

HONDA

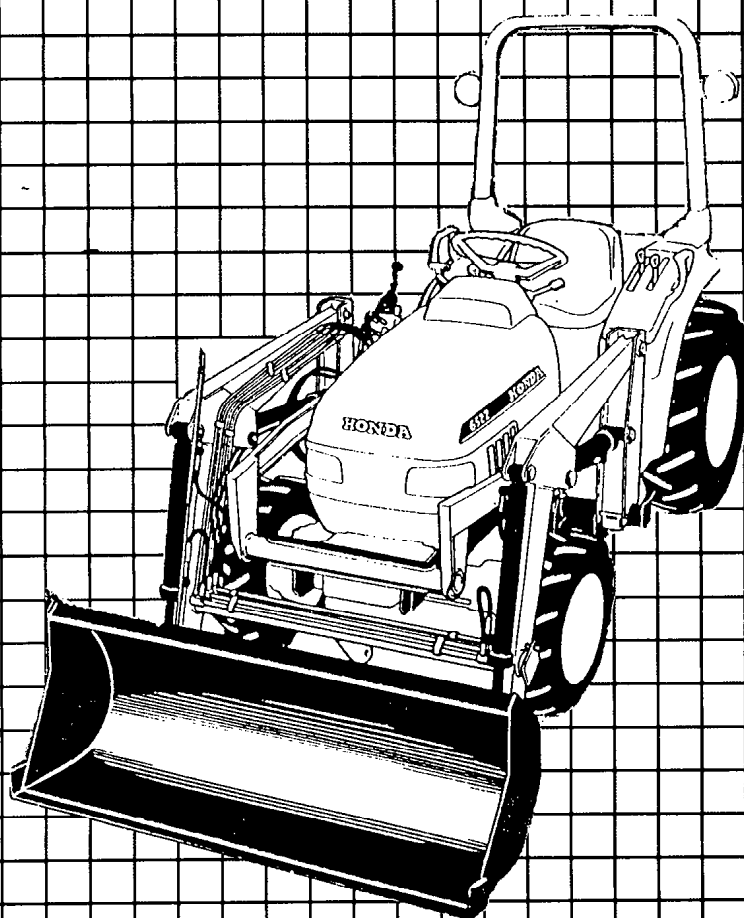
Power

Equipment

OPERATOR'S MANUAL

**FRONT LOADER
MODEL FL6555**

**FOR
HONDA H6522(A4) COMPACT TRACTOR**



HONDA DEALER: PLEASE GIVE THIS PUBLICATION TO YOUR CUSTOMER

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POP50380 - 50578 (9108)

H/C 3922093

Thank you for purchasing an HTA FL6555 Front Loader Attachment for your Honda H6522 (A4) Compact Tractor.

This manual covers the assembly, operation, and maintenance of the HTA Model FL6555 Front Loader. For your convenience, a repair and parts guide is also included in this publication.

NOTE: The illustrations in this manual are intended to serve as a reference and may not necessarily depict the actual model listed above. The information in this publication is based on the latest product information available at the time of printing. American Honda Motor Co., Inc. reserves the right to make changes at any time without notice and without incurring any obligation.

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This manual is considered a permanent part of the Front Loader and it must stay with the Loader if resold.

Safety Messages

Your safety and the safety of others are very important. We have provided important safety messages in this manual and on the front loader. Please read these messages carefully.

A safety message alerts you to potential hazards that could hurt you or others. Each safety message is preceded by a safety alert symbol and one of three words: **DANGER. WARNING, CAUTION**

These words mean:

 **DANGER**

You WILL be KILLED or SERIOUSLY HURT
If you don't follow instructions.

 **WARNING**

You CAN be KILLED or SERIOUSLY HURT
If you don't follow instructions.

 **CAUTION**

You CAN be HURT If you don't follow
Instructions

Each message tells you what the hazard is, what can happen, and what you can do to avoid or reduce injury

Damage Prevention Messages

You will also see other important messages that are preceded by the word **NOTICE**.

This word means:

NOTICE

Your equipment or other property can be
damaged if you don't follow instructions.

Using this product for a purpose not intended may cause injury or property damage. Read and understand this Operator's Manual before operating the front loader; failure to do so could result in personal injury or equipment damage.

If a problem should arise, or if you have any questions about your Front Loader, consult an authorized Honda Compact Tractor Dealer.

TABLE OF CONTENTS

SAFETY	
General information	3
Safe operating rules	4
Operation safety	5
Maintenance safety	7
Safety label locations	8
 SHIPPING INVENTORY	 9
 TRACTOR PREPARATION	 11
 FRONT LOADER SPECIFICATIONS	 12
 SET-UP INSTRUCTIONS	 13
Torque specifications	14
Sub frame installation and removal	15
Hydraulic valve package installation	19
Loader assembly installation	21
Start-up procedures	22
Pre-Delivery checklist	24
 OPERATION	 25
Loader subframe installed with MM60 Mower Deck	29
 LOADER REMOVAL AND INSTALLATION	 31
Storage	33
 LUBRICATION AND MAINTENANCE	 35
 SERVICE	 37
Lift and bucket cylinders	39
Hydraulic valve	41
 TROUBLESHOOTING	 45
 HYDRAULIC SYSTEM SCHEMATIC	 50
 PARTS LIST	 51
 WARRANTY ASSISTANCE	 61

General Information

Introduction

The purpose of this manual is to assist you in maintaining and operating your HTA FL6555 Front Loader. Read it carefully; it furnishes information and instructions that will help you achieve years of dependable performance. Some information may be general in nature due to unknown and varying conditions. However, through experience and these instructions, you should be able to develop operating procedures suitable to your particular situation.

"Right" and "Left" as used throughout this manual are determined by facing the direction the machine will travel when in use.

Illustrations and data used in this manual are current at the time of printing, but due to possible in-line production changes, your machine may vary slightly in detail. Extra equipment that may be shown on the machine is optional at extra cost. The manufacturer reserves the right to redesign and change the machine as may be necessary without notification.

Illustrations used in this manual may not show all safety equipment that is recommended to ensure safe operation of tractor/loader. Refer to Safety Section of this manual and the tractor owner's manual for information concerning safety equipment. Consult your Dealer for further information.

Serial Number and Location

The Serial Number is important information about the machine, and it may be necessary to know it before obtaining the correct replacement part. The serial number is located on the right side of loader sub frame as shown.

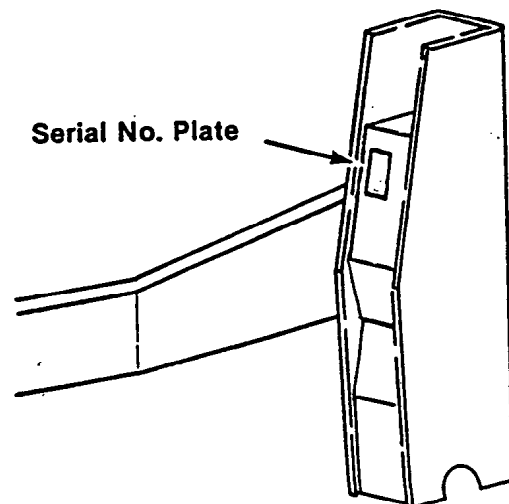
Replacement Parts

Genuine Honda replacement parts only should be used to repair this machine. Honda replacement parts are available from your Honda Compact Tractor Dealer. To obtain prompt, efficient service, always remember to give the dealer the following information:

Correct part description or part number.

Model number of your machine.

Serial Number of your machine.



SAFETY

Front Loader Safety

Operation of the Tractor and Front Loader requires special efforts on your part to ensure your safety and the safety of others. Know these requirements before you operate the Tractor or the Front Loader.

SAFE OPERATING RULES

- Severe personal injury or equipment damage may result if the operation instructions on pages 5 and 6 are not followed.

To avoid severe personal injury or equipment damage, observe the following precautions:

- All parts, especially guards and shields, should be in good condition and securely fastened in place.
- Do not remove any guards, warning labels, shields or safety devices; they are installed for your safety.
- The tractor roll over protection structure (ROPS) will only protect you from injury, if;
 - you are also wearing the seat belt.
 - the ROPS is securely attached and has not been modified or structurally damaged.
- Always wear sturdy shoes and avoid wearing bulky or loose clothing while operating the tractor or the front loader.
- Never operate the tractor or the front loader when tired or while under the influence of drugs or alcohol.
- In case of emergency, know how to stop the engine and thoroughly understand the operation of ALL controls.
- Never permit anyone to operate the tractor or the front loader without proper instructions.
- Children should not be permitted to operate the tractor or the front loader.
- KEEP CHILDREN AND PETS AT A SAFE DISTANCE DURING OPERATION.
- The tractor is an operator only vehicle, do not allow passengers to ride on the tractor or the front loader.
- Never allow anyone to get under the front loader bucket or reach through the lift arms when the bucket is raised or the tractor engine is running.
- The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death if the tractor and front loader are operated in an enclosed area.

BEFORE STARTING

- The use of heavy equipment and/or pulling or lifting excessive loads may adversely affect vehicle stability and control. To avoid loss of control that can result in severe personal injury:
 - Only use recommended tractor hitch attachment points.
 - Limit loads to those within tractor and front loader limitations as stated in this manual and in the tractor owner's manual.
 - Be extra careful when turning or backing up, and when on uneven terrain.
 - Use counterweights as indicated in this manual and the tractor owner's manual.
- Before installing or using the front loader, carefully read all instructions and precautions.

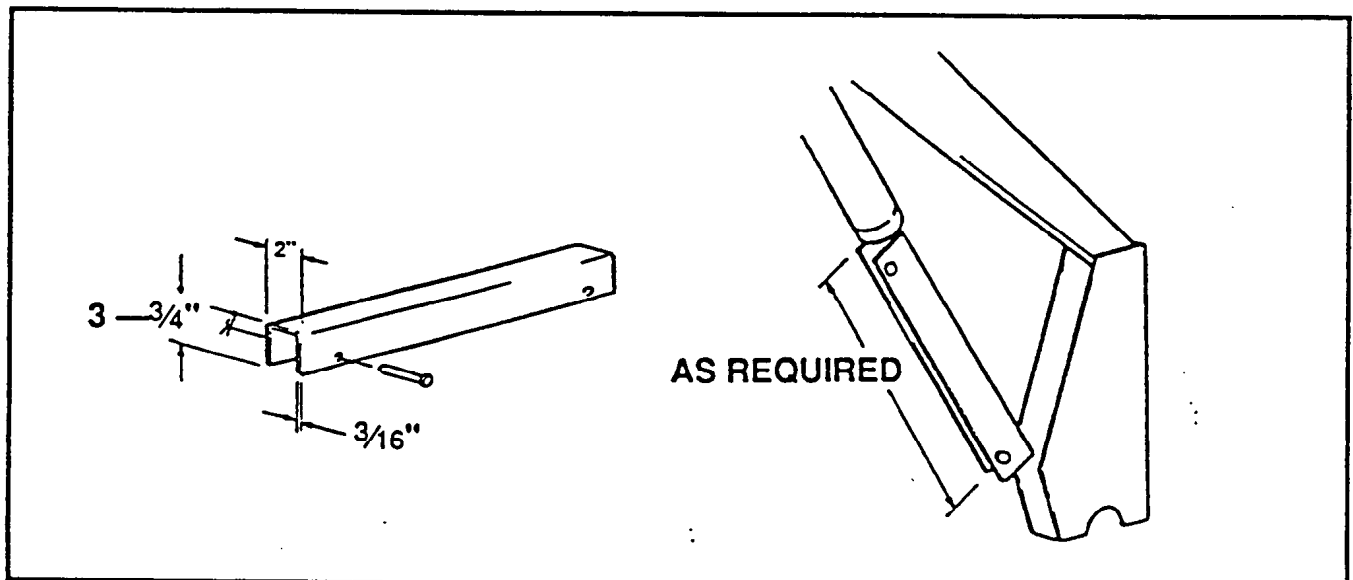
OPERATION

- Be sure to fasten the seat belt whenever driving the tractor with the Rollover Protective Structure (ROPS) attached. Use of either device (Seat belt or ROPS) without the other will increase the chance of injury in a rollover.
- Adjust the seat belt so that it is snug.
- Be sure that the main transmission lever is in "Neutral" and the Power Take Off (PTO) levers are in the "OFF" position and brake is engaged before starting the engine.
- Operate the tractor and the loader at slow speeds until you become familiar with all of the operating characteristics and controls.
- Do not operate the tractor or the loader until you are sure the area in front and behind is clear of people and pets.
- Sudden stops of the tractor and loader during operation could cause the tractor to overturn. Be especially careful during sharp turns and when the front loader bucket has material in it.
- Carry the front loader arms at a low position during transport. This will enhance vehicle stability and front vision.
- Using the front loader for handling large objects such as round hay bales, logs or oil drums is not recommended. These items can easily shift or roll down the loader arms causing equipment damage or severe personal injury.
- Never operate the tractor or front loader when visibility is diminished by darkness or by bad weather, your ability to see obstacles will become impaired.
- Avoid loose fill, rocks and holes. They may cause vehicle instability or cause the vehicle to overturn.
- The front loader is intended for relatively flat terrain.
- Avoid overhead wires and obstacles when the front loader is in the raised position. Contacting electric wires can cause electrocution.
- Allow for the added length of the front loader attachment when making turns to prevent striking people or objects.
- When operating the front loader on a slope, always drive up and down the face of the grade. Turning or driving across the face of a slope may cause the tractor to overturn.

- Operate the front loader arms gradually by “feathering” the loader controls to prevent abrupt movements that could cause damage to the front loader or tractor.
- Use added caution when working with shifting or loose loads in the front loader bucket. It could cause vehicle instability or fall out of the bucket and cause severe personal injury.
- Attempting to change gears while operating the front loader on a slope may adversely affect vehicle stability and control and severe personal injury could result.
- Do not back down, or rapidly accelerate up a sloping surface.
- To avoid loss of control or overturning, do not turn or stop on sloping surfaces.
- Do not operate the front loader near the edge of a ditch or an embankment. Slipping off the edge could lead to severe personal injury and equipment damage.
- When descending a slope, disengaging the clutch or shifting to neutral can cause loss of control that may result in severe personal injury.
- Never use individual brakes during front loader operation. Use of individual brakes during front loader operation can cause abrupt movements of the tractor causing severe personal injury or equipment damage.
- Be sure to follow instructions below whenever applying the tractor differential lock during front loader use.
 - Do not apply the tractor differential lock while turning, use the differential lock only while driving in a straight line.
 - Never apply the tractor differential lock on paved surfaces.
- To avoid injury to yourself and others, before leaving the front loader unattended, ALWAYS:
 - Park on level ground.
 - Lower the front loader bucket flat to the ground.
 - Disengage the front loader drive system.
 - Lock the parking brake.
 - Stop the engine.
 - Remove the key.
- If you find it necessary to park on a grade, be sure to lock the parking brake and securely block the wheels.

MAINTENANCE SAFETY

- Before performing maintenance/inspections, read the instructions thoroughly.
- Before cleaning, inspecting or servicing the loader, be sure to;
 - lower the front loader bucket flat to the ground.
 - stop the engine and remove the key.
- Always wear safety goggles when servicing or replacing the front loader cylinder pins. Use a brass drift and hammer. Failure to do so could result in eye injury from possible flying metal fragments.
- Operating the front loader or the tractor with damaged, worn, or broken parts may result in severe personal injury.
- Before disconnecting any hydraulic lines, relieve all hydraulic pressure by moving the hydraulic control lever through all positions with the engine off.
- Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. If injured by escaping fluid, obtain medical treatment immediately. Oil must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.
- Do not tamper with relief valve settings. The relief valve is factory set to the proper pressure. Changing the setting can cause damage to the loader and tractor and lead to severe personal injury.
- All nuts, bolts and fasteners must be properly secured.
- If you must work beneath a raised loader make sure the loader arms are blocked in the raised position with a safety bar. A suitable safety bar can be manufactured following dimensions as illustrated below.



Safety Label Locations

Read all safety labels and instructions on machine, as shown below.

NOTE: Replacement Safety Labels can be ordered from your dealer.

WARNING

IMPROPER SERVICING CAN CAUSE SERIOUS INJURY OR DEATH

- Before servicing or adjustment lower loader to the ground and shut off engine.
- Relieve hydraulic pressure before disconnecting oil lines.

WARNING

TRACTOR TIP-OVER CAN CAUSE SERIOUS INJURY OR DEATH

- Add recommended wheel ballast and/or counterweights for stability.
- Drive and turn tractor at slow speed.
- Place loader low when transporting loads, especially on an incline or rough terrain.
- Put loader on ground when parked.
- Read and understand all instructions in operator's manual before operation.

NOTICE

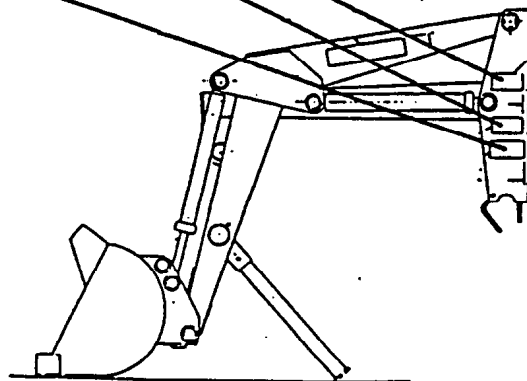
Tractor hydraulic oil should be checked frequently to maintain proper level and prevent damage.

Loader boom must be down and bucket cylinders fully retracted when checking fluid level.

NOTICE

WHEN MOWER DECK IS INSTALLED WITH FRONT LOADER, LIFT LINKAGE MUST BE READJUSTED TO PREVENT DAMAGE TO THE LIFT MECHANISM

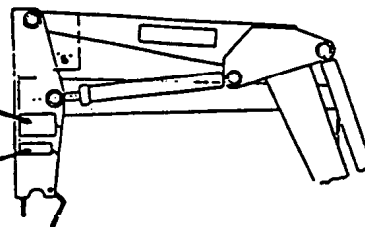
REFER TO OPERATOR'S MANUAL FOR ADJUSTMENT INSTRUCTIONS.



WARNING

LOADS CAN FALL FROM BUCKET CAUSING SERIOUS INJURY OR DEATH

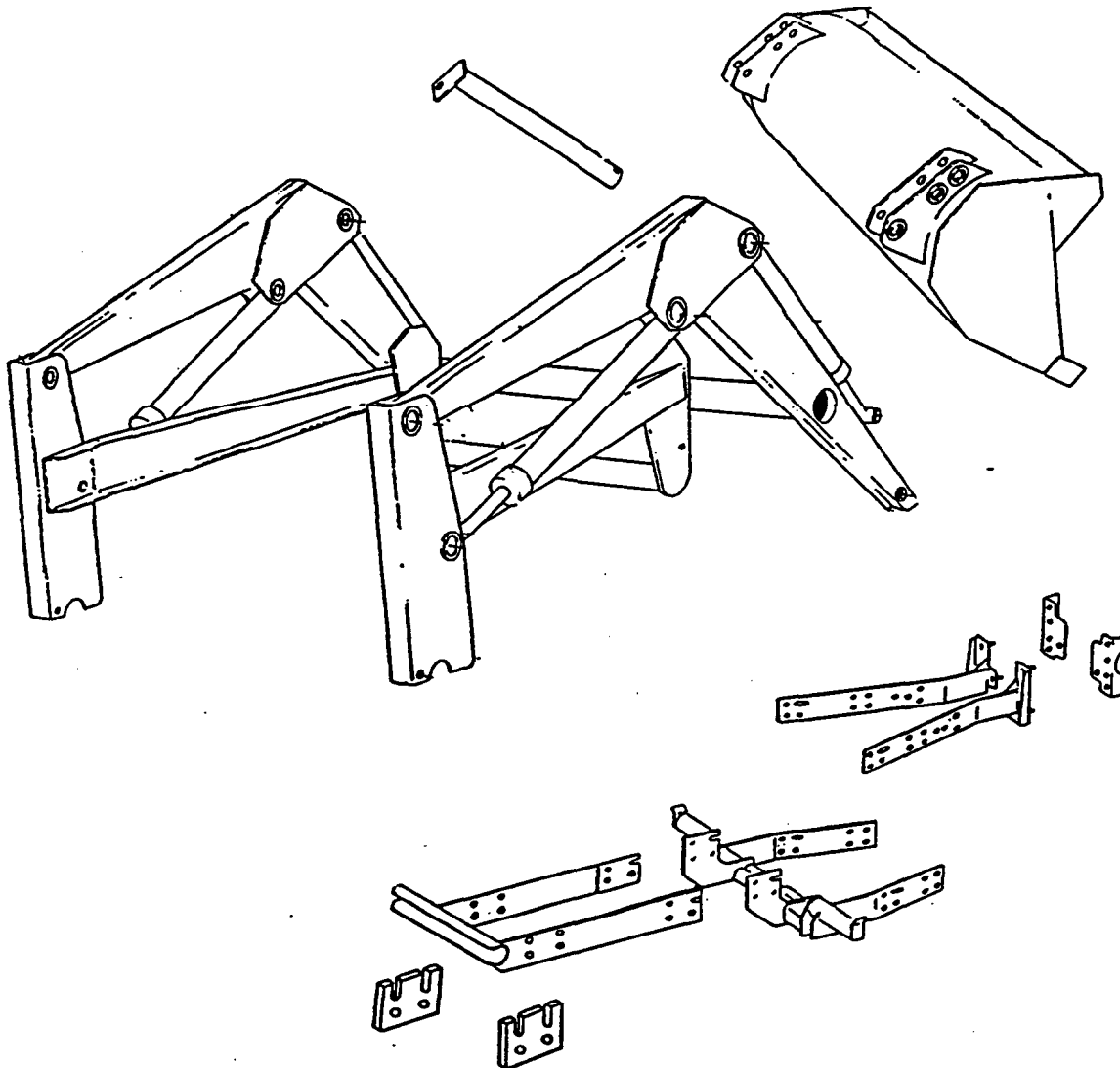
- Improperly handling large heavy objects can cause the tractor to roll or tip over, or can cause the load to roll or slide down the loader arms onto the operator.
- Driving on uneven terrain can cause the load to tip out of bucket onto the operator or bystanders.
- Read and understand all instructions in operator's manual before operation.



INFORMATION

Tractor loader attachments for handling large objects are available from agricultural suppliers.

SHIPPING INVENTORY



MAJOR COMPONENTS:

- 1 SUB-FRAME ASSEMBLY
- 2 LOADER BOOM ASSEMBLY (w/stand)
- 3 LOADER BUCKET ASSEMBLY

HYDRAULIC VALVE PACKAGE

- 1 SINGLE LEVER CONTROL(w/ assy. instr.)
- 1 HYDRAULIC CONTROL VALVE
- 2 18" HYDRAULIC HOSE ASSEMBLY
- 2 20" HYDRAULIC HOSE ASSEMBLY
- 2 38" HYDRAULIC HOSE ASSEMBLY
- 1 LABEL, HYDRAULIC FUNCTIONS

1 BOLT SACK:

- 2 .25 - 20 hex nut
- 2 .313 - 18 nut
- 2 .25 - lockwasher
- 2 .313 lockwasher
- 2 .25 - 20 x 2.00" hex head gr. 5
- 2 .313 - 18 x 1.00" hex head gr. 5
- 1 .375" quick coupler assembly
- 1 hydraulic hose dust plug
- 1 hydraulic hose dust cap

WOODEN BOX INVENTORY

- 2 SWINGING HINGE ASSEMBLY
- 1 REAR MOUNT ASSEMBLY (RH)
- 1 REAR MOUNT ASSEMBLY (LH)
- 2 SPACER PLATE
- 1 REAR RAIL ASSEMBLY (RH)
- 1 REAR RAIL ASSEMBLY (LH)
- 1 BUCKET LEVEL INDICATOR TUBE ASSY
- 1 BUCKET LEVEL INDICATOR ROD
- 3 BUCKET PIVOT PIN (1.0 x 4.00")
- 1 BUCKET PIVOT PIN (1.00 x 4.25")
- 1 OPERATOR'S MANUAL
- 1 HYDRAULIC VALVE PACKAGE

1 BOLT SACK

- 24 .50 - 13 hex nut
- 38 .50 flat washer
- 2 .50 flat washer (wide)
- 44 .50 lock washer
- 16 .50 - 13 x 2.00 hexhead gr. 5
- 4 12mm x 1.25 x 30mm hexhead gr. 10.9
- 8 12mm x 1.25 x 50mm hexhead gr. 10.9
- 8 12mm x 1.25 x 55mm hexhead gr. 10.9
- 2 .50 - 13 x 4.00" carriage bolt
- 2 .50 x 3.625" clevis pin
- 2 .094 x 1.688" hitch pin clip
- 4 pivot pin clip
- 1 plastic tie strap

TRACTOR PREPARATION

Rear Counterweight

DO NOT EXCEED THE RATING FOR MAXIMUM GROSS VEHICLE WEIGHT. REFER TO OWNER'S MANUAL PROVIDED WITH TRACTOR.

The use of adequate counterweight for maximum loader capacity is required for proper stability.

PROPER COUNTERWEIGHT AND BALLAST FOR H6522 (A4):

FL6555 FRONT LOADER ONLY

Ag tires:

99 pounds (45 Kg) ballast in each rear tire.
75 pound (31.8 Kg) wheel weight on each rear wheel.

Three point hitch mounted with rear weight box containing 583 pounds (265 Kg) of sand.

Turf or High float:

236 pounds (107 Kg) ballast in each rear tire.
Three point hitch mounted with rear weight box containing 583 pounds (265 Kg) of sand.

FL6555 FRONT LOADER AND BH6575 BACKHOE

Ag tires

99 pounds (45 Kg) ballast in each rear tire.
75 pound (31.8 Kg) wheel weight on each rear tire.

Turf or High Float:

170 Pounds (77 Kg) ballast in each rear tire.

Additional counterweight requirements will vary with loader attachments and equipment applications.

⚠ CAUTION Certain specific conditions may not permit safe use of loader at loader rating or may require more careful restricted operation at the rated load.

TIRE TYPES

Agricultural (Recommended)

Turf

High Flotation

TIRE INFLATION:

	AG TIRES	TURF TIRES	HIGH FLOAT
Front	30 psi	22 psi	16 psi
Rear	20 psi	20 psi	28 psi

Rear tires must be maintained at equal pressure within the recommended tire inflation range. Unequal rear tire inflation can prevent loader attachment from contacting the ground across its full width.

Roll-Over Protection Structure (ROPS) System

The tractor ROPS system must be in place and used properly to ensure adequate operator protection.

Tractor Hydraulic System

Tractor operation in a loader application significantly increases demands on the tractor hydraulic system. Check the tractor hydraulic system fluid level daily. Refer to your tractor owner's manual for instructions regarding tractor hydraulic system maintenance.

Follow recommendations in your Tractor Owner's Manual concerning Hydraulic Fluid and Filter change intervals.

Refer to tractor owner's manual for hydraulic fluid specifications.

⚠ CAUTION The tractor/loader must only be operated with all safety equipment properly installed.

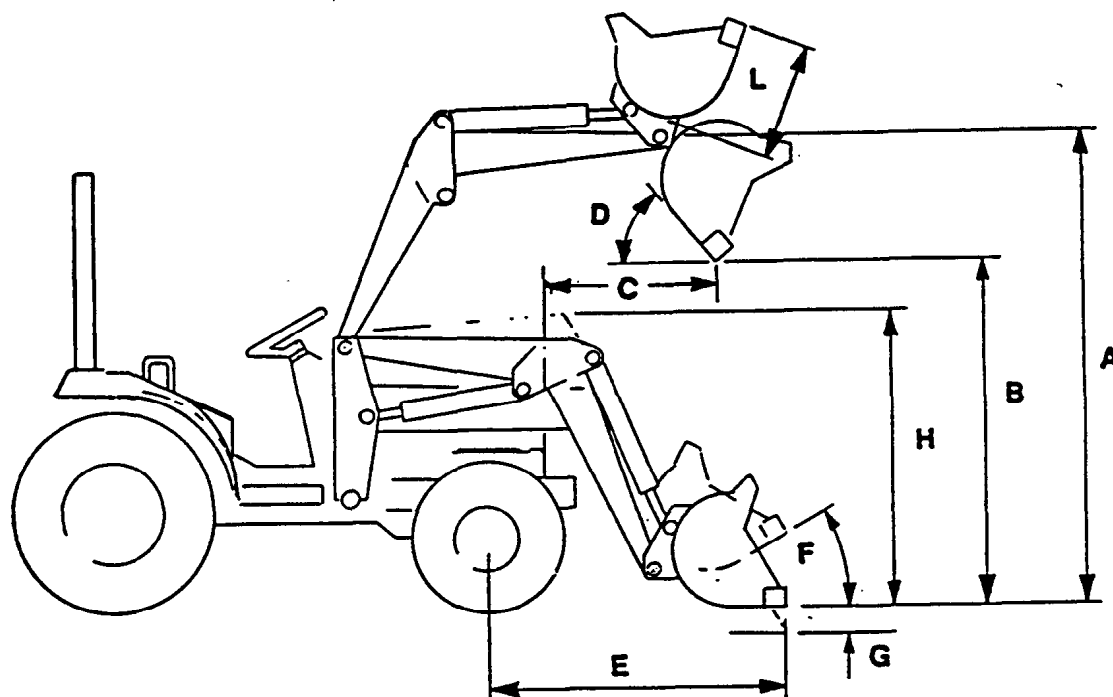
Front Counterweight

Use of front counterweight is not recommended when tractor is being used in a loader application.

Front counterweight adds unnecessary front axle load in loader applications.

LOADER SPECIFICATIONS

Specifications shown are based on ASAE Standards. Specifications may vary with tire size options and type of attachment.



Front tires AG	Type 30 PSI
Rear Tires AG	Type 20 PSI
A Maximum Lift Height	.1895mm(74.6in.)
B Clearance with Bucket Dumped	.1516mm(59.7 in.)
C Reach at Maximum Height	.691mm (27.2in.)
D Maximum Dump Angle	.36°
E Reach with Attachment on Ground	.1183mm(46.5in.)
F Attachment Rollback Angler	.21°
G Digging Depth below Grade	.113mm(4.4in.)
H Overall Height in Carry Position	.1280mm(50.5in.)
L Length of Attachment	.432mm(17in.)
Lift Capacity to Full Height	.550 Lbs.
Breakaway Capacity	.950 Lbs.
Bucket Cylinders	.1.5" x 14"
Lift Cylinders	.1.75" x 13"
Relief Valve Pressure Setting (Loader)	.1700 PSI

SET-UP INSTRUCTIONS

General

Read Set-up instruction completely prior to installing loader to familiarize yourself with all mounting and hydraulic system installation procedures.

Ensure tractor is prepared as described in Tractor Preparation Section.

The loader operates from the tractor hydraulic system.

Reference to LH or RH is as viewed from the operator's seat.

A pipe thread sealant must be used on all pipe threads.

All hardware required for mounting is supplied.

All loader mount component hardware should be left loose until all mount components have been installed.

Unless otherwise specified, refer to Torque Specification Table for torque values of hardware required for assembly.

Layout and identify all components prior to installation.

SET-UP INSTRUCTIONS

TORQUE SPECIFICATIONS

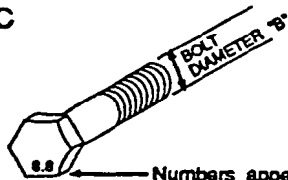
PROPER TORQUE FOR FASTENERS

Bolt Head Markings

AMERICAN



METRIC



Numbers appearing on bolt heads indicate ASTM class.

TORQUE SPECIFICATIONS (AMERICAN)

Proper torque for American fasteners used on Honda equipment.

Recommended Torque in Foot Pounds (Newton Meters). *

WRENCH SIZE (IN.) "A"	BOLT DIAMETER (IN.) "B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4-20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4-28 UNF	6 (8)	8 (13)	14 (18)
1/2	5/16-18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16-24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8-20 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8-24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16-14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16-20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2-13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2-20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16-12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16-18 UNF	79 (107)	122 (165)	172 (233)
1	5/8-11 UNC	97 (131)	150 (203)	212 (287)
1	5/8-14 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4-10 UNC	144 (195)	266 (360)	376 (509)
1-1/8	3/4-16 UNF	192 (260)	297 (402)	420 (569)
1-5/16	7/8-9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8-14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1 - 8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1-12 UNF	274 (371)	705 (955)	1019 (1381)
1-1/2	1 - 14 UNF	280 (379)	721 (977)	1288 (1745)
1-11/16	1-1/8-7 UNC	354 (480)	795 (1077)	1444 (1957)
1-11/16	1-1/8-12 UNF	397 (538)	890 (1077)	1817 (2462)
1-7/8	1-1/4-7 UNC	500 (678)	1120 (1518)	2013 (2728)
1-7/8	1-1/4-12 UNF	553 (749)	1241 (1682)	2382 (3228)

* Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque values for lubricated fasteners.

TORQUE SPECIFICATIONS (METRIC)

Proper torque for Metric fasteners used on Honda equipment.

Recommended Torque in Foot Pounds (Newton Meter).

WRENCH SIZE (mm) "A"	BOLT DIAMETER (mm) "B"	ASTM CLASS 4.6	ASTM CLASS 8.8	ASTM CLASS 9.8	ASTM CLASS 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
12	8	7.3 (10)		21.1 (29)	27 (37)
14	10	14.5 (20)		42 (57)	53 (72)

SUB FRAME INSTALLATION AND REMOVAL

1. Remove mower deck if installed. (See mower operator's Manual.)
2. Ensure tractor is prepared as described in Tractor Preparation section of this manual.
3. Remove the front plate (and mower front link bracket if installed.)
4. Loosely install a 12mm x 55mm capscrew in the top, rearmost holes on each side of tractor frame. Engage the bolt threads approximately 10mm. These bolts will act as guide bolts to make front bracket installation easier.

Position the Front Bracket as shown and slip the slotted holes over the guide bolts.

5. Loosely install two 12mm x 55mm capscrews 1/2" lockwashers and 1/2" flatwashers in the holes immediately forward of the guide bolts on each side.

Remove the guide bolts installed in step #4 above.

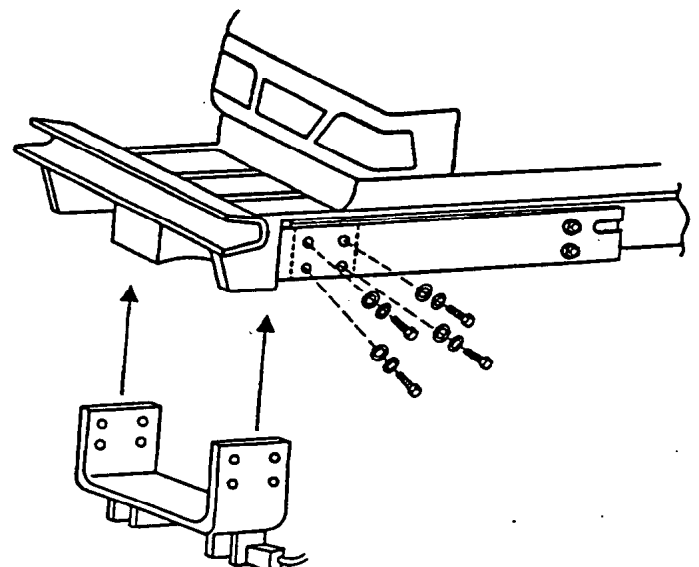
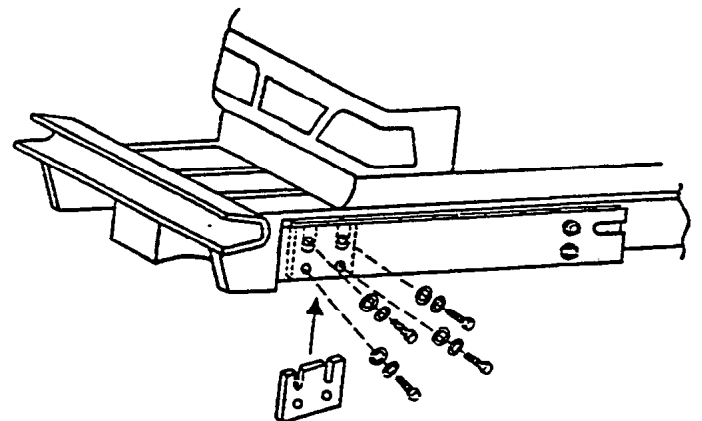
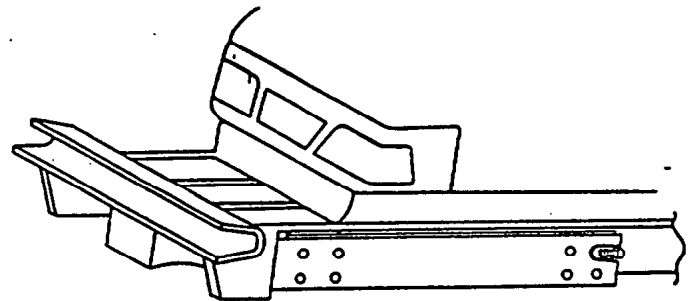
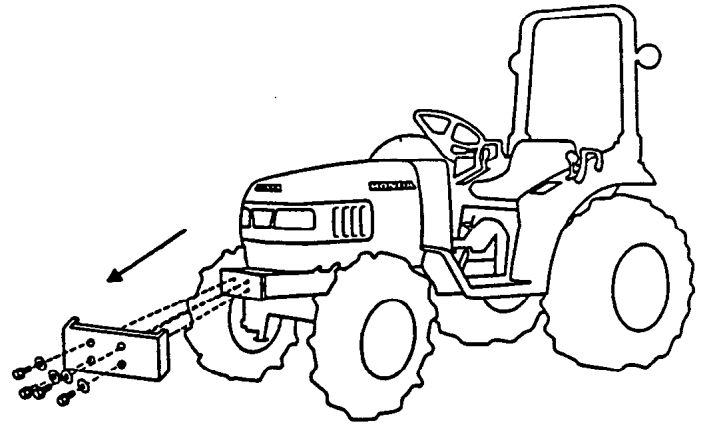
WITH-OUT MOWER INSTALLATION:

6. Loosely install the two Spacer Plates (one each side) as shown using four 12mm x 45mm capscrews, 1/2" lockwashers, and 1/2" flatwashers in the four front bolt patterns.

WITH MOWER INSTALLATION:

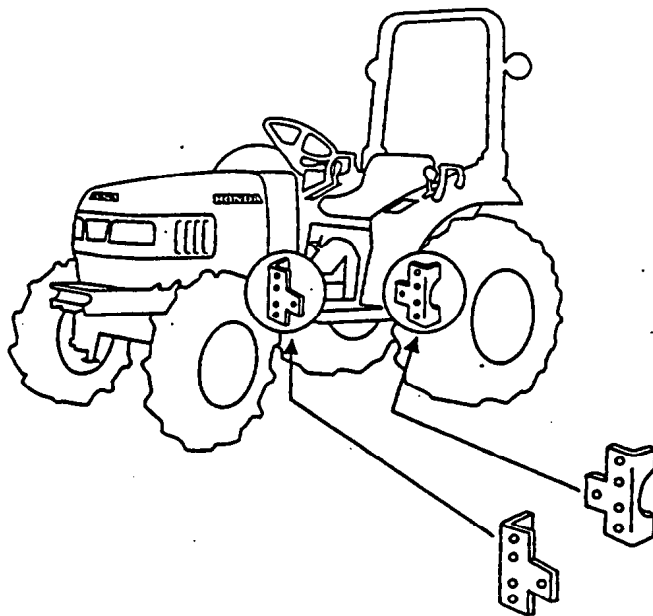
6. Loosely install the Front Link Bracket (supplied with mower) as shown using four 12mm x 45mm capscrews, 1/2" lockwashers, and 1/2" flatwashers in the four front bolt patterns on each side.

NOTICE If installing mower at this time, follow instructions in the mower operator's manual and instructions on page (29) of this manual to prevent damage to mower deck and mower linkage.

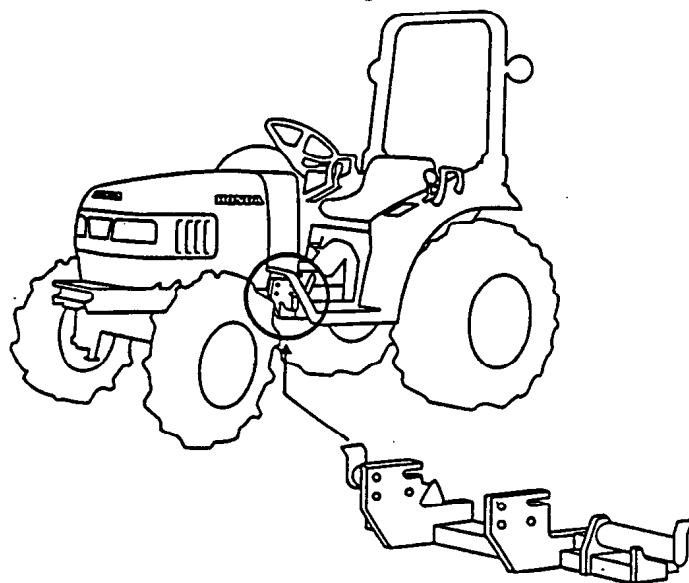


7. Install right and left Rear Brackets onto boss of rear axle using two 12mm x 30mm capscrews and 1/2" lockwashers (no flatwashers) each side.

Torque to 55 foot pounds (7.5 Kgm)

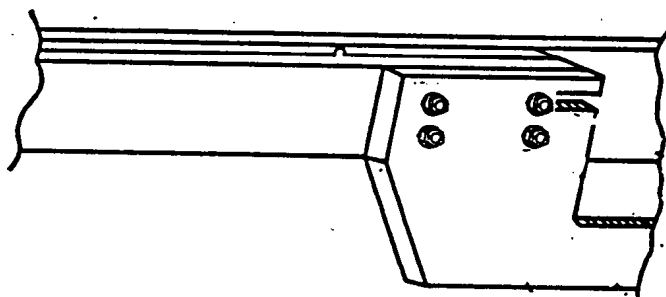


8. Place loader Bracket under tractor as shown.

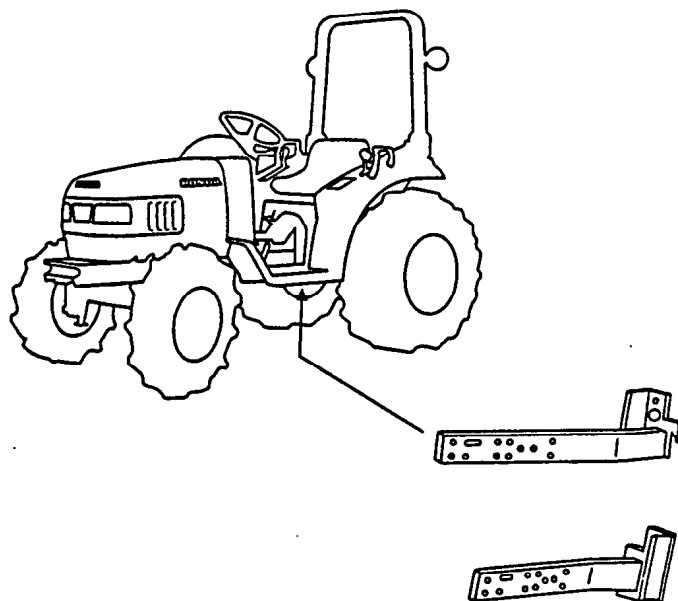


9. Remove the (two each side) loosely installed 12mm x 55mm bolts installed in step 5.

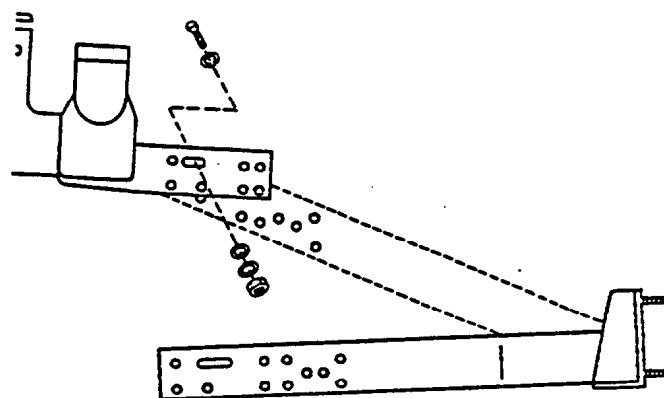
Using two people, one each side, raise the Loader Bracket into position. Align the bolt holes using a drift pin and loosely install four 12mm x 55mm capscrews, 1/2" lockwashers and 1/2" flatwashers on each side.



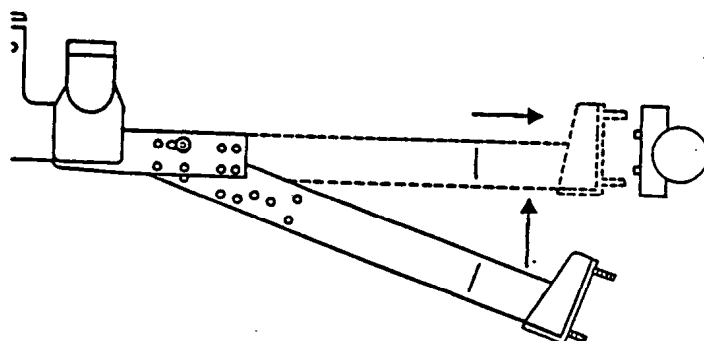
10. Place loader Rear Rails under the transmission area as shown (one each side.)



11. Raise the front of each Rear Rail and align the slotted holes (each side) with the slotted holes in the Loader Bracket. Loosely install (from inside to outside) a 1/2"-13 x 2" capscrew with 1/2" flatwasher. Loosely retain the capscrews (each side) with 1/2" flatwasher, 1/2" lockwasher, and 1/2"-13 hex nut.



12. Raise the rear of each Rear Rail and insert the three welded studs into the Rear Brackets on the rear axle.

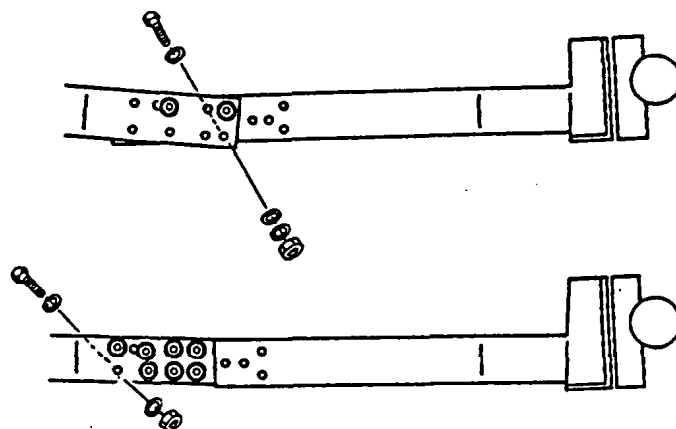
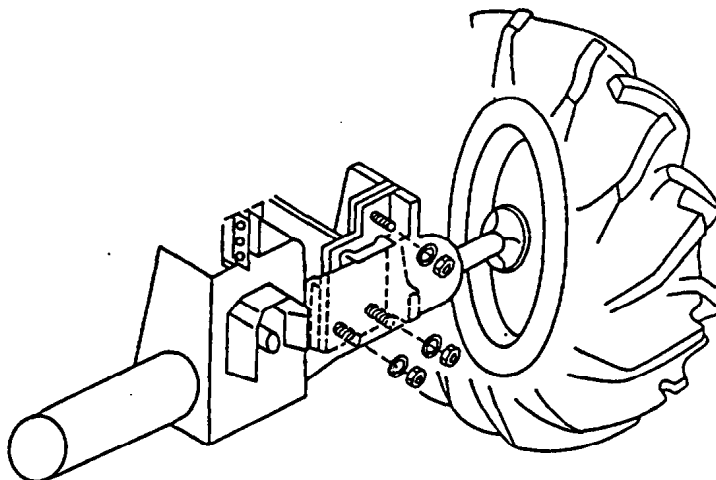


13. From the rear of the tractor, loosely install (each side) three 1/2" lockwashers and 1/2" -13 hex nuts onto the welded studs (no flat washers).

14. Secure the Rear Rails to the Loader Bracket as follows:

In the two rearmost holes of the Loader Bracket (each side), loosely install (from inside to outside) two 1/2"-13 x 2" capscrews with 1/2" flatwashers. Loosely retain each capscrew with 1/2" flatwashers, 1/2" lockwasher and 1/2" -13 hex nut.

In the remaining five holes (each side), loosely install (from inside to outside) a 1/2" -13 x 2" capscrew with 1/2" flatwasher. Loosely retain each capscrew with a 1/2" lockwasher and 1/2" -13 hex nut.



15. Torque bolts and nuts in the following order:

a. Tighten the six 1/2" nuts (three each side) on the Rear Brackets.

Torque to 55 foot pounds (7.5 Kgm).

b. Tighten the sixteen 1/2" 13 x 2" bolts and 1/2" nuts (eight each side) that secure the Side Rails to the Loader Bracket.

Torque to 55 foot pounds (7.5 Kgm).

c. Tighten the eight (four each side) 12 x 55mm capscrews securing the Loader Bracket to the tractor frame.

Torque to 55 foot pounds (7.5 Kgm).

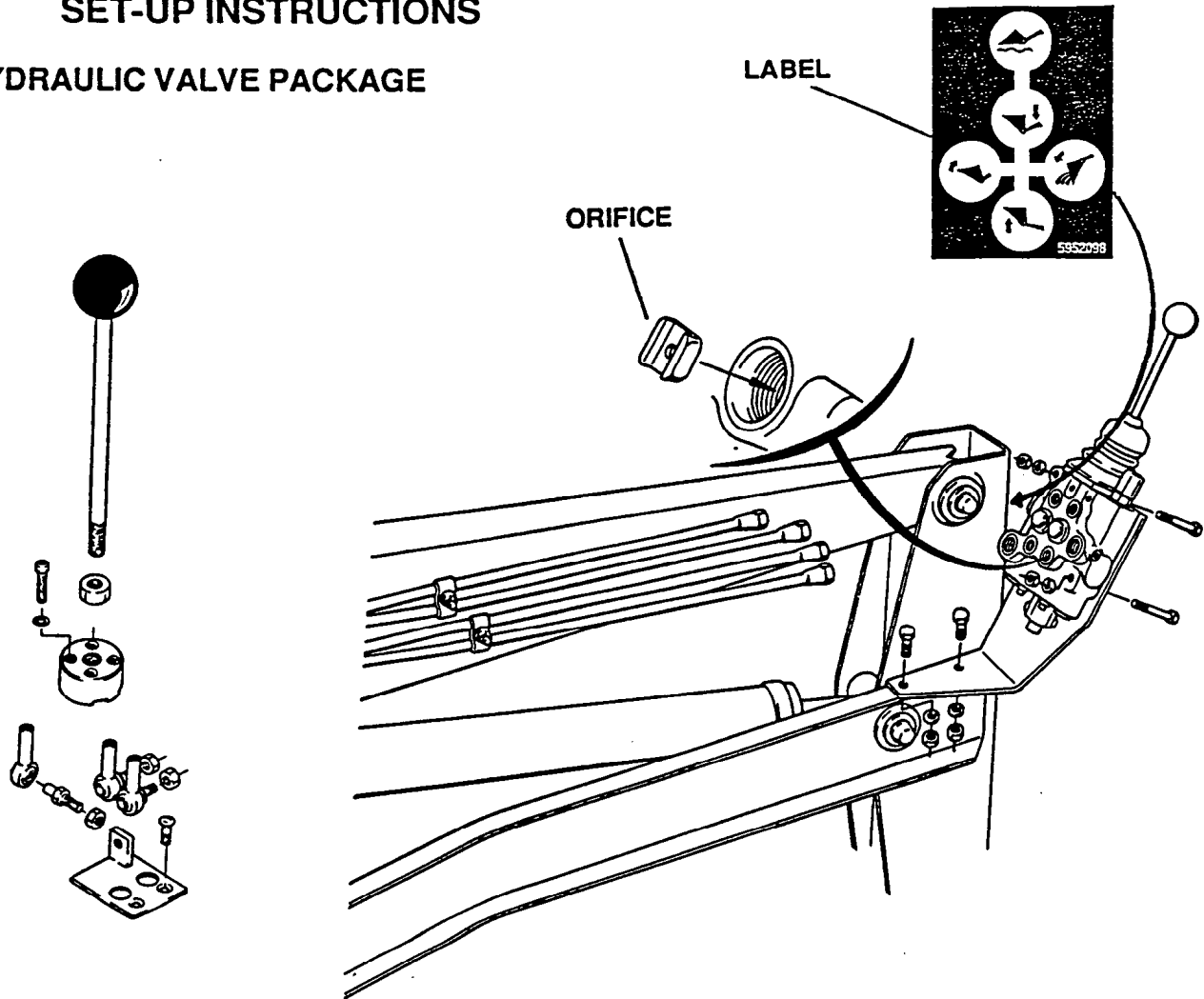
d. Tighten the eight (four each side) 12 x 45mm capscrews securing the Front Bracket to the tractor frame.

Torque to 55 foot pounds (7.5 Kgm).

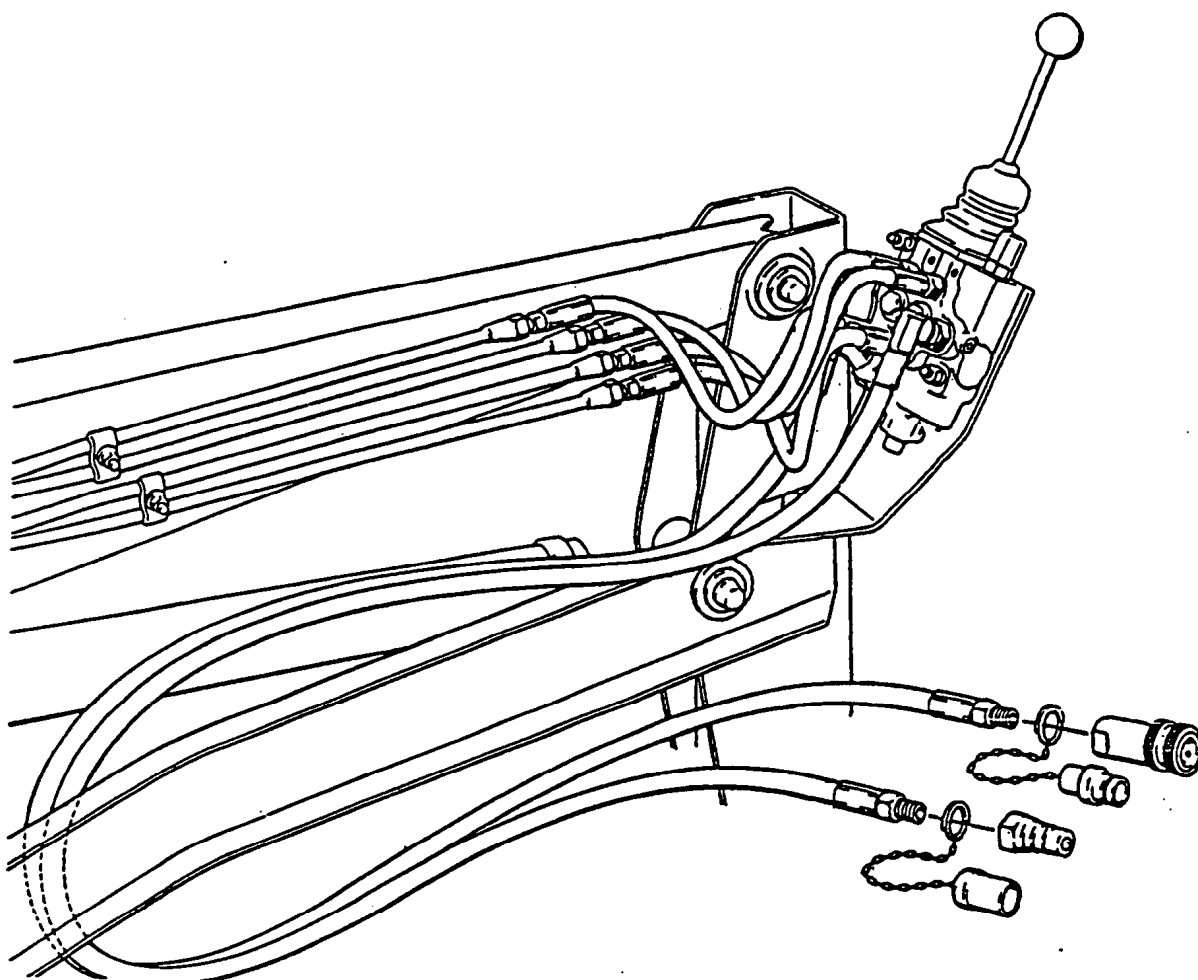
SUB-FRAME REMOVAL IS EFFECTIVELY IN REVERSE ORDER OF INSTALLATION.

SET-UP INSTRUCTIONS

HYDRAULIC VALVE PACKAGE



1. Install the single lever control on the hydraulic valve assembly following instructions included with valve.
2. Ensure the orifice plate is installed in the hydraulic valve as illustrated.
3. Position the hydraulic valve assembly onto the valve stand and secure using two 1/4" -20 hex nuts.
4. Install the valve stand on the right side of the loader sub frame. Secure with two 5/16" -18 X 1" capscrews, 5/16" lockwashers, and 5/16" -18 hex nuts.



5. Connect the two 5/8"-38" hoses to the loader hydraulic valve "IN" and "OUT" ports as shown.
6. Install a quick disconnect coupler (female end) and dust plug onto the 38" hose connected to the loader hydraulic valve "OUT" port.
7. Install a quick disconnect coupler (male end) and dust plug onto the 38" hose connected to the loader hydraulic valve "IN" port.
8. Attach two 18" hydraulic hoses and two 20" hydraulic hoses between loader hydraulic valve and steel hydraulic tubes as indicated.

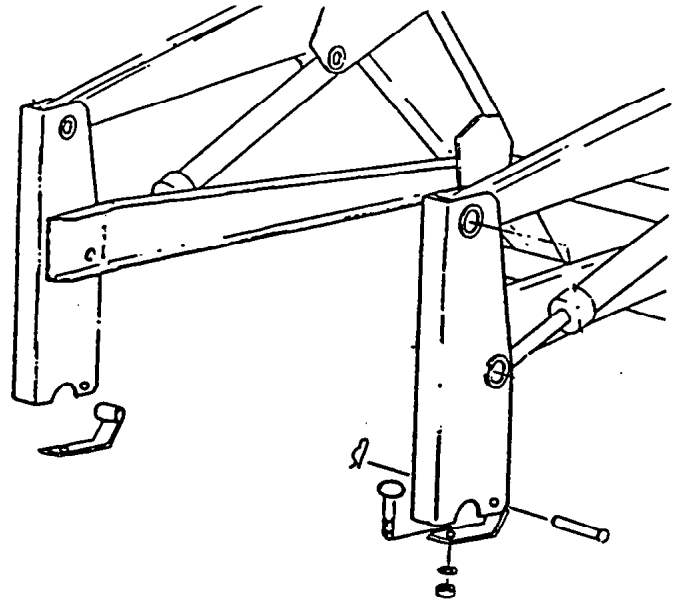
Note: Two 20" hoses install between R/H ports and two upper steel tubes.

Note: Installation of hydraulic hoses to steel tubes will be easier if you:

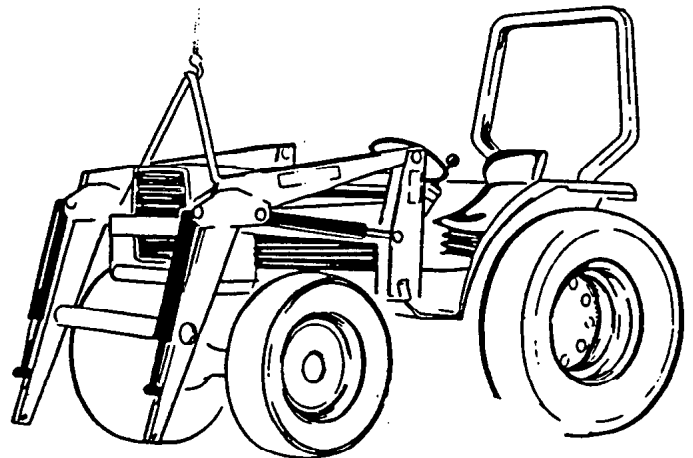
- a. Loosen the retainers securing the steel tubes to the loader arm.
- b. Install hydraulic hoses to steel tubes beginning with bottom tube and working toward the top. Tighten the hoses to the steel tubes as they are installed.
- c. Re-secure the steel tubes to the loader arm using the retainers.

LOADER ASSEMBLY INSTALLATION

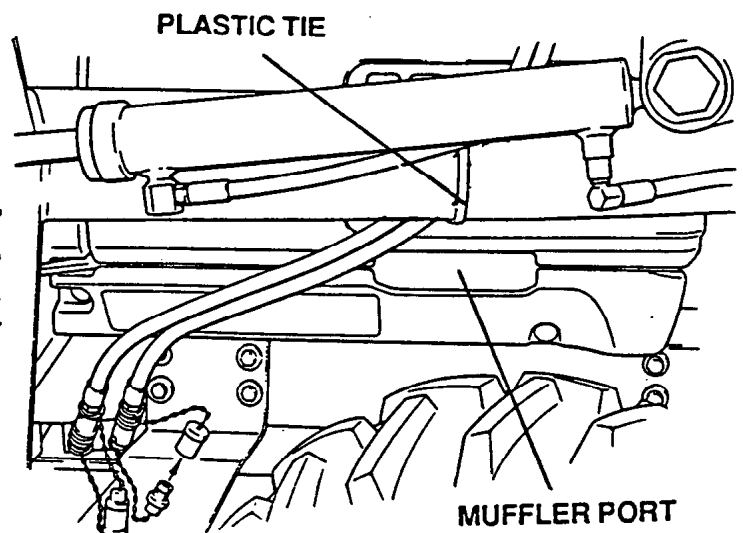
1. Install hinge bolts, hinge pins and hinges onto loader assembly.
2. Open hinges.



3. Using a suitable overhead hoist or alternate safe method of lifting the loader assembly, raise the unit and position it into loader mounts.
4. Close sub frame hinges and secure by torquing nuts to 75 foot pounds (102 N • m).
5. Check all pivot points to ensure retaining hardware is in place.



6. Route the two 38" hoses on the "inside" of the loader upright as shown and secure with plastic tie strap. Ensure the hoses are positioned to the rear of the muffler exhaust port as shown.
7. Connect the two 38" hydraulic hoses to the tractor hydraulic ports as illustrated.



SET-UP INSTRUCTIONS

Start-Up Procedure

Ensure tractor meets all requirements as outlined in tractor preparation section of this manual.

Check to ensure all labels are installed. Refer to safety label page for label locations.

Check tractor hydraulic fluid level. Refer to tractor operator's manual for fluid specifications.

Bucket and Lift Cylinders should be fully retracted when checking fluid level.

Check all hydraulic connections to ensure that they are adequately tightened.

Lubricate all pivot points that incorporate grease fittings.

Start tractor and run engine at approximately 1,200 - 1,400 R.P.M. for initial cycling of loader.

Operate all hydraulic cylinders to purge air from loader hydraulic system.

Re-check hydraulic oil level with all hydraulic cylinders fully retracted. Add recommended oil as required to return hydraulic oil to proper level as instructed in tractor owner's manual.

Install loader bucket and bucket level indicator in the second hole from the top.

NOTE: Longest bucket pin is used to attach bucket level indicator.

Cycle Lift and Bucket Cylinders with bucket empty several times to seat-in cylinder components.

Inspect all hydraulic connections for evidence of leaks.

Check hydraulic hose routings to ensure adequate clearances exist between hoses and adjacent components.

⚠ WARNING Before using loader for the first time, cycle lift and bucket cylinders to purge air from cylinders and hydraulic system. Air in hydraulic system can cause unexpected fall of loader boom, causing injury or damage to loader or tractor.

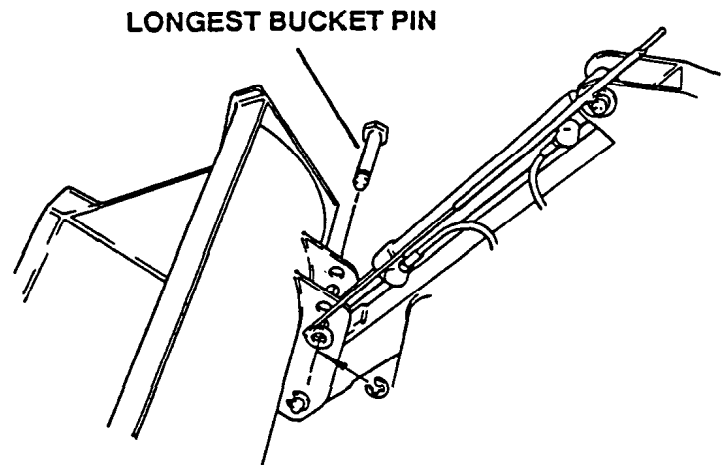
The tractor/loader should only be operated with all safety equipment properly installed.

Operate the loader from the tractor seat only.

⚠ WARNING Do not stand or walk under a raised attachment. Accidental movement of control lever or leak in hydraulic system could cause loader boom to drop, causing serious injury.

Make sure parked loader is on a hard level surface with all safety devices engaged to prevent loader from falling and being damaged or injuring someone.

⚠ WARNING Before disconnecting hydraulic lines, relieve all hydraulic pressure by operating hydraulic control lever through all positions with engine off. Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Oil must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.



Initial Lubrication

⚠ WARNING Do not perform any service/maintenance Operations with loader raised off ground.

Lower the loader to the ground and relieve pressure in loader hydraulic lines prior to performing any service/maintenance operations on the tractor or loader by operating hydraulic control lever through all positions with engine off. Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious injury. Oil must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Before applying pressure to the system, be sure all connections are tight and that lines, fittings and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood rather than your hands to search for suspected leaks.

⚠ WARNING A sudden line burst could cause the main frame to drop suddenly, causing damage to the tractor or loader or injury to personnel. Do not operate the loader if the fittings are leaking or if the hoses are damaged.

⚠ WARNING Operate the loader from the tractor seat only.

⚠ WARNING Accidental movement of control lever or leak in hydraulic system could cause main frame to drop, causing severe injury. Do not stand or walk under a raised attachment.

Check the tractor hydraulic system as outlined in the tractor owner's manual.

When checking hydraulic system oil level, the loader should be on the ground and bucket fully retracted. (All cylinders in retracted position).

Grease all loader pivot points as indicated in lubrication chart.

Inspect hydraulic hoses, connections, control valve and cylinders for leakage.

If oil seepage past cylinder rod is evident, tighten cylinder rod packings by turning cylinder end cap 1/4 turn clockwise. Do not over-tighten end caps as this will reduce service life of cylinder packings.

Tractor tire inflation should be checked as listed in the Tractor Preparation section to ensure tire inflation is to specifications.

Unequal rear tire inflation can result in bucket not being level to the ground.

Front tires should be maintained at maximum recommended inflation to maintain normal tire profile with added weight of loader/material.

Pre-Delivery Checklist

After the machine has been completely assembled and lubricated, inspect it thoroughly to be certain it is operating properly before delivering it to the customer. The following checklist is a reminder of points to inspect. Check off each item as it is found satisfactory or after proper adjustment is made.

- Check to make sure loader is completely assembled according to assembly instructions.
- Check all bolts to make sure they are tightened to specified torque value.
- Inspect and if necessary, lubricate all lubrication points. Make sure all fittings are in place and taking grease properly.
- Inspect all hydraulic hoses, lines, and fittings to make sure they are installed properly and not leaking.
- Make sure hydraulic hoses are properly routed and will not be damaged when the loader is raised or lowered.
- Start tractor, raise and lower loader and operate bucket cylinders and make sure unit is operating properly.
- Check tractor hydraulic fluid level. Add hydraulic fluid as required to fill full indicator on dipstick. Refer to Tractor Owner's Manual for proper oil to be used.
- Inflate tractor's front tires to maximum recommended pressure.

OPERATION

Precautionary Notes

Do not lower the edge of the bucket too low for loading. Keep the bottom of the bucket level with the ground when loading.

NOTICE Do not use bucket for pushing down material with bucket cylinders partially extended. Damage to the cylinders may result.

Do not tip bucket cutting edge down (fully extend bucket cylinders) during backfilling/backgrading operation.

Operation with front tractor wheels off the ground is not recommended.

Position vehicles to be loaded as near the pile as possible and in such a direction as to minimize the amount of tractor turning required to dump.

Do not lower the loader with the tractor engine shut off.

Keep the unit clean and perform regular service. Observe safety instructions whenever cleaning, servicing, or lubricating.

We urge you to follow this advice:

Read and understand this manual as well as the Tractor Owner's Manual.

Remember and observe the Safety Precautions brought to your attention in this manual, the tractor manual and on the machinery itself.

Use good common sense in the everyday operation of this unit. Safety recommendations can never be all-inclusive. You are responsible for watching out for, and avoiding, unsafe conditions.

Never exceed the limits of a piece of machinery. If its ability to do a job safely is in question - Don't try it.

Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new loader and tractor.

When lowering a heavy load, ease it downward slowly. Never drop a loaded attachment and "catch" hydraulically. Stopping a load after it has gained downward momentum places undue strain on the unit and may cause unnecessary damage to the loader or tractor or even worse, personal injury.

⚠ WARNING Escaping hydraulic oil under pressure can have sufficient force to penetrate the skin causing serious personal injury. If injured by escaping hydraulic oil, consult a physician immediately. Oil must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Before disconnecting hydraulic lines, relieve all hydraulic pressure by operating hydraulic control lever through all positions with engine off.

⚠ WARNING A sudden line burst can cause the mainframe to drop suddenly, causing damage to the tractor or loader or injury to personnel. Do not operate the loader if the fittings are leaking or if the hoses are damaged.

BEFORE OPERATING, LUBRICATE ALL MOVING PARTS (REFER TO LUBRICATION SECTION).

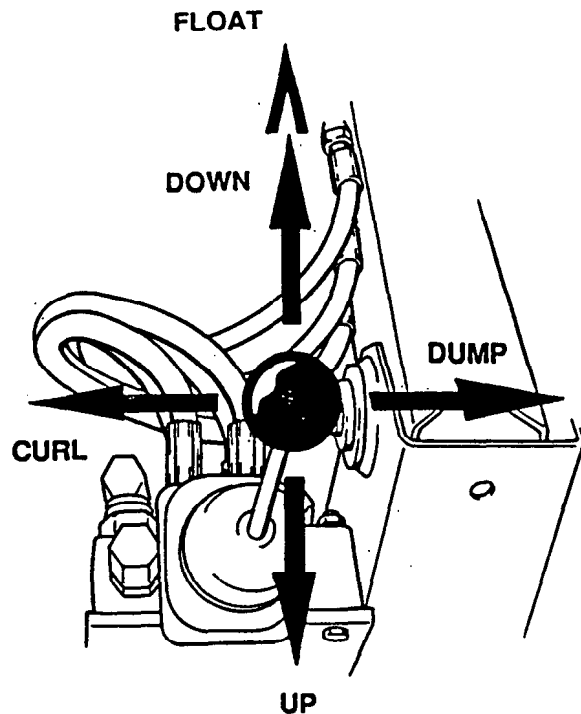
Cold Weather Operation

To assure smooth operation in cold weather, allow tractor to warm up. SLOWLY cycle the loader and attachment several times to warm the fluid in the hydraulic system. The loader may operate erratically until the hydraulic fluid has warmed to operating temperatures.

CONTROLLED RATE of LOADER FUNCTIONS

By feathering (slightly moving) the control lever, precise operational speeds can be obtained. This action controls the position of the valve spools in the control valve and regulates flow of oil from/to cylinders.

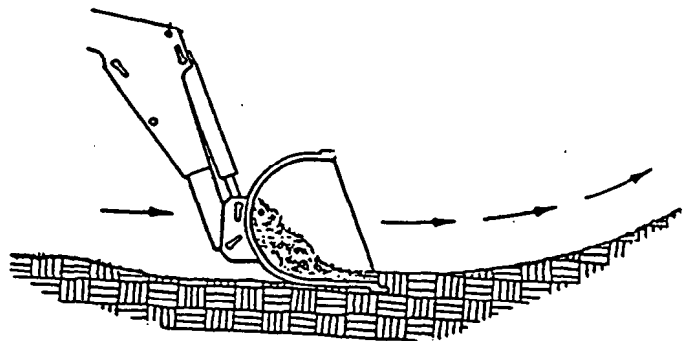
It is important to utilize this operational practice when lowering the main frame when the bucket is loaded with material.



Scraping

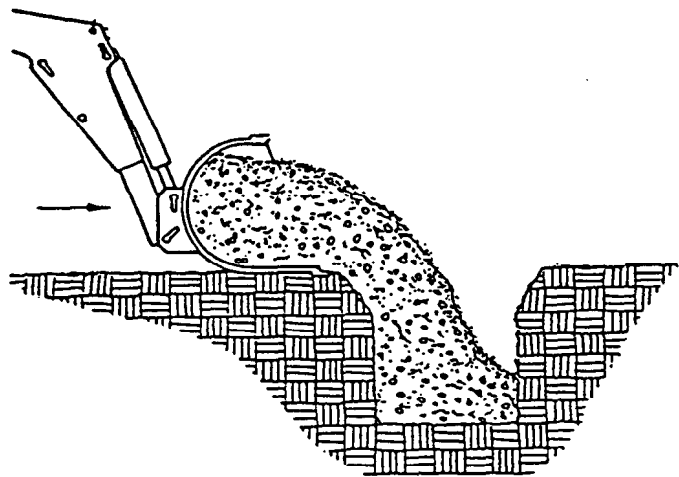
When scraping, the "Float" position should be utilized to maintain the bucket firmly on the ground and at the same time allow the bucket to follow ground contours.

The bucket should be positioned level to the ground during "Scraping" Operations.



Backfilling/Backgrading

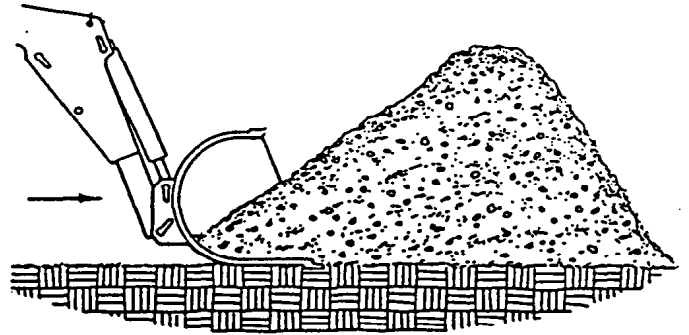
When "Backfilling" or "Backgrading", position the bucket so it is level on the ground. Do not dump material from bucket. Additional weight of material in bucket will assist in "Backgrading" and increase loader efficiency during "Backfilling".



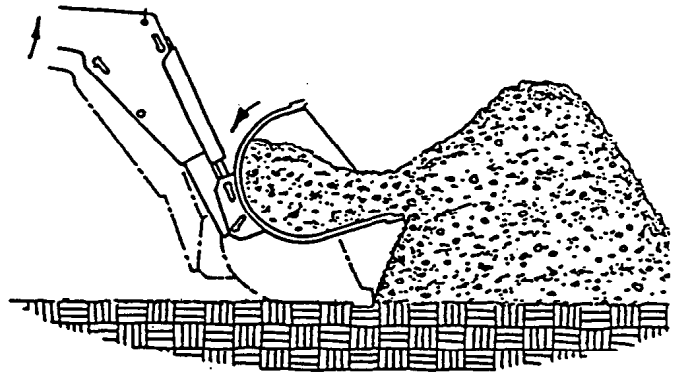
LOADING

Drive straight ahead into pile with bucket cutting edge level with the ground. In order to prevent possibility of damaging tractor or loader;

- Do not ram into pile at high speed.
- Do not attempt to turn tractor while loading.

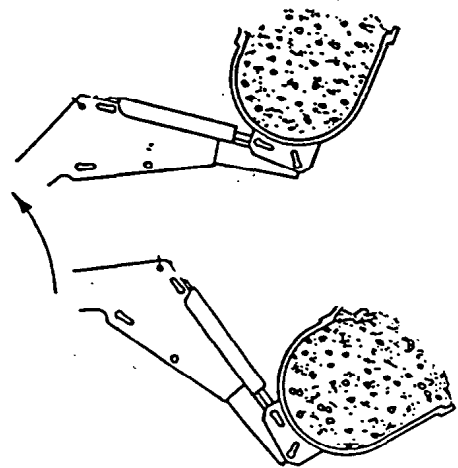


As bucket begins to fill with material, gradually roll the bucket back and raise the loader to increase "fill" capacity. This procedure also results in the material being removed in layers from the top for maximum loading efficiency.



When the bucket is full, raise loader so that the bucket is clear of material and slowly back out of pile.

For maximum loading efficiency, minimize angle of turn and distance between the loading and unloading points.



Transporting Material

Transport material to "Unloading Point" with loader bucket as low as possible to prevent spillage and maintain maximum Tractor/Loader stability.

During transport the loader should not be in a position that will impair operator's vision.

Safety:

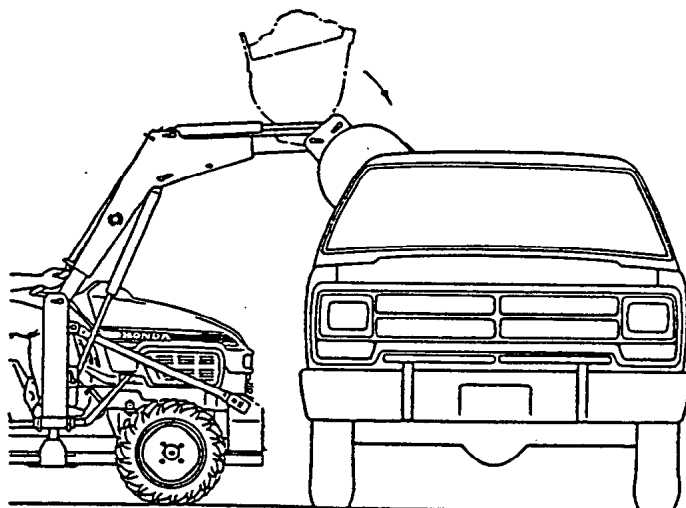
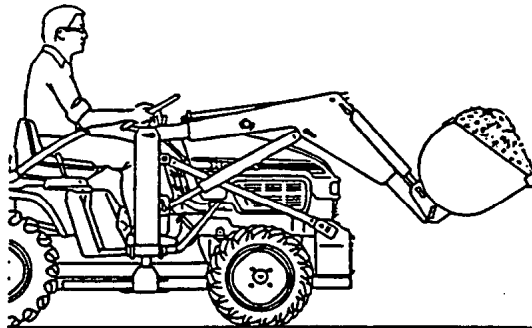
- Avoid any overhead wires or obstacles when loader is raised, to avoid damage or possible death by electrocution.
- A loaded bucket should be transported in a low position at slow ground speeds, especially if the ground is irregular. Make turns slowly and use the tractor brakes cautiously. A full bucket in the raised position alters the center of gravity location of the unit and increases the possibility of mishaps.
- Do not lift or carry personnel on a loader or attachment; a slip or fall could cause serious injury.
- Operate at slow ground speeds, especially on irregular ground to avoid tipping.

Unloading

As the tractor approaches the "Unloading Point", raise the loader to the height required for clearance to "Dump" bucket.

Do not raise loader higher than required for "dumping" Clearance.

As "Dumping" clearance height increases, the bucket position must be adjusted to maintain a level bucket to prevent excessive spillage of material from bucket.



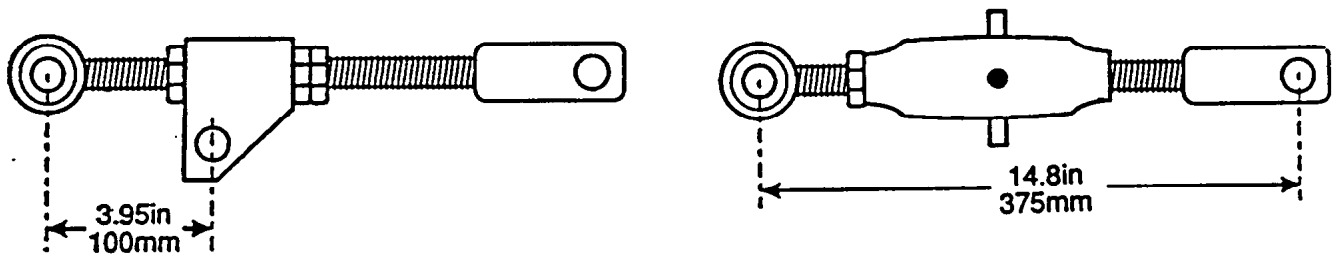
Loader Sub Frame Installed With MM60 Mower

You may install your MM60 mower deck with the FL6555 sub frame installed. The front loader must be removed from the sub frame. If you also have a BH6575 Back Hoe, both the back hoe and its sub frame must be removed.

NOTICE

You must use the following procedure to adjust the mower linkage to avoid damage to the deck or linkage.

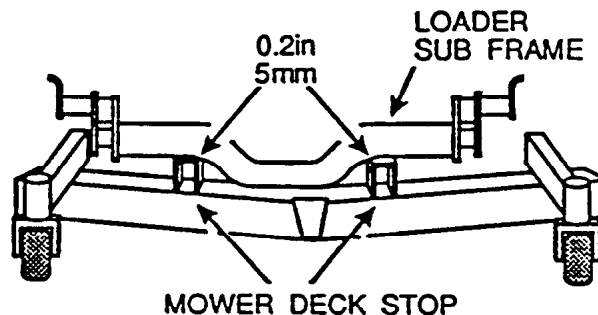
1. Put the hydraulic position control in the "DOWN" position.
2. Adjust the left lift rod as shown:



With three-point hitch installed:

Without three-point hitch:

3. Follow the normal mower installation in mower operator's manual up to the point of raising the deck.



4. Slowly move the hydraulic position control to the "UP" position to raise the deck. Immediately lower the deck at the first indication of resistance.
5. Check the clearance between the deck stops and the front loader sub frame. Adjust the clearance to 0.20in (5mm) by adjusting the left lift rod length (shortening the lift rod raises the deck).

The fully raised position of the deck will be lower with the loader sub frame installed.

NOTE

LOADER REMOVAL AND INSTALLATION

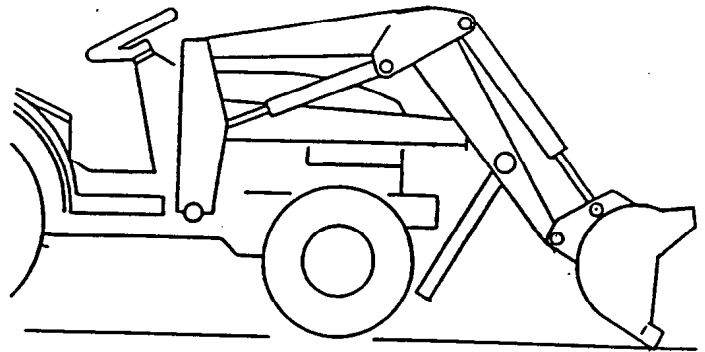
Loader Removal

Select a level place to park the loader.

Raise the loader off the ground and position bucket cutting edge vertical to ground.

Lower loader to position bucket cutting edge on the ground and shut tractor off.

Place parking leg in "Park" position on the boom and secure with pin.

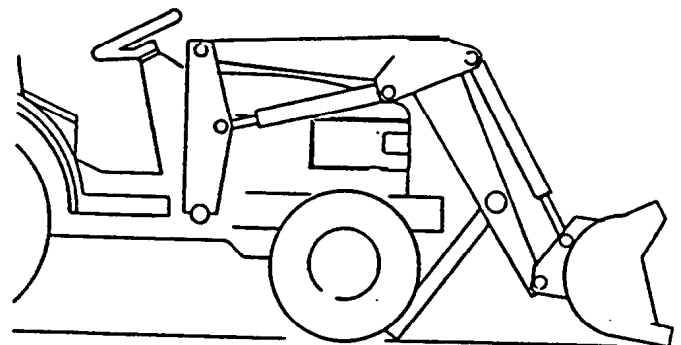


Start tractor, raise loader and fully retract bucket.

Lower the loader until the parking leg contacts the ground.

Tip the bucket until the cutting edge just contacts the ground.

Shut the tractor OFF, remove the hinge assembly clamping capscrews and swing hinges clear of the rear mount.



Start the tractor and shift the loader control valve into the "Float" position.

Slowly retract the bucket cylinders until the bottom of the bucket rests firmly on the ground.

Note: During this procedure the loader should raise off the rear mount. If necessary, extend the lift cylinders as required to raise the loader clear of the rear mount.

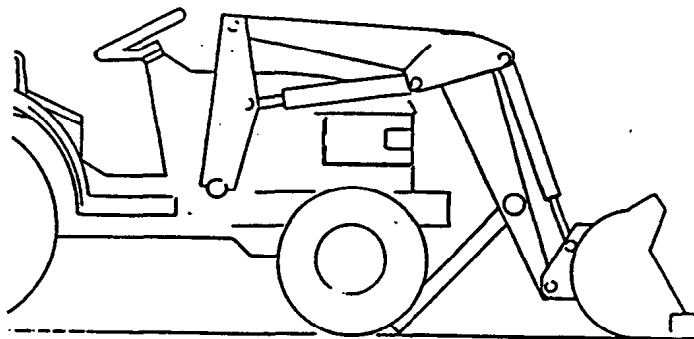
Back the tractor slowly until the loader front crosstube is just clear of the Front Mount. Observe the hydraulic hoses (valve/tubelines) to ensure they are not caught or stretched during this operation

- Shift the loader control valve into the neutral position.

Check to ensure the loader will clear the front tires. If additional clearance is required, extend the lift cylinders.

Shut tractor OFF and disconnect the hydraulic hose couplers. Secure the hydraulic hoses to ensure they will be clear of the tractor. Install dust caps and plugs.

Start the tractor and carefully back out of the loader.



Storage

End of Season:

If loader is to be dismantled from the tractor during storage, make sure the parking area is on hard, level ground. Cap all hydraulic hoses to prevent contamination.

Store loader in a dry, sheltered area if possible.

Thoroughly clean the loader of all accumulated dirt and grease.

Completely lubricate the loader as specified in "Lubrication" section of this manual.

Using an oil soaked cloth, lubricate all hydraulic cylinder rods to protect them from rust and corrosion.

Repaint any areas where paint is worn or damaged.

Wear areas on bucket should be coated with grease to prevent rust or corrosion.

Replace any Safety or Warning Labels that are not readable due to wear or damage.

Replace any damaged or worn parts.

⚠ WARNING To Prevent Accidents do not allow children to play on or around the tractor or loader.

Remove sub frame if required for other attachments. See sub frame installation/removal section.

Beginning of Season

Thoroughly clean the loader of all accumulated dirt and grease.

If removed from tractor for storage, remount loader per procedure in this manual.

Completely lubricate the loader per "Lubrication" section of manual. Make sure all fittings are taking grease properly.

Clean with solvent any exposed surfaces which had been coated with grease. Wipe dry with a clean cloth, then lubricate with an oil-soaked cloth.

Tighten any bolts that have been loosened and make sure all pins and retainers are in place.

Start tractor and operate loader to make sure it is operating properly and all the hoses are properly connected.

Check hydraulic fluid level in tractor and fill as required. Use oil recommended in tractor owner's manual.

Make sure hydraulic hoses, lines and fittings are in good shape and not leaking. Replace or repair as required.

Review safety precautions and operation sections of this manual.

LOADER REMOVAL AND INSTALLATION

Loader Installation

Install sub frame if removed. See sub frame installation section.

Carefully drive the tractor into the loader to a position where the hydraulic hoses can be connected to the tractor control valve.

Note: The tractor front mount should be aligned with the loader front crosstube.

Shut the tractor OFF and connect the hydraulic couplings to the tractor.

Start the tractor and drive ahead slowly to position the loader front crosstube into the tractor front mount.

Note: Activate the bucket cylinders and lift cylinders as required to align the loader crosstube/front mount and tractor front mount.

Shift the loader control valve into the "Float" position.

With the loader assembly secure in the tractor front mount, extend the bucket cylinders to lower the loader assembly onto the rear mount.

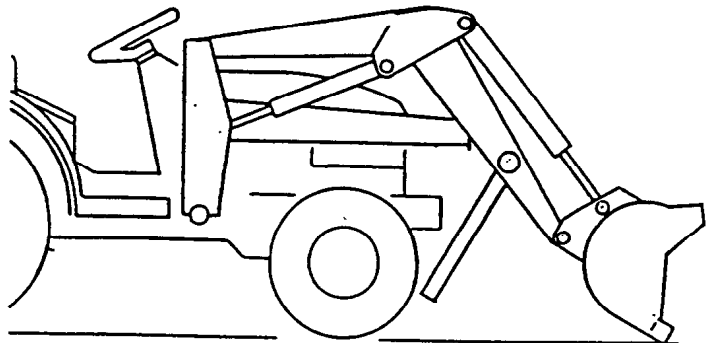
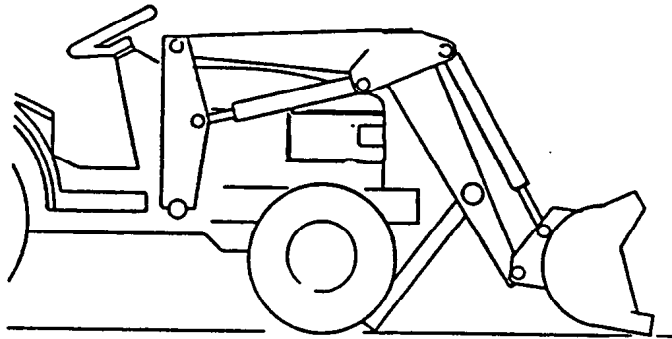
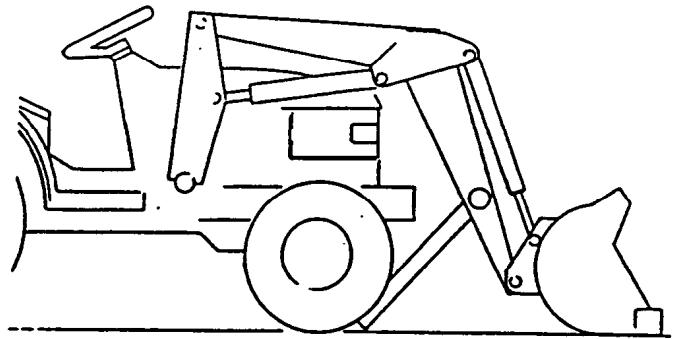
Shut the tractor OFF and secure the loader assembly hinges.

Start the tractor, raise the loader off the ground and position bucket cutting edge vertical to ground.

Lower loader to position bucket cutting edge on ground and shut tractor off.

Remove the parking leg and place in storage position.

Lubricate all loader pivot pins.



LUBRICATION AND MAINTENANCE

Do not perform any Service/Maintenance operations with loader raised the off ground. For additional access to tractor components remove loader.

Lower the loader to the ground and relieve pressure in loader hydraulic lines prior to performing any service/maintenance operations on the tractor or loader.

⚠ WARNING Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious injury. Before disconnecting lines, be sure to relieve all pressure by operating control lever through all positions with engine off. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood rather than your hands to search for suspected leaks.

See a doctor at once if injured by escaping fluid. Serious infection or reaction can develop if correct medical treatment is not administered immediately.

Refer to "Lubrication and Maintenance Chart" for quick reference to maintenance operations.

⚠ CAUTION A sudden line burst could cause the main frame to drop suddenly, causing damage to the tractor or loader or injury to personnel. Do not operate the loader if the fittings are leaking or if the hoses are damaged.

Operate the loader from the tractor seat only.

⚠ CAUTION Accidental movement of control lever or leak in hydraulic system could cause main frame to drop, causing serious injury. Do not stand or walk under a raised attachment.

Check the tractor hydraulic system as outlined in the Tractor Owner's Manual.

NOTICE When checking hydraulic system oil level, the loader should be on the ground and bucket fully retracted. (All cylinders in retracted position).

Grease all loader pivot points daily (10 hours).

Inspect hydraulic hoses, connection, control valve and cylinders for evidence of leakage.

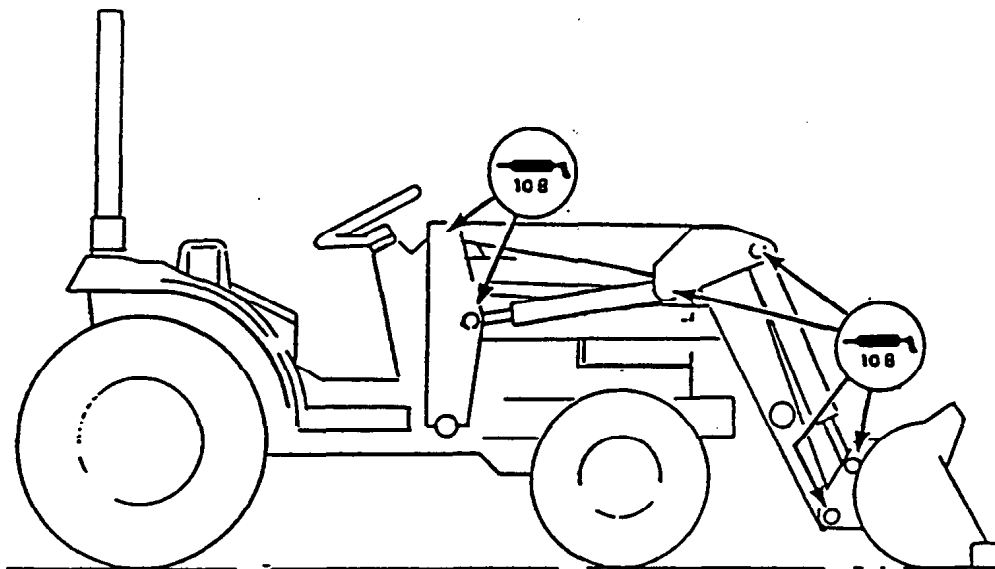
NOTICE If oil seepage past cylinder rod is evident, tighten cylinder rod packings by turning cylinder end cap 1/4 clockwise. Do not over-tighten end caps as this will reduce service life of cylinder packings.

Tractor tire inflation should be checked at recommended intervals as listed in the tractor owner's manual to ensure tire inflation is to specifications.

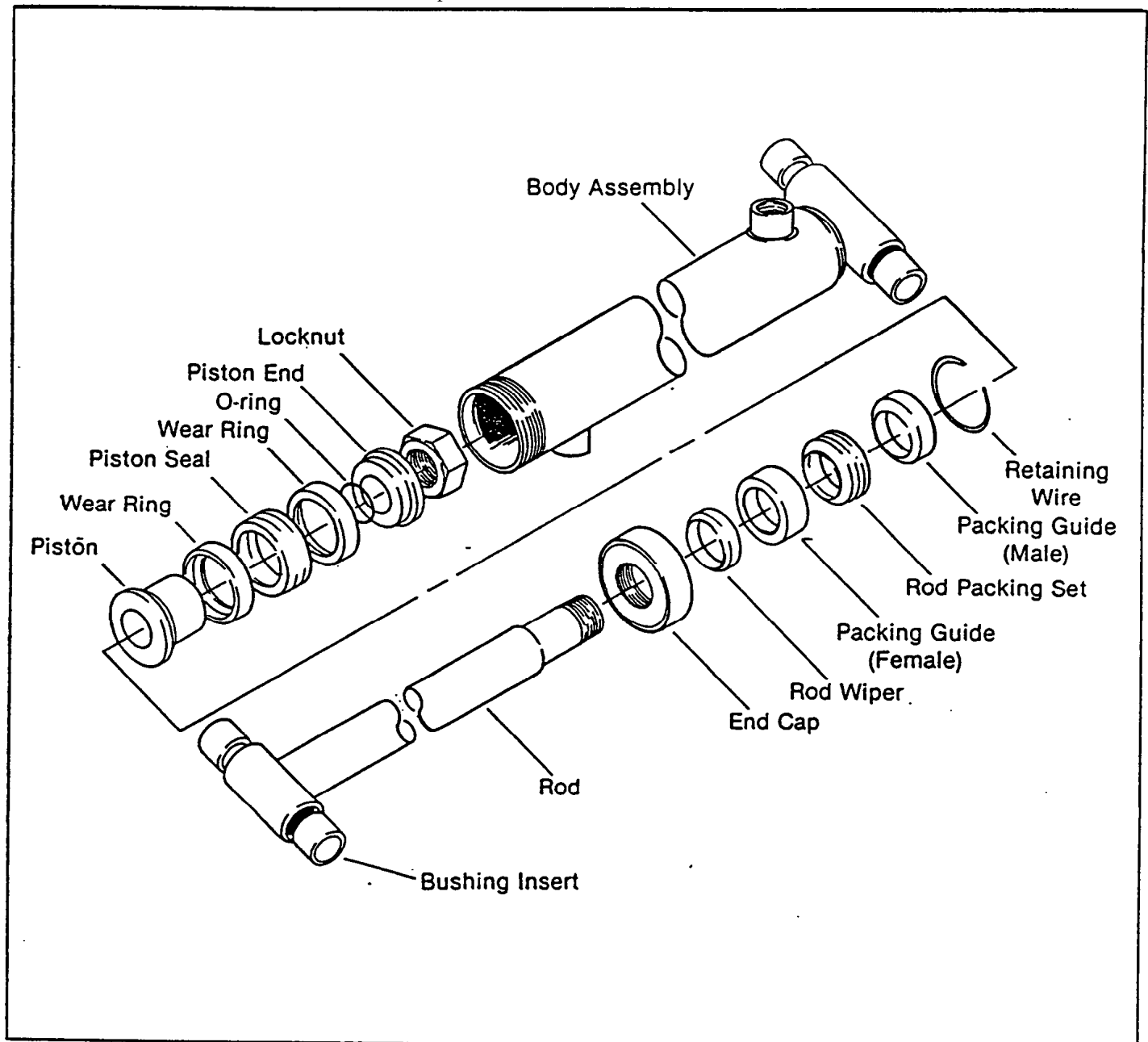
Unequal rear tire inflation can result in bucket not being level to the ground.

Front tires should be maintained at maximum recommended inflation to maintain normal tire profile with added weight of loader/material.

⚠ CAUTION The tractor/loader should only be operated with all safety equipment properly installed.



ITEM	SERVICE	INTERVAL
Hydraulic System Oil Level	Check	Daily/10 Hours
Hydraulic System Oil/Filter	Replace	As specified in Tractor Owner's Manual
Tire Inflation	Check	Weekly/50Hours
Loader Pivot Points	Lubricate	Daily/10 Hours
Loader Hydraulic Lines, Hoses, Connections	Check for leaks/wear	Daily/10 Hours
Lift and Bucket Cylinder Rod Packings	Check for Seepage Service as described under Lubrication/Maintenance Operations	Daily/10 Hours
NOTICE: Rod Packing Sets should be reset after 10 Hours of operation. See Cylinder Assembly Maintenance Section.		
Pivot Pin Clips	Check - Replace if missing	Daily/10 Hours
Subframe Hinge Clamping Bolts	Check - Retorque if necessary	Weekly/50Hours
Loader Mount Hardware	Check visually - Re-torque	Weekly/50 Hours Every 200 Hours



SERVICE

Lift and Bucket Cylinder

General

Lift and bucket cylinder ports should be capped at all times when hydraulic hoses are disconnected to prevent contamination.

It is recommended that all cylinder packings be replaced during cylinder assembly. Order seal repair kit to obtain all sealing components that should be replaced during hydraulic cylinder overhaul.

Cylinder Disassembly

Refer to illustration for component identification.

Drain all oil from cylinder end cap (turn counterclockwise).

Install a plug in base end port of cylinders and pop out rod packing set by applying air pressure to the rod end port of cylinders.

Do not apply air pressure to base end port of cylinder. As rod may extend causing injury.

Safety glasses should be worn when performing this operation.

Ensure hands and face are kept clear of end of cylinder.

With rod packing set out of cylinder body, remove the retaining wire located approximately 1-1/4" in from end of cylinder body by pressing on one side to force the retaining wire 90° out of the groove and pull retaining wire out of cylinder body.

Pull cylinder rod out of cylinder body.

Secure the cylinder rod in a bench vise by the end eye of the rod. Do not clamp on the chromed finish section of the rod.

Remove piston assembly lock nut and pull piston assembly from rod.

Remove piston seal and backups from piston.

Clean all parts for inspection.

Inspection

Inspect cylinder body for evidence of scoring and pitting. Replace cylinder body if excessive pitting/scoring is evident.

Inspect cylinder rod for evidence of pitting or plating deterioration through the section of the rod that contacts the rod packing set.

Inspect cylinder rod and body end eyes and bushings for wear. The steel bushings should fit snugly in the end eyes.

Inspect end eye grease fittings and replace if damaged.

Inspect cylinder packing guides and piston. Replace any components that exhibit excessive wear or damage.

Cylinder Assembly

Clean and dry all cylinder components thoroughly.

Place cylinder end cap on cylinder rod followed by rod packing set and retaining wire.

Refer to illustration for reference to component orientation and sequence.

Assemble piston seal and backups or piston and install piston assembly on cylinder rod. Refer to illustration for reference to component orientation.

Install Locknut and torque to 225 ft./lbs.

Coat piston assembly with clean hydraulic oil and with the cylinder body supported in a bench vise, carefully install cylinder rod in cylinder body. Care must be taken to ensure piston seal is not damaged during installation.

Install the retaining wire in the cylinder body.

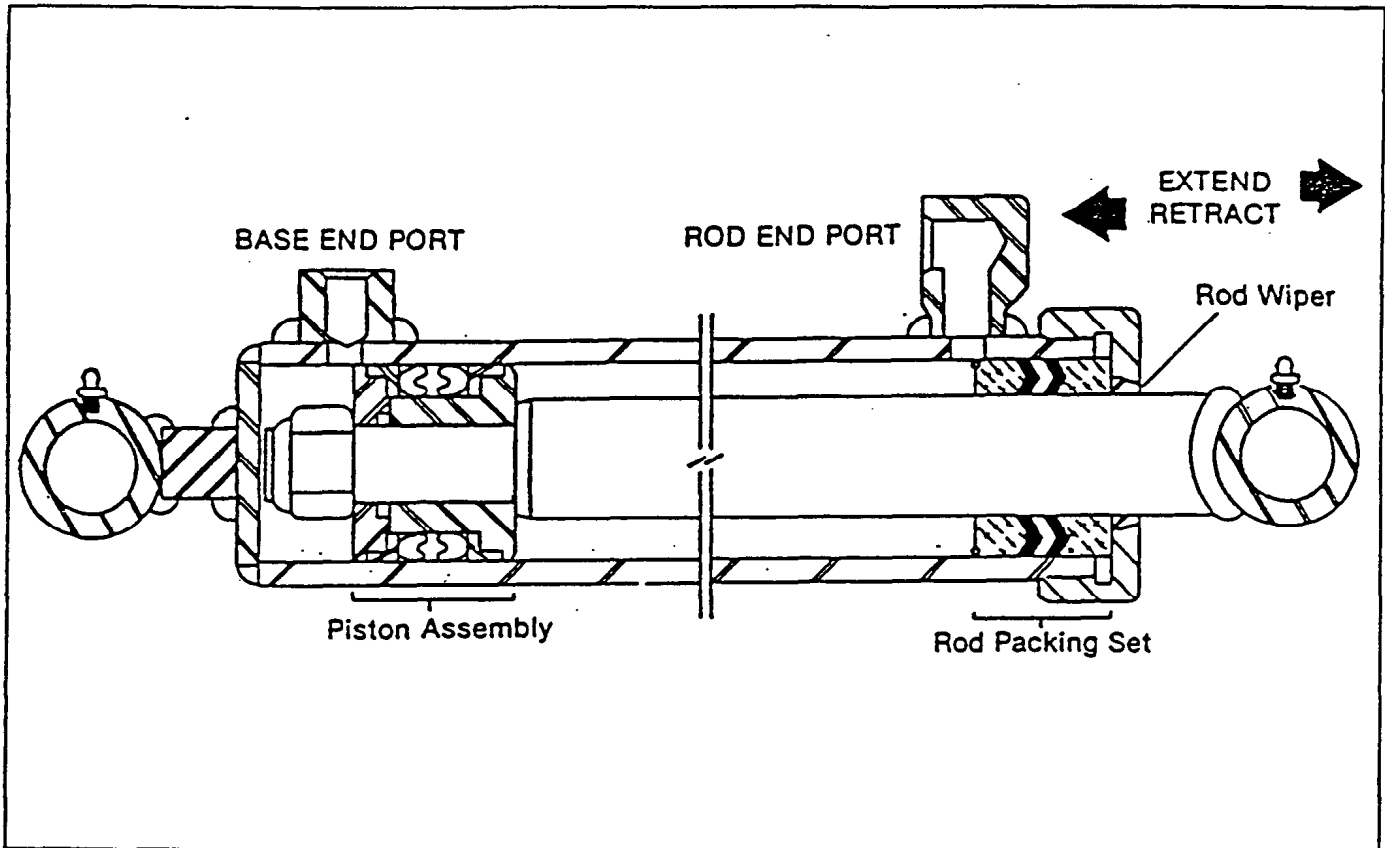
Coat rod packing set components with clean hydraulic oil and position in cylinder body.

Install cylinder end cap and tighten until rod packing set components are snug. Do not over-tighten as rod packing service life will be reduced.

Rod packing sets should be reset by tightening cylinder end cap 1/4 turn after the initial 10 hours of cylinder operation.

Install dust plugs in cylinder ports.

Lift and Bucket Cylinder Leakage Test



General

Safety glasses should be worn when performing cylinder leakage test.

When performing cylinder leakage tests the tractor engine should be operating at medium R.P.M. to ensure the hydraulic system reaches the relief valve setting.

During tests, the system relief valve governing maximum pressure to the loader cylinders will be "open" (system is at relief valve setting).

NOTICE Do not maintain hydraulic system at relief valve setting pressure for more than 20 second intervals to prevent overheating hydraulic system.

The test procedures outlined enable the cylinders to be checked for rod packing set leakage (external leakage) and piston seal leakage in both direction (internal leakage).

Test Procedure

Lower loader to the ground, shut tractor off and disconnect cylinders as follows:

Lift Cylinder Test - Disconnect from Sub frame (Rod End).

Bucket Cylinder Test - Disconnect from bucket (rod end).

Support the cylinders to prevent excessive strain on hydraulic hoses in a position that will allow the cylinders to be completely "extended".

Lift and Bucket Cylinder Leakage Test

Rod Packing Set Leakage Test

Start tractor and "retract" cylinders completely.

Continue to hold control valve lever in position to "retract cylinders" and check for evidence of oil leakage past the rod packing set (external leakage).

On cylinders that have been in service, rod packing set leakage is usually indicated by accumulation of dirt/oil at rod end of cylinder body.

If oil leakage is evident, shut tractor off and turn cylinder end cap 1/4 turn clockwise to tighten gland packing set seals.

Recheck for oil leakage and repeat tightening procedure until oil leakage stops.

NOTICE: Rod packing set seals should not be over-tightened as this will reduce service life.

If leakage cannot be stopped, excessive wear or damage or rod packing set component(s) is indicated and the cylinder(s) should be removed and disassembled for inspection and repair.

Inspect cylinder rod for pitting, deterioration or damage to the chrome finish. Any excessive damage to the chrome finish reduces the ability of the rod packing set to seal properly.

If rod packing set tests are satisfactory, proceed to piston seal assembly leakage test.

Piston Seal Assembly Leakage Test

With cylinders in the fully "retracted" position and tractor shut off, disconnect the hydraulic lines from the base end port of cylinders. Route a hydraulic hose from the cylinder base end ports to a container (to catch oil during leakage test).

Start tractor and place loader control valve lever in the position to "retract" cylinders and "hold".

Check for oil leakage from base end port of cylinder.

A constant dripping or very slight flow of oil is normal. If a steady flow of oil is evident excessive wear or damage of the piston seal is indicated and the cylinder(s) should be removed and disassembled for inspection and repair.

If piston seal leakage test in "retract" position indicates piston seal is satisfactory, reinstall hydraulic hoses and fully extend cylinders to perform test in "extend" position.

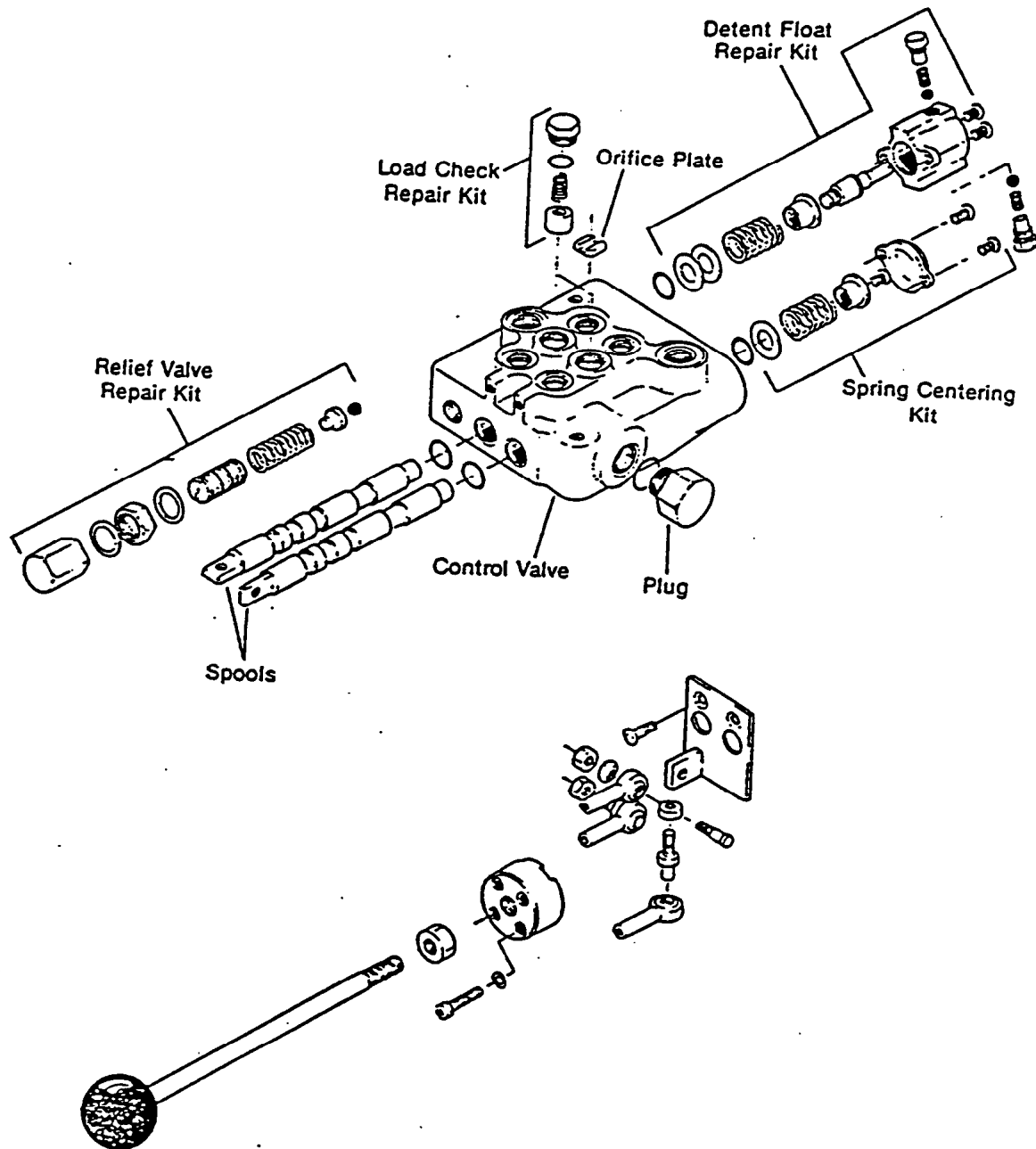
With cylinder in the fully "extended" position and tractor shut off connect hydraulic lines to base port and disconnect the hydraulic lines from the rod end port of cylinders. Route a hydraulic hose from the cylinder rod end ports to a container (to catch oil during leakage tests).

Start tractor and place loader control valve lever in the position to "extend" cylinders and "hold".

Check for oil leakage from rod end port of cylinders.

A constant dripping, or very slight flow of oil is normal. If a steady flow of oil is evident excessive wear or damage of the piston seal is indicated and the cylinder(s) should be removed and disassembled for inspection and repair.

Hydraulic Valve



Hydraulic valve

Control Valve Removal

Prior to removing control valve, ensure loader is on the ground and all hydraulic lines are relieved of oil pressure.

Label and disconnect hydraulic lines from control valve. Cap IN and RETURN lines to prevent contamination of hydraulic system.

Remove control valve mounting capscrews.

Disassembly

Refer to control valve illustration for component identification.

Remove quick disconnect couplings and adaptor fittings.

Plug all ports and thoroughly clean external areas of control valve.

Remove single lever control components to facilitate spool removal.

Relief Valve

Unscrew relief valve cap, followed by adjustment screw. Unscrew relief valve body and remove spring, cup, poppet, seat and sealing washer.

Load Check Valve Service

The spring loaded check valve is located adjacent to the bucket cylinder spool return spring. Malfunctioning is most unlikely, but contaminate can prevent free movement or reseating.

Remove the check valve plug to reveal the spring and poppet. Wash free of contaminate and check for free movement of poppet with valve body. Replace the poppet if damaged.

Reassemble in reverse order after valve body is clean and dry.

Valve Spools

Prior to removal, mark valve spools to ensure they can be identified for installation in the same spool bores from which they were removed.

Lift Cylinder Spool (Float)

Remove the detent plugs, springs and balls and remove the two detent body mounting screws. Pull valve spool from valve body (pull out from spring end of spool).

Remove the three valve spool 'O' rings from the valve body and one from the detent body.

Care must be taken to ensure valve body spool bores are not scratched during O Ring removal.

Thoroughly clean all parts.

Inspection

Remove any nicks or burrs from valve components and inspect for evidence of excessive wear.

Inspect valve spools and valve body bores for excessive wear, scratches or damage.

NOTICE If internal leakage with the valve spool(s) in the spring centered position has been experienced, valve body and/or valve spool wear/damage is indicated. If this condition exists the control valve assembly must be replaced.

Inspect lift cylinder valve spool for excessive wear in the detent area.

Hydraulic Valve

If spool does not stay in "detent" position or tends to be difficult to get into "detent", "detent spool" wear and/or weak detent springs are indicated and suspected parts should be replaced.

Inspect valve spool return springs for evidence of distortion/damage.

If valve spool(s) was not centering properly and valve spool slides freely in valve body, a weak or broken return spring is indicated.

Inspect relief valve spring for damage or distortion.

Inspect relief valve poppet and seat for wear or damage.

Assembly

It is recommended that all 'O' rings be replaced during valve service.

Refer to illustration for reference to assembly.

Thoroughly clean and dry all parts.

Carefully install the 'O' rings in the valve body spool and detent body 'O' ring grooves.

Coat 'O' rings with clean hydraulic oil prior to installation.

Extreme care must be taken to ensure 'O' rings are not damaged during installation

Valve Spools

Assemble spool return springs on valve spools if they were removed previously.

Install detent body on float spool.

Coat valve spools with clean hydraulic oil and carefully install in valve body.

Extreme care must be taken during valve spool installations to ensure 'O' rings are not damaged.

"Float" valve spool is installed in valve body adjacent to return port.

Install end cap on detent body

Install detent balls, springs and plugs.

Install support, spring, spacer and end cap on valve body/bucket cylinder spool.

Torque hardware to 2-3ft./lbs.

Relief Valve

Install sealing washer, seat, poppet, spring, cup and body.

Screw in relief valve adjustment screw until the spring just begins to compress and install crushwasher, hex nut, second crushwasher and cap.

Relief valve adjustment is made following control valve installation as described under "Relief Valve Adjustment".

Control lever and hydraulic connections

Install single lever control linkage as illustrated.

Install adaptor fittings and quick disconnect couplers.

Inspect adaptor fitting 'O' rings and replace if required.

Installation

Mount control valve on front loader valve stand and reconnect hydraulic hoses to ports from which they were removed.

Refer to hydraulic system schematic diagram to check that hydraulic connections are correct.

Relief valve setting should be adjusted immediately following installation/start-up as described under relief valve adjustment.

SERVICE

Hydraulic Valve

Installation continued

Check for hydraulic leaks and ensure hose routings do not result in hydraulic hoses rubbing or catching on adjacent tractor/loader components.

Relief Valve Test/Adjustment

Safety glasses should be worn when performing this adjustment.

Install a 0-4000 PSI test gauge into the unused loader control valve pressure port ("IN").

Start tractor and run engine at operating speed to bring hydraulic fluid up to normal operating temperature.

With engine at governed R.P.M., shift loader control valve bucket cylinder spool to fully retract bucket cylinders and hold in this position to obtain hydraulic system relief pressure.

Observe pressure reading on test gauge.

NOTICE Do not maintain hydraulic system at relief pressure for more than 10 second intervals to prevent overheating of hydraulic system.

Adjust relief pressure to specification by removing relief valve cap, loosening locknut and turning adjustment screw:

"IN" (clockwise) to increase relief pressure.

"OUT" (counter-clockwise) to decrease relief pressure.

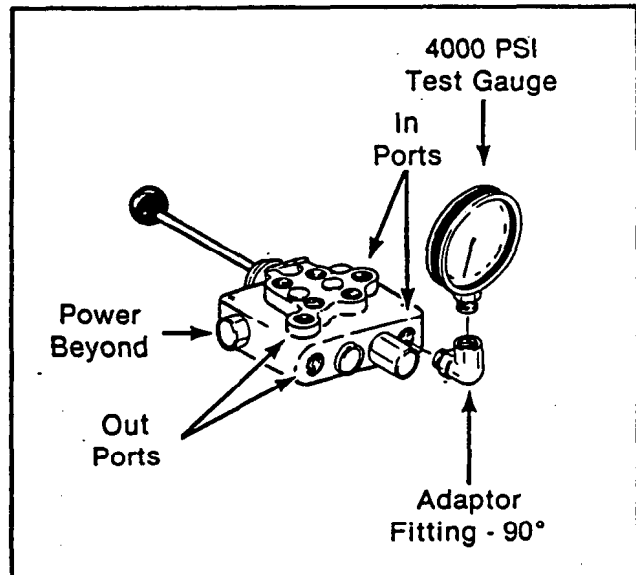
Refer to "Loader Specifications" for relief valve setting.

Re-torque locknut and reinstall relief valve cap and crushwasher.

Re-check relief pressure.

Shut tractor OFF, remove test gauge and reinstall port plug.

Start tractor and check for leaks.



Relief Valve Test

TROUBLE SHOOTING

This trouble shooting chart is provided for reference to possible loader operational problems.

Determine the "problem" that best describes the operational problem being experienced and eliminate the "possible causes" as listed by following the "correction" procedures.

For further assistance contact your dealer.

PROBLEM	POSSIBLE CAUSE	CORRECTION
Lift and Bucket Cylinders Inoperative.	Low hydraulic fluid level	Check and replenish hydraulic fluid.
	Hydraulic hoses connected incorrectly.	Check and correct hydraulic hose connections.
	Hydraulic hoses to/from control valve "blocked".	Check for damaged (kinked) hoses, etc.
	Loader control valve or tractor main relief valve stuck "open".	Check system pressure. Refer to "Hydraulic pump capacity inadequate"
	Low system pressure supplied from hydraulic pump.	Check system pressure. Refer to "Hydraulic pump capacity inadequate".
	Control valve linkage broken.	Inspect. Repair as required.
	Quick disconnect coupler(s) are not fully connected or "Flow check".	Check coupler connections. Replace coupler(s) if necessary.
Lift and/or bucket cylinders operate in wrong direction relative to control valve lever position.	Hydraulic hose or tubeline blockage.	Check for evidence of damage to hose or tube lines that would block flow of oil between cylinders and control valve.
	Cylinder piston assembly defective (not sealing).	Check cylinders for internal leakage as described in service section under cylinder leakage tests.
	Control valve blockage.	Inspect for blockage. Disassemble if necessary.
	Hydraulic hoses connected incorrectly.	Correct hydraulic hose connections

PROBLEM	POSSIBLE CAUSE	CORRECTION
Slow or erratic Lift.	Low hydraulic fluid level.	Check/replenish hydraulic fluid
	Cold hydraulic fluid.	Allow hydraulic system to warm up to operating temperature.
	Engine R.P.M. too slow (Hydraulic pump R.P.M. too slow).	Increase engine speed to obtain satisfactory loader operation.
	Excessive weight in bucket. Material weight exceeds maximum specified loader capacity.	Reduce material loads.
	Control valve linkage binding/defective.	Check control valve linkage and repair if worn/defective.
	Aeration of hydraulic fluid.	Refer to "Aeration of hydraulic fluid".
	Quick disconnect coupler restriction or coupler "flow check".	Check coupler(s). Repair or replace.
	Hydraulic hose or tubeline restriction (hoses/tubeline kinked or pinched).	Check hoses and tubelines for evidence of restriction.
	Lift cylinder piston assembly linkage.	Check cylinders for leakage described in service section under cylinder leakage tests.
	Relief valve erratic or set below specifications.	Check relief valve setting as described under relief valve test.
	Control valve leaking internally. (Bypassing fluid within valve).	Replace control valve and recheck operation.
	Inadequate hydraulic pump capacity.	Refer to "hydraulic pump capacity inadequate".

PROBLEM	POSSIBLE CAUSE	CORRECTION
Inadequate lifting capacity	Engine RPM too slow	Increase engine RPM.
	Excessive load - material weight exceeds specified loader capacity.	Reduce load.
	Relief valve setting below specifications.	Check relief valve setting as described under relief valve test.
	Lift cylinder piston assembly leakage.	Check cylinders for leakage as described in service section under cylinder leakage tests.
	Control valve leaking internally.	Replace control valve and recheck operation.
Aeration of hydraulic fluid (generally indicated by foamy appearance of fluid).	Hydraulic pump defective.	Refer to "hydraulic pump capacity inadequate."
	Lower hydraulic fluid level.	Check and refill hydraulic system to proper level.
	Air leaking into suction side of hydraulic pump.	Check for loose or defective connections between reservoir and hydraulic pump.
	Hydraulic fluid foaming due to improper hydraulic oil usage.	Refer to tractor owner's manual and replace hydraulic oil using recommended hydraulic oil.
System relief valve squeals.	Cold hydraulic fluid.	Allow hydraulic fluid to warm up to operating temperature.
	Excessive load in bucket. Weight exceeds specified loader capacity.	Reduce loads.
	Relief valve setting below specifications.	Check relief valve setting as described under relief valve test.
	Hydraulic hose, tubeline or quick disconnect coupler restriction.	Check for evidence of restriction in hydraulic oil flow. Repair or replace defective component(s).

TROUBLE SHOOTING

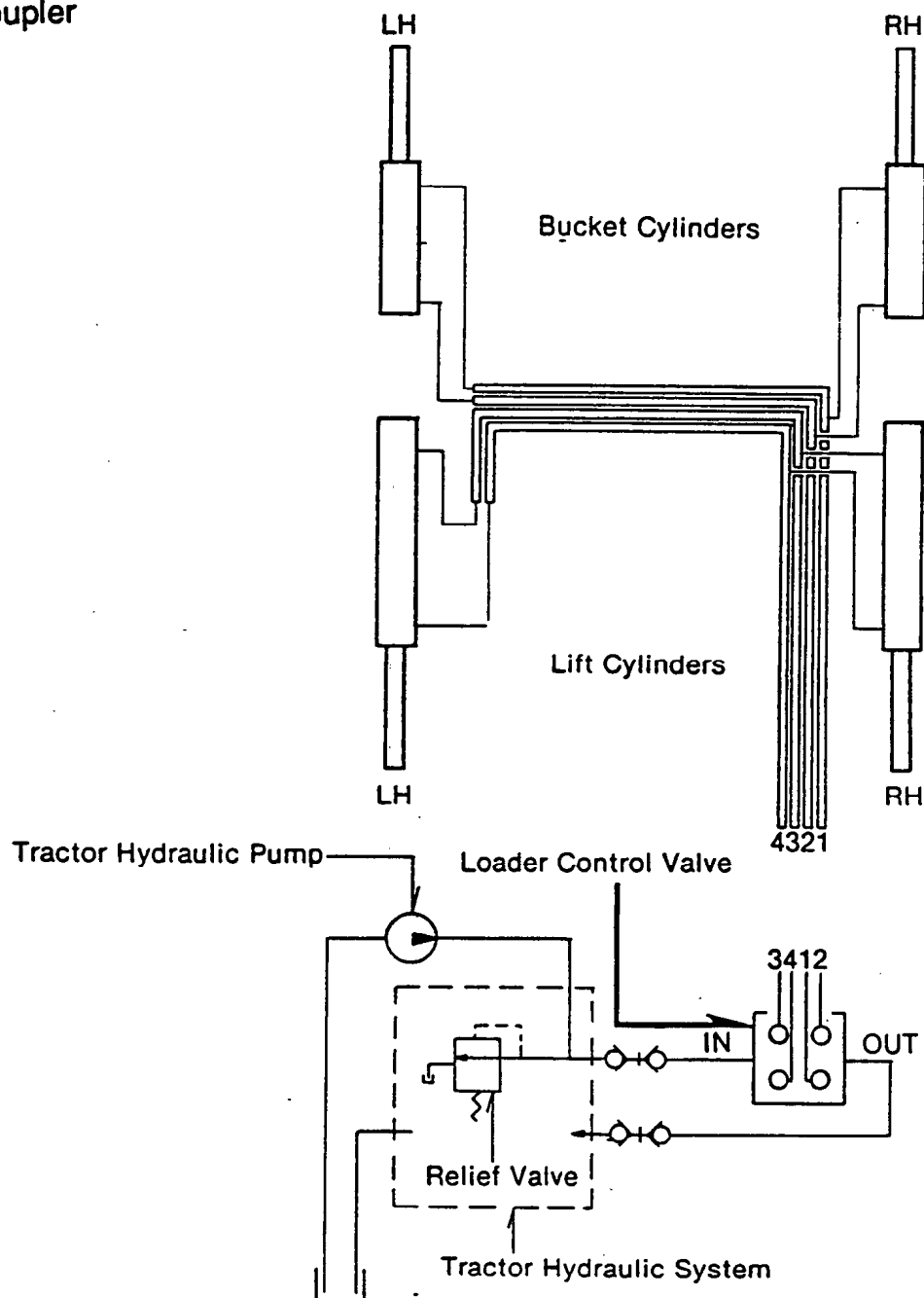
PROBLEM	POSSIBLE CAUSE	CORRECTION
Loader drops with control valve spool in "centered" position (no external oil leakage evident). Note: A gradual drop over an extended period is a normal condition.	Cylinder piston assembly leakage.	Check cylinders for leakage as described under cylinder leakage tests.
	Control valve internal leakage.	Replace control valve & recheck.
	Control lever/linkage binding.	Determine origin of binding and repair.
Control valve spool(s) will not return (position) to "centered" position.	Control valve spool centering spring broken.	Replace centering spring. Refer to valve service procedure.
	Control valve spool binding in valve body spool bore.	Disassemble valve for inspection and repair. Refer to valve service procedure.
External hydraulic fluid leakage.	Loose hydraulic connection.	Tighten loose connection.
	Defective hydraulic hose, tubeline, adaptor fitting or adaptor fitting 'O' ring.	Check for origin of oil leak and replace defective part.
	Control valve 'O' rings defective.	Replace defective 'O' rings.
	Control valve spool or body damaged/or worn.	Replace control valve.
	Cylinder rod packing set leakage.	Perform cylinder leakage test for rod packing set as described under cylinder leakage tests.

PROBLEM	POSSIBLE CAUSE	CORRECTION
Hydraulic pump capacity inadequate.	Cold hydraulic fluid.	Allow hydraulic fluid to warm up to operating temperature.
	Engine RPM too slow.	Increase engine R.P.M.
	Low hydraulic fluid supply.	Refer to tractor owner's manual for service recommendations.
	Hydraulic hose restriction.	Check for evidence of restriction in hydraulic hoses.
	Hydraulic pump defective.	Refer to tractor owner's manual for recommended service procedures. Replace hydraulic pump if determined to be defective.
Lift cylinder rods bend when lift cylinders extended.	Excessive shock load on lift cylinders during transport.	Replace defective parts. Review and observe proper and safe operational practices.
Bucket cylinder rods bend when bucket cylinders extended.	Back grading or dozing with bucket cylinder extended.	Replace defective parts. Review and observe proper and safe operational practices.
Bucket cutting edge wear is "uneven" - side to side.	Bucket is not level to ground.	Check rear tire inflation and adjust pressures to level bucket to ground.
Bucket cutting edge wear rate is excessive (wear rate is even across full width of bucket on concrete).	Incorrect operation practices. Excessive down pressure placed on bucket when being used on hard abrasive surfaces.	Refer to operation - scraping section for correct operating procedures. Utilize float position.
Note: Extensive use of bucket on concrete/asphalt surfaces will accelerate wear rate of bucket cutting edge.	Bucket wear pads worn.	Replace wear pads.
Fork bucket tine(s) bend.	Excessive loading on individual tine(s).	Repair/replace defective tines. Ensure full compliment of tines are under load when breaking out material.

HYDRAULIC SYSTEM SCHEMATIC

- 1 - Bucket Cylinder Retract
- 2 - Bucket Cylinder Extend
- 3 - Lift Cylinder Extend
- 4 - Lift Cylinder Retract

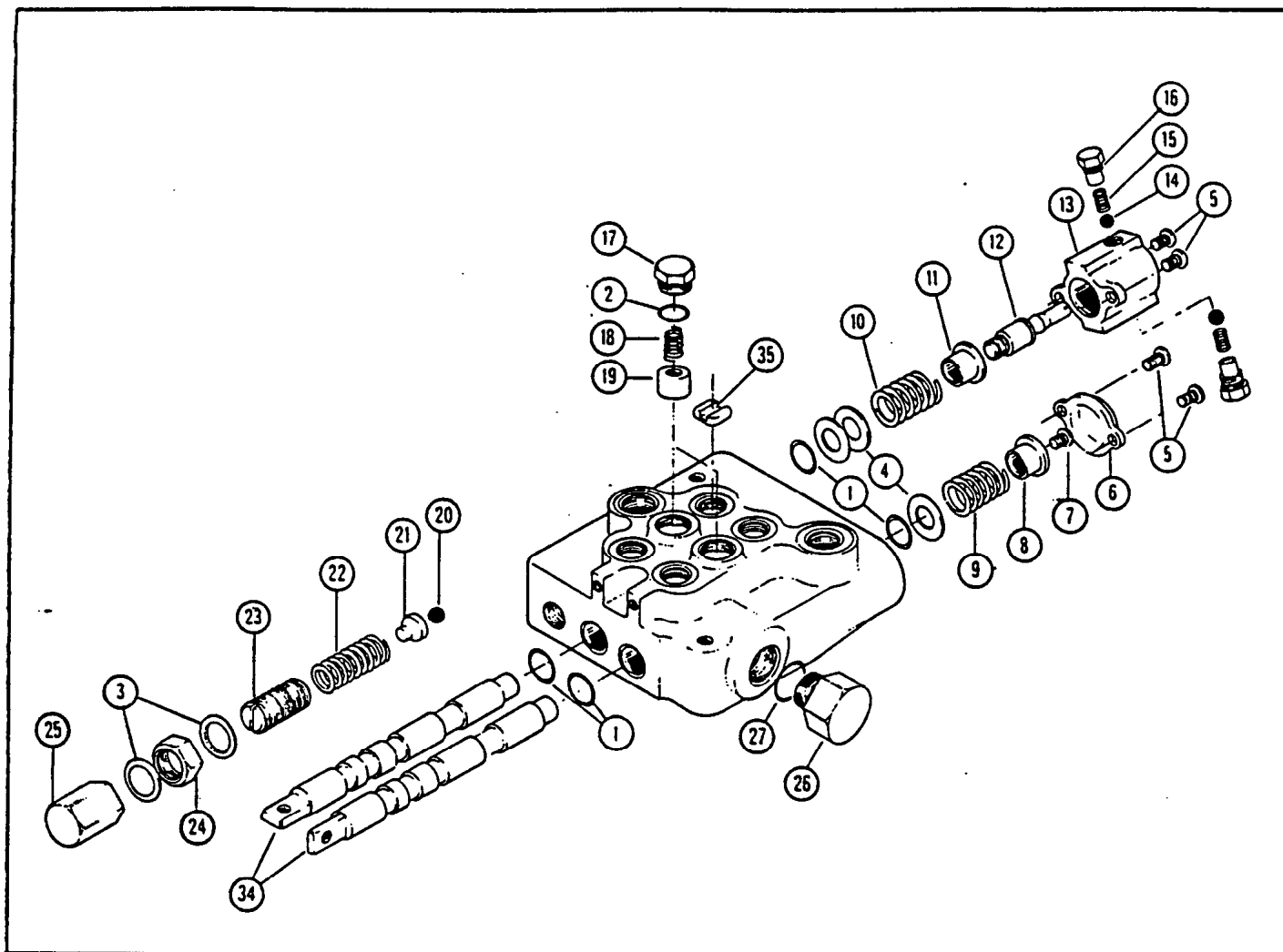
 Quick Disconnect Coupler



This exploded view diagram illustrates the components of a door handle assembly. The parts are numbered as follows:

- 1**: The main handle shaft.
- 2**: The handle knob.
- 3**: A small cylindrical spacer or bush.
- 4**: The main handle body or base.
- 5**: A small cylindrical spacer or bush.
- 6**: A small cylindrical spacer or bush.
- 7**: A small cylindrical spacer or bush.
- 8**: A small cylindrical spacer or bush.
- 9**: A small cylindrical spacer or bush.
- 10**: A small cylindrical spacer or bush.
- 11**: A small cylindrical spacer or bush.
- 12**: A small cylindrical spacer or bush.
- 13**: A small cylindrical spacer or bush.
- 14**: A small cylindrical spacer or bush.

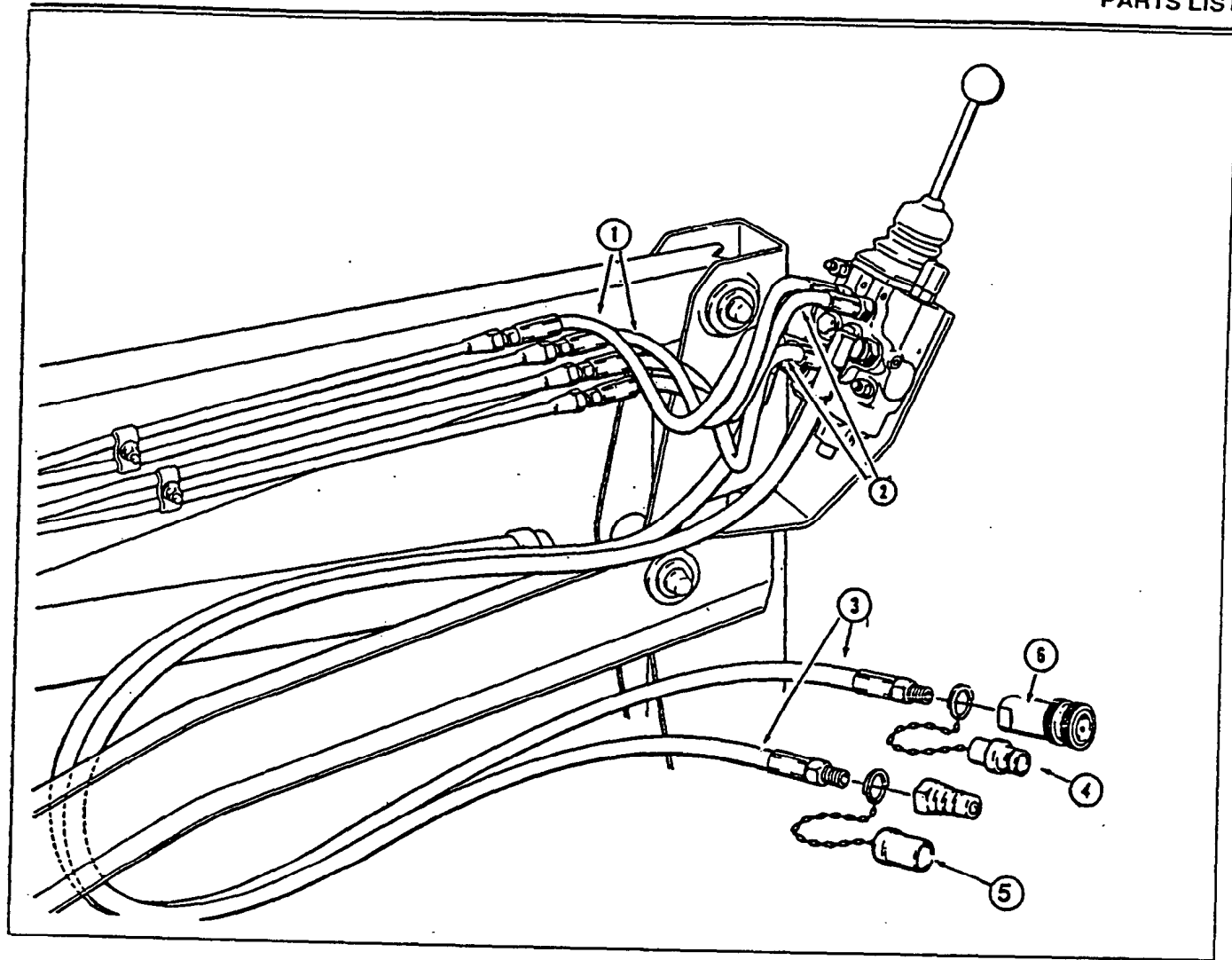
REF.	DESCRIPTION	REQ'D
	KIT - lever, single control	1
1	HANDLE	1
2	KNOB	1
3	JAM NUT	1
4	HANDLE ADAPTER	1
5	ROD END	1
6	ROD END	2
7	BOLT	2
8	SPACER	2
9	CAP SCREW	3
10	BRACKET, Assy.	1
11	CAP SCREW	2
12	LOCK NUT	2
13	STUD	1
14	BOOT	1



HYDRAULIC VALVE ASSEMBLY

REF. DESCRIPTION REQ'D

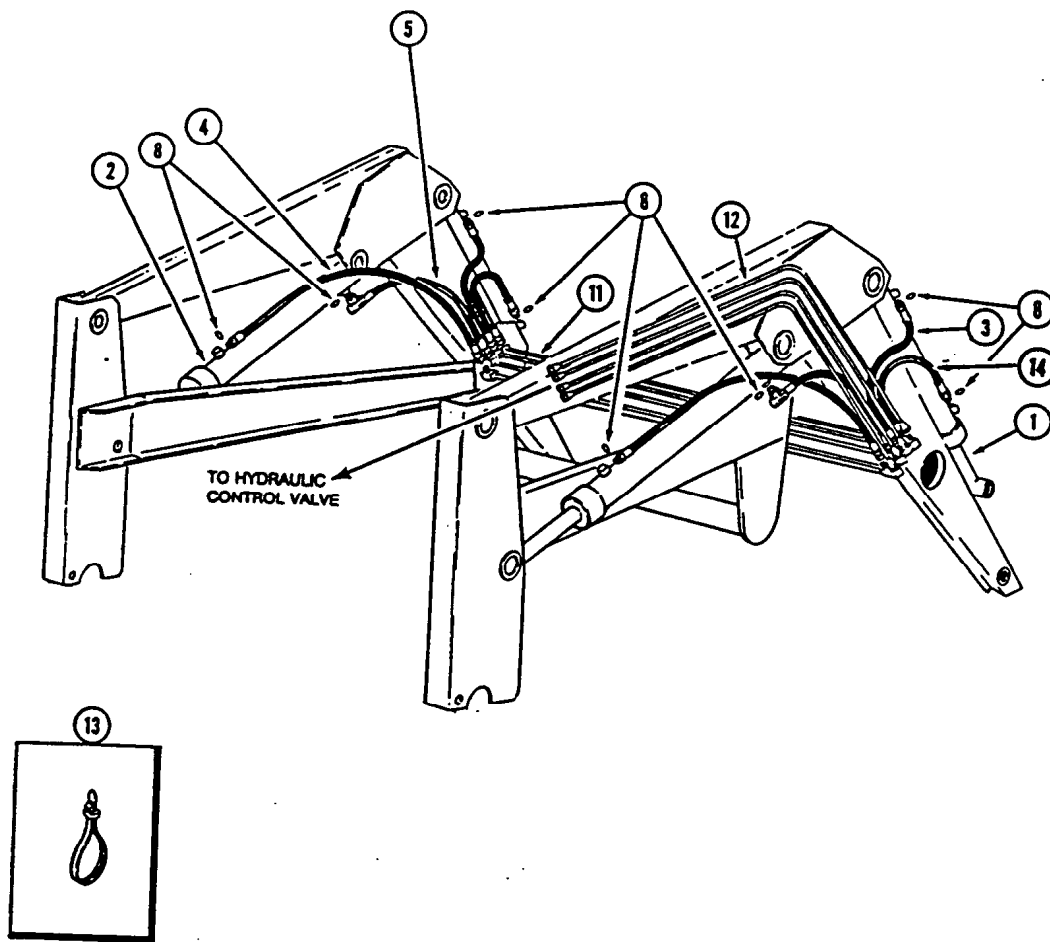
1	'O' RING	4	15	DETENT SPRING	2
2	'O' RING	1	16	DETENT PLUG	2
3	GASKET	2	17	LOAD CHECK PLUG . . .	1
4	WASHER	3	18	LOAD CHECK SPRING .	1
5	CAPSCREW	4	19	LOAD CHECK POPPET	1
6	COVER	1	20	STEEL BALL	1
7	SCREW	1	21	BALL RETAINER	1
8	SPACER	1	22	RELIEF SPRING	1
9	SPRING	1	23	ADJUSTMENT SCREW	1
10	SPRING	1	24	JAM NUT	1
11	SPACER	1	25	RELIEF CAP	1
12	DETENT SPOOL	1	26	PLUG	1
13	DETENT END CAP . . .	1	27	'O' RING	1
14	STEEL BALL	2	34	SPOOL	2
			35	ORIFICE	1



VALVE HYDRAULICS

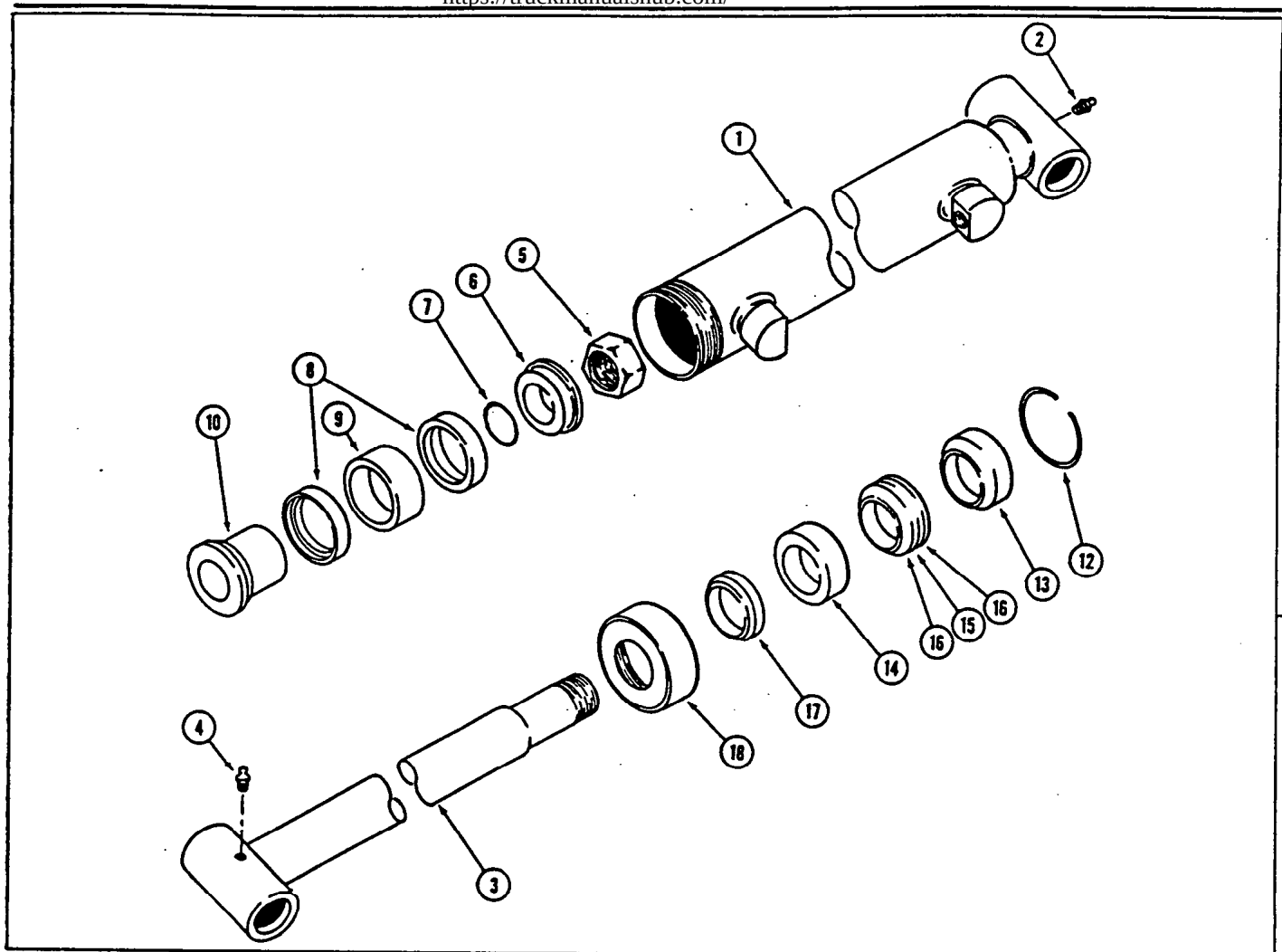
REF	DESCRIPTION	REQ'D
1	20" HYDRAULIC HOSE	2
2	18" HYDRAULIC HOSE	2
3	38" HYDRAULIC HOSE	2
4	DUST PLUG ASSEMBLY	1
5	DUST CAP ASSEMBLY	1
6	QUICK DISCONNECT ASSEMBLY	1

PARTS LIST



BUCKET AND BOOM HYDRAULICS

REF.	DESCRIPTION	REQ'D
1	CYLINDER ASSEMBLY, BUCKET	2
2	CYLINDER ASSEMBLY, BOOM	2
3	HOSE ASSEMBLY, bucket cylinder, 1/4 x 20 inch	2
4	HOSE ASSEMBLY, boom lower, 1/4 x 38 inch	2
5	HOSE ASSEMBLY, boom raise, 1/4 x 23 inch	2
	CONNECTOR, short, 9/16 - 18 flared x 9/16 - 18	
	'O' ring boss (not shown)	6
8	'O' ring, 15/32 id x 5/64 inch	8
11	TUBE ASSEMBLY, front	4
12	TUBE ASSEMBLY, rear	4
13	STRAP, tie	UAR
14	HOSE ASSEMBLY, bucket cylinder, 1/4 x 15 inch	2



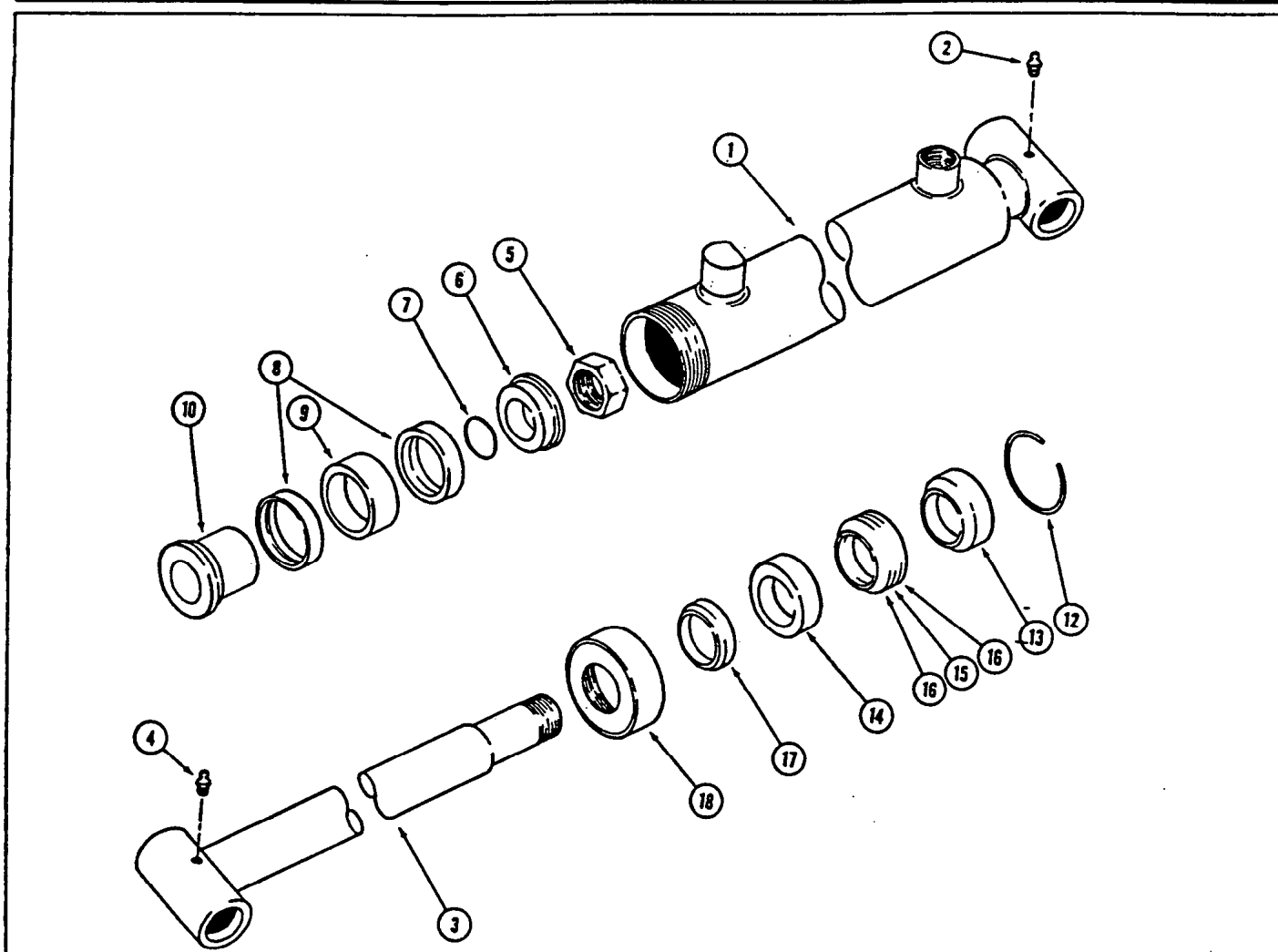
BUCKET CYLINDER

REF: DESCRIPTION REQ'D

	CYLINDER assy, bucket	2
1	BODY assy, bucket cyl	1
2	FITTING, grease,	1
3	ROD assy, bucket cylinder	1
4	FITTING, grease,	1
5	NUT, hex lock, 3/4 in NF	1
6*	END, piston	1
7*	'O' RING, piston rod	1
8*	RING, wear piston	2

9	SEAL, piston	1
10	PISTON, cylinder	1
12	WIRE, retaining	1
13	GUIDE, packing, male	1
14*	GUIDE, packing, female	1
15*	V-SEAL, rubber	1
16*	V-SEAL, fiber	2
17	WIPER, rod	1
18	NUT, cartridge	1

* Indicates ordered as SEAL KIT only

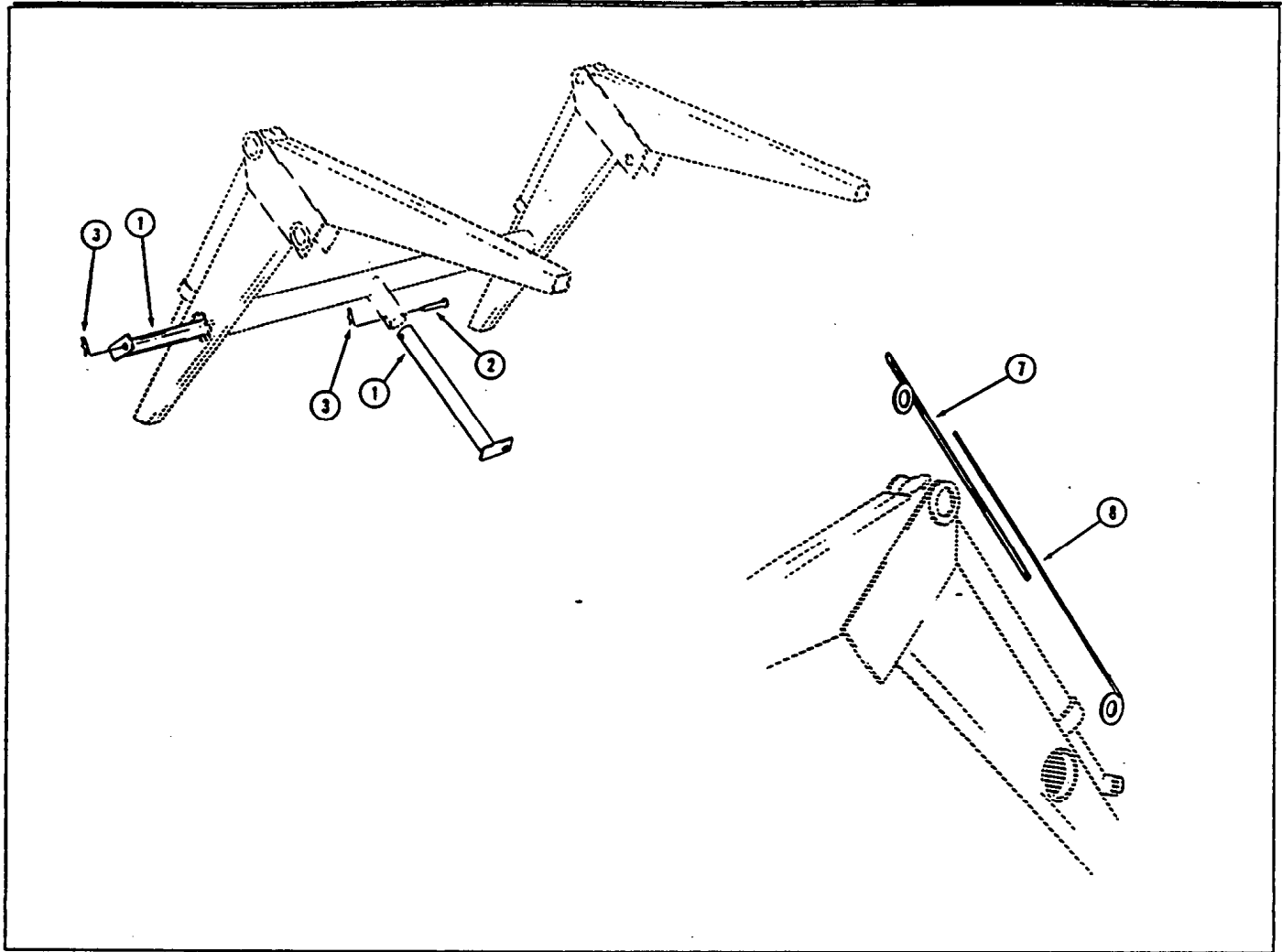
**BOOM CYLINDER**

REF: DESCRIPTION REQ'D

	CYLINDER assy, bucket cyl	2
1	BODY assly ,bucket cyl	1
2	FITTING, grease,	1
3	ROD assy,bucket cylinder	1
4	FITTING, grease,	1
5	NUT, hex lock, 3/4 in NF	1
6*	END, piston	1
7*	'O' RING,piston rod	1
8*	RING, wear piston	2

9	SEAL, piston	1
10	PISTON, cylinder	1
12	WIRE, retaining	1
13	GUIDE, packing, male	1
14*	GUIDE, packing, female	1
15*	V-SEAL, rubber	1
16*	V-SEAL, fiber	2
17	WIPER, rod	1
18	NUT, cartridge	1

* Indicates ordered as SEAL KIT only

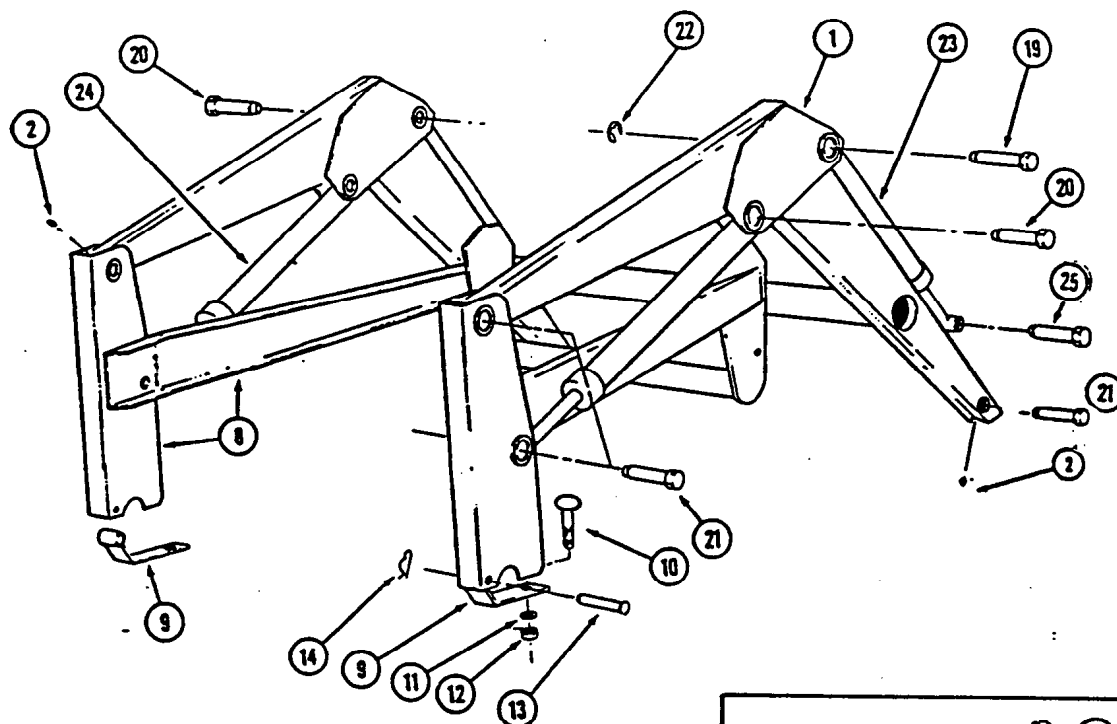


PARKING LEG

REF	DESCRIPTION	REQ'D
1	LEG parking	.1
2	PIN heading, 1/2 x 3 inch, Grade 1	.1
3	PIN hair	.2

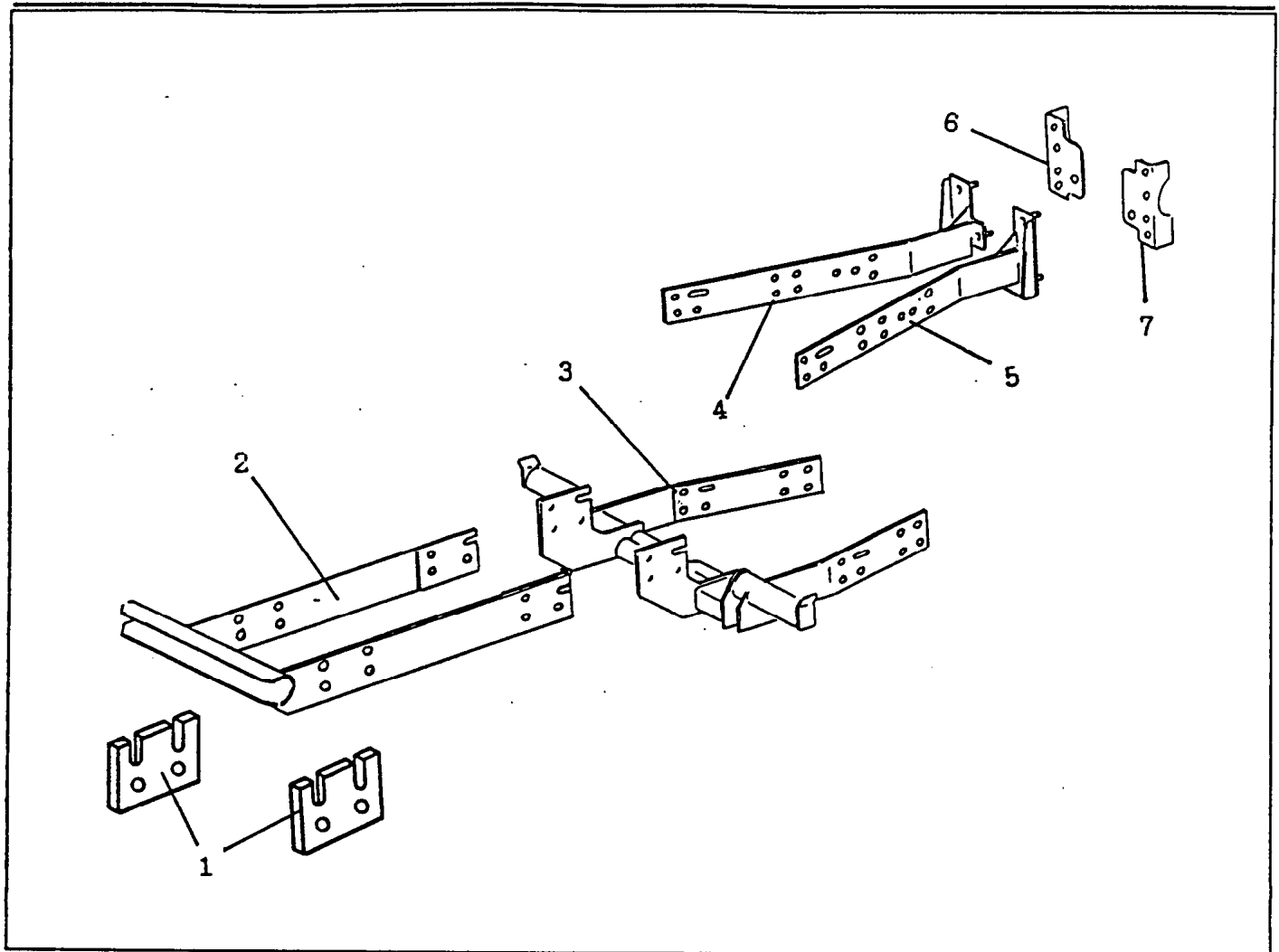
BUCKET LEVEL INDICATOR INDICATOR ATTACHMENT bucket level

7	TUBE level indicator	.1
8	ROD indicator	.1



LOADER BOOM ASSEMBLY

REF	DESCRIPTION	QTY
1	BOOM assembly	1
2	GREASE fitting	4
3	CLAMP	8
4	NUT	8
9	HINGE assembly	2
10	CARRIAGE BOLT	2
11	LOCKWASHER	2
12	NUT	2
13	PIN	2
14	CLIP	2
19	PIN	1
20	PIN	3
21	PIN	7
22	CLIP	12
23	BUCKET cylinder	2
24	BOOM cylinder	2
25	PIN	1



LOADER SUB-FRAME

REF	DESCRIPTION	QTY
1	SPACER	2
2	FRONT BRACKET	1
3	LOADER BRACKET	1
4	SIDE RAIL (R)	1
5	SIDE RAIL (L)	1
6	REAR BRACKET (R)	1
7	REAR BRACKET (L)	1

LABELS

1

NOTICE

WHEN MOWER DECK IS INSTALLED WITH FRONT LOADER, LIFT LINKAGE MUST BE READJUSTED TO PREVENT DAMAGE TO THE LIFT MECHANISM.

REFER TO OPERATOR'S MANUAL FOR ADJUSTMENT INSTRUCTIONS.

2

NOTICE

Tractor hydraulic oil should be checked frequently to maintain proper level and prevent damage.

Loader boom must be down and bucket cylinders fully retracted when checking fluid level.

5

INFORMATION

Tractor loader attachments for handling large objects are available from agricultural suppliers.

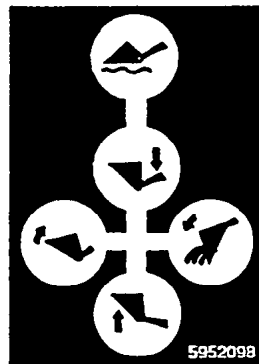
3

WARNING

TRACTOR TIP-OVER CAN CAUSE SERIOUS INJURY OR DEATH

- Add recommended wheel ballast and/or counterweights for stability.
- Drive and turn tractor at slow speed.
- Place loader low when transporting loads, especially on an incline or rough terrain.
- Put loader on ground when parked.
- Read and understand all instructions in operator's manual before operation.

4



6

WARNING

IMPROPER SERVICING CAN CAUSE SERIOUS INJURY OR DEATH

- Before servicing or adjustment lower loader to the ground and shut off engine.
- Relieve hydraulic pressure before disconnecting oil lines.

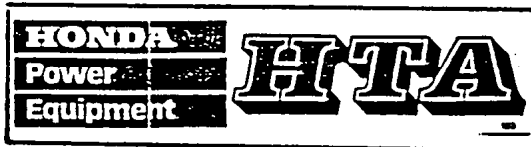
8

WARNING

LOADS CAN FALL FROM BUCKET CAUSING SERIOUS INJURY OR DEATH

- Improperly handling large heavy objects can cause the tractor to roll or tip over, or can cause the load to roll or slide down the loader arms onto the operator.
- Driving on uneven terrain can cause the load to tip out of bucket onto the operator or bystanders.
- Read and understand all instructions in operator's manual before operation.

7



REF.	DESCRIPTION	REQ'D
1	LABEL MOWER NOTICE	1
2	LABEL HYDRAULIC OIL NOTICE	1
3	LABEL TIP OVER WARNING	1
4	LABEL LOADER OPERATION	1
5	LABEL ATTACHMENT INFORMATION	1
6	LABEL SERVICE WARNING	1
7	LABEL HTA	2
8	LABEL LOAD WARNING	1

WARRANTY SERVICE

OWNER SATISFACTION

Your satisfaction and good will are important to your dealer and to us. All Honda warranty details are explained in the Distributor's Limited Warranty. Normally any problems concerning the product will be handled by your dealer's service department. If you have a warranty problem that has not been handled to your satisfaction, we suggest you take the following action:

Discuss your problem with a member of the dealership management. Often complaints can be quickly resolved at that level. If the problem has already been reviewed with the Service Manager, contact the owner of the dealership or the General Manager.

If your problem still has not been resolved to your satisfaction, contact the Power Equipment Customer Service Department of American Honda Motor Co., Inc.

American Honda Motor Co., Inc.
Power Equipment Customer Service Department
Duluth, Georgia 30136-9421
Telephone: (404) 497-6400

We will need the following information to assist you:

- Your name, address, and telephone number
- Product model and serial number
- Date of purchase
- Dealer name and address
- Nature of problem

After reviewing all the facts involved, you will be advised of what action can be taken. Please bear in mind that your problem will likely be resolved at the dealership, using the dealer's facilities, equipment, and personnel, so it is very important that your initial contact be with the dealer.

Your purchase of a Honda product is greatly appreciated by both your dealer and American Honda Motor Co., Inc. We want to assist you in every way possible to assure your satisfaction with your purchase.

HONDA



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