

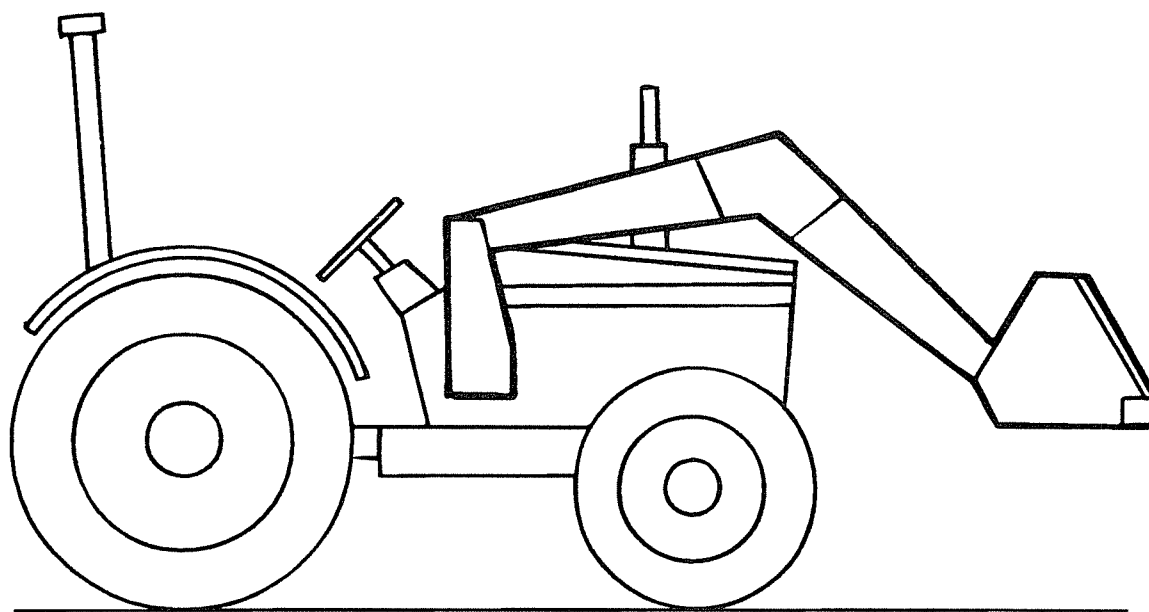
OWNER'S MANUAL

MANUAL # 652356
JUNE 1992

KOYKER
®

K-3

LOADER



Important – Koyker Dealer

Be sure this manual is given to the purchaser for his future reference.

**Koyker Manufacturing Company
Lennox, SD**

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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-3 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-3 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.

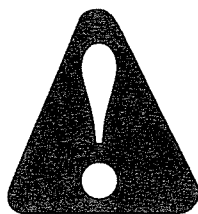
Should you have any questions, comments, improvements, or suggestions regarding the contents of any of the manuals provided, please contact Koyker Manufacturing Company at your earliest convenience.

We care about your safety!

SAFETY ALERT SYMBOL

The symbol shown below is used to call your attention to instructions concerning your personal safety. Watch for 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

Ref.	K-3 Loader	Self Level
A	Maximum Lift Height 137"	122-1/2"
B	Clearance w/ Bucket Dumped 103"	103"
C	Reach at Maximum Height 36"	36"
D	Maximum Dump Angle 49°	49°
E	Reach w/ Bucket on Ground 86"	86"
F	Bucket Rollback 34°	34°
G	Digging Depth 14-3/4"	7-3/4"
H	Overall Height in Carry Position 84-1/2"	93"
	Lift Capacity to Full Height 2900 lbs.	2900 lbs
	Breakaway Capacity 5700 lbs.	5700 lbs.
	Hydraulic Control Valve Requirements Two spool selective control valves 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, 24-1/2, 28	
	Bucket Cylinder Size (Twin) 3" bore x 22-3/4" stroke	
	Lift Cylinder Size 3" Bore x 27.500" Stroke	
	Approximate Weight w/ 7' Bucket (less mounts) 1844 lbs.	
	Raising Time 7.0 Sec.*	
	Lowering Time 4.0 Sec.*	
	Bucket Dump Time 4.0 Sec.*	
	Bucket Rollback Time 3.0 Sec.*	

*Will vary depending upon tractor system capacity.

NOTE: All specifications will vary slightly due to tractor and mount heights.



WARNING

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 instruction 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 operation such as snow removal, barn and feedlot cleaning, or light grading and digging. Its design is NOT intended for commercial and/or industrial use.

DURING OPERATION

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

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.

DURING OPERATION (CON'T.)

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. Inadvertent 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.

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 owner's 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 6 for replacement decals.

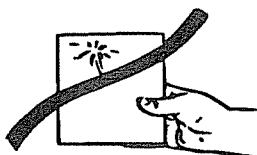


Figure #1

REMEMBER

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



WARNING

HYDRAULIC OIL UNDER PRESSURE CAN PENETRATE THE SKIN!

- NEVER USE ANY PART OF YOUR BODY TO CHECK FOR LEAKS IN HYDRAULIC LINES.
- IF YOU SUSPECT YOU HAVE A LEAK IN YOUR LINES ALWAYS USE CARDBOARD TO CHECK.
- BE SURE TO ALWAYS RELIEVE HYDRAULIC PRESSURE BEFORE DISCONNECTING LINES.

**FAILURE TO HEED WILL RESULT
IN SERIOUS INJURY OR DEATH!**

85505

02-0360

#85505



CAUTION

Serial Number _____

**DO NOT OPERATE LOADER WITHOUT FIRST READING
OPERATOR'S 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!

**KOYKER MFG. COMPANY
LENNOX, SD**

ASAE R355

#640864



DANGER

PINCH POINTS!

- KEEP ALL CHILDREN AWAY FROM THIS AREA.
- DO NOT PUT ANY PART OF YOUR BODY NEAR THIS AREA.

FAILURE TO HEED WILL RESULT IN SERIOUS INJURY OR DEATH!

652338

#652338

ATTACHING THE LOADER



IMPORTANT

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

1. Drive the tractor slowly and carefully in between the loader arms only far enough to permit hook-up of the hydraulic system hoses.
2. Once all hoses have been properly coupled, drive the tractor forward, checking to insure that the bottom of each upright clears the mount shoes. It may be necessary to operate the lift cylinders control valve either up or down to provide alignment between the wrap arm clips and wrap arm brackets. Be certain that the wrap arm clip is fully seated.
3. To allow the upright base to settle into the mount shoe, tip the bucket down slowly.
4. To secure the loader, swing hinge assembly up and fasten with the hinge lock assembly located at the base of each upright assembly.
5. After both uprights are secured to the shoes, raise the loader slightly to disengage loader stand. Store loader stand in main frame crossmember and fasten stand shoe to the clip on the mainframe assembly.
6. Prior to operation, be certain to review all safety and operation information contained within this manual.

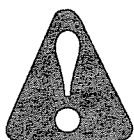
DETACHING THE LOADER



IMPORTANT

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

1. Raise loader frame slightly to permit loader stand stowage.
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. Loosen the hinge lock assembly located at the base of each upright assembly and swing the hinge assembly away from the tractor mount.
4. Carefully and slowly roll bucket back to raise uprights from mount shoes.
5. Begin backing out slowly. NOTE: Should the loader move when tractor is backed up, try moving lift cylinders to take load off wrap arm clips.
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 is 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.

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 / 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 1-1/8" 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 re-torque 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.

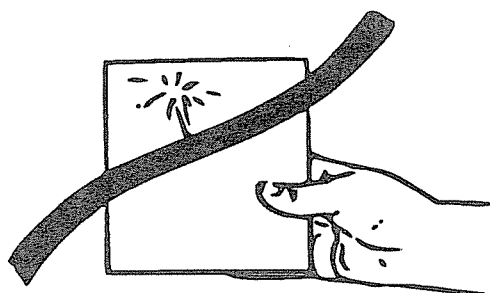


FIGURE #2



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 #2). Relieve hydraulic pressure before disconnecting any hydraulic line. Failure to heed will result in serious injury or death.

OPTIONAL 6' BUCKET ASSEMBLY _____

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
22	650345	6' Bucket Assembly	1
24	6503	17" Bucket Teeth	8
25	6503L	23" Bucket Teeth	8
N	79146	1/2" x 2-1/2" NC Plow Bolt	16
O	640157	1/2" Lockwasher	16
P	640139	1/2" NC Hex Nut	16

OPTIONAL 8' BUCKET ASSEMBLY _____

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
23	650347	8' Bucket Assembly	1
24	6503	17" Bucket Teeth	10
25	6503L	23" Bucket Teeth	10
N	79146	1/2" x 2-1/2" NC Plow Bolt	20
O	640157	1/2" Lockwasher	20
P	640139	1/2" NC Hex Nut	20

SELF LEVELING K-3 STANDARD LOADER

PARTS LIST

REF.	PART No.	DESCRIPTION	QUANTITY	REF.	PART No.	DESCRIPTION	QUANTITY
1*	652292	UPRIGHT ASSEMBLY - LH	1	41	640162	3/4" SPRING LOCK WASHER	2
2*	652293	UPRIGHT ASSEMBLY - RH	1	42	652323	INDICATOR BUSHING	1
3*	652250	MAIN FRAME	1	43	650345	72" BUCKET ASSEMBLY	1
4	652273	HYDRAULIC LIFT CYLINDER	2	44	650346	84" BUCKET ASSEMBLY	1
5	652329	HYDRAULIC BUCKET CYLINDER	2	45	650347	96" BUCKET ASSEMBLY	1
6	652288	BUCKET LINK ARM ASSEMBLY	2	46	6503	12" BUCKET TEETH	VARIES
7	652285	CYLINDER LINK ARM ASSEMBLY - INNER	2	47	6503L	23" BUCKET TEETH	VARIES
8	652286	CYLINDER LINK ARM ASSEMBLY - OUTER	2	48	79146	1/2" - 13 UNC X 2-1/2" PLOW BOLT	18
9	650416	UPRIGHT HINGE ASSEMBLY	2	49	7739	OIL LINE CLAMP	6
10	650468	LOADER STAND ASSEMBLY	1	50	7903	OIL LINE INSULATOR	12
11	652321	LINK ARM PIN	4	51	7971	1/4" - 20 UNC S.H.C.S.	12
12	7631	PIVOT SLEEVE ASSEMBLY	1	52	652340	LOADER SPEAR BUNDLE (Consists of: 1 each	
13	53070	RETAINING SNAP RING	10		652319	spear weldment & accessories)	1
14	7658	INDICATOR ROD	1	53	650386	SPEAR LATCH PIN	2
15	641119	PIN LOCK ASSEMBLY	1	54	640325	7/16" X 3" SPIROL PIN	2
16	652345	CROSSMEMBER ASSEMBLY	1	55	650389	1/4" X 1-1/2" SPRING PIN	2
17	85505	WARNING DECAL - OIL PRESSURE	1	56	650388	SPRING	2
18	640058	1/2" X 1-1/4" H.H.C.S.	4	57	650390	LATCH WASHER	2
19	651883	DECAL - "KOYKER"	3	58	652324	#1 OIL LINE ASSEMBLY	1
20	651546	DECAL - "USA"	2	59	652325	#2 OIL LINE ASSEMBLY	1
21	652339	DECAL - "K-3"	2	60	652326L	#3 OIL LINE ASSEMBLY - LH	1
22	7962	HOSE ASSEMBLY - 33"	6	61	652326R	#3 OIL LINE ASSEMBLY - RH	1
23	76154	HOSE ASSEMBLY - 26"	2	62	652327L	#4 OIL LINE ASSEMBLY - LH	1
24	7965	90 DEGREE STRAIGHT THREAD ELBOW	9	63	652327R	#4 OIL LINE ASSEMBLY - RH	1
25	7970	90 DEGREE X 37 DEGREE FLAIR ELBOW	2	64	640605	GREASE FITTING	14
26	640020	5/16" - 18 UNC X 2 H.H.C.S.	8	65	652328	SINGLE RELIEF VALVE	1
27	640128	5/16" - 18 UNC LOCK NUT	8	66	652268	LEVEL LINK ASSEMBLY	2
28	640157	1/2" SPRING LOCKWASHER	22	67	652280	LINK PLATE - INNER	2
29	640139	1/2" - 13 UNC HEX NUT	22	68	652282	LINK PLATE - OUTER	2
30	640671	#3 HITCH PIN CLIP	1	69	79150	RELIEF VALVE	1
31	640106	3/4" - 10 UNC X 5-1/2" H.H.C.S.	2	70	79151	STRAIGHT THREAD MALE CONNECTOR	8
32	640145	3/4" - 10 UNC ELASTIC JAM NUT	8	71	652349	90 DEGREE EXTENDED ELBOW	1
33	640236	3/16" X 1-1/2" COTTER PIN	2	72	652322	LINK PIN	6
34	640161	5/8" FLATWASHER	3				
35	6505	MAIN FRAME PIN	6				
36	652550	3/4" - 10 UNC X 5" CARRIAGE BOLT	2				
37	6506	3/4" - 10 UNC X 5-1/2" CARRIAGE BOLT	4				
38	652356	MANUAL ASSEMBLY	1				
39	640146	3/4" - 10 UNC HEX NUT	2				
40	640922	3/4" FLATWASHER	2				

*SPECIFY COLOR

Non-SELF LEVELING K-3 STANDARD LOADER

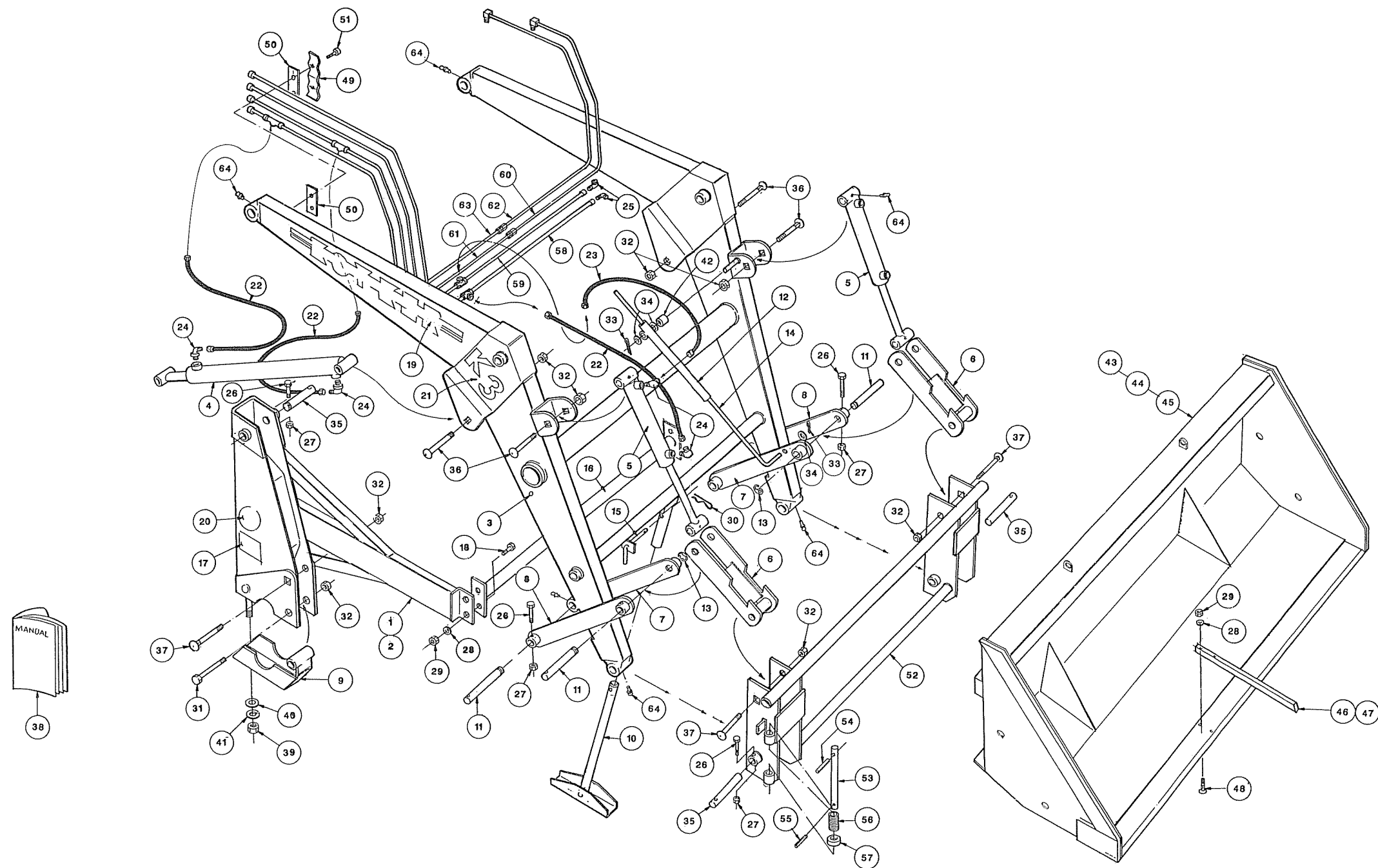
PARTS LIST

PART				PART			
REF.	No.	DESCRIPTION	QUANTITY	REF.	No.	DESCRIPTION	QUANTITY
1*	652294	UPRIGHT ASSEMBLY – LH	1	38	652356	MANUAL ASSEMBLY	1
2*	652295	UPRIGHT ASSEMBLY – RH	1	39	640146	3/4" – 10 UNC HEX NUT	2
3*	652250	MAIN FRAME	1	40	640922	3/4" FLATWASHER	2
4	652273	HYDRAULIC LIFT CYLINDER	2	41	640162	3/4" SPRING LOCK WASHER	2
5	652330	HYDRAULIC BUCKET CYLINDER	2	42	652323	INDICATOR BUSHING	1
6	652288	BUCKET LINK ARM ASSEMBLY	2	43	650345	72" BUCKET ASSEMBLY	1
7	652285	CYLINDER LINK ARM ASSEMBLY – INNER	2	44	650346	84" BUCKET ASSEMBLY	1
8	652286	CYLINDER LINK ARM ASSEMBLY – OUTER	2	45	650347	96" BUCKET ASSEMBLY	1
9	650416	UPRIGHT HINGE ASSEMBLY	2	46	6503	12" BUCKET TEETH	VARIES
10	650468	LOADER STAND ASSEMBLY	1	47	6503L	23" BUCKET TEETH	VARIES
11	652321	LINK ARM PIN	4	48	79146	1/2" – 13 UNC X 2-1/2" PLOW BOLT	18
12	7631	PIVOT SLEEVE ASSEMBLY	1	49	7739	OIL LINE CLAMP	6
13	53070	RETAINING SNAP RING	4	50	7903	OIL LINE INSULATOR	12
14	7658	INDICATOR ROD	1	51	7971	1/4" – 20 UNC S.H.C.S.	12
15	641119	PIN LOCK ASSEMBLY	1	52	652340	LOADER SPEAR BUNDLE (Consists of: 1 each	
16	652345	CROSSMEMBER ASSEMBLY	1			652319 spear weldment & accessories)	1
17	85505	WARNING DECAL – OIL PRESSURE	1	53	650386	SPEAR LATCH PIN	2
18	640058	1/2" X 1-1/4" H.H.C.S.	4	54	640325	7/16" X 3" SPIROL PIN	2
19	651883	DECAL – "KOYKER"	3	55	650389	1/4" X 1-1/2" SPRING PIN	2
20	651546	DECAL – "USA"	2	56	650388	SPRING	2
21	652339	DECAL – "K-3"	2	57	650390	LATCH WASHER	2
22	7962	HOSE ASSEMBLY – 33"	6	58	652324	#1 OIL LINE ASSEMBLY	1
23	76154	HOSE ASSEMBLY – 26"	2	59	652325	#2 OIL LINE ASSEMBLY	1
24	7965	90 DEGREE STRAIGHT THREAD ELBOW	8	60	652326L	#3 OIL LINE ASSEMBLY – LH	1
25	7970	90 DEGREE X 37 DEGREE FLAIR ELBOW	2	61	652326R	#3 OIL LINE ASSEMBLY – RH	1
26	640020	5/16" – 18 UNC X 2 H.H.C.S.	8	62	652327L	#4 OIL LINE ASSEMBLY – LH	1
27	640128	5/16" – 18 UNC LOCK NUT	8	63	652327R	#4 OIL LINE ASSEMBLY – RH	1
28	640157	1/2" SPRING LOCKWASHER	22	64	640605	GREASE FITTING	14
29	640139	1/2" – 13 UNC HEX NUT	22				
30	640671	#3 HITCH PIN CLIP	1				
31	640106	3/4" – 10 UNC X 5-1/2" H.H.C.S.	2				
32	640145	3/4" – 10 UNC ELASTIC JAM NUT	10				
33	640236	3/16" X 1-1/2" COTTER PIN	2				
34	640161	5/8" FLATWASHER	3				
35	6505	MAIN FRAME PIN	4				
36	652550	3/4" – 10 UNC X 5" CARRIAGE BOLT	4				
37	6506	3/4" – 10 UNC X 5-1/2" CARRIAGE BOLT	4				

*SPECIFY COLOR

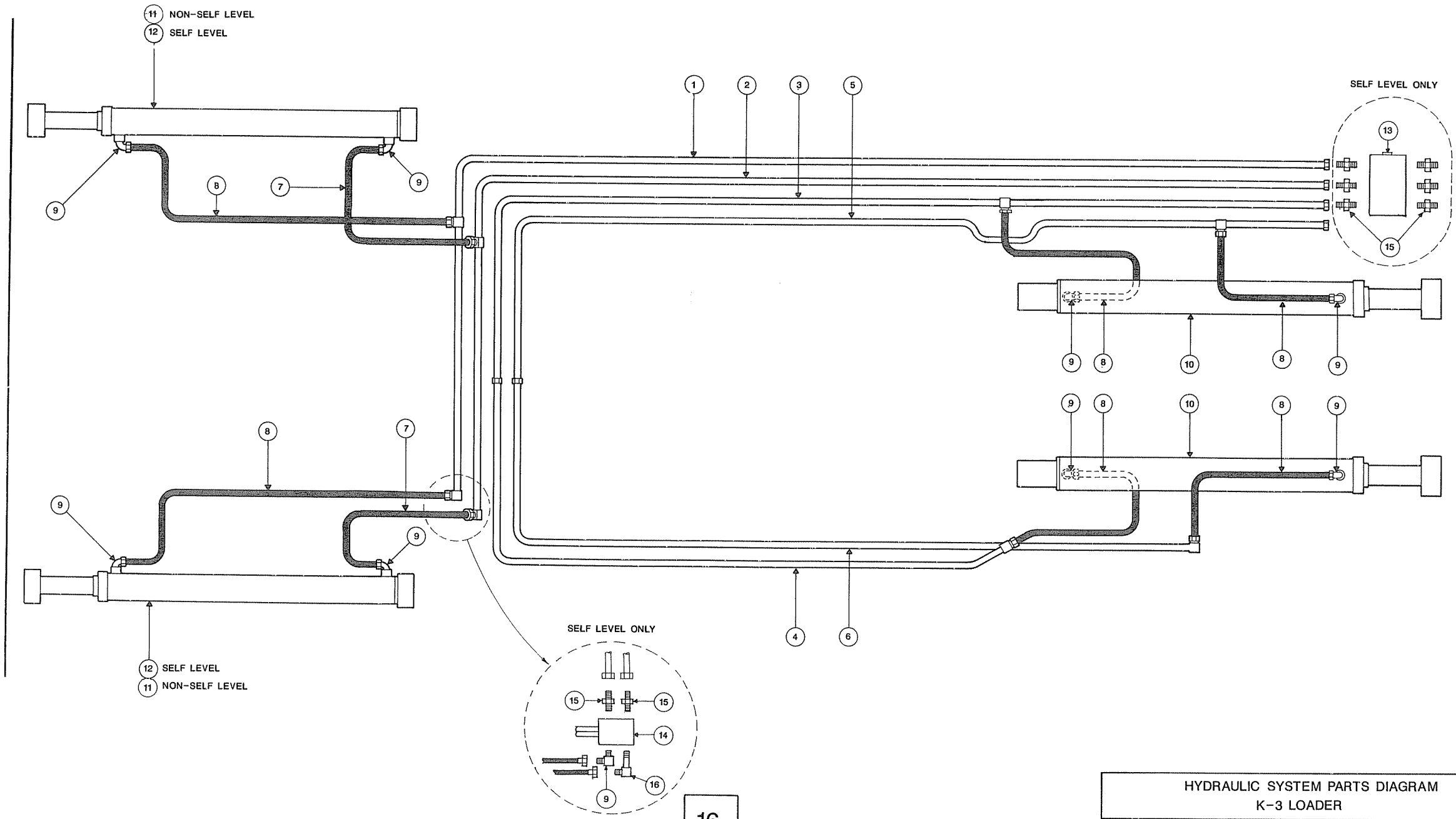
NOTE:

1. LUBRICATE ALL PINS EVERY 10 HOURS OF OPERATION UNDER NORMAL OPERATING CONDITIONS. SEVERE OPERATING CONDITIONS MAY REQUIRE MORE FREQUENT LUBRICATION.
2. SEE PAGE 16 FOR HYDRAULIC SYSTEM PARTS AND INSTALLATION DIAGRAM.



KEY	PART NO.	DESCRIPTION	QTY.	KEY	PART NO.	DESCRIPTION	QTY.
1	652324	#1 OIL LINE ASSY.	1	9	7965	90° ELBOW	VARIES
2	652325	#2 OIL LINE ASSY.	1	10	652273	LIFT CYL. ASSY.	2
3	652326 R	#3 OIL LINE ASSY.	1	11	652330	BUCKET CYL. ASSY.	2
4	652326 L	#3 OIL LINE ASSY.	1	12	652329	BUCKET CYL. ASSY.	2
5	652327 R	#4 OIL LINE ASSY.	1	13	79150	DUAL RELIEF VALVE	1
6	652327 L	#4 OIL LINE ASSY.	1	14	652328	SINGLE RELIEF VALVE	1
7	76154	26" HYD. HOSE ASSY.	2	15	79151	MALE CONNECTOR	8
8	7962	33" HYD. HOSE ASSY.	6	16	652349	90° EXTENDED ELBOW	1

(NON-SELF LEVEL)
(SELF LEVEL)
(SELF LEVEL)
(SELF LEVEL)
(SELF LEVEL)
(SELF LEVEL)



HYDRAULIC SYSTEM PARTS DIAGRAM K-3 LOADER					16
KOYKER MANUFACTURING CO.	DWN. BY REH	APPRD. BY	DATE 6/2/92	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 of 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 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 cleaned 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 embodies dirt in the seal.

NOTE

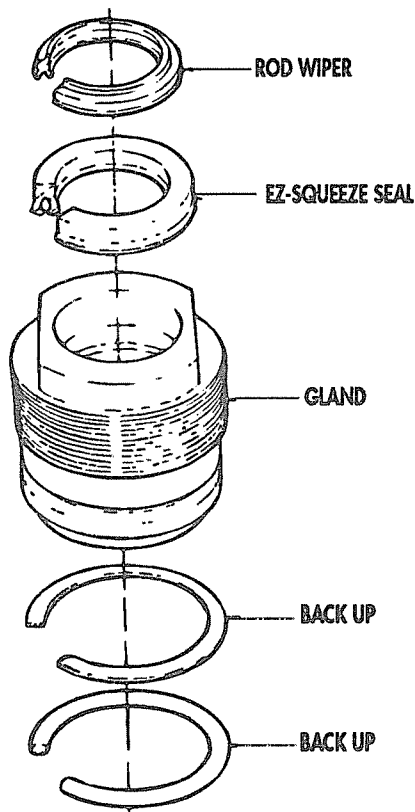
Seals can be made more pliable and easier to install, if first heated in hydraulic oil to 160°F. Never use direct heat on any seals.

IMPORTANT

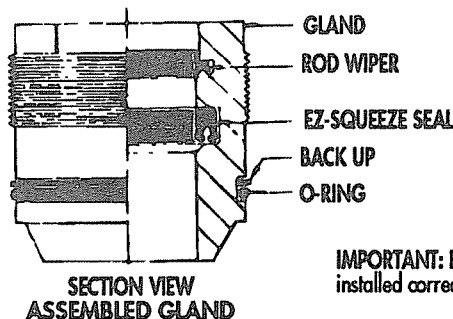
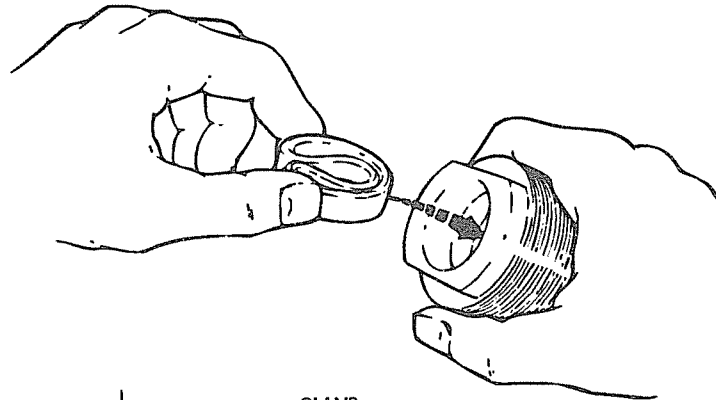
Never clean rubber related seals with a mineral-based solvent! Clean rubber seals in denatured alcohol or non-mineral based solvent only.

CYLINDER GLAND SERVICE DIAGRAM

All gland seal shown with a section removed to facilitate correct installation.

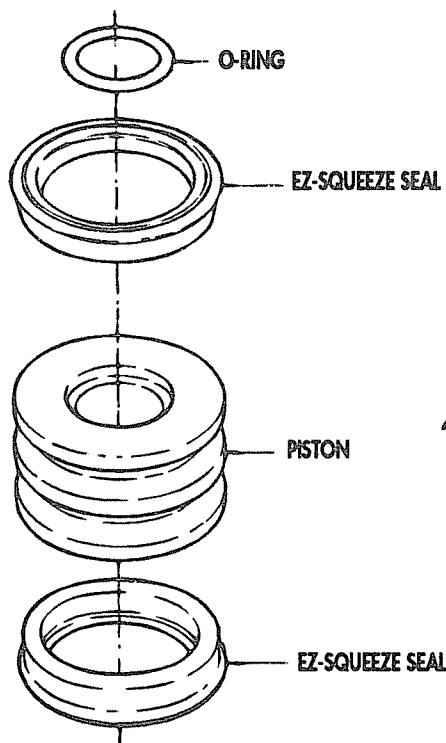


NOTE: To install rod wiper and EZ-Squeeze seal, fold similar to shape shown below, slip into gland bore and locate each in its respective groove. If tools are used to fold seals take care not to damage sealing surfaces.



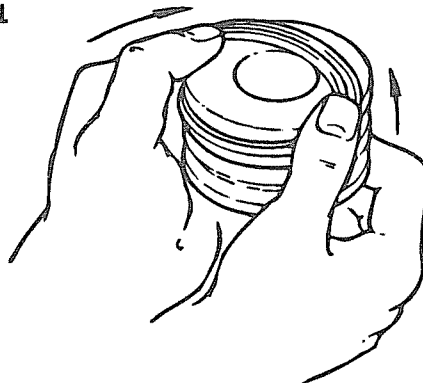
IMPORTANT: Be sure all gland and piston seals have been installed correctly before cylinder is assembled.

CYLINDER PISTON SERVICE DIAGRAM



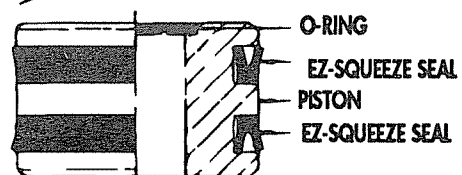
TO REMOVE SEALS:

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 seal is 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 GLAND**

3" CYLINDER SERVICE KITS WITH 1³/₄" SHAFT

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	#840385
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:

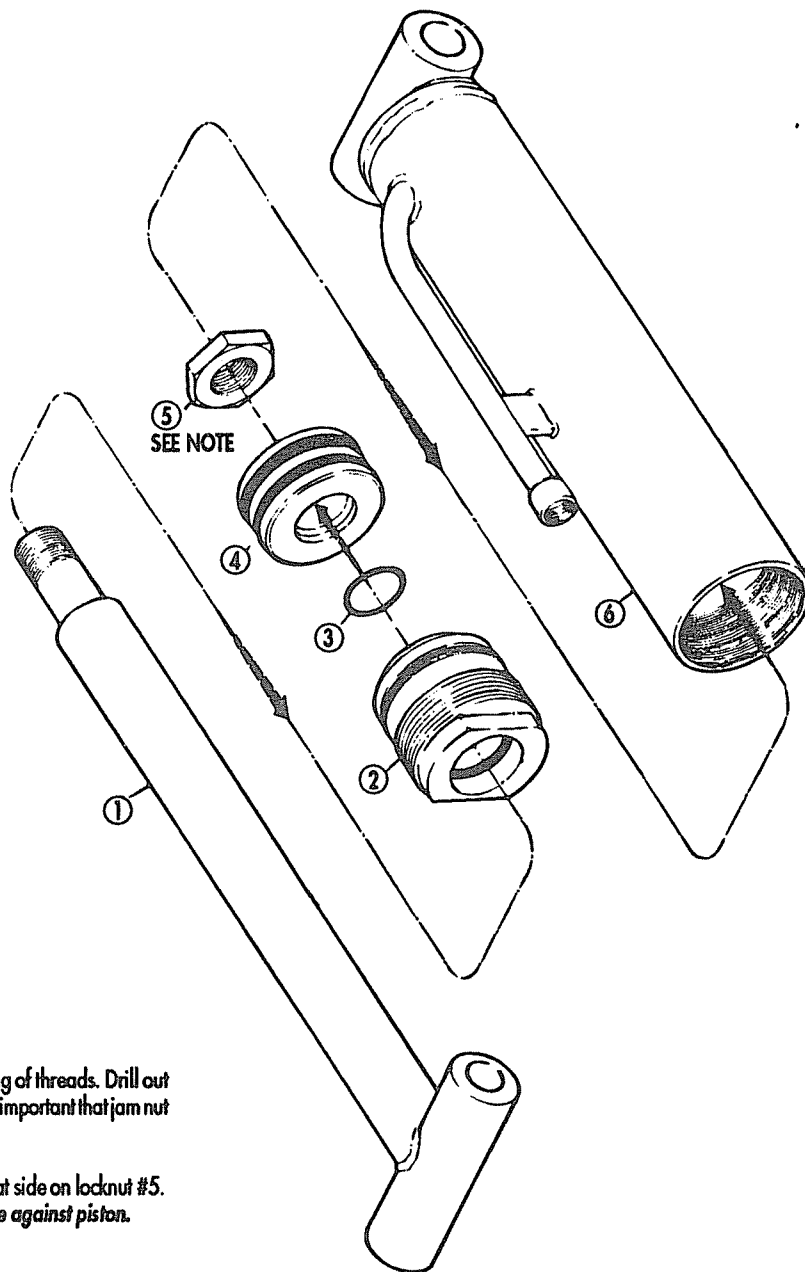
1 each	3" Gland "O" Ring	#640866
1 each	3" Back Ring	#640382
1 each	1 ³ / ₄ " EZ Squeeze Seal	#85488
1 each	1 ³ / ₄ " Rod Wiper	#85487

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

HYDRAULIC CYLINDER PARTS DIAGRAM

ASSEMBLY DIAGRAM



NOTE: Locknut (#5) is staked to shaft by upsetting of threads. Drill out stake before attempting to remove nut. It is important that jam nut be *re-staked* after assembly.

IMPORTANT: Note there is a shouldered side and a flat side on locknut #5. *Be sure nut is installed only with flat side against piston.*

3" CYLINDER PARTS LIST

REFERENCE	PART NUMBER	DESCRIPTION	QUANTITY
1	652277	CYLINDER ROD ASSEMBLY (LIFT)	1
1a	652332	CYLINDER ROD ASSEMBLY (BUCKET)	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	652274	CYLINDER TUBE ASSEMBLY (LIFT)	1
6a	652333	CYLINDER TUBE ASSEMBLY (BUCKET, STD)	1
6b	652331	CYLINDER TUBE ASSEMBLY (BUCKET, S/L)	1

* SEE CYLINDER SERVICE KIT 2C

**SEE CYLINDER SERVICE KIT 3C

