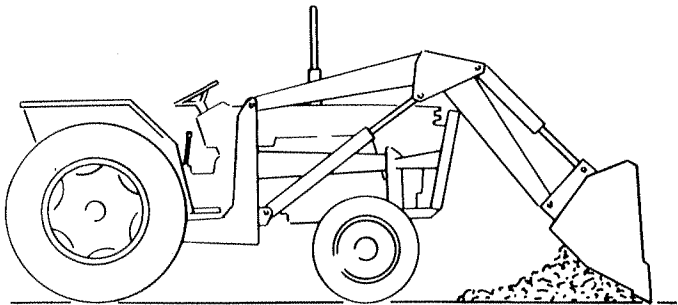
During hard surface operation, keep the bucket level and the lift function in the float position. If hydraulic down pressure is exerted on the bucket it will wear faster than normal.



The float position will also prevent the mixing of surface material with stock-pile material. The float position will reduce the chance of surface gouging when removing snow or other material.

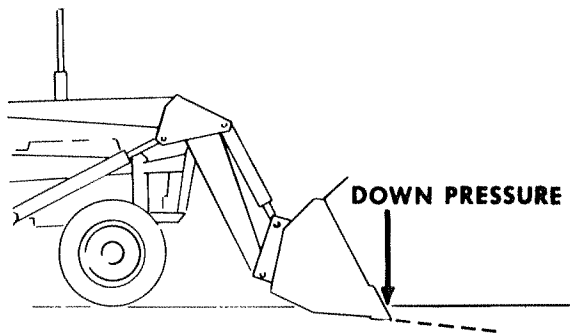
BACK-DRAGGING -

Operate the tractor in reverse with the bucket dragging on the ground to finish grading, leveling, and packing.



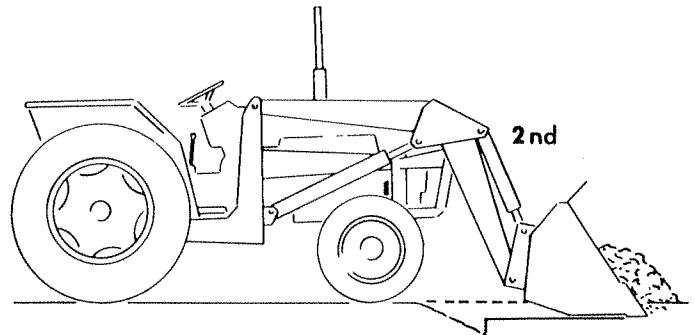
PEELING AND SCRAPING -

Use down pressure and a slight bucket angle to start long cuts. Make a short angle cut and break out cleanly.

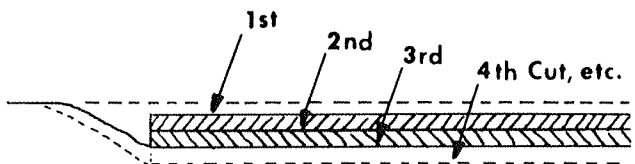


With the bucket level, start a cut at the notch approximately two inches deep.

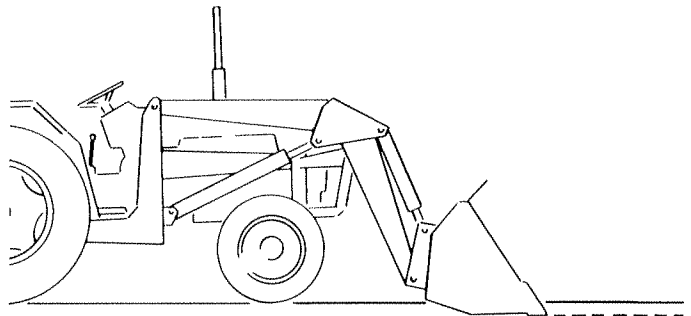
Hold the depth by feathering the bucket lever to adjust the cutting lip up or down. When the front tires enter the notch, adjust the lift and bucket lever to maintain proper depth.



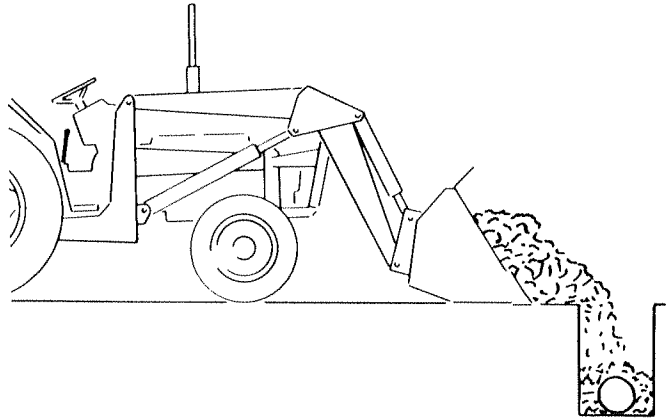
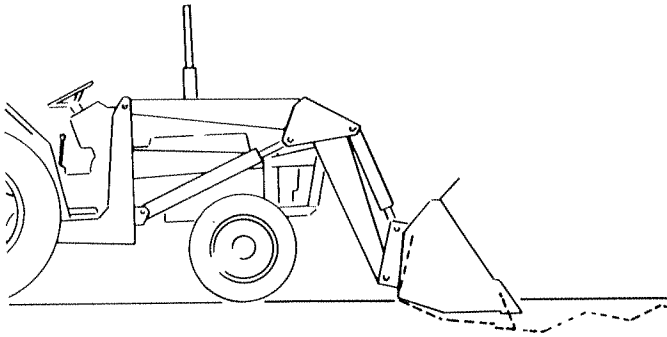
Made additional cuts until the desired depth is reached.



During peeling operations, use lift cylinder down pressure and a slight bucket angle to penetrate to the desired working depth. After reaching the desired working depth, use only the bucket lever, leaving the lift lever in either the float or neutral position. This allows the operator to concentrate on controlling the bucket angle to maintain a precise cut.



If the lift lever is used without controlling the bucket angle, the bucket will gouge and leave a series of ruts in the surface.



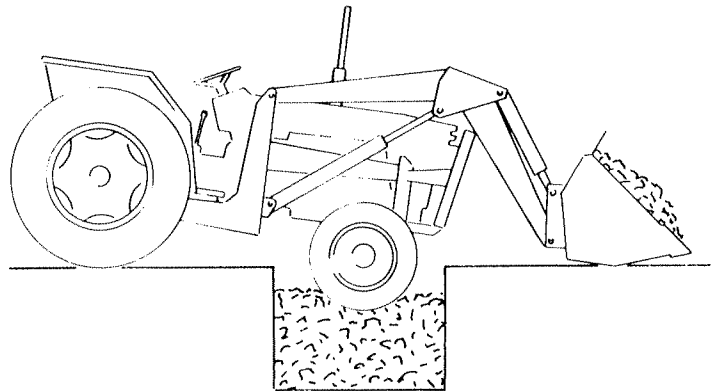
BACKFILLING -

Efficient backfilling operation occurs when the tractor pushes the maximum amount of soil without losing speed or traction. If the tractor slows, reduce the width of the cut. If the tractor is not working at capacity, increase the width of the cut.

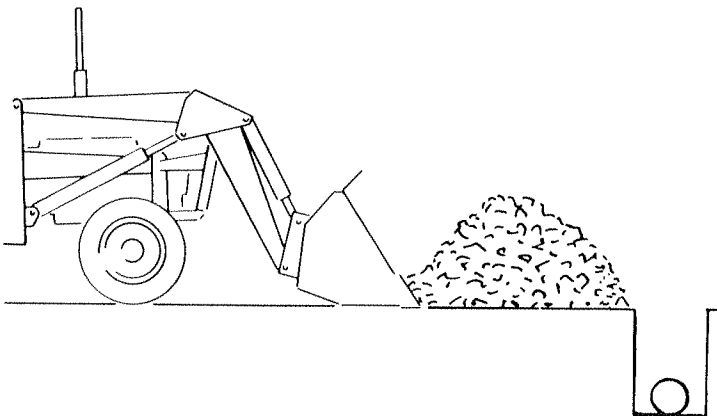
When backfilling from a large pile, shovel off the top of the pile, pushing toward the excavation. Drag some soil backward to form a work ramp of convenient grade.

Approach the pile with a level bucket. When adjusting the cut to a load that the tractor can push, actuate the lift and bucket levers simultaneously or separately as required, and maintain a level bucket.

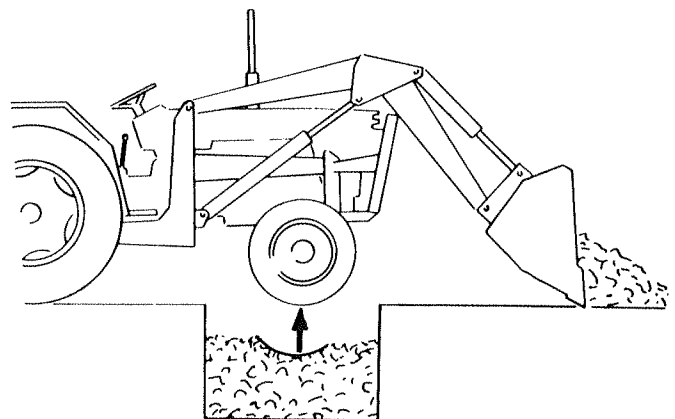
If stuck in the ditch . . .



. . . dump the bucket and apply down pressure to lift the front wheels out of the ditch. Operate the bucket lever, as tractor power is applied, to move the tractor backward.



Leave the soil in the bucket because dumping on each pass wastes time. Lift and level bucket for next pass while backing from excavation.



Maintenance



Before adjusting or servicing the loader, lower the bucket to the ground, shut off tractor engine, set parking brake, and remove ignition key.



If the loader must be in a raised position, for any reason, be sure to block the loader securely to prevent it from dropping.

FASTENERS -

Prior to each use, check all pins and fasteners to be sure that they are properly secure. Refer to the Torque Specifications Chart, below, for correct tightening of nuts and bolts.

NOTE - If frequent loosening of fasteners occurs, or if loader is removed and re-installed, use all new lockwashers. If loosening persists a thread locking compound, Loctite #271 or the equivalent, should be used.

LUBRICATION -

The loader is lubricated through twelve grease fittings;

Four fittings - one at each pivot end of the lift frame.

Four fittings - one at each end of the lift cylinders.

Four fittings - one at each end of the bucket cylinders.




Lubricate daily, or after every eight hours of operation. Use SAE multi-purpose type grease. Use a sufficient amount of new grease to force out the old grease and dirt. If grease fails to go through at any point, determine the cause and correct the condition at once. Thorough lubrication is very important to the life of the loader.

Lubricate all other pivot points or linkages with oil.

TORQUE VALUES

Common bolts and nuts.

Tightening Torque \pm 20%

SIZE	GRADE 2 	GRADE 5 	GRADE 8 
1/4-20	70 in lb	115 in lb	165 in lb
1/4-28	85 in lb	140 in lb	200 in lb
5/16-18	150 in lb	250 in lb	350 in lb
5/16-24	165 in lb	270 in lb	30 ft lb
3/8-16	260 in lb	35 ft lb	50 ft lb
3/8-24	300 in lb	40 ft lb	60 ft lb
7/16-14	35 ft lb	55 ft lb	80 ft lb
7/16-20	45 ft lb	75 ft lb	105 ft lb
1/2-13	50 ft lb	80 ft lb	115 ft lb
1/2-20	70 ft lb	105 ft lb	165 ft lb
9/16-12	75 ft lb	125 ft lb	175 ft lb
9/16-18	100 ft lb	165 ft lb	230 ft lb
5/8-11	110 ft lb	180 ft lb	260 ft lb
5/8-18	140 ft lb	230 ft lb	330 ft lb
3/4-10	150 ft lb	245 ft lb	350 ft lb
3/4-16	200 ft lb	325 ft lb	470 ft lb


NOTE - See tractor instruction manual or your tractor dealer for tightening of metric bolts.

Maintenance - continued

FRAME MEMBERS -

Check all loader members and welds periodically for cracks or excessive wear. Repair or replace defective members immediately.

HYDRAULIC SYSTEM -

 *CAUTION - Escaping fluid, under pressure, can have sufficient force to penetrate the skin and cause serious injury. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood - not your hands - to search for suspected leaks. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.*

Before disconnecting lines be sure to relieve all pressure, by actuating the loader control levers with the bucket on the ground. Before applying pressure to the system, be sure all connections are tight and that lines, pipes, and hoses are not damaged.

IMPORTANT - When servicing the hydraulic system, wipe away all oil and dirt before removing plugs, filler caps, or parts needing service. Dirt in a hydraulic system is one of the main causes of pump and valve failure. Thoroughly clean all parts before reassembly.

Loaders with an independent pump system have an upright which serves as a reservoir to supply the pump with hydraulic oil. The reservoir is filled by removing the breather cap at the top of the upright and filling through that port. Fill the reservoir with approximately five U.S. quarts of quality SAE 10W30 (Northern climates) or SAE 30 (Southern climates) engine oil which meets SB (minimum), SC, or SD classification of API (American Petroleum Institute).

After the first two hours of operation, and every 200 hours thereafter, remove the suction hose, fittings, and screen strainer from the reservoir and drain the hydraulic oil. Clean the screen strainer carefully and reassemble the screen, fittings, and hose to the upright. Refill reservoir with new hydraulic oil.

Check the reservoir hydraulic oil level before each daily use of the loader. Oil should be approximately four inches below breather port in reservoir.

NOTE - All loader cylinders must be retracted, i.e.; bucket in lowered position, when checking oil level.

HYDRAULIC VALVE -

The loader auxiliary valve may develop leaks around fittings or spools. Refer to the Hydraulic Trouble Shooting Section which follows and to the Valve Breakdown Section, for parts and repair kits.

HYDRAULIC CYLINDERS -

Check all cylinders frequently for leaks. Repair or replace defective parts as necessary, refer to Cylinder Breakdown Section, for parts and repair kits.

Check all hoses, tube lines, and connections daily for leaks.

AFTER OPERATION/STORAGE -

Always wash loader after use. Mud, dust, and icy conditions decrease the life of the hydraulic system and components. A coat of paint over scratched or rusting areas will help prolong the life of the loader.

For extended storage periods; clean thoroughly and paint scratched or rusted areas. Coat all exposed cylinder rods with grease and lubricate all pivot points. Remove suction hose, fittings, and screen strainer from the reservoir and drain the hydraulic oil. Clean the screen strainer carefully and reassemble the screen, fittings, and hose to the upright.

To prevent contamination of the loader hydraulic system, install dust caps on all hose ends that have been disassembled and all valve or reservoir ports where hoses have been removed.

Hydraulic Trouble Shooting

The material presented in this section is offered as a guide to diagnosing general operation problems. Match your problem with the typical PROBLEM examples listed. Note the numbers in the POSSIBLE CAUSE column, these numbers correspond with the POSSIBLE CAUSE and CORRECTION paragraphs that follow.

NOTE - When using the following chart, if it is decided that overhaul of components or pressure adjustments are necessary to correct malfunctioning, it is recommended that your dealer make the repairs. He is equipped to do this work.


<u>PROBLEM</u>	<u>POSSIBLE CAUSE</u>
A. Machine fails to operate when started initially.....	1, 2, 6, 18, 22
B. Machine loses power after operating satisfactorily initially.....	1, 7, 9, 18, 19, 22
C. Loss of power in any one cylinder.....	7, 8, 9, 10, 11, 12, 22, 23
D. Slow operation of machine (lack of power) all cylinders.....	1, 4, 5, 18, 19, 22
E. Spongy or jerking action of cylinders and/or noisy operation.....	1, 3, 4
F. Bucket drops or settles.....	7, 9, 12, 23, 26
G. Leaky cylinders.....	9, 10, 11, 12
H. Leaky valve.....	7, 13, 24
I. Sticky valve spool.....	13, 16, 19, 20
J. Unable to push valve spool in.....	13, 14, 16, 19, 20
K. Spring centered spools do not return to neutral.....	13, 14, 15, 16, 19, 20
L. Valve spool does not stay in float position.....	17, 20, 21
M. Loader will not lift load.....	1, 2, 4, 5, 6, 7, 8, 25

<u>POSSIBLE CAUSE:</u>	<u>AND CORRECTION -</u>
1. Low oil level in tractor reservoir.....	fill reservoir to proper level.
2. No oil supply to machine.....	oil is not being diverted from the prime mover hydraulic system. Be sure that the manifold block is properly positioned on the tractor and that there is no blockage or kinked hoses.
3. Air in system.....	bleed all circuits of air by operating machine at maximum oil flow and through full movements.
4. Oil viscosity too heavy, or oil is not at operating temperature.....	use recommended hydraulic fluid. Run machine until oil reaches operating temperature.
5. Insufficient pumping.....	...advance engine throttle, operate in a lower gear, refer to Specification Information page for recommended RPM.

Hydraulic Trouble Shooting - continued

POSSIBLE CAUSE:

AND CORRECTION -

6. Improper hose connection..... *This is extremely dangerous. Be sure pressure and return hoses are hooked up correctly. Improper hook-up will burst some part of the hydraulic system.*
7. Loose oil line connections, leaks in.....tighten all hose connections and replace lines, or broken lines. any damaged O-rings at leaking O-ring fittings. Check and replace any damaged hoses.
8. Restriction in oil lines.....check and replace any damaged hoses. Check for pinched hoses.
9. Oil is bypassing cylinder piston,.....replace or rebuild the cylinder; replace scored piston, worn piston packing, damaged parts. or defective piston assembly.
10. Scored piston rods and worn rod.....replace or rebuild the cylinder; replace guides in cylinder. damaged parts.
11. Bent piston rod in cylinder.....replace or rebuild the cylinder; replace damaged parts.
12. Worn or damaged rod seals on cyl-.....repack cylinder. Rebuild cylinder if inder; external leaks. necessary, replacing damaged parts.
13. Paint on valve spool, sticking valve.....clean valve spool. Binding is usually spool, or scored valve spool. caused from an over-tightened plug, mounting bolt, or fitting in valve body. If a plug or fitting in the valve body is leaking, do not over-tighten in an effort to stop leak. This will distort body casting and cause spools to bind. Instead the plug or fitting should be re-connected using a new O-ring. Do not apply excessive pressure on mounting bolts. Never force spool, if binding occurs, see item 27.
14. Oil leakage past spool seal into.....remove cap, if it contains oil, replace spool cap. spool seal O-rings. Check O-ring retainer to see if it is flat. If it has been BELLED check for restriction from outlet of valve to diverter which would cause excessive back pressure, see item 27 and the Control Valve Breakdown.
15. Broken return spring.....replace springs, see item 27 and the Control Valve Breakdown.
16. Bent spool.....replace with new valve.
17. Broken detent spring.....replace spring, refer to Control Valve Breakdown.

Hydraulic Trouble Shooting - continued

POSSIBLE CAUSE:

AND CORRECTION -

18. Excessive back pressure.....relieve condition. May be restriction from outlet of valve to manifold block.
19. Foreign particles.....clean system and valve.
20. Misalignment of control lever.....check linkage for binding condition.
21. Valve spool not moved to full stroke.....check travel, should be 3/16" either way or a total of 3/8".
22. Relief valve setting in loader auxiliary valve too low or defective.....relief pressure will have to be checked and corrections made. Refer to Specification Information page for system rated flow and pressure. Relief valve may need cleaning.
23. Worn control valve.....replace defective auxiliary valve.
24. Damaged or worn spool seals.....replace spool end seals, refer to Control Valve Breakdown.
25. Bucket overloaded.....weight of material in bucket is beyond system capacity, refer to Specification Information page for lift capacity, remove a portion of the load.
26. Defective load check, particles in.....clean or replace load check, refer to Control Valve Breakdown.
27. Problems involving the control valve proper.....

This valve is a precision device and is not intended for any extensive field adjustment or repair. Field replacement parts are limited to Seal Kits. Anything beyond the replacement of these parts, the opening of check cavities and certain relief valve cavities to examine for trapped dirt, or the resetting of the main relief valve with the use of a good pressure gauge, should be referred back to your dealer for service.

Dirt or shreds of packing material are the usual causes of valve malfunction. Be sure that the tractor reservoir oil supply is kept clean and that only factory supplied packings are used in cylinder repair. Everything must be clean

and free of dirt during oil line removal and replacement, or during any cylinder work. The Control Valve Breakdown illustrates various portions of the valve.

THE INCLUSION OF THIS INFORMATION AND ITS USE DOES NOT IMPLY THAT THE WARRANTY REMAINS EFFECTIVE ON THE VALVE IF IT IS TAMPERED WITH DURING ITS WARRANTY PERIOD.

Careful use of this information, after the warranty period, by qualified individuals with valve service training and experience, can correct minor problems which may develop.

Control Valve

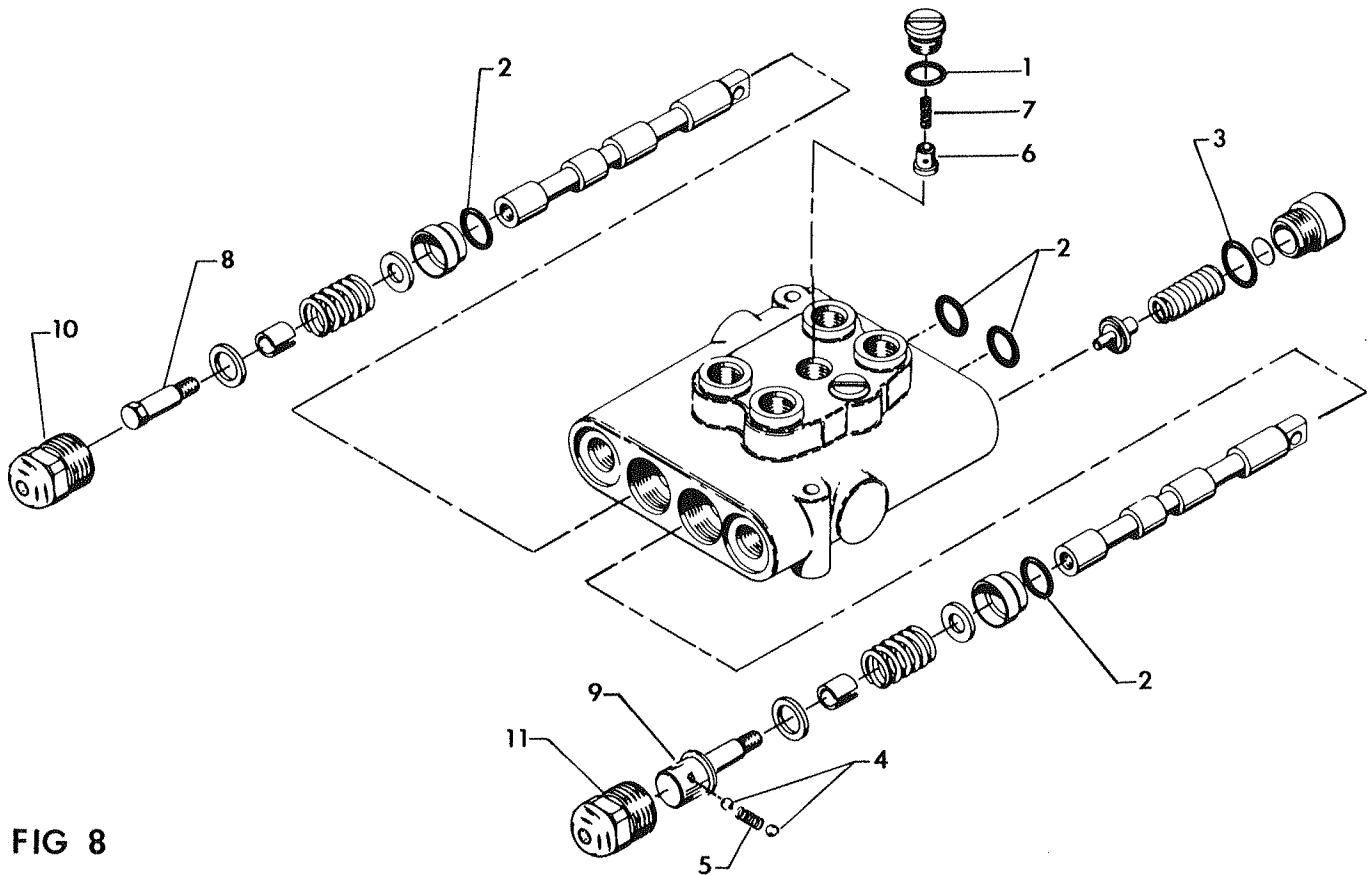


FIG 8

Parts List

Index	Part No.	Description	Quantity Per Valve
	10446	<u>Valve Seal Repair Kit</u>	1
		Includes:	<u>Per Kit</u>
1	*	O-Ring, 3/32 x 3/8 ID.....	2
2	*	O-Ring, 3/32 x 1/2 ID.....	4
3	*	O-Ring, 3/32 x 9/16 ID.....	1
	10222	<u>Detent Repair Kit</u>	1
		Includes:	<u>Per Kit</u>
4	*	Ball.....	2
5	*	Spring.....	1
	10223	<u>Load Check Repair Kit</u>	1
		Includes:	<u>Per Kit</u>
6	*	Plunger.....	1
7	*	Spring.....	1
8	10220	<u>Spool Screw</u>	1
9	10221	<u>Spool Screw, Detent</u>	1
10	10392	<u>Spool Cap, Short</u>	1
11	10393	<u>Spool Cap, Long</u>	1

Hydraulic Pump

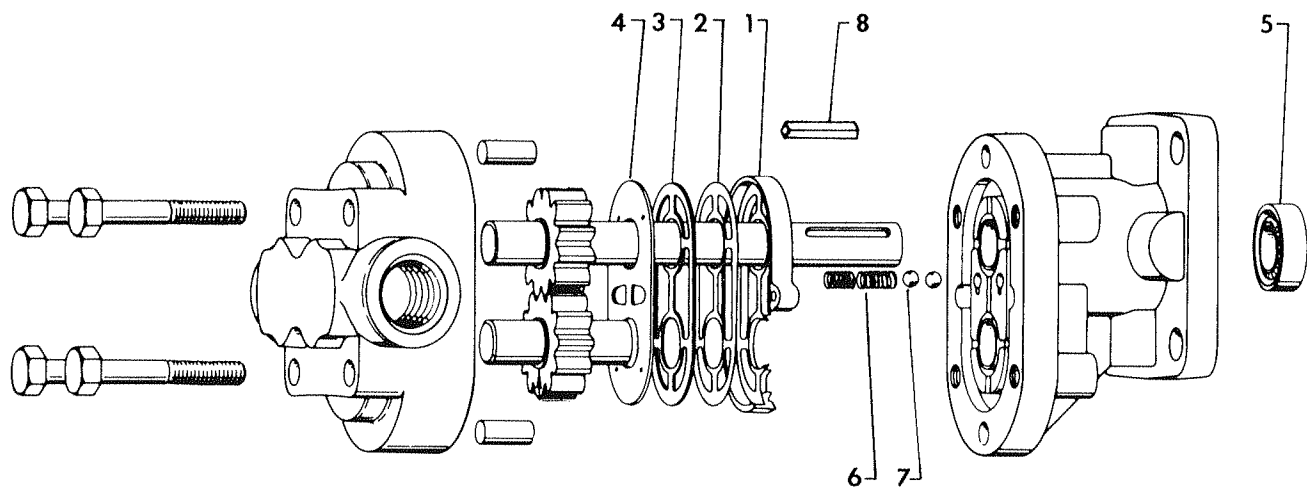


FIG 9

Parts List

Index	Part No.	Description	Quantity
	10369	Seal Repair Kit.....	1
		Includes:	Per Kit
1	*	Diaphragm Seal.....	1
2	*	Protector Gasket.....	1
3	*	Back-Up Gasket.....	1
4	*	Diaphragm.....	1
5	*	Shaft Seal.....	2
6	*	Spring.....	2
7	*	Steel Ball.....	2
8	604961	Key, 1/8 Square x 3/4.....	1
	10368	Pump Complete, Clockwise Rotation.....	
	605376	Pump Complete, Counter-Clockwise Rotation.....	
	*	Not available as separate repair part, order complete Seal Repair Kit - 10369	

Cylinders

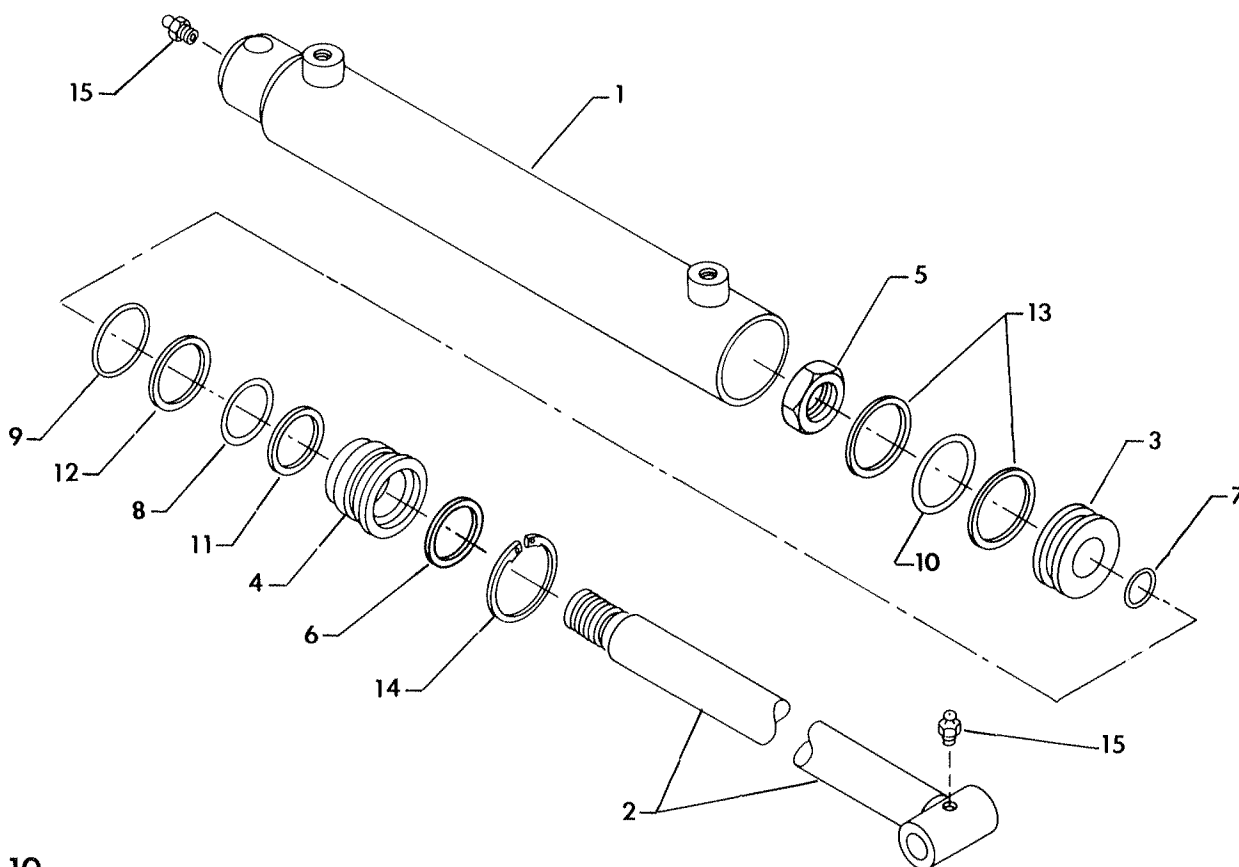


FIG 10

Parts List

Index	Description	Tilt 073:	Lift 074:
1	Cylinder Tube Weldment.....	904365	904380
2	Piston Rod Weldment.....	904375	904390
3	Piston.....	904231	904231
4	Head.....	904232	904232
5	Lock Nut, 1" NF.....	7712	7712
*6	Oil Seal, CR 11130.....	11605	11605
*7	O-Ring, ARP-210, 1" OD x 3/4 ID.....	11733	11733
*8	O-Ring, ARP-216, 1-3/8 OD x 1-1/8 ID.....	11740	11740
*9	O-Ring, ARP-224, 2" OD x 1-3/4 ID.....	11748	11748
*10	O-Ring, ARP-326, 2" OD x 1-5/8 ID.....	11769	11769
*11	Leather Washer, 6246-21.....	11805	11805
*12	Back-Up Ring, 8-224.....	11807	11807
*13	Back-Up Ring, 3-326.....	11808	11808
*14	Retaining Ring, N50000-206.....	13406	13406
15	Grease Fitting.....	14505	14505

* All parts marked are available as a complete cylinder repair packing kit, order..... 904260 904260

Specifications

LOADER MODEL 25:

Hydraulic System.....Independent
 Rated Flow.....3.2 GPM at 2700 RPM
 Rated Pressure.....900 PSI at 3.2 GPM

Lift Capacity at Full Height....500 lbs.

Break-away Capacity.....875 lbs.
 (at tip of Bucket)

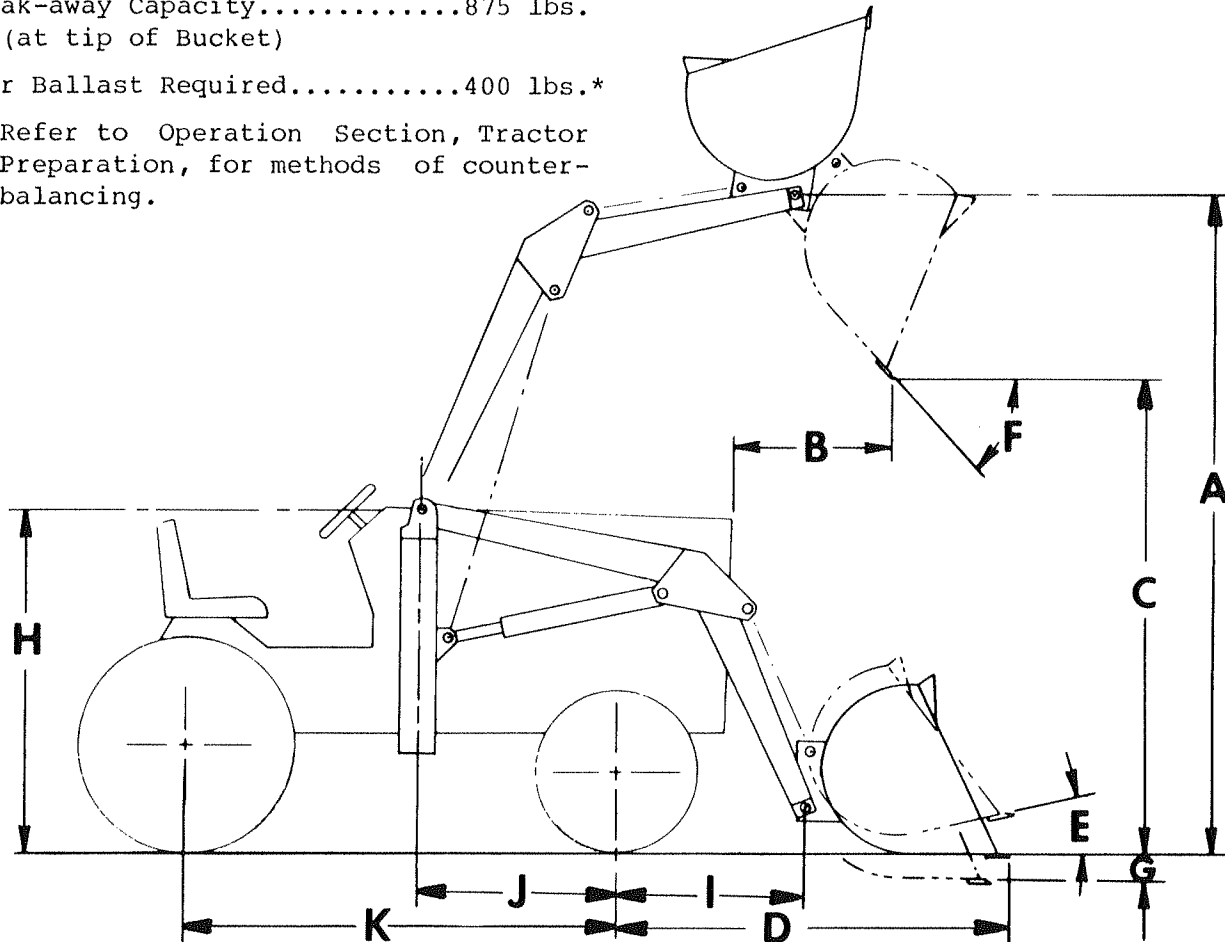
Rear Ballast Required.....400 lbs.*

* Refer to Operation Section, Tractor
 Preparation, for methods of counter-
 balancing.

BUCKET

STRUCK CAPACITY

B269 Material Bucket, 42"...5.00 cu.ft.
 B270 Material Bucket, 48"...5.75 cu.ft.
 B271 Light Material
 Bucket, 60".....6.34 cu.ft.



- A. 73-1/8 - Maximum Lift Height to Bucket Pivot
- B. 20-3/4 - Reach at Maximum Height
- C. 54" - Maximum Clearance Under Fully Dumped Bucket
- D. 46-1/4 - Reach with Bucket on the Ground
- E. 16° - Bucket Roll-back Angle
- F. 42° - Maximum Dump Angle
- G. 3" - Digging Depth Below Ground Level
- H. 38-1/2 - Tower (upright) Pivot Height
- I. 23" - Dimension Front Axle to Bucket Pivot
- J. 20" - Dimension Upright Pivot to Front Axle
- K. 46" - Tractor Wheelbase: Tire size - Front: 16 x 6.50-8
 Rear : 23 x 10.5-12

NOTE - John Deere 317 Tractor used for Loader Specifications.

SERVICE NOTES:

SERVICE NOTES:

Limited WARRANTY — 90 Day

ARPS DIVISION OF CHROMALLOY WARRANTS EACH NEW PRODUCT TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF 90 DAYS FROM THE DATE OF DELIVERY TO THE ORIGINAL RETAIL PURCHASER OR DATE OF FIRST RENTAL.

LIMITATIONS:

- 1 . Obligation under this warranty is limited to repair or replacement of parts which ARPS determines to be defective.
- 2 . This warranty does not apply to components or other trade accessories not manufactured by ARPS. Customer shall rely solely on the existing warranty, if any, of the respective manufacturers thereof.
- 3 . Products which have been operated improperly, subjected to abuse, negligence, accident, or upon which unauthorized repairs or alterations have been made, are not covered by warranty. It does not cover depreciation or damage caused by normal wear.
- 4 . ARPS is not liable for warranty or service transportation expenses incurred between the customer and dealer.
- 5 . Parts may not be returned to ARPS without authorization. Warranty shipping charges between the dealer and ARPS, will be paid by ARPS, if authorization has been given to the dealer.
- 6 . Form AWAR-674 must be received by ARPS within 30 days of the date of repair to be considered for warranty.
- 7 . 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 will ARPS be liable for consequential or special damages.
- 8 . In keeping with ARPS' policy of constant improvement, we reserve the right to change our specifications or design at any time.

1-78



ARPS DIVISION OF CHROMALLOY

NEW HOLSTEIN WISCONSIN 53061 U.S.A.
PHONE 414/898-4291

