

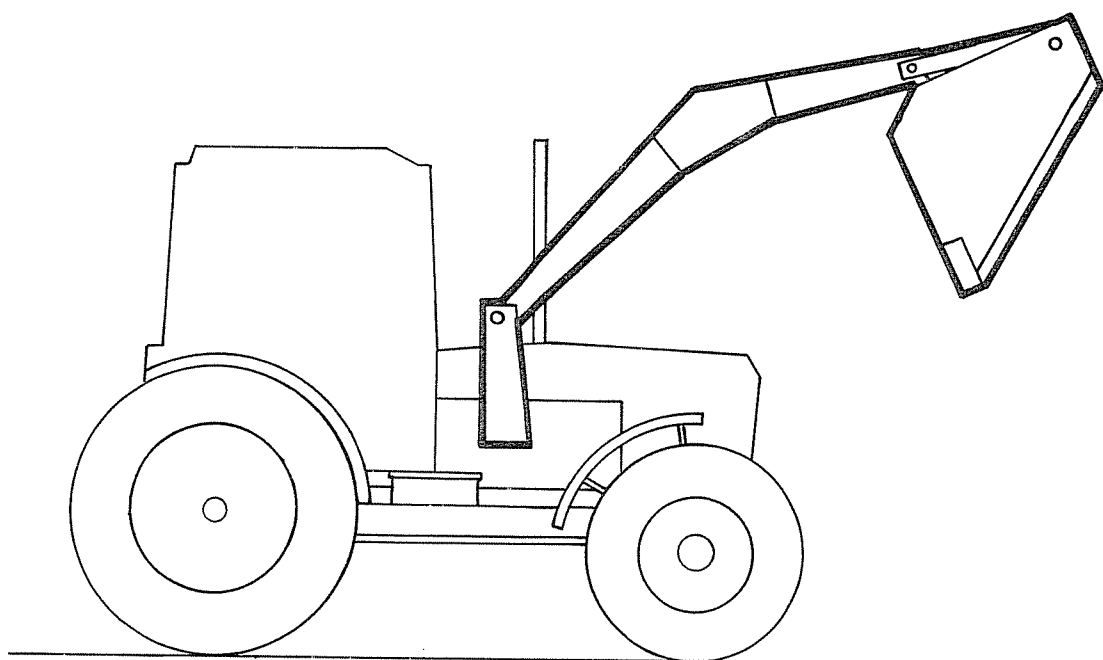
OWNER'S

MANUAL

MANUAL NO. 641762

6-18-93

KOYKER[®] K6 LOADER



IMPORTANT - KOYKER DEALER

BE SURE THIS MANUAL IS GIVEN TO THE
PURCHASER FOR HIS FUTURE REFERENCE

KOYKER MANUFACTURING COMPANY
LENNOX, S.D.

INTRODUCTION

For years, Koyker Manufacturing Company of Lennox, South Dakota, has provided the farm loader industry with innovative ideas for a more efficient and dependable means of material handling. Now, with the increasing popularity of the MFWD (Mechanical Front Wheel Drive) tractors, Koyker has again met the challenge and provided the market with a loader that will allow the efficient use of these tractors in material handling. The new KOYKER K-6 Loader provides you with state-of-the-art design and innovation for your on-farm handling chores.

Features such as quick on/off attachment, quality construction, ease of maintenance, and high performance operating capacities, all at a low price, make the new K-6 Loader one of the most efficient loaders ever. With proper care and handling, it will provide many years of dependable service.

This manual is designed to provide you with important information regarding the basic loader and bucket. Our sincere intent, in providing this manual, is to help you or those involved better understand the machine and to prevent accidents.

Should you have any questions, comments, improvements, or suggestions regarding the contents of any of the manuals provided, please contact Koyker Manufacturing Company at your earliest convenience.

WE CARE ABOUT YOUR SAFETY!

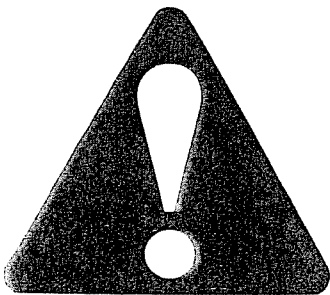
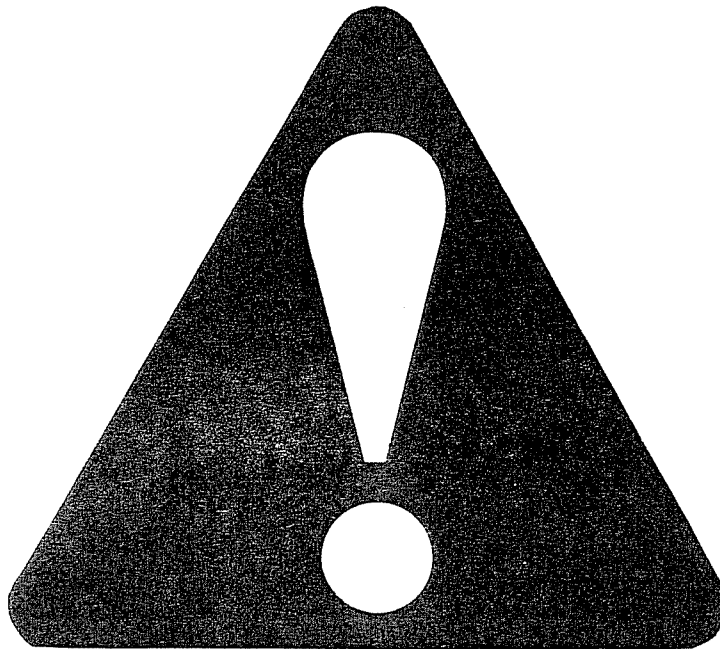
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SAFETY ALERT SYMBOL

The symbol shown below is used to call your attention to instructions concerning your personal safety. Watch this symbol --- it points out important safety precautions. It means --- ATTENTION! Become Alert! Your Personal Safety is Involved!

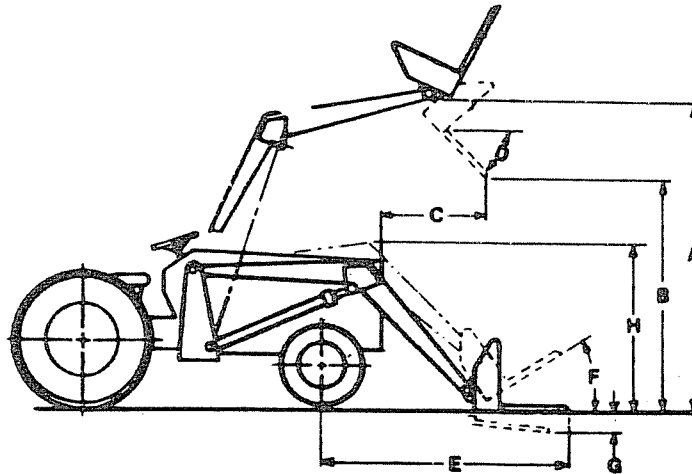
Read the message that follows and be alert to the possibility of personal injury or death.



WARNING

Anyone who will operate or work around a front-end loader shall first read this manual.

SPECIFICATIONS



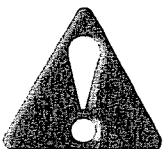
K-6 LOADER

Maximum Lift Height (A)	166"
Clearance W/Bucket Dumped (B)	131"
Reach at Maximum Height (C)	21"
Maximum Dump Angle (D)	56°
Reach W/Bucket on Ground (E)	93"
Bucket Rollback (F)	25°
Digging Depth	8"
Overall Height in Carry Position (H)	79"
Lift Capacity to Full Height	4,000 Lbs.*
Breakaway Capacity	5,500 Lbs.*
Hydraulic Control Valve Requirements	Two Spool Selective Control Valve or Two Sets of Tractor Outlets Required for Loader and Hydraulic Controlled Bucket Cylinders
Lift Bucket and Cylinders	Double Acting
Bucket Control	Hydraulic Twin Cylinders
Standard Bucket	7' Material
Bucket Sizes	72", 84", 96"
Bucket Capacities (In Cubic Feet)	21, 24½, 28
Bucket Cylinder Size (Twin)	3" Bore X 25-1/4" Stroke
Lift Cylinder Size	3-1/2" Bore X 27-7/8" Stroke
Approximate Weight W/7' Bucket (Less Mounts)	2,400 Lbs.*
Raising Time	8.0 Seconds*
Lowering Time	6.0 Seconds*
Bucket Dump Time	5.0 Seconds*
Bucket Rollback Time	4.5 Seconds*

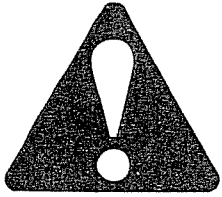
*Will vary depending upon tractor system capacity.



NEVER ATTEMPT FULL ROLL BACK IN RAISED POSITION WITH BUCKET FULL.



DO NOT USE LOADER ON TRACTORS WITH HYDRAULIC SYSTEM OUTPUT OF MORE THAN 2,500 PSI. FAILURE TO HEED MAY RESULT IN SERIOUS INJURY OR DEATH.



SAFETY

Improper use of a loader can cause serious injury or death. The following safety precautions, and those given on the tractor mount installation instructions, should be thoroughly understood before attempting to operate this machine.

BEFORE OPERATING:

Carefully study and understand this manual, the specific tractor mount instructions, and the attachment(s) manual(s).

Prior to operation, inspect the loader for system leaks and damaged, missing, or malfunctioning components in an effort to avoid the possibility of a dangerous failure involving structural members or hydraulic system components.

Be certain any repairs necessary are completed prior to loader operation.

Follow recommended maintenance procedures and precautions on Page #10.

Completely familiarize yourself and others involved with the operation of the hydraulic control valve before operating the loader.

Be certain all bystanders are clear of the machine and operating area prior to operation.

It may be necessary to add wheel ballast or rear weights as recommended by the tractor manufacturer to maintain stability of the machine; to prevent tipping or upset which could result in serious injury or death. See mounting instructions for specific information.

It is recommended that both front and rear wheel treads be set to the widest recommended width to prevent tipping or upset which could result in serious injury or death.

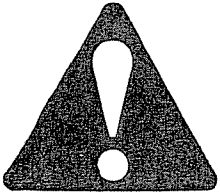
This loader is designed for farm type operations such as snow removal, barn and feedlot cleaning or light grading and digging. It's design is NOT intended for commercial and/or industrial use.

DURING OPERATION:

Never operate the machine other than from the tractor operator's seat.

Be sure operating area is clear of others during machine operation.

Never lift, hoist, or carry humans in the bucket or on any portion of the loader or loader attachments. Failure to heed, may result in serious injury or death.



SAFETY CONTINUED

Transport the machine load at the slowest speed possible and with the loader boom at the lowest transport position to avoid tipping or upset, which may result in serious injury or death.

Be extremely careful when working on inclines or near loose fill, rocks, and holes, as they can cause tipping or upset which may result in serious injury or death.

Be certain to avoid overhead electrical wires when operating loader. Contact with power lines may cause serious injury or death.

Avoid sudden stops when lowering or lifting the loader boom to prevent loss of control over the machine and/or load, which may result in serious injury or death.

Use maximum ballast and the widest recommended wheel setting on your tractor when handling large shiftable loads.

Never attempt to ram with the bucket at high speed or full tractor power. Sudden impact may result in structural failure and possible serious injury or death.

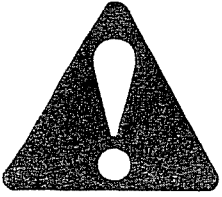
Never adjust or perform maintenance on the loader or tractor with the unit in motion, or without power source locked out.

Never get under bucket or lift arms or reach through the lift arms or bucket linkage when the loader is in operation. Inadvertant movement may cause serious injury or death.

FOLLOWING OPERATION:

Whenever machine is not in operation, lower the loader boom and set the tractor brakes, disengage drive, shut the engine off, and remove the ignition key before dismounting the tractor.

If loader is to be disengaged from tractor, be sure that loader is securely supported on a hard, level surface and that all stands are securely engaged. Be certain all connections between tractor and loader are free before disengaging.



SAFETY CONTINUED

TRANSPORTING:

Use safety lights and SMV emblem in addition to whatever local codes require when equipment is being transported on the road or highway. Check with proper authorities for legal limitations.

Transport all loads at a slow and safe speed.

Carry the load as low as possible and maintain adequate visibility and good ground clearance at all times.

PERFORMING MAINTENANCE:

Carefully review, understand, and follow the "maintenance" section in this owners manual before attempting to service loader.

Lower the bucket or attachment to the ground, shut off tractor engine, and relieve pressure in the hydraulic system before adjusting, lubricating, or servicing the loader.

Escaping hydraulic oil under pressure can penetrate the skin. Never use body to check for hydraulic leaks. Use cardboard when checking for leaks. See Figure #1. Relieve hydraulic pressure before disconnecting any hydraulic line. Failure to heed will result in serious injury or death.

Before disconnecting hydraulic lines, lower the loader and attachments. Lock out the hydraulic supply and relieve all hydraulic pressure.

Replace any damaged or painted-over decals. See Page #7 for replacement decals.

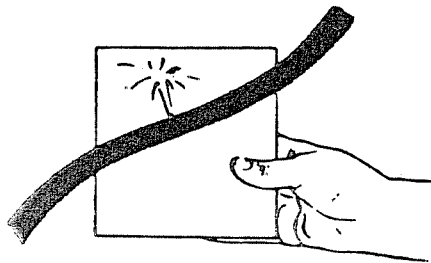


FIG. 1

REMEMBER:

1. Move Slowly!
2. Always use care and common sense!
3. Be careful for your own sake and for that of others!

SAFETY LABELS

#640864



CAUTION

Serial Number _____

DO NOT OPERATE LOADER WITHOUT FIRST READING OPERATORS MANUAL.

OPERATE LOADER FROM TRACTOR SEAT ONLY.

MOVE AND TURN TRACTOR AT LOW SPEEDS.

LOWER LOADER ARMS WHEN PARKING OR SERVICING.

CARRY LOADER ARMS AT A LOW POSITION DURING TRANSPORT.

ADD RECOMMENDED WHEEL BALLAST OR REAR WEIGHT FOR STABILITY.

MOVE WHEELS TO WIDEST SETTING RECOMMENDED FOR STABILITY.



This symbol means caution! Stay Alert! Watch for it!

ASAE R355

KOYKER MFG. COMPANY
LENNOX, SD



WARNING

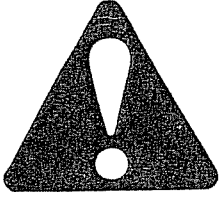
HYDRAULIC OIL UNDER PRESSURE

ESCAPING HYDRAULIC OIL UNDER PRESSURE CAN PENETRATE THE SKIN. NEVER USE BODY TO CHECK FOR HYDRAULIC LEAKS. USE CARDBOARD WHEN CHECKING FOR LEAKS. RELIEVE HYDRAULIC PRESSURE BEFORE DISCONNECTING ANY HYDRAULIC LINE

FAILURE TO HEED WILL RESULT IN SERIOUS INJURY OR DEATH.

#85505

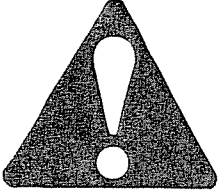
ATTACHING THE LOADER



IMPORTANT: Never attempt loader attachment on grades which are not reasonably level.

1. Check to be sure that the top surface of both mounting pads are free of bolts, screws or other obstructions.
2. Drive the tractor slowly and carefully in between the loader arms only far enough to permit hook-up of the hydraulic system hoses.
3. Once all hoses have been properly coupled, proceed to drive the tractor forward, checking to insure that the bottom of each upright clears the mount pads. It may be necessary to operate the lift cylinder control valve either up or down to provide alignment between the front yoke crossmembers and crossmember bracket. Be certain that the crossmember is fully seated.
4. To engage the upright pilot pins, tip the bucket down slowly. The pin taper should accommodate minor misalignment between pin and hole with slight downward pressure created by the bucket tip. If misalignment is such that the pin taper will not compensate, it will be necessary to realign the tractor with the loader or loosen four (4) bolts on each side of wrap around front. In such cases, be aware that the hydraulic hoses (unless disconnected) will limit how far you can back up.
5. To secure the loader, install and tighten the 3/4" x 2-1/2" cap screws and lock-washers provided. Three (3) cap screws and lockwashers are required at each mounting pad. Be certain to draw these screws down evenly to prevent gaps.
6. After both uprights are secured to the pads, raise the loader slightly to disengage and store the loader stand in the large crossmember of the main frame assembly.
7. Prior to operation, be certain to review all safety and operation information contained within this manual.

DETACHING THE LOADER



IMPORTANT: Never attempt loader detachment on grades which are not reasonably level.

1. Raise loader frame slightly to permit loader stand to be installed.
2. Lower loader and tip bucket slightly forward to apply pressure to mount connection.
NOTE: This will prevent the loader from inadvertently rocking forward when the attachment screws are removed.

3. Remove the three (3) 3/4" x 2-1/2" cap screws and lockwashers securing the upright.
NOTE: Store these attachment bolts in the tool box, or rethread them into the mounts after the loader is detached.

4. Using only the bucket cylinders, tilt the bucket back. This will elevate the upright base sufficiently to lift the pilot out of the mount hole.

5. Carefully, and very slowly, back out only far enough to permit separation at the front yoke.

NOTE: Should the loader move when tractor is backed, try moving the crossmember slightly up or down by use of the lift cylinders.

6. Before completing back out, disconnect and store the loader system hydraulic hoses. It is important that the hoses be properly stored to keep the hose couplers as clean as possible.

IMPORTANT: Never store the detached loader where insufficient soil bearing capacity exists. Good firm clay or firmly packed dirt are sufficient, providing the area is dry. If you are unsure, use blocking under each stand foot to disperse the load. Failure to heed, may allow the loader to settle and prevent attachment at later date.

PARTS IDENTIFICATION SCHEDULE

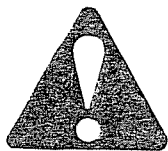
REFERENCE NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	650545	MAIN FRAME ASSEMBLY	1
2	650491	R.H. UPRIGHT ASSEMBLY	1
3	650490	L.H. UPRIGHT ASSEMBLY	1
4	650519	SPEAR ASSEMBLY	1
5	650980	CROSSMEMBER ASSEMBLY	1
6	650512	WRAP CLIP ASSEMBLY	2
7	650584	STAND PIPE	1
8	650568	LINK ARM ASSEMBLY	2
9	650569	LINK ARM	2
10	650571	LINK ARM ASSEMBLY	2
11	650668	BUCKET CYLINDER COMPLETE (3" X 25-1/4")	2
12	650585	LIFT CYLINDER COMPLETE (3-1/2" X 27-7/8")	2
13	650563	PIVOT PIN	4
14	650561	PIVOT PIN	4
15	650564	PIVOT PIN	4
16	650451	CLIP SPACER	6
17	7903	LINE INSULATOR	12
18	7739	OIL LINE CLAMP	6
19	641119	LOCK PIN ASSEMBLY	2
20	7631	INDICATOR SLEEVE ASSEMBLY	1
21	650597	INDICATOR ROD ASSEMBLY	1
22	640864	SERIAL NUMBER PLATE	1
23	85505	DECAL -- WARNING: HYDRAULIC OIL...	1
24	650346	7' BUCKET ASSEMBLY	1
*26	6503	17" BUCKET TEETH	9
*27	6503L	23" BUCKET TEETH	9
28	651452	STAND PAD ASSEMBLY	1

HARDWARE IDENTIFICATION SCHEDULE

REFERENCE LETTER	PART NUMBER	DESCRIPTION	QUANTITY
A	640671	#3 HITCH PIN CLIP	3
B	640008	1/4" X 1" NC HEX CAP SCREW	1
C	7971	1/4" X 1-1/4" SOCKET HEAD CAP SCREW	12
D	640126	1/4" NC HEX LOCKNUT	1
E	640020	5/16" X 2" NC HEX HEAD CAP SCREW	8
F	640022	5/16" X 2-1/2" NC HEX HEAD CAP SCREW	4
G	640128	5/16" NC HEX LOCKNUT	12
H	640057	1/2" X 1" NC HEX TAP BOLT	4
I	650408	1/2" X 3" NC CARRIAGE BOLT	6
J	640157	1/2" LOCKWASHER	4
K	640138	1/2" NC HEX LOCKNUT	6
L	640139	1/2" NC HEX NUT	4
M	640161	5/8" FLATWASHER	2
N	79138-1	1" NC HEX JAM NUT	4
*O	79146	1/2" X 2-1/2" NC PLOW BOLT	18
*P	640157	1/2" LOCKWASHER	18
*Q	640139	1/2" NC HEX NUT	18

*OPTIONAL

OPERATION



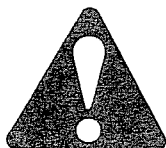
WARNING: Never allow anyone to operate the loader until they have carefully reviewed and understood this owner's manual.

FILLING THE BUCKET:

Approach and enter the pile with the bucket level.

Roll bucket back gradually as the loader moves through the pile.

RAISING THE BUCKET:



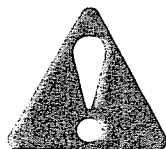
WARNING: Make sure material in bucket cannot spill out on to tractor when loader boom is raised. Keep clear of overhead obstructions such as trees, limbs or power lines when raising the bucket.

Side cutting is the best method of reducing large stockpiles. If the sides of the pile are too high, use the loader to pull them down and reduce the possibility of slides.

REMOVING OR ATTACHING THE BUCKET OR OTHER OPTIONAL ATTACHMENTS:

Each loader is equipped with an attachment control spear. The bucket is carried on the spear and is fastened with 1" pins.

To install the bucket, rotate the spear forward to approximately 45°. When certain that the loader is square, centered, and reasonably level with the bucket, carefully move forward until spear makes contact. Using only the lift cylinders, slowly raise the loader until spear enters the bucket receptacle. When this has been achieved, tilt the spear back. The bucket should then automatically seat itself on the spear. Be certain the retaining pins and clips are properly installed.



WARNING: NEVER attempt to operate the loader with someone near the loader frame or bucket.

To remove the bucket, reverse the procedure as just described.

LOADER INSPECTION, LUBRICATION, AND MAINTENANCE

Lower the bucket to the ground, shut off tractor engine, and relieve the pressure in the hydraulic system before adjusting, lubricating, or servicing the loader.

Inspect all pins and grease fittings before each use and lubricate with heavy duty grease as indicated in this manual.

Periodically check all bolts for looseness and retorquing if necessary.

Before storage, be certain all hydraulic cylinders are fully collapsed so that the rod will not be exposed to the elements or damaged.

Be certain hydraulic system remains sealed at all times to prevent inclusion of contaminants.

Check and maintain an adequate fluid level in the tractor reservoir prior to use.

Inspect all hydraulic system hoses and fittings. Replace prior to further operation if damaged.

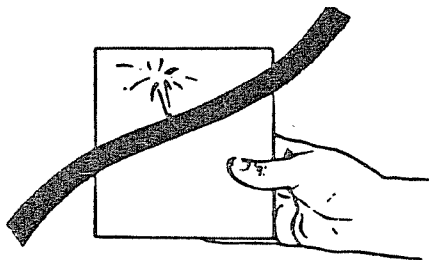
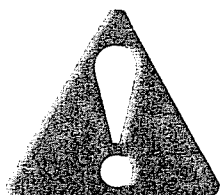


FIG. 1



WARNING:

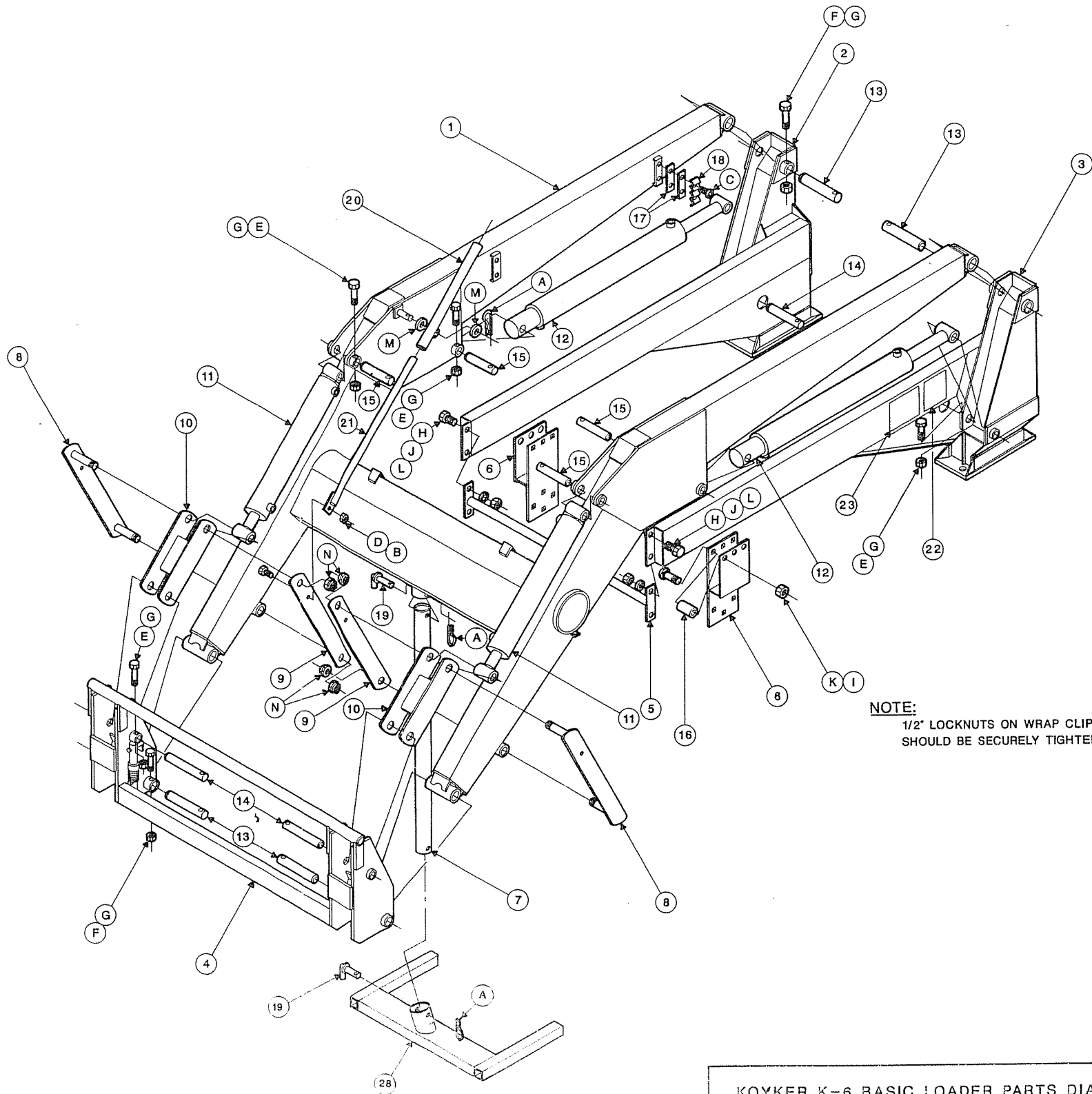
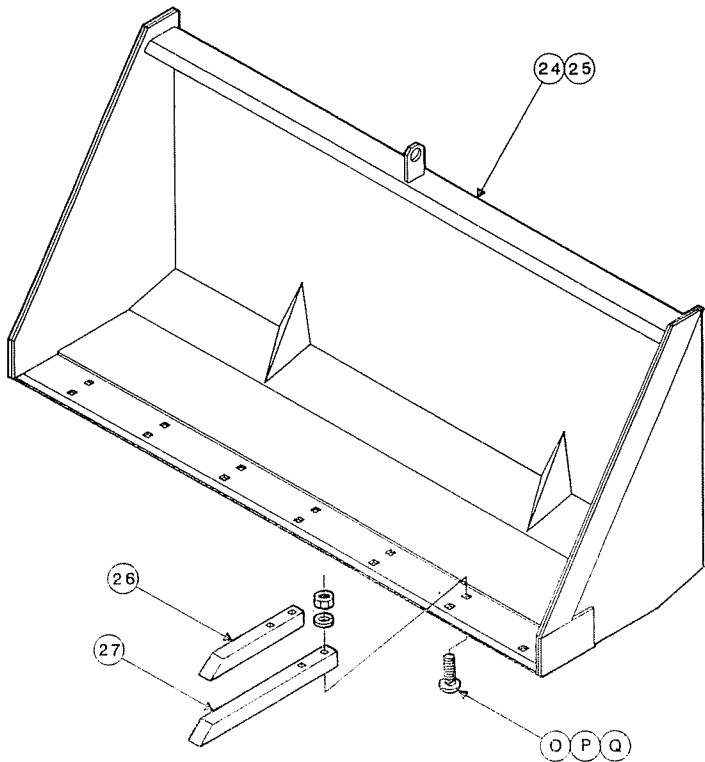
Escaping hydraulic oil under pressure can penetrate the skin. Never use body to check for hydraulic leaks. Use cardboard when checking for leaks. See Figure #1. Relieve hydraulic pressure before disconnecting any hydraulic line. Failure to heed will result in serious injury or death.

OPTIONAL 8' BUCKET ASSEMBLY

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
25	650347	8' BUCKET ASSEMBLY	1
26	6503	17" BUCKET TEETH	10
27	6503L	23" BUCKET TEETH	10
O	79146	1/2" X 2-1/2" NC PLOW BOLT	20
P	640157	1/2" LOCKWASHER	20
Q	640139	1/2" NC HEX NUT	20

NOTES:

- 1. LOADER ILLUSTRATED IS SHOWN WITH HYDRAULIC BUCKET CONTROL PACKAGE. FOR SELF-LEVELING KIT INSTALLATION AND PARTS REFERENCE, REFER TO PAGE 13.
- 2. INSTALL ALL JAM NUTS ("M") TO ALLOW A SLIGHT AMOUNT OF CLEARANCE FOR PART ROTATION. DO NOT INSTALL TIGHT.
- 3. SEE PAGE 13 FOR HYDRAULIC SYSTEM PARTS DIAGRAM.
- 4. MOUNTING BRACKETS TO ATTACH LOADER NOT SHOWN.
- 5. LUBRICATE ALL PINS EVERY 10 HOURS OF OPERATION UNDER NORMAL OPERATING CONDITIONS. SEVERE OPERATING CONDITIONS MAY REQUIRE MORE FREQUENT LUBRICATION.

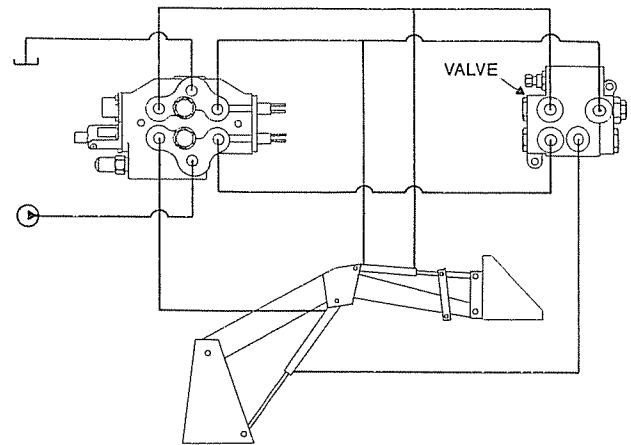


NOTE:
1/2" LOCKNUTS ON WRAP CLIP ASSEMBLIES
SHOULD BE SECURELY TIGHTENED.

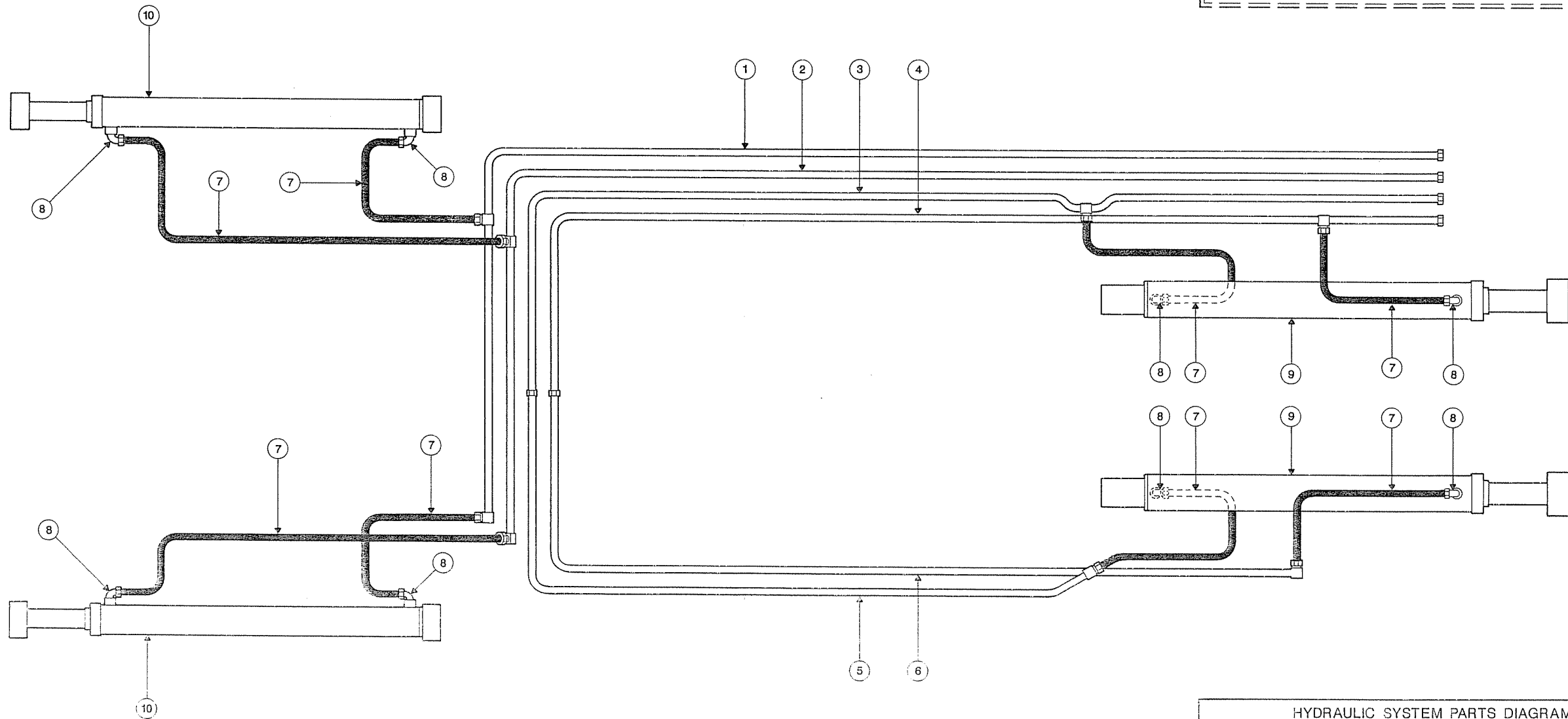
KOYKER K-6 BASIC LOADER PARTS DIAGRAM				12
KOYKER MANUFACTURING CO.	DWN. BY LERAY	APPRD. BY	DATE 12/8/89	DWG. NO

REF. NUMBER	PART NUMBER	DESCRIPTION	QTY.
1	650778	#1 OIL LINE ASSEMBLY	1
2	650779	#2 OIL LINE ASSEMBLY	1
3	650780 R	#3 OIL LINE ASSEMBLY	
4	650781 R	#4 OIL LINE ASSEMBLY	1
5	650780 L	#5 OIL LINE ASSEMBLY	1
6	650781 L	#6 OIL LINE ASSEMBLY	1
7	76154	26" HYDRAULIC HOSE	8
8	7965	90 ELBOW	8
9	650585	LIFT CYLINDER	2
10	650668	BUCKET CYLINDER	2

SELF-LEVEL VALVE KIT PARTS		
PART NUMBER	DESCRIPTION	QTY.
650868	SELF-LEVEL VALVE	1
650865	VALVE BRACKET	1
7966	37 JIC M-M-M TEE	2
640019	5/16" X 1-1/2" NC HEX SCREW	2
640151	5/16" LOCKWASHER	2
640129	5/16" NC HEX NUT	2
79142	3/8" X 3/4" THREAD CUTTING SCREW	3



SELF-LEVEL VALVE KIT DIAGRAM
(OPTIONAL)



HYDRAULIC SYSTEM PARTS DIAGRAM K-6 LOADER					13
KOYKER MANUFACTURING CO.	DWN. BY LERAY	APPRD. BY	DATE 12/13/89	DWG. NO	

WARRANTY

Koyker Manufacturing Company (Koyker) warrants to the original purchaser only that the goods manufactured by Koyker are free from defects in material and workmanship under normal use and service and when properly installed for a period of one (1) year from the date of purchase. Any defective part or component must be returned to the factory at the purchaser's expense for inspection by Koyker. The obligation of Koyker is limited to repairing or replacing at its factory any part or component determined to its satisfaction to be defective. KOYKER SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. All transportation charges shall be paid by purchaser. Purchaser must notify Koyker of a claim by registered or certified mail, return receipt requested, within thirty (30) days after discovery or the claim shall be deemed waived.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No warranty is given by Koyker for parts, components, or trade accessories furnished by Koyker but not manufactured by it. They are covered by the warranty of their manufacturer, if any. No person, firm, or corporation including the selling dealer is authorized to assume for Koyker any other liability in connection with the sale of these goods.

User shall notify Koyker in writing, within 30 days, of any accident or occurrence involving Koyker products resulting in personal injury or property damage and shall cooperate fully with Koyker in investigating and determining the cause of such accident or occurrence. In the event that user fails to give such notice to Koyker and so cooperate, user agrees to indemnify and save Koyker harmless from all loss or damage arising from such accident or occurrence.

CYLINDER WARRANTY

All cylinder claims shall be handled by Koyker Dealers or Distributors. All hydraulic cylinders are thoroughly inspected before shipment from factory. Therefore, no claim can be granted where a cylinder has been damaged or abused (including, but not limited to, bent tubes, dents, nicks, abused threads, attempted alterations, or welding), nor unless made to Koyker within one (1) year from sale to original purchaser.

Any defective cylinder reported to Koyker within one (1) year from sale by dealer to original purchaser will be replaced after properly inspected by Koyker. In such case, notify your Koyker Dealer and he will give you proper instructions.

If inspection proves cylinder is not defective and has been abused or otherwise damaged, any charges will be paid by original purchaser immediately after he has been notified of the result of Koyker's inspection of the cylinder sent in for the inspection.

Cylinders requiring factory repair more than one year after sale to original purchaser, can be given to Dealer for return to Koyker with transportation charges prepaid. Leaks around the shaft seal and internal bypass leaks can be field repaired. Service kits are available for this repair.

HYDRAULIC CYLINDERS

INSPECTION AND MAINTENANCE:

Periodically check all hydraulic system connections to insure a leak-free condition. Also, be certain to maintain proper fluid levels in the tractor hydraulic system as in accordance with the method and frequency recommended in the tractor operator's manual.

Use only hydraulic fluids recommended for your tractor hydraulic system by the manufacturer. Recommended hydraulic fluid for operation of the loader is DTE Light Hydraulic Oil Viscosity 150 SSU.

Keep hydraulic system clean. Be certain to maintain recommended oil filter service intervals.

All internal surfaces of the hydraulic system on your loader have been factory cleaned, inspected, and plugged with protective caps prior to shipment. Be certain all protective caps are securely in place until hydraulic system assembly is completed.

Care must be taken with your loader cylinders. Nicks, scratches, rust or other shaft damage can cause seal damage resulting in cylinder leakage and poor performance.

IMPORTANT:

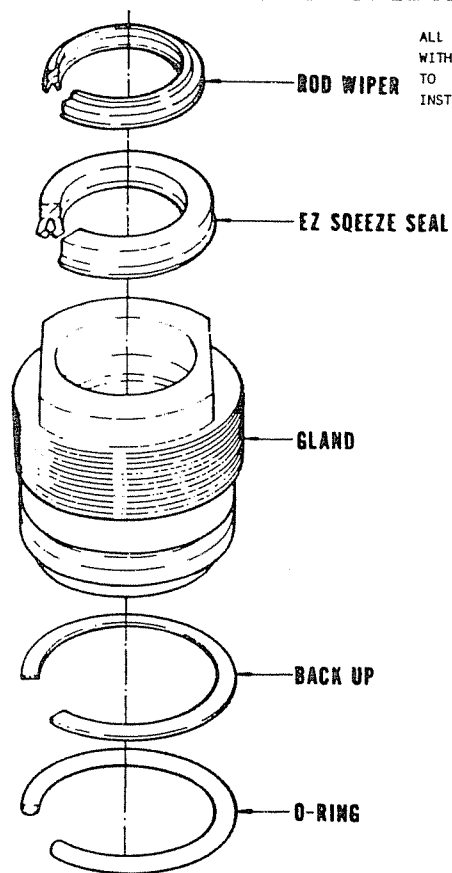
Read these service tips before beginning assembly of cylinder gland or piston.

1. Keep seals clean from the time they are removed from package until they are installed.
2. Clean the groove or bore into which the seal is to be fitted before installing the seal.
3. Never touch the seal lip in handling. Always pick up the seal by its outer member.
4. Inspect each seal lip carefully for nicks, scratches, and dirt at time of installation. If dirty, use a soft, clean cloth and carefully wipe off seal. DO NOT wipe seal with fingers as this only imbeds dirt in the seal.

NOTE: Seals can be made more pliable and easier to install, if first heated in hydraulic oil to 160°F. Never use direct heat on any seals.

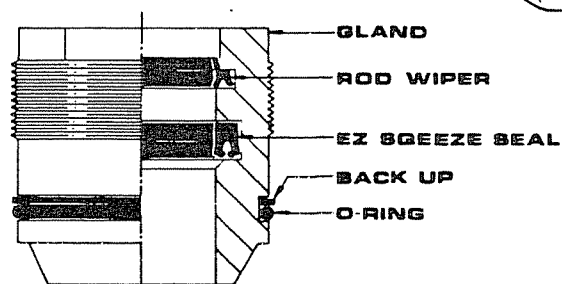
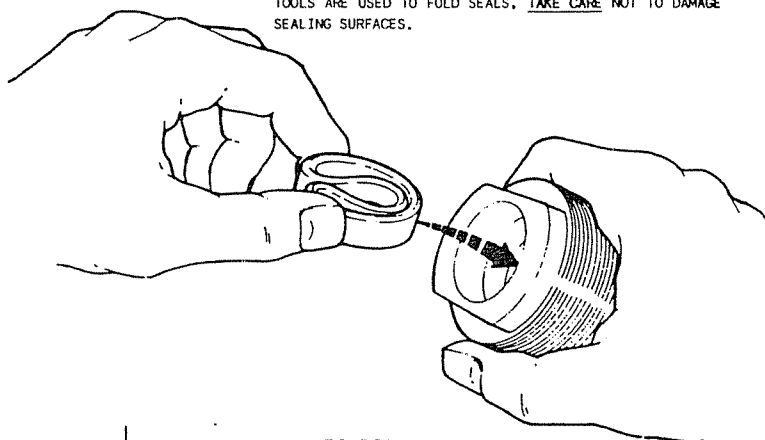
IMPORTANT: Never clean rubber related seals with a mineral based solvent! Clean rubber seals in denatured alcohol or non-mineral based solvents only.

CYLINDER GLAND SERVICE DIAGRAM



ALL GLAND SEALS SHOWN WITH A SECTION REMOVED TO FACILITATE CORRECT INSTALLATION.

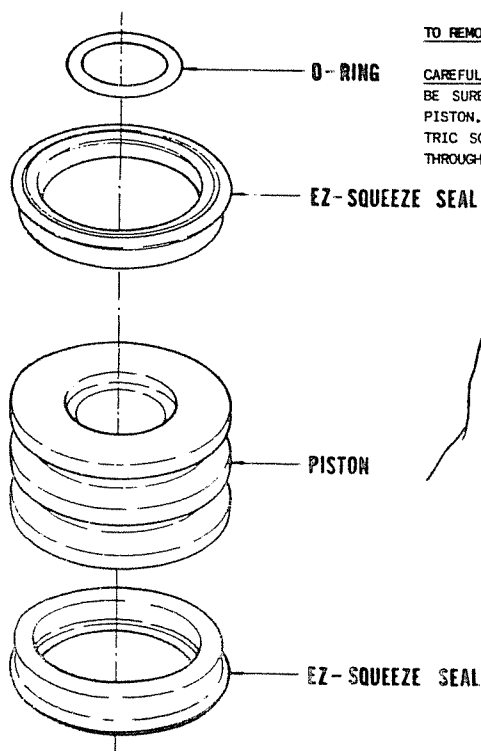
NOTE: TO INSTALL ROD WIPER AND EZ-SQUEEZE SEAL, FOLD SIMILAR TO SHAPE SHOWN BELOW, SLIP INTO GLAND BORE AND LOCATE EACH IN ITS RESPECTIVE GROOVE. IF TOOLS ARE USED TO FOLD SEALS, TAKE CARE NOT TO DAMAGE SEALING SURFACES.



**SECTION VIEW
ASSEMBLED GLAND**

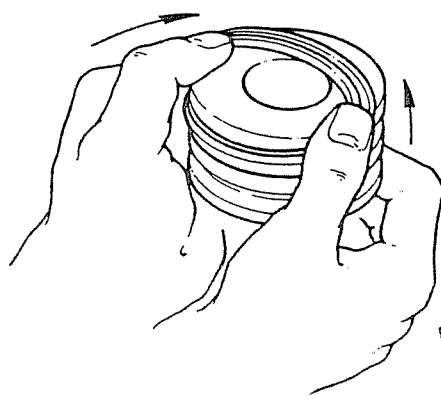
IMPORTANT!! BE SURE ALL GLAND AND PISTON SEALS HAVE BEEN INSTALLED CORRECTLY BEFORE CYLINDER IS ASSEMBLED!

CYLINDER PISTON SERVICE DIAGRAM



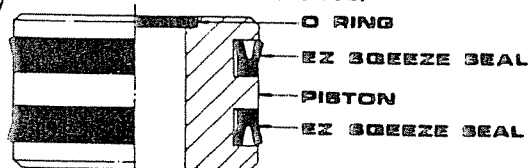
TO REMOVE SEALS:

CAREFULLY CUT ACROSS EACH SEAL WITH A SHARP KNIFE. BE SURE NOT TO SCRATCH SEALING SURFACES OF ALUMINUM PISTON. IF A SHARP KNIFE IS NOT AVAILABLE, AN ELECTRIC SOLDERING GUN OR HOT IRON MAY BE USED TO MELT THROUGH SEALS.



TO INSTALL SEALS:

1. THOROUGHLY CLEAN PISTON SEALING SURFACES OF ALL FOREIGN MATTER.
2. HEAT NEW SEALS IN HYDRAULIC OIL TO 160°F. NEVER USE A DIRECT FLAME OR HEATED WATER ON HYDRAULIC SEALS.
3. REMOVE SEALS FROM OIL, WIPE DRY AND INSTALL IN PISTON GROOVES AS SHOWN IN ILLUSTRATION AT LEFT. BE SURE SEALS HAVE COMPLETELY SEATED IN PISTON GROOVES BEFORE ALLOWED TO COOL.
4. REPLACE PISTON ON CYLINDER SHAFT AND ASSEMBLE CYLINDER WHEN SEALS HAVE COOLED TO ROOM TEMPERATURE.



**SECTION VIEW
ASSEMBLED PISTON**

3-1/2" CYLINDER SERVICE KITS

KIT NO. 14:

Complete kit with all seals needed to service one (1) 3½" Cylinder. Consists of:

1 EACH	3½" Gland "O" Ring	#641759
1 EACH	3½" Backup Ring	#641760
1 EACH	1-3/4" EZ Squeeze Seal	#85488
1 EACH	1-3/4" Rod Wiper	#85487
2 EACH	3½" EZ Squeeze Seals	#641761
1 EACH	1" Rod "O" Ring	#640301

KIT NO. 24:

Complete assembled 3½" Cylinder Gland with all seals. Consists of:

1 EACH	3½" Aluminum Gland	#650594
1 EACH	3½" Gland "O" Ring	#641759
1 EACH	3½" Backup Ring	#641760
1 EACH	1-3/4" EZ Squeeze Seal	#85488
1 EACH	1-3/4" Rod Wiper	#85487

KIT NO. 34:

Complete assembled 3½" Cylinder Piston with all seals. Consists of:

1 EACH	3½" Aluminum Piston	#650593
2 EACH	3½" EZ Squeeze Seals	#641761
1 EACH	1" Rod "O" Ring	#640301

KIT NO. 44:

All seals needed to service one (1) 3½" Cylinder Gland. Consists of:

1 EACH	3½" Gland "O" Ring	#641759
1 EACH	3½" Back Ring	#641760
1 EACH	1-3/4" EZ Squeeze Seal	#85488
1 EACH	1-3/4" Rod Wiper	#85487

KIT NO. 54:

All seals needed to service one (1) 3½" Cylinder Piston. Consists of:

2 EACH	3½" EZ Squeeze Seals	#641761
1 EACH	1" Rod "O" Ring	#640301

3" CYLINDER SERVICE KITS

KIT NO. 1C:

Complete kit with all seals needed to service one (1) 3" Cylinder. Consists of:

1 EACH	3" Gland "O" Ring	#640866
1 EACH	3" Backup Ring	#640382
1 EACH	1-3/4" EZ Squeeze Seal	#85488
1 EACH	1-3/4" Rod Wiper	#85487
2 EACH	3" EZ Squeeze Seals	#640385
1 EACH	1" Rod "O" Ring	#640301

KIT NO. 2C:

Complete assembled 3" Cylinder Gland with all seals. Consists of:

1 EACH	3" Aluminum Gland	#10899
1 EACH	3" Gland "O" Ring	#640866
1 EACH	3" Backup Ring	#640382
1 EACH	1-3/4" EZ Squeeze Seal	#85488
1 EACH	1-3/4" Rod Wiper	#85487

KIT NO. 3C:

Complete assembled 3" Cylinder Piston with all seals. Consists of:

1 EACH	3" Aluminum Piston	#10057
2 EACH	3" EZ Squeeze Seals	#640385
1 EACH	1" Rod "O" Ring	#640301

KIT NO. 4C:

All seals needed to service one (1) 3" Cylinder Gland. Consists of:

1 EACH	3" Gland "O" Ring	#640866
1 EACH	3" Back Ring	#640382
1 EACH	1-3/4" EZ Squeeze Seal	#85488
1 EACH	1-3/4" Rod Wiper	#85487

KIT NO. 5C:

All seals needed to service one (1) 3" Cylinder Piston. Consists of:

2 EACH	3" EZ Squeeze Seals	#640385
1 EACH	1" Rod "O" Ring	#640301

CYLINDER PARTS LIST

3-1/2" CYLINDER PARTS LIST

REFERENCE NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	650586	CYLINDER ROD ASSEMBLY	1
*2	650594	3½" CYLINDER GLAND	1
3	640301	ROD "O" RING	1
**4	650593	3½" CYLINDER PISTON	1
5	79138-1	1" LOCKNUT	1
6	650587	CYLINDER TUBE ASSEMBLY	1

*SEE CYLINDER SERVICE KIT 2D

**SEE CYLINDER SERVICE KIT 3D

3" CYLINDER PARTS LIST

REFERENCE NUMBER	PART NUMBER	DESCRIPTION	QUANTITY
1	650578 650470	CYLINDER ROD ASSEMBLY	1
*2	10899	3" CYLINDER GLAND	1
3	640301	ROD "O" RING	1
**4	10057	3" CYLINDER PISTON	1
5	79138-1	1" LOCKNUT	1
6	650577	CYLINDER TUBE ASSEMBLY	1

*SEE CYLINDER SERVICE KIT 2C

**SEE CYLINDER SERVICE KIT 3C

HYDRAULIC CYLINDER PARTS DIAGRAM

REVISED 2/25/86

