WSM

WORKSHOP MANUAL
FRONT LOADER

LA344AU

Kubota

KiSC issued 02, 2018 A

TO THE READER

This Workshop Manual tells the servicing personnel about the mechanism, servicing and maintenance of KUBOTA Front Loader *LA344AU*. It contains 4 parts: "Information", "General", "Mechanism" and "Servicing".

INFORMATION

This section primarily contains information below.

- Safety First
- Safety Decal
- Specification
- Dimensions

GENERAL

This section primarily contains information below.

- Loader Identification
- General Precautions
- Maintenance Check List
- Check and Maintenance

MECHANISM

This section contains information on the structure and the function of the unit. Before you continue with the subsequent sections, make sure that you read this section.

SERVICING

This section primarily contains information below.

- Troubleshooting
- Servicing Specifications
- Tightening Torques
- Checking, Disassembling and Servicing

All illustrations, photographs and specifications contained in this manual are of the newest information available at the time of publication.
KUBOTA reserves the right to change all information at any time without notice.
Since this manual includes many models, information or illustrations and photographs can show more than one model.

February, 2018

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CONTENTS

1. INFORMATION

SAFETY FIRST

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 try to repair or use this unit.**

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

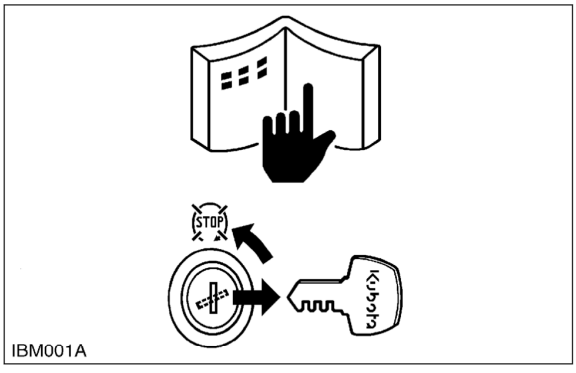
WARNING
- **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

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.**

1. Before you start service



IBM001A

- 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 stable and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, then remove the key.
- Disconnect the battery negative cable.
- Hang a **[DO NOT OPERATE]** tag in the operator station.

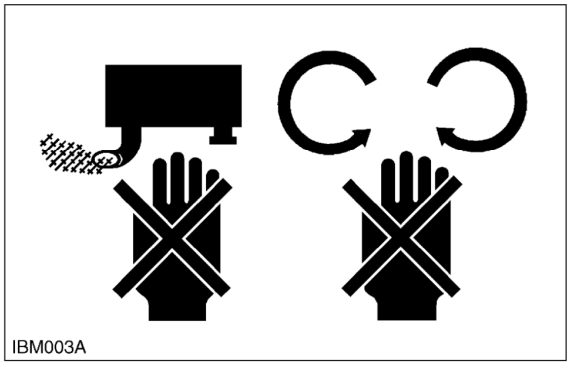
2. Start safely


IBM002A

- Do not do the procedures below when you start the engine.
  1. Short across starter terminals.
  2. Bypass the safety start switch.
- Do not alter or remove any part of machine safety system.
- Before you start the engine, make sure that all shift levers are in neutral positions or in disengaged positions.

- Do not start the engine when you stay on the ground. Start the engine only from operator's seat.

3. Operate safely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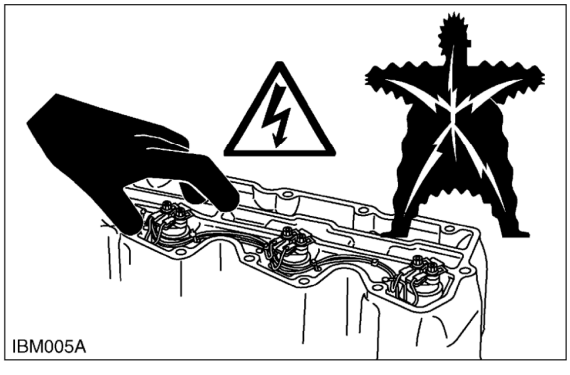
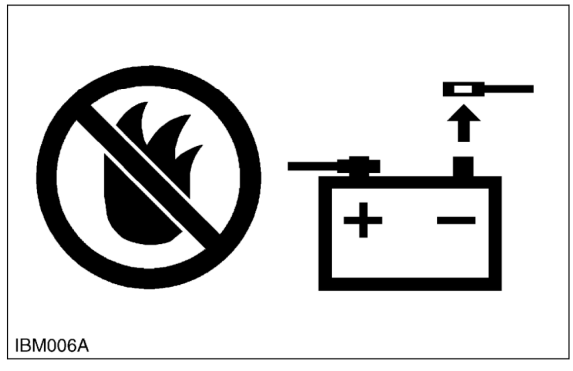

IBM005A

- Do not use the machine after you consume alcohol or medication or when you are tired.
- Put on applicable clothing and safety equipment.
- Use applicable tools only. Do not use alternative tools or parts.
- When 2 or more persons do servicing, make sure that you do it safely.
- Do not touch the hot parts or parts that turn when the engine operates.
- Do not remove the radiator cap when the engine operates, or immediately after it stops. If not, hot water can spout out from the radiator. Only remove the radiator cap when it is at a sufficiently low temperature to touch with bare hands. Slowly loosen the cap to release the pressure before you remove it fully.
- Released fluid (fuel or hydraulic oil) under pressure can cause damage to the skin and cause serious injury. Release the pressure before you disconnect hydraulic or fuel lines. Tighten all connections before you apply the pressure.
- Do not open a fuel system under high pressure. The fluid under high pressure that stays in fuel lines can cause serious injury. Do not disconnect or repair the fuel lines, sensors, or any other components between the fuel pump and injectors on engines with a common rail fuel system under high pressure.
- Put on an applicable ear protective device (earmuffs or earplugs) to prevent injury against loud noises.
- Be careful about electric shock. The engine generates a high voltage of more than DC100 V in the ECU and is applied to the injector.

4. Prevent a fire



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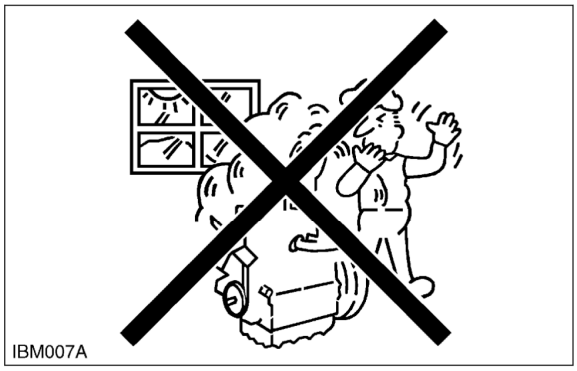
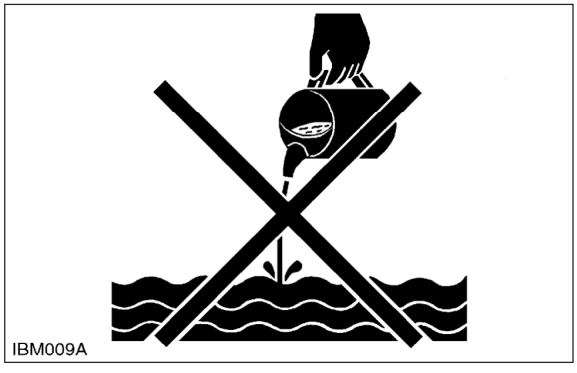
- Fuel is very flammable and explosive under some conditions. Do not smoke or let flames or sparks in your work area.
- To prevent sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- The battery gas can cause an explosion. Keep the sparks and open flame away from the top of battery, especially when you charge the battery.
- Make sure that you do not spill fuel on the engine.

5. Keep a good airflow in the work area


IBM007A

- If the engine is in operation, make sure that the area has good airflow. Do not operate the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.

6. Discard fluids correctly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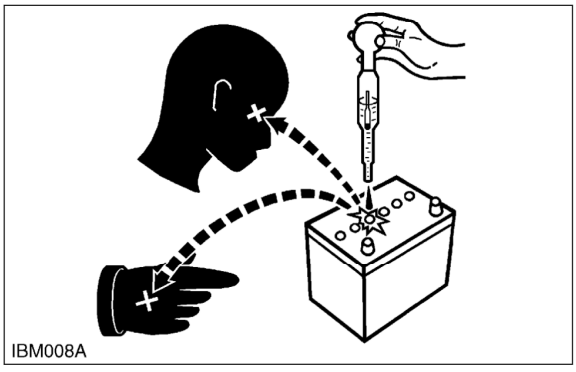
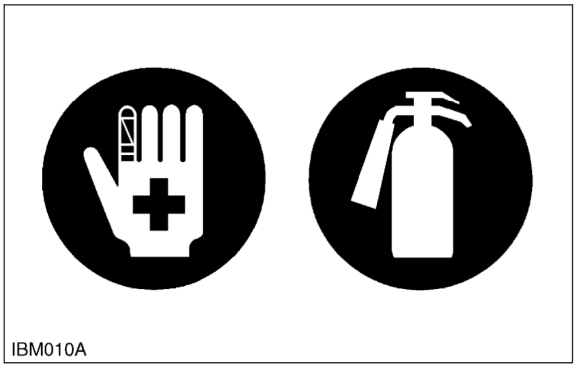
- Do not discard fluids on the ground, down the drain, into a stream, pond, or lake. Obey related environmental protection regulations when you discard oil, fuel, coolant, electrolyte and other dangerous waste.

7. Prevent acid burns


IBM008A

- Keep electrolyte away from your eyes, hands and clothing. Sulfuric acid in battery electrolyte is poisonous and it can burn your skin and clothing and cause blindness. If you spill electrolyte on yourself, clean yourself with water, and get medical aid immediately.

8. Prepare for emergencies


IBM010A

- Keep a first aid kit and fire extinguisher ready at all times.
- Keep the emergency contact telephone numbers near your telephone at all times.

SAFETY DECALS

1. Safety labels for loader

The safety labels are installed on the loader. If a label becomes damaged, illegible or is not on the loader, replace it. The label part number is listed in the parts list.

(1) Part No. 7J061-5645-1

1AIABAHAP019G

(2) Part No. 7J246-5641-1

1AIABAHAP017A

(3) Part No. 7J246-5643-1

1AIABAHAP016A

(4) Part No. 7J246-5642-1

1AIABAHAP018A

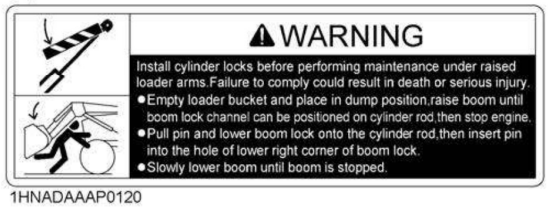
(5) Part No. 7J246-5644-2

1AIABAHAP020A

(6) Part No. 7J061-5649-1

1AIABACAP084A

(7) Part No. 7J802-5848-3



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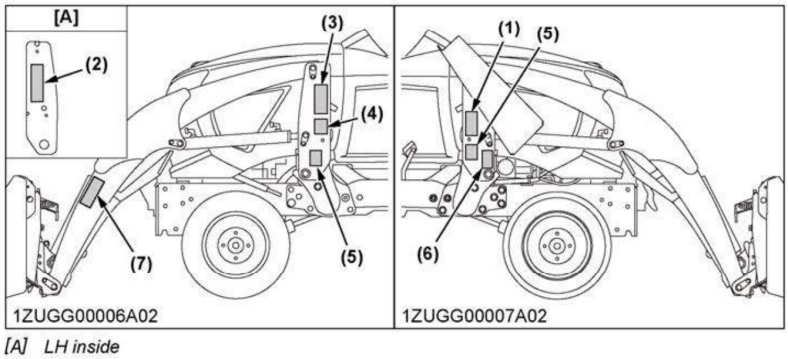

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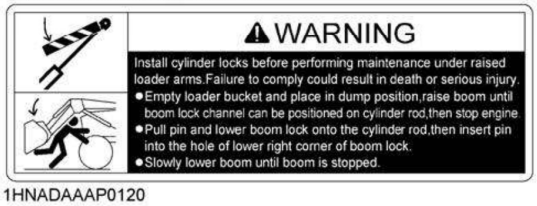
[A] LH inside

1ZUGG00032A01

(1) Part No. 7J061-5649-1

1AIABACAP084A

(2) Part No. 7J802-5848-3



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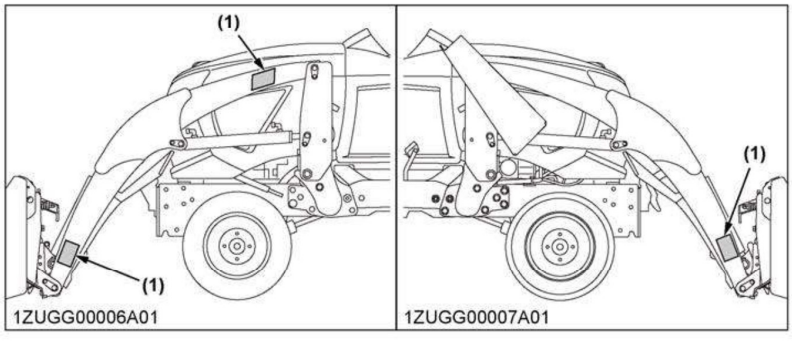
(3) Part No. 7J630-5637-1

1AGAJBOAP007A



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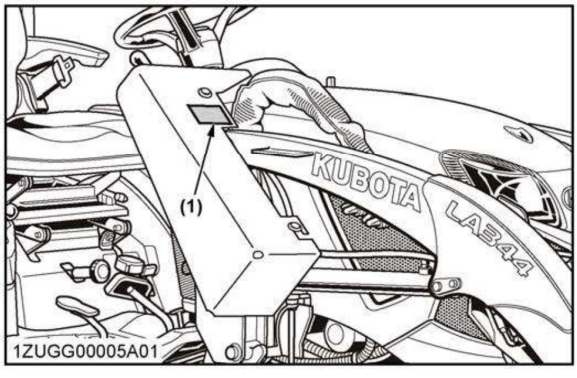

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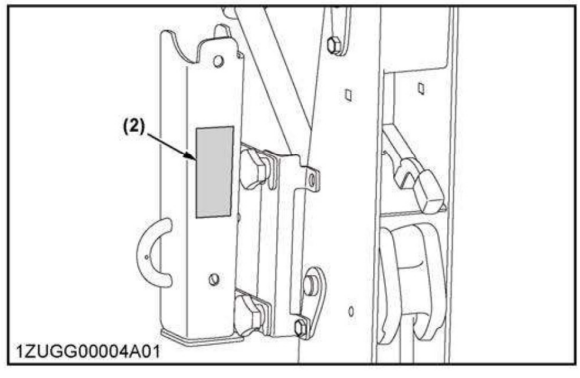

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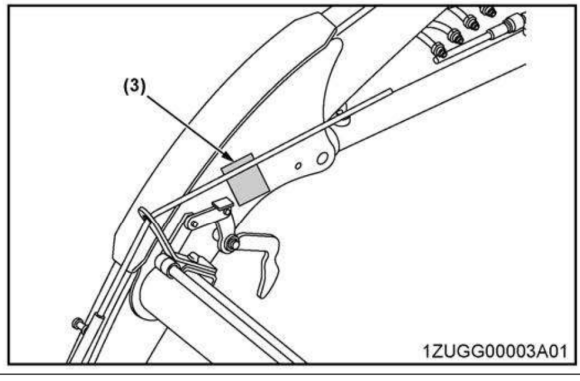
Boom RH inside



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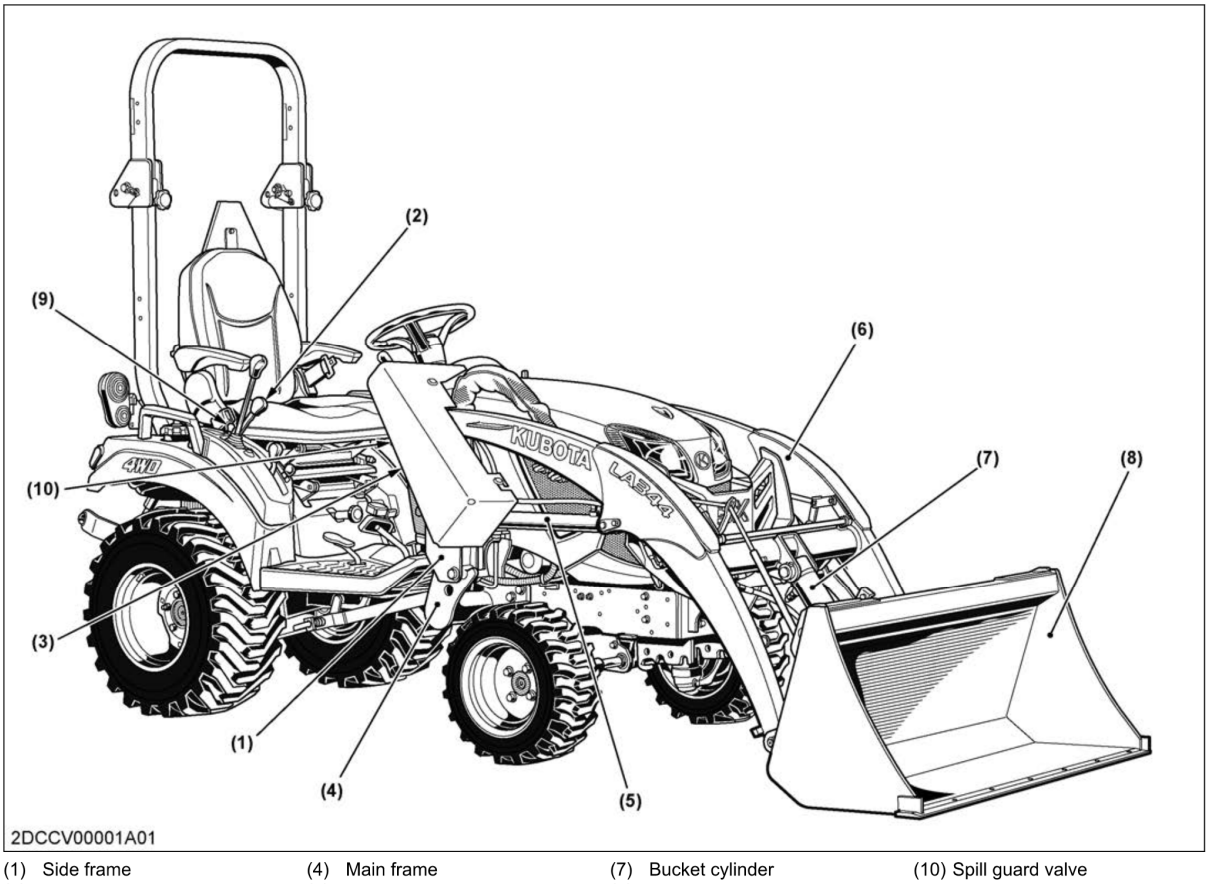
2. Care of danger, warning, and caution labels

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

TERMINOLOGY

1. Loader terminology



(1) Side frame
(2) Hydraulic control lever
(3) Mounting pin
(4) Main frame
(5) Boom cylinder
(6) Boom
(7) Bucket cylinder
(8) Bucket
(9) Lock lever
(10) Spill guard valve

SPECIFICATIONS

1. Loader specifications

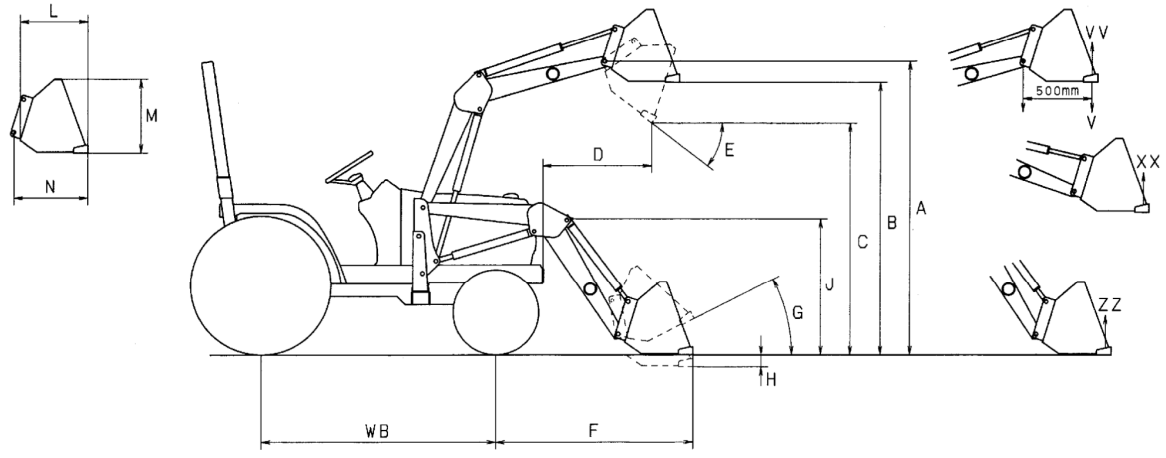
Loader model		LA344AU	
Tractor model		BX1880-AU	BX2380-AU, BX2680-AU
Wheel base (WB)		1400 mm (55.12 in.)	
Front wheels		16 × 7.5-8	18 × 8.5-10
Rear wheels		24 × 12-12	26 × 12-12
Boom cylinder	Bore	40 mm (1.6 in.)	
	Stroke	326 mm (12.8 in.)	
Bucket cylinder	Bore	65 mm (2.6 in.)	
	Stroke	196 mm (7.72 in.)	
Control valve		One detent float position, single bucket dump, power beyond circuit	
Rated flow		14 L/m (3.7 GPM)	
Maximum pressure		12.8 MPa (131 kg/cm^2) [1860 psi]	
Net weight (approximate)		180 kg (397 lbs)	

2. Bucket specifications

Loader model		LA344AU
Model		Square 48 in.
Width		1219 mm (47.99 in.)
Depth		491 mm (19.3 in.)
Height (M)		465 mm (18.3 in.)
Length (N)		538 mm (21.2 in.)
Capacity	Struck	0.14 m^3 (4.9 cu.ft.)
	Heaped	0.17 m^3 (6.0 cu.ft.)
Weight		60 kg (130 lbs.)

3. Dimensional specifications of loader

Loader model		LA344AU	
Tractor model		BX1880-AU	BX2380-AU, BX2680-AU
A	Maximum lift height (to bucket pivot pin)	1795 mm (70.7 in.)	1804 mm (71.0 in.)
B	Maximum. lift height under level bucket	1652 mm (65.0 in.)	1662 mm (65.4 in.)
C	Clearance with bucket dumped	1316 mm (51.8 in.)	1323 mm (52.1 in.)
D	Reach at max. lift height (dumping reach)	642 mm (25.3 in.)	646 mm (25.4 in.)
E	Maximum dump angle	0.79 rad (45°)	
F	Reach with bucket on ground	1398 mm (55.0 in.)	1392 mm (54.8 in.)
G	Bucket roll-back angle	0.52 rad (30°)	0.51 rad (29°)
H	Digging depth	134 mm (5.3 in.)	125 mm (4.9 in.)
J	Overall height in carrying position	981 mm (38.6 in.)	990 mm (39.0 in.)



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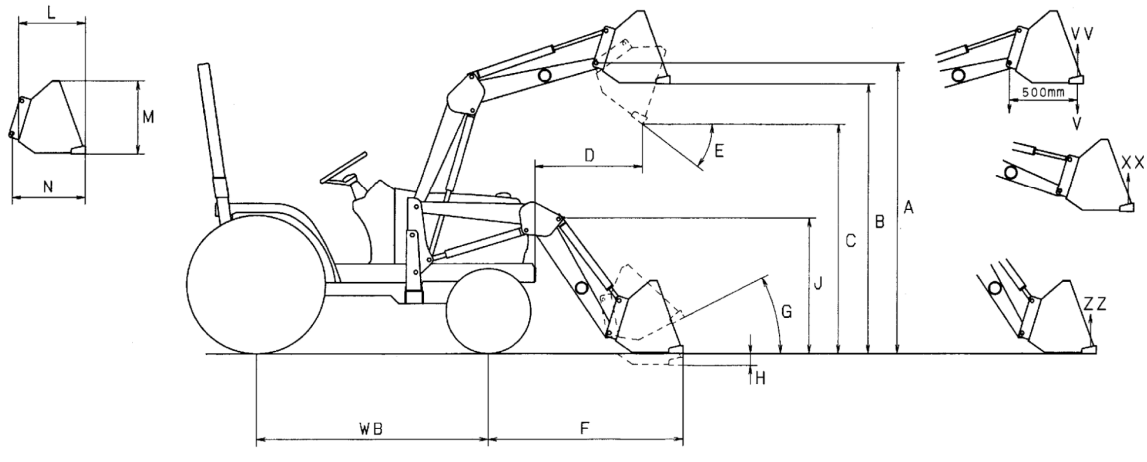
4. Operational specifications of loader

Loader model		LA344AU
Tractor model		BX1880-AU, BX2380-AU, BX2680-AU
V	Lift capacity (500 mm forward, max. height)	180 kg (509 lbs)
Y	Breakout force (Bucket pivot pin)	6258 N (1407 lbs)
VV	Bucket roll-back force at max. height	4731 N (1064 lbs)
XX	Bucket roll-back force at 1500 mm height	5557 N (1249 lbs)
ZZ	Bucket roll-back force at ground level	5456 N (1227 lbs)
Raising time		3.3 s
Lowering time		2.5 s
Bucket dumping time		2.7 s
Bucket rollback time		2.3 s



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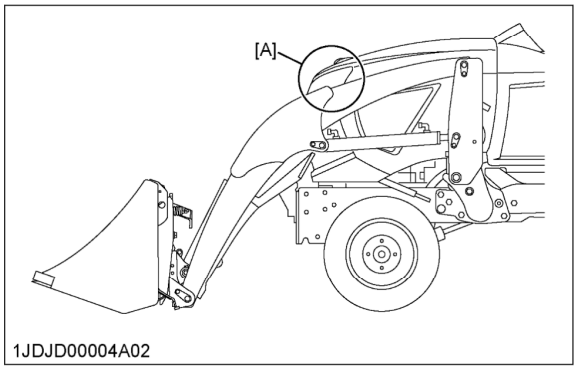
2. GENERAL

IDENTIFICATION

1. Checking loader identification

- When contacting your local Kubota distributor, always specify loader serial number.



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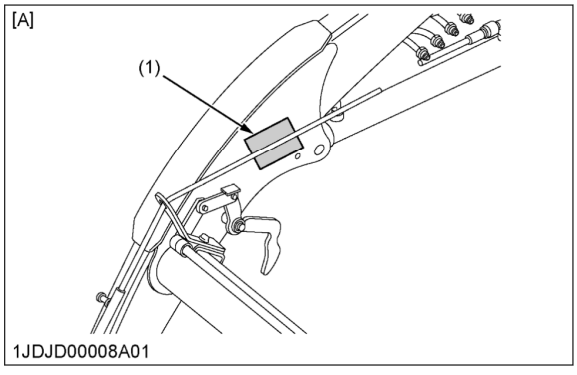

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(1) Loader serial number [A] Boom R.H. inside

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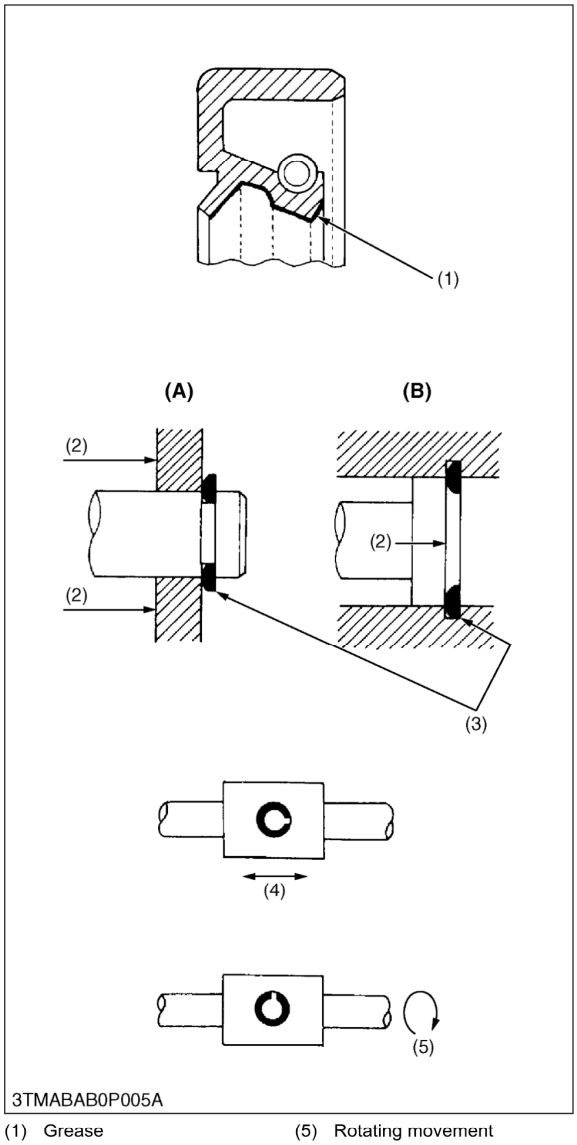
GENERAL PRECAUTIONS



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(1) Grease
(2) Force
(3) Sharp edge
(4) Axial force
(5) Rotating movement
(A) External circlip
(B) Internal circlip

- When you disassemble, carefully put the parts in a clean area to make it easy to find the parts. You must install the screws, bolts and nuts in their initial position to prevent the reassembly errors.
- When it is necessary to use special tools, use Kubota special tools. Refer to the drawings when you make special tools that you do not use frequently.
- Before you disassemble or repair machine, make sure that you always disconnect the ground cable from the battery first.
- Remove oil and dirt from parts before you measure.
- Use Kubota genuine parts for replacement to keep the machine performance and to make sure of safety.
- You must replace the gaskets and O-rings when you assemble again. Apply grease (1) to new O-rings or oil seals before you assemble.
- When you assemble the external or internal circlips, make sure that the sharp edge (3) faces against the direction from which force (2) is applied.
- When inserting spring pins, their splits must face the direction from which a force is applied.
- To prevent damage to the hydraulic system, use specified fluid or equivalent.
- Clean the parts before you measure them.
- Tighten the fittings to the specified torque. Too much torque can cause damage to the hydraulic units or the fittings. Insufficient torque can cause oil leakage.
- When you use a new hose or pipe, tighten the nuts to the specified torque. Then loosen (approx. by 45°) and let them be stable before you tighten to the specified torque (This is not applied to the parts with seal tape.).
- When you remove the two ends of a pipe, remove the lower end first.
- Use two pliers in removal and installation. One to hold the stable side, and the other to turn the side you remove to prevent twists.
- Make sure that the sleeves of flared connectors and tapers of hoses are free of dust and scratches.
- After you tighten the fittings, clean the joint and apply the maximum operation pressure 2 to 3 times to check oil leakage.

LUBRICATING SYSTEM

1. Lubricants

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

Place	Capacity	Lubricants, type of grease
Transmission case	11.3 L 2.99 U.S.qts 2.5 Imp.qts	KUBOTA SUPER UDT fluid*
Grease fitting	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.

TIGHTENING TORQUES

1. General use screws, bolts, and nuts

Tighten screws, bolts, and nuts whose tightening torques are not specified in the Workshop Manual according to the table below.

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

2. Stud bolts

Material of opponent part	Ordinariness			Aluminum		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M8	12 to 15	1.2 to 1.6	8.7 to 11	8.9 to 11	0.90 to 1.2	6.5 to 8.6
M10	25 to 31	2.5 to 3.2	18 to 23	20 to 25	2.0 to 2.6	15 to 18
M12	30 to 49	3.0 to 5.0	22 to 36	31	3.2	23
M14	62 to 73	6.3 to 7.5	46 to 54	—	—	—
M16	98.1 to 112	10.0 to 11.5	72.4 to 83.1	—	—	—
M18	172 to 201	17.5 to 20.5	127 to 148	—	—	—

3. 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
1/4	11.7 to 15.7	1.20 to 1.60	8.63 to 11.5	16.3 to 19.7	1.67 to 2.00	12.0 to 14.6
5/16	23.1 to 27.7	2.36 to 2.82	17.0 to 20.5	33 to 39	3.4 to 3.9	25 to 28
3/8	48 to 56	4.9 to 5.7	36 to 41	61 to 73	6.3 to 7.4	45 to 53
1/2	110 to 130	11.3 to 13.2	81.2 to 95.8	150 to 178	15.3 to 18.1	111 to 131
9/16	150 to 178	15.3 to 18.1	111 to 131	217 to 260	22.2 to 26.5	160 to 191
5/8	204 to 244	20.8 to 24.8	151 to 179	299 to 357	30.5 to 36.4	221 to 263

4. Plugs and grease fittings

Shape	Size	Material of opponent part					
		Ordinariness			Aluminum		
		N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
Tapered screw 	R1/8	13 to 21	1.3 to 2.2	9.4 to 15	13 to 19	1.3 to 2.0	9.4 to 14
	R1/4	25 to 44	2.5 to 4.5	18 to 32	25 to 34	2.5 to 3.5	18 to 25
	R3/8	49 to 88	5.0 to 9.0	37 to 65	49 to 58	5.0 to 6.0	37 to 43
	R1/2	58.9 to 107	6.00 to 11.0	43.4 to 79.5	59 to 78	6.0 to 8.0	44 to 57
Straight screw 	G1/4	25 to 34	2.5 to 3.5	18 to 25	—	—	—
	G3/8	62 to 82	6.3 to 8.4	46 to 60	—	—	—
	G1/2	49 to 88	5.0 to 9.0	37 to 65	—	—	—