

# WSM

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## WORKSHOP MANUAL FRONT LOADER

LA514, LA724, LA854

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**Kubota**



## TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of KUBOTA Front Loader LA514, LA724 and LA854. It is divided into three parts, "General" and "Servicing" for each section.

### ■ General

Information on the tractor identification, the general precautions, maintenance check list, check and maintenance and special tools are described.

### ■ Servicing

Information on the troubleshooting, servicing specification lists, tightening torque, checking and adjusting, disassembling, assembling and servicing which cover procedures, precautions, factory specifications and allowable limits.

All information illustrations and specifications contained in this manual are based on the latest product information available at the time of publication.

The right is reserved to make changes in all information at any time without notice.

February 2007

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## SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully.

It is essential that you read the instructions and safety regulations before you attempt to repair or use this unit.



### DANGER

: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



### WARNING

: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### CAUTION

: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



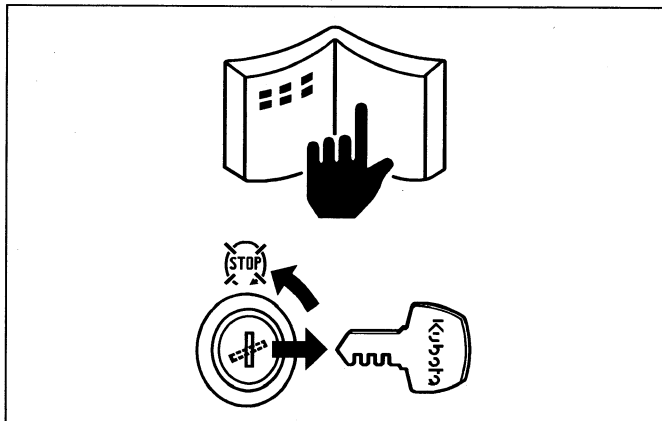
### IMPORTANT

: Indicates that equipment or property damage could result if instructions are not followed.



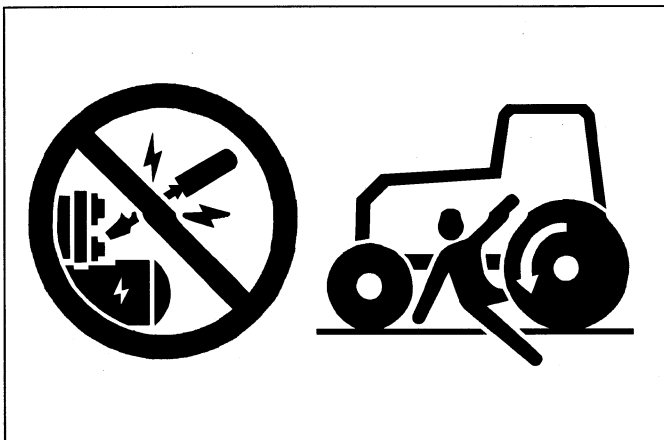
### NOTE

: Gives helpful information.



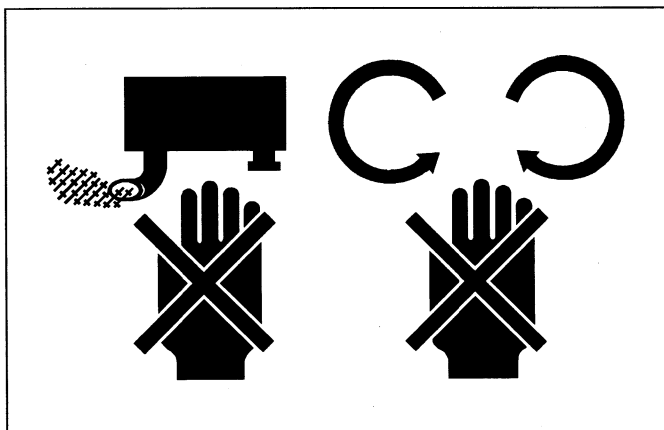
### BEFORE SERVICING AND REPAIRING

- Read all instructions and safety instructions in this manual and on your machine safety decals.
- Clean the work area and machine.
- Park the machine on a firm and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, and remove the key.
- Disconnect the battery negative cable.
- Hang a "DO NOT OPERATE" tag in operator station.



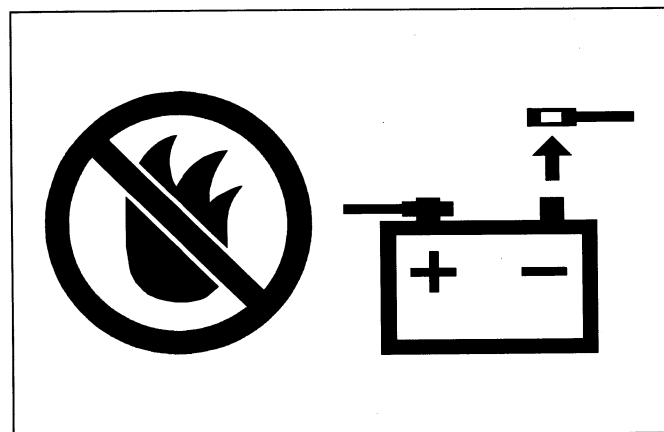
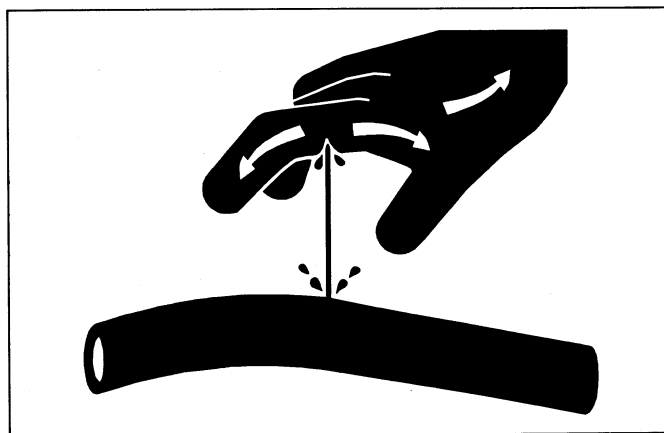
### SAFETY STARTING

- Do not start the engine by shorting across starter terminals or bypassing the safety start switch.
- Do not alter or remove any part of machine safety system.
- Before starting the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Never start the engine while standing on ground. Start the engine only from operator's seat.



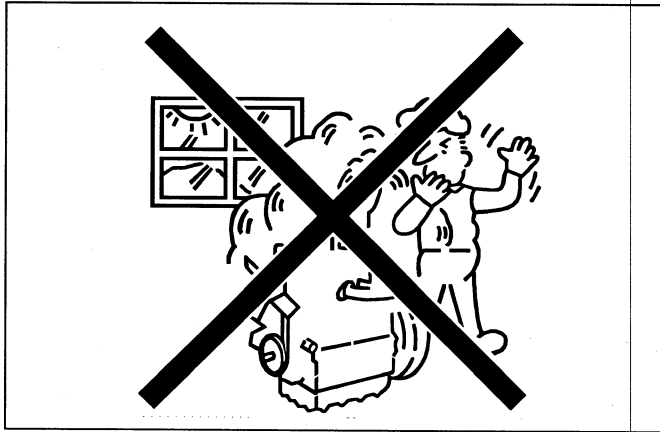
### SAFETY WORKING

- Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
- Wear close fitting clothing and safety equipment appropriate to the job.
- Use tools appropriate to the work. Makeshift tools, parts, and procedures are not recommended.
- When servicing is performed together by two or more persons, take care to perform all work safely.
- Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.
- Do not touch the rotating or hot parts while the engine is running.
- Never remove the radiator cap while the engine is running, or immediately after stopping. Otherwise, hot water will spout out from radiator. Only remove radiator cap when cool enough to touch with bare hands. Slowly loosen the cap to first stop to relieve pressure before removing completely.
- Escaping fluid (fuel or hydraulic oil) under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or fuel lines. Tighten all connections before applying pressure.



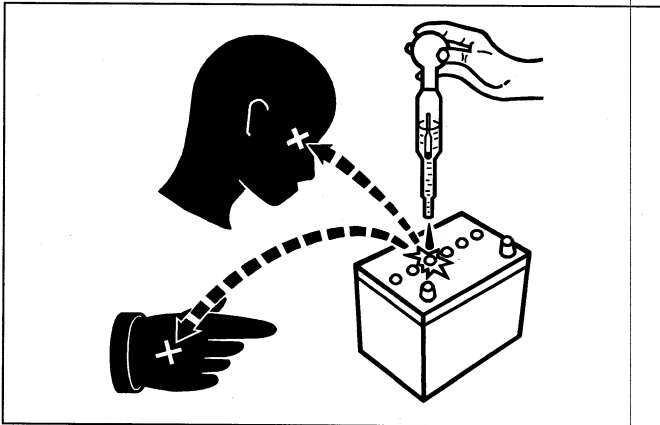
### AVOID FIRES

- Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
- To avoid sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- Battery gas can explode. Keep sparks and open flame away from the top of battery, especially when charging the battery.
- Make sure that no fuel has been spilled on the engine.



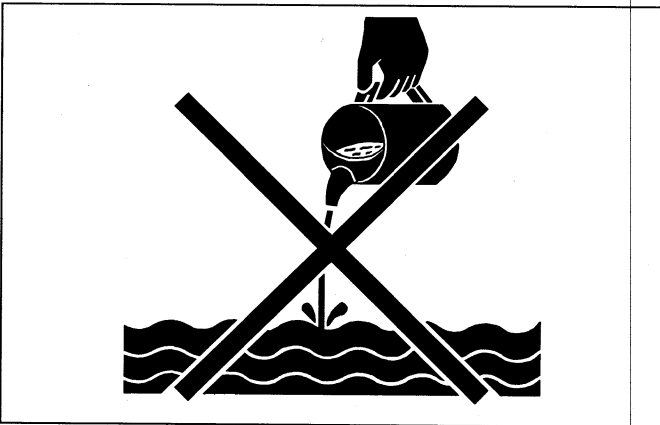
### VENTILATE WORK AREA

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.



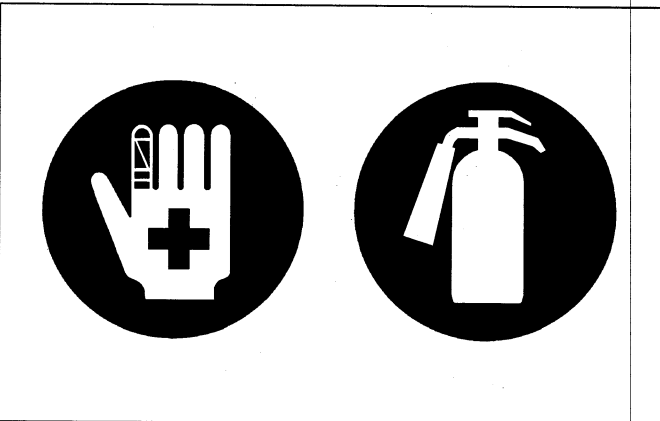
### PREVENT ACID BURNS

- Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, clothing and cause blindness if splashed into eyes. Keep electrolyte away from eyes, hands and clothing. If you spill electrolyte on yourself, flush with water, and get medical attention immediately.



### DISPOSE OF FLUIDS PROPERLY

- Do not pour fluids into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil, fuel, coolant, electrolyte and other harmful waste.



### PREPARE FOR EMERGENCIES

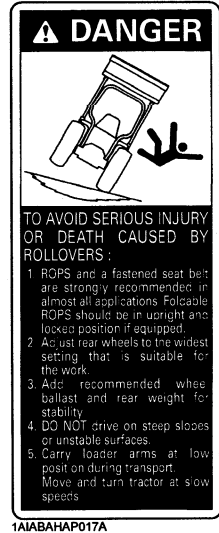
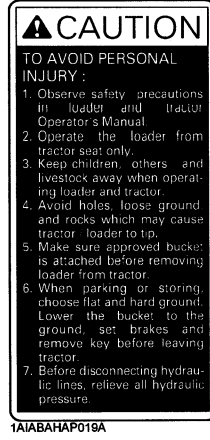
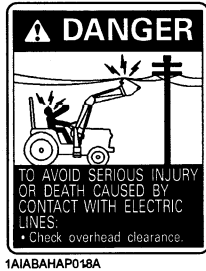
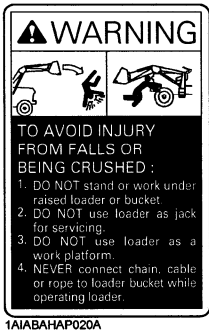
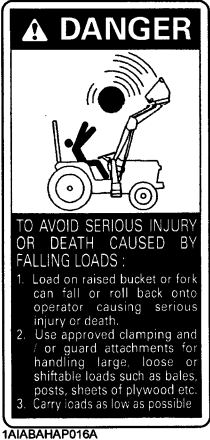
- Keep a first aid kit and fire extinguisher handy at all times.
- Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

# SAFETY DECALS

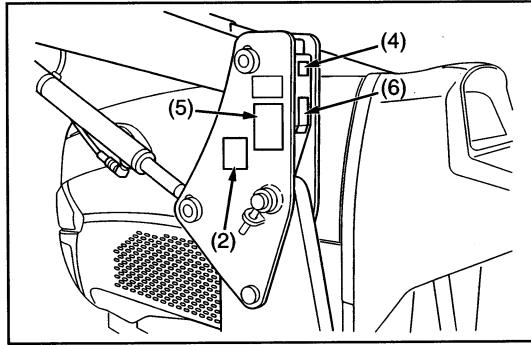
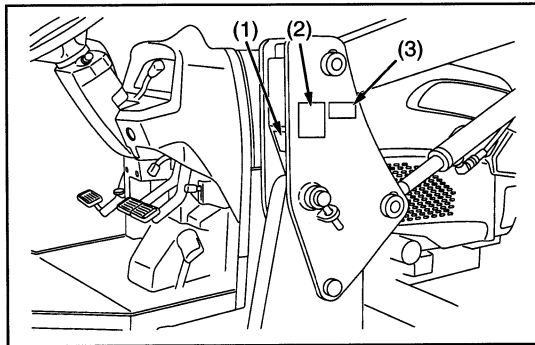
The following safety decals are installed on the machine.

If a decal becomes damaged, illegible or is not on the machine, replace it. The decal part number is listed in the parts list.

- (1) Part No. 7J246-5643-1    (2) Part No. 7J246-5644-2    (4) Part No. 7J246-5642-1    (5) Part No. 7J246-5645-1    (6) Part No. 7J246-5641-1  
 (Both sides)



- (3) Part No. 7J266-5649-2



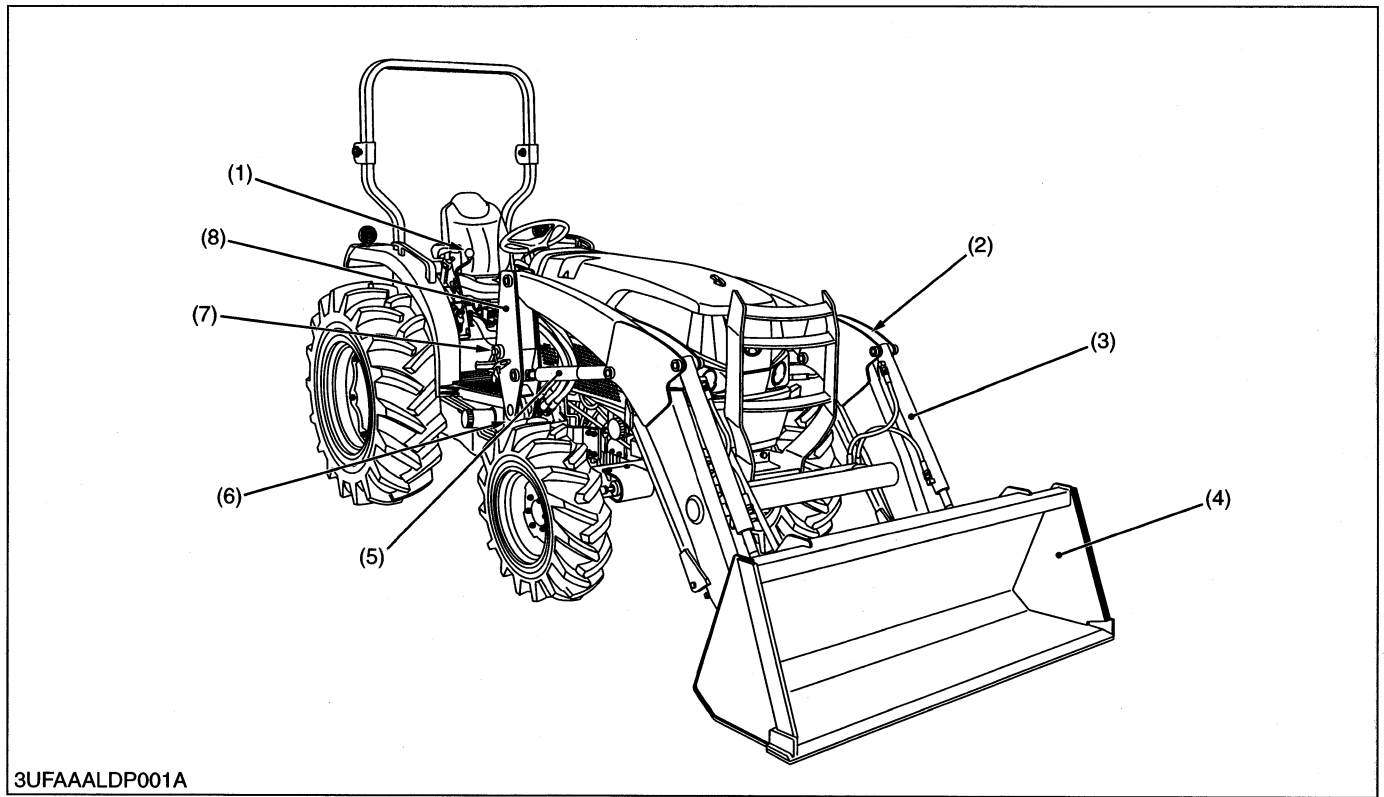
## CARE OF DANGER, WARNING AND CAUTION LABELS

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new.
4. If a component with danger, warning and caution label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

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# LOADER TERMINOLOGY



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(1) Hydraulic Control Lever  
(2) Boom

(3) Bucket Cylinder  
(4) Bucket

(5) Boom Cylinder  
(6) Main Frame

(7) Mounting Pin  
(8) Side Frame

# SPECIFICATIONS

## ■ Suitable Tractor

Loader Model	LA514	LA724	LA854
Tractor Model	L3240, L3540	L3240, L3540, L3940	L4240, L4740, L5040, L5240, L5740

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## [1] LOADER SPECIFICATIONS

Loader Model		LA514	LA724	LA854
Tractor Model		L3540	L3940	L5740
Wheel Base		1805 mm (71.1 in.)	1895 mm (74.6 in.)	1915 mm (75.4 in.)
Front Tires		7.2 - 16	8.3 - 16	9.5 - 16
Rear Tires		12.4 - 24	14.9 - 24	14.9 - 26
Boom Cylinder	Bore	45.0 mm (1.77 in.)	50.0 mm (1.97 in.)	60.0 mm (2.36 in.)
	Stroke	476 mm (18.7 in.)	502 mm (19.8 in.)	496 mm (19.5 in.)
Bucket Cylinder	Bore	45.0 mm (1.77 in.)	50.0 mm (1.97 in.)	55.0 mm (2.17 in.)
	Stroke	476 mm (18.7 in.)	465 mm (18.3 in.)	469 mm (18.5 in.)
Control Valve	4 position bucket control type	One Detent Float Position, Two Stage Bucket Dump, Power Beyond Circuit		
Rated Flow		31.5 L/min. 8.3 U.S.gals/min. 6.9 Imp.gals/min.	37.0 L/min. 9.8 U.S.gals/min. 8.1 Imp.gals/min.	
Maximum Pressure		17.7 MPa 180 kgf/cm <sup>2</sup> 2560 psi	18.1 MPa 185 kgf/cm <sup>2</sup> 2630 psi	
Net Weight (Approximate)		450 kg (893 lbs)	530 kg (1168 lbs)	590 kg (1300 lbs)

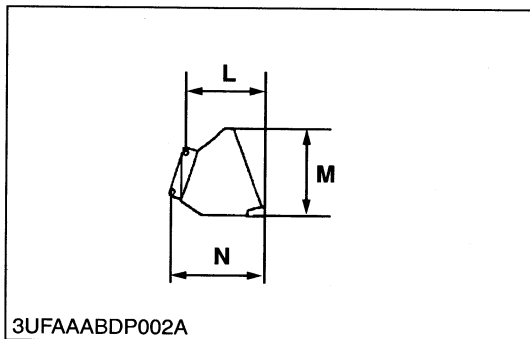
## [2] BUCKET SPECIFICATIONS

Loader Model		LA514		LA724, LA854	
Model		Square 66"	Round 66" HD	Square 72"	Round 72" HD
Type		Rigid	Rigid	Rigid	Rigid
Width		1675 mm (66 in.)		1830 mm (72 in.)	
Depth (L)		458 mm (18 in.)	440 mm (17.3 in.)	547 mm (21.5 in.)	477 mm (18.8 in.)
Height (M)		562 mm (22.1 in.)	580 mm (22.8 in.)	570 mm (22.4 in.)	608 mm (23.9 in.)
Length (N)		502 mm (19.8 in.)	531 mm (20.9 in.)	652 mm (25.7 in.)	630 mm (24.8 in.)
Capacity	Struck	0.23 m <sup>3</sup> (8.1 cu.ft)		0.31 m <sup>3</sup> (10.9 cu.ft)	
	Heaped	0.28 m <sup>3</sup> (9.9 cu.ft)		0.37 m <sup>3</sup> (13.1 cu.ft)	
Weight		112 kg (247 lbs)	122 kg (269 lbs)	146 kg (322 lbs)	164 kg (362 lbs)

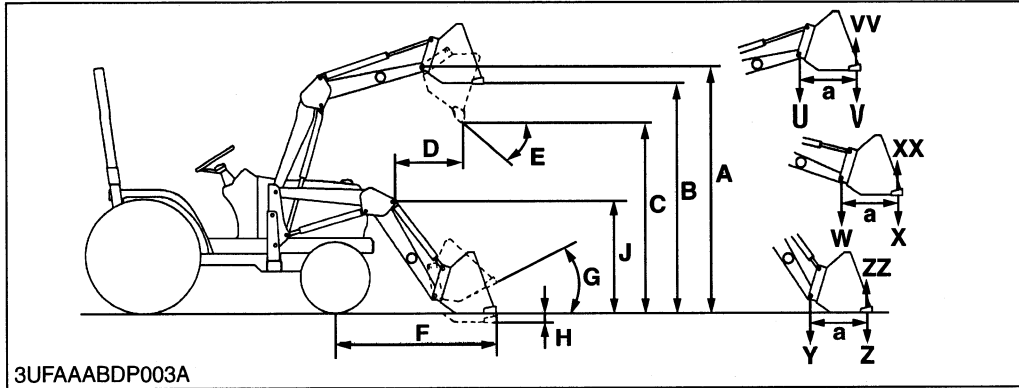
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Loader Model		LA514, LA724, LA854	LA724, LA854		LA514, LA724, LA854
Model		Square 66"	Square 72"	Round 72" HD	Square 72" Light Material
Type		Quick attach	Quick attach		Quick attach
Width		1675 mm (66 in.)	1830 mm (72 in.)		
Depth (L)		458 mm (18 in.)	547 mm (21.5 in.)	477 mm (18.8 in.)	607 mm (23.9 in.)
Height (M)		562 mm (22.1 in.)	570 mm (22.4 in.)	608 mm (23.9 in.)	570 mm (22.4 in.)
Length (N)		544 mm (21.4 in.)	630 mm (24.8 in.)	610 mm (24 in.)	691 mm (27.2 in.)
Capacity	Struck	0.23 m <sup>3</sup> (8.1 cu.ft)	0.31 m <sup>3</sup> (10.9 cu.ft)		0.36 m <sup>3</sup> (12.7 cu.ft)
	Heaped	0.28 m <sup>3</sup> (9.9 cu.ft)	0.37 m <sup>3</sup> (13.1 cu.ft)		0.45 m <sup>3</sup> (16.0 cu.ft)
Weight		120 kg (265 lbs)	150 kg (331 lbs)	180 kg (397 lbs)	136 kg (300 lbs)

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### [3] DIMENSIONAL AND OPERATIONAL SPECIFICATIONS



a : 500 mm (19.7 in.)

#### ■ Dimensional Specifications

Loader Model		LA514	LA724	LA854
Tractor Model		L3540	L3940	L5740
<b>A</b>	Maximum lift height (To bucket pivot pin)	2449 mm (96.4 in.)	2597 mm (102.2 in.)	2863 mm (112.7 in.)
<b>B</b>	Maximum lift height under level bucket	2275 mm (89.6 in.)	2395 mm (94.3 in.)	2659 mm (104.7 in.)
<b>C</b>	Clearance with bucket dumped	1987 mm (78.2 in.)	1995 mm (78.5 in.)	2255 mm (88.8 in.)
<b>D</b>	Reach at maximum lift height (Dumpinh reach)	593 mm (23.3 in.)	561 mm (22.1 in.)	570 mm (22.4 in.)
<b>E</b>	Maximum dump angle	41 deg.	45 deg.	
<b>F</b>	Reach with bucket on ground	1568 mm (61.7 in.)	1763 mm (69.4 in.)	1919 mm (75.6 in.)
<b>G</b>	Bucket roll-back angle	30 deg.	41 deg.	42 deg.
<b>H</b>	Digging depth	126 mm (5.0 in.)	122 mm (4.8 in.)	177 mm (7.0 in.)
<b>J</b>	Overall height in carry position	1285 mm (50.6 in.)	1380 mm (54.3 in.)	1410 mm (55.5 in.)

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### ■ Operational Specifications

Loader Model		LA514	LA724	LA854
Tractor Model		L3540	L3940	L5740
Lift capacity to maximum height (Bucket bottom mid point)		510 kg (1124 lbs)	720 kg (1587 lbs)	850 kg (1874 lbs)
<b>U</b>	Lift capacity to maximum height at bucket pivot pin	613 kg (1351 lbs)	846 kg (1865 lbs)	1129 kg (2489 lbs)
<b>V</b>	Lift capacity to maximum height at 500 mm (19.7 in.) forward	463 kg (1020 lbs)	642 kg (1415 lbs)	852 kg (1878 lbs)
<b>W</b>	Lift capacity to 1.5 m (59 in.) height at bucket pivot pin	798 kg (1759 lbs)	1054 kg (2324 lbs)	1405 kg (3097 lbs)
<b>X</b>	Lift capacity to 1.5 m (59 in.) height at 500 mm (19.7 in.) forward	633 kg (1395 lbs)	845 kg (1863 lbs)	1138 kg (2509 lbs)
<b>Y</b>	Breakout force at bucket pivot pin	12611 N (2835 lbf)	15141 N (3404 lbf)	18662 N (4195 lbf)
<b>Z</b>	Breakout force at 500 mm (19.7 in.) forward	9571 N (2151 lbf)	11670 N (2623 lbf)	14533 N (3267 lbf)
<b>VV</b>	Bucket roll-back force at Maximum height	10846 N (2468 lbf)	11229 N (2524 lbf)	12249 N (2754 lbf)
<b>XX</b>	Bucket roll-back force at 1.5 m (59 in.) lift height	13808 N (3104 lbf)	16407 N (3688 lbf)	18966 N (4264 lbf)
<b>ZZ</b>	Bucket roll-back force at ground level	11885 N (2672 lbf)	17475 N (3928 lbf)	19476 N (4378 lbf)
Raising time		2.7 sec.	3.2 sec.	4.2 sec.
Lowering time		2.2 sec.	2.0 sec.	2.8 sec.
Bucket dumping time		1.3 sec.	1.3 sec.	1.8 sec.
Bucket roll-back time		1.6 sec.	1.9 sec.	2.3 sec.

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# GENERAL

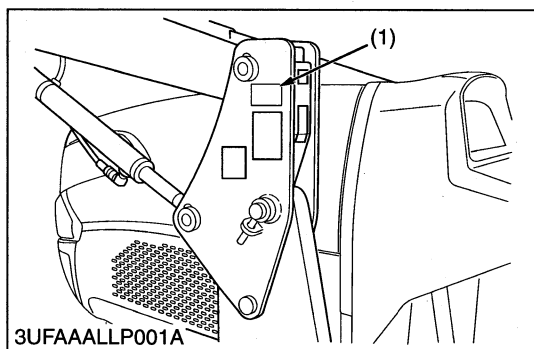
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# 1. LOADER IDENTIFICATION

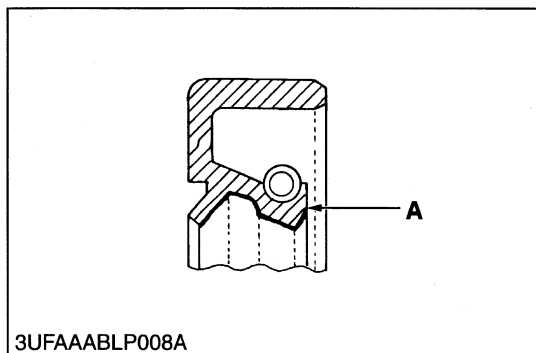


When contacting your local KUBOTA distributor, always specify front loader serial number (1).

(1) Serial Number

W1010477

## 2. GENERAL PRECAUTIONS



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- During disassembly, carefully arrange removed parts in a clean area to prevent later confusion. Screws, bolts and nuts should be replaced in their original positions to prevent reassembly errors.
- When special tools are required, use genuine KUBOTA tools. Special tools which are not used frequently should be made according to the drawings provided.
- Clean parts before measuring them.
- Use only genuine KUBOTA parts for parts replacement to maintain backhoe performance and to assure safety.
- O-rings and oil seals must be replaced during reassembly. Apply grease to new O-rings or oil seals before reassembling.
- Nipples must be tightened to the specified torque. Excessive torque may cause damages hydraulic units or nipples, and insufficient torque will result in oil leaks.
- When using a new hose or pipe, tighten nuts to the specified torque once, then loosen them (approx. by 45 °) to allow hose or pipe to settle before retightening to the specified torque (except seal-taped parts).
- When removing both ends of a pipe, remove the lower end first.
- Use two pliers in removal and reinstallation; one to hold the static side, and the other to turn the side being removed to avoid twisting.
- Check to see that sleeves of flareless connectors and tapered sections of hoses are free of dust and scratches.
- After tightening nipples, clean the joint and apply the maximum working pressure 2 to 3 times to check for oil leak.

A : Grease

W1010572

### 3. LUBRICANTS

To prevent serious damage to hydraulic systems, use only specified fluid or its equivalent.

Place	Capacity			Lubricants, type of grease
	L3240 L3540	L3940 L4240 L4740	L5040 L5240 L5740	
Transmission case	42 L 11.1 U.S.gals 9.2 Imp.gals	43 L 11.4 U.S.gals 9.5 Imp.gals	45 L 11.9 U.S.gals 9.9 Imp.gals	KUBOTA UDT or SUPER UDT fluid*
Grease nipples	Until grease overflows			Moly Ep type grease**

\* KUBOTA original transmission hydraulic fluid

\*\* "Extreme pressure" and containing Molybdenum disulfide is recommended. This grease may specify "Moly Ep" on it's label.

# 4. TIGHTENING TORQUES

## [1] GENERAL USE SCREWS, BOLTS AND NUTS

Screws, bolts, and nuts whose tightening torques are not specified in this Workshop Manual should be tightened according to the table below.

Indication on top of bolt	④ No-grade or 4T						⑦ 7T						⑨ 9T		
Material of bolt	SS400, S20C						S43C, S48C						SCr435, SCM435		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
Diameter															
<b>M6</b> (6 mm, 0.24 in.)	7.9	0.80	5.8	7.9	0.80	5.8	9.81	1.00	7.24	7.9	0.80	5.8	12.3	1.25	9.05
	to 9.3	to 0.95	to 6.8	to 8.8	to 0.90	to 6.5	to 11.2	to 1.15	to 8.31	to 8.8	to 0.90	to 6.5	to 14.2	to 1.45	to 10.4
<b>M8</b> (8 mm, 0.31 in.)	18	1.8	13	17	1.7	13	24	2.4	18	18	1.8	13	30	3.0	22
	to 20	to 2.1	to 15	to 19	to 2.0	to 14	to 27	to 2.8	to 20	to 20	to 2.1	to 15	to 34	to 3.5	to 25
<b>M10</b> (10 mm, 0.39 in.)	40	4.0	29	32	3.2	24	48	4.9	36	40	4.0	29	61	6.2	45
	to 45	to 4.6	to 33	to 34	to 3.5	to 25	to 55	to 5.7	to 41	to 44	to 4.5	to 32	to 70	to 7.2	to 52
<b>M12</b> (12 mm, 0.47 in.)	63	6.4	47	-	-	-	78	7.9	58	63	6.4	47	103	10.5	76.0
	to 72	to 7.4	to 53	-	-	-	to 90	to 9.2	to 66	to 72	to 7.4	to 53	to 117	to 12.0	to 86.7
<b>M14</b> (14 mm, 0.55 in.)	108	11.0	79.6	-	-	-	124	12.6	91.2	-	-	-	167	17.0	123
	to 125	to 12.8	to 92.5	-	-	-	to 147	to 15.0	to 108	-	-	-	to 196	to 20.0	to 144
<b>M16</b> (16 mm, 0.63 in.)	167	17.0	123	-	-	-	197	20.0	145	-	-	-	260	26.5	192
	to 191	to 19.5	to 141	-	-	-	to 225	to 23.0	to 166	-	-	-	to 304	to 31.0	to 224
<b>M18</b> (18 mm, 0.71 in.)	246	25.0	181	-	-	-	275	28.0	203	-	-	-	344	35.0	254
	to 284	to 29.0	to 209	-	-	-	to 318	to 32.5	to 235	-	-	-	to 402	to 41.0	to 296
<b>M20</b> (20 mm, 0.79 in.)	334	34.0	246	-	-	-	368	37.5	272	-	-	-	491	50.0	362
	to 392	to 40.0	to 289	-	-	-	to 431	to 44.0	to 318	-	-	-	to 568	to 58.0	to 419



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## [2] STUD BOLTS

Material of opponent part	Ordinariness			Aluminum		
Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
Diameter						
<b>M8</b> (8 mm, 0.31 in.)	12	1.2	8.7	8.9	0.90	6.5
	to 15	to 1.6	to 11	to 11	to 1.2	to 8.6
<b>M10</b> (10 mm, 0.39 in.)	25	2.5	18	20	2.0	15
	to 31	to 3.2	to 23	to 25	to 2.6	to 18
<b>M12</b> (12 mm, 0.47 in.)	29.5	3.0	21.7	31.4	3.2	23.1
	to 49.0	to 5.0	to 36.1			
<b>M14</b> (14 mm, 0.55 in.)	62	6.3	46	-	-	-
	to 73	to 7.5	to 54	-	-	-
<b>M16</b> (16 mm, 0.63 in.)	98.1	10.0	72.4	-	-	-
	to 112	to 11.5	to 83.1	-	-	-
<b>M18</b> (18 mm, 0.71 in.)	172	17.5	127	-	-	-
	to 201	to 20.5	to 148	-	-	-



W1048139

### [3] METRIC SCREWS, BOLTS AND NUTS

Grade	Property class 8.8 			Property class 10.9 			
	Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
<b>M8</b>		24 to 27	2.4 to 2.8	18 to 20	30 to 34	3.0 to 3.5	22 to 25
<b>M10</b>		48 to 55	4.9 to 5.7	36 to 41	61 to 70	6.2 to 7.2	45 to 52
<b>M12</b>		78 to 90	7.9 to 9.2	58 to 66	103 to 117	10.5 to 12.0	76 to 86.7
<b>M14</b>		124 to 147	12.6 to 15.0	91.2 to 108	167 to 196	17.0 to 20.0	123 to 144
<b>M16</b>		197 to 225	20.0 to 23.0	145 to 166	260 to 304	26.5 to 31.0	192 to 224



W1016172

### [4] AMERICAN STANDARD SCREWS, BOLTS AND NUTS WITH UNC OR UNF THREADS

Grade	SAE GR.5 			SAE GR.8 			
	Unit	N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
<b>5/16</b>		23.1 to 27.7	2.35 to 2.83	17.0 to 20.5	32.6 to 39.3	3.32 to 4.00	24.0 to 29.0
<b>3/8</b>		48 to 56	4.9 to 5.8	35.0 to 42.0	61.1 to 73.2	6.23 to 7.46	45.0 to 54.0
<b>1/2</b>		109 to 130	11.1 to 13.2	80.0 to 96.0	149.2 to 178.9	15.21 to 18.24	110.0 to 132.0
<b>9/16</b>		149.2 to 178.9	15.21 to 18.24	110.0 to 132.0	217.0 to 260.3	22.12 to 26.54	160.0 to 192.0
<b>5/8</b>		203.4 to 244	20.74 to 24.88	150.0 to 180.0	298.3 to 357.9	30.42 to 36.49	220.0 to 264.0

W1022485

### [5] PLUGS

Shape	Size	Material of opponent part					
		Ordinariness			Aluminum		
		N-m	kgf-m	lbf-ft	N-m	kgf-m	lbf-ft
 Tapered screw	<b>R1/8</b>	13 to 21	1.3 to 2.2	9.4 to 15	13 to 21	1.3 to 2.0	9.4 to 15
	<b>R1/4</b>	25 to 44	2.5 to 4.5	18 to 32	25 to 34	2.5 to 3.5	18 to 25
	<b>R3/8</b>	49 to 88	5.0 to 9.0	37 to 65	49.0 to 58	5.0 to 6.0	37 to 43
	<b>R1/2</b>	59 to 107	6.0 to 11.0	44 to 79.5	59 to 78	6.0 to 8.0	44 to 57
 Straight screw	<b>G1/4</b>	25 to 34	2.5 to 3.5	18 to 25	-	-	-
	<b>G3/8</b>	62 to 82	6.3 to 8.4	46 to 60	-	-	-
	<b>G1/2</b>	49 to 88	5.0 to 9.0	37 to 65	-	-	-

000001666E

**[6] HYDRAULIC FITTINGS****■ Adaptor, Elbows and Others**

Item	Thread size	Tightening torque		
		N·m	kgf·m	lbf·ft
Adjustable elbow, Adaptor	9/16	37 to 44	3.8 to 4.5	27 to 33
	3/4	48 to 54	4.9 to 5.5	35 to 40
Hose fitting, Flare nut	9/16	22 to 25	2.3 to 2.6	16 to 19
	3/4	36 to 40	3.6 to 4.1	26 to 30
Adaptor (NPT)	3/8	38 to 43	3.9 to 4.4	28 to 32
	1/2	49 to 58	5.0 to 5.9	36 to 43

**■ NOTE**

- When connecting a hose with flare nut, after tightening the nut with specified torque, return it approximately 45 degrees and re-tighten it to specified torque.

W1015484

**■ Hydraulic Pipe Cap Nuts**

Pipe size	Tightening torque		
	N·m	kgf·m	lbf·ft
Φ6	25 to 34	2.5 to 3.5	18 to 25
Φ8	30 to 39	3.0 to 4.0	22 to 28
Φ10	40 to 49	4.0 to 5.0	29 to 36
Φ12	49 to 68	5.0 to 7.0	37 to 50
Φ15	108 to 117	11.0 to 12.0	79.6 to 86.7
Φ16	138 to 147	14.0 to 15.0	102 to 108
Φ18	108 to 117	11.0 to 12.0	79.6 to 86.7

W1014848

## 5. MAINTENANCE CHECK LIST

To keep the machine working in good condition as well as to avoid any accident and trouble, carry out periodic inspection and maintenance. Check the following points before use.

<b>Service Interval</b>	<b>Check Points</b>	<b>Reference page</b>
Daily (Each use)	Check the transmission fluid level	G-8
	Check the hydraulic hoses	G-8
Every 10 hours	Grease all grease nipples	G-9
	Lubricate joints of control level linkage	G-9

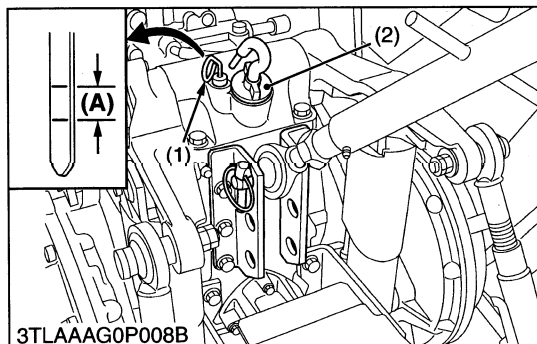
W1013874

## 6. CHECK AND MAINTENANCE

### CAUTION

- When checking and repairing, park the tractor on flat ground and apply the parking brake.
- When checking and repairing, lower the bucket and stop the engine.

### [1] CHECK POINTS OF EACH USE OR DAILY



#### Checking Transmission Fluid Level

1. Check the oil level at the gauge (1).
2. If the level is too low, add new oil to the prescribed level at the oil.

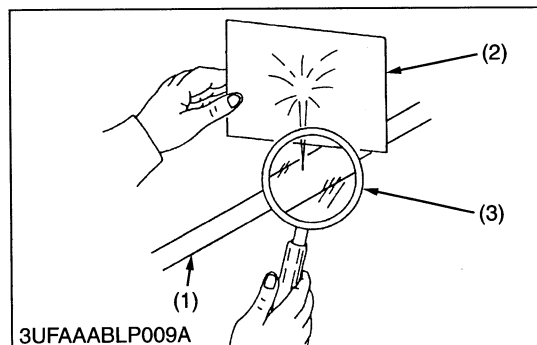
#### ■ IMPORTANT

- Use only KUBOTA UDT or SUPER UDT fluid.  
Use of other oils may damage the transmission or hydraulic system. Refer to "3. LUBRICANTS".

- (1) Gauge  
(2) Oil Filling Plug

(A) Oil level is acceptable within this range.

W1010960



#### Checking Hydraulic Hoses

1. With the engine off and bucket on the ground, check all hydraulic hoses (1) for cuts or wear.
2. Check for signs of leaks and make sure all fittings are tight.
3. If defects are found, replace them.

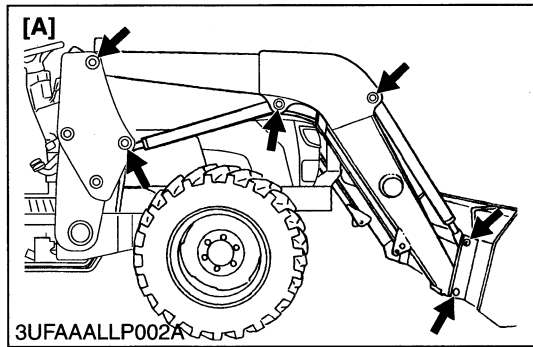
- (1) Hydraulic Hose  
(2) Cardboard

(3) Magnifying Glass

W1011064



## [2] CHECK POINTS OF EVERY 10 HOURS



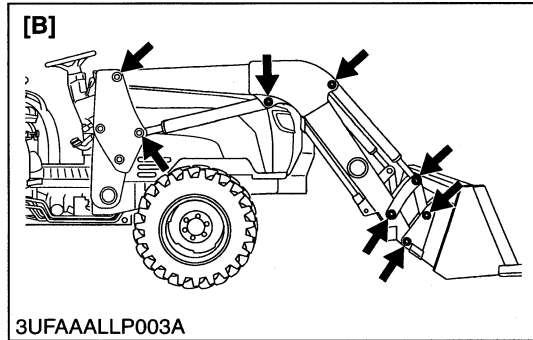
### Greasing

1. Inject grease in all grease fitting with a hand grease gun.

[A] LA514

[B] LA724 and LA854

W1011132



### Lubricating

1. Lubricate joints of control lever linkage.

W1011274



# MECHANISM

## NOTICE

Regarding front loader control valve mechanism information, please refer to L40 series tractor WSM (Code No. 9Y121-00050).



# SERVICING

## CONTENTS

1. TROUBLESHOOTING .....	S-1
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# 1. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
<b>Boom Does Not Rise</b>	Control valve malfunctioning	Repair or replace	–
	Boom cylinder defective	Repair or replace	S-8
	Control lever linkage defective	Repair or replace	–
	Hydraulic pump malfunctioning	Repair or replace	–
	Oil filter clogged	Clean or replace	–
	Relief valve spring damaged	Replace	–
	Hydraulic hose damaged	Replace	–
	Relief valve dirty or stuck	Clean	–
<b>Boom Does Not Lower</b>	Control valve malfunctioning	Repair or replace	–
	Control lever linkage defective	Repair or replace	–
<b>Insufficient Boom Speed</b>	Boom cylinder tube worn or damaged	Replace	S-9
	Boom cylinder piston ring (piston seal and O-ring) worn or damaged	Replace	S-11
	Oil leaks from tube joints	Repair	–
	Relief valve setting pressure too low	Adjust	–
	Insufficient transmission fluid	Refill	G-8
	Dirty relief valve	Clean	–
<b>Bucket Does Not Move</b>	Control valve malfunctioning	Repair or replace	–
	Bucket cylinder defective	Repair or replace	S-8
	Control lever linkage defective	Repair or replace	–
	Hydraulic pump malfunctioning	Repair or replace	–
	Oil filter clogged	Clean or replace	–
	Relief valve spring damaged	Replace	–
	Hydraulic hose damaged	Replace	–
	Dirty relief valve	Clean	–
<b>Insufficient Bucket Speed</b>	Bucket cylinder tube worn or damaged	Replace	S-9
	Bucket cylinder piston ring (piston seal and O-ring) worn or damaged	Replace	S-11
	Oil leaks from tube joints	Repair	–
	Relief valve setting pressure too low	Adjust	–
	Insufficient transmission fluid	Refill	G-8
	Dirty relief valve	Clean	–
<b>Front End Loader Drops by Its Weight</b>	Boom cylinder tube worn or damaged	Replace	S-9
	Boom cylinder piston ring (piston seal and O-ring) worn or damaged	Replace	S-11
	Oil leaks from tube joints	Repair	–
	Control valve malfunctioning	Repair or replace	–

W1014322

## 2. SERVICING SPECIFICATIONS

Item		Factory Specification	Allowable Limit
Relief Valve <b>Condition</b> <ul style="list-style-type: none"> <li>• Engine Speed                [Except L5040 and L5240]                Approx. 2700 min<sup>-1</sup> (rpm)</li> <li>• Oil Temperature                [L5040 and L5240]                Approx. 2600 min<sup>-1</sup> (rpm)</li> <li>• Oil Temperature                45 to 55 °C (104 to 140 °F)</li> </ul>	Setting Pressure [L3240, L3540]	17.1 to 18.1 MPa 175 to 184 kgf/cm <sup>2</sup> 2480 to 2620 psi	–
	Setting Pressure [L3940, L4240, L4740, L5040, L5240, L5740]	18.1 to 19.1 MPa 185 to 194 kgf/cm <sup>2</sup> 2630 to 2770 psi	–
Piston Rod	Bend	–	0.25 mm 0.0098 in.

W1013874



### 3. TIGHTENING TORQUES

#### [LA514]

Item	N·m	kgf·m	lbf·ft
Boom and bucket cylinder head mounting torque	200 to 230	20.4 to 23.4	148 to 169
Boom and bucket cylinder piston mounting nut	150 to 180	15.3 to 18.3	111 to 132
Front guard mounting bolt	124 to 147	12.6 to 15.0	91.2 to 108
Main frame mounting bolt and nut	226	23	166
Sub frame mounting bolt and nut	226	23	166

W1019645

#### [LA724]

Item	N·m	kgf·m	lbf·ft
Boom and bucket cylinder head mounting torque	380 to 400	38.8 to 40.7	281 to 295
Boom cylinder piston mounting nut	165 to 185	16.9 to 18.8	122 to 136
Bucket cylinder piston mounting nut	220 to 230	22.5 to 23.4	163 to 169
Front guard mounting bolt	124 to 147	12.6 to 15.0	91.2 to 108
Main frame mounting bolt and nut	226	23	166
Sub frame mounting bolt and nut	226	23	166

W1019846

#### [LA854]

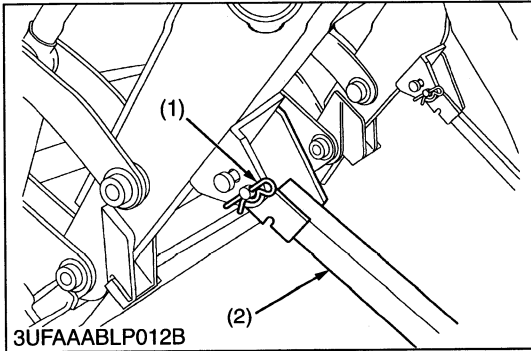
Item	N·m	kgf·m	lbf·ft
Boom cylinder head mounting torque	580 to 600	59.2 to 61.1	428 to 442
Bucket cylinder head mounting torque	460 to 480	46.9 to 48.9	340 to 354
Boom and bucket cylinder piston mounting nut	300 to 320	30.6 to 32.6	222 to 236
Front guard mounting bolt	124 to 147	12.6 to 15.0	91.2 to 108
Main frame mounting bolt and nut	226	23	166
Sub frame mounting bolt and nut	226	23	166

W1019975

## 4. DISMOUNTING FRONT LOADER FROM TRACTOR

### ■ IMPORTANT

- When dismantling the loader, park the tractor on flat and hard ground, apply the parking brake.
- When starting the engine or using the hydraulic control valve, always sit on the operator's seat.



### Stand

1. Start the engine and run at an idle.
2. Raise the boom until the stands (2) can be rotated.
3. Stop the engine.
4. Remove the snap pins (1) holding the stands (2) to the boom.
5. Rotate the stands until the pin on the stand and hole in the boom are aligned. Then slide the stands (2) outward and insert the spring pin (1) as shown.
6. Start the engine and run at an idle.
7. Dump the bucket approximately 0.35 rad (20°).
8. Lower the boom and raise the front wheels slightly.

### ■ IMPORTANT

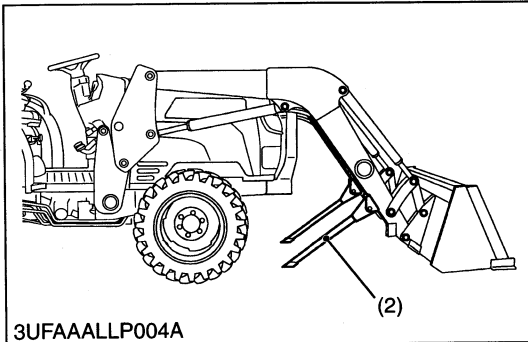
- Lift the front wheels with the bucket. Do not attempt to lift them with the stands.

9. Stop the engine.

(1) Spring Pin

(2) Stand

W1014212

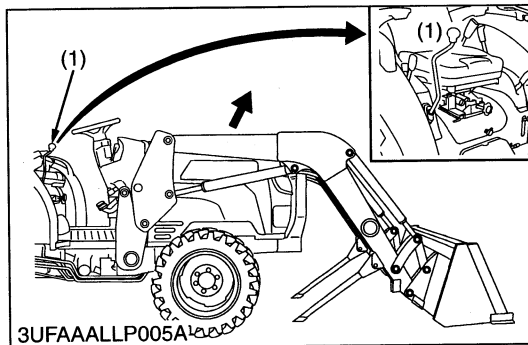


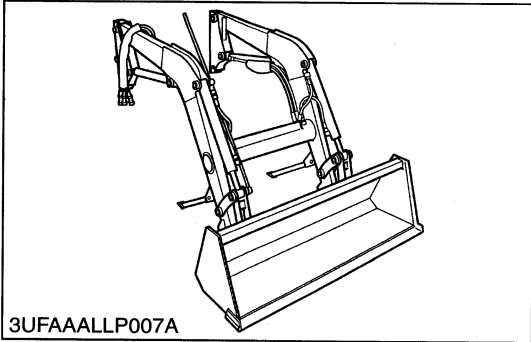
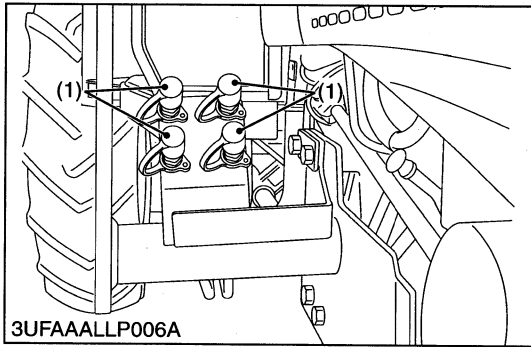
### Side Frame

1. Remove the mounting pins from the loader main frame and hold them on the boom.
2. Start the engine and run at an idle.
3. Slowly move the hydraulic control lever (1) to the "ROLL-BACK" position to raise the loader side frames up and out of the receivers of the main frames as shown.
4. Stop the engine.

(1) Hydraulic Control Lever

W1014362





### Hoses

1. Slowly release all hydraulic pressure by moving the hydraulic control lever in all directions.
2. Disconnect the four hoses with quick couplers at the control valve and place them on the right side of the boom.
3. Place the protective caps and plugs (1) on the quick coupler ends.
4. Start the engine and slowly back the tractor away from the loader.

(1) Protective Plug

W1014457

## 5. CHECKING, DISASSEMBLING AND SERVICING

### [1] CONTROL VALVE

#### (1) Checking and Adjusting

#### Relief Valve Setting Pressure

##### ■ NOTE

- The relief valve is installed on the L40 series tractor. however the relief valve of the tractor hydraulic system is used as the relief valve of the front loader. Relief to "L40 Series Tractor Workshop Manual (9Y121-00050)".

Relief valve setting pressure	Factory spec.	L3240 L3540	17.1 to 18.1 MPa 175 to 184 kgf/cm <sup>2</sup> 2480 to 2620 psi
		L3940 L4240 L4740 L5040 L5240 L5740	18.1 to 19.1 MPa 185 to 194 kgf/cm <sup>2</sup> 2630 to 2770 psi

#### **Condition**

- Engine speed :  
Approx. 2700 min<sup>-1</sup> (rpm) (Except L5040 and L5240)  
Approx. 2600 min<sup>-1</sup> (rpm) (L5040 and L5240)
- Oil temperature : 45 to 55 °C  
113 to 131 °F

#### **(Reference)**

- Thickness of shims : 0.1 mm (0.0039 in.)  
0.2 mm (0.0079 in.)  
0.4 mm (0.0157 in.)
- Pressure change per  
0.1 mm (0.0039 in.) shim: Approx. 264.8 kPa  
2.7 kgf/cm<sup>2</sup>  
38.4 psi

W1020510

#### (2) Disassembling and Assembling

#### Separating Front Loader Control Valve Assembly

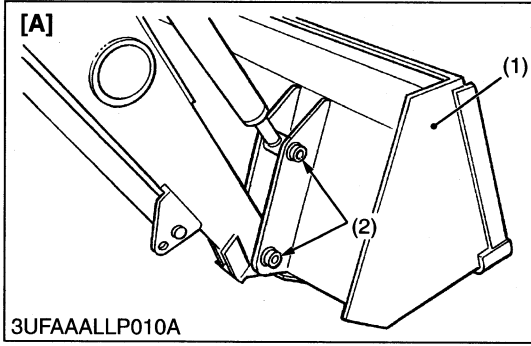
1. Relief to "L40 Series Tractor Workshop Manual (9Y121-00050)".  
W1021912

#### Disassembling Front Loader Control Valve

1. Relief to "L40 Series Tractor Workshop Manual (9Y121-00050)".  
W1021984

## [2] BUCKET, BOOM AND HYDRAULIC CYLINDER

### (1) Disassembling and Assembling



#### Bucket

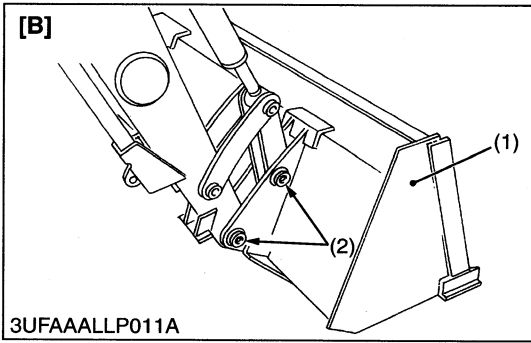
1. Remove the pins (2) and remove the bucket (1).

- (1) Bucket
- (2) Pin

[A] LA514

[B] LA724 and LA854

W1020454



**Hydraulic Cylinders and Hydraulic Hoses**

1. Remove the split pin and remove the indicator assy (5).
2. Disconnect the hydraulic hoses (3).
3. Remove the pins and remove the bucket cylinders (4).
4. Disconnect the hydraulic hoses (2).
5. Remove the pins and remove the boom cylinders (1).
6. Disconnect the hydraulic hoses (7) from the hydraulic tubes (6).
7. Remove the pipe cover (9).
8. Remove the hydraulic tubes (6), (8) from boom.

**(When reassembling)**

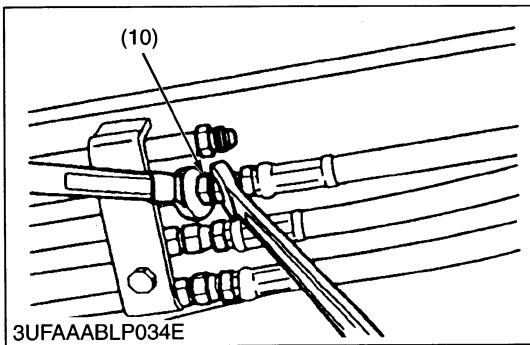
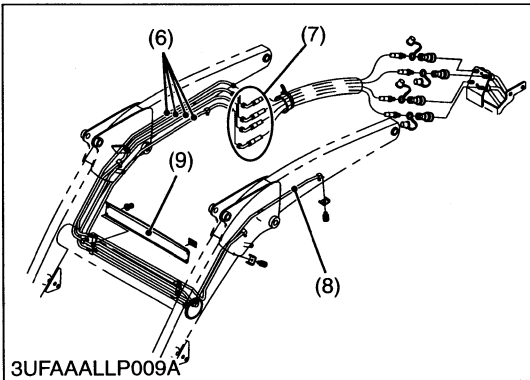
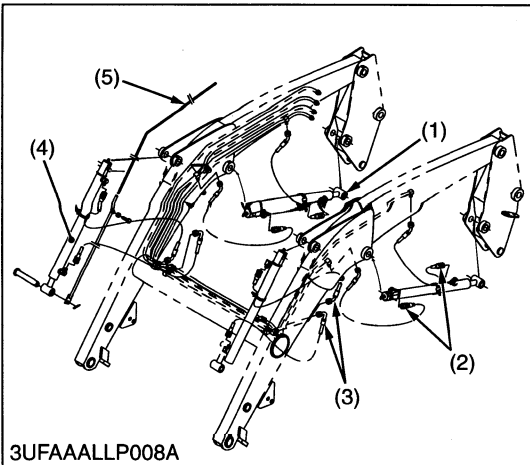
- Do not tighten firmly the lock nuts. The gap between the boss and the lock nut is 2 to 3 mm (0.08 to 0.12 in.).
- The hydraulic port should face inside and be careful of the direction of grease fittings.
- Adjust the direction of hydraulic hoses so that the level indicator rod does not touch to the hydraulic hoses.

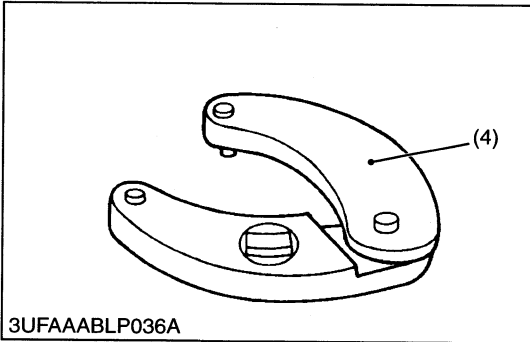
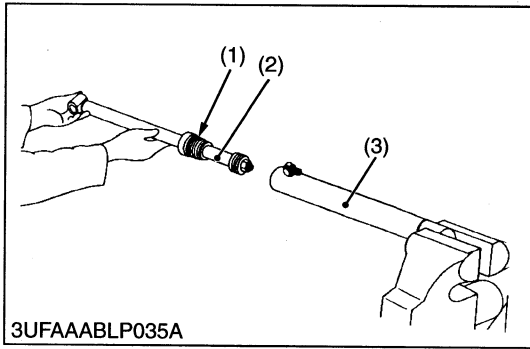
**NOTE**

- For fastening hydraulic hose with tube fitting (8), use two wrenches. Hold the fitting with a wrench, turn the hose with another wrench to avoid damage at welded area.

- |                     |                    |
|---------------------|--------------------|
| (1) Boom Cylinder   | (6) Hydraulic Tube |
| (2) Hydraulic Hose  | (7) Hydraulic Hose |
| (3) Hydraulic Hose  | (8) Hydraulic Tube |
| (4) Bucket Cylinder | (9) Pipe Cover     |
| (5) Indicator Assy  | (10) Tube Fitting  |

W1025287





**Piston Rod Assembly**

1. Drain hydraulic oil from the cylinder, and secure the tube end of the cylinder in a vise.
2. Unscrew the cylinder head (1) with the adjustable gland nut wrench (4).
3. Pull out the piston rod assembly (2) from the cylinder tube (3).

**(When reassembling)**

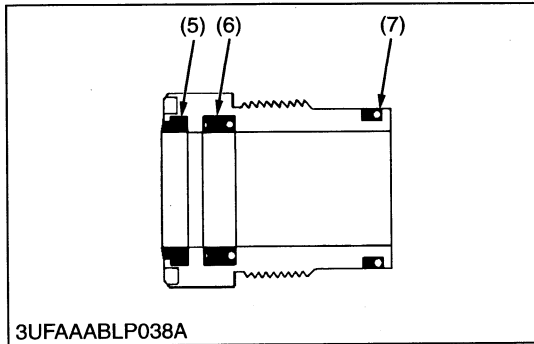
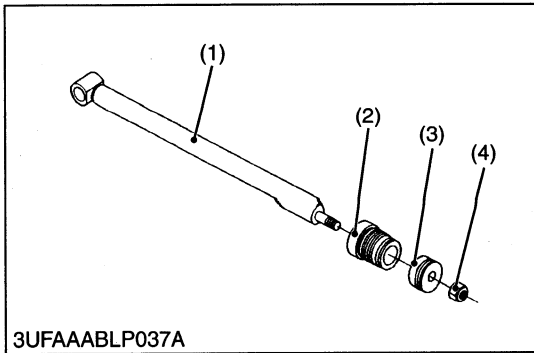
- Visually inspect the cylinder tube for signs of scoring or damage.
- Insert the piston rod assembly to the cylinder tube, using care not to damage the piston seal on the piston.
- Install the cylinder head to the cylinder tube, using care not to damage the O-ring on the cylinder head.

Tightening torque	Boom cylinder head mounting torque	LA514	200 to 230 N-m 20.4 to 23.4 kgf-m 148 to 169 lbf-ft
		LA724	380 to 400 N-m 38.8 to 40.7 kgf-m 281 to 295 lbf-ft
		LA854	580 to 600 N-m 59.2 to 61.1 kgf-m 428 to 442 lbf-ft
	Bucket cylinder head mounting torque	LA514	200 to 230 N-m 20.4 to 23.4 kgf-m 148 to 169 lbf-ft
		LA724	380 to 400 N-m 38.8 to 40.7 kgf-m 281 to 295 lbf-ft
		LA854	460 to 480 N-m 46.9 to 48.9 kgf-m 340 to 354 lbf-ft

- (1) Cylinder Head  
 (2) Piston Rod Assembly

- (3) Cylinder Tube  
 (4) Adjustable Gland Nut Wrench

W1017050



**Cylinder Head, Piston and Nut**

1. Secure the rod end in a vise.
2. Unscrew the nut (4), and remove the piston (3) and cylinder head (2) from the piston rod (1).

**(When reassembling)**

- Visually inspect all parts for signs of scoring or damage.
- Insert the piston rod to the cylinder head, using care not to damage the wiper seal (5) and oil seal (6).

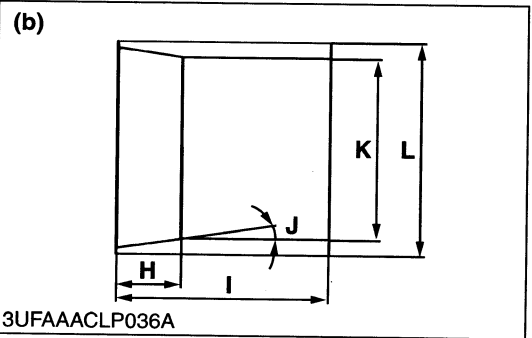
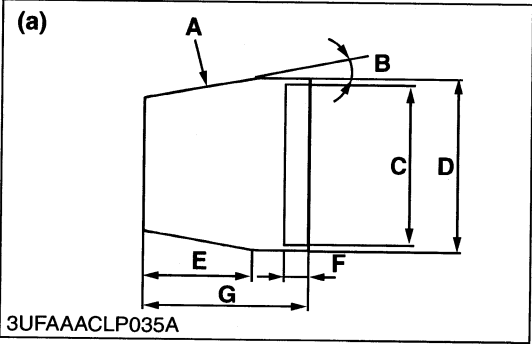
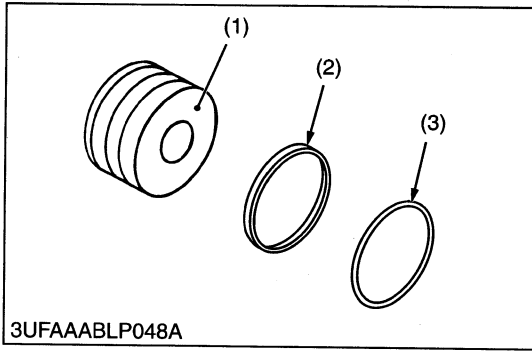
Tightening torque	Boom cylinder piston mounting nut	LA514	150 to 180 N-m 15.3 to 18.3 kgf-m 111 to 132 lbf-ft
		LA724	165 to 185 N-m 16.9 to 18.8 kgf-m 122 to 136 lbf-ft
		LA854	300 to 320 N-m 30.6 to 32.6 kgf-m 222 to 236 lbf-ft
	Bucket cylinder piston mounting nut	LA514	150 to 180 N-m 15.3 to 18.3 kgf-m 111 to 132 lbf-ft
		LA724	220 to 230 N-m 22.5 to 23.4 kgf-m 163 to 169 lbf-ft
		LA854	300 to 320 N-m 30.6 to 32.6 kgf-m 222 to 236 lbf-ft

- (1) Piston Rod
- (2) Cylinder Head
- (3) Piston
- (4) Nut

- (5) Wiper Seal
- (6) Oil Seal
- (7) O-ring

W1017322





### Removing Piston Seal and O-ring

1. Remove the piston seal (2) and expander (3) from the piston (1).

■ **IMPORTANT**

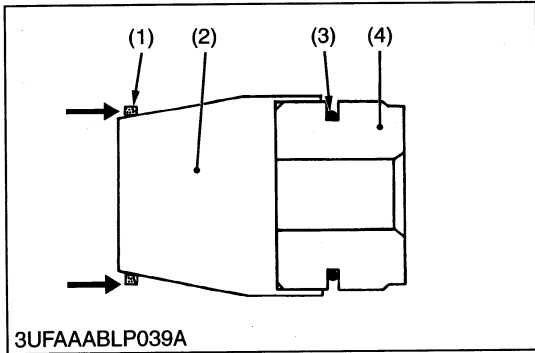
• When installing the expander (3) and piston seal (2) to the piston (1), use the slide jig and correcting jig as shown in the figure.

	LA514 (Boom and Bucket)	LA724 (Boom and Bucket)	LA854 (Boom)	LA854 (Bucket)
A	80 μm (0.0031 in.)	80 μm (0.0031 in.)	80 μm (0.0031 in.)	80 μm (0.0031 in.)
B	0.157 rad 9°	0.157 rad 9°	0.157 rad 9°	0.157 rad 9°
C	45.18 mm dia. 1.78 in. dia.	50.18 mm dia. 1.98 in. dia.	60.18 mm dia. 2.37 in. dia.	55.18 mm dia. 2.17 in. dia.
D	46.18 mm dia. 1.82 in. dia.	51.18 mm dia. 2.01 in. dia.	61.18 mm dia. 2.41 in. dia.	56.18 mm dia. 2.21 in. dia.
E	42.0 mm 1.65 in.	42.0 mm 1.65 in.	42.0 mm 1.65 in.	42.0 mm 1.65 in.
F	10.0 mm 0.4 in.	10.0 mm 0.4 in.	10.0 mm 0.4 in.	10.0 mm 0.4 in.
G	58.5 mm 2.3 in.	58.5 mm 2.3 in.	58.5 mm 2.3 in.	58.5 mm 2.3 in.
H	14.0 mm 0.55 in.	14.0 mm 0.55 in.	14.0 mm 0.55 in.	14.0 mm 0.55 in.
I	35.0 mm 1.38 in.	35.0 mm 1.38 in.	35.0 mm 1.38 in.	35.0 mm 1.38 in.
J	0.122 rad 7°	0.122 rad 7°	0.122 rad 7°	0.122 rad 7°
K	45.2 mm dia. 1.78 in. dia.	50.2 mm dia. 1.98 in. dia.	60.2 mm dia. 2.37 in. dia.	55.2 mm dia. 2.17 in. dia.
L	53.9 mm dia. 2.12 in. dia.	58.9 mm dia. 2.32 in. dia.	68.9 mm dia. 2.71 in. dia.	63.9 mm dia. 2.52 in. dia.

- (1) Piston
- (2) Piston Seal
- (3) Expander

- (a) Slide Jig
- (b) Correcting Jig

W1017590



**Installing Expander and Piston Seal**

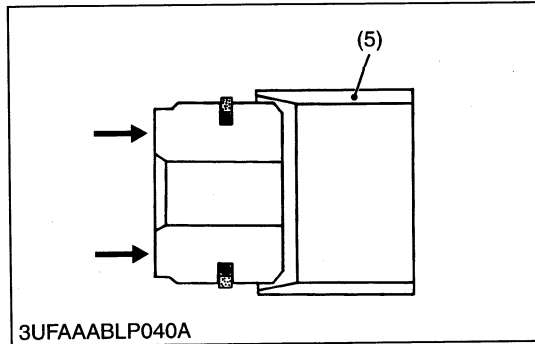
1. Place the slide jig (2) on the piston (4).
2. Install the expander (3) on the piston using the slide jig.
3. Install the piston seal (1) over the expander using the slide jig.
4. Compress the piston seal to the correct size by installing the piston into the correcting jig (5).

■ **NOTE**

- **Do not turn (roll) the piston seal as you install it.**

- |                 |                    |
|-----------------|--------------------|
| (1) Piston Seal | (4) Piston         |
| (2) Slide Jig   | (5) Correcting Jig |
| (3) Expander    |                    |

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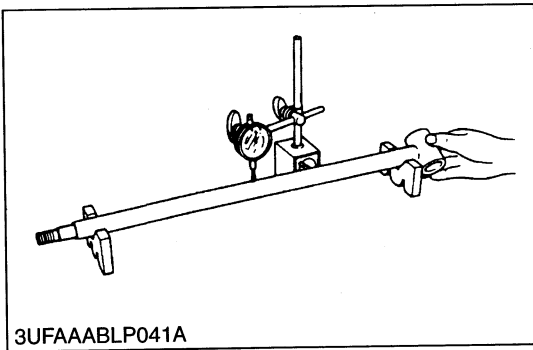
**(2) Servicing**

**Piston Rod Bend**

1. Place piston rod on V blocks.
2. Set a dial indicator on the center of the rod.
3. Turn the piston rod and read the dial indicator.
4. If the measurement exceeds the allowable limit, replace it.

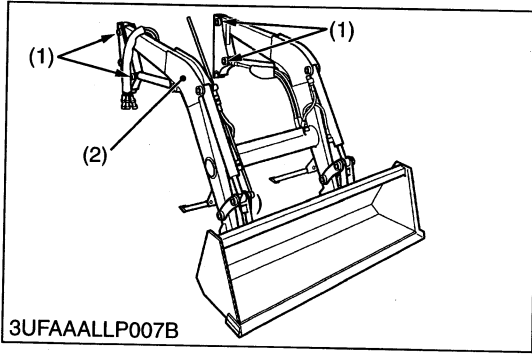
Piston rod bend	Allowable limit	0.25 mm 0.0098 in.
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### [3] SIDE FRAME AND OTHERS

#### (1) Disassembling and Assembling



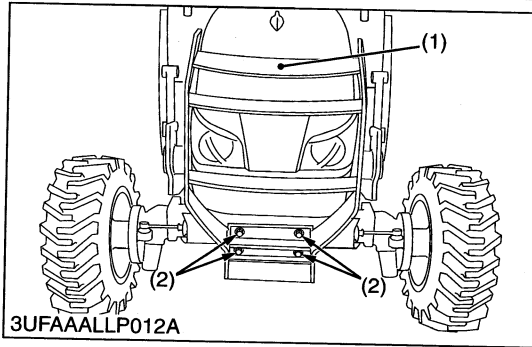
#### Side Frame

1. Dismount the loader assembly from loader main frame. (See page S-4.)
2. Remove the pins (1) and remove the side frames (2) from the boom.

(1) Pin

(2) Side Frame

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#### Front Guard

1. Unscrew the front guard mounting bolts (2) and remove the front guard (1) from front axle frame.

#### **(When reassembling)**

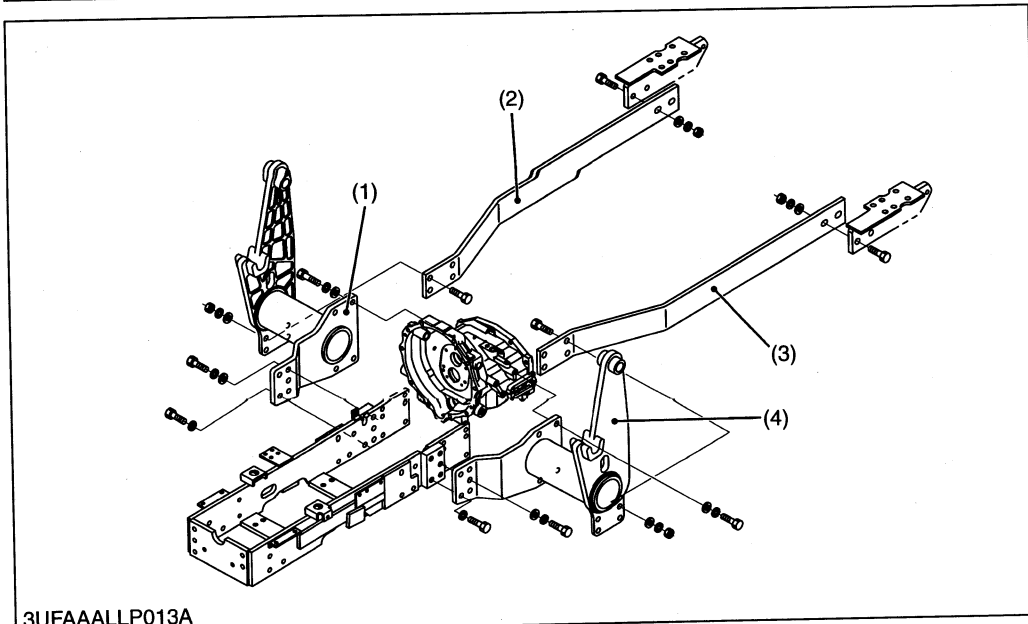
Tightening torque	Front guard mounting bolt	124 to 147 N·m 12.6 to 15.0 kgf·m 91.2 to 108 lbf·ft
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(1) Front Guard

(2) Front Guard Mounting Bolt (M14)

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**Main Frame and Sub Frame**



- (1) Main Frame, RH
- (2) Sub Frame, RH
- (3) Sub Frame, LH
- (4) Main Frame, LH

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3UF8AAALLP013A

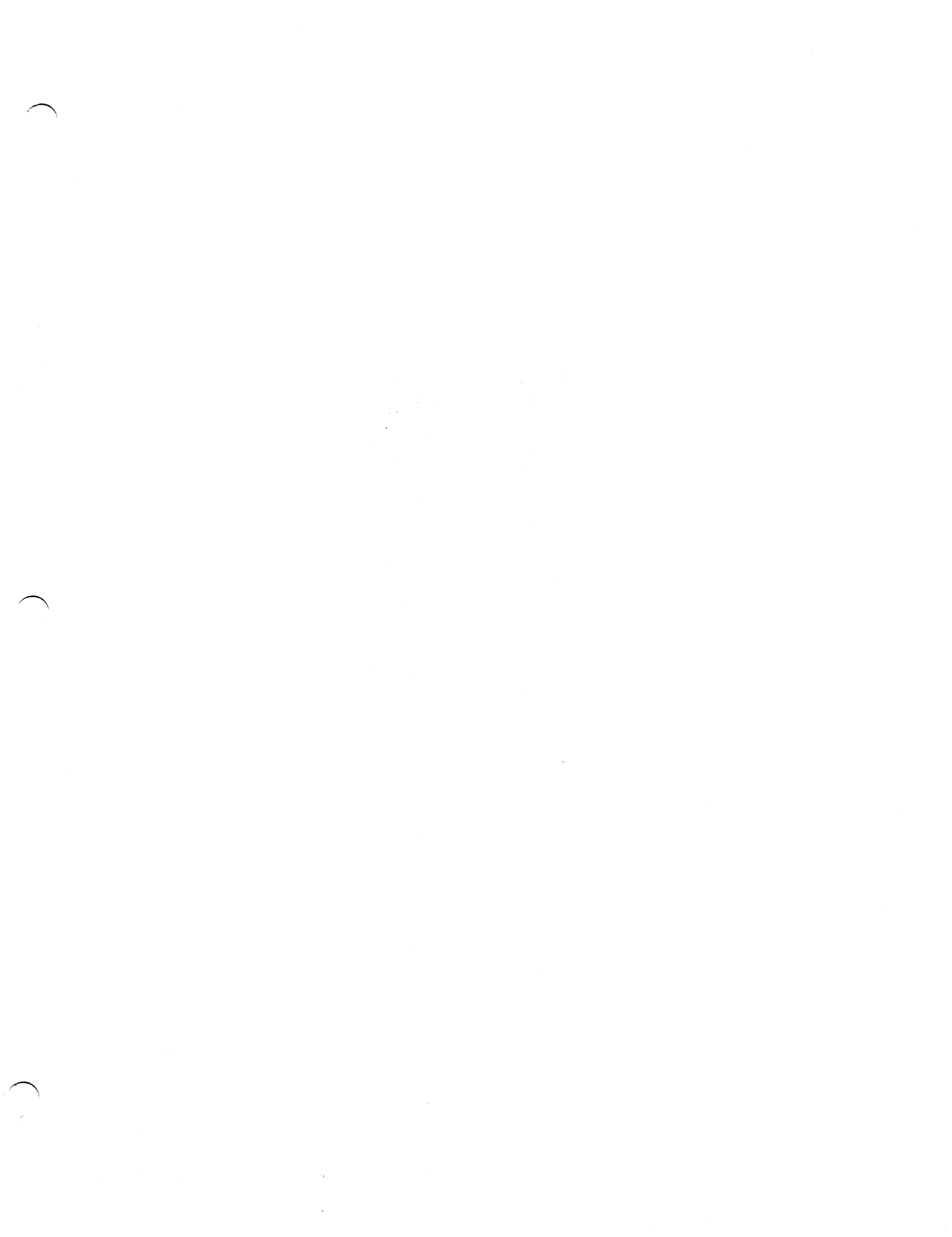
1. Support the main frame (1), (4) by hoist to prevent failing during disassembling.
2. Unscrew the sub frame mounting bolts and nuts, and remove the sub frame (2), (3).
3. Unscrew the main frame mounting bolts and nuts, and remove the main frame (1), (4).

**(When reassembling)**

■ **NOTE**

- Do not firmly tighten any bolts and nuts until most components are attached onto the tractor.

Tightening torque	Main frame mounting bolt and nut	226 N-m 23 kgf-m 166 lbf-ft
	Sub frame mounting bolt and nut	226 N-m 23 kgf-m 166 lbf-ft





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