WSM

WORKSHOP MANUAL
FRONT LOADER

LA1153AU,LA1353AU

Kubota

KiSC issued 01, 2019 A

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INFORMATION

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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.**

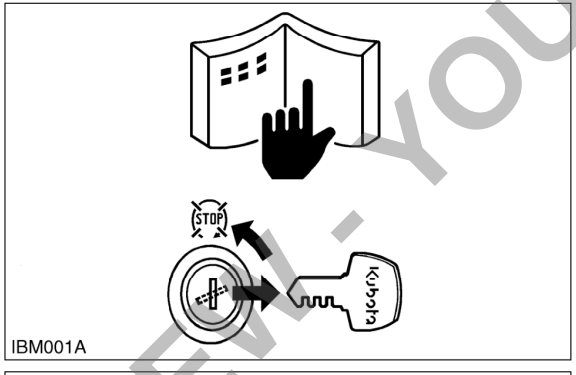
⚠ WARNING
- **Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ 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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IBM002A

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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4. SPECIFICATIONS

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

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[1] LOADER SPECIFICATIONS

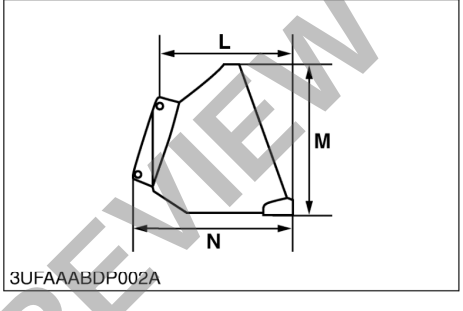
Loader Model		**LA1153AU**	**LA1353AU**
Tractor Model		**M5740, M7040**	**M8540, M9540**
Wheel Base		2050 mm (80.7 in.)	2250 mm (88.6 in.)
Front Tires		9.5-24	12.4-24
Rear Tires		16.9-30	18.4-30
Boom Cylinder	Bore	60 mm (2.4 in.)	70 mm (2.8 in.)
	Stroke	570.5 mm (22.46 in.)	606 mm (23.9 in.)
Bucket Cylinder	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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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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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

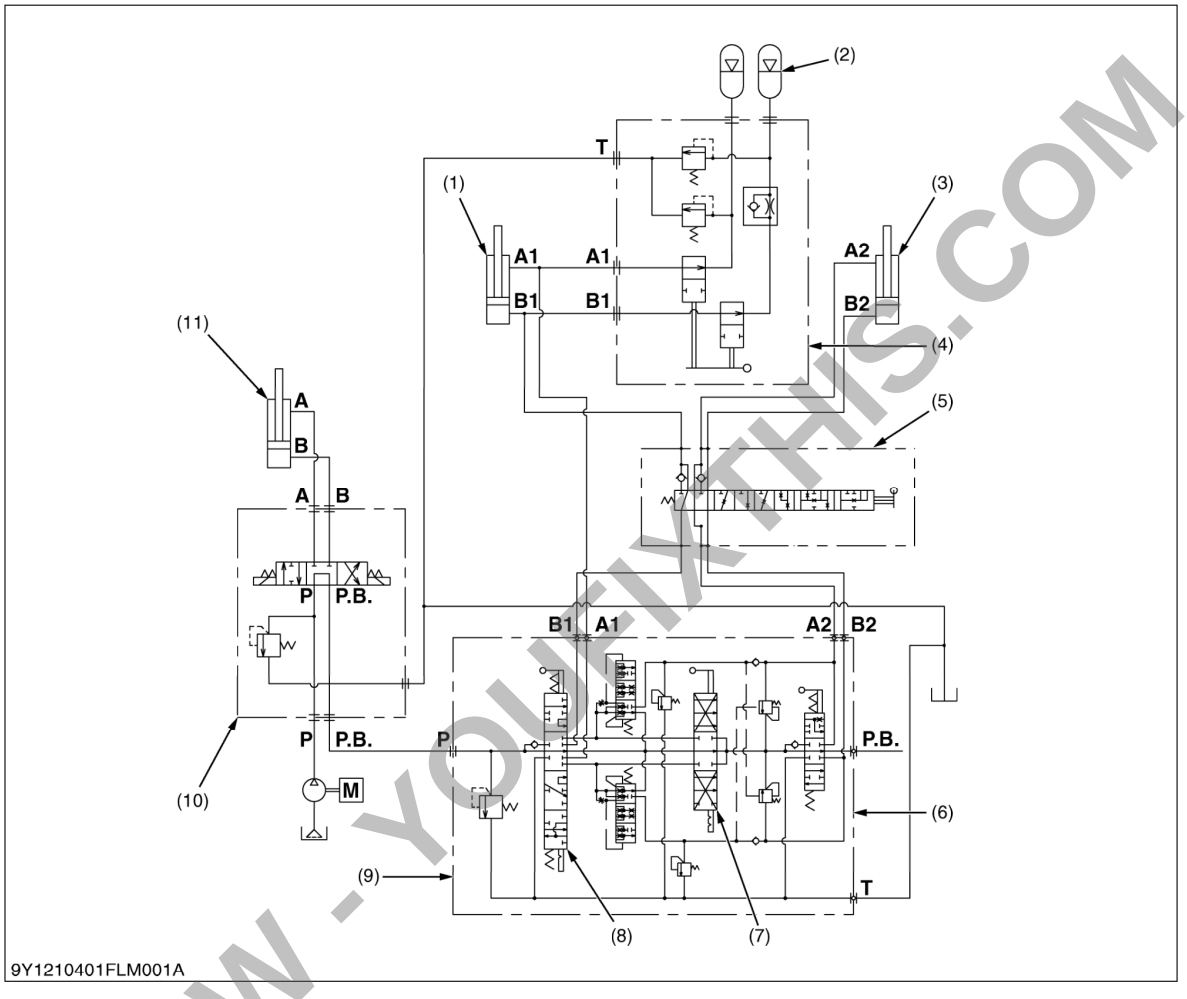
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1. HYDRAULIC CIRCUIT

[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

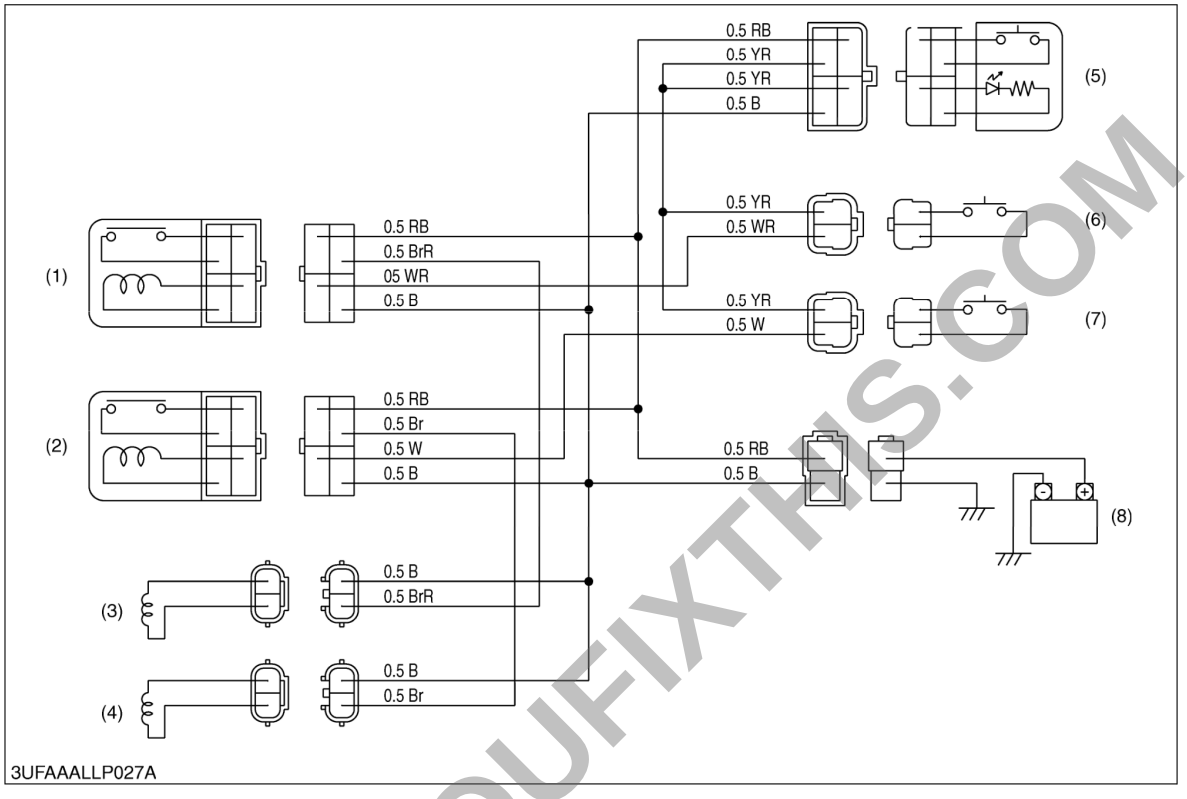
P: From Pump
T: To Tank
P.B.: To 3-Point Hydraulic System
A1: A1 Port
A2: A2 Port
B1: B1 Port
B2: B2 Port

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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[3] ELECTRICAL CIRCUIT



(1) Relay 1
(2) Relay 2
(3) Solenoid Valve 1
(4) Solenoid Valve 2
(5) **ON - OFF** Switch (For 3rd Function Kit)
(6) Activation Switch **A**
(7) Activation Switch **B**
(8) Battery

Color of Wiring

B ..... Black	BrR ..... Brown / Red	WR ..... White / Red
W ..... White	RB ..... Red / Black	YR ..... Yellow / Red
Br ..... Brown		

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1. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
Boom Does Not Rise	Control valve malfunctioning	Repair or replace	1-S7, 1-S29
	Boom cylinder defective	Repair or replace	1-S24
	Hydraulic pump malfunctioning	Repair or replace	–
	Oil filter clogged	Clean or replace	–
	Relief valve spring damaged	Replace	1-S7
	Hydraulic hose damaged	Replace	1-S14
	Relief valve dirty or stuck	Clean	–
Boom Does Not Lower	Control valve malfunctioning	Repair or replace	1-S13
Insufficient Boom Speed	Boom cylinder tube worn or damaged	Replace	1-S24
	Boom cylinder piston ring (piston seal and O-ring) worn or damaged	Replace	1-S25
	Oil leaks from tube joints	Repair	1-S25
	Relief valve setting pressure too low	Adjust	1-S7
	Insufficient transmission fluid	Refill	–
	Dirty relief valve	Clean	1-S7
Bucket Does Not Move	Control valve malfunctioning	Repair or replace	1-S16
	Bucket cylinder defective	Repair or replace	1-S16, 1-S19
	Hydraulic pump malfunctioning	Repair or replace	–
	Oil filter clogged	Clean or replace	–
	Relief valve spring damage	Replace	1-S7
	Hydraulic hose damage	Replace	1-S14
	Dirty relief valve	Clean	1-S7
Insufficient Bucket Speed	Bucket cylinder tube worn or damaged	Replace	1-S24
	Bucket cylinder piston ring (piston seal and O-ring) worn or damaged	Replace	1-S25
	Oil leaks from tube joints	Repair	1-S25
	Relief valve setting pressure too low	Adjust	–
	Insufficient transmission fluid	Refill	–
	Dirty relief valve	Clean	–
Front End Loader Drops by its Weight	Boom cylinder tube worn or damaged	Replace	1-S24
	Boom cylinder piston ring (piston seal and O-ring) worn or damaged	Replace	1-S25
	Oil leaks from tube joints	Repair	1-S25
	Control valve malfunctioning	Repair or replace	1-S13
Insufficient Spill Guard	Spill guard in effective	Adjust or repair	1-S20

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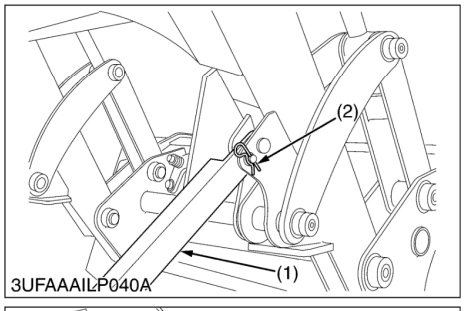
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4. DISMOUNTING FRONT LOADER FROM TRACTOR

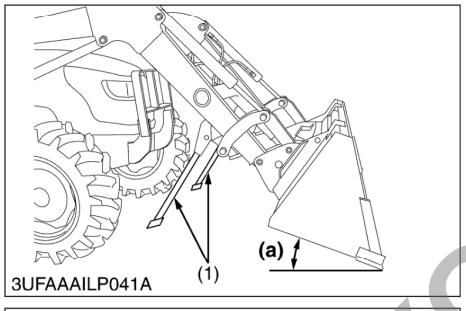
CAUTION

- **Make sure an approved bucket is attached before removing the loader from the tractor.**
- **For removing the loader, choose flat and hard ground, preferably concrete.**
- **If the ground surface is soft, place suitable planks on the ground for the bucket and stands.**
- **When starting the engine or using the hydraulic control valve, always sit in the operator's seat.**
- **Make sure the bucket and stands are at ground level.**

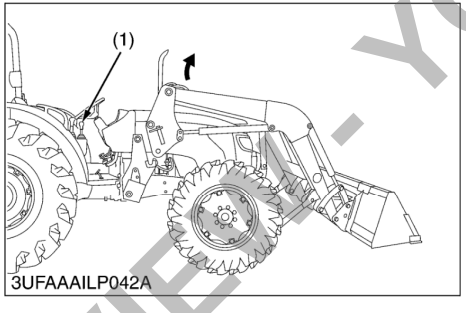
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Stand

1. Raise the boom until the stands (1) can be rotated.
2. Stop the engine.
3. Remove the spring pins (2) holding the stands (1) to the boom.
4. Rotate the stands (1) 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.
5. Start the engine and run at idle.
6. Dump the bucket approximately 0.35 rad (20°).
7. Lower the boom and raise the front wheels slightly.

■ **IMPORTANT**

- **Lift the weight off the front wheels with the bucket. Do not attempt to lift them with the stands (1).**

(1) Stand
(2) Spring Pin
(a) 0.35 rad (20°)

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Side Frame

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

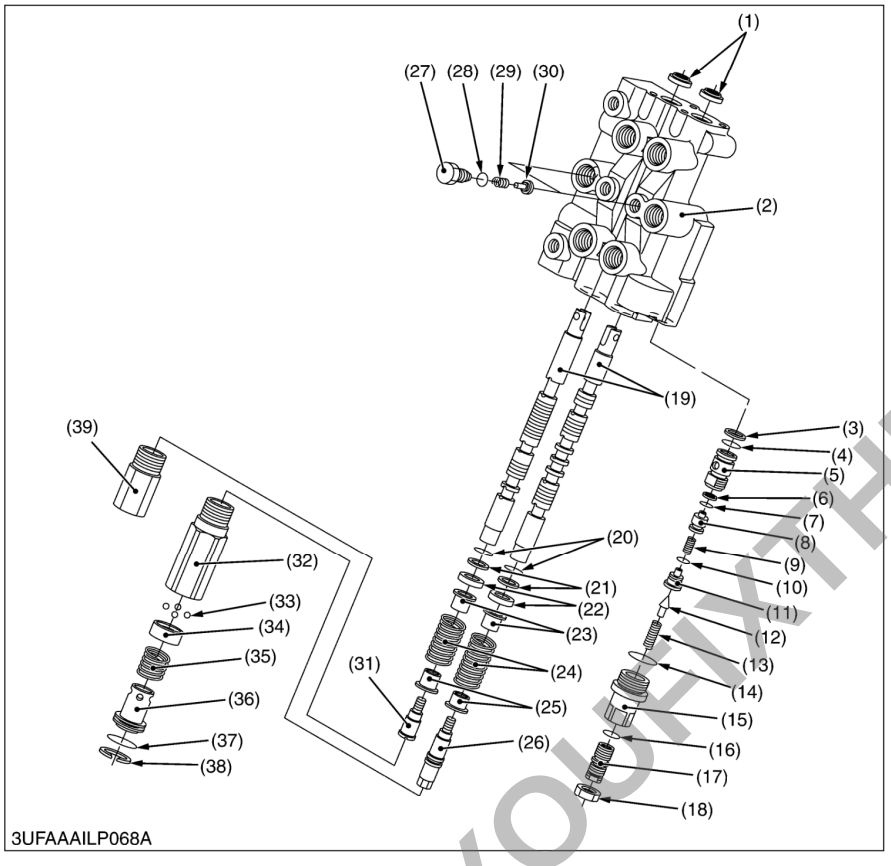
(1) Hydraulic Control Lever

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Control Valve for LA1153AU



(1) Dust Seal
(2) Valve Body
(3) Back-up Ring
(4) O-ring
(5) Poppet 1
(6) Back-up Ring
(7) O-ring
(8) Poppet 2
(9) Spring
(10) O-ring
(11) Poppet 3
(12) Poppet 4
(13) Spring
(14) O-ring
(15) Plug
(16) O-ring
(17) Adjusting Bolt
(18) Lock Nut
(19) Spool
(20) O-ring
(21) Back-up Ring
(22) Collar
(23) Spring Holder
(24) Spring
(25) Spring Holder
(26) Detent Bolt
(27) Plug
(28) O-ring
(29) Spring
(30) Check Valve
(31) Bolt
(32) Plug
(33) Ball
(34) Detent Ring
(35) Spring
(36) Stopper
(37) O-ring
(38) Ring
(39) Plug

■ Boom Control Section and Bucket Control Section

1. Remove the plug (27) and take out the spring (29) and load check valve (30).
2. Remove the plug (32), (39) from valve body (2).
3. Remove the ring (38) and take out the stopper (36), detent spring (35), detent ring (34) and ball (33).
4. Draw out the spool (19) with other component parts from valve body (2).
5. Remove the plug (15) and take out the spring and poppet.

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