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### **Prevent crush injuries by the implements**

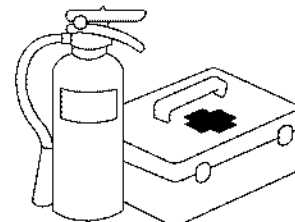
- Keep hands, arms and all other parts of your body away from all the moving parts, particularly between the implements and the machine and between the hydraulic cylinder and the implements, as pinch points are created in those areas.



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### **Keep a fire extinguisher and first aid kit handy**

- The workplace must be provided with a fire extinguisher. Read instructions on the label to familiarize yourself with how to use it.
- Keep a first aid kit in a prescribed place.
- Advise what to do in the event of fire or accidents.
- Indicate who to contact in an emergency and keep their telephone number in a prominent place.



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### **Precautions for installing optional parts and attachments**

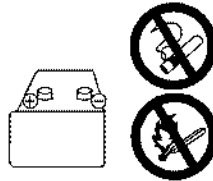
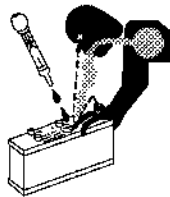
- When installing or using optional attachments, read the operating instructions for the attachments and the Manual Sections relating to the installation of attachments.
- Use only attachments authorized by YANMAR. The use of unauthorized attachments may affect not only the safety of the machine but also the proper operation and life of the machine.
- The use of unauthorized attachments would also violate the terms of YANMAR's Warranty, so that it would be voided.

### **Caution for cabin glass**

- If the glass of the cabin should be broken by accident, it is very dangerous since the operator's body might contact the implement directly. Immediately stop working to replace the broken glass with a new one.

**8-4. Precautions for the battery****⚠ DANGER****Be careful in handling the battery**

- The battery electrolyte contains dilute sulfuric acid, which can severely burn the eyes or skin. Always wear safety goggles and protective clothing when servicing the battery. If contact with the eyes or skin should occur, flush with a large amount of water and obtain prompt medical treatment.
- Because flammable hydrogen gas is produced by the battery, ignition and explosion may occur. Keep flames and sparks away from the battery.
- Do not use or charge the battery if the battery electrolyte level is below the lower limit. Doing so may cause the battery to explode. Always check the battery electrolyte level before starting the engine. If the electrolyte level is low, add distilled water to the upper limit.
- If you swallow battery electrolyte by mistake, drink a large amount of water, milk, or fresh eggs, and obtain medical treatment immediately.
- Before checking or handling the battery, be sure to stop the engine and turn the starter switch to the "OFF" position.
- Be careful not to cause a short circuit by placing a tool across the terminals of the battery.
- If a terminal connection is loose, sparks may be generated due to contact failure, causing possible ignition and explosion. Be sure to connect the terminals securely.



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**⚠ WARNING****Observe the procedures for starting the engine using booster cables**

- When you start the engine using booster cables, wear safety goggles.
- If you start the engine by taking electric power from another machine, do not allow your machine to contact the other machine.
- To connect the booster cables, begin with the positive terminal, and to disconnect them, begin with the negative terminal (ground side).
- If a tool simultaneously touches the positive terminal and the machine, potentially hazardous sparks may be generated.
- Do not connect the booster cables to the terminals in reverse polarity. In other words, never connect the negative terminal on one machine to the positive terminal on the other machine.
- As the last step, connect the negative booster cable terminal to the upper structure frame. At that time, sparks will be generated. Consequently, connect the terminal to a point as far away from the battery as possible.

**For information about starting the engine using booster cables, refer to Section "17-3. If the battery is overdischarged".**

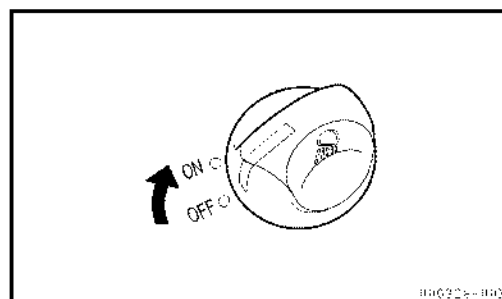
## (2) Light switch

The boom light and the headlight go on when the switch is turned on with the starter switch set to the "ON" position.

- ON : The lamps go on.
- OFF : The lamps go off.

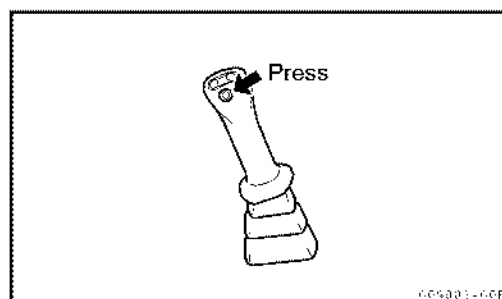
### IMPORTANT

**Do not keep on the lamps on for a long time while the engine is not running. The battery runs down and the engine cannot be started.**



## (3) Horn switch

Press the switch on the top of the right control lever to sound the horn.



## (4) Wiper and windshield washer switch (for cabin)

This switch serves both wiper switch and windshield washer switch.

### 1) Wiper switch

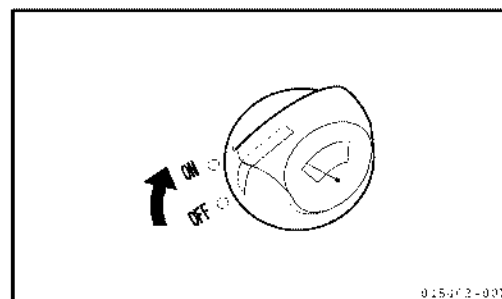
Move the switch to the "ON" position to actuate the wiper of the windshield.

- ON : Wiper works.
- OFF : Wiper stops.

### 2) Windshield washer

Push the wiper switch.

The windshield will be sprayed with windshield washer fluid.



### IMPORTANT

- **Do not push the switch when the tank is empty.**  
It could cause pump failure.
- **Wiping the dry windshield could damage the glass.**  
Use the wiper only when the windshield is wet.
- **The wiper blade may freeze in cold weather. Do not attempt to move it; otherwise the wiper motor will be damaged.**

## 12-15. Fuse

### ⚠ CAUTION

- When replacing the fuse, be sure to turn off the power by setting the starter switch at the OFF position.
- Using a wire, aluminum foil or the like instead of the fuse could cause burnouts of the gauges, the electrical equipment and the wiring due to overheating.
- If a new fuse is blown out immediately after replacement, there may be a problem with the electrical system. Ask the nearest dealer for check and service.

The fuse protects the electrical equipment and wiring from becoming overheated. If the fuse is corroded with white deposits or if the fuse is loose in the holder, the fuse must be replaced with a new one.

#### ■ Position of the fuse box

Blade fuse

It is installed on the front left of the seat mount.

Slow-blow fuse

It is installed by the battery inside the engine hood rear cover.

#### ■ Replacing the fuses

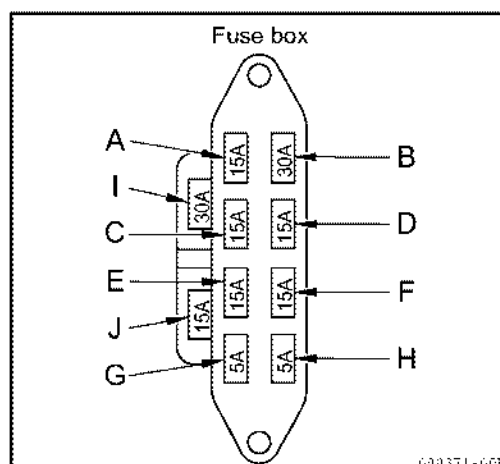
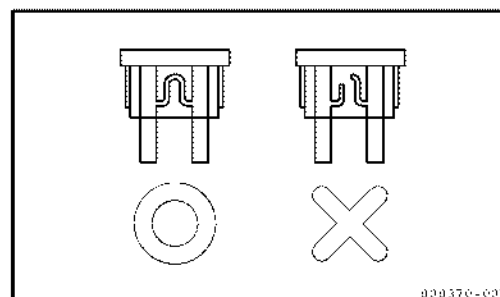
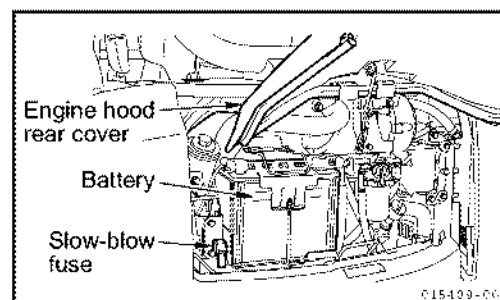
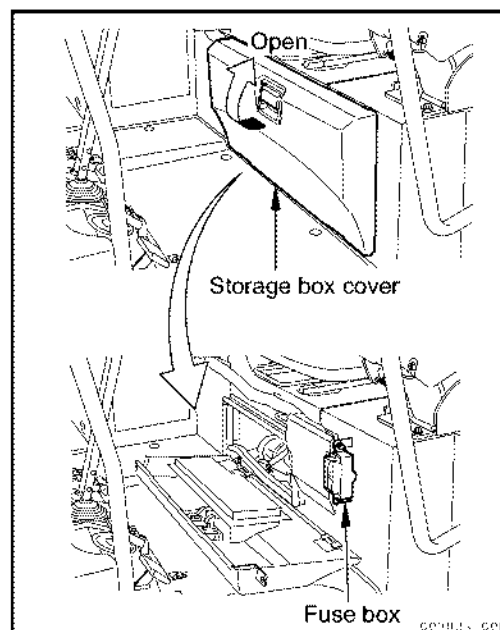
If the electrical equipment does not operate, the fuse may have been blown out. Follow the procedure below:

- 1) Set the starter switch at the "OFF" position.
- 2) Remove the fuse box cover.
- 3) If the fuse is blown out, replace it with a spare fuse of rated capacity.

Symbol	Fuse capacity	Circuit name
A	15 A	<u>Room lamp</u> , <u>Window washer</u> , Quick coupler, <u>Heater</u> , <u>Air conditioner</u>
B	30 A	<u>Air conditioner</u>
C	15 A	Horn, <u>Head lamp</u> , Monitor light, Boom lamp, 2-speed travel valve, Cab or Canopy lamp
D	15 A	<u>Wiper</u> , <u>Heater relay</u>
E	15 A	Timer, Safety relay, Generator, Fuel feed pump, Engine stop solenoid
F	15 A	Indicator box, Buzzer, Cut-off valve, Travel alarm
G	5 A	<u>Radio</u> , Controller
H	5 A	Spare
I	30 A	
J	15 A	

The oblique character parts:

Applicable to models with the relevant equipment.





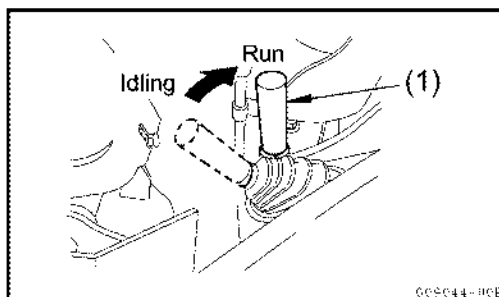
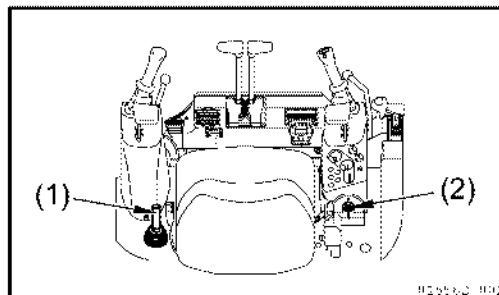
## 13-2-2. Starting the engine in cold weather

**⚠ WARNING**

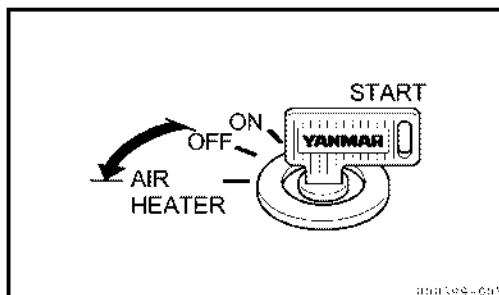
- First check to see that there are no people or obstacles around the machine.  
Then sound the horn and start the engine.
- Be sure that you are seated in the operator's seat when starting the engine.
- When starting the engine in an enclosed place, be sure that there is adequate ventilation so that the exhaust gases can escape.

To start the engine at a low outside air temperature, follow the steps below:

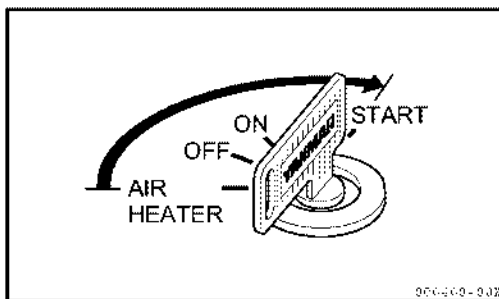
1) Pull the accelerator lever (1) back to the "RUN" position.



2) Turn the key in the starter switch (2) to the "AIR HEATER" position and keep it there for approximately 10 to 15 seconds to preheat the intake air of the engine.

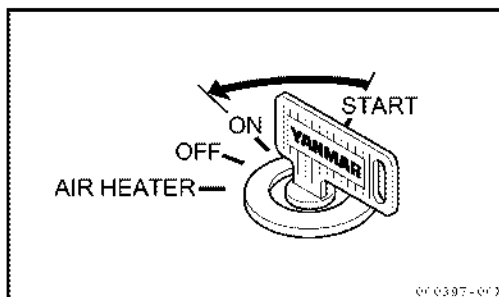


3) Turn the key in the starter switch (2) to the "START" position to start the engine.



4) After the engine has started, let go of the starter switch key.

The starter switch key will return to the "ON" position by itself.



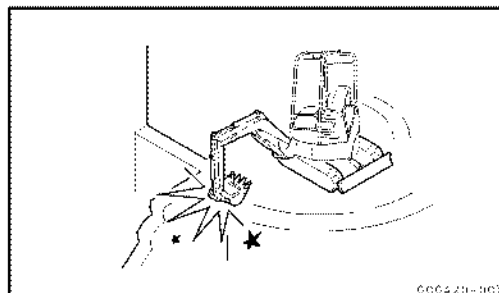
### 13-9. Precautions for operating the implement

#### **WARNING**

- Do not operate the implement control levers while traveling. Stop traveling first and then operate the implement.
- Do not operate the implement on a rocky surface (on hard and soft rocks).

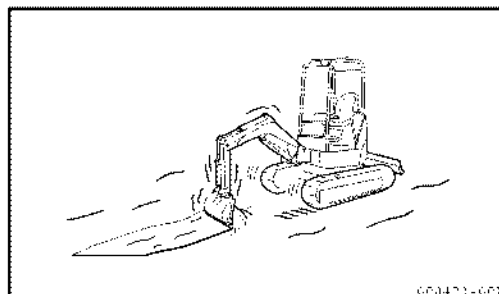
#### ■ Do not use the implement's swing force

Do not level the ground or break down a wall by the use of swing force, and do not dig the bucket teeth into the ground while swinging. Doing these may cause the implement to be damaged.



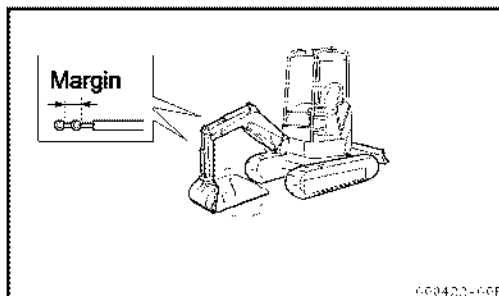
#### ■ Do not use the implement's travel force

Do not excavate the ground by the use of travel force with the bucket teeth in contact with the ground. Doing this may cause excessive force to be imposed on the rear of the machine, shortening the machine life.



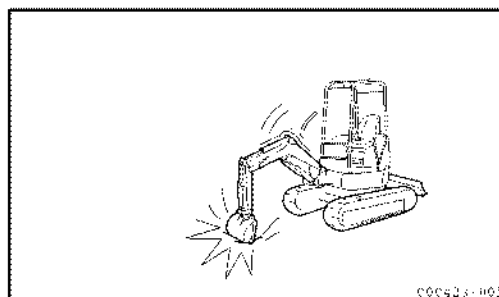
#### ■ Take care not to operate the hydraulic cylinder to the stroke end.

Operating the hydraulic cylinder to the stroke end may impose an undue force on the stopper in the hydraulic cylinder, shortening the implement life. Operate with a small safety margin.



#### ■ Do not operate the implement by the using the dropping force of the bucket

Do not excavate the ground by using the dropping force of the bucket as a pickaxe or pile driver. Doing this may cause excessive force to be imposed on the rear of the machine, shortening the machine life and possibly causing a serious accident.

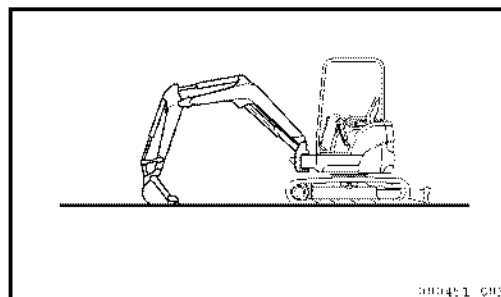


### 13-14-8. Dismounting attachment

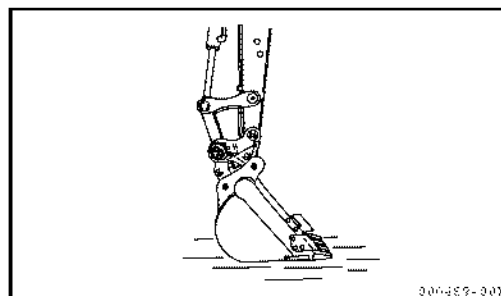
#### **WARNING**

- Never dismount the Attachment while it is still elevated, as it will drop to the ground and could cause bodily injury.
- Never dismount the Attachment unless it is resting on stable level ground, as it could otherwise fall over.

1) Park the machine on stable level ground.

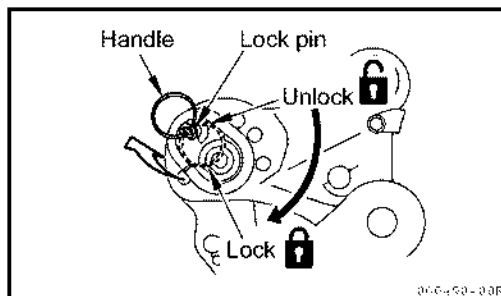


2) Lower the attachment onto the ground.



3) Set up the handle of the lock pin.

4) Turn the arrow on the head of the lock pin from the lock position to the unlock position, and then pull it up.



#### **IMPORTANT**

The lock pin cannot be removed from the body.

## 13-20. Handling the rubber track (for rubber track type)

### 13-20-1. Using the rubber track properly

The rubber track has some advantages over the steel track.

However, you cannot take full advantage of it if you use it in the same manner as for the steel one. Take care in operating with the rubber track according to the conditions of the work site and the type of work.

#### Comparison Table of Rubber and Steel Tracks

	Rubber	Steel
Low vibration	◇	□
Smooth travel (with no creak)	◇	○
Silent travel	◇	□
Less damage to paved roads	◇	□
Simple handling	◇	□
Susceptibility to damage (strength)	□	◇
Tractive force	◇	◇

◇ : Excellent

○ : Good

□ : Ordinary

Rubber track has many advantages inherent in the unique properties of the material. On the other hand, however, it is low in strength. It is essential that you fully understand the properties of rubber track, and observe the precautions for operating and handling it to prolong its life and get the most out of it. Sure to read Section "13-20-3. Precautions for using the rubber track" before using it.

### 13-20-2. Warranty for rubber track

The rubber track is not warranted for free repair or replacement if it is damaged because of careless misuse by the customer, including the failure to comply with the prohibitions and the instructions for safe operation; for example, failure to check the tension of the rubber track or service the rubber track properly, or "operation of the rubber track on the edge of a steel plate, a U groove, a block or sharp rubbles and rocks, or on reinforcing bars or iron scraps, which could physically damage the rubber track".

## 14. Transportation

### 14-1. Loading and unloading the machine

For safety in transporting the machine, comply with all applicable regulations and laws.

#### **WARNING**

- Be careful when loading and unloading the machine, because it is a job of high hazard potential.
- Load or unload the machine on level, solid ground far away from the shoulder of the road.
- Load or unload the machine at a low engine speed.
- Use ramp plates of adequate strength having hooks. Check to see that the ramp plates are wide, long, and thick enough to safely sustain the machine so that you can load or unload safely. To prevent the ramp plates from bending too much, support them with blocks.
- Securely hook the ramp plates to the deck of the truck so that they will not come off.
- Remove mud, grease, and other slippery deposits from the track shoes, and grease, oil, and ice deposits from the ramp plates to prevent the machine from skidding.
- Never change the travel direction on the ramp plates. If you need to change the travel direction, go back down on the ramp plates, then do this.
- Swing slowly on the truck bed if necessary since the foothold is unstable.
- Make sure that the side door of the cabin is locked, whether in the open or closed position. Never open or close the side door on the ramp plates, to prevent it from swinging violently.

To load or unload the machine, be sure to use the ramp plates and follow the procedure below:

## 18. Precautions for Servicing

**Do not use any inspection or servicing procedures that are not described and recommended in this manual.**

**Park the machine on solid, level ground to inspect and service it.**

### **Check the hourmeter**

Read the hourmeter every day to check if any service item has reached the time prescribed for implementation.

Use YANMAR genuine replacement parts

### **Use YANMAR genuine parts specified in the parts catalog**

Use YANMAR genuine lube oil and grease

Use YANMAR genuine lube oil and grease of specified viscosity with regard to the temperature.

### **Use clean lube oil and grease**

Use clean lube oil, grease and containers to prevent dust from mixing into them.

### **Clean the machine**

Clean the machine for easy isolation of faulty parts.

Particularly clean the grease nipple, breather, and the oil level gauge glass to prevent dust from entering into them.

### **Be careful of high water and oil temperatures**

It is dangerous to replace the oil, the cooling water and the filter immediately after stopping the engine. Wait until their temperatures drop. When the engine oil is too cool, heat the oil to adequate temperature [approximately 68°F to 104°F (20°C to 40°C)] before draining oil to improve draining efficiency.

### **Check the drained oil and the old filter element**

When replacing the engine oil, the hydraulic oil, or the filter element, check the drained oil and the old filter element for metallic dust and foreign solid deposits.

### **Observe precautions for replenishing oil**

If a strainer is mounted on the oil port, do not remove the strainer to replenish oil.

### **Be careful of dust**

When checking or replacing the oil, do this in the place with no dust or other particles to prevent dust contamination.

- 4) Clean the surface of adapter (4) with a putty knife to remove the hard mud on it.
- 5) Press-fit the rubber pin lock (2) into the hole in adapter (4) by hand or by a hammer.

**IMPORTANT**

**Do not let the rubber pin lock come out of the adapter surface.**

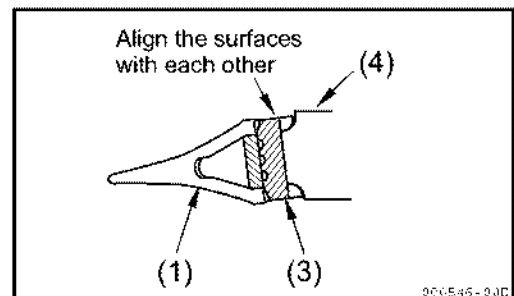
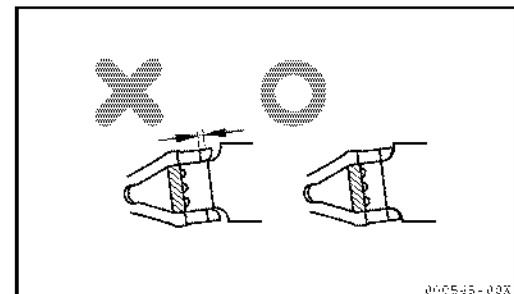
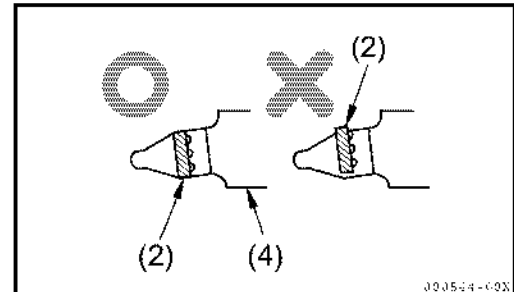
- 6) Fit the point (1) onto adapter (4) and check that the rear surface of the pin bore in the point is aligned with the rear surface of the pin bore in the adapter when the point is pressed strongly.

**IMPORTANT**

**If the rear surface of the pin (3) in the pin bore in the point (1) is in front of the rear surface of the pin bore in the adapter (4), do not strike the locking pin (3) in the bores.**

- 7) Press fit the locking pin (3) in the pin bore in the point (1) and strike the pin so that the upper end of the locking pin should be aligned with the surface of the point.

- Replace the rubber pin lock and the locking pin with new ones when replacing the point to prevent it from coming off.



### ■ Replacing the side cutter

Delay in replacing the side cutter could damage the bucket. Replace the side cutter before the bucket is damaged.

Tightening torque :

110 to 130 ft•lbf (147 to 176 N•m)

Adhesive : Loctite 262

- Replace the bolts, nuts and spring washers when replacing the side cutter.

