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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 assemble 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.**

1. Preparing for emergencies

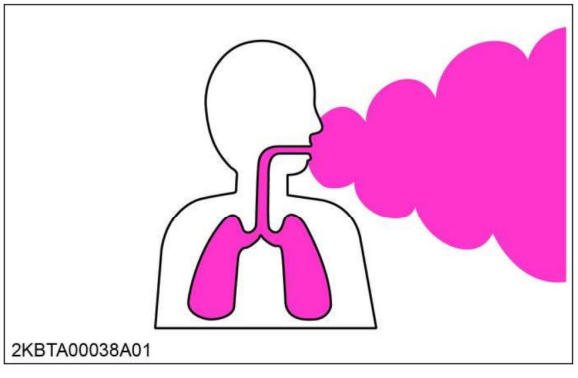

IBM010A

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

2. Working cautions


2KBTA00034A01

- Wear proper service attire when performing work. Do not wear loose clothing as they could get caught on machine components.
- Wear the proper protective equipment when working around the machine. For example helmet, eye protector and protective shoes.
- Do not work around the machine if you are tired or have consumed alcohol or drugs.


2KBTA00038A01

- Keep the machine away from obstacles and hazardous materials.
- Ensure the working environment is properly ventilated.
- Do not allow third parties to come near the machine.

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SPECIFICATIONS

1. Suitable tractor

Loader	Tractor
LM2605AU	M7131, M7151, M7171, M7132, M7152, M7172

2. Specifications for loader

Loader model			LM2605AU		
Tractor model			M7131, M7151, M7171 M7132, M7152, M7172		
			Standard	Deluxe	Premium, Premium-KVT
Hydraulic control system			Open center	Closed center with load sensing	
Wheel base (WB)	mm (in.)		2720 mm (107.1 in.)		
Front tires			540 / 65R28		
Rear tires			650 / 65R38		
Boom cylinder	Bore	mm (in.)	90 mm (3.5 in.)		
	Stroke	mm (in.)	1020.5 mm (40.177 in.)		
Bucket cylinder	Bore	mm (in.)	90 mm (3.5 in.)		
	Stroke	mm (in.)	629.5 mm (24.78 in.)		
Control valve			One detent float position		
Rated flow			80 L/min 21 U.S.gals/min 18 Imp.gals/min	110 L/min 29.1 U.S.gals/min 24.2 Imp.gals/min	
Maximum pressure			19.6 MPa 200 kgf/cm^2 2840 psi		
Net weight (approximate)			1088 kg 2399 lbs.*1		

*1 Include Euro quick coupler without bucket, front guard, main frame, and control valve.

3. Specifications for bucket

Loader model	LM2605AU
Model	Square 96 in.
Type	Euro type quick attach
Width	2440 mm (96.06 in.)

(Continued)

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MAINTENANCE CHECKLIST

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 intervals	Check points	Reference page
Daily (Each use)	Check transmission fluid level	3-3
	Check the hydraulic hoses	3-5
	Visually check hardware	3-6
	Check quick attach coupler	3-6
Every 10 hours	Grease all grease fittings	3-6 3-3
Every 20 hours to 30 hours	Re-tightening of hardware of the loader	3-7
Every 50 hours	Check loader hardware torque	3-7
Other	Visually check hardware	3-7

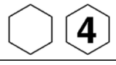
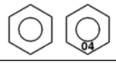
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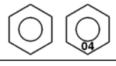
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TIGHTENING TORQUES

Refer to the following table if the tightening torques of screws, bolts and nuts are not specified in each part.

1. General use screws, bolts and nuts

Indication on top of bolt	 No-grade or 4T					
Indication on top of nut	 No-grade or 4T					
Material of opponent part	Ordinariness			Aluminum		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M6	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5
M8	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14
M10	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25
M12	63 to 72	6.4 to 7.4	47 to 53	–	–	–
M14	108 to 125	11.0 to 12.8	79.6 to 92.5	–	–	–
M16	167 to 191	17.0 to 19.5	123 to 141	–	–	–
M18	246 to 284	25.0 to 29.0	181 to 209	–	–	–
M20	334 to 392	34.0 to 40.0	246 to 289	–	–	–

Indication on top of bolt	 7T					
Indication on top of nut	 No-grade or 4T					
Material of opponent part	Ordinariness			Aluminum		
Unit	N·m	kgf·m	lbf·ft	N·m	kgf·m	lbf·ft
M6	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
M8	24 to 27	2.4 to 2.8	18 to 20	18 to 20	1.8 to 2.1	13 to 15
M10	48 to 55	4.9 to 5.7	36 to 41	40 to 44	4.0 to 4.5	29 to 32
M12	78 to 90	7.9 to 9.2	58 to 66	63 to 72	6.4 to 7.4	47 to 53
M14	124 to 147	12.6 to 15.0	91.2 to 108	–	–	–
M16	197 to 225	20.0 to 23.0	145 to 166	–	–	–
M18	275 to 318	28.0 to 32.5	203 to 235	–	–	–
M20	368 to 431	37.5 to 44.0	272 to 318	–	–	–

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SERVICING

1. Troubleshooting for front loader

Open center model

Symptom	Probable cause and checking procedure	Solution	Reference page
Insufficient boom speed (boom does not move)	1. Insufficient transmission oil	Solution order 1. Check transmission oil level	3-3
		2. Refill transmission oil	
	2. Hydraulic hose adapter of boom line is loose	Solution order 1. Check oil leaking from hydraulic hose adapter	4-97 4-110 4-113
		2. Tighten hydraulic hose adapter	
	3. Hydraulic hose of boom line is damaged	Solution order 1. Check oil leaking from hydraulic hose	4-97 4-110 4-113
		2. Replace hydraulic hose	
	4. Control lever linkage is damaged	Solution order 1. Check if control valve spool moves in response to lever operation	4-96
		2. Repair or replace control lever linkage	
	5. Oil filter is clogged	Clean or replace oil filter	Tractor WSM
	6. Control valve malfunctions	Solution order 1. Check relief valve pressure and check oil leaking	4-85
		2. Replace control valve	4-96
	7. Selectable valve malfunctions	Replace selectable valve	4-110
	8. Boom cylinder is damaged	Solution order 1. Check oil leaking from boom cylinder	4-114
		2. Replace hydraulic cylinder	
	9. Hydraulic pump malfunctions	Repair or replace hydraulic pump	Tractor WSM
Insufficient bucket speed (bucket does not move)	1. Insufficient transmission oil	Solution order 1. Check transmission oil level	3-3
		2. Refill transmission oil	

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6. Servicing

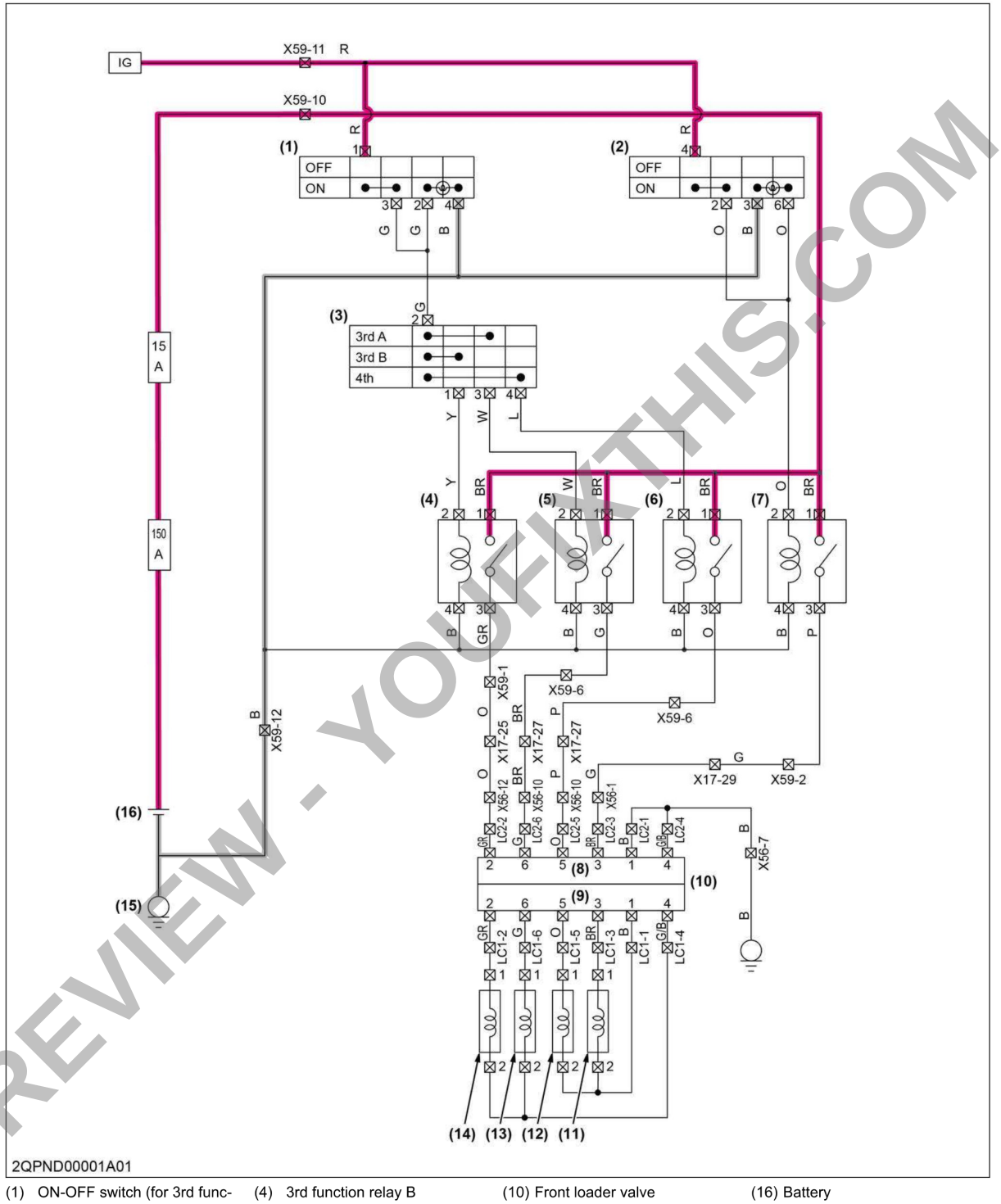
6.1 DTC (diagnostic trouble code) list

If following DTC is on monitor panel, check diagnosis manual and repair by following it.

ECU	SPN	FMI	Probable part	Problem Description	DTC Set parameter	System reaction	Instruction for error resolving	Reference
VCU2	522063	3	Solenoid valve front loader proportional - lift	Shortcut to power	Pin1-90 detected current below normal. (current < Ubat/250 Ω, for 150 msec) Short to power line.	Boom shall go to fault state Boom is switched OFF Boom icons on Terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (up) (Y50) 2. Check front loader solenoid valve (up) (Y50) (shall be around 4.8 Ω) 3. If there is DTC [SPN: 522064], check front loader solenoid valve (down) (Y51) and the related harness of it.	4-85
VCU2	522063	5	Solenoid valve front loader proportional - lift	Open circuit (+ short to Ubatt)	Pin1-90 detected current below normal. (load > 250 Ω, current < 15 mA, for 150 msec) Open circuit	Boom shall go to fault state Boom is switched OFF Boom icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (up) (Y50) 2. Check front loader solenoid valve (up) (Y50) (shall be around 4.8 Ω) 3. If there is DTC [SPN: 522064], check front loader solenoid valve (down) (Y51) and the related harness of it.	4-85
VCU2	522063	6	Solenoid valve front loader proportional - lift	Shortcut to ground	Pin1-90 detected current above normal. (current > Ubat/1.5 Ω, for 150 msec) Short to ground or shortcut.	Boom shall go to fault state Boom is switched OFF Boom icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (up) (Y50) 2. Check front loader solenoid valve (up) (Y50) (shall be around 4.8 Ω) 3. If there is DTC [SPN: 522064], check front loader solenoid valve (down) (Y51) and the related harness of it.	4-85
VCU2	522063	12	Solenoid valve front loader proportional - lift	Not plausible	If the feedback of boom up does not reflect the commanded state or both the boom up and boom down switches read back as ON.	Boom shall go to fault state Boom is switched OFF Boom icons on terminal are in ERROR state	1. Key switch OFF/ON	4-85
VCU2	522064	3	Solenoid valve front loader proportional - lower	Shortcut to power	Pin1-89 detected current below normal. (current < Ubat/250 Ω, for 150 msec) Short to power line.	Boom shall go to fault state Boom is switched OFF Boom icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (down) (Y51) 2. Check front loader solenoid valve (down) (Y51) (shall be around 4.8 Ω) 3. Check front loader solenoid valve (up) (Y50) (shall be around 4.8 Ω) 4. If there is DTC [SPN: 522063], check front loader solenoid valve (up) (Y50) and the related harness of it.	4-85
VCU2	522064	5	Solenoid valve front loader proportional - lower	Open circuit (+ short to Ubatt)	Pin1-89 detected current below normal. (load > 250 Ω, current < 15 mA, for 150 msec) Open circuit	Boom shall go to fault state Boom is switched OFF Boom icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (down) (Y51) 2. Check front loader solenoid valve (down) (Y51) (shall be around 4.8 Ω) 3. Check front loader solenoid valve (up) (Y50) (shall be around 4.8 Ω) 4. If there is DTC [SPN: 522063], check front loader solenoid valve (up) (Y50) and the related harness of it.	4-85
VCU2	522064	6	Solenoid valve front loader proportional - lower	Shortcut to ground	Pin1-89 detected current above normal. (current > Ubat/1.5 Ω, for 150 msec) Short to ground or shortcut.	Boom shall go to fault state Boom is switched OFF Boom icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (down) (Y51) 2. Check front loader solenoid valve (down) (Y51) (shall be around 4.8 Ω) 3. Check front loader solenoid valve (up) (Y50) (shall be around 4.8 Ω) 4. If there is DTC [SPN: 522063], check front loader solenoid valve (up) (Y50) and the related harness of it.	4-85
VCU2	522064	12	Solenoid valve front loader proportional - lower	Not plausible	If the feedback of boom down does not reflect the commanded state or both the boom up and boom down switches read back as ON.	Boom shall go to fault state Boom is switched OFF Boom icons on terminal are in ERROR state	1. Key switch OFF/ON	4-85
VCU2	522065	3	Solenoid valve front loader proportional - dump	Shortcut to power	Pin1-94 detected current below normal. (current < Ubat/250 Ω, for 150 msec) Short to power line.	Bucket shall go to fault state Bucket is switched OFF Bucket icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (dump) (Y52) 2. Check front loader solenoid valve (dump) (Y52) (shall be around 4.8 Ω) 3. If there is DTC [SPN: 522066], check front loader solenoid valve (rollback) (Y53) and the related harness of it.	4-85
VCU2	522065	5	Solenoid valve front loader proportional - tilt	Open circuit (+ short to Ubatt)	Pin1-94 detected current below normal. (load > 250 Ω, current < 15 mA, for 150 msec) Open circuit.	Bucket shall go to fault state Bucket is switched OFF Bucket icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (dump) (Y52) 2. Check front loader solenoid valve (dump) (Y52) (shall be around 4.8 Ω) 3. If there is DTC [SPN: 522066], check front loader solenoid valve (rollback) (Y53) and the related harness of it.	4-85
VCU2	522065	6	Solenoid valve front loader proportional - tilt	Shortcut to ground	Pin1-94 detected current above normal. (current > Ubat/1.5 Ω, for 150 msec) Short to ground or shortcut.	Bucket shall go to fault state Bucket is switched OFF Bucket icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (dump) (Y52) 2. Check front loader solenoid valve (dump) (Y52) (shall be around 4.8 Ω) 3. If there is DTC [SPN: 522066], check front loader solenoid valve (rollback) (Y53) and the related harness of it.	4-85
VCU2	522065	12	Solenoid valve front loader proportional - tilt	Not plausible	If the feedback of bucket dump does not reflect the commanded state or both the bucket dump and bucket rollback switches read back as ON.	Bucket shall go to fault state Bucket is switched OFF Bucket icons on terminal are in ERROR state	1. Key switch OFF/ON	4-85
VCU2	522066	3	Solenoid valve front loader proportional - rollback	Shortcut to power	Pin1-93 detected current below normal. (current < Ubat/250 Ω, for 150 msec) Short to power line.	Bucket shall go to fault state Bucket is switched OFF Bucket icons on terminal are in ERROR state	1. Check the related harness of front loader solenoid valve (rollback) (Y53) 2. Check front loader solenoid valve (rollback) (Y53) (shall be around 4.8 Ω) 3. If there is DTC [SPN: 522065], check front loader solenoid valve (dump) (Y52) and the related harness of it.	4-85

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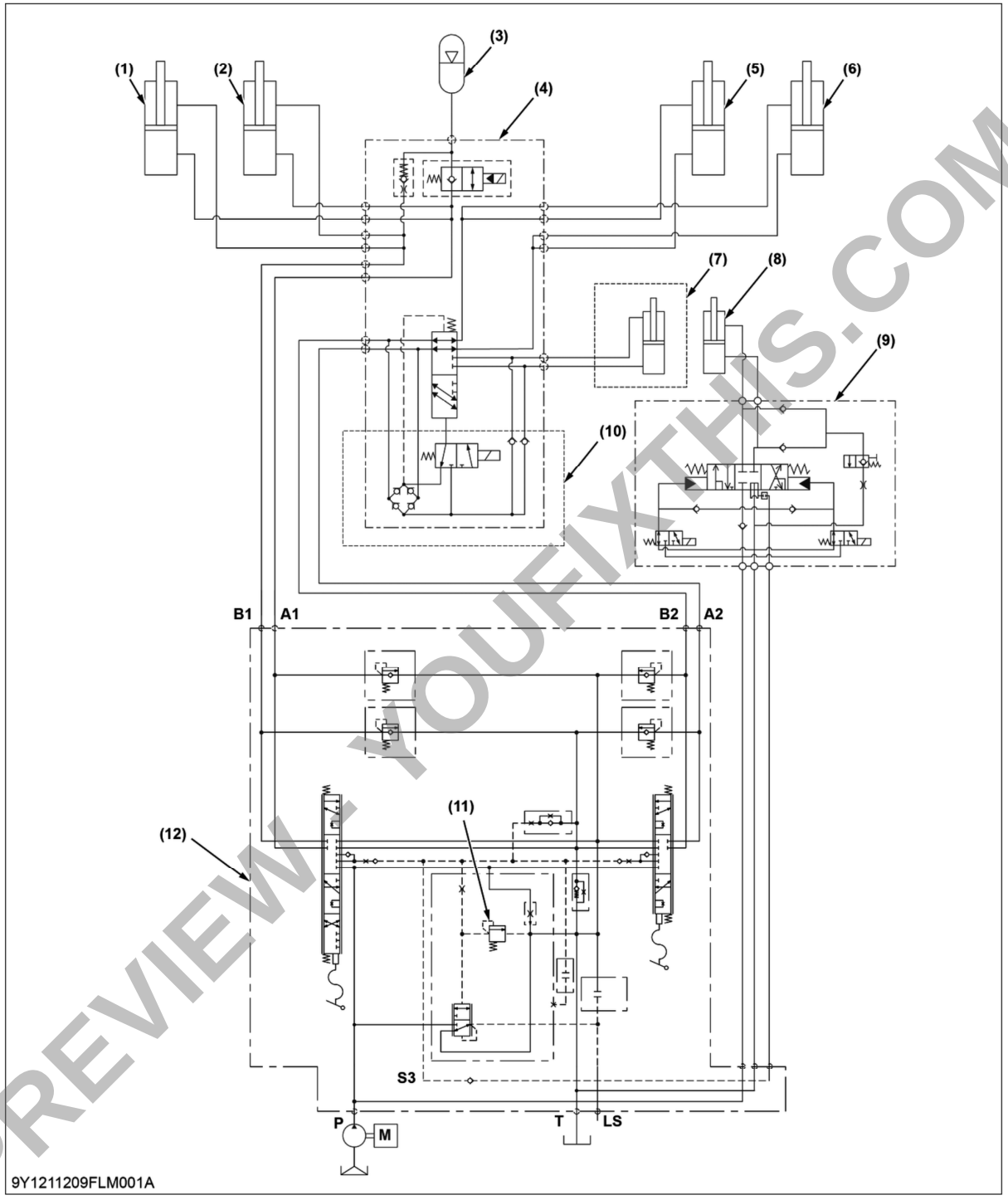
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(1) ON-OFF switch (for 3rd function / 4th function)
(2) Accumulator switch
(3) Activation switch on loader lever (for 3rd function / 4th function)
(4) 3rd function relay B
(5) 3rd function relay A
(6) 4th function relay
(7) Accumulator relay
(8) Quick coupler lower side
(9) Quick coupler upper side
(10) Front loader valve
(11) Accumulator solenoid
(12) 4th function solenoid
(13) 3rd function solenoid A
(14) 3rd function solenoid B
(15) GND
(16) Battery

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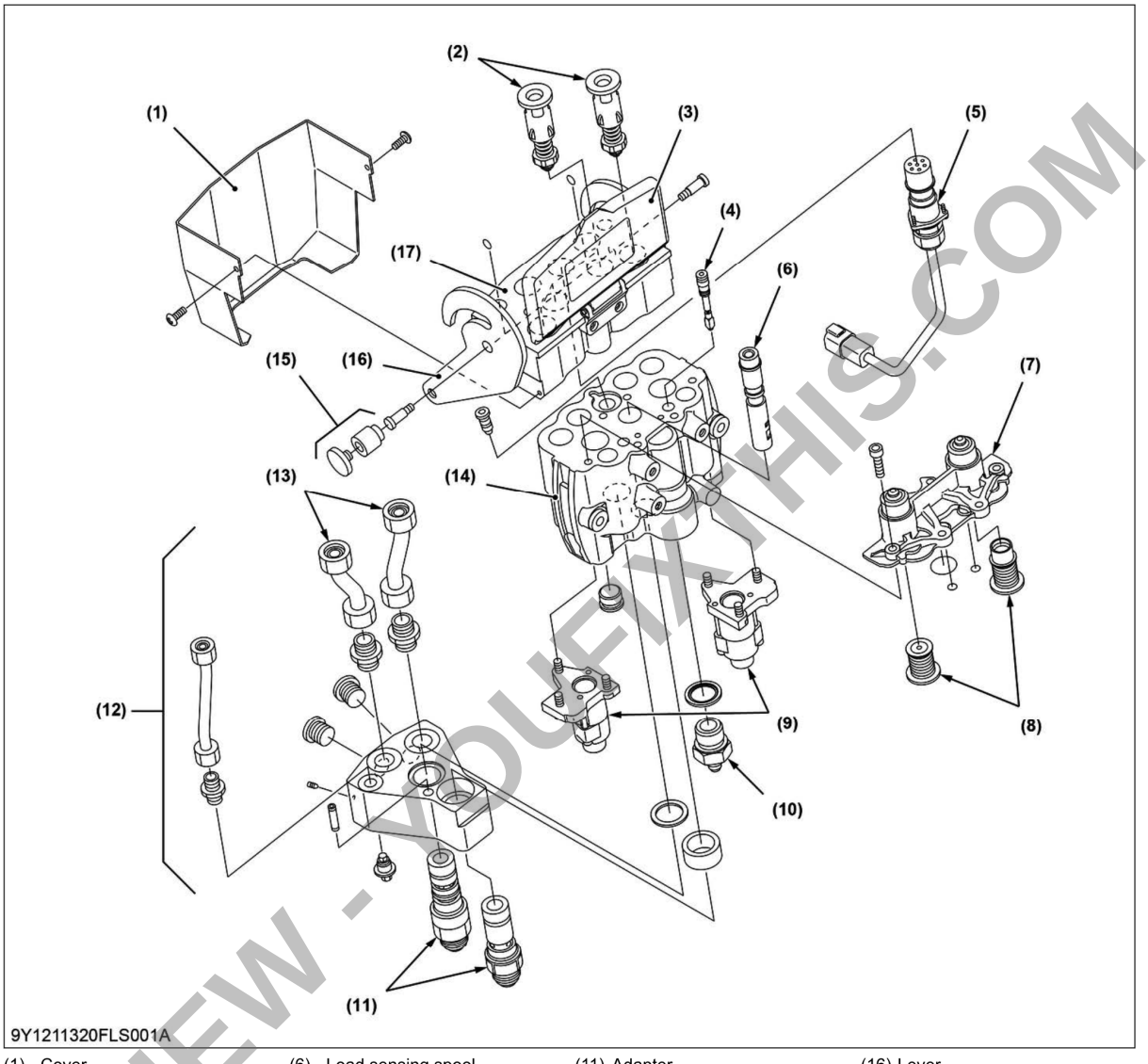
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(1) Boom cylinder
(2) Boom cylinder
(3) Accumulator
(4) Selectable valve
(5) Bucket cylinder
(6) Bucket cylinder
(7) 4th function cylinder (option)
(8) 3rd function cylinder
(9) 3rd function valve
(10) 4th function valve (option)
(11) Relief valve
(12) Control valve assembly

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14. Remove the connection kit (12).



(1) Cover
(2) Port relief valve
(3) Cap
(4) Check valve
(5) Valve harness
(6) Load sensing spool
(7) Spool cover
(8) Spool control spring
(9) Spool holder
(10) Adapter
(11) Adapter
(12) Connection kit
(13) Nut
(14) Spool holder assembly
(15) Lock button
(16) Lever
(17) Coupler

(When reassembling)

- Tighten to the specified tightening torque.

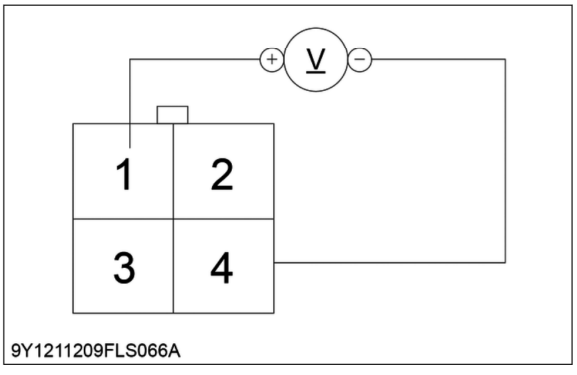
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3. Measure the voltage between terminal 1 and terminal 4 (wiring harness side).
   If the measurement differs from battery voltage, check the electric circuit between battery and ON-OFF switch.

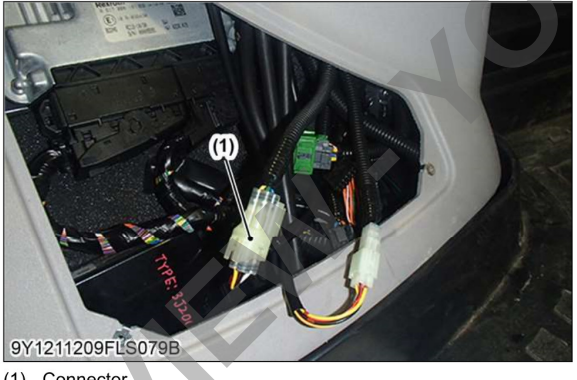
(Reference)

Switch connector voltage	Terminal 1 – terminal 4	Battery voltage



4.4.8 Checking resistance of ON-OFF switch (open center model)

1. Disconnect connector (1) of ON-OFF switch.

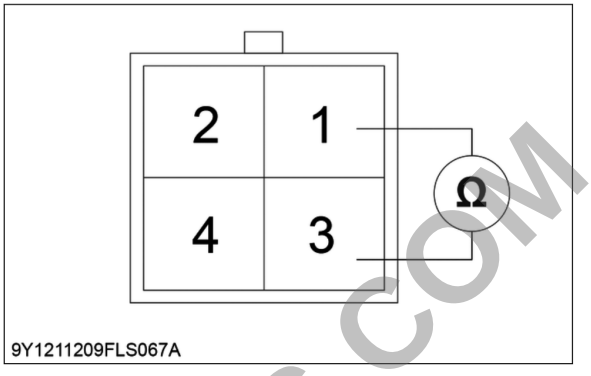


(1) Connector

2. Turn key switch ON.
3. Measure the resistance between terminal 1 and terminal 3 (wiring harness side).
   If 0 ohm is not indicated, replace ON-OFF switch.

(Reference)

Resistance	Terminal 1 – terminal 3	ON position	0 Ω
		OFF position	Infinity



5. Disassembling and assembling

5.1 Removing the loader

5.1.1 How to remove the loader

WARNING

To avoid personal injury or death:

- **Make sure that 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 the stand.**
- **Before 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.**

NOTE

- **Before removing the loader, switch the accumulator off.**

1. Raise the boom until the stands can be rotated.
2. Stop the engine.
3. Remove the spring pins holding the stands to the boom.

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