WSM

WORKSHOP MANUAL
FRONT LOADER

LA1153AU,LA1353AU

Kubota

KiSC issued 01, 2019 A

TO THE READER

This Workshop Manual tells the servicing personnel about the mechanism, servicing and maintenance of the LA1153AU and LA1353AU. It contains 4 parts: **"Information"**, **"General"**, **"Mechanism"** and **"Servicing"**.

■ **Information**

This section contains information below.

- Safety First
- Safety Decal
- Loader Terminology
- Specification

■ **General**

This section contains information below.

- Model Identification
- General Precautions
- Maintenance Check List
- Check and Maintenance
- Special Tools

■ **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.

Refer to the latest version of Workshop Manual (Code No. 9Y021-01870 / 9Y021-18200) for the diesel engine / tractor mechanism that this workshop manual does not include.

■ **Servicing**

This section 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.

September 2009

KiSC issued 01, 2019 A

Record of Revisions

For pdf, use search function {Search word} to find all revised locations.

Last digit of the Code No.	Month of Revision	Main Revised Point and Corrective Measures {Search word}	Reference Page
1	2017.11	1.3rd function valve and boom check valve are newly adopted (Option).	1-M56 to 1-M61, 1-S1, 1-S3, 1-S12, 1-S29 to 1-S35
2	2019.01	Adding the whole hydraulic circuit diagram for 3rd function valve and shutoff valve	1-M1 to 1-M3

I INFORMATION

INFORMATION

CONTENTS

1. 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, could result in minor or moderate injury.**

■ IMPORTANT
- **Indicates that equipment or property damage could result if instructions are not followed.**

■ NOTE
- **Gives helpful information.**

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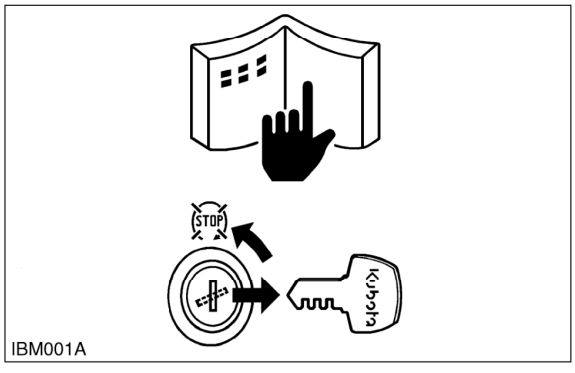

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BEFORE YOU START SERVICE

- 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.

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START SAFELY

- Do not do the procedures below when you start the engine.
  - short across starter terminals
  - 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.

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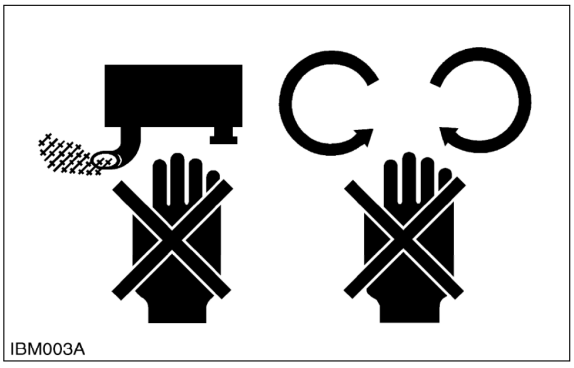
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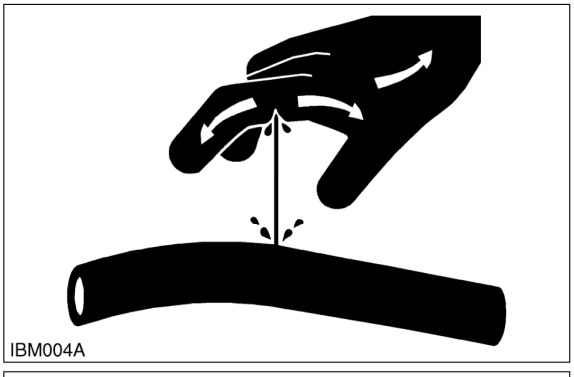
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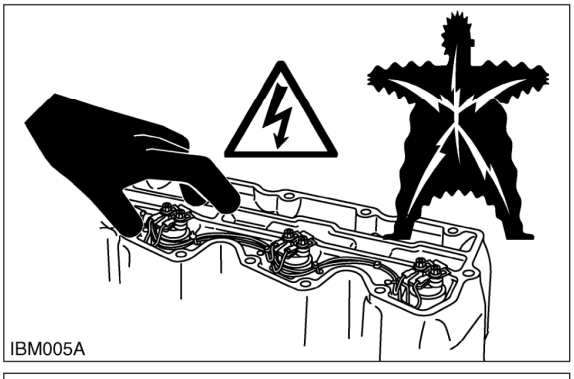
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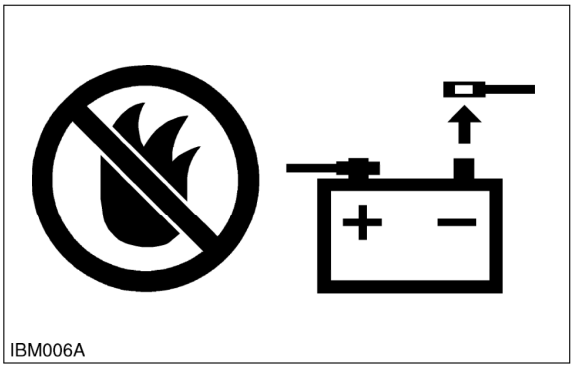
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OPERATE SAFELY

- 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 operate below the machine that only a jack holds. Always use a safety stand to hold the machine.
- 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.

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PREVENT A FIRE

- 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.

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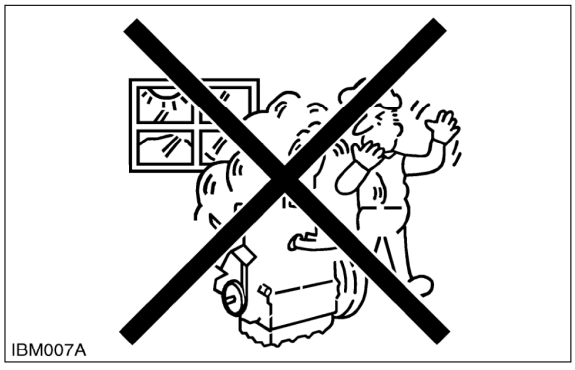
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KEEP A GOOD AIRFLOW IN THE WORK AREA

- 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.

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DISCARD FLUIDS CORRECTLY

- 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.

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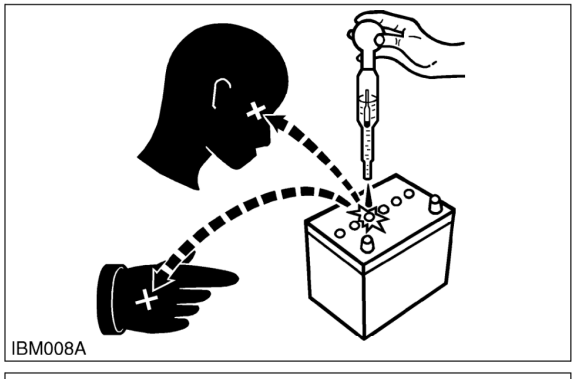
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PREVENT ACID BURNS

- 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.

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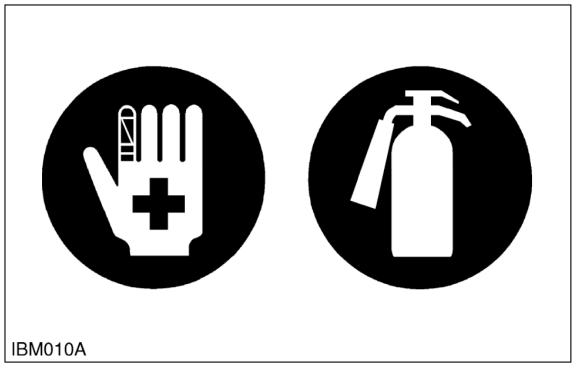
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PREPARE FOR EMERGENCIES

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

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2. 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.

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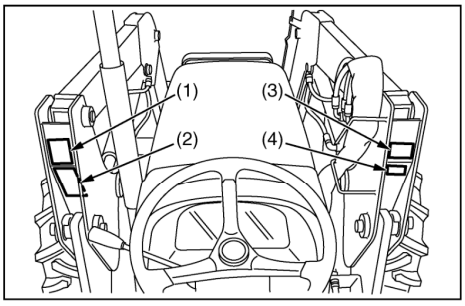
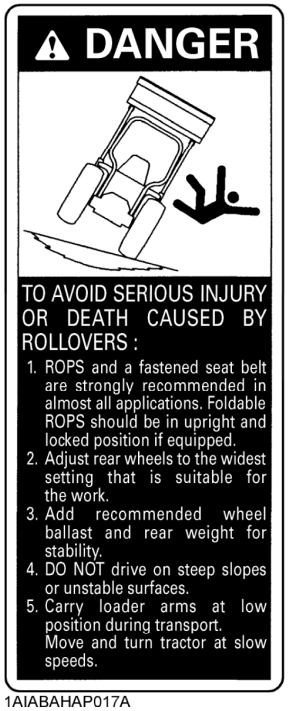


(1) Part No. 7J246-5641-1



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

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(3) Part No. 7J417-778-1
(M1858, M1859, M1864, M1865)

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(4) Part No. 7J427-5650-1

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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 labels.
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 replace component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressure any bubbles to outside edge.

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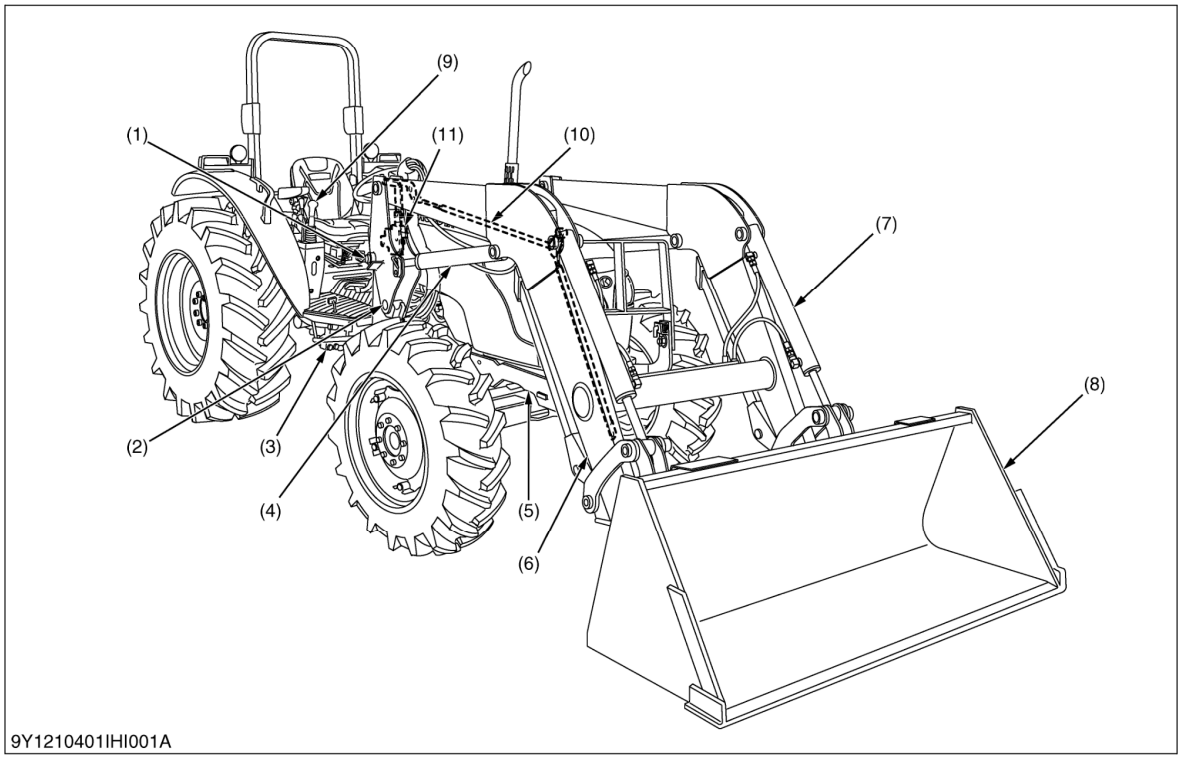
3. LOADER TERMINOLOGY



(1) Mounting Pin
(2) Side Frame
(3) Hydraulic Control Valve
(4) Boom Cylinder
(5) Main Frame
(6) Boom
(7) Bucket Cylinder
(8) Bucket
(9) Control Lever
(10) Spill Guard Link
(11) Spill Guard Valve

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4. SPECIFICATIONS

■ **Suitable Tractor**
LA1153AU: M5740, M7040
LA1353AU: M8540, M9540

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[1] LOADER SPECIFICATIONS

Loader Model		**LA1153AU**	**LA1353AU**
Tractor Model		**M5740, M7040**	**M8540, M9540**
Wheel Base		2050 mm (80.7 in.)	2250 mm (88.6 in.)
Front Tires		9.5-24	12.4-24
Rear Tires		16.9-30	18.4-30
Boom Cylinder	Bore	60 mm (2.4 in.)	70 mm (2.8 in.)
	Stroke	570.5 mm (22.46 in.)	606 mm (23.9 in.)
Bucket Cylinder	Bore	60 mm (2.4 in.)	65 mm (2.6 in.)
	Stroke	507.5 mm (19.98 in.)	512.5 mm (20.18 in.)
Control Valve		One Detent Float Position, Power Beyond Circuit	
Rated Flow		42 L/min. (11.1 U.S.gals/min., 9.24 Imp.gals/min.)	64.3 L/min. (17.0 U.S.gals/min., 14.1 Imp.gals/min.)
Maximum Pressure		19.8 MPa (202 kgf/cm^2, 2870 psi)	20.7 MPa (211 kgf/cm^2, 3000 psi)
Net Weight (Approximate)		700 kg (1540 lbs)	840 kg (1850 lbs)

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[2] BUCKET SPECIFICATIONS

Loader Model		**LA1153AU, LA1353AU**	**LA1353AU**	
Bucket Size		ROUND 72 in.	ROUND 84 in.	LIGHT MATERIAL 84 in.
Type		QUICK ATTACH	QUICK ATTACH	
Width		1830 mm (72.05 in.)	2135 mm (84.06 in.)	
Depth (**L**)		650 mm (25.6 in.)		750 mm (29.5 in.)
Height (**M**)		665 mm (26.2 in.)		715 mm (28.1 in.)
Length (**N**)		900 mm (35.4 in.)		1000 mm (39.37 in.)
Capacity	Struck	0.44 m^3 (16 cu.ft.)	0.52 m^3 (18 cu.ft.)	0.63 m^3 (22 cu.ft.)
	Heaped	0.55 m^3 (19 cu.ft.)	0.64 m^3 (23 cu.ft.)	0.79 m^3 (28 cu.ft.)
Weight		210 kg (463 lbs)	235 kg (518 lbs)	255 kg (562 lbs)

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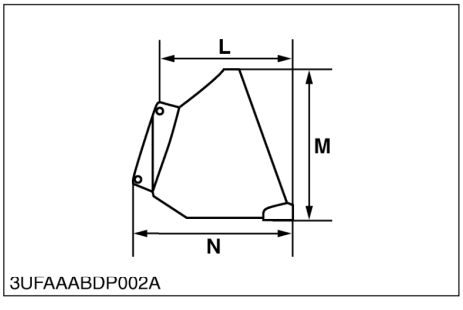

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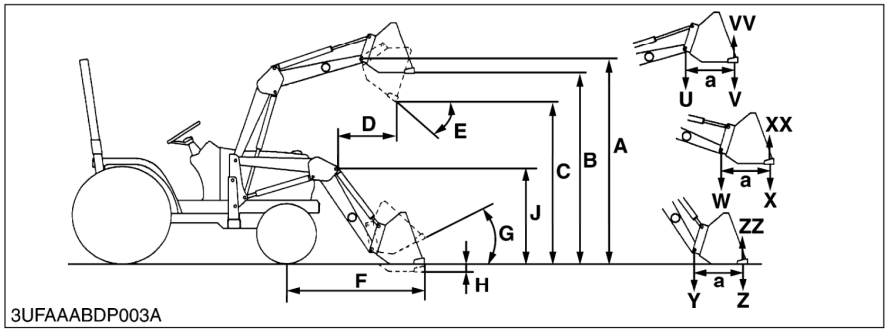
[3] DIMENSIONAL AND OPERATIONAL SPECIFICATIONS



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(1) Dimensional Specifications

Loader Model		LA1153AU		LA1353AU	
Tractor Model		M5740, M7040		M8540, M9540	
Boom Cylinder Fulcrum Point		HEIGHT	POWER	HEIGHT	POWER
A	Maximum lift height to pivot pin	3370 mm (132.7 in.)	2977 mm (117.2 in.)	3700 mm (145.7 in.)	3350 mm (131.9 in.)
B	Maximum lift height under level bucket	3131 mm (123.3 in.)	2738 mm (107.8 in.)	3420 mm (134.6 in.)	3090 mm (121.7 in.)
C	Clearance with bucket dumped	2577 mm (101.5 in.)	2172 mm (85.51 in.)	2808 mm (110.6 in.)	2405 mm (94.68 in.)
D	Reach at maximum lift height (Dumping Reach)	498 mm (19.6 in.)	951 mm (37.4 in.)	738 mm (29.1 in.)	1149 mm (45.24 in.)
E	Maximum dump angle	0.75 rad (43°)	1.0 rad (60°)	0.91 rad (52°)	1.1 rad (64°)
F	Reach with bucket on ground	1947 mm (76.65 in.)		2233 mm (87.91 in.)	
G	Bucket roll-back angle	0.75 rad (43°)		0.70 rad (40°)	
H	Digging depth	134 mm (5.28 in.)	111 mm (4.37 in.)	198 mm (7.80 in.)	185 mm (7.28 in.)
J	Overall height in carry position	1573 mm (61.93 in.)		1695 mm (66.73 in.)	
a	Length	800 mm (31.5 in.)			

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(2) Operational Specifications

Loader Model		LA1153AU		LA1353AU	
Tractor Model		M5740, M7040		M8540, M9540	
Boom Cylinder Fulcrum Point		HEIGHT	POWER	HEIGHT	POWER
	Lift capacity (Bucket bottom mid point)	1055 kg (2326 lbs)	1150 kg (2535 lbs)	1300 kg (2866 lbs)	1350 kg (2976 lbs)
U	Lift capacity (Bucket pivot pin, max. height)	1120 kg (2469 lbs)	1328 kg (2928 lbs)	1810 kg (3990 lbs)	1880 kg (4145 lbs)
V	Lift capacity (800 mm forward, max. height)	720 kg (1590 lbs)	830 kg (1830 lbs)	1145 kg (2529 lbs)	1295 kg (2855 lbs)
W	Lift capacity (Bucket pivot pin, 1500 mm height)	1456 kg (3210 lbs)	1672 kg (3686 lbs)	2070 kg (4564 lbs)	2330 kg (5137 lbs)
X	Lift capacity (800 mm forward, 1500 mm height)	1010 kg (2227 lbs)	1200 kg (2646 lbs)	1535 kg (3384 lbs)	1795 kg (3957 lbs)
Y	Breakout force (Bucket pivot pin)	18816 N (4230.0 lbf)	23814 N (5353.6 lbf)	24470 N (5501.1 lbf)	28780 N (6470.0 lbf)
Z	Breakout force (800 mm forward)	12054 N (2709.8 lbf)	15190 N (3414.8 lbf)	16920 N (3803.8 lbf)	21850 N (4912.1 lbf)
VV	Bucket roll-back force at maximum height	8722 N (1961 lbf)	12054 N (2709.8 lbf)	12150 N (2731.4 lbf)	14460 N (3250.7 lbf)
XX	Bucket roll-back force at 1.5 m (59 in.)	16611 N (3734.3 lbf)		23415 N (5263.9 lbf)	
ZZ	Bucket roll-back force at ground level	16415 N (3690.2 lbf)		23365 N (5252.7 lbf)	
Raising time		4.8 sec.		5.8 sec.	
Lowering time		4.5 sec.		6.2 sec.	
Bucket dumping time		2.7 sec.		2.2 sec.	
Bucket roll-back time		2.7 sec.		2.9 sec.	

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G GENERAL

GENERAL

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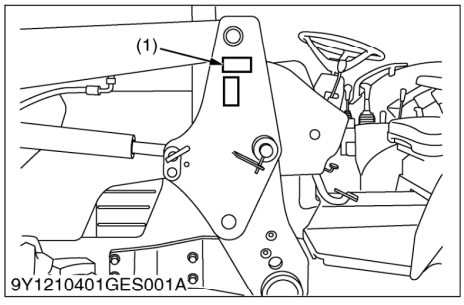
1. LOADER IDENTIFICATION



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

(1) Serial Number

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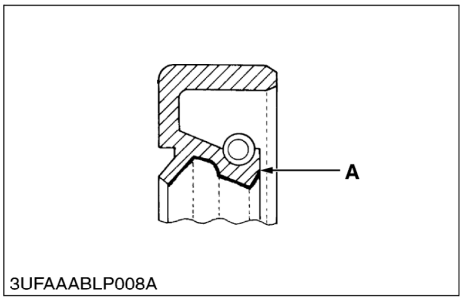
2. GENERAL PRECAUTIONS



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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 sealtaped 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

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3. LUBRICANTS

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

Place	Capacity		Lubricants, type of grease
	M5740, M7040	M8540, M9540	
Transmission case	56.0 L 59.2 U.S.qts 49.3 Imp.qts	60.0 L 63 U.S.qts 53 Imp.qts	KUBOTA SUPER UDT fluid*
Grease nipples	Until grease overflows.	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.

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4. TIGHTENING TORQUES

[1] GENERAL USE SCREWS, BOLTS AND NUTS (FOR FRONT LOADER AND BACKHOE)

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

Indication on top of bolt	4 No-grade or 4T						7 8.8 7T or Property class 8.8						9 10.9 9T or Property class 10.9		
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 (6 mm, 0.24 in.)	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 (8 mm, 0.31 in.)	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 (10 mm, 0.39 in.)	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 (12 mm, 0.47 in.)	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 (14 mm, 0.55 in.)	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 (16 mm, 0.63 in.)	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 (18 mm, 0.71 in.)	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 (20 mm, 0.79 in.)	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

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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
M8 (8 mm, 0.31 in.)	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 (10 mm, 0.39 in.)	25 to 31	2.5 to 3.2	18 to 23	20 to 25	2.0 to 2.6	15 to 18
M12 (12 mm, 0.47 in.)	30 to 49	3.0 to 5.0	22 to 36	31	3.2	23
M14 (14 mm, 0.55 in.)	62 to 73	6.3 to 7.5	46 to 54	–	–	–
M16 (16 mm, 0.63 in.)	98.1 to 112	10.0 to 11.5	72.4 to 83.1	–	–	–
M18 (18 mm, 0.71 in.)	172 to 201	17.5 to 20.5	127 to 148	–	–	–

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[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

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[4] PLUGS

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	–	–	–

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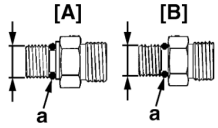
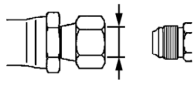
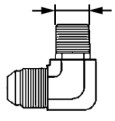
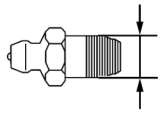
[5] HYDRAULIC FITTINGS

(1) Adaptors, Elbows and Others

Item	Shape	Thread size	Tightening torque		
			N·m	kgf·m	lbf·ft
Adjustable elbow, Adapter (O-ring port) (UNF)	 [A] Nut Type [B] No Nut Type a: O-ring	7/16	18.0 to 20.0	1.84 to 2.03	13.3 to 14.7
		9/16	37.0 to 44.0	3.78 to 4.48	27.3 to 32.4
		3/4	48.0 to 54.0	4.90 to 5.50	35.4 to 39.8
		7/8	77.0 to 85.0	7.86 to 8.66	56.8 to 62.6
Hose fitting, Flare nut (UNF)		9/16	22.0 to 25.0	2.2 to 2.5	16.0 to 19.0
		3/4	36.0 to 40.0	3.67 to 4.07	26.6 to 29.5
		7/8	43.0 to 50.0	4.39 to 5.09	31.8 to 36.8
		1 1/16	107 to 119	11.0 to 12.1	79.0 to 87.7
Adapter (NPT)		1/4	30.0 to 50.0	3.06 to 5.09	22.2 to 36.8
		3/8	39.0 to 60.0	3.98 to 6.11	28.8 to 44.2
		1/2	49.0 to 58.0	5.00 to 5.91	36.2 to 42.7
Grease Fitting		1/8	4.1 to 6.7	0.42 to 0.68	3.1 to 4.9
		1/4	4.1 to 6.7	0.42 to 0.68	3.1 to 4.9

■ **NOTE**

- **When connecting a hose with flare nut, after tightening the nut with the specified tightening torque, return it approximately 45 degrees (0.79 rad) and re-tighten it to the specified tightening torque.**

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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.

Service Interval	Check Points	Reference page
Daily (Each use)	Check the transmission fluid level	G-8
	Check the hydraulic hoses	G-8
Every 10 hours	Grease all grease nipples	G-8
	Lubricate joints of control level linkage	G-8
Every 50 hours	Check the main frame mounting bolts	G-9

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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.**

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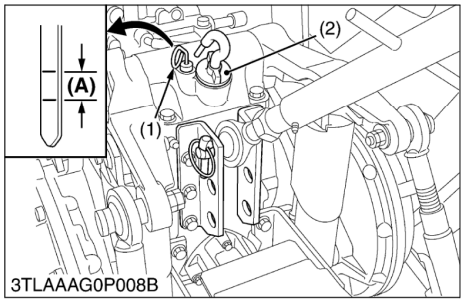
[1] CHECK POINTS OF EACH USE OR DAILY



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.

■ **IMPORTANT**
- **Use only KUBOTA UDT or SUPER UDT fluid. Use of other oil may damage the transmission or hydraulic system. See "3. LUBRICANTS" on page G-3.**

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

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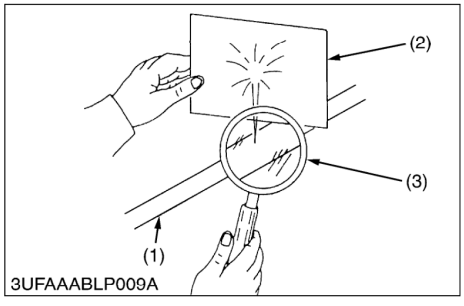

Checking Hydraulic Hoses

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
(2) Cardboard
(3) Magnifying Glass

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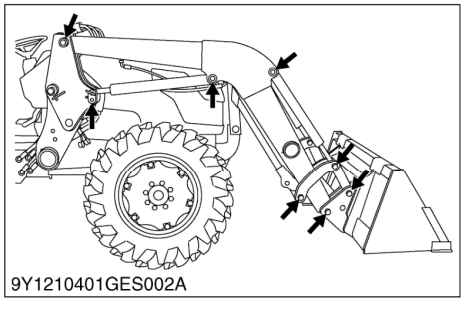
[2] CHECK POINTS OF EVERY 10 HOURS



Greasing

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

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Lubricating

1. Lubricate joints of control lever linkage.

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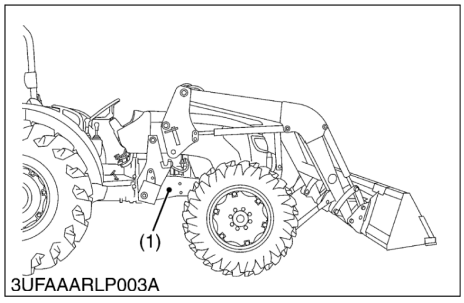
[3] CHECK POINT OF EVERY 50 HOURS



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Checking Main Frame Mounting Bolts

CAUTION

- **Never operate front loader with a loose main frame.**
- **Any time bolts are loosened, retighten to specified torque.**
- **Check all bolts frequently and keep them tight.**

1. Check the main frame bolts and nuts regularly especially when new. If they are loose, tighten them as follows.

Tightening torque	Main frame mounting bolt	368 N·m 37.5 kgf·m 272 lbf·ft

(1) Main Frame

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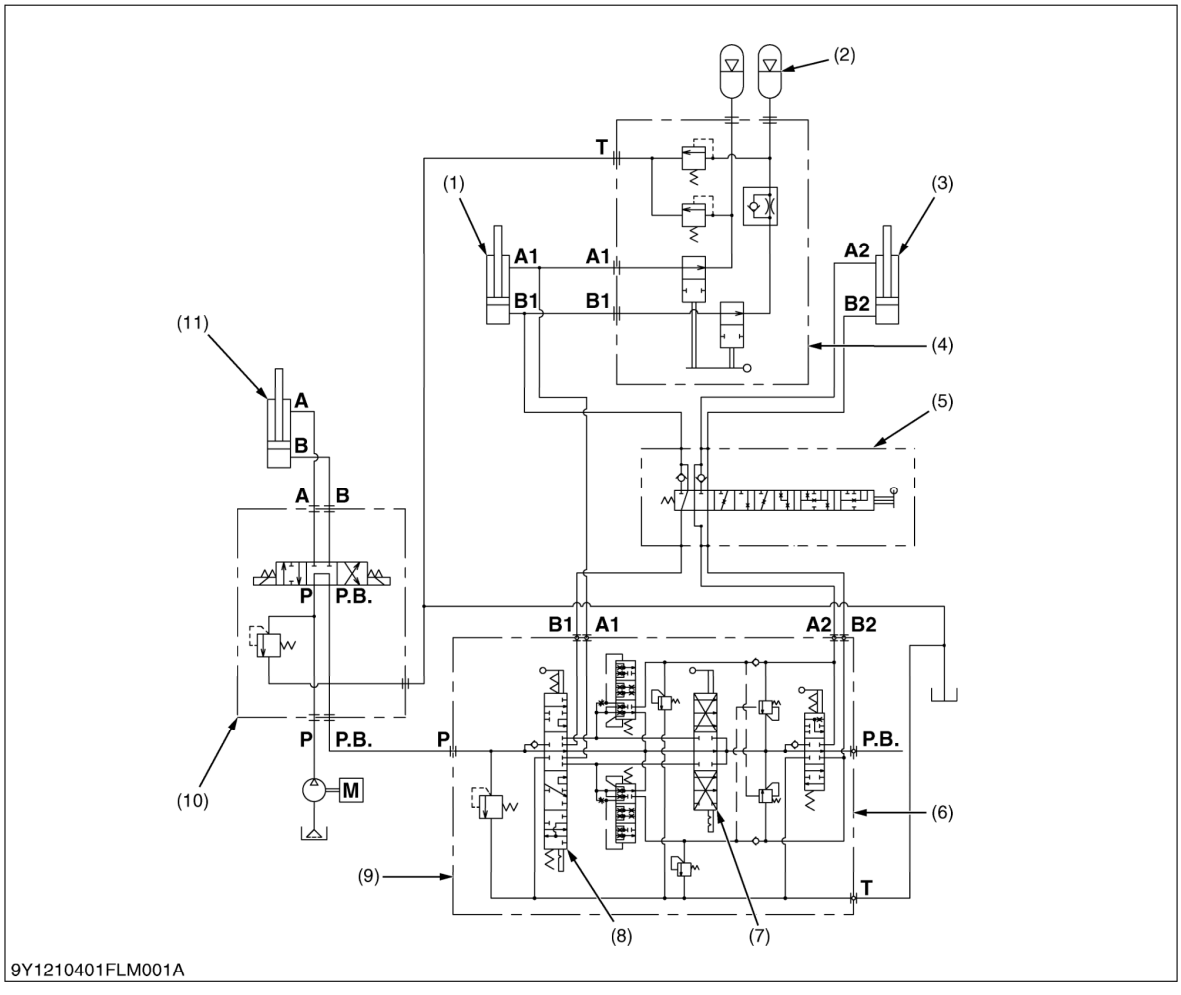
1 FRONT LOADER

MECHANISM

CONTENTS

1. HYDRAULIC CIRCUIT

[1] HYDARULIC CIRCUIT (WITH OLD TYPE 3RD FUNCTION VALVE)



(1) Boom Cylinder
(2) Accumulator (Option)
(3) Bucket Cylinder
(4) Accumulator Kit (Option)
(5) Spill Guard Valve
(6) Bucket Control Valve
(7) Self Level Spool (Locked)
(8) Boom Control Valve
(9) Control Valve Assembly
(10) 3rd Function Valve (Option)
(11) 3rd Function

P: From Pump
T: To Tank
P.B.: To 3-Point Hydraulic System

A1: A1 Port
A2: A2 Port
B1: B1 Port
B2: B2 Port

To operate the front loader, the hydraulic oil pressurized by the hydraulic pump flows from **P** port through the boom control valve (8) and the bucket control valve (6) to **P.B.** port or **T** port.

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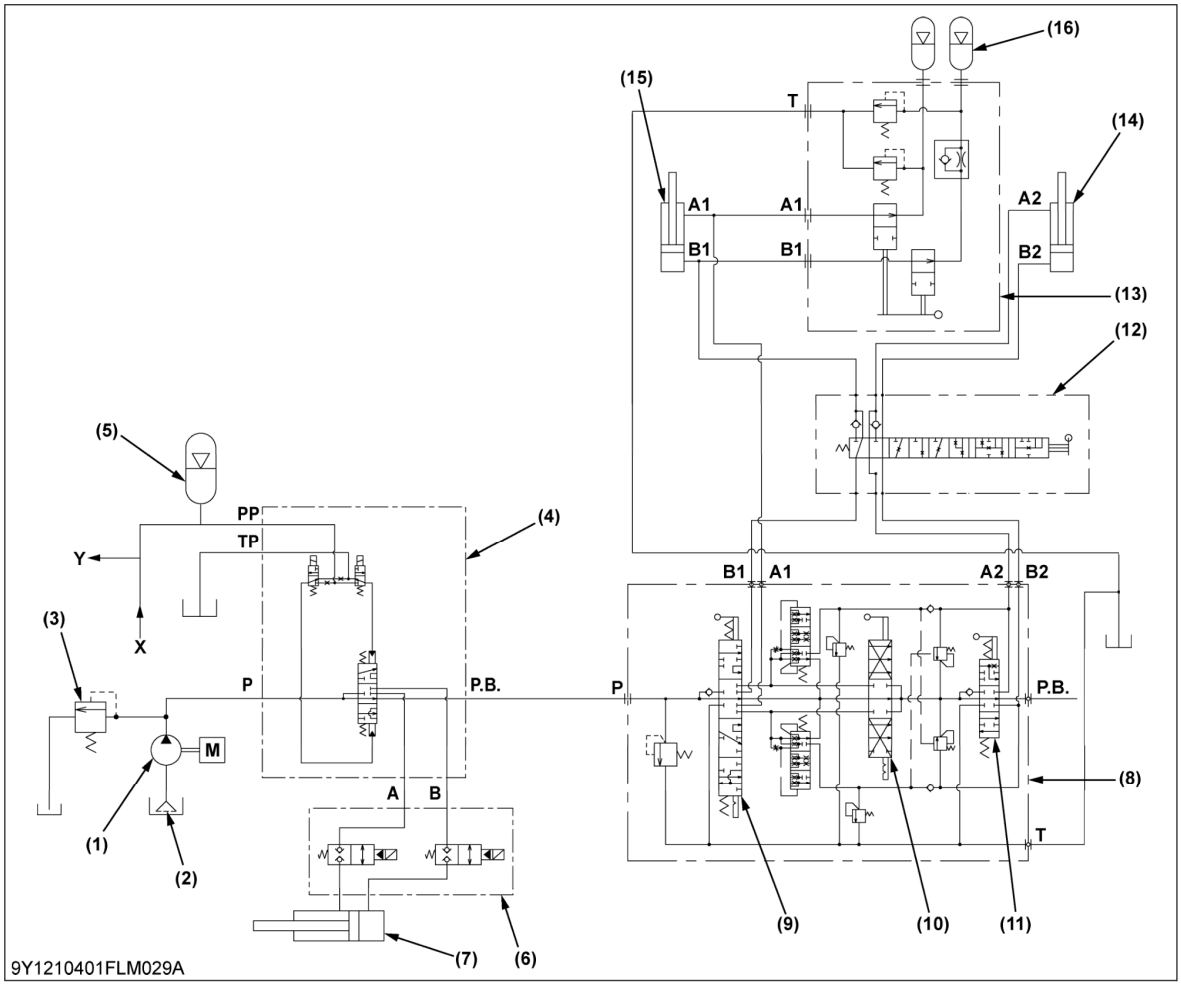
[2] HYDARULIC CIRCUIT (WITH NEW 3RD FUNCTION VALVE)



(1) Hydraulic Pump
(2) Transmission Case
(3) Relief Valve
(4) 3rd Function Valve
(5) Accumulator (For 3rd Function)
(6) Shutoff Valve
(7) 3rd Function Cylinder
(8) Control Valve Assembly
(9) Boom Control Valve
(10) Self Level Spool (Locked)
(11) Bucket Control Valve
(12) Spill Guard Valve
(13) Accumulator Kit (Option)
(14) Bucket Cylinder
(15) Boom Cylinder
(16) Accumulator

P: From Pump
T: To Tank Port
P.B.:To Next System
P.P.:Pilot Port
X: From Oil Cooler
Y: To PTO Solenoid Valve

A: A Port
A1: A1 Port
A2: A2 Port
B: B Port
B1: B1 Port
B2: B2 Port

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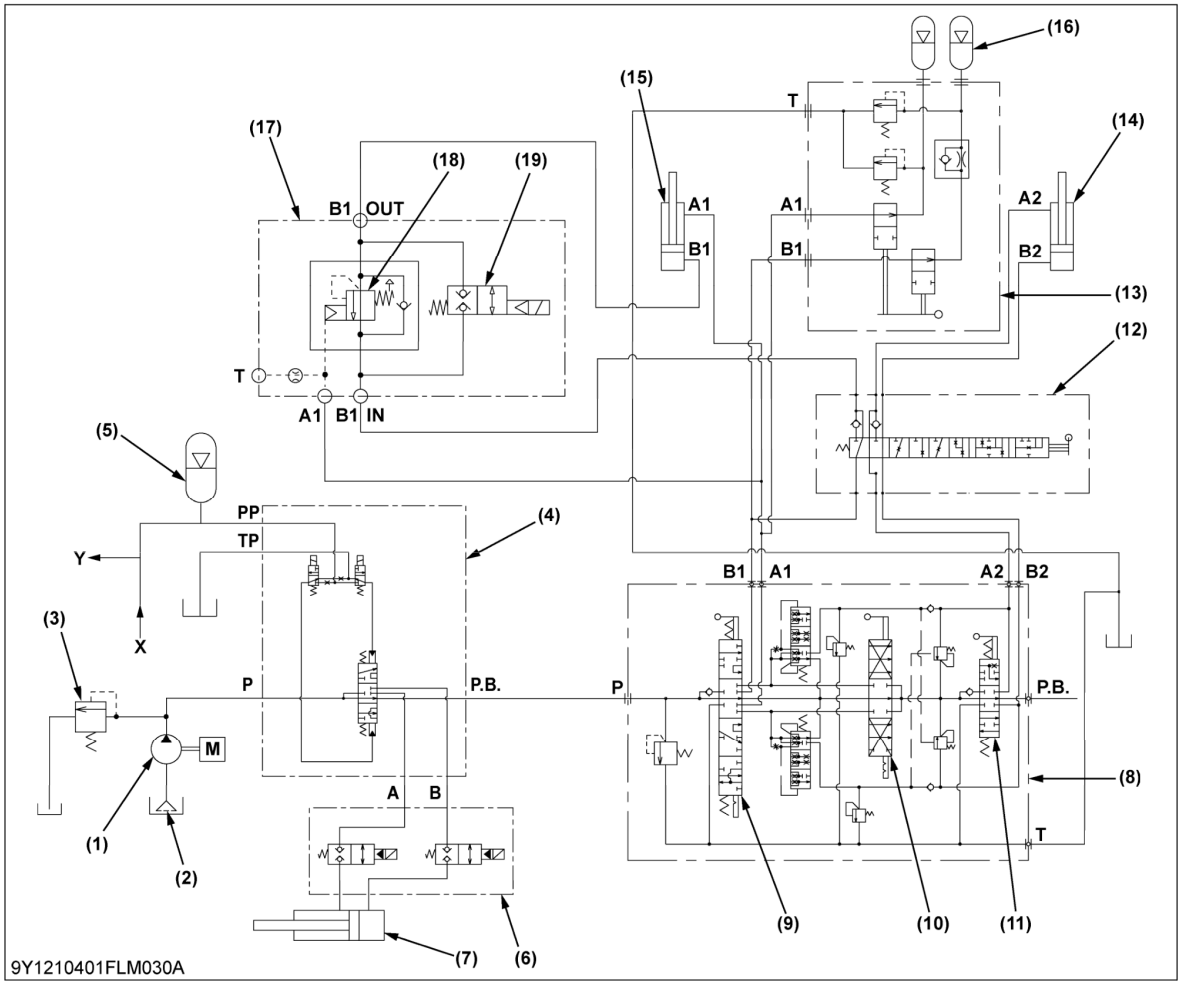
[3] HYDARULIC CIRCUIT (WITH NEW TYPE 3RD FUNCTION VALVE AND BOOM CHECK VALVE)



(1) Hydraulic Pump
(2) Transmission Case
(3) Relief Valve
(4) 3rd Function Valve
(5) Accumulator (For 3rd Function)
(6) Shutoff Valve
(7) 3rd Function Cylinder
(8) Control Valve Assembly
(9) Boom Control Valve
(10) Self Level Spool (Locked)
(11) Bucket Control Valve
(12) Spill Guard Valve
(13) Accumulator Kit (Option)
(14) Bucket Cylinder
(15) Boom Cylinder
(16) Accumulator
(17) Check Valve For Boom
(18) Counterbalance Valve
(19) Normally Closed Poppet Valve

P: From Pump
T: To Tank Port
P.B.:To Next System
P.P.:Pilot Port
X: From Oil Cooler
Y: To PTO Solenoid Valve

A: A Port
A1: A1 Port
A2: A2 Port
B: B Port
B1: B1 Port
B2: B2 Port

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