

WSM

WORKSHOP MANUAL
FRONT LOADER

LA513,LA723,LA853

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 LA513, LA723 and LA853. It is divided into two parts, "Mechanism" and "Servicing" for each section.

■ Mechanism

Information on the construction and function are include. This part should be understood before proceeding with troubleshooting, disassembling and servicing.

■ Servicing

Under the heading "General" section comes general precautions, check and maintenance and special tools. Other section, there are troubleshooting, servicing specification lists, checking and adjusting, disassembling and 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 production information available at the time of publication.

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

September 2002

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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.



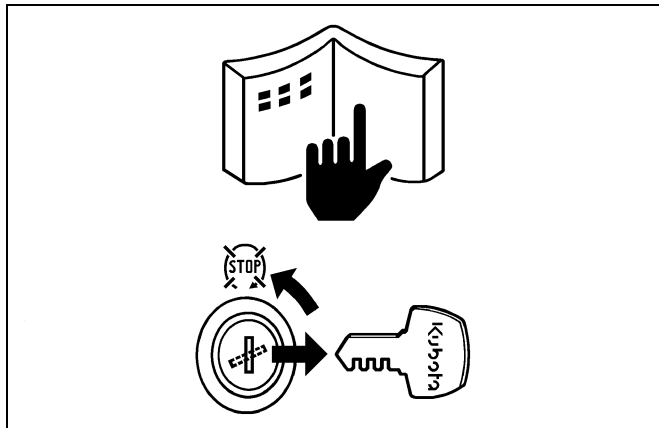
IMPORTANT

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



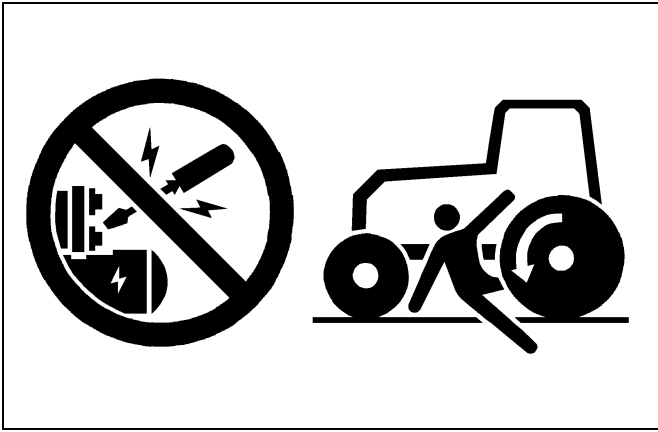
NOTE

: Gives helpful information.



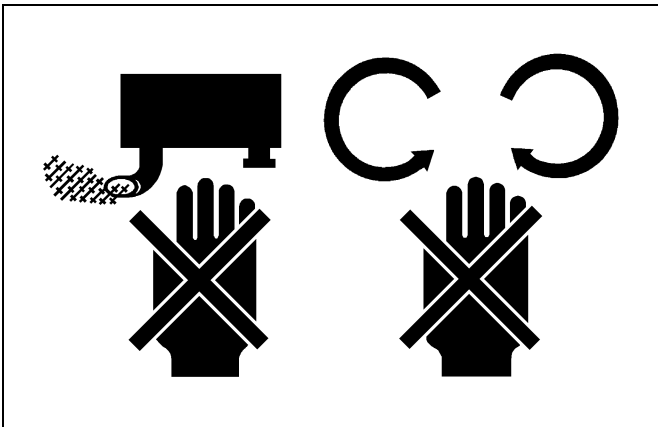
BEFORE SERVICING AND REPAIRING

- 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.



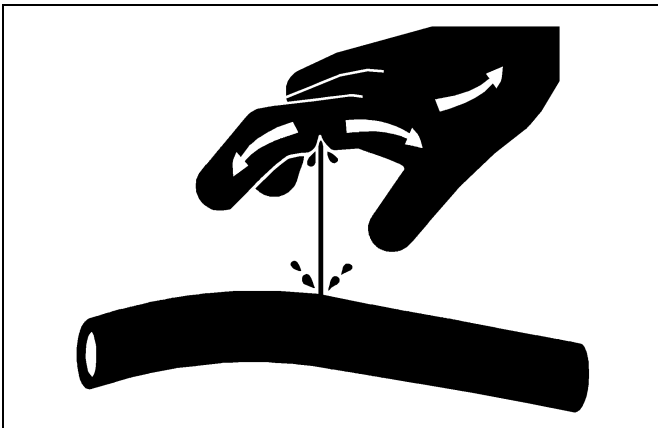
SAFETY STARTING

- 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.



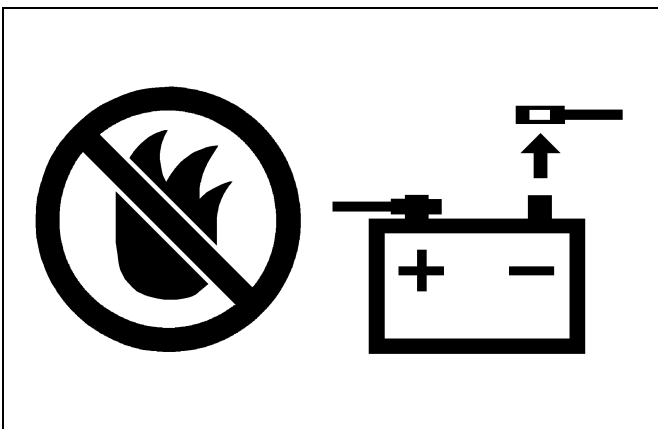
SAFETY WORKING

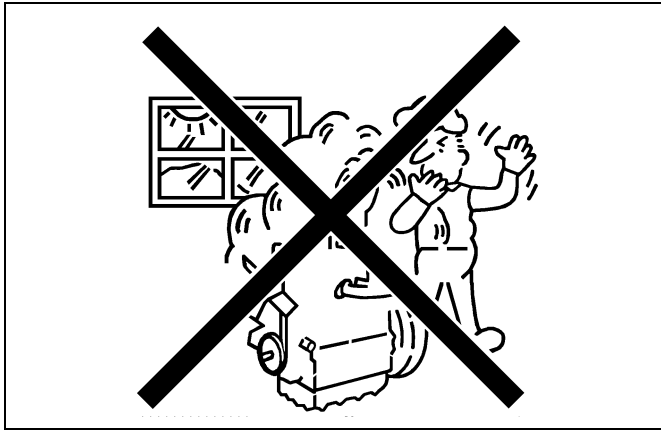
- Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
- Wear close fitting clothing and safety equipment appropriate to the job.
- Use tools appropriate to the work. Markshift tools, parts, and procedures are not recommended.
- When servicing 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

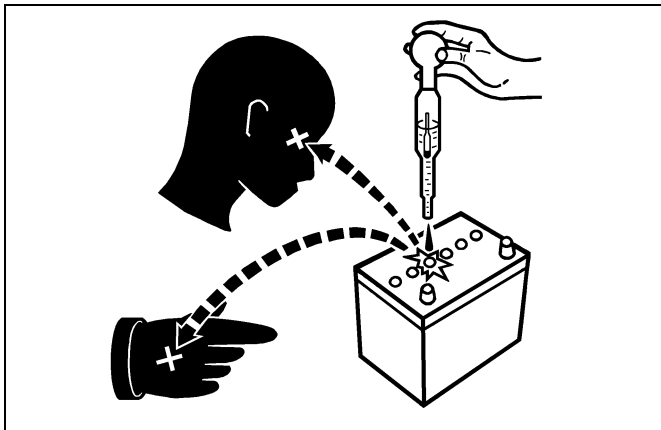
- Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
- To avoid sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- Battery gas can explode. Keep sparks and open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





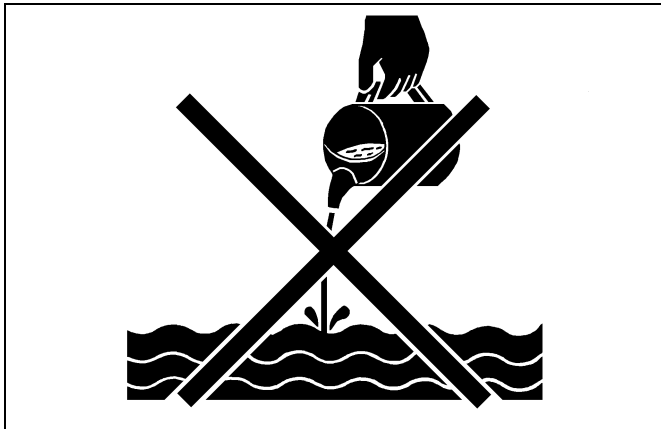
VENTILATE WORK AREA

- 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.



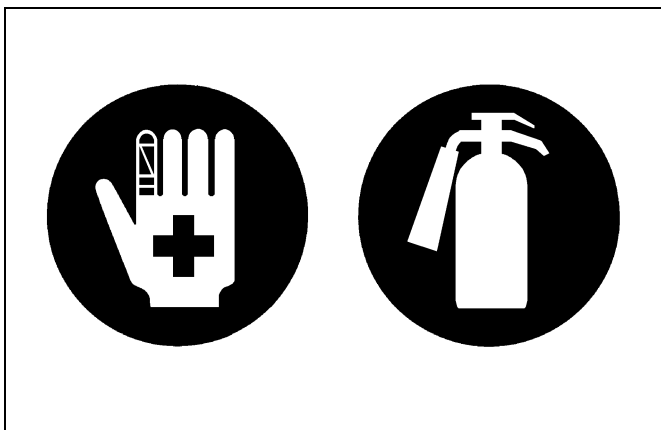
PREVENT ACID BURNS

- 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

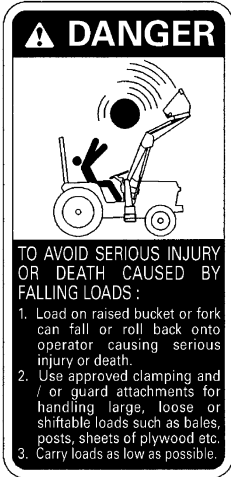
- Keep a first aid kit and fire extinguisher handy at all times.
- Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

SAFETY DECALS

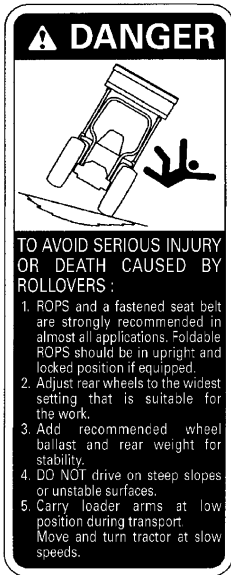
The following safety decals are installed on the machine.

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



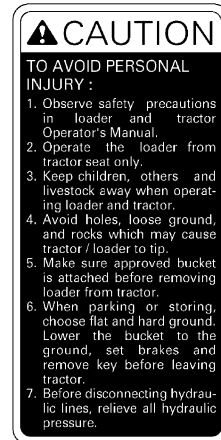
(2) Part No. 7J246-5641-1



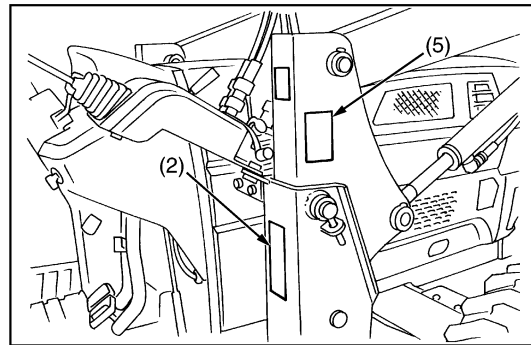
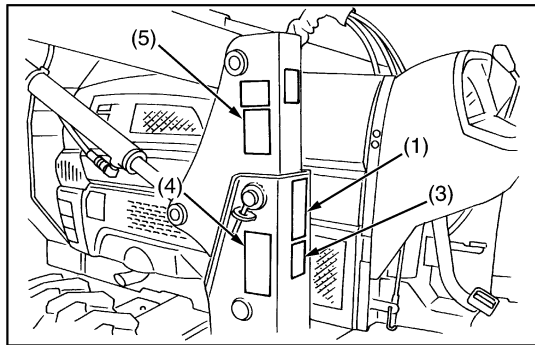
(3) Part No. 7J246-5642-1



(4) Part No. 7J246-5645-1



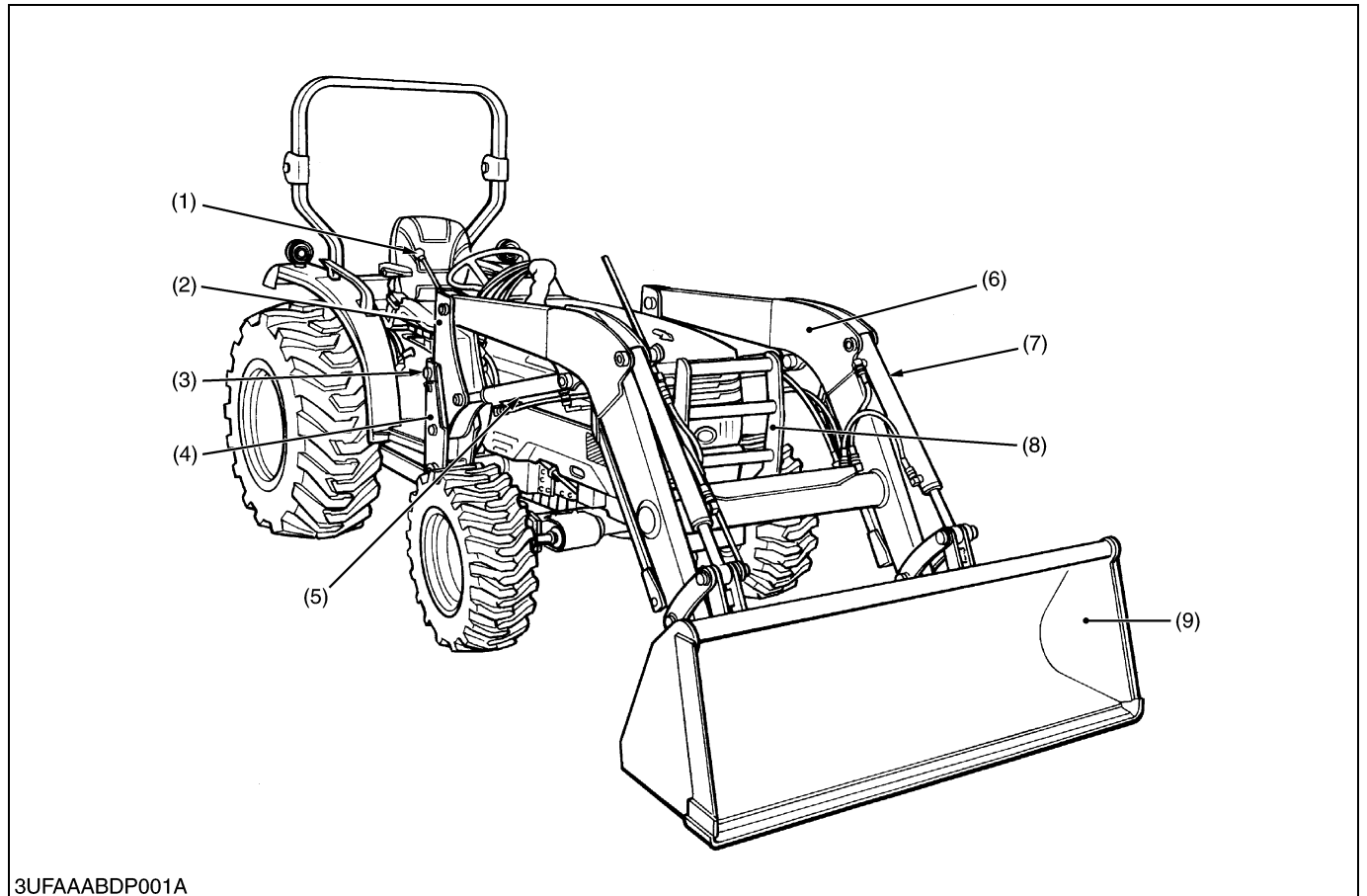
(5) Part No. 7J246-5644-2 (Both sides)



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.

LOADER TERMINOLOGY



(1) Loader Control Lever
(2) Side Frame
(3) Mounting Pin

(4) Main Frame
(5) Boom Cylinder

(6) Boom
(7) Bucket Cylinder

(8) Front Guard
(9) Bucket

SPECIFICATIONS

■ Suitable Tractor

Loader Model	LA513	LA723	LA853
Tractor Model	L3130, L3430	L3130, L3430, L3830	L4330, L4630, L5030

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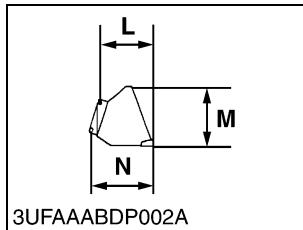
[1] LOADER SPECIFICATIONS

Loader Model		LA513	LA723	LA853
Tractor Model		L3430	L3830	L5030
Wheel Base		1805 mm (71.1 in.)	1805 to 1840 mm (71.1 to 72.4 in.)	1895 to 1915 mm (74.6 to 75.4 in.)
Front Tires		7.2-16	8.3-16	9.5-16
Rear Tires		12.4-24	12.4-24 or 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	3 position bucket control type	One Detent Float Position, Power Beyond Circuit		
	3 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.GPM 6.9 Imp.GPM		37.0 L/min. 9.8 U.S.GPM 8.1 Imp.GPM
Maximum Pressure		18.1 MPa 185 kgf/cm ² 2630 psi		
Net Weight (Approximate)		390 kg (860 lbs)	480 kg (1058 lbs)	525 kg (1157 lbs)

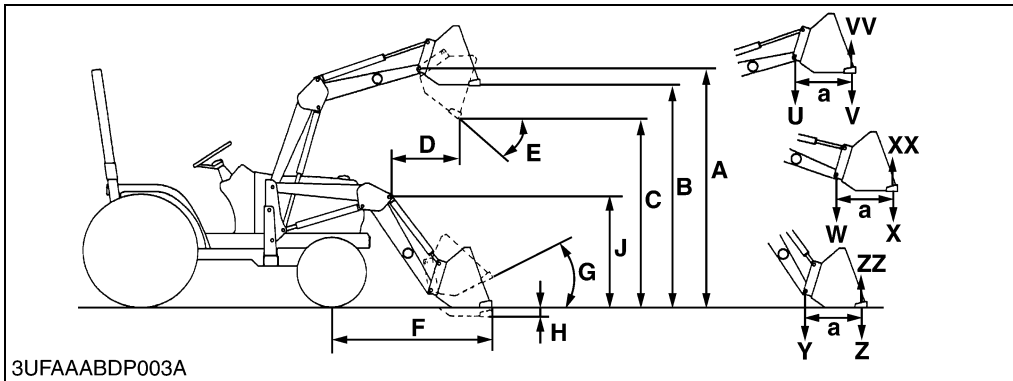
[2] BUCKET SPECIFICATIONS

Loader Model		LA513	LA723	LA853
Bucket Model		Square 66	Square 72	Square 72
Width		1675 mm (66 in.)	1830 mm (72 in.)	1830 mm (72 in.)
Depth (L)		458 mm (18 in.)	509 mm (20 in.)	547 mm (21.5 in.)
Height (M)		562 mm (22.1 in.)	562 mm (22.1 in.)	570 mm (22.4 in.)
Length (N)		502 mm (19.8 in.)	591 mm (23.3 in.)	652 mm (25.7 in.)
Capacity	Struck	0.23 m ³ (8.1 cu.ft)	0.25 m ³ (8.8 cu.ft)	0.31 m ³ (10.9 cu.ft)
	Heaped	0.28 m ³ (9.9 cu.ft)	0.31 m ³ (10.9 cu.ft)	0.37 m ³ (13.1 cu.ft)
Weight		112 kg (247 lbs)	133 kg (293 lbs)	146 kg (322 lbs)

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[3] DIMENSIONAL AND OPERATIONAL SPECIFICATIONS



a : 500 mm (19.7 in.)

■ Dimensional Specifications

Loader Model		LA513	LA723	LA853
Tractor Model		L3130, L3430	L3830	L5030
(A)	Maximum lift height	2450 mm (96.5 in.)	2600 mm (102.4 in.)	2885 mm (113.6 in.)
(B)	Maximum lift height under level bucket	2280 mm (89.8 in.)	2400 mm (94.5 in.)	2685 mm (105.7 in.)
(C)	Clearance with bucket dumped	1995 mm (78.5 in.)	2040 mm (80.3 in.)	2280 mm (89.8 in.)
(D)	Reach at maximum lift height	525 mm (20.7 in.)	530 mm (20.9 in.)	510 mm (20.1 in.)
(E)	Maximum dump angle	40 deg.	45 deg.	45 deg.
(F)	Reach with bucket on ground	1570 mm (61.8 in.)	1750 mm (68.9 in.)	1905 mm (75 in.)
(G)	Bucket roll-back angle	30 deg.	40 deg.	40 deg.
(H)	Digging depth	125 mm (4.9 in.)	125 mm (4.9 in.)	170 mm (6.7 in.)
(J)	Overall height in carry position	1335 mm (52.6 in.)	1385 mm (54.5 in.)	1450 mm (57.1 in.)

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■ Operational Specifications

Loader Model		LA513	LA723	LA853
Tractor Model		L3130, L3430	L3830	L5030
Lift capacity to maximum height (Bucket bottom mid point)		510 kg (1124 lbs)	720 kg (1587 lbs)	850 kg (1874 lbs)
(U)	Lift capacity to maximum height at pivot pin	610 kg (1345 lbs)	848 kg (1870 lbs)	1077 kg (2374 lbs)
(V)	Lift capacity to maximum height	455 kg (1003 lbs)	635 kg (1400 lbs)	800 kg (1764 lbs)
(W)	Lift capacity to 1.5 m (59 in.) height at pivot pin	800 kg (1764 lbs)	1051 kg (2317 lbs)	1345 kg (2965 lbs)
(X)	Lift capacity to 1.5 m (59 in.) height	630 kg (1389 lbs)	840 kg (1852 lbs)	1086 kg (2394 lbs)
(Y)	Breakout force at pivot pin	12640 N (2845 lbs)	14995 N (3375 lbs)	17840 N (4015 lbs)
(Z)	Breakout force	9600 N (2160 lbs)	11575 N (2605 lbs)	13880 N (3125 lbs)
(VV)	Bucket roll-back force at Maximum height	10650 N (2395 lbs)	10330 N (2325 lbs)	10910 N (2455 lbs)
(XX)	Bucket roll-back force at 1.5 m (59 in.) lift height	13780 N (3100 lbs)	15520 N (3490 lbs)	18640 N (4190 lbs)
(ZZ)	Bucket roll-back force at ground line	11880 N (2670 lbs)	16090 N (3620 lbs)	19750 N (4440 lbs)
Raising time		2.7 sec.	3.3 sec.	4.1 sec.
Lowering time		2.2 sec.	2.2 sec.	3.1 sec.
Bucket dumping time		1.3 sec.	1.3 sec.	1.6 sec.
Bucket roll-back time		1.6 sec.	2.1 sec.	2.2 sec.

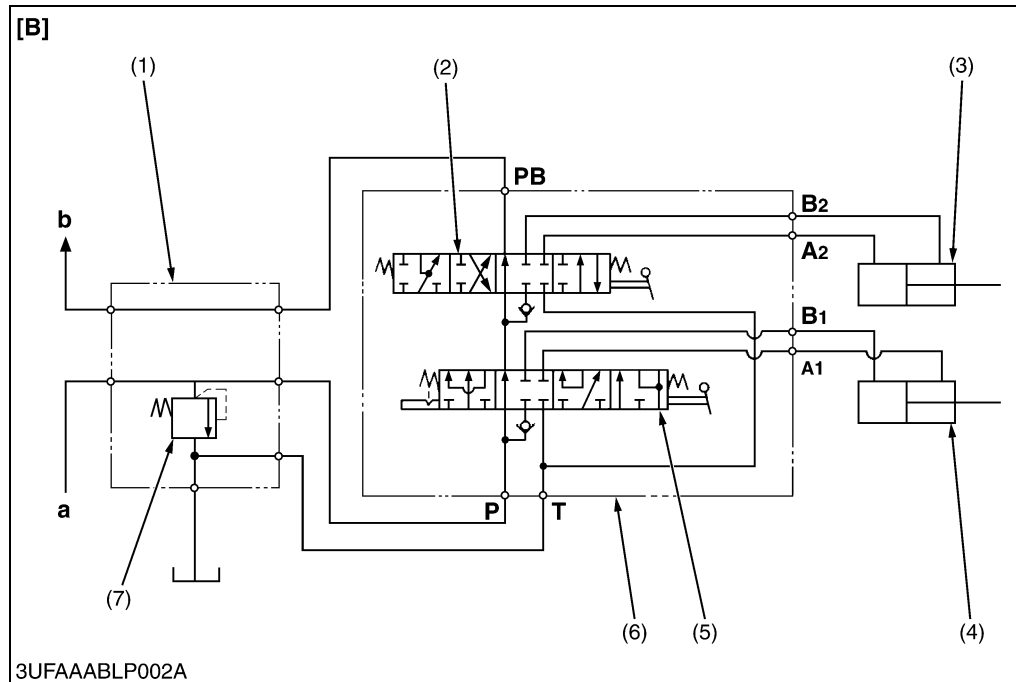
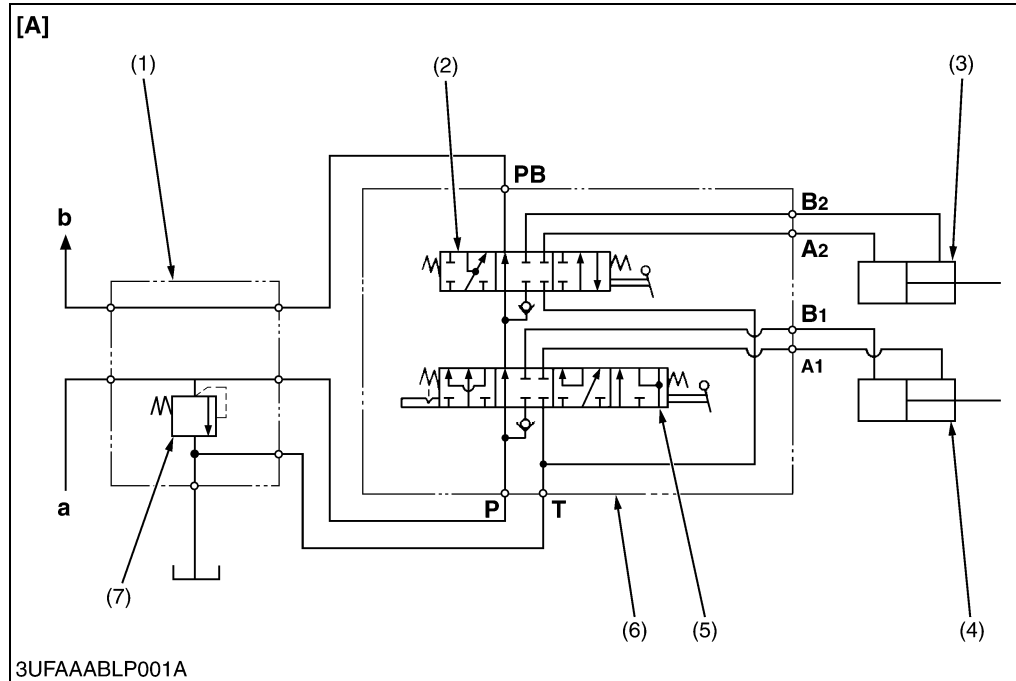
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MECHANISM

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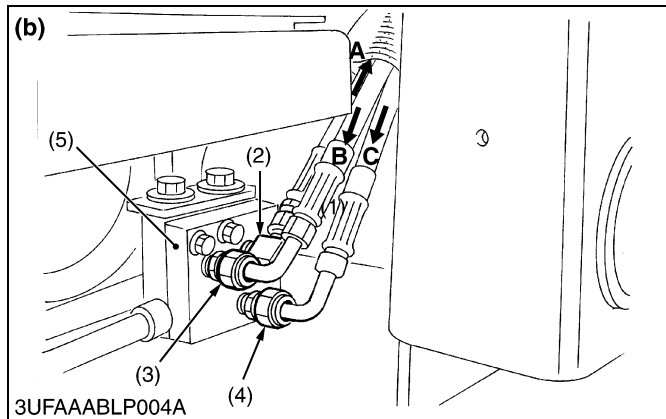
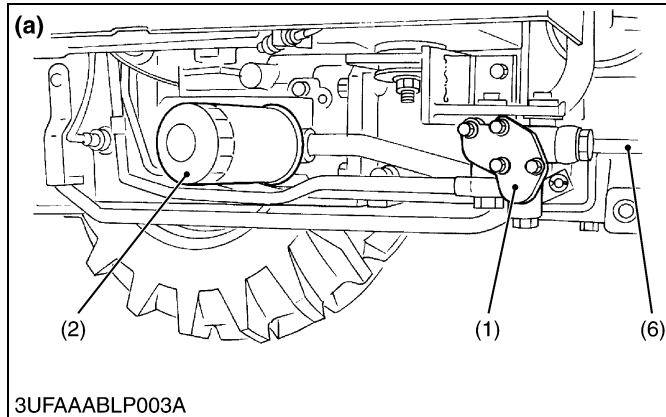
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1. HYDRAULIC CIRCUIT



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2. HYDRAULIC BLOCK



A filtered oil is forced out by the hydraulic pump to the hydraulic block (5) through the delivery pipe (6).

The hydraulic block has a relief valve.

(a) When Front Loader is not Attached

1. An oil from the hydraulic pump is delivered into the hydraulic block cover (1).

(b) When Front Loader is Attached

1. An oil from the hydraulic pump is delivered into the **P** port of hydraulic block (5) through the pump port (2).
2. An oil returning from the **PB** (power beyond) port of loader control valve is delivered into the three point hydraulic system through the power beyond port (3) of the hydraulic block (5).
3. An oil returning from the **T** (tank) port of the loader control valve is delivered into the transmission case through the tank port (4).

- (1) Hydraulic Block Cover
- (2) Pump Port
- (3) Power Beyond Port
- (4) Tank Port
- (5) Hydraulic Block
- (6) Delivery Pipe

A : To Front Loader (P Port)

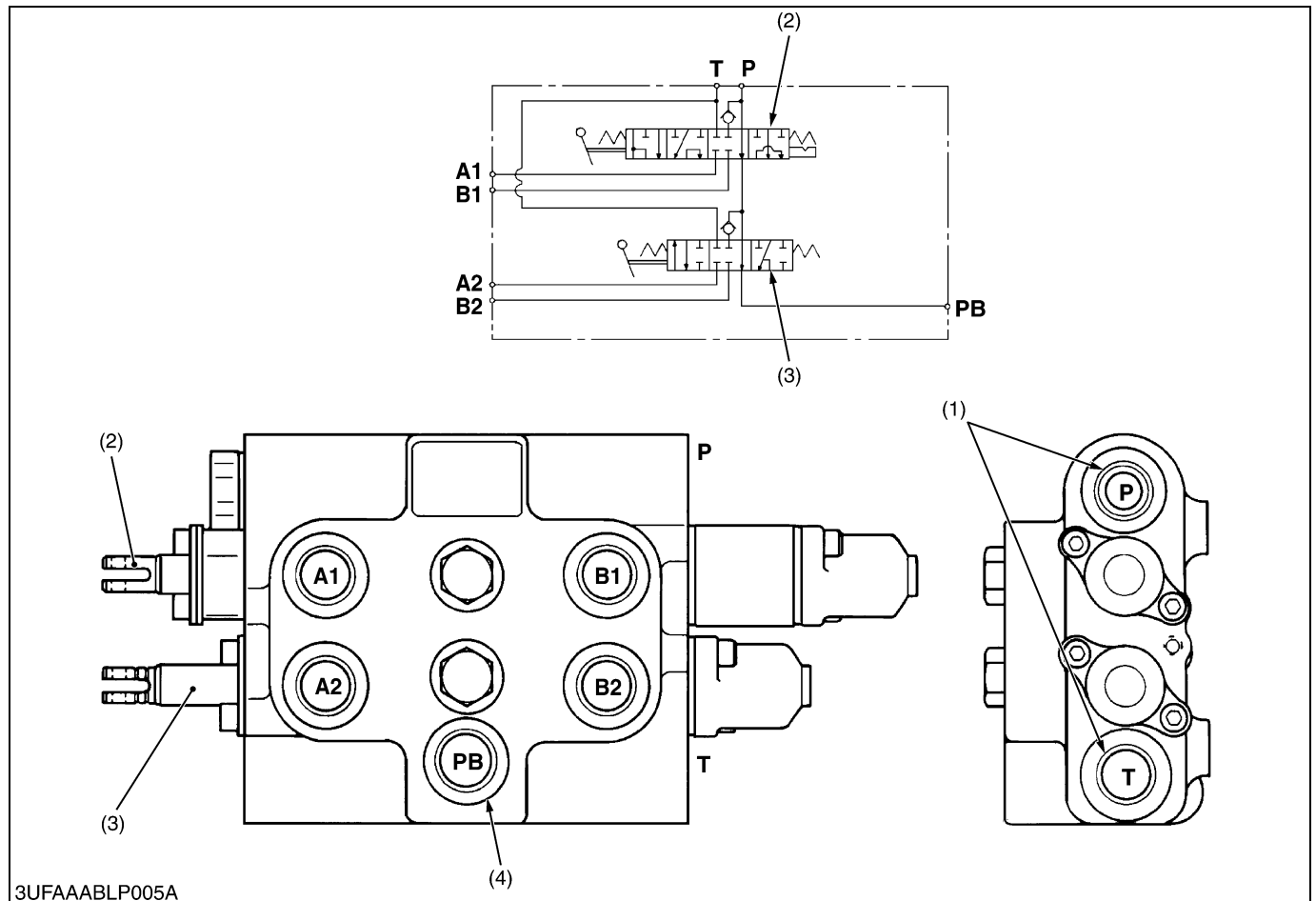
B : From Front Loader (PB Port)

C : From Front Loader (T Port)

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3. CONTROL VALVE ASSEMBLY

[1] 3 POSITION BUCKET CONTROL TYPE



3UFAAABLP005A

- (1) Inlet and Outlet Section
- (2) Boom Control Valve
- (3) Bucket Control Valve
- (4) Power Beyond

P : P Port
T : T Port

A1 : A1 Port
A2 : A2 Port

B1 : B1 Port
B2 : B2 Port
PB : PB Port

The control valve assembly is composed of one casting block and four major section as shown above.

(1) Inlet and Outlet Section

This section has **P** and **T** ports.

The **P** port is connected to the **OUTLET** port of hydraulic block by the hydraulic hose.

The **T** port is connected to the **TANK** port of hydraulic block by the hydraulic hose.

(2) Boom Control Section

The boom control valve is of 4-position, 6-connection, detent, spring center type, consisting of a mono block valve housing, spool, load check valve, etc. This valve has **A1** and **B1** ports and controls oil flow to the boom cylinder.

(3) Bucket Control Section

The bucket control valve is of 3-position, 6-connection, no detent, spring center type, consisting of a mono block valve housing, spool, load check valve, etc. This valve has **A2** and **B2** ports and controls oil flow to the bucket cylinder.

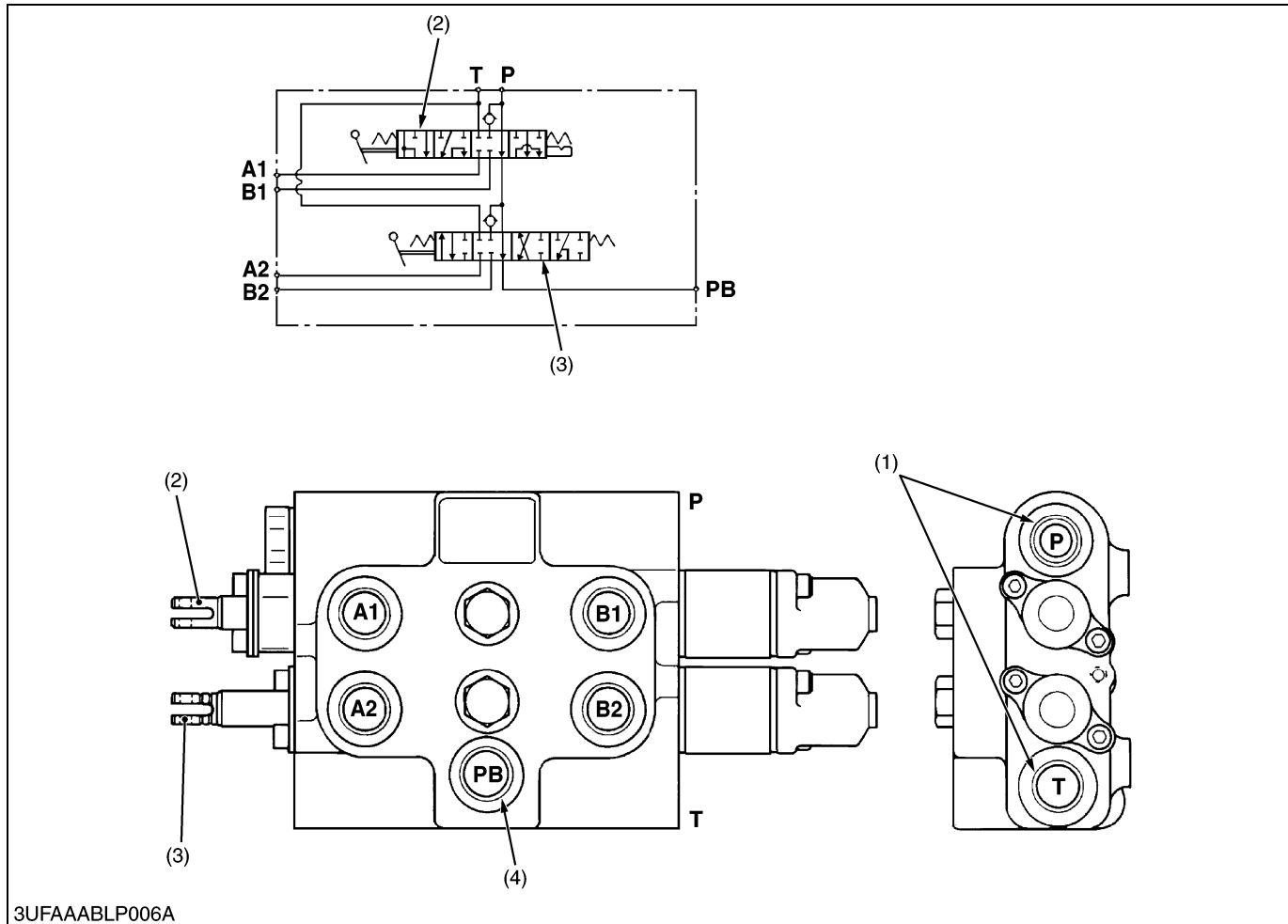
(4) Power Beyond

This section has **PB** port which is connected to the **INLET** port of hydraulic block by the hydraulic hose, and feeds oil to the three point hydraulic control valve.

■ NOTE

- Regarding control valve operation, refer to page F-M3 of **FRONT LOADER MECHANISM Workshop Manual**.

[2] 4 POSITION BUCKET CONTROL TYPE



- (1) Inlet and Outlet Section
 (2) Boom Control Valve
 (3) Bucket Control Valve
 (4) Power Beyond

P : P Port
T : T Port

A1 : A1 Port
A2 : A2 Port

B1 : B1 Port
B2 : B2 Port
PB : PB Port

The control valve assembly is composed of one casting block and four major section as shown above.

(1) Inlet and Outlet Section

This section has **P** and **T** ports.

The **P** port is connected to the **OUTLET** port of hydraulic block by the hydraulic hose.

The **T** port is connected to the **TANK** port of hydraulic block by the hydraulic hose.

(2) Boom Control Section

The boom control valve is of 4-position, 6-connection, detent, spring center type, consisting of a mono block valve housing, spool, load check valve, etc. This valve has **A1** and **B1** ports and controls oil flow to the boom cylinder.

(3) Bucket Control Section

The bucket control valve is of 4-position, 6-connection, no detent, spring center type, consisting of a mono block valve housing, spool, load check valve, etc. This valve has **A2** and **B2** ports and controls oil flow to the bucket cylinder.

(4) Power Beyond

This section has **PB** port which is connected to the **INLET** port of hydraulic block by the hydraulic hose, and feeds oil to the three point hydraulic control valve.

■ NOTE

- Regarding control valve operation, refer to page F-M5, F-M10, F-M12 and F-M13 of **FRONT LOADER MECHANISM Workshop Manual**.

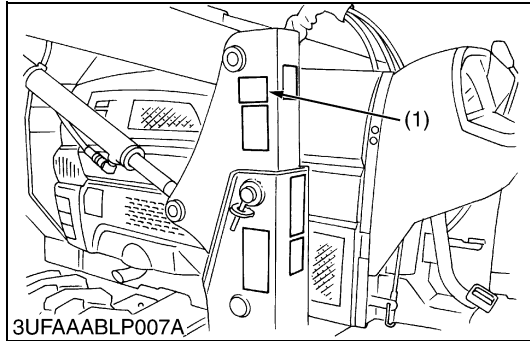
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1. GENERAL

[1] IDENTIFICATION

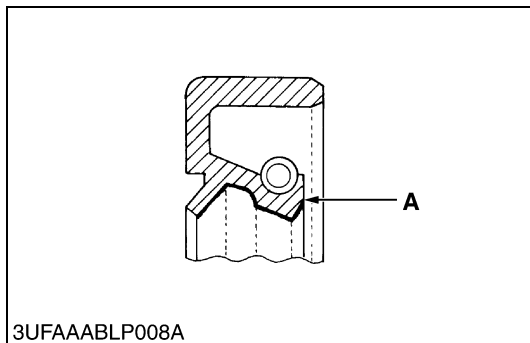


When contacting your local KUBOTA distributor, always specify front loader model and serial number.

(1) Model / Serial Number

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[2] GENERAL PRECAUTION



- 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 loader performance and to assure safety.
- O-ring and oil seals must be replaced during reassembly. Apply grease to new O-rings or oil seals before reassembling.

A : Grease

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[3] LUBRICANTS

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

Place	Capacities			Lubricants
	L3130, L3430	L3830, L4330, L4630	L5030	
Transmission Case (Front loader is not attached)	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 *1
Grease fitting	Until grease overflows			Multi-purpose type grease

■ NOTE

- *1 KUBOTA UDT or SUPER UDT Fluid.....KUBOTA original transmission hydraulic fluid

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[4] 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.

Service Interval	Check Points	Reference Page
Daily (Each use)	<ul style="list-style-type: none"> • Check the transmission fluid level • Check the hydraulic hoses 	S-2 S-2
Every 10 hours	<ul style="list-style-type: none"> • Grease all grease fitting • Lubricate joints of control lever linkage 	S-2 S-2

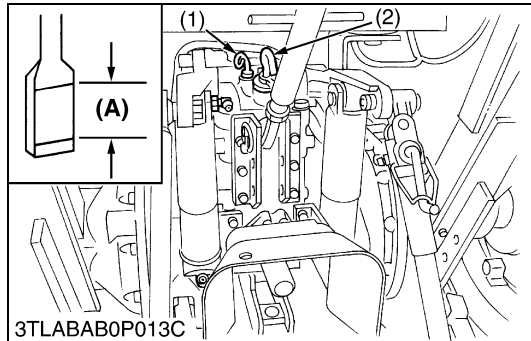
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[5] CHECK AND MAINTENANCE

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.

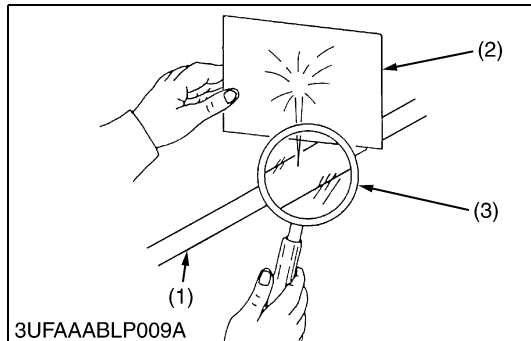
(1) Check Points of Each Use or Daily



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.
- (1) Gauge (A) Oil level is acceptable within this range.
 (2) Oil Filling Plug

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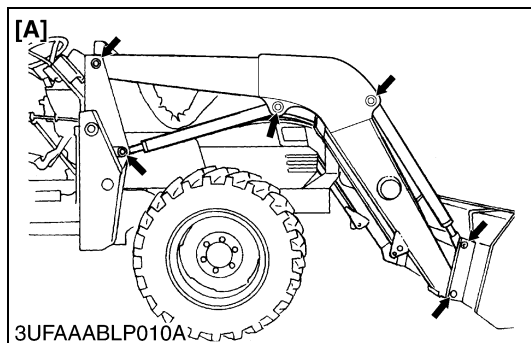


Checking Hydraulic Hoses

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 (3) Magnifying Glass
 (2) Cardboard

W1011064

(2) Check Points of Every 10 Hours



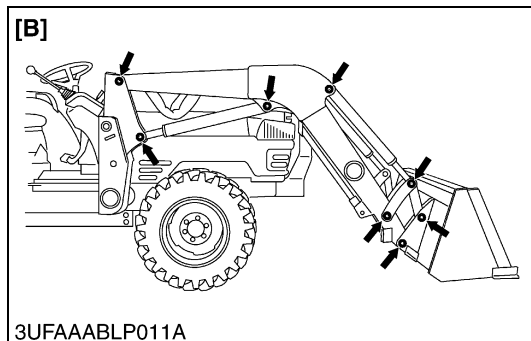
Greasing

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

[A] LA513

[B] LA723, LA853

W1011132



Lubricating

1. Lubricate joints of control lever linkage.

W1011274

2. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
Boom Does Not Rise	<ul style="list-style-type: none"> • Control valve malfunctioning • Boom cylinder defective • Control lever linkage defective • Hydraulic pump malfunctioning • Oil filter clogged • Relief valve spring damaged • Hydraulic hose damaged • Relief valve dirty or stuck 	Repair or replace Repair or replace Repair or replace Repair or replace Clean or replace Replace Replace Clean	S-12,13,14 S-17 S-11,12,15 – – – – –
Boom Does Not Lower	<ul style="list-style-type: none"> • Control valve malfunctioning • Control lever linkage defective 	Repair or replace Repair or replace	S-12,13,14 S-11,12,15
Insufficient Boom Speed	<ul style="list-style-type: none"> • Boom cylinder tube worn or damaged • Boom cylinder piston ring (piston seal and O-ring) worn or damaged • Oil leaks from tube joints • Relief valve setting pressure too low • Insufficient transmission fluid • Dirty relief valve 	Replace Replace Repair Adjust Refill Clean	S-18 S-18 – – S-2 –
Bucket Does Not Move	<ul style="list-style-type: none"> • Control valve malfunctioning • Bucket cylinder defective • Control lever linkage defective • Hydraulic pump malfunctioning • Oil filter clogged • Relief valve spring damaged • Hydraulic hose damaged • Dirty relief valve 	Repair or replace Repair or replace Repair or replace Repair or replace Clean or replace Replace Replace Clean	S-12,13,14 S-16 S-11,12,15 – – – – –
Insufficient Bucket Speed	<ul style="list-style-type: none"> • Bucket cylinder tube worn or damaged • Bucket cylinder piston ring (piston seal and O-ring) worn or damaged • Oil leaks from tube joints • Relief valve setting pressure too low • Insufficient transmission fluid • Dirty relief valve 	Replace Replace Repair Adjust Refill Clean	S-17 S-18 – – S-2 –
Front End Loader Drops by Its Weight	<ul style="list-style-type: none"> • Boom cylinder tube worn or damaged • Boom cylinder piston ring (piston seal and O-ring) worn or damaged • Oil leaks from tube joints • Control valve malfunctioning 	Replace Replace Repair Repair or replace	S-18 S-18 – S-12,13,14

W1014322

3. SERVICING SPECIFICATIONS

Item		Factory Specification	Allowable Limit
Relief Valve Condition <ul style="list-style-type: none"> • Engine Speed..... Approx. 2700 min⁻¹ (rpm) (Except L4330) Approx. 2600 min⁻¹ (rpm) (L4330) • Oil Temperature..... 40 to 60 °C 104 to 140 °F 	Setting Pressure	(L3130, L3430, L3830) 17.1 to 18.1 MPa 174.4 to 184.6 kgf/cm ² 2480 to 2625 psi (L4330, L4630, L5030) 18.1 to 19.1 MPa 184.6 to 194.8 kgf/cm ² 2625 to 2770 psi	–
Piston Rod	Bend	–	0.25 mm 0.0098 in.

W1013874

4. TIGHTENING TORQUES

[1] GENERAL USE SCREWS, BOLTS AND NUTS

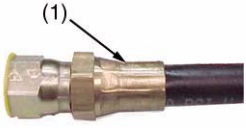
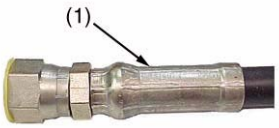
Screws, bolts and nuts whose tightening torques are not specified in this Workshop Manual should be tightened according to the table below.

American standard cap screws with UNC or UNF Threads				Metric cap screws					
Grade		SAE 5 or 8			Grade		Property class 8.8 (Approx. SAE grade 5)		
Size	Unit	N-m	kgf-m	ft-lbs	Size	Unit	N-m	kgf-m	ft-lbs
1/4		9.8 to 11.7	1.0 to 1.2	7.2 to 8.6	M6		9.8 to 11.2	1.0 to 1.1	7.2 to 8.3
5/16		19.0 to 23.1	1.9 to 2.4	14 to 17	M8		23.6 to 27.4	2.4 to 2.8	17.4 to 20.2
3/8		33.9 to 40.7	3.5 to 4.2	25 to 30	M10		48.1 to 55.8	4.9 to 5.7	35.5 to 41.2
1/2		88.1 to 105.8	9.0 to 10.8	65 to 78	M12		77.5 to 90.1	7.9 to 9.2	57.2 to 66.5
9/16		122.0 to 146.4	12.4 to 14.9	90 to 108	M14		124 to 147	12.6 to 15.0	91.2 to 108
5/8		176.3 to 211.5	18.0 to 21.6	130 to 156	M16		196 to 225	20.0 to 23.0	145 to 166

W1012507

[2] HYDRAULIC FITTINGS

(1) Distinguishing brass fitting and steel fitting

Material of caulking	Brass	Steel
Reference picture	 <p>3UFAAABLP014A</p>	 <p>3UFAAABLP042A</p>
Length of the caulking	Short	Long
Color of Caulking	Brass gold	Yellow zinc plating

(1) Crimp

■ **NOTE**

- The straight type fitting has both brass and steel.
- The elbow type fitting is only made of steel.

W1026862

(2) Hose fitting and flare nut

Thread Size	Tightening torque	
	Brass	Steel
9/16 - 18	16.3 to 17.6 N·m 1.7 to 1.8 kgf·m 12 to 13 ft-lbs	24.3 to 27.0 N·m 2.5 to 2.8 kgf·m 18 to 20 ft-lbs
3/4 - 16	31.2 to 33.9 N·m 3.2 to 3.5 kgf·m 23 to 25 ft-lbs	48.6 to 52.7 N·m 5.0 to 5.4 kgf·m 36 to 39 ft-lbs
7/8 - 14	50.2 to 55.6 N·m 5.1 to 5.7 kgf·m 37 to 41 ft-lbs	77.0 to 85.1 N·m 7.9 to 8.7 kgf·m 57 to 63 ft-lbs

W1026933

(3) Adjustable elbow and adaptor

Thread size	Tightening torque		
	N·m	kgf·m	ft-lbs
9/16	37 to 44	3.7 to 4.6	27 to 33
3/4	47 to 54	4.8 to 5.5	35 to 40

W1013389

(4) Adapter (NPT)

Thread size	Tightening torque		
	N·m	kgf·m	ft-lbs
3/8	39 to 44	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.

W1027438

[3] SPECIAL USE SCREWS, BOLTS AND NUTS

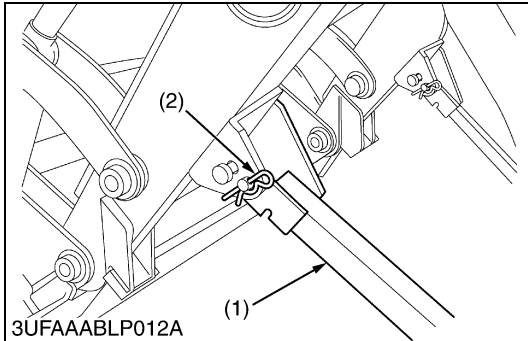
Item	N·m	kgf·m	ft-lbs
Control valve mounting bolt and nut	12.3 to 13.6	1.2 to 1.4	9 to 10
Adapter and elbow	47.5 to 54.2	4.8 to 5.5	35 to 40
Nipple	21.7 to 24.4	2.2 to 2.5	16 to 18
Boom and Bucket cylinder piston mounting nut M16	196 to 225	20.0 to 23.0	145 to 166
Cable control lock nut M16	20.0 to 23.0	1.9 to 2.4	14 to 17
(Standard valve type)			
Control valve cover mounting screw M6 × 1.00-16	9.7 to 11.2	1.0 to 1.1	7.2 to 8.3
Control valve stay mounting bolt and nut M12 × 30	94.9	9.7	70
(Remote valve type)			
Controller stay mounting bolt and nut M8 × 25	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2
(LA513)			
Main frame mounting screw, bolt and nut M16 × 40	196 to 225	20.0 to 23.0	145 to 166
Sub frame mounting screw, bolt and nut M16 × 50	225	23	166
Front guard mounting bolt and nut M14 × 1.5-40	124 to 147	12.6 to 15.0	91.2 to 108
(LA723)			
Main frame mounting screw, bolt and nut M16 × 45	196 to 225	20.0 to 23.0	145 to 166
Sub frame mounting screw, bolt and nut M16 × 55	225	23	166
Front guard mounting bolt and nut M14 × 1.5-40	124 to 147	12.6 to 15.0	91.2 to 108
(LA853)			
Main frame mounting screw, bolt and nut M16 × 45	196 to 225	20.0 to 23.0	145 to 166
Sub frame mounting screw, bolt and nut M16 × 55	225	23	166
Front guard mounting bolt and nut M14 × 1.5-40	124 to 147	12.6 to 15.0	91.2 to 108

W1012736

5. 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 (1) can be rotated.
3. Stop the engine.
4. Remove the snap pins (2) holding the stands (1) to the boom.
5. Rotate the stands until the pin on the stand and hole in the boom are aligned. Then slide the stands (1) outward and insert the spring pin (2) 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

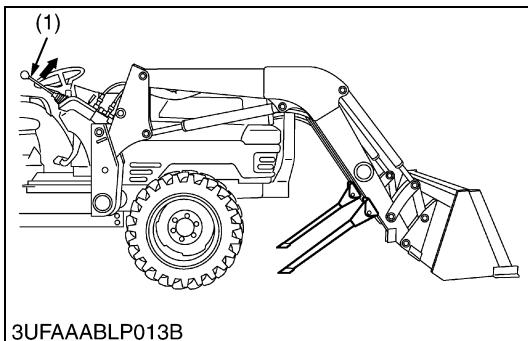
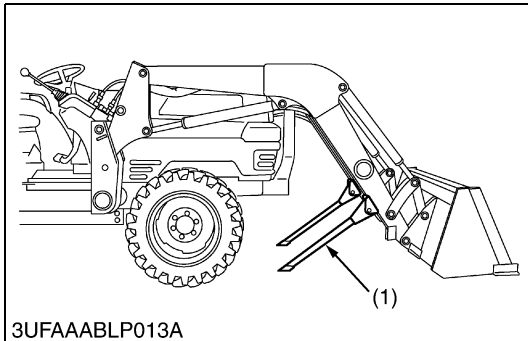
- Lift the front wheels with the bucket. Do not attempt to lift them with the stands.

9. Stop the engine.

(1) Stand

(2) Spring Pin

W1014212

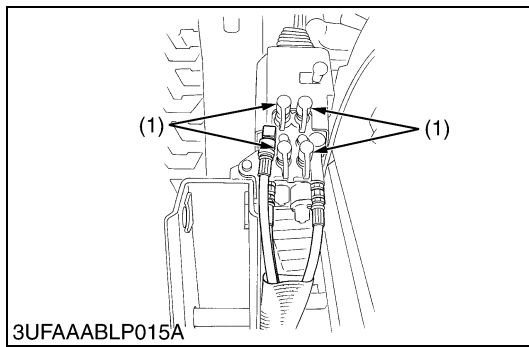


Side Frame

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

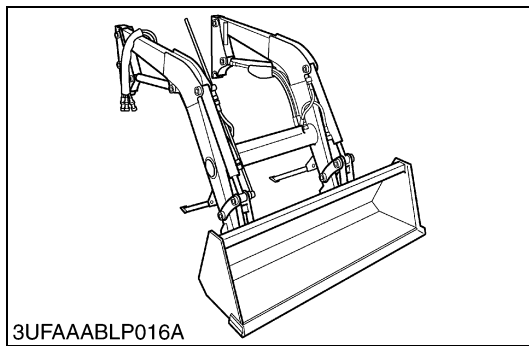


Hoses

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



6. CHECKING, DISASSEMBLING AND SERVICING

[1] CONTROL VALVE

(1) Checking and Adjusting

Relief Valve Setting Pressure

■ **NOTE**

- The relief valve is installed on these models. However the relief valve of the tractor hydraulic system is used as the relief valve of the front loader. Refer to the applicable tractor Workshop manual for details.

Relief valve setting pressure	Factory spec.	L3130	17.1 to 18.1 MPa
		L3430	174.4 to 184.6 kgf/cm ²
		L3830	2480 to 2625 psi
		L4330	18.1 to 19.1 MPa
		L4630	184.6 to 194.8 kgf/cm ²
		L5030	2625 to 2770 psi

Condition

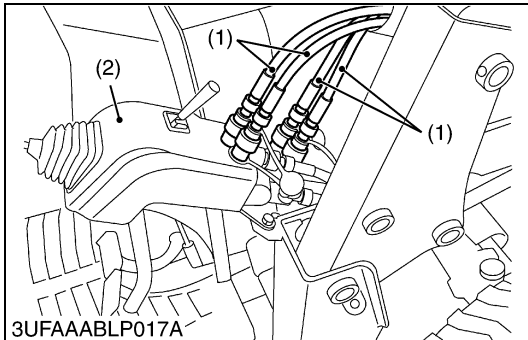
- Engine speed..... Approx. 2700min⁻¹ (rpm) (Except L4330)
Approx. 2600min⁻¹ (rpm) (L4330)
- Oil temperature..... 40 to 60 °C
104 to 140 °F

W1014688

(2) Disassembling and Assembling

(A) Separating Control Valve Assembly

■ **Standard Valve Type**



Hydraulic Hose and Control Valve Cover

1. Disconnect the hydraulic hoses (1) from the control valve.
2. Remove the control valve cover (2).

(When reassembling)

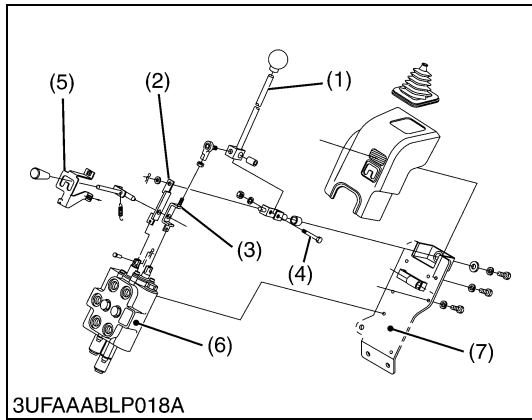
3. Assemble the control valve cover (2) to the control valve.
4. Connect the hydraulic hoses (1) to the control valve.

Tightening torque	Control valve cover mounting bolt	9.7 to 11.2 N·m 1.0 to 1.1 kgf·m 7.2 to 8.3 ft·lbs
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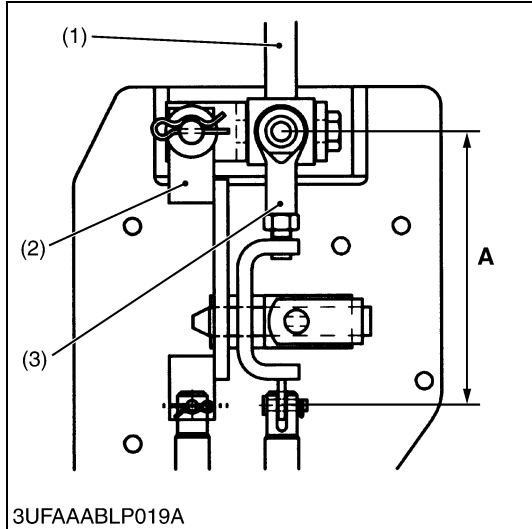
(1) Hydraulic Hose

(2) Valve Cover

W1014958



3UF8AABLP018A



3UF8AABLP019A

Control Lever and Control Valve

1. Disconnect the spool plate (2) and rod 1 (3) from the control valve spools.
2. Remove the clevis pin (4) and remove the control lever (1).
3. Remove the control valve (6) from the valve stay (7).

(When reassembling)

- The length **A** of the rod 1 (3) should be 115.3 to 116.3 mm (4.54 to 4.58 in.).

Tightening torque	Control valve mounting bolt	12.2 to 13.6 N·m 1.2 to 1.4 kgf·m 9 to 10 ft·lbs
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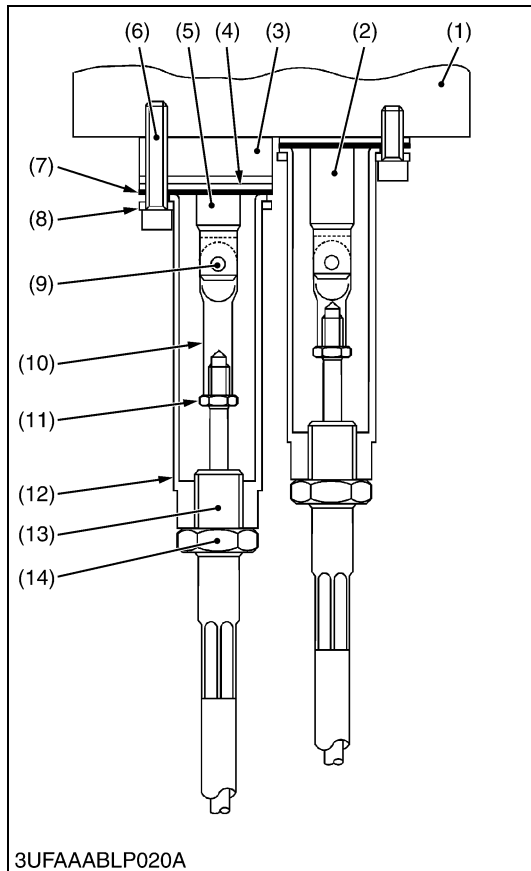
- (1) Control Lever
- (2) Spool Plate
- (3) Rod 1
- (4) Clevis Pin

- (5) Lever guide
- (6) Control Valve
- (7) Valve Stay

A : 115.3 to 116.3 mm (4.54 to 4.58 in.)

W1015045

■ Remote Valve Type



3UFAAABLP020A

Control Cable

1. Remove the screws (6) and slide the flange (8).
2. Loosen the lock nut (14) and screw it over the threaded hub (13).
3. Screw the sleeves (12) completely over the threaded hub (13).
4. Remove the clevis pin (9) to disconnect the cable end (10) and the spool (for boom control) (5).
5. Disconnect the cable for bucket control in the same procedure.

■ **NOTE**

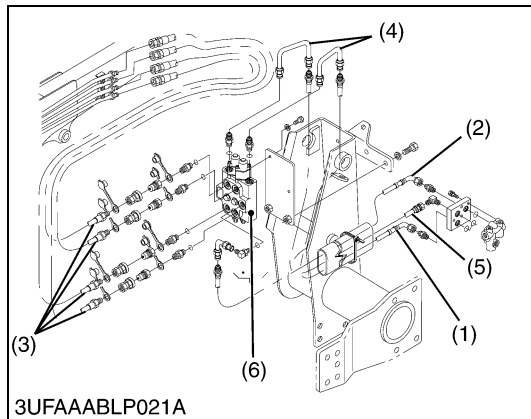
- Do not remove the original valve seal plates (4) and collar (3).

(When reassembling)

- Be sure to attach the gasket (7) between the seal plate (4) and sleeve (12).
- Be sure to connect the control cables to the proper spool ends. The spool with collar is for boom section and the spool without collar is for bucket section.
- Screw cable end (10) onto the rod of cable fully and lock them with the nut (11).
- Connect cable end (10) to spool (5) with clevis pin (9), plain washer and cotter pin.
- Screw the sleeve (12) and lock nut (14) onto the threaded hub (13) so that the ends of the lock nut match to the end of the thread as shown.

- | | |
|--------------------------------|---|
| (1) Control Valve | (9) Clevis Pin (With Plain Washer and Cotter Pin) |
| (2) Spool (For Bucket Control) | (10) Cable End |
| (3) Collar | (11) Lock Nut |
| (4) Seal Plate | (12) Sleeve |
| (5) Spool (For Boom Control) | (13) Threaded Hub |
| (6) Screw | (14) Lock Nut |
| (7) Gasket | |
| (8) Flange | |

W1018911



3UFAAABLP021A

Hydraulic Hoses and Control Valve

1. Disconnect the hydraulic hoses (1), (2), (3), (5) and tubing (4) from control valve (6).
2. Remove the control valve (6).

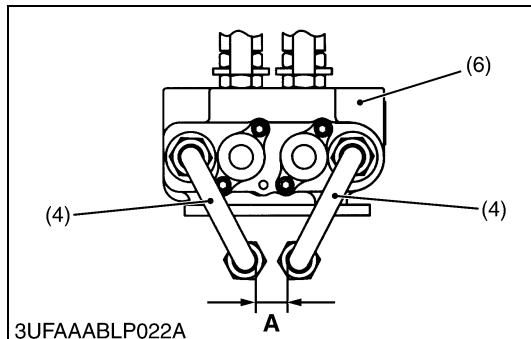
(When reassembling)

- Assemble the tubing (4) as shown in figure.

Tightening torque	Control valve mounting bolt	12.2 to 13.6 N·m 1.2 to 1.4 kgf·m 9 to 10 ft·lbs
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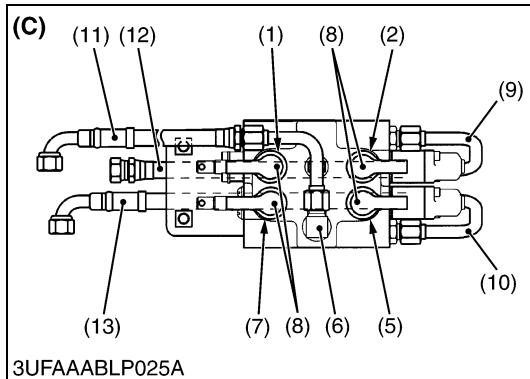
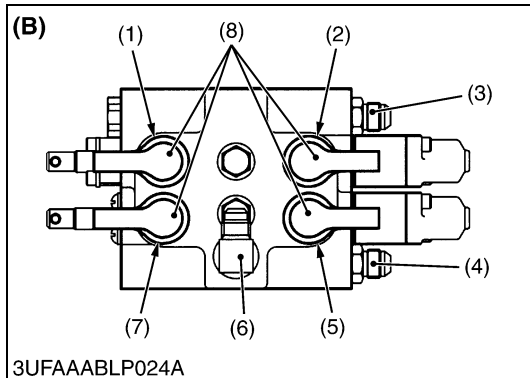
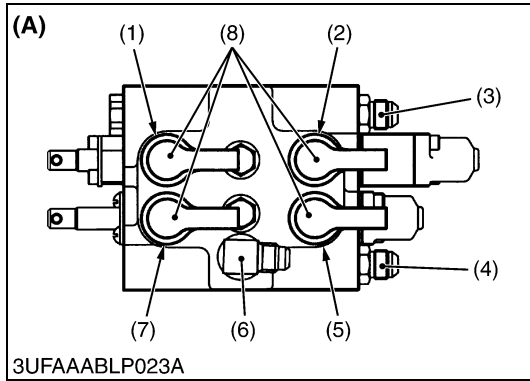
- | | |
|--------------------|-----------------------------|
| (1) Hose 7 | A : 20 mm (0.79 in.) |
| (2) Hose 5 | |
| (3) Hydraulic Hose | |
| (4) Tubing | |
| (5) Hose 6 | |
| (6) Control Valve | |

W1020033



3UFAAABLP022A

(B) Disassembling Control Valve



Adapter and Elbow

1. Remove the nipples, adapters and elbows from the control valve.

(When reassembling)

- Use care not to damage the O-ring.
- Install all the elbows in parallel to the spool as shown in figure.

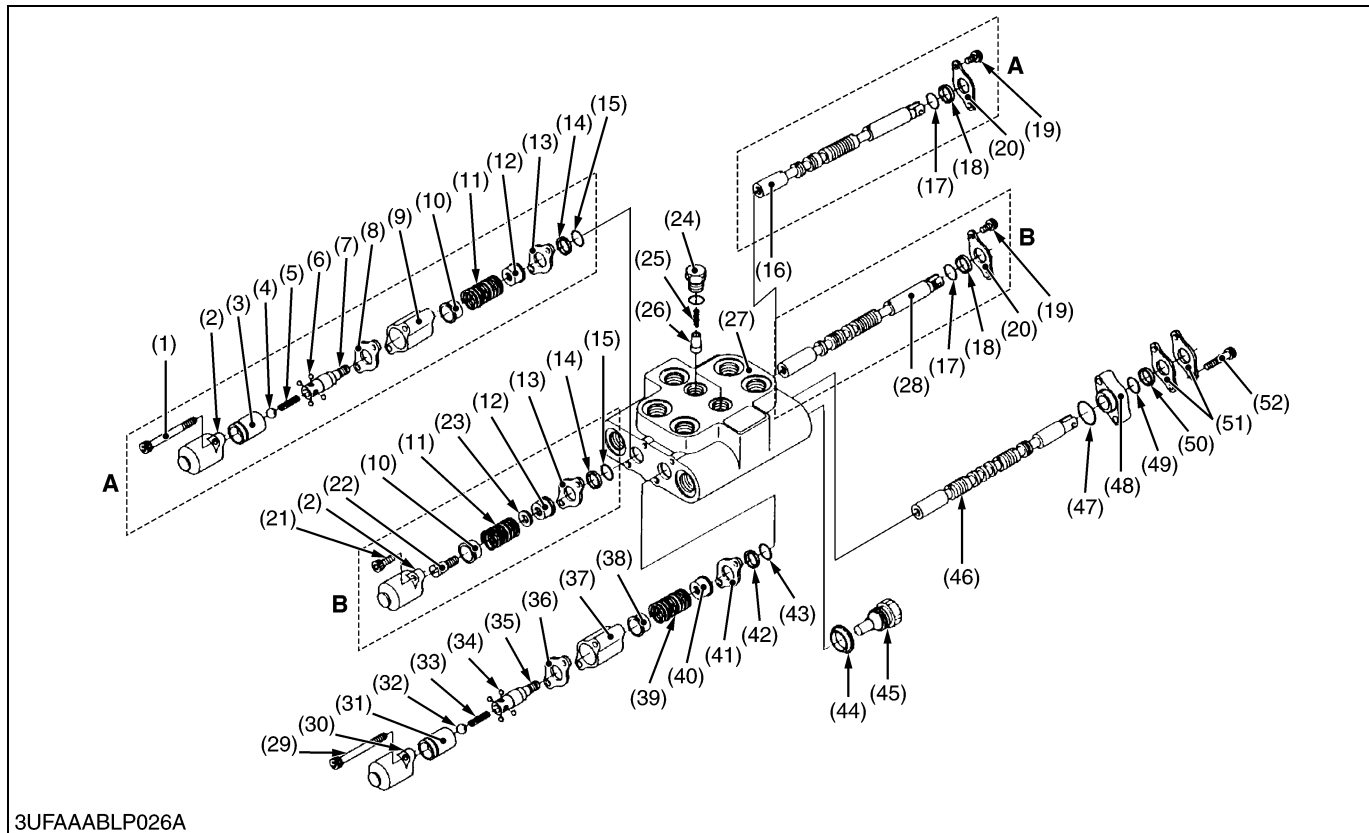
Tightening torque	Adapter and elbow	47.5 to 54.2 N·m 4.8 to 5.5 kgf·m 35 to 40 ft-lbs
	Nipple	21.7 to 24.4 N·m 2.2 to 2.5 kgf·m 16 to 18 ft-lbs

- (1) **A1** Port (Adapter and Nipple)
- (2) **B1** Port (Adapter and Nipple)
- (3) **P** Port (Adapter)
- (4) **T** Port (Adapter)
- (5) **B2** Port (Adapter and Nipple)
- (6) **PB** Port (Elbow)
- (7) **A2** Port (Adapter and Nipple)
- (8) Dust Cap
- (9) Tube (Pump Port)
- (10) Tube (Tank Port)
- (11) Hose 5 (Power Beyond Line)
- (12) Hose 6 (Power Line)
- (13) Hose 7 (Return Line)

- A : Standard Valve Type (3 Position Bucket Control Type)**
- B : Standard Valve Type (4 Position Bucket Control Type)**
- C : Remote Valve Type (4 Position Bucket Control Type)**

W1015299

Disassembling Control Valve



3UFAAABLP026A

- | | | | |
|------------------|-----------------------|------------------|---------------------|
| (1) Screw | (15) O-ring | (29) Screw | (43) O-ring |
| (2) Cap | (16) Spool for Bucket | (30) Cap | (44) Seal Ring |
| (3) Sleeve | (17) O-ring | (31) Sleeve | (45) Plug |
| (4) Ball | (18) Wiper Ring | (32) Ball | (46) Spool for Boom |
| (5) Spring | (19) Screw | (33) Spring | (47) O-ring |
| (6) Ball | (20) Seal Plate | (34) Ball | (48) Spacer |
| (7) Pin | (21) Screw | (35) Pin | (49) O-ring |
| (8) Seal Plate | (22) Cap Screw | (36) Seal Plate | (50) Wiper Ring |
| (9) Spacer | (23) Collar | (37) Spacer | (51) Seal Plate |
| (10) Spring Seat | (24) Plug | (38) Spring Seat | (52) Screw |
| (11) Spring | (25) Spring | (39) Spring | |
| (12) Spring Seat | (26) Load Check Valve | (40) Spring Seat | |
| (13) Seal Plate | (27) Valve Housing | (41) Seal Plate | |
| (14) Wiper Ring | (28) Spool for Bucket | (42) Wiper Ring | |
- A : 4 Position Bucket Control Type**
B : 3 Position Bucket Control Type

■ Boom Control Section

1. Remove the plug (24) and take out the spring (25) and load check valve (26).
2. Remove the seal plates (51), wiper ring (50) and spacer from the valve housing (27).
3. Remove the cap (30) and spacer (37), and draw out the spool (46) with other component parts from valve housing (27).

■ Bucket Control Section

1. Remove the plug (24) and take out the spring (25) and load check valve (26).
2. Remove the seal plate (20) and wiper ring (18) from the valve housing (27).

[3 Position Bucket Control Type]

3. Remove the cap (2), seal plate (13) and wiper ring (14), and draw out the spool (28) with other component parts from the valve housing (27).

[4 Position Bucket Control Type]

3. Remove the cap (2), seal plate (8), spacer (9), seal plate (13) and wiper ring (14), and draw out the spool (16) with other component parts from the valve housing (27).

(When reassembling)

- Clean all parts with a suitable solvent, and dry with a lint-free cloth or air.
- Visually inspect all parts for signs of scoring or damage.
- Install the spool and spacer to the valve housing, using care not to damage the O-rings.

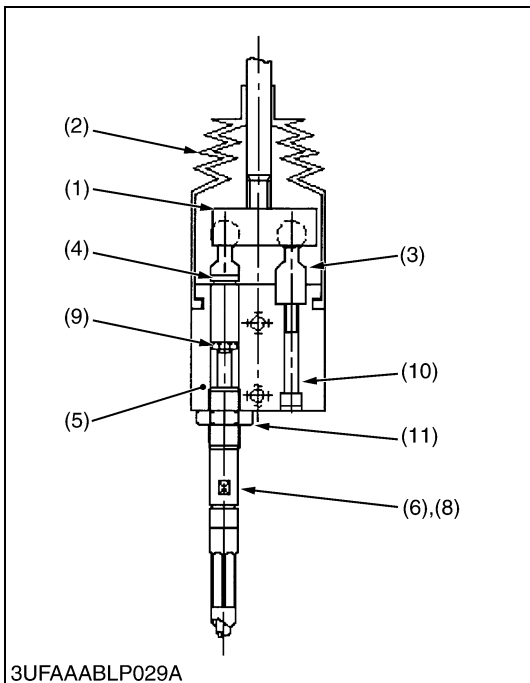
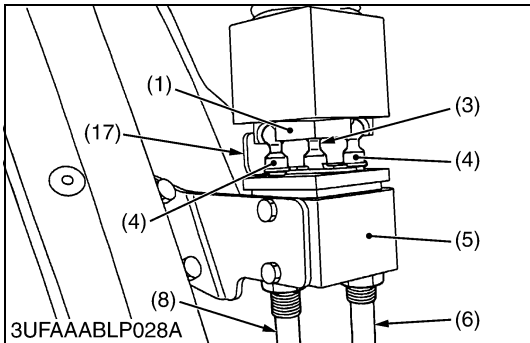
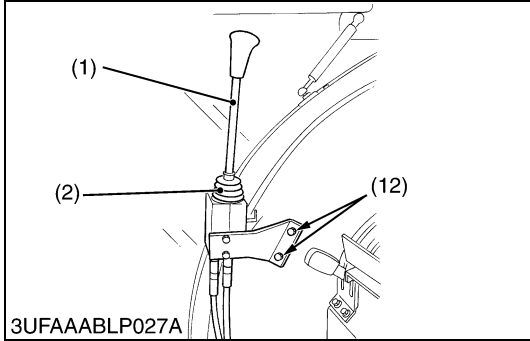
[2] CONTROLLER

(1) Disassembling and Assembling

Disconnecting Control Cable from Control Valve

1. Disconnect the control cables from control valve. (See page S-12.)

W1020408



Controller

1. Slide up the rubber boot (2) to expose the cable ends (4).
2. Loosen the hex. socket head screw (9) for the control lever pivot (3) and remove the lever pivot (3).
3. Remove the control lever assembly (1).
4. Loosen the cable control lock nut (M16) (11) of control cables (6), (8).
5. Screw out the control cables (6), (8) from controller (5).
6. Loosen the M6 lock nuts (9) and remove the cable ends (4) from cables.

(When reassembling)

- When installing the cable end (4) to the cable, screw the end of cable to the cable end (4) fully.
- Apply grease to the controller ends (slide portions and pivot portion).

NOTE

- **Adjust the length of each cables so that the bottom of the groove on the cable ends (4) align with the top surface of the controller (5). The lever lock (7) on the controller should lock the control lever in the neutral position when the cable ends are adjusted correctly.**

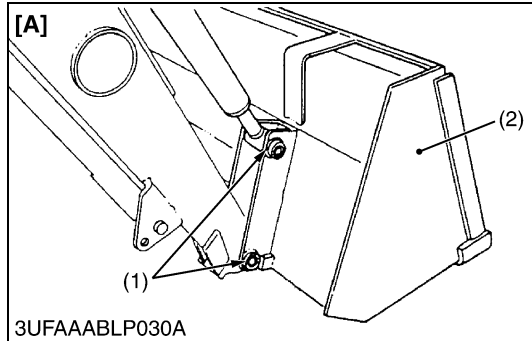
Tightening torque	Cable control lock nut (M16)	20.0 to 23.0 N·m 1.9 to 2.4 kgf·m 14 to 17 ft·lbs
	Control stay mounting bolt and nut (M16)	23.6 to 27.4 N·m 2.4 to 2.8 kgf·m 17.4 to 20.2 ft·lbs

- | | |
|--|---|
| (1) Control Lever Assembly | (8) Cable for Bucket Section (Red Tape) |
| (2) Rubber Boot | (9) M6 Lock Nut |
| (3) Control Lever Pivot | (10) Hex. Socket Head Screw |
| (4) Cable End | (11) Cable Control Lock Nut (M16) |
| (5) Controller | (12) Controller Stay Mounting Bolt (M8) |
| (6) Cable for Boom Section (Blue Tape) | |
| (7) Lever Lock | |

W1020454

[3] BUCKET, BOOM AND HYDRAULIC CYLINDERS

(1) Disassembling and Assembling



Bucket

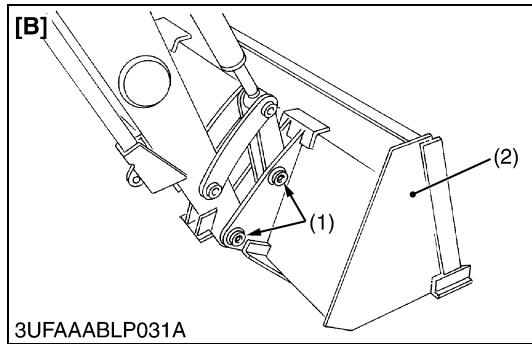
1. Remove the pins (1) and remove the bucket (2).

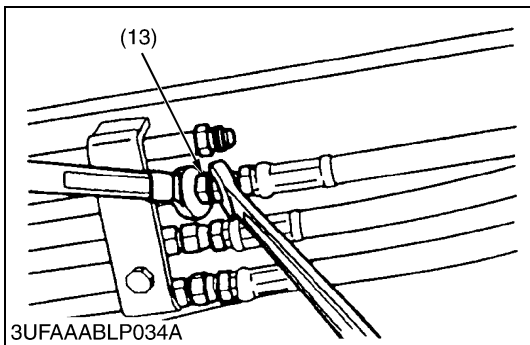
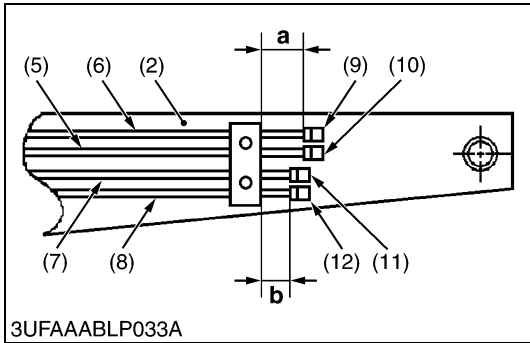
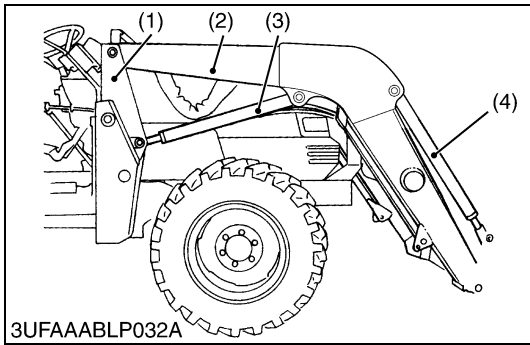
- (1) Pin
- (2) Bucket

[A] LA513

[B] LA723, LA853

W1022133





Boom and Hydraulic Cylinders

1. Disconnect the hydraulic hoses from the hydraulic cylinders (3), (4).
2. Remove the external snap ring and remove the indicator assembly. (If equipped)
3. Remove the cotter pin and remove the level indicator rod. (If equipped)
4. Remove the pins and remove the hydraulic cylinders (3), (4).
5. Disconnect the hydraulic hoses from the hydraulic tubes on the boom (2).
6. Remove the pins and remove the boom (2) from the side frame (1).
7. Remove the hydraulic tubes from the boom (2).

(When reassembling)

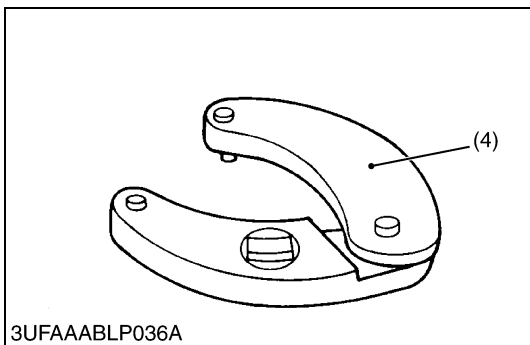
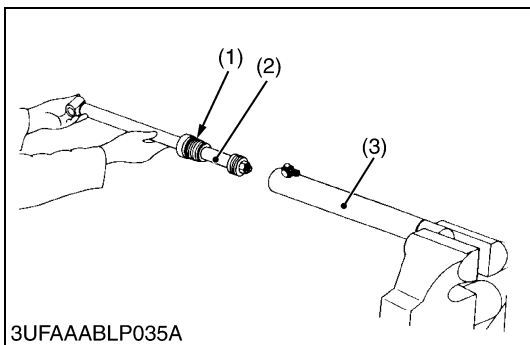
- Assemble the hydraulic tubes (5), (6), (7), (8) to the boom as shown in the figure.
- When installing the hydraulic cylinders (3), (4), the hydraulic port should face inside and be careful of the direction of grease fittings.

NOTE

- **For fastening hydraulic hose with tube fitting (13), use two wrenches. Hold the fitting with a wrench, turn the hose with another wrench to avoid damage at welded area.**

- | | |
|--------------------------------------|--------------------------------|
| (1) Side Frame | a : LA513, LA723, LA853 |
| (2) Boom | 35 to 45 mm (1.38 to 1.77 in) |
| (3) Boom Cylinder | b : LA513, LA723, LA853 |
| (4) Bucket Cylinder | 15 to 25 mm (0.59 to 0.98 in.) |
| (5) Hydraulic Tube 3 | |
| (6) Hydraulic Tube 4 | |
| (7) Hydraulic Tube 2 | |
| (8) Hydraulic Tube 1 | |
| (9) Hydraulic Hose with Red Mark | |
| (10) Hydraulic Hose with Blue Mark | |
| (11) Hydraulic Hose with Yellow Mark | |
| (12) Hydraulic Hose with White Mark | |
| (13) Tube Fittings | |

W1022205



Piston Rod Assembly

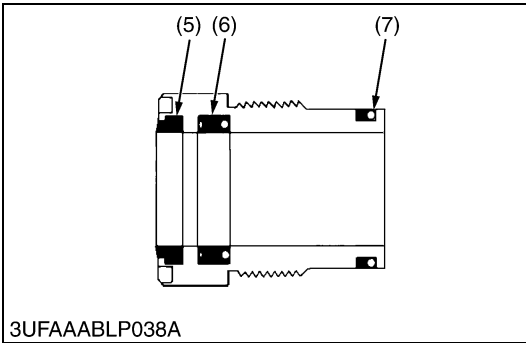
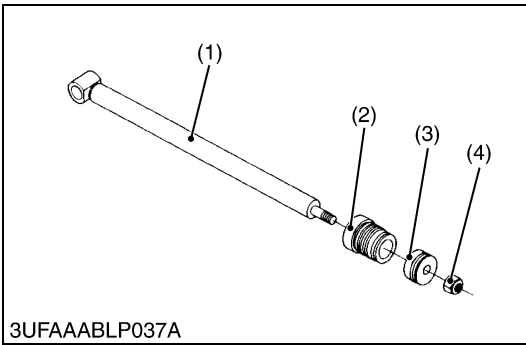
1. Drain hydraulic oil from the cylinder, and secure the tube end of the cylinder in a vise.
2. Unscrew the cylinder head (1) with the adjustable gland nut wrench (4).
3. Pull out the piston rod assembly (2) from the cylinder tube (3).

(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.

- | | |
|-------------------------|---------------------------------|
| (1) Cylinder Head | (3) Cylinder Tube |
| (2) Piston Rod Assembly | (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).

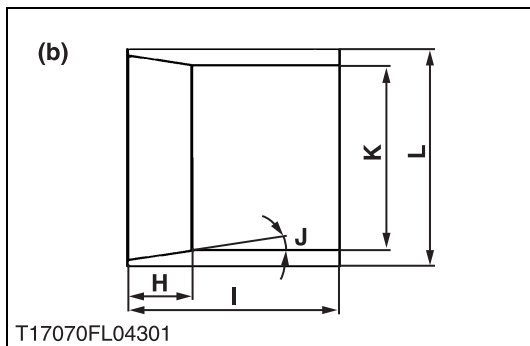
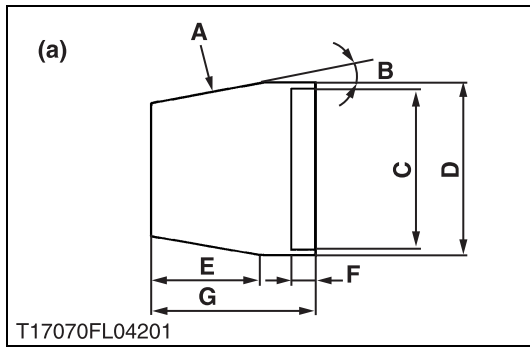
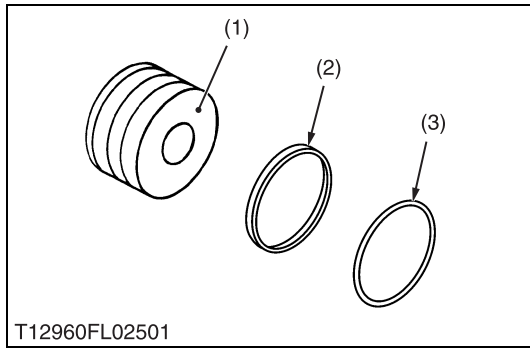
(When reassembling)

- 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	122 to 135 N·m 12.4 to 13.8 kgf·m 90 to 100 ft-lbs
	Bucket cylinder piston mounting nut	122 to 135 N·m 12.4 to 13.8 kgf·m 90 to 100 ft-lbs

- | | |
|-------------------|----------------|
| (1) Piston Rod | (5) Wiper Seal |
| (2) Cylinder Head | (6) Oil Seal |
| (3) Piston | (7) O-ring |
| (4) Nut | |

W1017322



Piston Seal and O-ring

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

IMPORTANT

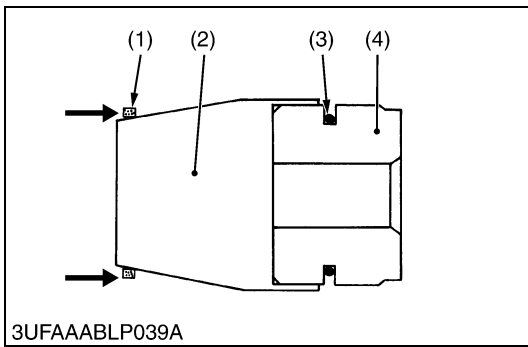
- When installing the expander (3) and piston seal (2) to the piston (1), use the slide jig and correcting jig as shown in the figure.

	LA513 (Boom and Bucket)	LA723 (Boom and Bucket)	LA853 (Boom)	LA853 (Bucket)
A	80 √	80 √	80 √	80 √
B	0.157 rad. 9°	0.157 rad. 9°	0.157 rad. 9°	0.157 rad. 9°
C	45.194 mm dia. 1.779 in. dia.	50.216 mm dia. 1.977 in. dia.	60.122 mm dia. 2.367 in. dia.	55.238 mm dia. 2.175 in. dia.
D	46.131 mm dia. 1.816 in. dia.	51.257 mm dia. 2.018 in. dia.	61.163 mm dia. 2.408 in. dia.	56.383 mm dia. 2.220 in. dia.
E	41.91 mm 1.65 in.	41.91 mm 1.65 in.	41.91 mm 1.65 in.	41.91 mm 1.65 in.
F	10.16 mm 0.4 in.	10.16 mm 0.4 in.	10.16 mm 0.4 in.	10.16 mm 0.4 in.
G	58.42 mm 2.30 in.	58.42 mm 2.30 in.	58.42 mm 2.30 in.	58.42 mm 2.30 in.
H	13.97 mm 0.55 in.	13.97 mm 0.55 in.	13.97 mm 0.55 in.	13.97 mm 0.55 in.
I	35.052 mm 1.38 in.	35.052 mm 1.38 in.	35.052 mm 1.38 in.	35.052 mm 1.38 in.
J	0.122 rad. 7°	0.122 rad. 7°	0.122 rad. 7°	0.122 rad. 7°
K	45.217 mm dia. 1.78 in. dia.	50.241 mm dia. 1.978 in. dia.	60.147 mm dia. 2.368 in. dia.	55.265 mm dia. 2.176 in. dia.
L	53 mm dia. 2.10 in. dia.	58.928 mm dia. 2.32 in. dia.	68.834 mm dia. 2.71 in. dia.	65 mm dia. 2.50 in. dia.

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

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

W1017590



Installing Expander and Piston Seal

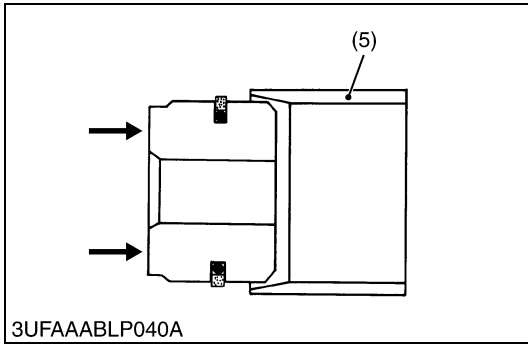
1. Place the slide jig (2) on the piston (4).
2. Install the expander (3) on the piston using the slide jig.
3. Install the piston seal (1) over the expander using the slide jig.
4. Compress the piston seal to the correct size by installing the piston into the correcting jig (5).

NOTE

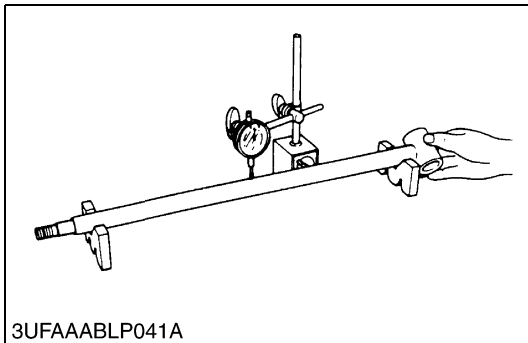
- Do not turn (roll) the piston seal as you install it.

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

W1018156



(2) Servicing



Piston Rod Bend

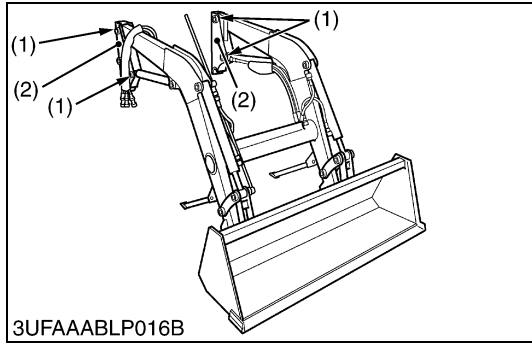
1. Place piston rod on V blocks.
2. Set a dial indicator on the center of the rod.
3. Turn the piston rod and read the dial indicator.
4. If the measurement exceeds the allowable limit, replace it.

Piston rod bend	Allowable limit	0.25 mm 0.0098 in.
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W1018329

[4] SIDE FRAME, MAIN FRAME AND OTHERS

(1) Disassembling and Assembling



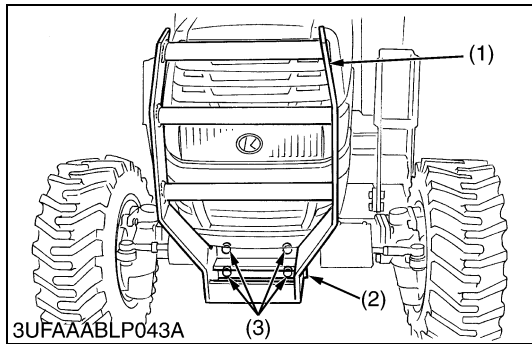
Side Frame

1. Dismount the loader assembly from loader main frame (See page S-9)
2. Remove the pins (1) and remove the side frames (2) from the boom.

(1) Pin

(2) Side Frame

W1040083



Front Guard

1. Unscrew the front guard mounting bolt (3) and remove the front guard (1) from front axle frame (2).

(When reassembling)

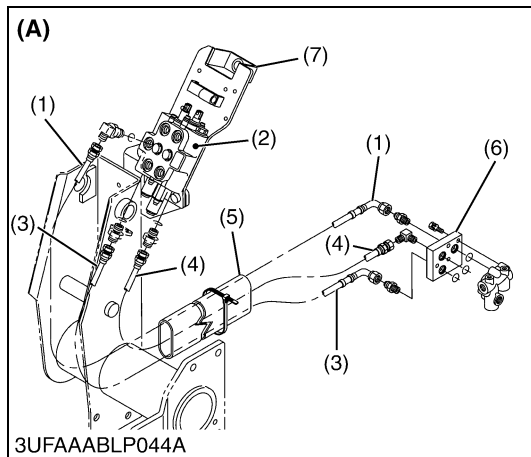
Tightening torque	Front guard mounting bolt and nut	124 to 147 N·m 12.6 to 15.0 kgf·m 91.2 to 108 ft·lbs
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(1) Front Guard

(3) Front Guard Mounting Bolt (M14)

(2) Front Axle Frame

W1023928



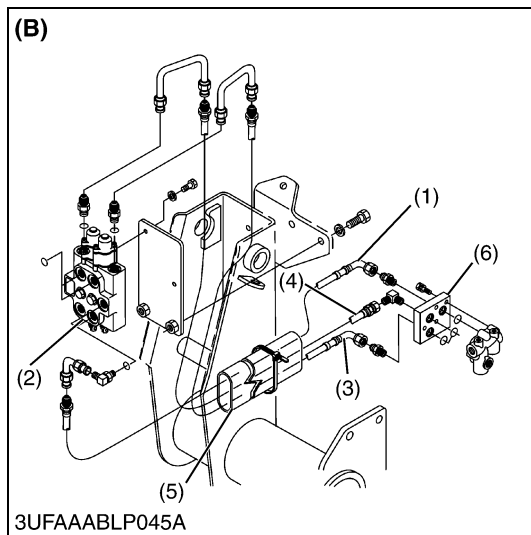
Hydraulic Hoses and Control Valve

1. Remove the hydraulic hoses (1), (3), (4).
2. Remove the valve stay mounting bolts and nuts and remove the control valve (2) with control valve stay (7).

(When reassembling)

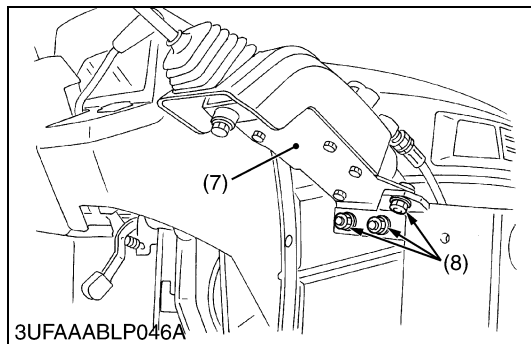
- When re-installing the hose 7 (3), route hose 7 through seat stay (9) and connect to tank port as shown in figure.
- Secure sleeve (5) and hoses with plastic ties (10) as shown in figure.

Tightening torque	Control valve stay mounting bolt and nut	94.9 N·m 9.7 kgf·m 70 ft·lbs
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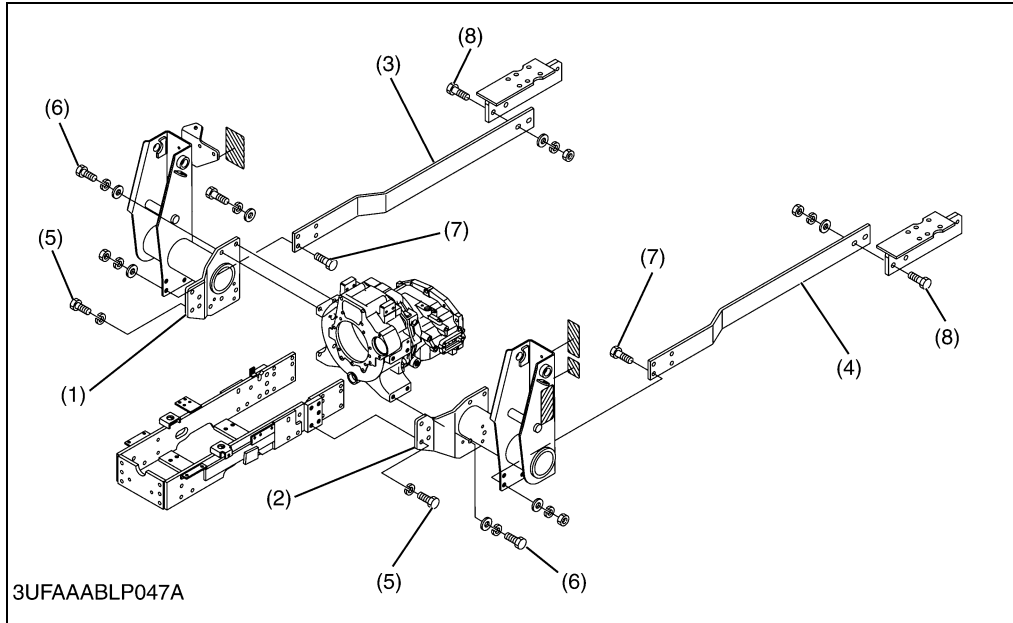


- (1) Hose 5 (Power Beyond Line)
 - (2) Control Valve
 - (3) Hose 7 (Return Line)
 - (4) Hose 6 (Pump Line)
 - (5) Sleeve
 - (6) Hydraulic Block
 - (7) Control Valve Stay
 - (8) Control Valve Stay Mounting Bolt and Nut (M12)
- (A) Standard Valve**
(B) Remote Valve

W1040631



Main Frame and Sub Frame



- (1) Main Frame, RH
- (2) Main Frame, LH
- (3) Sub Frame, RH
- (4) Sub Frame, LH
- (5) Main Frame Mounting Bolt
- (6) Main Frame Mounting Bolt
- (7) Sub Frame Mounting Bolt
- (8) Sub Frame Mounting Bolt

W1025227

1. Support the main frame (1), (2) by hoist to prevent failing during disassembling.
2. Unscrew the sub frame mounting bolts (7), (8) and nuts, and remove the sub frame (3), (4).
3. Unscrew the main frame mounting bolts (5), (6) and nuts and separate the main frame (1), (2).

(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	M16 (5), (6)	196 to 225 N·m 20.0 to 23.0 kgf·m 145 to 166 ft-lbs
	Sub frame mounting bolt and nut	M16 (7), (8)	196 to 225 N·m 20.0 to 23.0 kgf·m 145 to 166 ft-lbs

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