

WSM

WORKSHOP MANUAL
KUBOTA EXCAVATOR

U30-6

Kubota

TO THE READER

This workshop manual provides safety information for service activity, general information such as specifications and dimensions of the machine, mechanisms and structure descriptions of the machine, and service procedures with setting values.

Information

- Information section contains safety service descriptions and safety label information.

General

- General section contains specifications for the machine, identification for the machine and the engine, general maintenance information.

Mechanism

- Mechanism section contains the structures of mechanisms and explains their functions.

Servicing

- Servicing section contains information and procedures for troubleshooting and repair works with service specifications and limit tables, torque specifications, items to be inspected and adjusted. The reader should follow these instructions to complete any servicing safely, correctly and quickly.

All of the illustrations, photographs, specifications and other information in this manual were created based on the latest model at the time of publication.

KUBOTA reserves the right to change all information at any time without notice.

If necessary the engine servicing information, please refer following engine WSM.

U30-6

Engine model	WSM title	WSM PDF No.
V1703-M-E3-BH-11	03-M-E3B SERIES,03-M-DI-E3B SERIES,03-M-E3BG SERIES	9Y111-02574

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REVISION HISTORY

Revision number	Date (YYYY/MM)	Revision description	Pages	Author
1	2020/06	Changed the items indicated on the name plate.	2-15	R.K.
		Added contents for removing and installing the steel track.	3-25	
		Added contents for removing and installing the rubber track.	3-28	
		Added contents for removing and installing the track roller.	3-33	

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1. INFORMATION

SAFETY FIRST

Read the safety instructions in the manual and on the safety labels very carefully to avoid personal injury. The safety symbols, precautions and safety labels offer instructions regarding safety regulations for machine operation.

It is essential that you read and follow them.

DANGER

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

WARNING

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

CAUTION

- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

IMPORTANT

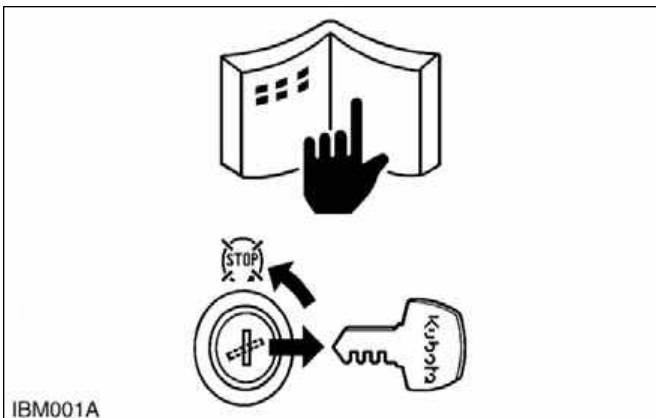
- Indicates that equipment or property damage could result if instructions are not followed.

NOTE

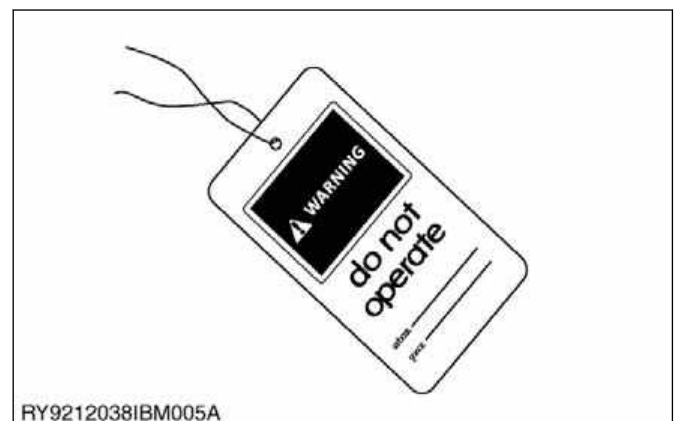
- Gives helpful information.

1. For working safety

1.1 Working precautions

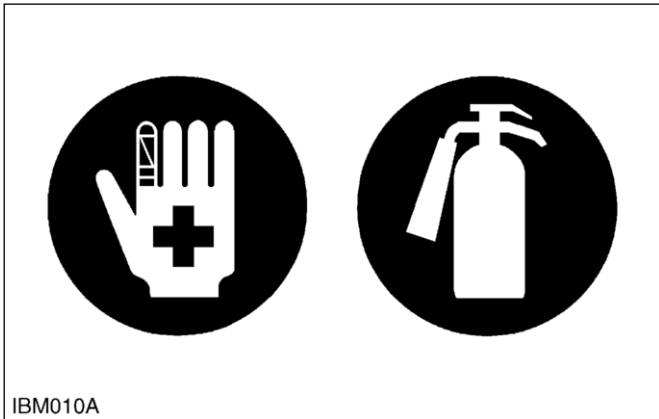


- Please understand all safety instructions and safety labels in this manual.
- Stop the engine when leaving the operator's seat for cleaning, checking, and adjusting the machine.
- Park the machine on a firm and level ground to check the machine safely.



- Hang a **DO NOT OPERATE** tag near the operator's seat.
- When doing maintenance and repairing, lower the front attachment to the ground, stop the engine, and attach the warning sign so it is clearly visible.
- Do not use worn or cracked tools. Use tools in a proper way with enough strength.

1.2 Preparing for emergencies



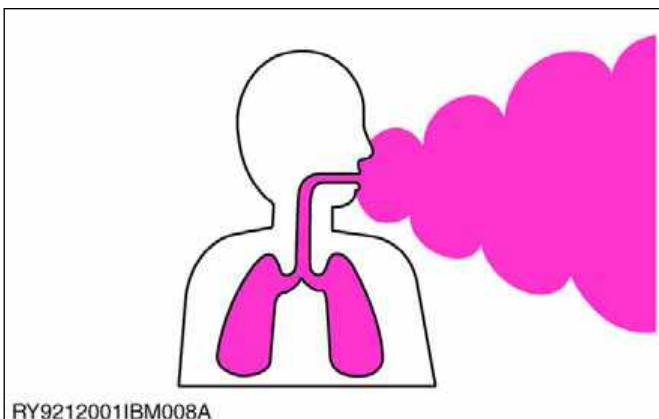
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- Keep a first aid kit and fire extinguisher ready at all times.
- Keep the emergency contact telephone numbers near your telephone.
- Wear the uniform suited for service working. Do not wear loose clothes as they could get caught on the control lever.
- When checking the machine, use proper protective equipment (for example helmet, eye protector, and protective shoes).
- Do not check the machine after you have consumed alcohol or drugs or when you are tired.

1.3 Working cautions



RY9212001IBM008A

- Park the machine on a stable and level ground. Keep the machine away from obstacles and hazardous materials.
- In cases of working indoors, make sure to ventilate the work area.
- Do not allow third parties to come near the machine.
- Maintain the machine clean. Remove dirt, debris, and oil attached to the machine.



RY9212001IBM003A

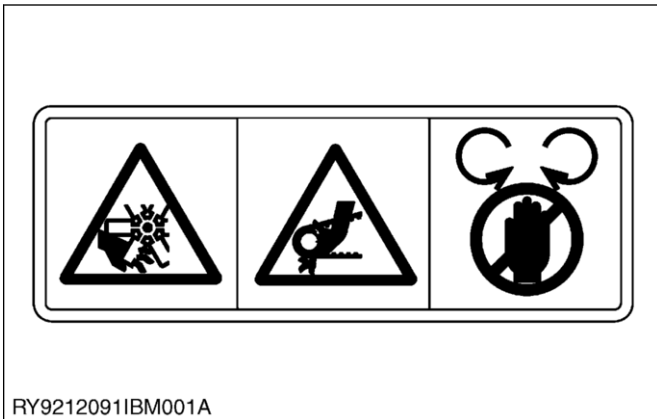
- Make sure you have the support of 3 points (both hands and one foot) to get on or off the machine.

1.4 Starting the machine safely

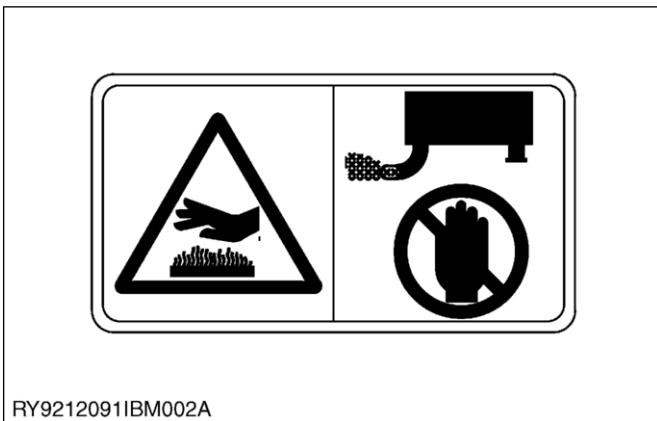


RY9212001IBM004A

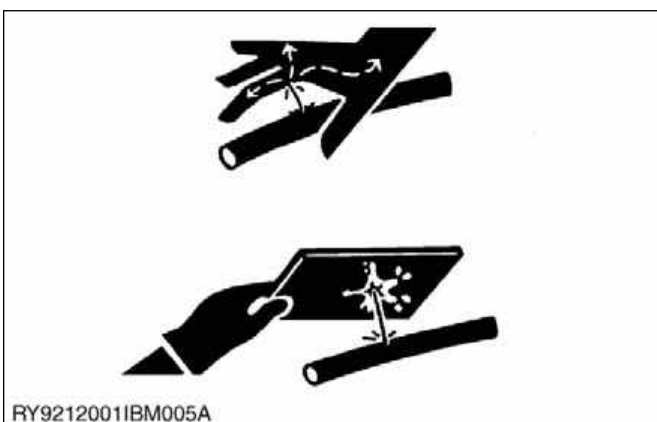
- Confirm if it is safe around the machine from the operator's seat before starting the engine.
- Do not start the engine if not seated in the operator's seat.
- Confirm that the pilot levers are in neutral before starting the engine.



- Lock the cover and bonnet when starting the machine with cover and bonnet opened.
- Keep away from rotating and moving objects.
- Keep tools and waste cloth away from the rotating and moving objects.



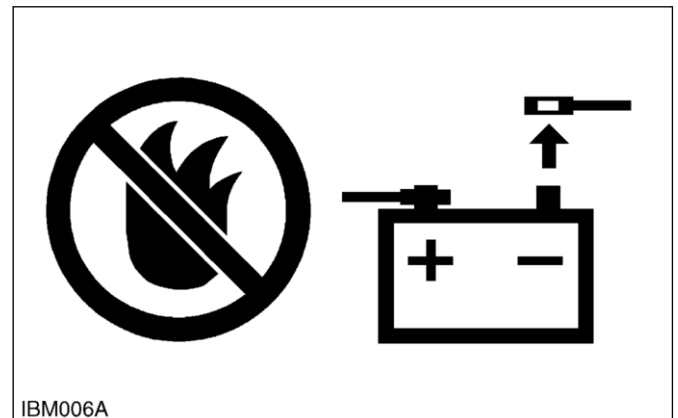
- Do not work immediately after stopping the engine. The engine, muffler, radiator, and hydraulic devices are extremely hot.
- Do not remove caps and plugs soon after stopping the engine. Since, the temperature and pressure of coolant, hydraulic oil, and the fuel are still high.



- Do not short starter circuit to start the engine. This is dangerous and might damage the machine.
- When opening the radiator cap, confirm coolant temperature and release pressure.

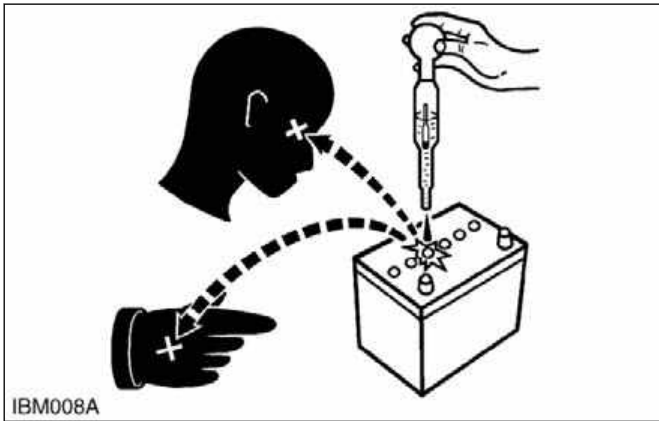
- Release residual pressure of the hydraulic circuit before removing the hydraulic devices.
- Pay attention when releasing pressure of hydraulic circuit, as the machine or front attachment might move unexpectedly.
- Wear safety glasses and gloves when checking for oil leakage.

1.5 Preventing fires



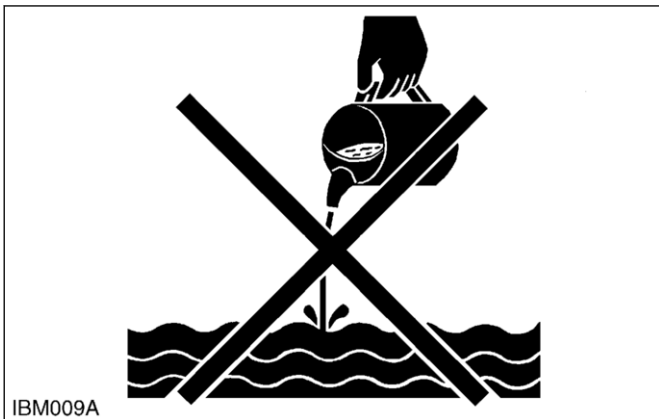
- Keep fire (welding sparks, grinding sparks, cigarettes) away from fuel.
- Wipe off the fuel off when spilled.
- Keep fire (welding sparks, grinding sparks, cigarettes) away from the battery. The battery produces oxygen and hydrogen gas which are flammable.
- When disconnecting the battery cable, make sure to disconnect the negative (-) terminal first.
- When connecting the battery cable, make sure to connect the positive (+) terminal first.

1.6 Preventing 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.

1.7 Discarding waste fluid



- Do not discard fluids to 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 hazardous wastes.

2. Safety labels

2.1 Location for danger, warning and caution labels

Read safety instructions on safety label very carefully to avoid personal injury.

Standard specification

(1) Part No. RD517-5789-Δ [Both sides]

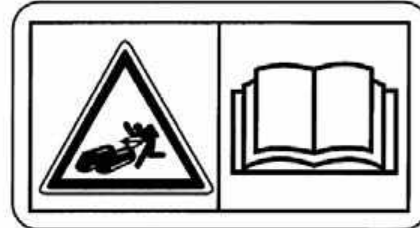
Do not allow any person within the working range.



1BAAABVAP0620

(2) Part No. RD809-5795-Δ [Both sides]

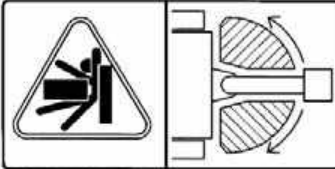
Do not loosen the grease fitting completely or too quickly.



1BAABAMAP0010

(3) Part No. 69198-5722-Δ [Both sides]

Do not allow any person within the working range.



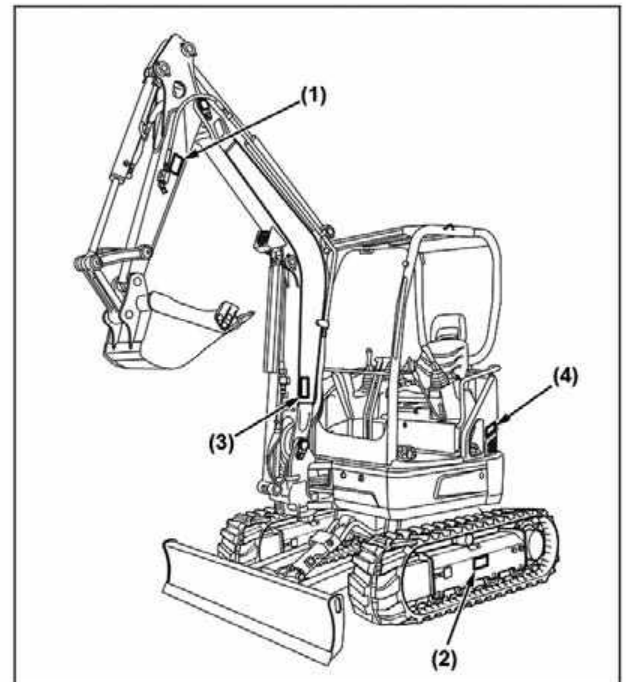
1BAABANAP230A

(4) Part No. RD148-5736-Δ

Diesel fuel only No fire



1BAAAAMAP0120



2EBWF00029A01enUS

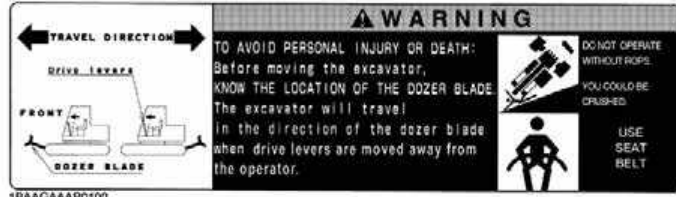
(1) Part No. RC108-5796-Δ [Both sides]



Lifting point

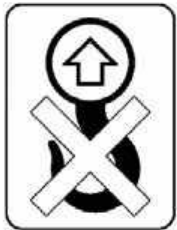
1BAAGAAAP0290

(2) Part No. RC418-5727-Δ



1BAAGAAAP0100

(3) Part No. RB419-5796-Δ [Both sides]



Do not use the hook for lifting.

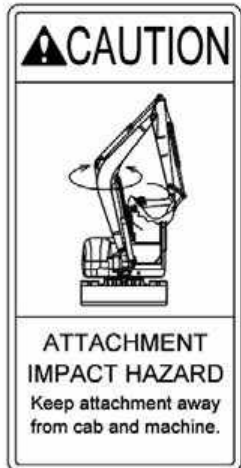
1BAABAUAP2720

(4) Part No. RC488-5728-Δ

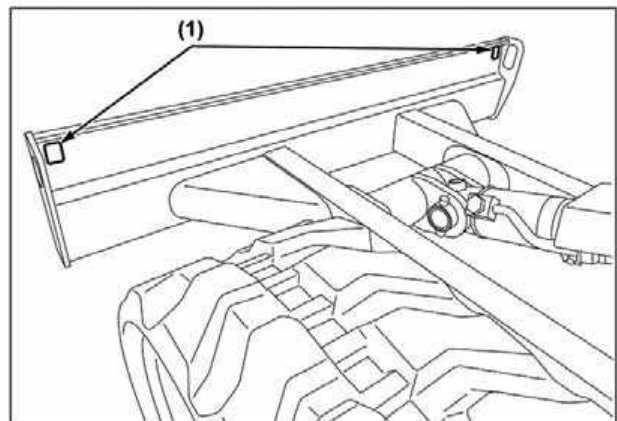
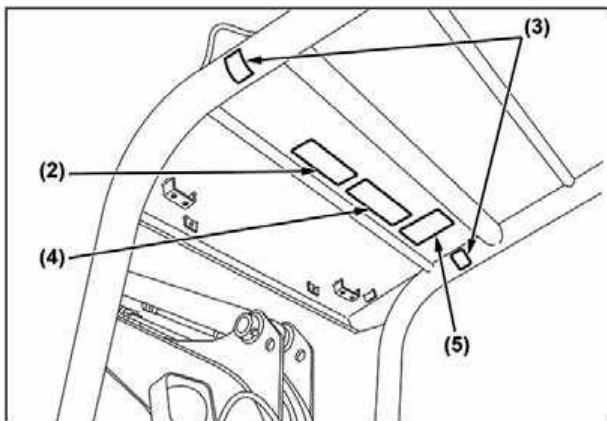
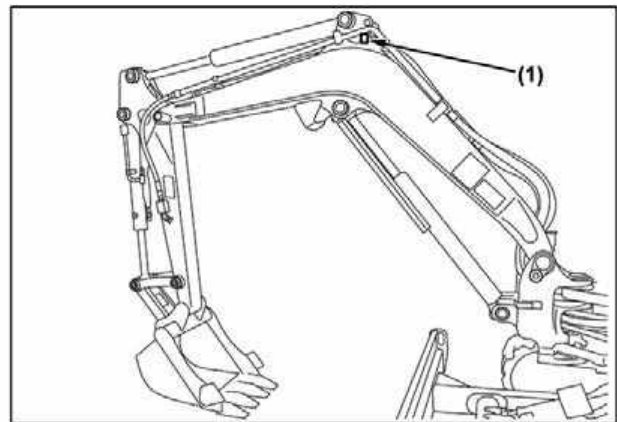


1BAAACGAP003A

(5) Part No. RD809-5738-Δ



1BAAAARAP1000



2EBWF00030A01enUS

(1) Part No. RB449-5738-Δ
Do not touch hot parts such as exhaust etc.



1BAABBAP074A

(2) Part No. RC418-5737-Δ
Keep away from fan and fan belt.



1BAAEBBAP0020

(3) Part No. RD829-5723-Δ
Do not open the radiator cap before
the radiator has cooled down.

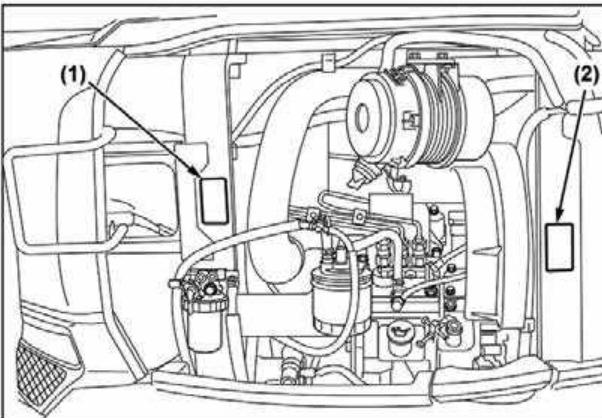


1BABEAAAP0100

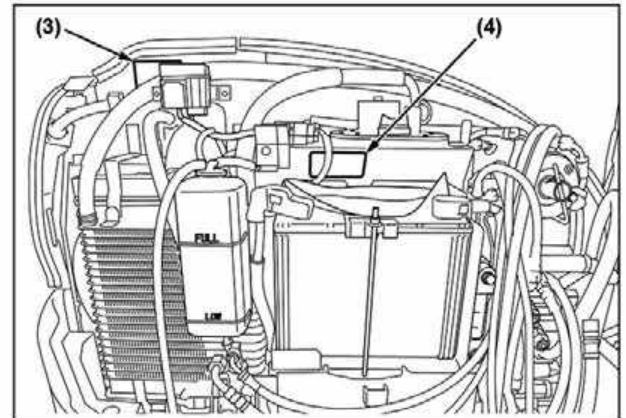
(4) Part No. RD517-5786-Δ
To avoid hazardous high voltage.



1BAAGACAP2240



2EBWF00031A01enUS



(1) Part No. RD517-5782-Δ

Do not allow any person within the working range.

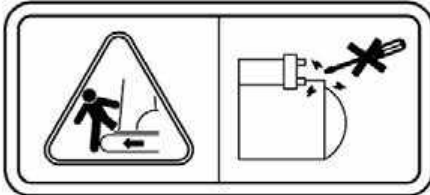


1BAABAUP198M

(3) Part No. 69198-5739-Δ

Start engine only from operator's seat.

Do not start engine by shorting across starter terminals.

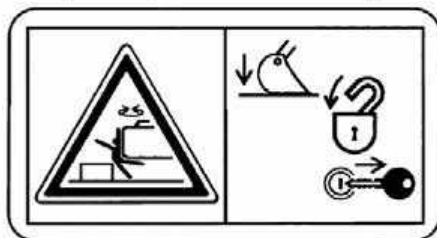


1BAAGACAP1220

(5) Part No. RD517-5783-Δ

Before leaving the machine,

- Keep bucket on the ground.
- Lock all control levers.
- Stop the engine and remove the key.



1BAAABVAP0650

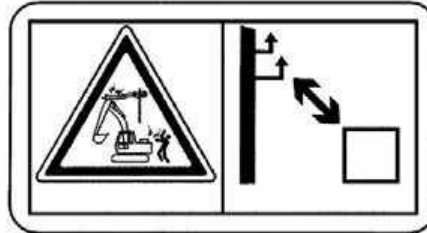
(2) Part No. RC488-5714-Δ



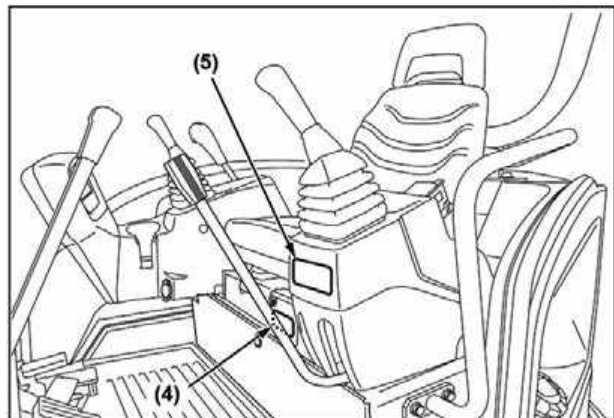
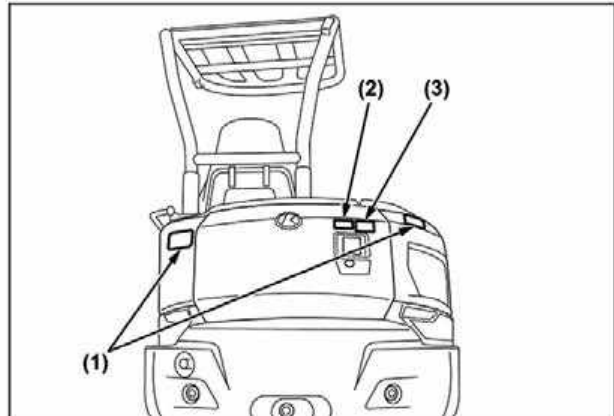
1BAAACGAP009A

(4) Part No. RD517-5788-Δ

Check overhead clearance from electric wires.



1BAABAUP187K



2EBWF00032A01enUS

Crane specification

(1) Part No. RC668-7943-Δ

⚠ WARNING

1. THIS MACHINE IS EQUIPPED WITH THE LOAD CELL (WITH OVERLOAD ALARM) ADJUSTED ACCORDING TO THE FACTORY-SHIPED SPECIFICATIONS. IT IS PROHIBITED TO PERFORM CRANING WITH IT REARRANGED FOR BUCKET REPLACEMENT, A QUICK HITCH OR A BREAKER.
2. BEFORE STARTING WORK, PERFORM THE START UP INSPECTION DESCRIBED IN THE INSTRUCTION MANUAL.

CAUTION IN CRANING

1. BE SURE TO PRESS THE CRANE SWITCH ON THE MONITOR TO ACTIVATE THE OVERLOAD ALARM. (THE BUCKET SHOULD BE FULLY TUCKED.)
2. MAKE SURE THAT THE FOOTHOLD IS LEVEL AND STRONG.
3. NEVER PERFORM LIFTING EXCEEDING THE RATED LOAD.
4. BE SURE TO TURN ON THE DRIVING MODE SWITCH WHEN PERFORMING DRIVING LIFTING.
5. DO NOT PERFORM HORIZONTAL PULLING, SLANT LIFTING, PILE PULLING-OUT, ETC.
6. PERFORM CRANING WITHIN THE SPECIFIED RANGE.
7. WHEN THE DISPLAY ON THE MONITOR IS SET TO THE POSITION DISPLAY, BE SURE TO SET IT BACK TO THE LOAD DISPLAY AFTER CHECKING THE POSITION.

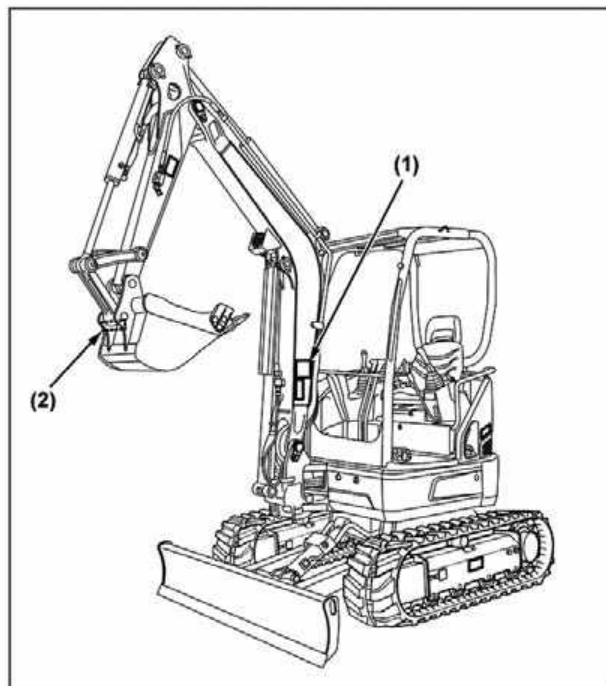
1BAABBIAP010A

(2) Part No. RC668-7948-Δ

**MAX.
LIFTING LOAD**

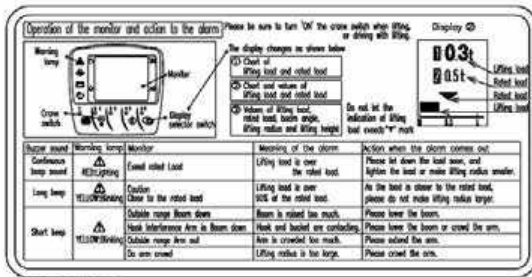
0.9t

1BAABBLAP5240



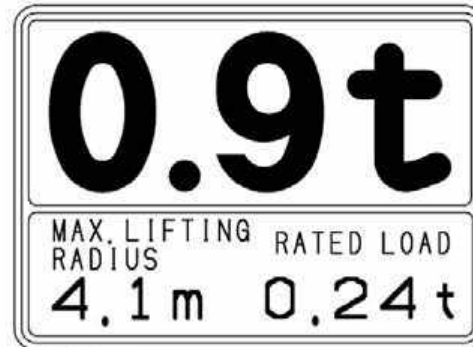
2EBWF00044A01enUS

(1) Part No. RC688-7944-Δ



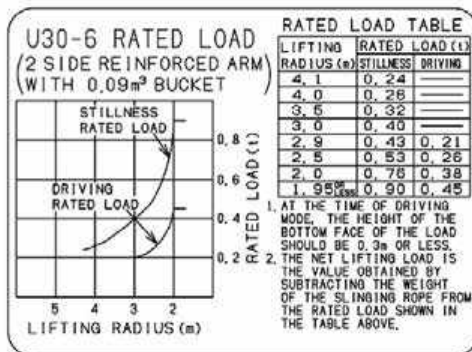
1BAABBPA2110

(2) Part No. RC688-7946-Δ



1BAABBPA2120

(3) Part No. RC688-7945-Δ

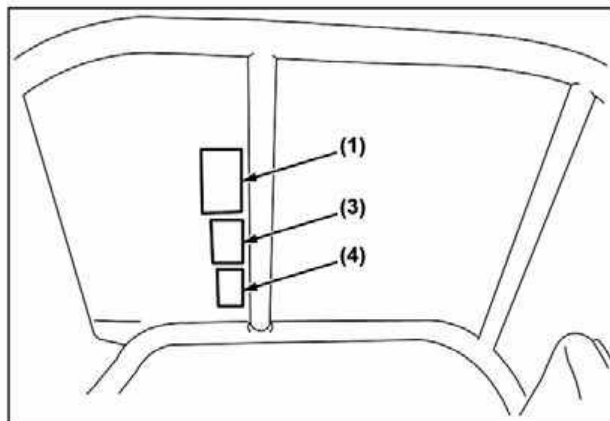


1BAABBPA2130

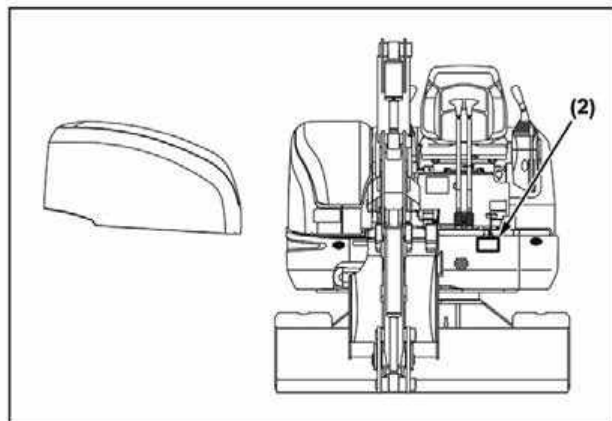
(4) Part No. RC688-7909-Δ



1BAABBPA250



2EBWF00045A01enUS



2.2 Safety labels maintenance

- Keep safety labels clean, and free from obstructing material.
- Clean safety labels with soap, water, and soft cloth.
- Replace damaged or missing safety labels with new ones.

- If a component with safety labels affixed is replaced with new part, make sure new labels are attached in the same locations as the old components.
- Mount new safety labels on a clean dry surface and press any bubbles to the outside edge.

2. GENERAL

GENERAL WORKING INSTRUCTIONS

1. General working precautions

- When servicing, observe the safety regulations in operator's manual and workshop manual.
- Clean the machine before maintenance.
- Before working, remove the negative (-) terminal from the battery, or turn off the battery isolator switch.
- Disassemble the machine at a clean location.
- Whenever a special tool is required, use the special tool that KUBOTA recommends. Make any special tools which are used occasionally according to the illustrations in this manual.
- Use genuine KUBOTA parts to ensure safety and machine performance.

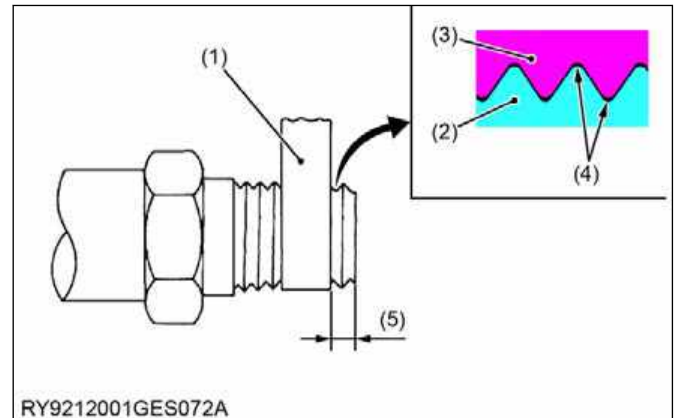


2. Wrapping thread seal tape

1. Wrap the thread seal tape 2 or 3 revolutions around taper threads.
2. Tighten the taper thread with the specified torque.

NOTE

- Do not loosen taper thread after tightened to avoid oil leakage.
- Do not wrap the thread seal on the first and second threads to avoid the thread seal contaminating in the hydraulic circuit.



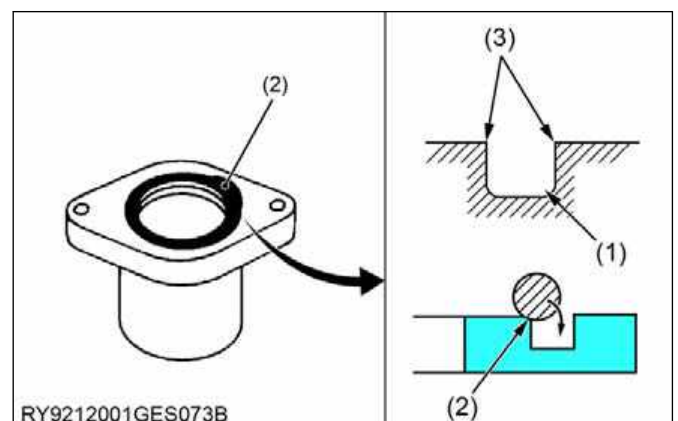
- (1) Thread seal tape
- (2) Male thread
- (3) Female thread
- (4) Clearance
- (5) First and second threads

3. Replacing O-rings

1. Remove the burr and clean the O-ring groove.
2. Grease the O-ring. Do not apply any grease to the floating seal.
3. Put the O-ring in the groove.

NOTE

- Do not kink the O-ring.
- Remove the burr to avoid the damage on the O-ring by the burr.



- (1) O-ring groove
- (2) O-ring
- (3) Burr

4. Replacing oil seals

1. Do not face the lip of the oil seal in the wrong direction. Face the main lip toward the material to be sealed.

2. GENERAL

- Use a press to install the oil seal until it seats firmly in the boss.

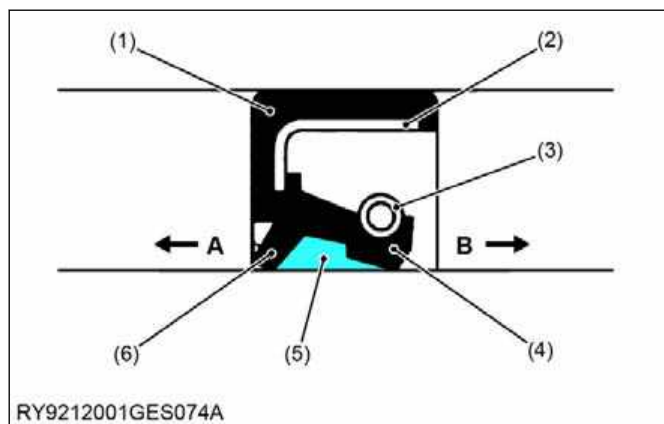
NOTE

- In case of installing without a press, hit the oil seal with hammer lightly, straightly and evenly to install.

- Grease the seal lip and dust lip.

NOTE

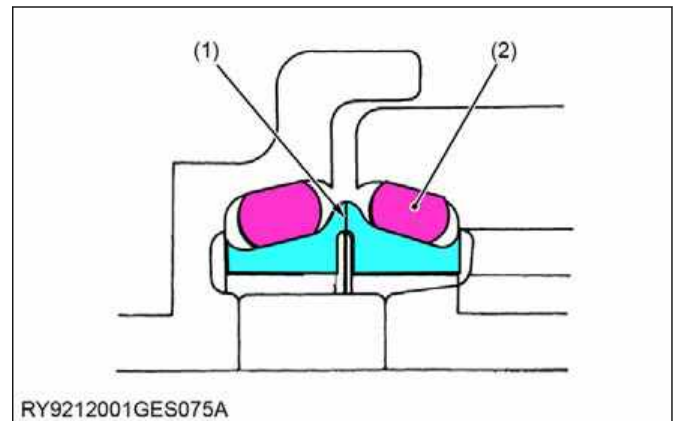
- If the seal has a dust lip, grease the gap between the lips.
- After oil seals are replaced, grease the moving parts around the lip to prevent the dry surfaces from wearing each other when the engine is started.



- | | |
|----------------|--------------|
| (1) Packing | (6) Dust lip |
| (2) Metal ring | A: Air side |
| (3) Spring | B: Oil side |
| (4) Seal lip | |
| (5) Grease | |

5. Replacing floating seals

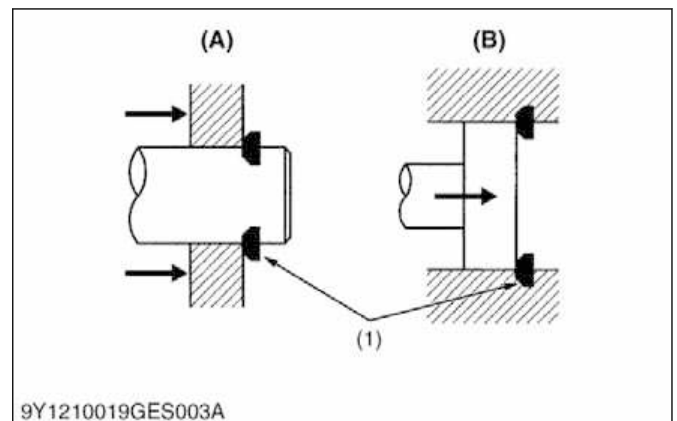
- Apply oil to both sides of the O-ring and the contact surface properly.
- Do not kink the O-ring when installing the floating seal.
- Apply oil thinly to the sliding surfaces.
- Install the floating seal in parallel to the sliding surfaces, O-ring, and housing.
- After installing, rotate the floating seal 3 revolutions to make an oil film on the sliding surface.



- (1) Sliding surface (2) O-ring

6. Installing circlips

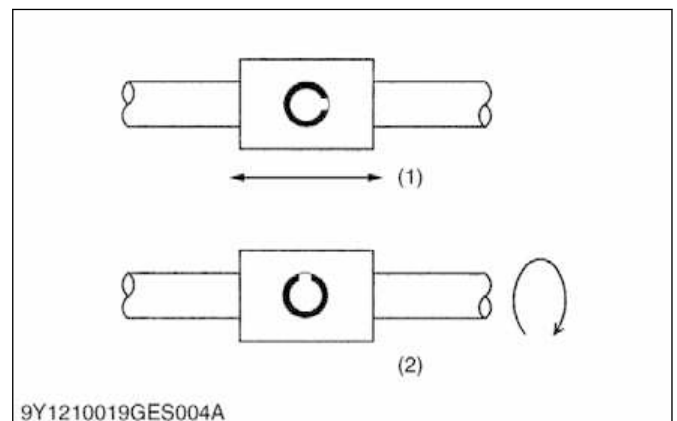
- When installing the circlip, set the surface of the edge in the direction of the received force.



- (1) Circlip (B) Internal circlip
(A) External circlip

7. Installing spring pins

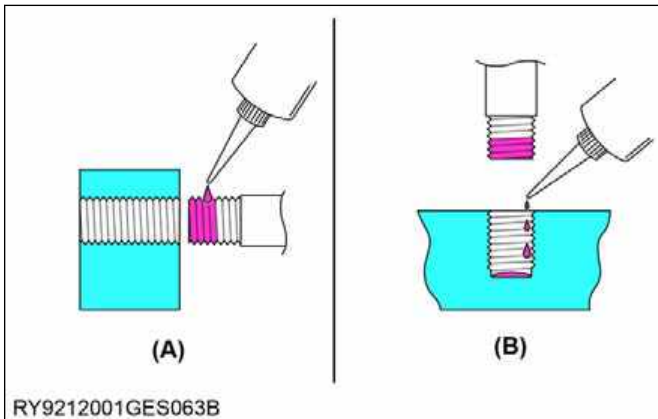
- Install the slit of spring pin in the direction that receive the force.



- (1) Parallel force (2) When rotating

8. Applying thread lock

1. Clean and dry the location where thread lock will be applied with a solvent, so that it is free of moisture, oil and dirt.
2. Apply thread lock all around the threads of the bolt except the top thread.
3. If the threads are large, accordingly apply the thread lock all around the bolt hole as well.



RY9212001GES063B

(A) Bolt hole (bolt, nuts)

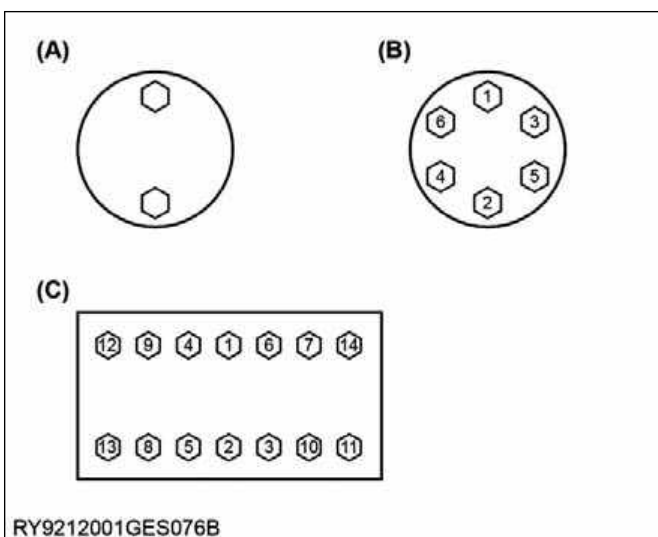
(B) Screw hole

9. Tightening bolts and nuts

1. Tighten bolts and nuts with their specified torque.

NOTE

- Tighten bolts and nuts alternately from top to bottom, left to right so the torque is distributed evenly.
- Tighten bolts and nuts divided into 2 or 3 times.



RY9212001GES076B

(A) Alternately
(B) Diagonally

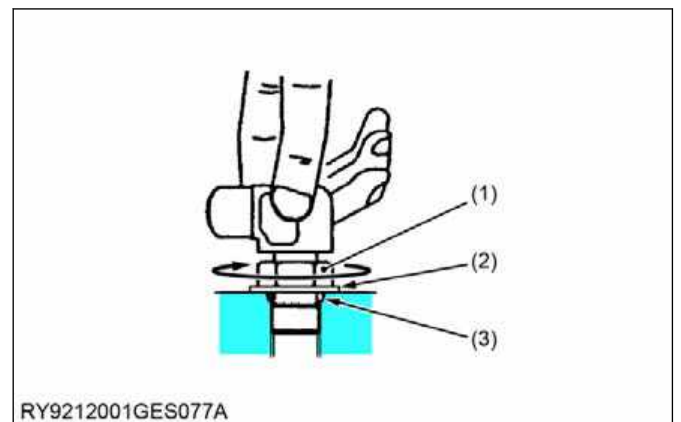
(C) From center to outside

10. Connecting hydraulic hoses

1. Clean the inside of the hose fittings.
2. Tighten with the specified torque.
3. Apply pressure on the hydraulic hose to check for oil leakage.

11. Installing elbows with male seat

1. Clean the male seat surface and the seal.
2. Loosen the locknut until the top end.
3. Install the elbow by hand-tightening until the male seat touches the material surface.



RY9212001GES077A

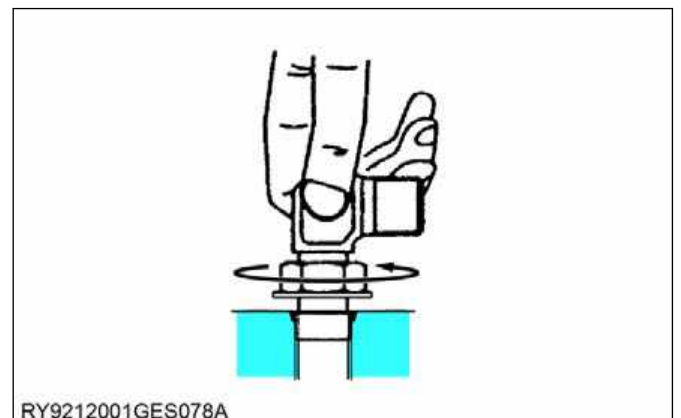
(1) Locknut
(2) Seat

(3) Seal (O-ring)

4. Adjust direction for the elbow.

NOTE

- Do not loosen more than 1 revolution.



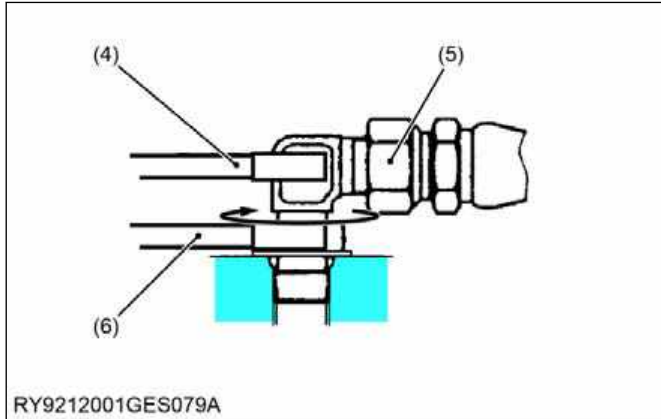
RY9212001GES078A

2. GENERAL

5. Tighten the locknut with the specified torque.

NOTE

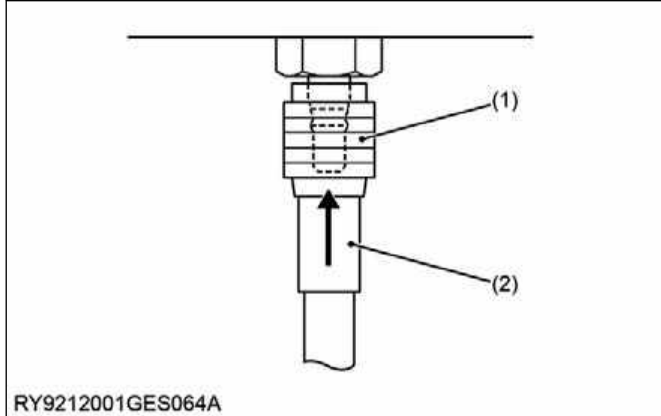
- Check for oil leakage.



(4) Wrench (5) Hose (6) Torque wrench

12. Connecting and disconnecting quick hose couplings

1. Push the metal fittings in the direction of the arrow mark.



(1) Plastic part (2) Metal fitting

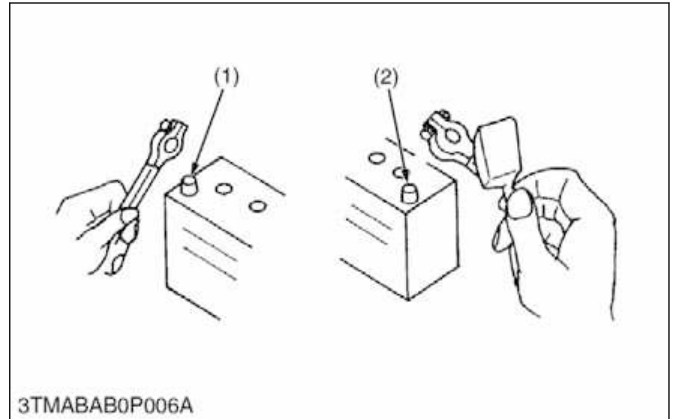
2. Pull the plastic part in the opposite direction of the arrow mark.
3. Disconnect the quick hose coupling.
4. Push the quick hose coupling in the direction of the arrow mark to connect.
5. Confirm that the hose is installed correctly.

13. Handling the battery

CAUTION

- Disconnect negative (-) terminal first.
- Connect positive (+) terminal first.

12. Connecting and disconnecting quick hose couplings

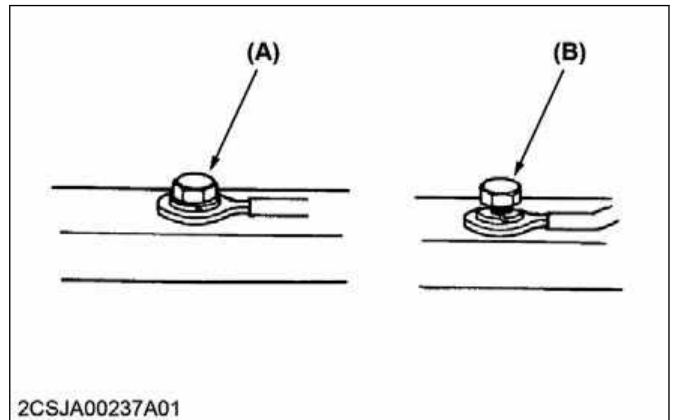


(1) Battery negative (-) terminal (2) Battery positive (+) terminal

14. Handling electrical wiring

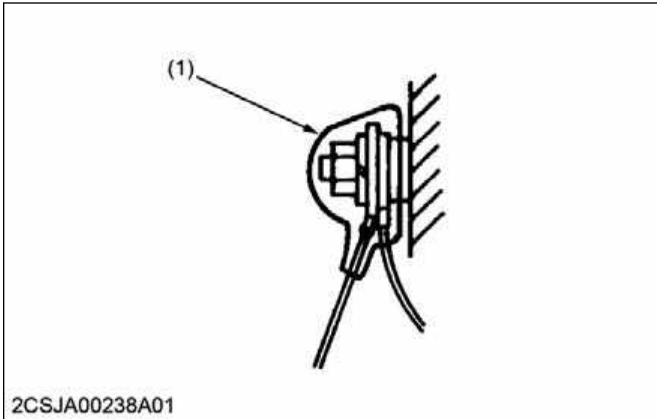
CAUTION

- Do not contact an unprotected electrical wiring to other components.
 - Do not clamp the electrical wiring to fuel hoses.
 - Check for damage and poor connection of the electrical wiring.
 - Do not alter the electrical device and wiring.
- Tighten the electrical terminals securely.

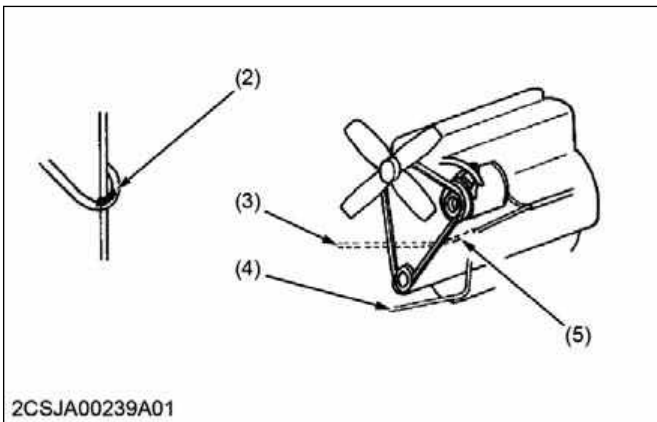


(A) Correct (B) Incorrect (the bolt is loose)

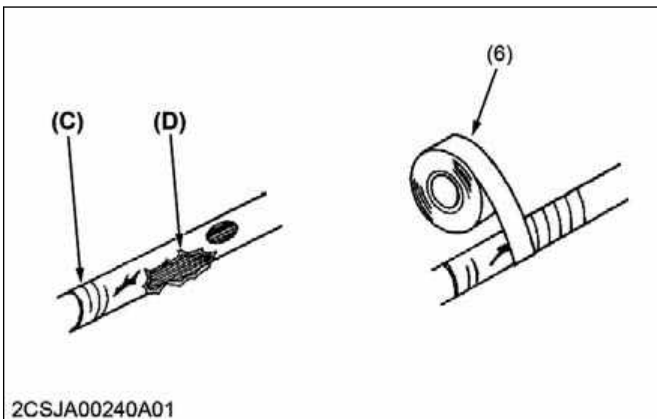
- Check the electrical terminal protection and clamping conditions before connecting the battery cable.



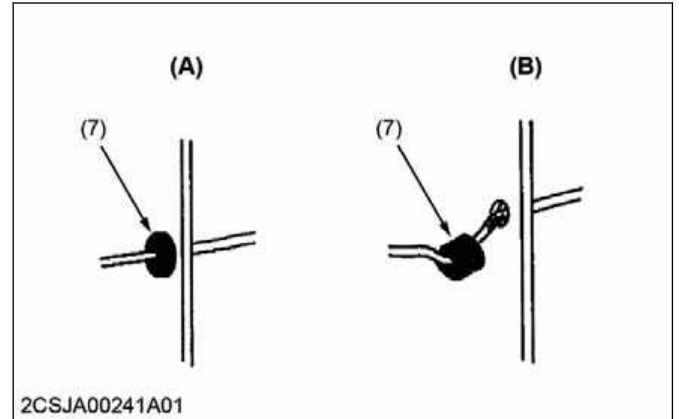
- (1) Covered completely
- Keep the wiring away from hazards.



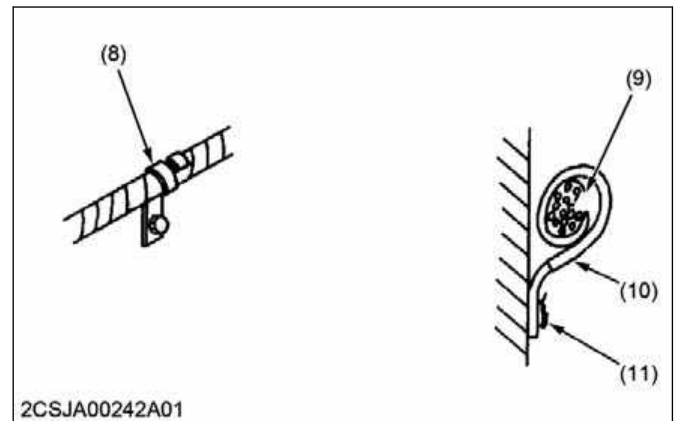
- (2) Hazardous position (5) Hazardous position
 (3) Wiring position (poor)
 (4) Wiring position (good)
- Repair or replace the damaged or old wiring immediately.



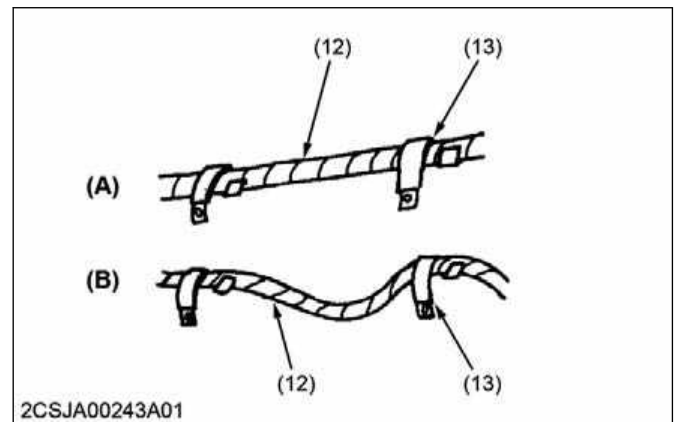
- (6) Insulating tape (D) Torn
 (C) Damaged
- Install the grommet securely.



- (7) Grommet (B) Incorrect (poor installation)
 (A) Correct
- Clamp the electrical wiring securely. Do not damage the electrical wiring by the clamp.



- (8) Clamp (clamp spirally) (11) Welding point
 (9) Electrical wiring
 (10) Clamp
- Clamp the electrical wiring correctly. Do not slack, twist, or pull.
 - In cases of connecting the electrical wiring to moving or vibrating locations, make sure to clamp the electrical wiring loosely.



- (12) Electrical wiring (B) Incorrect
 (13) Clamp
 (A) Correct
- Do not pinch the electrical wiring when installing parts.

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