

**⚠ WARNING**

Before operating, inspecting, or maintaining this machine, read these instructions thoroughly. Failure to follow these instructions and safety precautions could result in serious injury, death or property damage.

**OPERATING &  
MAINTENANCE  
INSTRUCTIONS****VIBRATING  
ROLLER****MODEL  
SV544-1 Series****SV544D-1    SV544DF-1  
SV544T-1    SV544TF-1  
SV544TB-1   SV544FB-1**

|      |           |   |             |
|------|-----------|---|-------------|
| From | SV544D-1  | → | 3SV75-20101 |
|      | SV544T-1  | → | 3SV75-20101 |
|      | SV544DF-1 | → | 3SV75-20101 |
|      | SV544TF-1 | → | 3SV75-20101 |
|      | SV544TB-1 | → | 3SV75-20101 |
|      | SV544FB-1 | → | 3SV75-20101 |

**SAKAI**



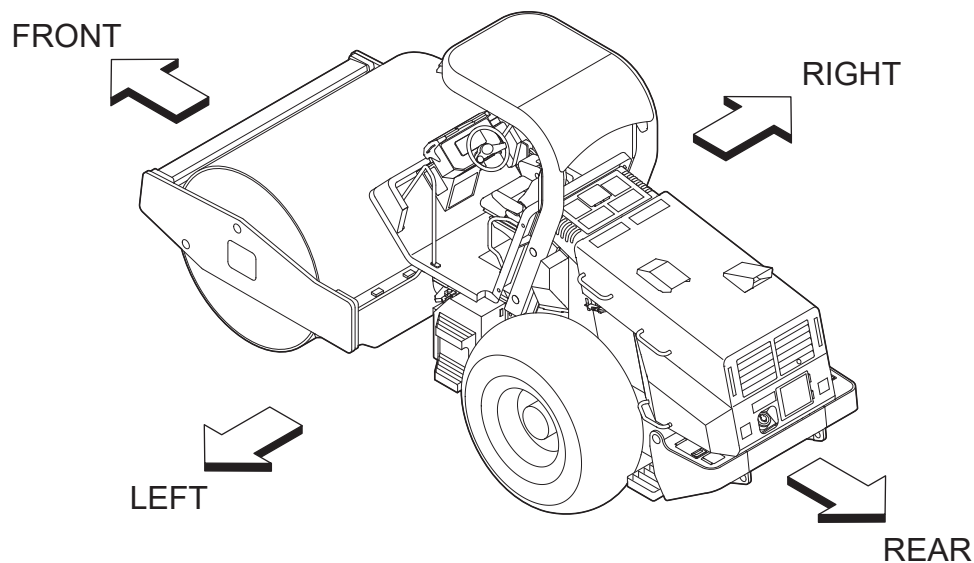
## PREFACE

This operator's manual serves as a guide for the use of your SAKAI SV544-1 Series Vibrating Roller and should be read thoroughly by all persons using this machine, especially those who are new to the machine, and also for the people who have experience in using the machine and want to refresh their knowledge for the machine.

Keep this manual for future reference and keep it nearby whenever you work.  
If the instruction manual is lost or is damaged and is not legible, replace it immediately by contacting your dealer.

The main subjects of this manual are:

(1) Basic precautions for safety, (2) Operation, (3) Periodic maintenance and (4) Specifications.  
For operation and maintenance of the engine, refer to the Engine Instruction Manual furnished separately. Descriptions in this manual can differ from the engine instructions due to the results of improvements in machine design. If you have any inquiry regarding your machine or this manual, contact your dealers.







**⚠ WARNING**

- **Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.**
  - **Always start and operate the engine in a well-ventilated area.**
  - **If in an enclosed area, vent the exhaust to the outside.**
  - **Do not modify or tamper with the exhaust system.**
  - **Do not idle the engine except as necessary.**

**For more information go to**

**[www.P65warnings.ca.gov/diesel](http://www.P65warnings.ca.gov/diesel)**

- **This product can expose you to chemicals including 1, 3-Butadiene and Ethylbenzene, which are known to the State of California to cause cancer and birth defects or other reproductive harm.**

**For more information go to**

**[www.P65warnings.ca.gov](http://www.P65warnings.ca.gov)**

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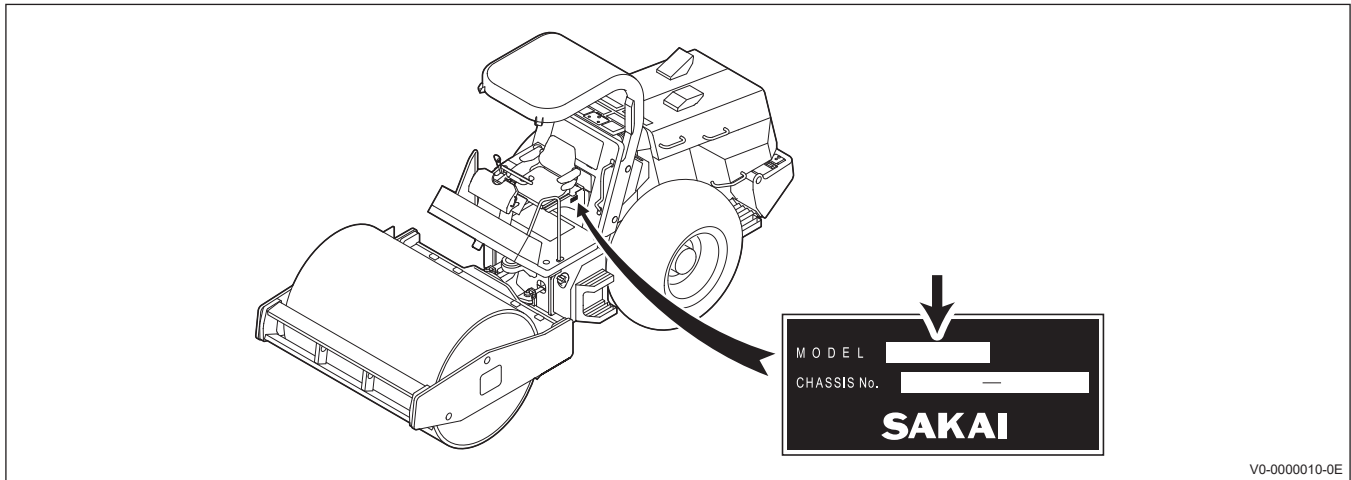
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## MACHINE AND ENGINE IDENTIFICATION NUMBERS

When ordering parts or making inquiries about your machine, the following information is requested.

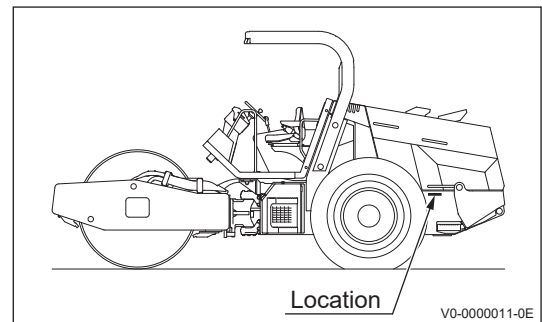
### (1) Machine model

Indicated on the nameplate of the left side of the operator's station.

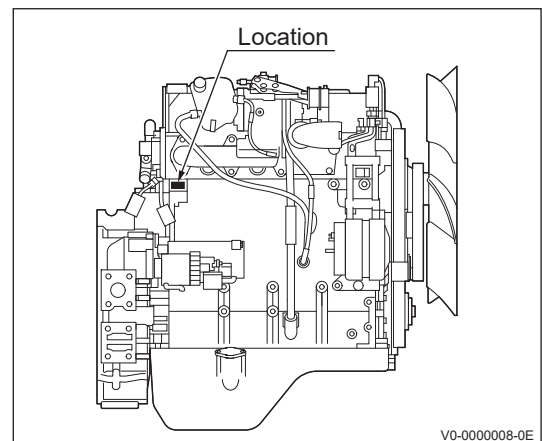


### (2) Machine serial number

SV544D-1 → 3SV75-○○○○○  
 SV544DF-1 → 3SV75-○○○○○  
 SV544T-1 → 3SV75-○○○○○  
 SV544TF-1 → 3SV75-○○○○○  
 SV544TB-1 → 3SV75-○○○○○  
 SV544FB-1 → 3SV75-○○○○○



### (3) Engine serial number



## **SAFETY PRECAUTIONS**

It is almost impossible for the safety notices in this manual and on the machine to cover all the potential dangers. Keep alert to possible dangers not mentioned in this manual and on the safety labels.

### **WARNING**

**Before operating, inspecting, or maintaining this machine, read these instructions thoroughly. Failure to follow these instructions and safety precautions could result in serious injury, death or property damage.**

For the safe use of your machine, correct handling and periodical maintenance are of utmost importance. Thoroughly read the safety precautions described in this manual. Do not attempt to operate and maintain your machine until you gain a full understanding of these safety statements.

This manual covers the proper and safe method of driving and handling of this machine for its intended use. When this machine is used in a manner other than authorized in this manual, it could be dangerous and you assume responsibility for your own personal safety.

In this manual and on the machine, you will find safety warnings and precautions.  
Each safety notice starts with a signal word as shown below:

 **DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.  
The safety labels on the machine are red.

 **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.  
The safety labels on the machine are orange.

 **CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.  
The safety labels on the machine are yellow.

**NOTICE**

**NOTICE** is used to address practices not related to physical injury.  
The safety labels on the machine are blue.

Do not alter or modify this machine unless it has been authorized by SAKAI.  
Doing so could be dangerous and result in serious injury or death.

Do not operate or maintain this machine unless you have read this manual and have been trained in safe and proper use.

***MEMO***



## **1 BASIC PRECAUTIONS FOR SAFETY**

### **1.1 General Precautions**

#### **■ Ensure proper management of health**

- People under the influence of alcohol, drugs, lack of sleep or health problems must avoid driving or repairing the machine at all times, as it may lead to serious accidents.

#### **■ Turn off cell phones**

- Turn off cell phones while driving or repairing the machine. Never use a cell phone while driving, as it may lead to serious accidents.

#### **■ Read the operator's manual thoroughly**

- Understand the functions of the controls and gauges. Familiarize yourself with their location and how to operate them. Understand the meaning of all of the safety labels attached to the machine.



#### **■ When the instruction manual is lost, damaged or not legible, replace it immediately by contacting your dealer**

#### **■ Understanding the uses for the machine**

- This machine was developed and manufactured mainly for the purpose of rolling compaction in engineering works. Do not use it for any other purpose. In the case of vibratory rollers, use of vibratory operations under conditions of excessive compaction, or rock crushing operations can lead to premature wear of the rolls and damage to the machine.

#### **■ Realize the capability of the machine**

- Thoroughly understand the performance of your machine and operate the machine correctly to meet the requirements of the job site. Operating the machine beyond its capabilities may lead to accidents. Use your machine within its capability.

## **1 BASIC PRECAUTIONS FOR SAFETY**

### **■ Wear protective clothing appropriate to work**

- Wear protective clothing, safety shoes and hard hat to suit your work.
- Do not wear clothing and accessories that tend to get caught in the controls or protruded portions of the machine. Do not wear oily clothing.
- Depending on the type of job, wear gloves, earplugs, safety goggles or a mask.

### **■ Do not use a machine which has not been serviced correctly at regular intervals**

- Before working, perform necessary inspections. Start operation only after making certain the machine is in good operating condition. If found to be abnormal, report to the responsible person and have the fault corrected. Operate the machine only after making sure that it is safe to operate.

### **■ Beware when operating moving parts**

- When operating moving parts such as covers, understand the movable range and be careful not to get your hands or feet caught.

### **■ Obey the worksite rules**

- Follow noise standards and worksite rules that deal with safety.

### **■ Know the work area in advance**

- Know the terrain, geology and conditions of the road surface at the worksite. Start working after securing safety such as stationing a guardsman or putting up barriers where there is a risk of falling the machine or collapsing the shoulder of the road.

### **■ Do not allow anyone to enter the work area except for authorized personnel**

### **■ The operator must determine that it is safe to move the machine to a hazardous area under unusual conditions**

- Such areas include sloping land, unstable road shoulders and soft ground.

■ **Prepare in advance for an accident**

- Decide in advance the means of communication in an emergency. Know the location and how to use a fire extinguisher and first-aid kit.

■ **A machine without ROPS must not be operated on slopes or unsafe grounds**

■ **A machine without CABIN must not be operated in bad weather or in a harmful polluted area**

■ **Operator must only operate the machine when sitting in the operator's seat**

■ **When getting on and off the machine, make sure the machine is completely stopped**

- For getting on and off, face the machine and use the handrails and the step.
- Watch your step when getting on or off the machine.
- Do not jump on or off the machine, particularly when it is moving.
- When getting on and off an articulated type machine, make the machine straight before stopping. In the bent state, there is a risk of getting caught or pinched because the getting on and off space will be narrow.

■ **Be careful not to fall**

- Falling off the machine may cause serious injuries or death, so do not place your feet anywhere other than on the steps, and on the operator's platform.

■ **When leaving the machines**

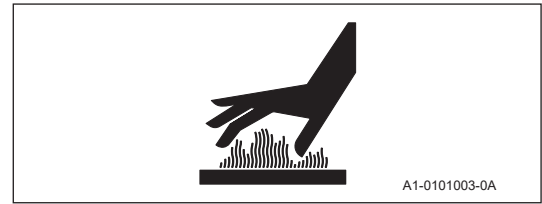
- To prevent theft and to prevent the machine from being operated by unauthorized personnel, always remove the starter key and make sure to carry it with you.

■ **Do not touch the muffler, exhaust pipe or the DPF during and after the engine is running as they are very hot**

## 1 BASIC PRECAUTIONS FOR SAFETY

### ■ Be careful of hot parts

- After your machine has operated for some time, the coolant, engine oil and hydraulic oil will heat up and the internal pressure will increase. If, in this state, you try to remove the filler caps, drain the oil or replace the filters, you can get burned. Wait for the temperature of the machine to cool down before performing these tasks.
- To remove the radiator cap, stop the engine and slowly loosen the cap after the coolant cooled down to relieve the pressure (For the radiator cap with a lever, lift the lever to release the trapped pressure before removing the radiator cap).
- When removing the filler cap on the hydraulic tank, release the trapped pressure by turning it slowly to prevent the oil from gushing out (For the cap with a lever, lift the lever to release the trapped pressure before removing the cap).
- While the engine is running or immediately after it has been stopped, do not touch the engine, muffler, exhaust pipes, hydraulic pumps and motors, lights, etc., as they will be hot and cause burns.
- Resin and metallic parts may become hot under direct sunlight on a hot day. Direct contact with such parts may cause burns, so be sure to wear clothing and protective equipment appropriate for the location of the job.



### ■ Be careful with fire

- The fuel, oil, and antifreeze will catch fire if open flames or ignition sources are used close to them. Fuel is highly flammable.
- Do not smoke and do not use matches or cigarette lighters close to flammable materials.
- When refueling, stop the engine and keep open flames away from the engine.
- The filler caps of the fuel and oil tanks must be securely tightened.

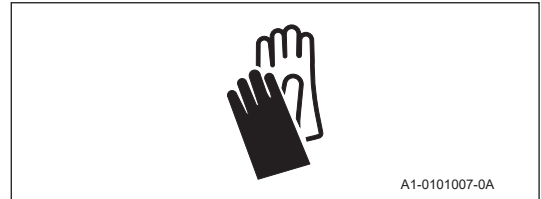


### ■ In case of machine fire

- In case of a machine fire, stop the engine by turning the Starter switch to the O (OFF) position, then move away from the machine as quickly as possible as it may cause serious injuries or death.

### ■ How to handle hydraulic fluid

- Wear safety goggles to protect your eyes from contact with hydraulic fluid. It can irritate your eyes. In case of contact with eyes, wash with clean water for 15 minutes and get medical aid immediately.
- The fluid can also irritate your skin. When handling it, wear rubber gloves to avoid contact. In case of skin contact, wash with soap and water.
- Be careful not to swallow the fluid. It can cause diarrhea and vomiting. If swallowed, do not try to voluntarily vomit. Get medical help immediately.



### ■ Do not use worn tires (If tires installed)

- Tires may get damaged when they are scratched on curb stones, when the machine runs over irregular surfaces of roads or when the machine is operated suddenly.
- Continued use of damaged tires may cause them to blow out. Replace them with new tires.

### 1.2 Preparation for Safe Operation

#### ■ Clean the step, operator's station, floor board and brake pedal

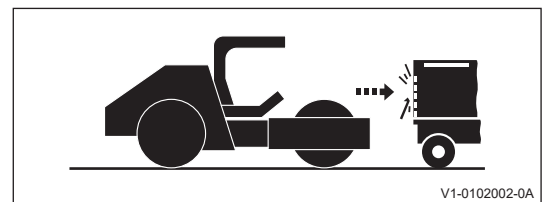
- Do not place parts, tools or unnecessary items on the step, operator's station and floor board.
- Keep the step, floor board, brake pedal, controls and handholds free from mud, oil, ice or water, as they can cause slippage. Repair them if found to be damaged.  
Tighten the loose bolts.
- Keep your boot soles free of oil or mud. It may lead to an unexpected accident.

#### ■ Inspect your machine before operation

- Check your machine for damages such as cracks and deformation. If any damage is found, report it to the person in charge.
- Check the level of fluids (fuel, engine oil, coolant, antifreeze and hydraulic oil).  
Add as necessary.
- Check the ground on which the machine is parked for signs of leakage of oil, fuel and water. If there is evidence of leakage, investigate the cause and repair it immediately.

#### ■ Watch your distance

- When driving, bear in mind the stopping distance.  
Avoid abrupt starting and stopping, and moving in a zigzag direction.



#### ■ Understand the ROPS function (If ROPS installed)

- Ensure that there are no loose bolts, cracks or rust on the ROPS body and the attaching portions.
- Tighten the bolts with the specified torques of 883 N·m after the ROPS are removed.
- Do not weld nor drill holes to the ROPS parts without permission from SAKAI, because it may decrease the strength of the ROPS.
- Be sure to wear the seatbelt during the operation.

### **1.3 Before Starting the Engine**

#### **■ Before getting on, make sure the area around the machine is safe**

- Before getting on the machine, make certain that there are no obstacles around the machine and no workers under it. If any worker is close to the machine, warn the machine is about to be moved and to stay away from the path.

#### **■ Make sure the hood and the door are closed**

#### **■ Adjust the operator's seat to your most effective operating position**

- Sit on the operator's seat. Adjust the seat so that your back will make contact with the seat back when the brake pedal is pressed down to the full extent. Check to be sure that the brake pedal can be fully pressed down without difficulty when you turn your body to run the machine in reverse.
- Adjust the seat to allow proper operation of the steering wheel, levers, switches, etc.

#### **■ Secure good visibility (If CABIN installed)**

- Keep the windows clean for good visibility.
- Securely fixed the door whether open or closed.

#### **■ Ensure good forward and backward visibility**

- Adjust mirrors for good visibility. If dirty, clean them. If damaged, replace.

#### **■ Check that the horn, lamps and gauges are work correctly**

#### **■ Before starting, make certain that each lever is in the neutral position and the parking brake is applied**

#### **■ When starting, sound the horn**

- Before starting the engine, sound the horn.  
Make sure there is no one in the immediate vicinity and there are no obstructions around the machine.



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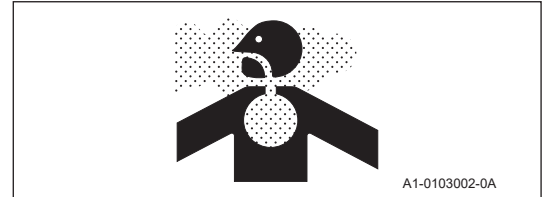
## **1 BASIC PRECAUTIONS FOR SAFETY**

### **■ Sit in the driver's seat and turn on the engine**

- Do not start the engine without sitting on the driver's seat as there is a risk of operational mistakes.

### **■ Pay attention to ventilation**

- Exhaust gas is dangerous.  
When starting the engine in a poorly ventilated place such as in an enclosed area, open the windows and the entrance doors to provide sufficient ventilation.



### **■ Do not stand close to the exhaust gas pipe outlet**

- Exhaust gas is harmful if breathed in. Can cause cancer.



## **1.4 After Starting the Engine**

### **■ Secure safety around the machine**

- Before moving the machine, ensure that the area around the machine is clear of personnel and obstructions. Moreover, honk the horn, indicating that you intend to move the machine, but wait a little while before actually moving.



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### **■ Warm up the engine**

- Do not start driving the machine immediately after starting the engine. Execute the warming up operation by idling the machine for several minutes.
- Check the ground on which the machine is parked for signs of leakage of oil, fuel and water. If there is evidence of leakage, investigate the cause and repair it immediately.

### **■ Do a test run**

- Make a test run in a safe place to check that there are no abnormal signs.
- Listen for unusual sounds, and check for abnormal temperature rise. If abnormal, park the machine in a safe place and find the source of the trouble before operating.
- Fix all the abnormalities before operating the machine.

## **1.5 During Operation**

### **■ Strictly observe the traffic regulations**

- Follow all the traffic regulations when driving on a public road.

### **■ Sit in the driver's seat before starting the operation**

- Sit in the driver's seat before starting the operation.

### **■ Do not operate the machine unless you are seated in the operator's seat. Do not drive in a standing posture**

- Do not put your legs out or lean forward. Be sure to sit in the proper position while driving the machine.

### **■ Seatbelt (Seatbelt equipped machines)**

- Be sure to wear the seatbelt during the operation.

### **■ No other person on machine but the operator**

- This machine is a one-man roller. Do not allow anyone to get on except the operator. Only the operator is allowed to be on this machine while it is running or in operation.

### **■ Never get on and off when the machine is moving**

- Getting on or off the machine only after making sure it stopped completely and after the parking brake is applied.

### **■ Refrain from inattentive driving**

- Inattentive driving can cause an accident. Use extreme care for workers present in the path of the machine or around it. In case of danger, stop and sound the horn, and proceed when the area is clear of personnel or obstructions.

### **■ At night, carefully drive the machine**

- Nighttime driving tends to diminish the sense of distance. Carefully drive the machine at a speed suitable for the existing lighting. Keep the headlamps and flood lamps lighted. If necessary, provide extra lighting in the work area.

■ **Avoid continuous work for a long time**

- Avoid long hours of continual operation as it may lead to an accident from fatigue.

■ **Do not let anyone enter the work area**

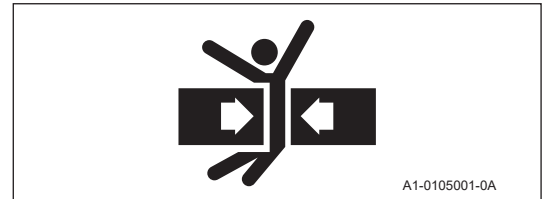
- There is a danger of being run over causing serious injuries or death.
- If the visibility of the driver is poor, arrange a guide to ensure peripheral safety.

■ **When changing the traveling direction, make sure it is safe to do so in the path of the traveling direction**

■ **While making turns, do not run at abnormally high speed and do not turn the steering wheel abruptly and sharply. High speed turns, especially on a soft or an uneven ground, could result in a rollover**

■ **Keep everyone away from the pinch points**

- When making turns, do not allow anyone to come close to the pinch points of the machine.



■ **Repair as soon as possible if found to be broken or faulty**

- If the machine is found to be faulty, stop the machine and repair. Do not operate the machine until the problem is corrected. When any warning lamp indicates faulty operation, inspect the machine after moving it to the nearest safe location.

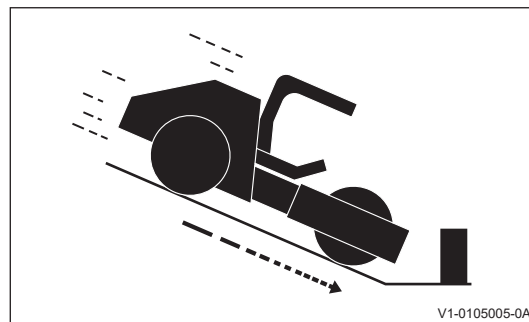
■ **For traveling on structures such as a bridge, make certain that the structures can support your machine. Before traveling on the structure, you must know the load capacity of the structure and the load weight of the machine you are operating to insure safe travel across the structure**

## 1 BASIC PRECAUTIONS FOR SAFETY

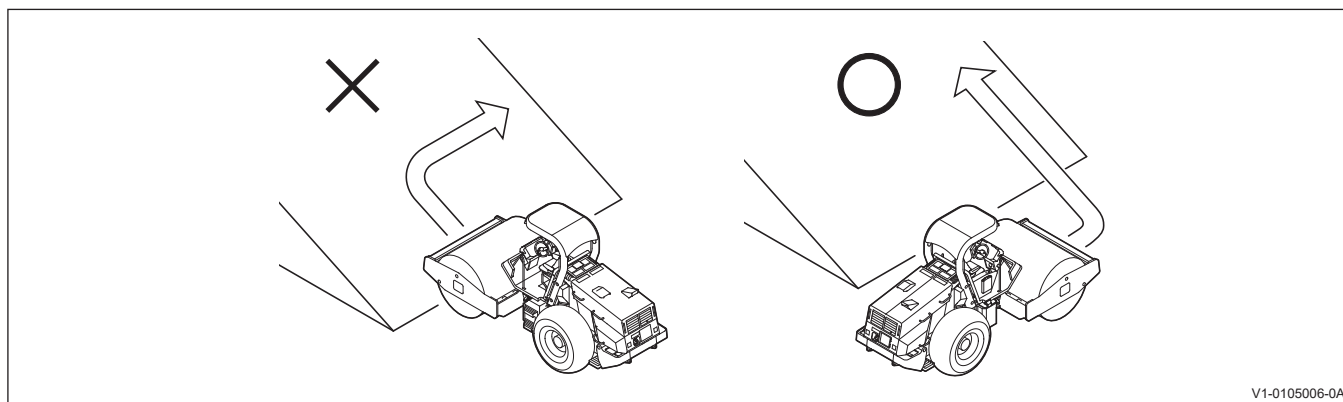
### ■ On a steep slope, run the machine at low speed

### ■ When going up or down a slope, run at a steady low speed and do not shift the speed

- Shifting speeds on a slope can cause unexpected running down the slope.
- Going down on a slope at speeds other than low range can cause the machine to get out of control.

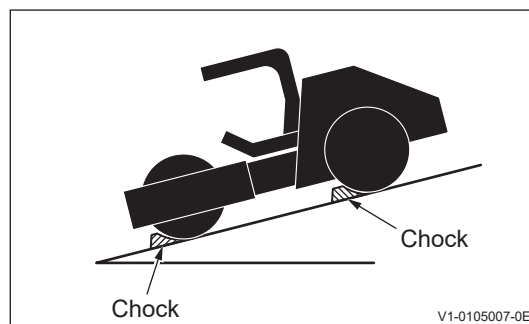


### ■ Do not make turns on a slope and do not travel across the slope. If necessary to do so, go straight down the slope to the flat ground, move sideways and go straight up to the destination



### ■ When parking

- Select a level and a hard ground. If necessary to park on a slope, chock the front side of the drums and the tires which are facing the downhill side of the slope.
- When required to park on a public road, provide necessary markings such as flags, barriers and the lighting. However, be sure they do not obstruct the traffic.
- Stop the engine when getting off the machine. Remove the starter key from switch, and store it in a appropriate place.
- Be sure not to get your hands caught when handling the chocks.

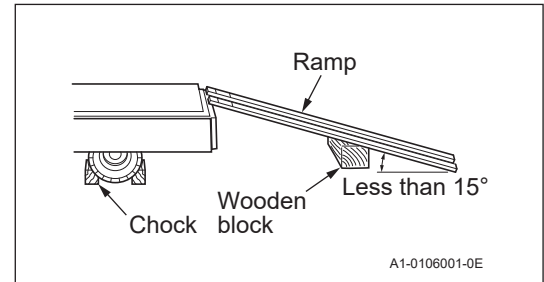


■ **Beware of deformation in tires during long-term parking (If tires installed)**

- The surface of the tires in contact with the ground may become flattened and deformed (forming of flat spots) during the long-term parking.
- The forming of flat spots may cause bounding or shaking during the operation of the machine.
- If flat spots occur, run the machine to restore the circular shape of the tires and improve the situation.
- To prevent the forming of the flat spots during the long-term parking, inflate the tires to a higher pressure within the allowable range and drain the water from the sprinkler tank before parking. Furthermore, move the machine regularly.

## **1.6 Loading and Unloading**

- Loading and unloading can be dangerous. Use extreme care.
- Select a level and hard ground. Leave sufficient distance with the road shoulder blocks.
- Use sturdy ramps with proper width, length and thickness which allow safe loading and unloading. If they deflect considerably under load, apply wooden blocks to reinforce the ramps.
- To prevent your machine from crosswise slippage, keep the ramps free from oil, mud, debris, etc. The drum must also be free from extraneous matter that can cause slippage.
- Do not steer your machine on the ramps. To change or correct the direction, go down the ramps and correct the direction.
- Do not use kinked, twisted or damaged wire ropes for crane or winch operation. Use ones with ample strength.
- When loading is complete, place the wooden blocks under the drums and fasten the chains to the machine to fix properly.



## **1.7 Transportation**

- Follow the required regulations.
- For the transportation route, consider the overall width, height, and weight after the machine is loaded on the trailer.
- Before passing under a bridge or any structure, know the maximum height of the trailer with the machine on it and the clearance with them.

## **1.8 Towing**

- Towing should be carried out in emergency and short distances only.  
For long distance, use a truck or a trailer for transportation.
- Do not tow if the braking system has broken down, as it is dangerous.
- Do not perform towing on a slope.
- Tow the machine in accordance with the section on the unloader valve in “2.10 Towing”.
- To tow the machine, use cables with ample strength.
- Do not use twisted, kinked or damaged cables when towing.
- Be sure to attach a wire rope firmly to the towing hook.
- Do not step over the wire rope.
- Keep everyone away from the space between the machine and the towing machine when connecting and while towing.
- Align the connection points of the failed machine and the towing machine in a straight line when connecting the machines.

## 1 BASIC PRECAUTIONS FOR SAFETY

### 1.9 Handling the Battery

#### ■ When handling the battery

- Refer to “3.3 Periodic Maintenance Points” for information on where to install the battery.
- Battery electrolyte contains sulfuric acid. It will destroy clothing and harm the skin. If it touches your clothing or skin, flush with large quantities of water.
- In case of contact with eyes, flush with clean water and get medical help immediately.
- If swallowed, drink large amount of water, and get medical help immediately.
- Wear safety goggles when handling the battery. Wear safety goggles, full face shield, rubber gloves and rubber apron when adding fluids to the battery.
- In poorly ventilated places, do not recharge the battery or bring cigarettes and flames closer to the battery as there is a risk of generating sparks.



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A1-0109002-0A

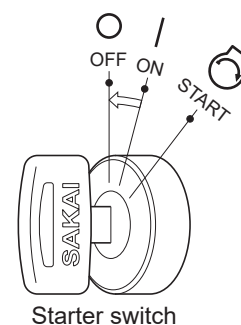


A1-0109003-0A

#### ⚠ WARNING

**Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.**

- Inspect or handle the battery with the engine stopped and the Starter switch in the O position.
- Turn the Starter switch to the O position, then wait at least 2 minutes before removing the battery. If not, an abnormality may arise in the ECM (Engine Control Module).



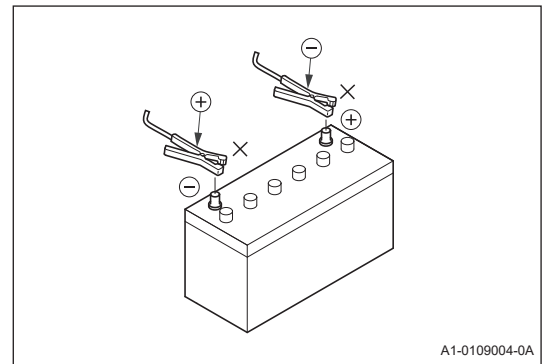
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- Keep metallic items such as tools away from the battery terminals.
- Tangled terminals may generate sparks due to improper connections, resulting in the danger of explosions. Make sure terminals are connected firmly.
- The battery is for starting the engine and operating electrical equipment on the machine. Do not use it for any other purpose.
- Do not charge the battery when the top surfaces of the liquids are at the LOWER level (the minimum liquid level) or below. Not only the internal parts of the battery are degraded and the battery lifetime is shortened but also it can cause explosions if you continue to use the battery when the top surfaces of the liquids are at the LOWER level or below. Immediately supply water until the water level is between the UPPER and the LOWER levels.

### ■ Jump-starting the engine

- Wear safety goggles when jump-starting the machine.
- When starting from another machine, do not allow the two machines to make contact with each other.
- When connecting the battery cables, start with the positive terminal. For disconnection, start with the negative one.
- Do not allow a tool to bridge between the positive terminal and the machine body. This can generate dangerous sparks.
- Do not connect the booster cable to the wrong terminal. Never connect the positive terminal to the negative terminal or the body of the machine.
- Final connection to the engine block of the failed machine may cause sparks. Therefore, the connecting point should be as far as possible from the battery.



## **1.10 Before Servicing**

### **■ Attach warning tags when servicing the machine**

- Serious accidents can occur if the machine is unexpectedly started or controls carelessly by an unauthorized person.
- Perform adequate lockout/tagout procedures. Attach a warning tag at a clearly visible location in the operator's station and insure the key is removed from the Starter switch.

**Do not operate.**

**If not use, keep this warning tag in the tool box.**

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### **■ Setting the chocks**

- Before the inspection or the maintenance work, set the chocks in front and behind the roller drum (wheels) to prevent the machine from moving.

### **■ Use proper tools**

- It is very dangerous to use damaged or deteriorated tools or to use the tools for other purposes than intended. Use correct tools for their intended use only.

### **■ Change safety-related parts at regular intervals**

- Change any seatbelt found to be abnormal even if it is within its recommended service interval.
- Change any ROPS found to be abnormal even if it is within its recommended service interval.
- Change any hose found to be abnormal even if it is within its recommended service interval.
- Replace the fuel hose, high pressure hydraulic hoses and the other liquid hoses regularly to prevent fire. Replace the high pressure hoses of the power steering system every two years.
- Refer to "3 PERIODIC MAINTENANCE" for detailed information on the timing of replacements.

Follow the procedures outlined in "3.4 Maintenance Procedure".

Change these parts at recommended service intervals even if found to be normal.

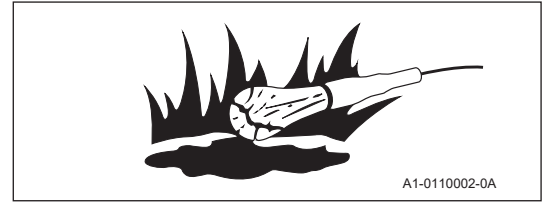
They will deteriorate as time goes on.

### **■ Make sure the gas dampers are properly maintained (If gas dampers installed)**

- Before inspecting the engine room, make sure the gas dampers are firmly stopped and hold the hood. Furthermore, in machines with hood fall prevention stays, make sure they are firmly fixed.

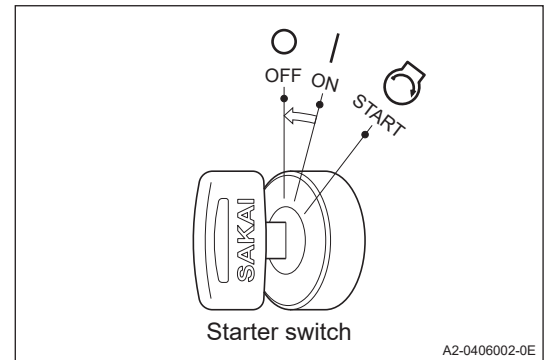
### ■ Illumination

- For inspecting the level of the fuel, oil, coolant and battery electrolyte, use an explosion-proof lighting. Failure to use this type of lighting can result in an explosion.



### ■ Inspect or service your machine with the engine stopped

- If required to keep the engine running in a case like radiator interior cleaning, perform the work with two persons. One person should sit on the operator's seat and be ready to stop the engine at any time. He must be careful not to touch the levers that are not necessary. Maintenance personnel must be careful not to touch or caught between the moving parts.



### ■ Check the coolant level in the radiator

- To check the coolant level, stop the engine and allow the engine and the radiator to cool down before removing the radiator cap. Before removing the cap, cover it with a rag to prevent splashing out of pressurized coolant which may cause burn.

### ■ Supplying fuel, oils and grease

- Be careful of contaminants entering fluid reservoirs when refilling them.
- Do not cover the filler port when refueling. Refueling a airtight tank might damage the fuel tank.
- Spilled fuel or oil will be slippery. Wipe up immediately. Keep the filler caps tight. Do not use fuel for cleaning. Handle fuel and oil in a well ventilated area.

### ■ Points to beware of when filling the sprinkler tank with water (For the machines equipped with sprinkler tanks)

- Do not fill the tank with the water inlet blocked. It may damage the sprinkler tank.

### 1.11 During Servicing

#### ■ Keep unauthorized persons away

- During the service work, do not allow the persons not involved in performing the service to enter the work area, particularly when grinding or welding operation is performed or heavy hammers are being used.



#### ■ Assume an appropriate posture while working

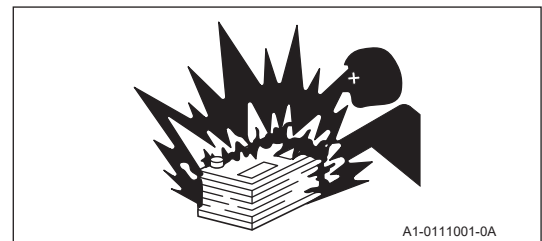
- An unnatural posture during maintenance work may cause injuries. Assume a posture that is appropriate for the work being carried out.

#### ■ Keep your machine clean

- Spilled oil, grease or scattered debris are dangerous. Always keep your machine clean. Moisture that penetrates into the electrical system can cause malfunctions. Do not use water to clean the sensors, connectors and the operator's station.

#### ■ When repairing the electrical system

- Read the warnings in this manual regarding the handling of batteries, and handle them appropriately and safely.
- When repairing the electrical system or welding, disconnect the negative battery terminal, the electronic device and the connectors to shut off the electricity.



#### NOTICE

**Carrying out work while the negative battery terminal, the electronic device and the connectors may cause electric shock, explosions or damage to electronic devices.**

### ■ Take care not to get caught or crushed

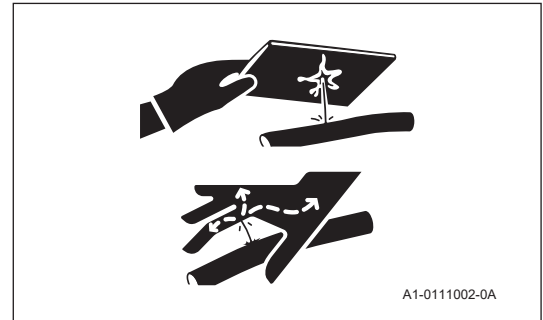
- Be sure to fasten the hood and other covers after opening them to prevent unexpected closing and avoid getting caught between them.
- If there is a need to crawl under the lifted machine, make sure to support it from underneath with a solid prop or block.

### ■ Carefully handle high pressure hoses

- Do not try to bend or hit high pressure hoses against a hard object. Do not use bent or damaged hoses or pipes. There is a risk of burst.
- Replace the damaged fuel hose, hydraulic hoses and the liquid hoses. Spilled of hydraulic oil or any other fluids can cause fire.

### ■ Be careful of high pressure hydraulic fluid

- Bear in mind that the working equipment hydraulic systems are under internal pressure. Do not add, drain, inspect, or service the hydraulic systems until the internal pressure is relieved.



### NOTICE

**Hydraulic fluid leaking through a fine hole at high pressure can penetrate your skin and eyes. Inspect the leakage by holding a hard board close to the suspected leaking position wearing goggles and gloves. If affected by high pressure oil, get medical help immediately.**

### ■ Be careful of hot parts

- The coolant, engine oil and the hydraulic oil become hot after the machine is operated for some time.
- Removing the radiator cap or draining the coolant or oil can cause burn.

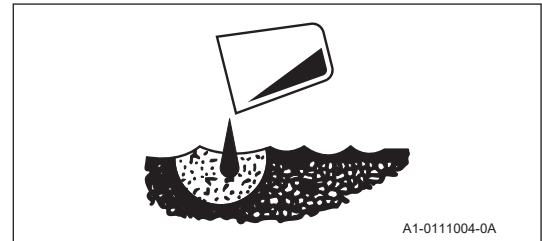
Follow the procedures outlined in “3.4 Maintenance Procedure”.



## 1 BASIC PRECAUTIONS FOR SAFETY

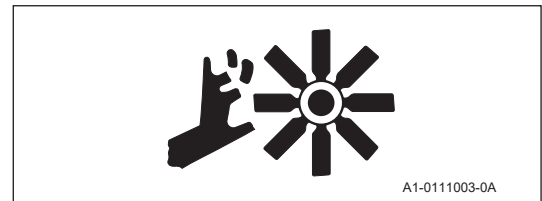
### ■ Used oil disposal

- Do not throw the used oil into a drain or waterway. Drain the oil from the machine into a proper container. Do not drain directly on the ground.
- Obey the local, state and the federal environment regulations for the proper disposal of oil, fuel, coolant, battery electrolyte or any other fluids.



### ■ Be careful when inspecting or servicing rotating fans or belts

- Do not wear clothing and accessories that can get caught in moving parts.
- Do not let your body or tools make contact with the fan blades or belts. They can be seriously cut.

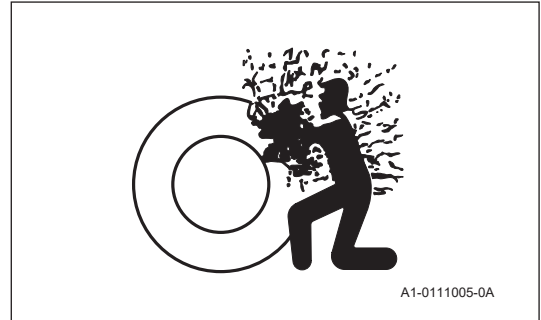


### ■ Take care in handling the gas damper (If gas dampers installed)

- Never dismantle it.
- Do not throw it into a fire.
- Do not damage the rod.
- Do not bend the tube or rod, or use it as a handle.
- When disposing a gas damper, be sure to fix it firmly and drill a hole around 2 - 3 mm in diameter at about 20 - 30 mm from the edge on the tube bracket side to release the gas pressure. When doing this, be sure to wear a protective goggles because of the risk of scattering oil or chips by the compressed gas inside.

■ **Exercise extreme care when replacing and repairing tires (If tires installed)**

- Disassembly, repair and reassembly of tires require special facilities and knowledge. Have them repaired at a professional tire repair shop.
- When dismounting a tire, chock the other tires for safety.
- When welding work is carried out near the tires, use extreme care, as this can cause an explosion of the tires.

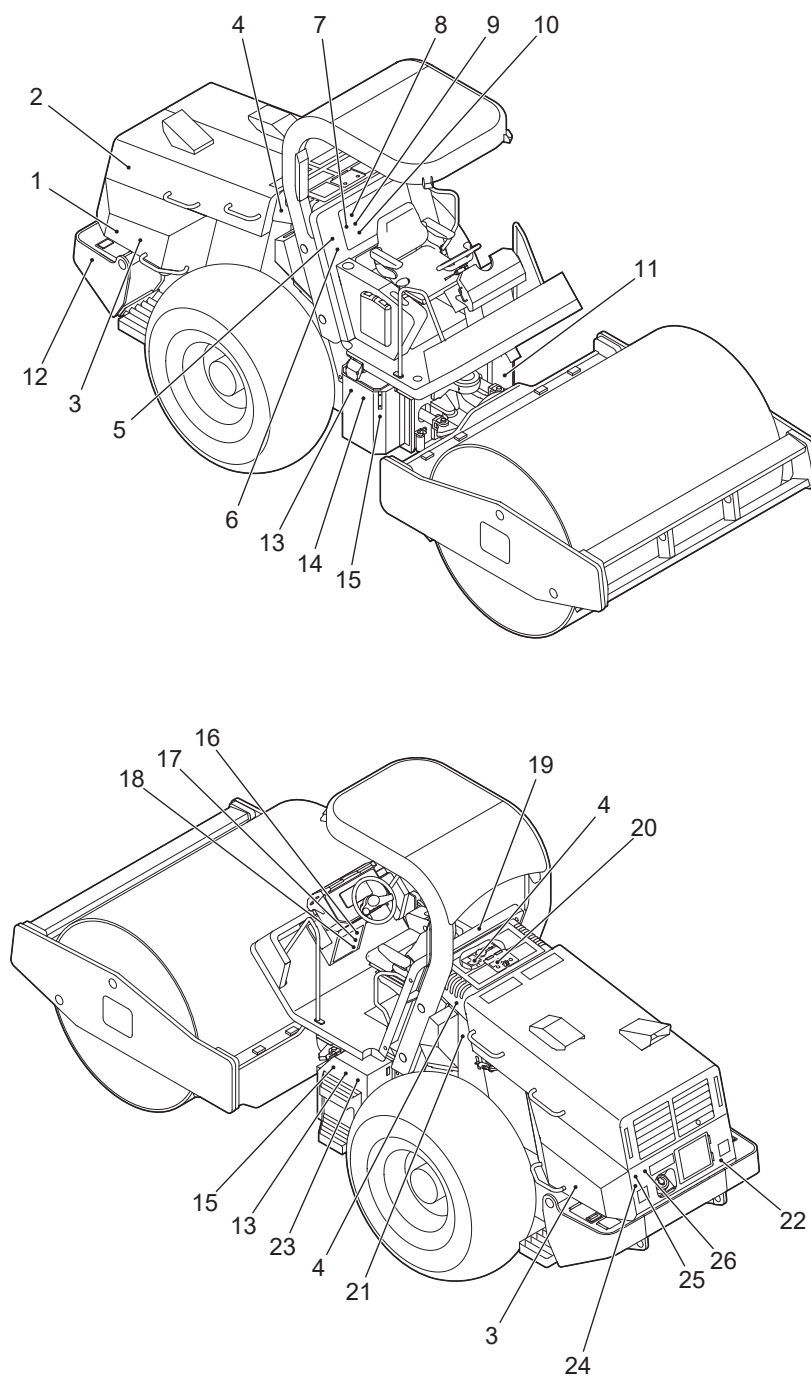


**⚠ DANGER**

**An improperly fitted tire can separate from the rim when inflating and cause serious injury or death.**

## **1.12 Safety Labels**

Keep all decals clean. If any label become illegible or is lost, replace with new one.





# 1 BASIC PRECAUTIONS FOR SAFETY

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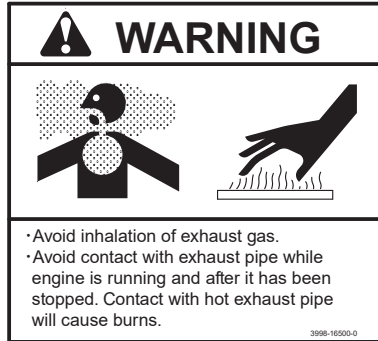
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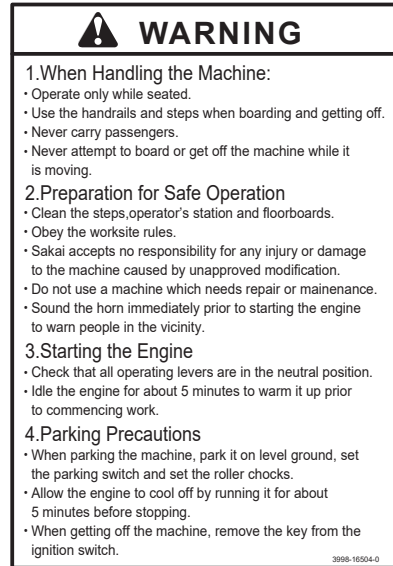
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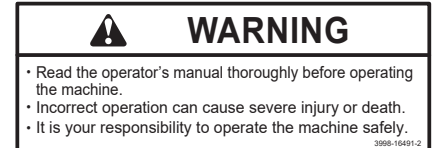
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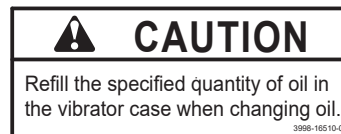
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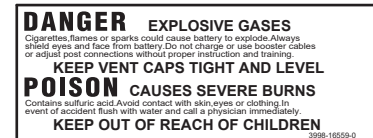
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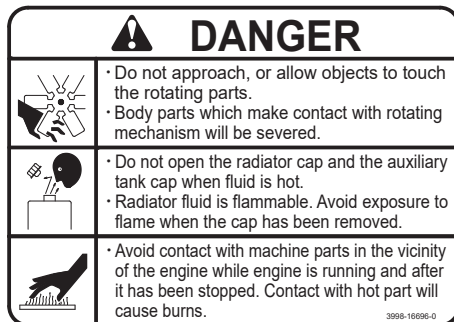
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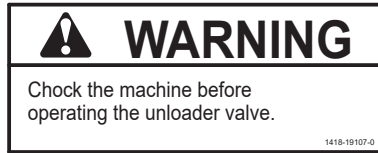


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## 1 BASIC PRECAUTIONS FOR SAFETY

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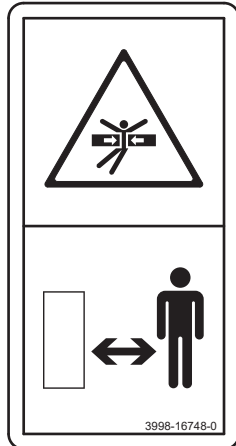
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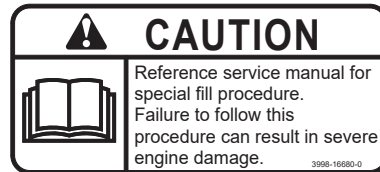
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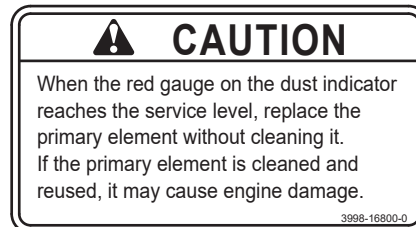
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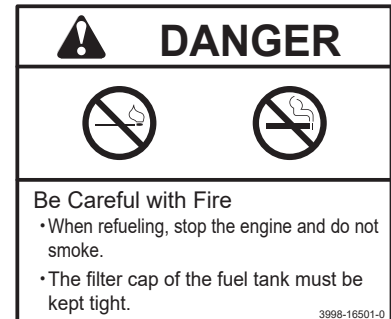
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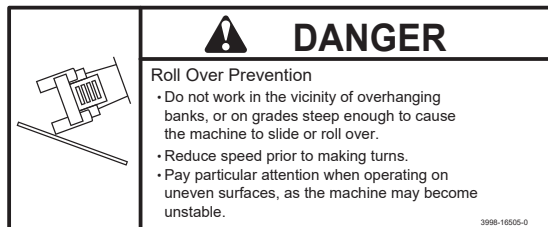
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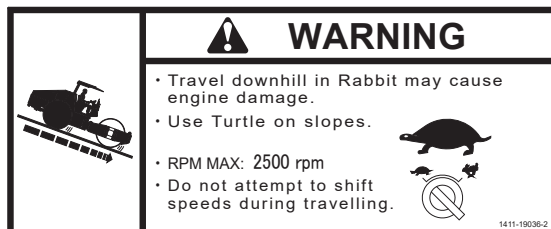
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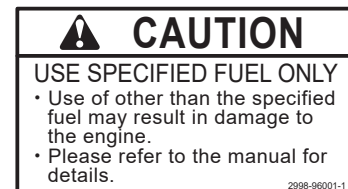
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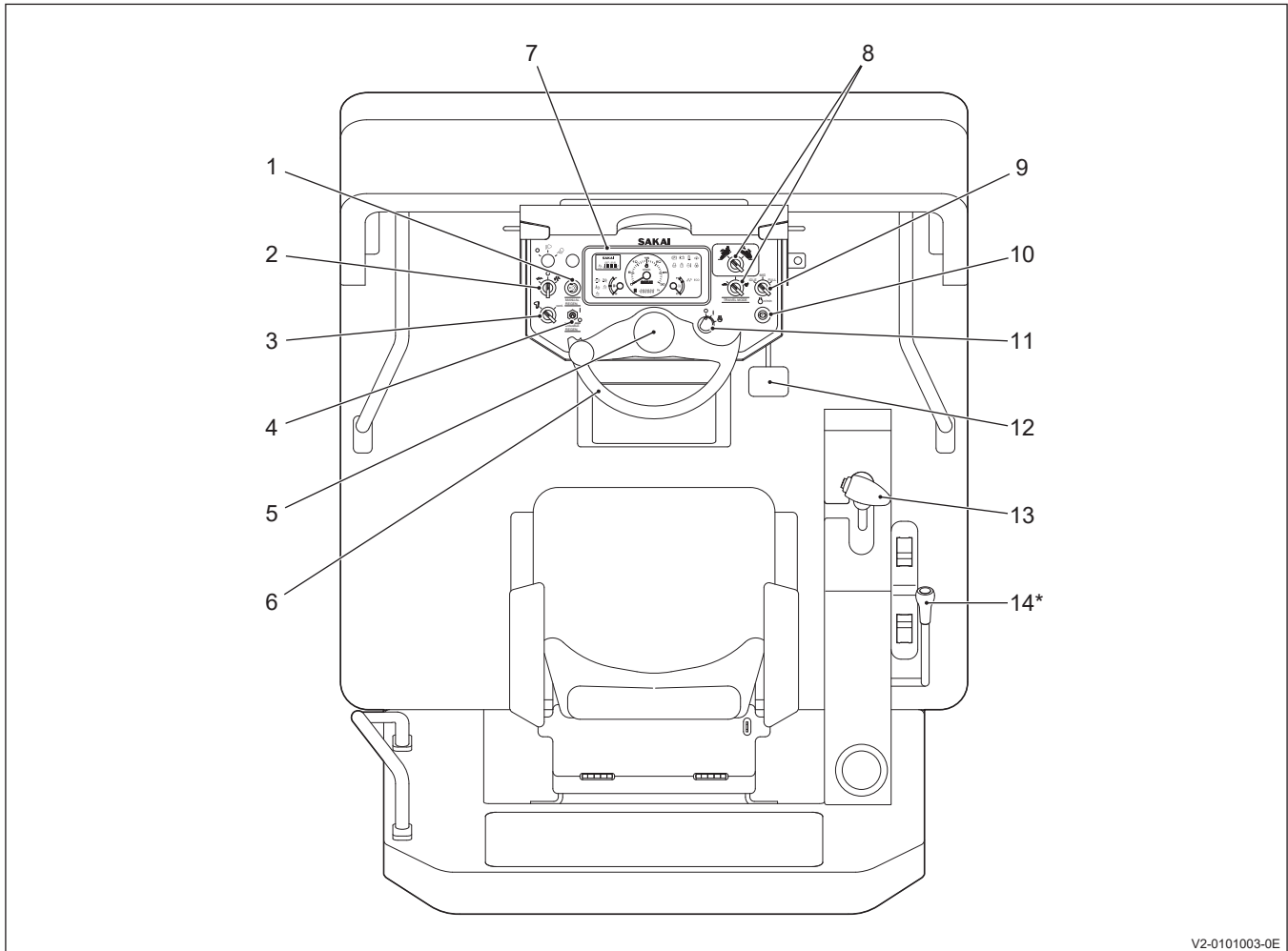
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## 2 OPERATION

### 2.1 Instruments and Controls

#### 2.1.1 Operator's station



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- |                                       |                                                                   |
|---------------------------------------|-------------------------------------------------------------------|
| 1 Manual regeneration switch          | 9 Engine speed select switch                                      |
| 2 Vibration amplitude selector switch | 10 Parking brake switch                                           |
| 3 Vibration mode selector switch      | 11 Starter switch                                                 |
| 4 Disable regeneration switch         | 12 Brake pedal                                                    |
| 5 Horn switch                         | 13 Forward-Neutral-Reverse (F-N-R) lever<br>with vibration switch |
| 6 Steering wheel                      | 14* Leveling blade lift lever                                     |
| 7 Combination meter                   |                                                                   |
| 8 Travel mode switch                  |                                                                   |

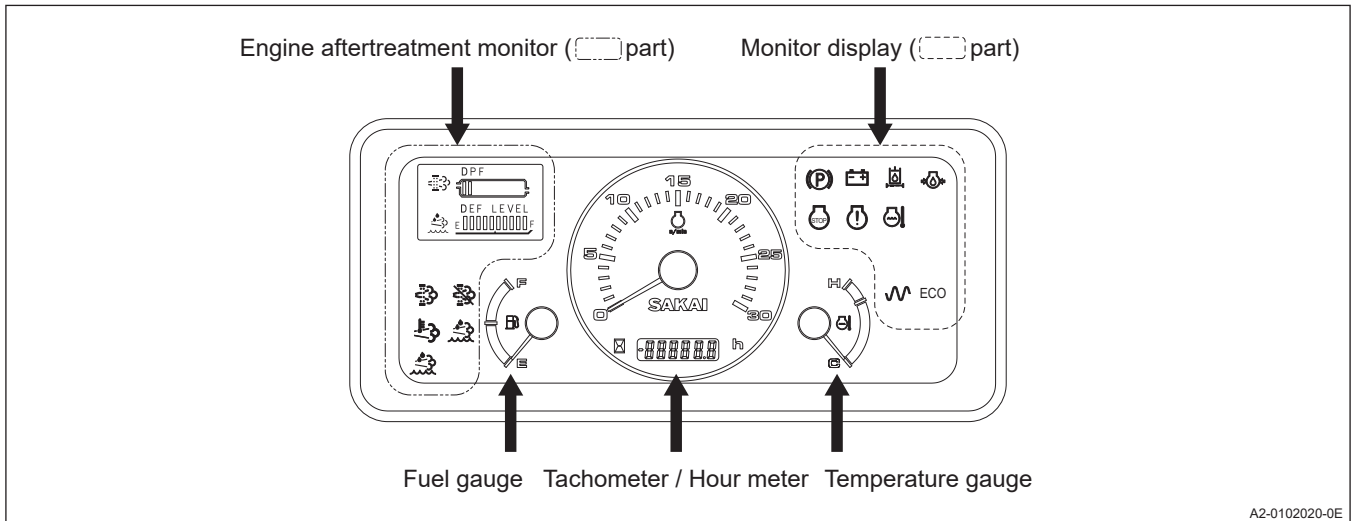
\* For SV544TB-1, SV544FB-1

## 2 OPERATION

### 2.1.2 Gauges, indicator lamps and warning lamps

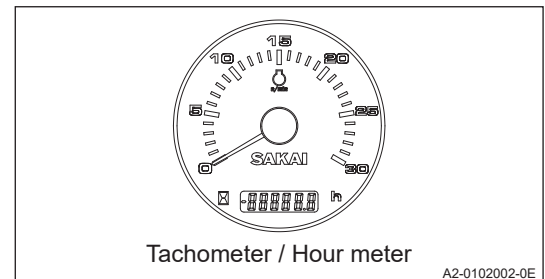
For safe execution of your job, fully understand the role and function of the systems involved.

#### Combination meter



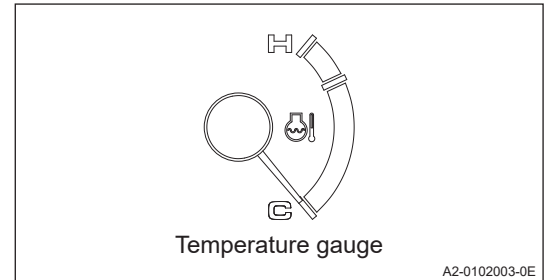
#### Tachometer / Hour meter

Indicates the engine RPM. The hour meter shows total operating hours. The service interval recommendation in this manual is based on the hour meter readings.



## Temperature gauge

Indicates the coolant temperature. Zone close to symbol **H** indicates overheating. In case of overheating, run the engine at idling speed for about ten minutes before shutting it down. Then determine the cause.



**⚠ WARNING**

**Do not remove the Radiator cap or Reservoir tank cap while the coolant is hot.**

**Hot water may be spouted out that can cause scald.**

**Relieve pressure by slowly turning the cap after the water temperature is dropped, then remove the cap.**



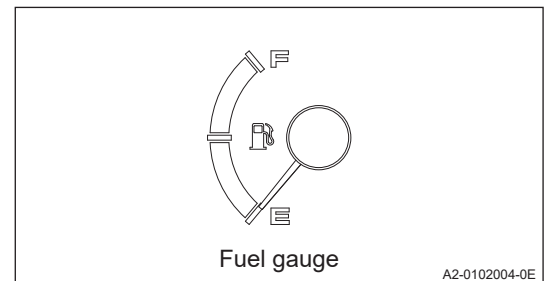
## Fuel gauge

Indicates the fuel level in the tank.

**E:** The tank is empty.

**F:** The tank is full.

Replenish fuel appropriately before the fuel runs down.

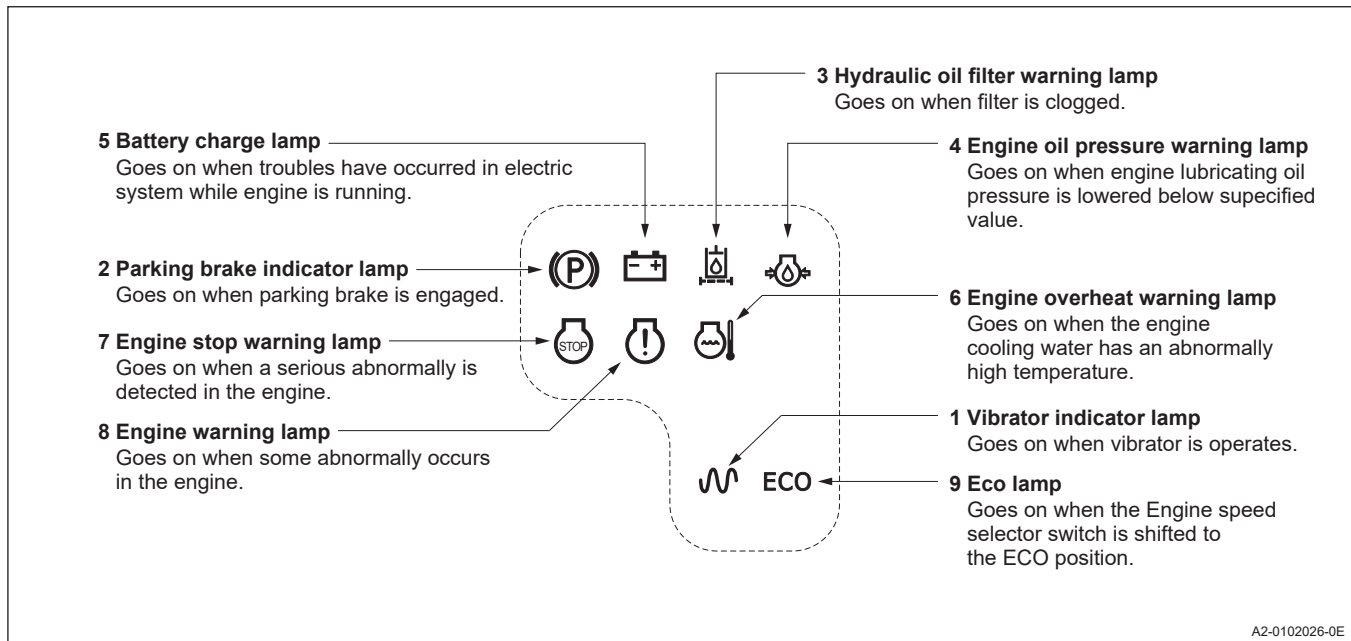


## NOTICE

**Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.**

## 2 OPERATION

### Monitor display



#### 1 Indicator lamps [ √ ]

Display the operation of each corresponding system.

#### 2 Parking brake indicator lamp [ (P) ]

This flashes once when the Starter switch is turned to the I position.

After that it remains on while the parking brake is engaged, and turns off when it is released.

#### 3 Hydraulic oil filter warning lamp [ ⚠ ]

This flashes once when the Starter switch is turned to the I position.

After that it lights up when the hydraulic oil filter is clogged. When it lights up, stop the machine and inspect the cause.

### NOTICE

**Hydraulic oil filter warning lamp goes on when the engine rpm is increased before the engine gets warmed up adequately. Execute the warm up operation sufficiently by idling the machine and wait until the lamp goes off before starting your work.**

4 Engine oil pressure warning lamp [  ]

This turns on when the Starter switch is turned to the I position, and turns off when the engine starts running.

It turns on when the engine oil pressure drops below the specified level during the engine is running. When it lights up, stop the machine and inspect the cause.

5 Battery charge lamp [  ]

This turns on when the Starter switch is turned to the I position, and turns off when the engine starts running.

It turns on when there is an abnormality in the electric charging system during the engine is running. When it lights up, stop the machine and inspect the cause.

6 Engine overheat warning lamp [  ]

This turns on when the Starter switch is turned to the I position, and turns off when the engine starts running.

When the Engine overheat warning lamp lights, there is a possibility of overheating. Stop the machine and cool the engine gradually by abnormal. Get proper checking / maintenance or repairing immediately.

7 Engine stop warning lamp [  ]

This turns on when the Starter switch is turned to the I position, and turns off when the engine starts running.

When the Engine stop warning lamp lights, there is a serious abnormality occurs with the engine.

Stop the machine and the engine. Get proper checking / maintenance or repairing immediately.

8 Engine warning lamp [  ]

This turns on when the Starter switch is turned to the I position, and turns off when the engine starts running.

When the Engine warning lamp lights, there is the water is accumulated in the fuel prefilter. Drain the water inside the fuel prefilter (refer to “3.4 Maintenance Procedure”).

If the lamp still remains on, the engine may be abnormal. Get proper checking / maintenance or repairing immediately.

**NOTICE**

- **Checking the warning lamps and Parking brake indicator lamp**

They should turn on when the Starter switch is turned to the I position.

If not, there is some trouble.

Check and repair the combination meter or wirings harness.

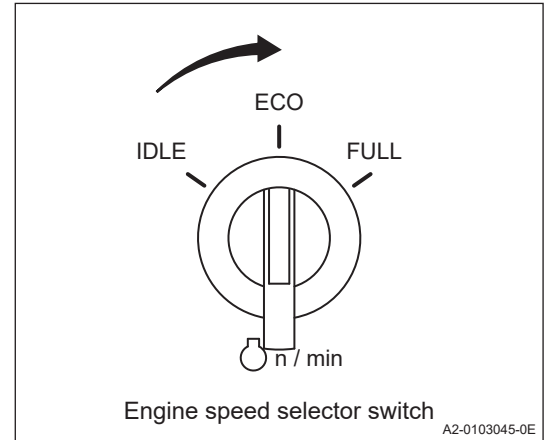
- **The transparent cover of the combination meter**

This may become unclear because of aged deterioration caused by fine sand or dust or ultraviolet light. When any flaw or mist is found on the cover, contact your dealer.

## 2 OPERATION

### 9 Eco lamp [ ECO ]

Eco lamp turns on when the Engine speed selector switch is shifted to ECO position. The engine runs under the fuel-efficient mode when the Eco lamp is turned on.

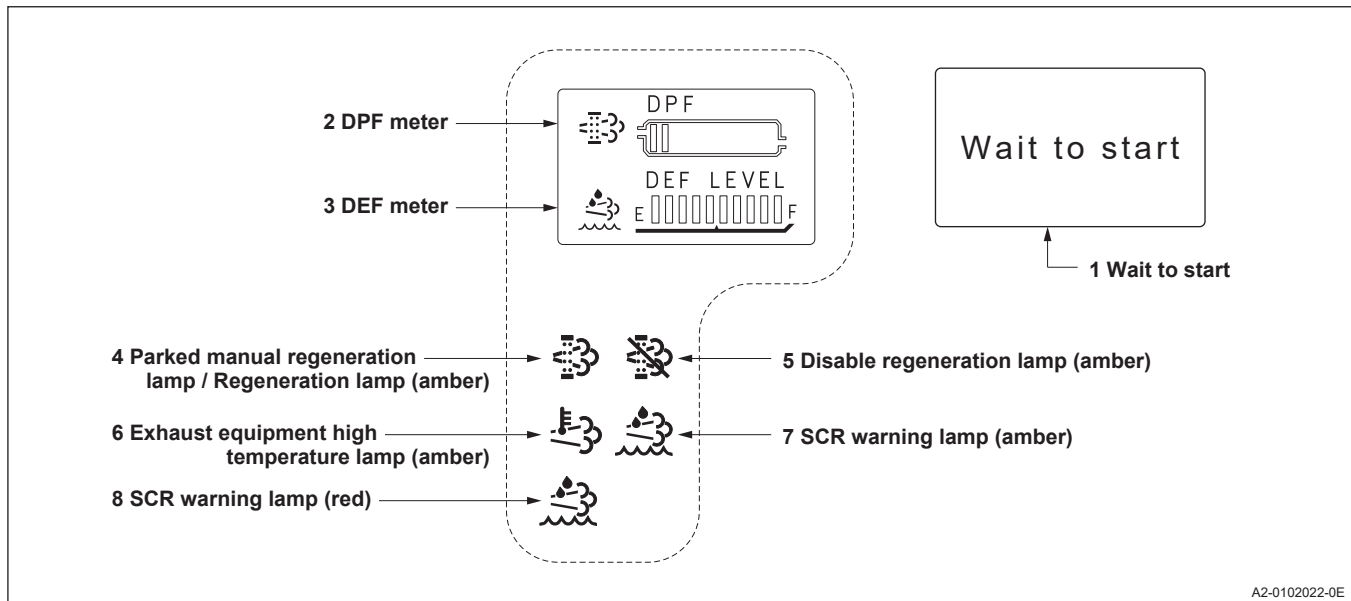


### NOTICE

**If the engine speed drops during operation, set the Engine speed select switch to the FULL position.**



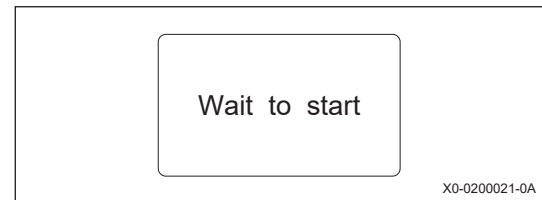
### Engine aftertreatment monitor



#### 1 Wait to start

When the Wait to start lights, it means the engine is undergoing self-diagnosis, and the engine should not be started.

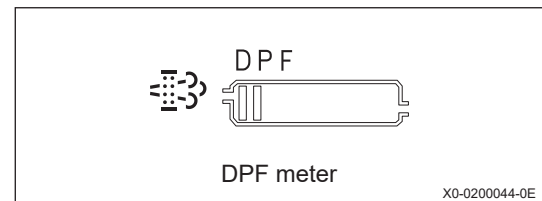
Must be wait to start the engine. The most common reason for this is to wait for the intake air heaters to complete a preheat cycle during cold ambient conditions.



#### 2 DPF meter

Indicates the amount of PM (particulate matter) that has accumulated on the DPF (diesel particulate filter).

Refer to "2.6 Engine aftertreatment".



## 2 OPERATION

### 3 DEF meter

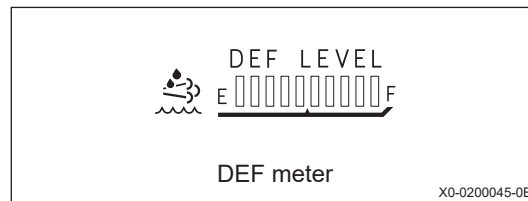
Indicated the DEF level in the DEF tank.

**E:** The tank is empty.

**F:** The tank is full.

Do not use DEF until tank is empty, but fill it up regularly.

Refer to “2.6 Engine aftertreatment” for more details.

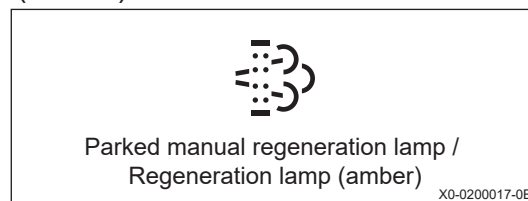


### NOTICE

- Using the machine when the DEF level is low will sound the buzzer, and the warning lamp will turn on or flash. A limit will also be placed on the engine output, not allowing the machine to perform to its full potential, Never use the machine in such a state.
- Use AUS32 for the DEF, or ISO 22241-1 certified DEF.  
Do not use anything else. If any kind of additive or water is mixed into the DEF, the machine will not be able to function properly, and it will not satisfy the exhaust gas emissions standards. This will also damage the engine system.  
If the tank is filled with any fluid other than DEF, contact your dealer.

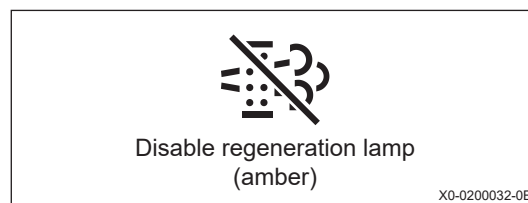
### 4 Parked manual regeneration lamp / Regeneration lamp (amber)

Turns on or flashes during the regeneration of the DPF or when the parked manual regeneration is necessary.



### 5 Disable regeneration lamp (amber)

Turns on while the DPF automatic regeneration is disabled.



- 6 Exhaust equipment high temperature lamp (amber)  
Turns on when the exhaust equipment is hot during the actions such as DPF regeneration.



Exhaust equipment high temperature lamp  
(amber)

X0-0200018-0E

- 7 SCR warning lamp (amber)  
Turns on or flashes when the SCR is the following conditions.
- The DEF level in the tank falls below the standard level.
  - The DEF concentration is below the minimum required value, or something other than the DEF is detected.
  - If the SCR has malfunction.

If the lamp remains on even after refilling the DEF, contact your dealer.



SCR warning lamp  
(amber)

X0-0200042-0E

- 8 SCR warning lamp (red)  
Turns on when the SCR is the following conditions.
- If the SCR has malfunction.
- If the SCR warning lamp (red) lights, it means a serious malfunction occurs with the engine. Stop the machine and the engine, contact your dealer.



SCR warning lamp  
(red)

X0-0200043-0E

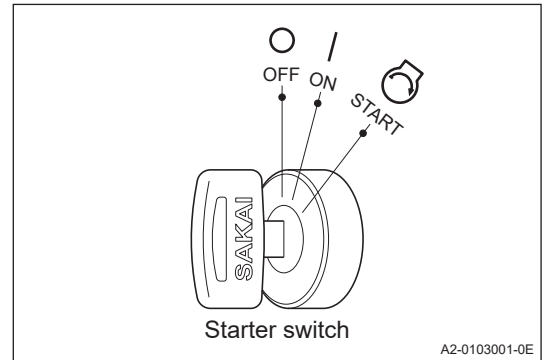
## 2 OPERATION

### 2.1.3 Switches

#### Starter switch

Starts and stops the engine.

- position : The key can be removed in this position.  
All the electric systems are switched off.  
To shut down the engine, move the key to this position.
- | position : The charging circuit and the lamp circuit are charged with electricity.  
Leave the key stay in this position after starting the engine.
- ⦿ position : The engine is cranked and gets started.  
Release the key the moment when the engine starts.  
It will automatically return to the | position.



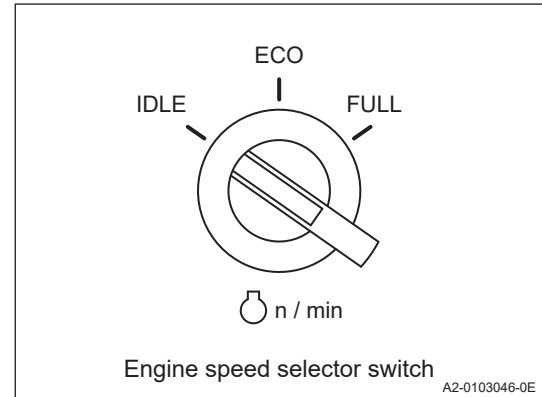
#### NOTICE

**Set the Forward-Neutral-Reverse (F-N-R) lever in the Neutral (N) position and press down the Parking brake switch before starting the engine. Unless these conditions are met, the engine will not start.**

### Engine speed selector switch

Shifts the engine RPM.

| (±50 min <sup>-1</sup> ) |                       |                        |                        |
|--------------------------|-----------------------|------------------------|------------------------|
| Engine speed             | IDLE                  | ECO                    | FULL                   |
|                          | 900 min <sup>-1</sup> | 1850 min <sup>-1</sup> | 2200 min <sup>-1</sup> |



### Travel mode switch

Selects three machine speed ranges.

| km/h (mile/h) |                                                                                       |                 |                                                                                       |
|---------------|---------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|
|               |  1st | 2nd             |  3rd |
| ECO           | 0 - 3 (0 - 1.8)                                                                       | 0 - 5 (0 - 3.1) | 0 - 8 (0 - 5.0)                                                                       |
| FULL          | 0 - 4 (0 - 2.5)                                                                       | 0 - 6 (0 - 3.7) | 0 - 10 (0 - 6.2)                                                                      |

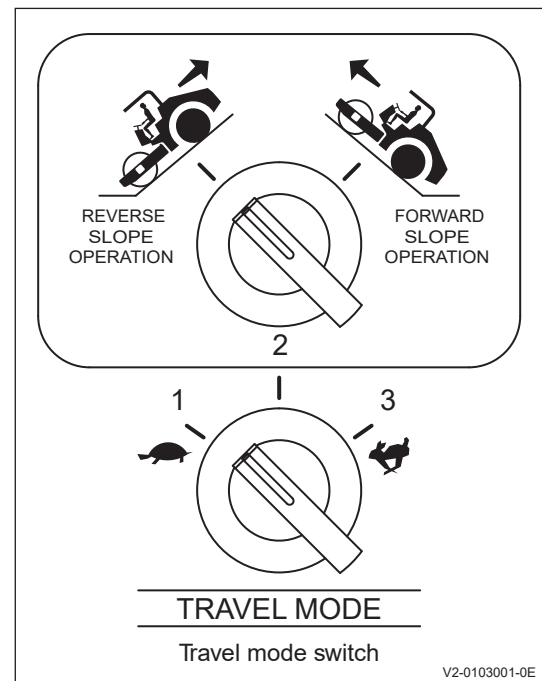
FORWARD SLOPE OPERATION  and REVERSE SLOPE OPERATION  can be selected in 2nd of Travel mode switch.

It can not be selected with  (1st) and  (3rd).

FORWARD SLOPE OPERATION  is suitable for climbing uphill in forward.

REVERSE SLOPE OPERATION  is suitable for climbing uphill in reverse.

Please choose according to the situation of the work site.



### NOTICE

- Be sure to shift gears while the machine is being stopped. Do not shift gears during running.
- Setting the traction control switch according to the uphill direction while driving the machine on a hill will automatically control the front and rear wheels to prevent slipping.

## 2 OPERATION

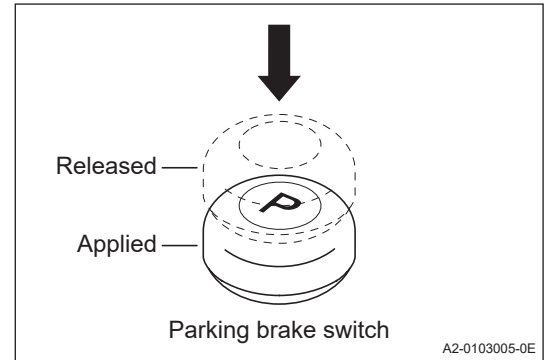
### Parking brake switch

Use it as a parking brake.

Do not use while the machine is moving.

If switch (P) is pressed down, the parking brake is applied and the Parking brake indicator lamp (P) turns on.

When pressed again, the brake is released and the indicator lamp goes off.



### WARNING

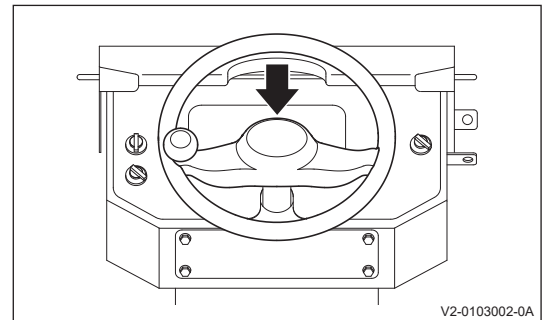
**Always press the switch to apply the parking brake before getting off the machine.**

### NOTICE

- To disengage the brake, be sure to press the switch again.
- Do not pull the switch. It may cause damages.
- When you press the Parking brake switch down while the machine is running, the brake will be activated. To start the engine again, shift the F-N-R lever back to the Neutral (N) position, set the engine speed to idle, push down the Parking brake switch.

### Horn switch

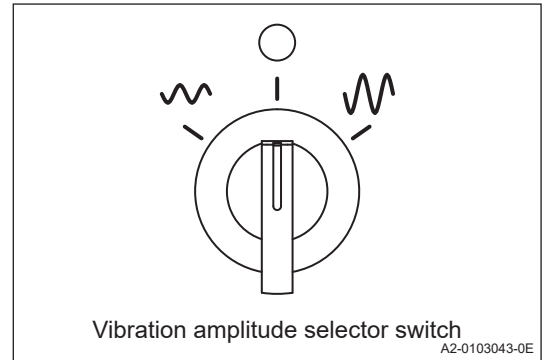
Pressing the switch at the center of the Steering wheel makes the horn sound.



## Vibration amplitude selector switch

Use the Vibration amplitude selector switch installed at the control panel on the top of the dashboard to select low or high amplitude and ON / OFF of vibration.

-  position : Turning the Vibration amplitude selector switch clockwise will result in high amplitude.
-  position : Vibration is shut down.
-  position : Turning the Vibration amplitude selector switch counterclockwise will result in low amplitude.



## NOTICE

**Vibrating compaction can be made only when the engine rpm is ECO or FULL position.**

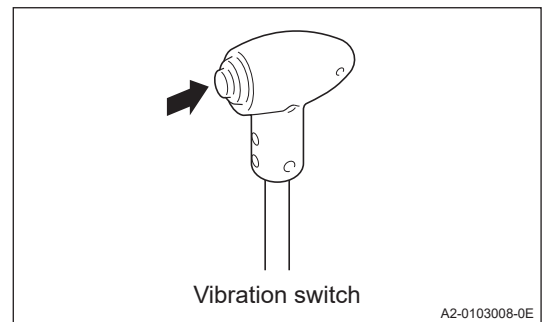
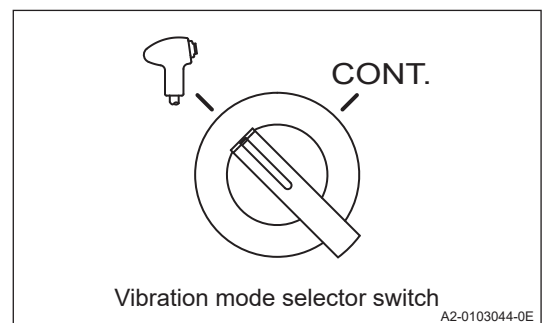
## Vibration mode selector switch

Selection can be mode between the Vibration switch installed to the Forward-Neutral-Reverse lever and the other one located on the panel.

-  position : Vibration can be turned ON or OFF with the switch located on the F-N-R lever. Pressing this switch causes the vibration to start and pressing it again to stop.

This Vibration switch on the lever should be used with the Vibration amplitude selector switch on the panel placed at  or  position.

- CONT.** position : When the Vibration amplitude selector switch is set to the  or  position, you can perform vibration work without turning the Vibration switch ON and OFF.



## NOTICE

- Do not operate the vibrator on a hard area such as cement concrete pavement surface or the ground covered by thick steel sheets.
- Keep the vibrator stopped when the machine is at rest.
- Avoid vibratory working on sidehill with the machine inclining sideways for an extended period.
- Shut off the vibrator immediately when the machine has been caught in the mud during vibratory operation.

## 2 OPERATION

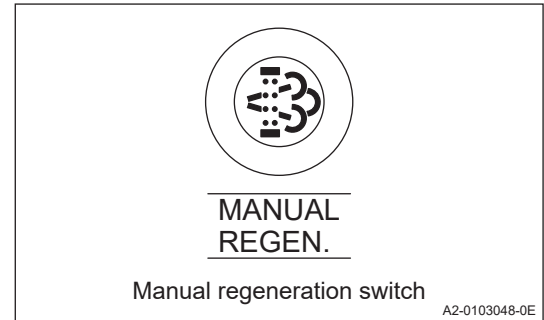
### Manual regeneration switch

Used when manual regeneration of the engine aftertreatment system is required.

Press the Manual regeneration switch to start the parked manual regeneration.

Press the switch again to stop parked manual regeneration.

Refer to “2.6 Engine aftertreatment”.



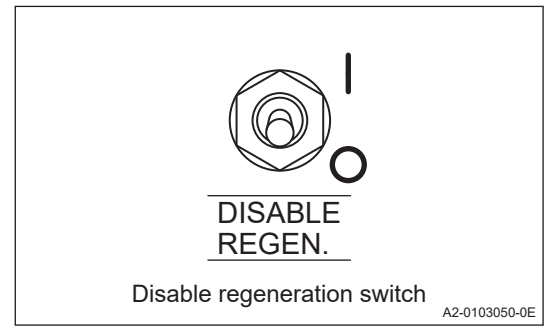
### Disable regeneration switch

Use to disable regeneration.

O position: Enable regeneration, and the Disable regeneration lamp turns off.

I position: Disable regeneration, and the Disable regeneration lamp turns on.

Refer to “2.6 Engine aftertreatment”.





### 2.1.4 Operating levers and pedals

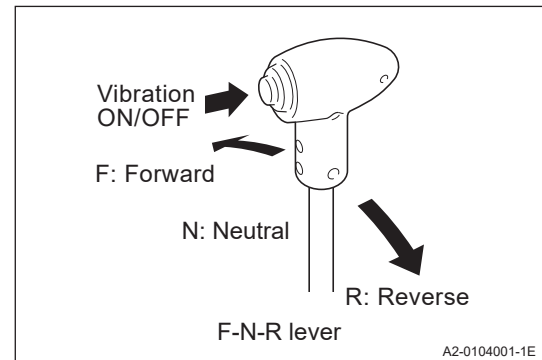
#### Forward-Neutral-Reverse (F-N-R) lever with vibration switch

Moving the F-N-R lever forward or backward makes the machine travel forward or backward.

The Neutral (**N**) position brings the machine to a stop.

The machine speed increases or decreases in proportion to the amount of lever movement.

The vibrator ON-OFF control is easily made by the Vibration switch on the F-N-R lever when the Vibration mode selector switch is  position.



#### NOTICE

- For normal braking, return the F-N-R lever back to the Neutral (**N**) position.
- In an emergency, depress the Brake pedal.

#### Brake pedal

Use it in emergencies. Carry out inspections in accordance with “3.3 Periodic Maintenance Points” after each use.

When the pedal is fully depressed in an emergency, the machine will suddenly stop.

#### NOTICE

- Do not use the Brake pedal to stop during normal machine operation. Continuous use of the Brake pedal will damage the brake.
- Depressing the Brake pedal brings the F-N-R lever into the Neutral (**N**) position. The F-N-R lever must be in the Neutral (**N**) position to release the brake for travel again.

## 2 OPERATION

### Leveling blade lift lever (SV544TB-1, SV544FB-1)

The leveling blade is operated from a single control lever.

The Leveling blade lift lever has four positions;

**FLOAT** : Push the lever forward to its full extent.

In this position, the blade becomes free to ride up and down over the ground, following the ground configuration as the machine travels.

The lever stays in the FLOAT position even if it is released.

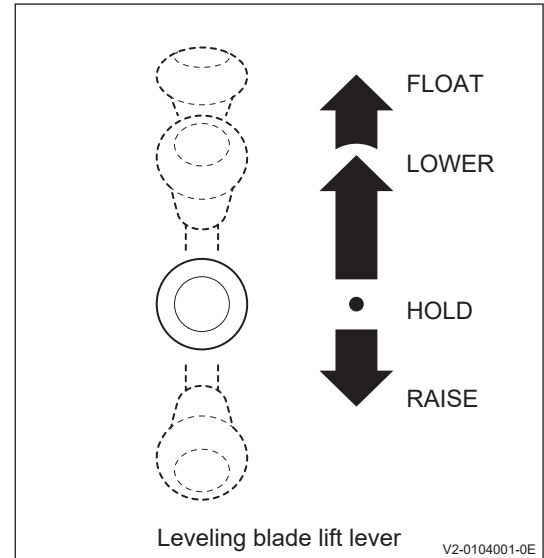
**LOWER**: To lower the blade, push the lever forward.

The lever automatically returns to the HOLD position when released.

**HOLD** : When this position is selected, the blade stays in any position.

**RAISE** : To raise the blade, pull the lever backward.

The lever automatically returns to the HOLD position when released.



### 2.1.5 Unloader valve

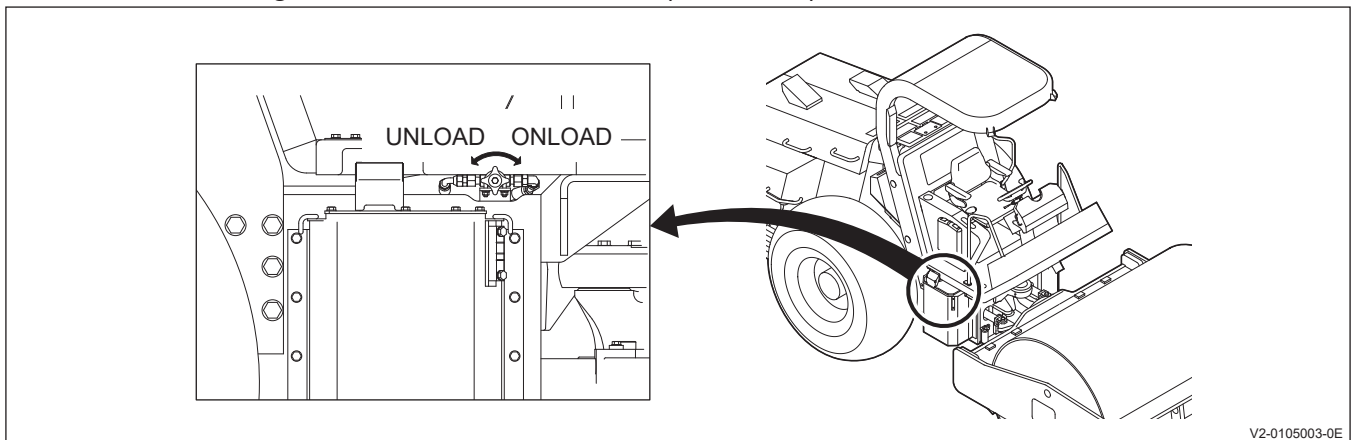
The Unloader valve disconnects the engine from the hydraulic drive, similar to a clutch. Use this valve for towing the machine when the engine or the hydraulic drive is failed.

Towing Speed : At or less than 0.5 km/h (0.3 mile/h)

Towing Distances: Within 100 m (328 ft)

For towing : Turn the knob counterclockwise (UNLOAD).

For normal traveling: Turn the knob clockwise (ONLOAD).



#### **⚠ WARNING**

- On a slope, chock the wheels and use extreme care when using the Unloader valve and towing the machine.
- The Unloader valve disconnects the engine from the hydraulic drive, similar to a clutch. Do not enter the areas ahead and behind the machine as it is very dangerous.

#### **NOTICE**

For normal travel, be sure that the Unloader valve is in the ONLOAD position.

## 2 OPERATION

### 2.1.6 Fuse box

#### ⚠ WARNING

- When replacing the fuse, always turn the Starter switch to the **O** position and disconnect the negative terminal of the battery.
- Use fuses of correct capacity. Using the wrong fuses may cause fires.

Fuses protect the electrical components and wiring from burning. Change any fuse which is deteriorated (powder-coated) or the connection is loose with the fuse holder.

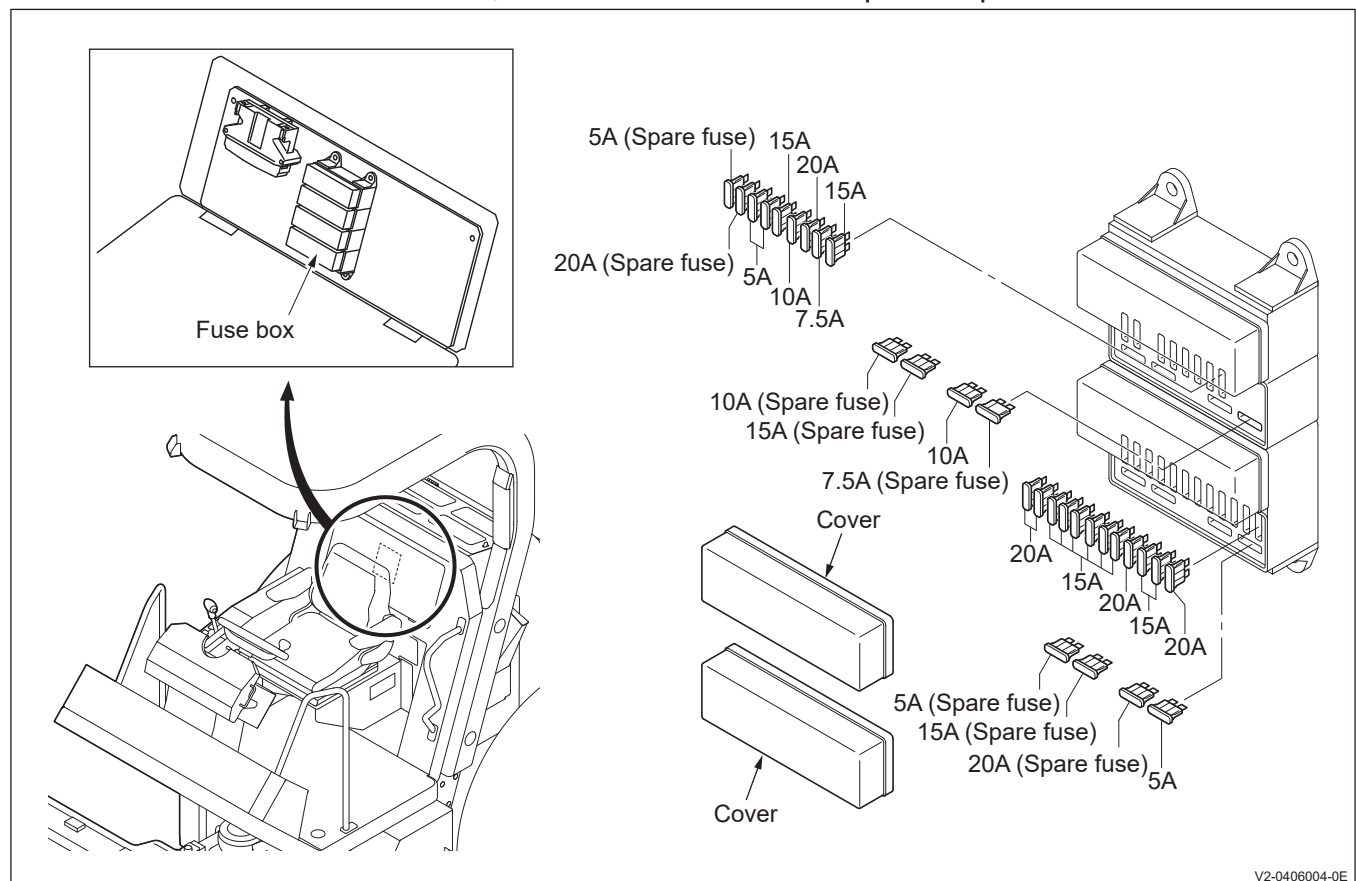
To replace fuses, take off the cover.

Be sure to use the fuses of correct capacity.

Using improperly rated fuses may result in poor machine performance, damage to the electrical system, or safety problems, such as an electrical fire.

The fuse box is located at the back of the driver's seat.

Push down the chair back forward, and remove the stud to open the panel cover.



V2-0406004-0E

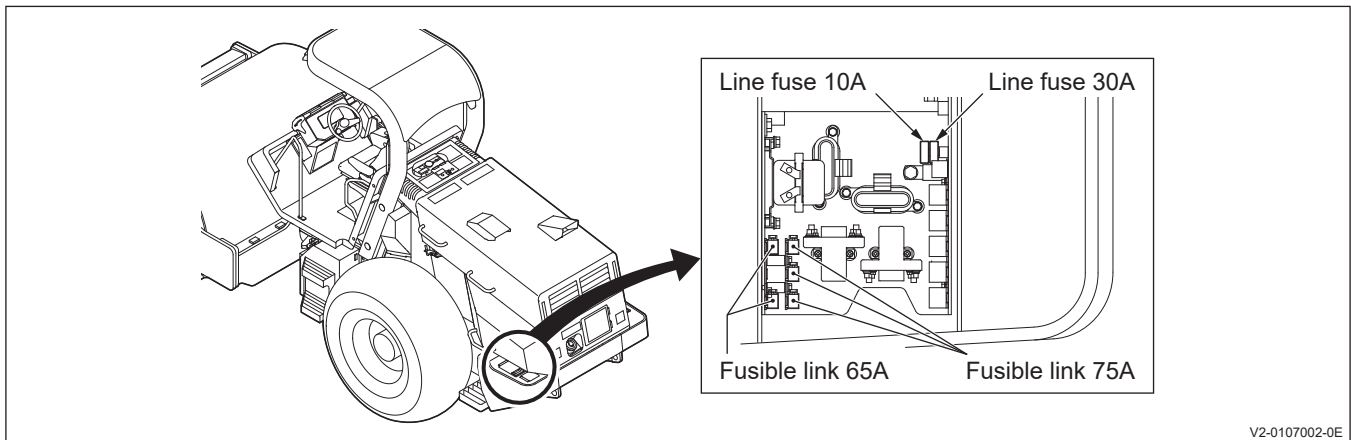
### 2.1.7 Fusible link

#### **⚠ WARNING**

- When replacing the fusible link, always turn the Starter switch to the **O** position and disconnect the negative terminal of the battery.
- Use fusible link of correct capacity. Using the wrong fusible link may cause fires.

As with ordinary fuses, this protects electronic equipment and circuits from burnouts. If the starter does not turn on when the Starter switch is turned to the **I** position, there is the possibility of a fusible link burnout caused by problems with the electronic equipment or circuits. Inspect and replace the fusible link after inspecting the electronic equipment and circuits.

Be sure to replace the fusible link with one of the same capacity.



V2-0107002-0E

### 2.2 Handling

#### 2.2.1 Engine diagnostic

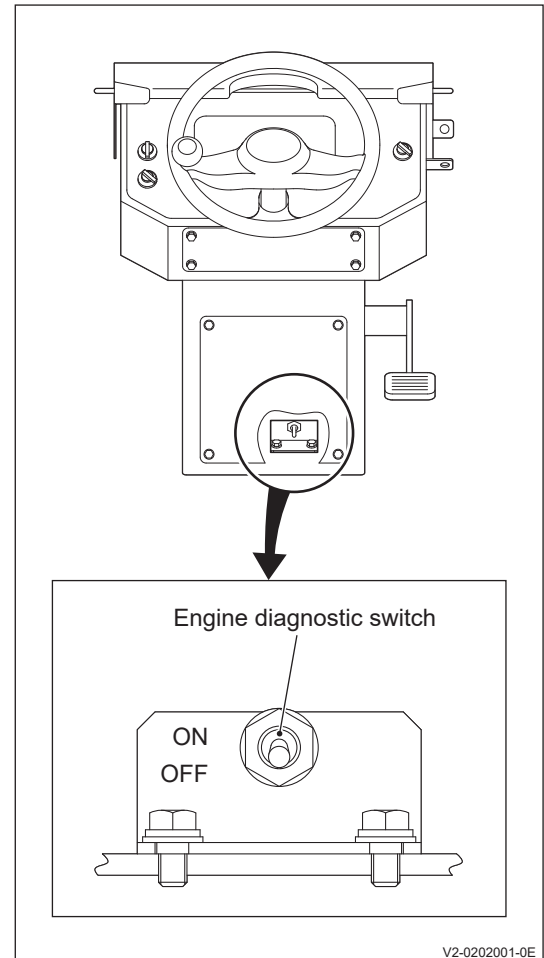
Engine diagnose can be conducted using the Engine diagnostic switch.

It is used only when carrying out inspection or maintenance work.

Set the switch as shown in OFF position during the normal operation.

**ON** position: Engine diagnostic is activated

**OFF** position: Engine diagnostic is shut off



#### NOTICE

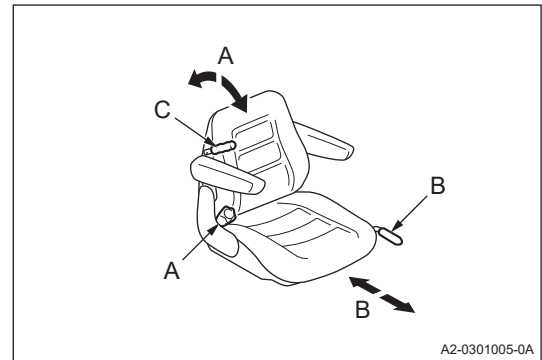
- See the engine manual when operating the Engine diagnostic switch.
- When a engine malfunction occurred, contact your dealer immediately for appropriate inspection, maintenance, or repair.

## 2.3 Adjustments

### 2.3.1 Seat

Setting the seat for your comfortable position.

- Reclining adjustment: Turn the lever **(A)** and set the chair back to facilitate smooth driving.  
The chair back can be folded forward.
- Forward/back slide adjustment:  
Pull the lever **(B)** to set an appropriate seat position to facilitate smooth driving.
- Suspension stiffness adjustment:  
Move the lever **(C)** to set the seat suspension at a desired stiffness.



### **⚠ WARNING**

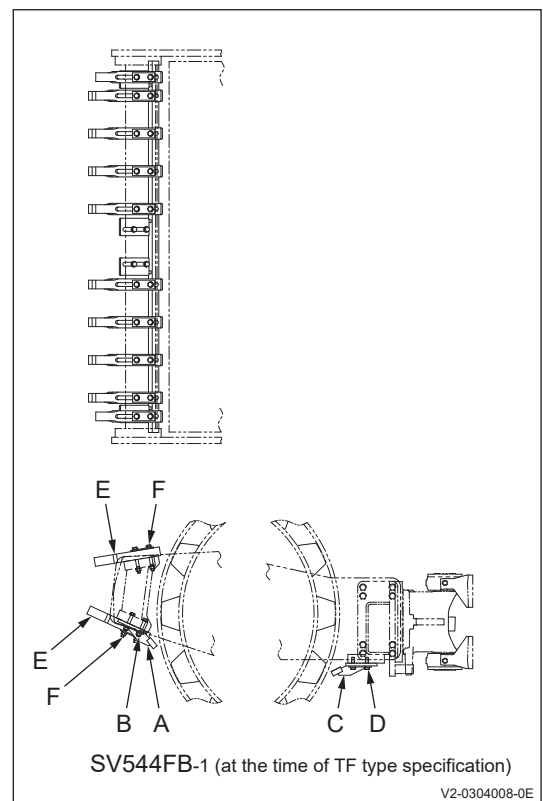
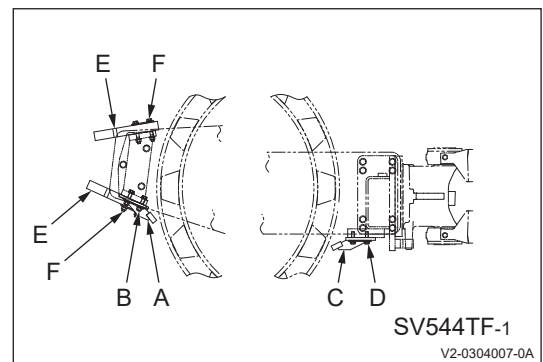
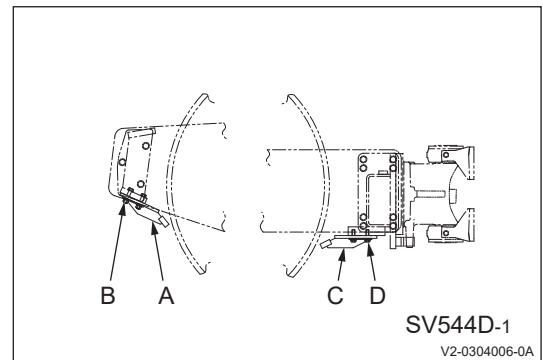
- Be sure to wear the seatbelt during the operation.
- Do not adjust the seat while driving the machine.
- Stop the machine on a flat surface to adjust the seat.
- Do not pinch your fingers, hands or legs while adjusting the seat.
- Sit and adjust the seat so that your back is in close contact with the backrest of the seat when depressing the Brake pedal fully.
- Also make sure to adjust the seat so as to be able to firmly step on the Brake pedal when you twist your body to look back in order to move the machine backwards.
- Unexpected accidents may occur if the seat is not fixed completely and it's in the sliding state.  
Before moving the machine, make sure that the seat is completely fixed after making proper adjustments.

## 2 OPERATION

### 2.3.2 Scraper

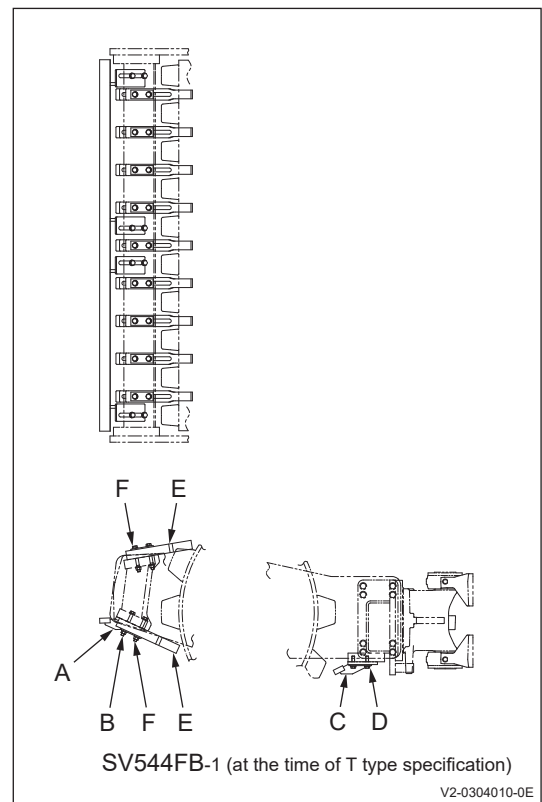
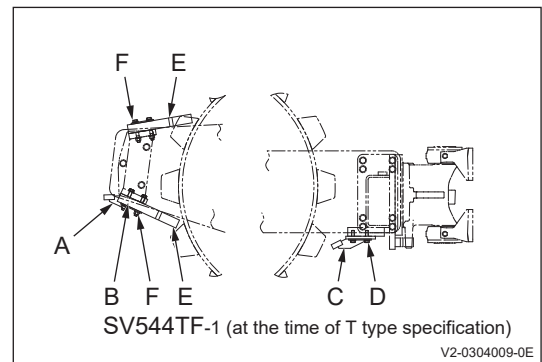
#### SV544D-1, SV544TF-1, SV544FB-1

- Clearance adjustment of scraper (**A**)
  - 1) Loosen bolts and nuts (**B**) at 8 locations.
  - 2) Provide a clearance of 20 mm between scraper and the drum.
  - 3) Retighten bolts and nuts (**B**) at 8 locations.
- Clearance adjustment of scraper (**C**)
  - 1) Loosen bolts and nuts (**D**) at 8 locations.
  - 2) Provide a clearance of 20 mm between scraper and the drum.
  - 3) Retighten bolts (**D**) at 8 locations.





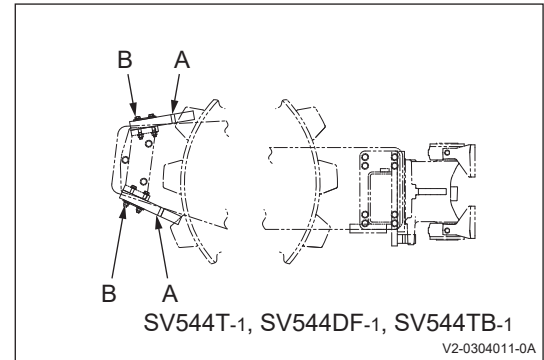
- Change from TF to T types
  - 1) Loosen bolts and nuts (**B**) at 8 locations.
  - 2) Adjust the scraper (**A**) by changing its direction so that it does not interfere the pads.
  - 3) Retighten bolts and nuts (**B**) at 8 locations.
  - 4) Loosen bolts (**D**) at 8 locations.
  - 5) Adjust the scraper (**C**) so that it does not interfere the pads.
  - 6) Retighten bolts (**D**) at 8 locations.
  - 7) Loosen bolts and nut (**F**) at 18 locations.
  - 8) Adjust the scraper (**E**) by changing provide a clearance of 20 mm between scraper (**E**) and the drum.
  - 9) Retighten bolts and nuts (**F**) at 18 locations.



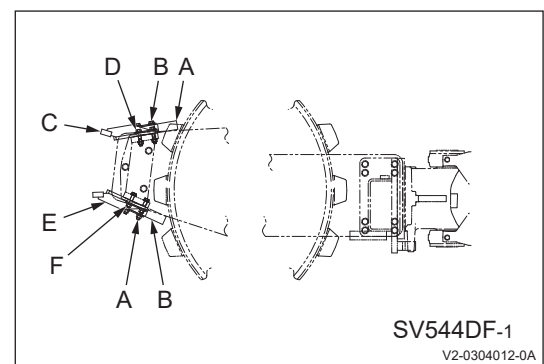
## 2 OPERATION

### SV544T-1, SV544DF-1, SV544TB-1

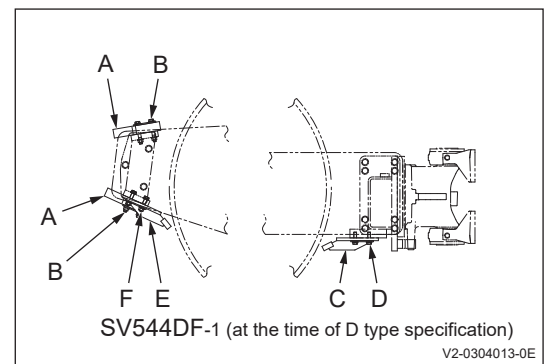
- Clearance adjustment of scraper (**A**)  
(Nine pieces are mounted on both the top surface and the undersurface for each in front of the machine).
  - 1) Loosen bolts and nuts (**B**) at 18 locations.
  - 2) Provide a clearance of 20 mm between scraper (**A**) and the drum.
  - 3) Retighten bolts and nuts (**B**) at 18 locations.



- Replacement of scraper (**A**)  
(Nine pieces are mounted on both the top surface and the undersurface for each in front of the machine).
  - 1) Remove bolts and nuts (**B**).
  - 2) Replace scraper (**A**) with new ones.



- Change from DF to D types
  - 1) Loosen bolts and nuts (**B**) at 18 locations.
  - 2) Adjust the scraper (**A**) by changing its direction so that it does not interfere the pads.
  - 3) Retighten bolts and nuts (**B**) at 18 locations.
  - 4) Loosen bolts and nuts (**D**) at 18 locations.
  - 5) Move the scraper (**C**) to the undersurface at the rear of the frame such that there is a gap by 20 mm between the scraper (**C**) and the drum.
  - 6) Retighten bolts (**D**) at 18 locations.
  - 7) Loosen bolts and nuts (**F**) at 18 locations.
  - 8) Adjust the scraper (**E**) by changing provide a clearance of 20 mm between scraper (**E**) and the drum.
  - 9) Retighten bolts and nuts (**F**) at locations.

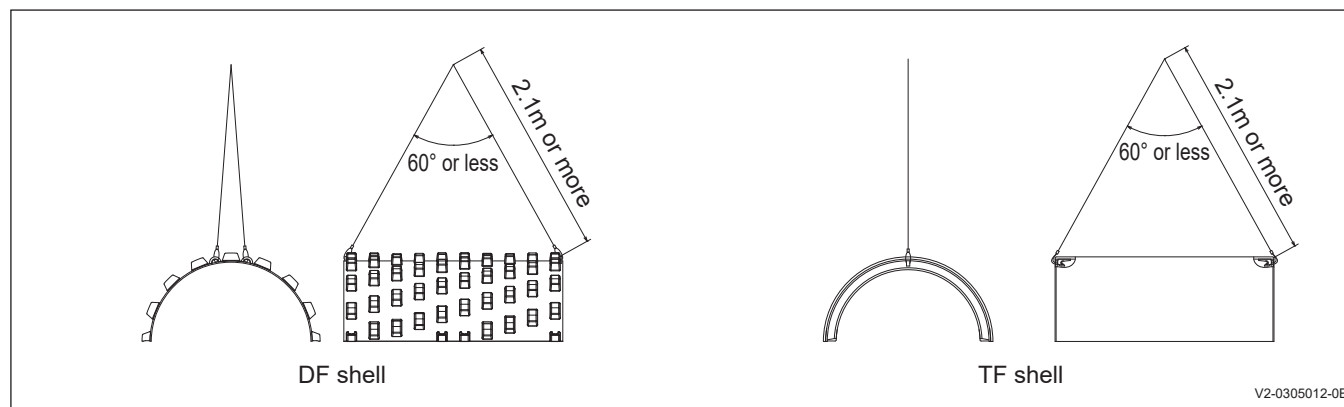


### 2.3.3 Shells

Operating the crane to replace the shells.

#### ⚠ WARNING

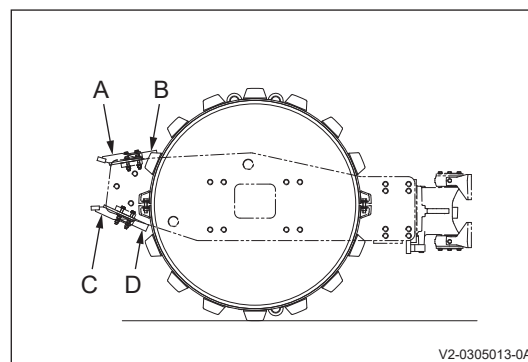
- The person responsible for hoisting and lowering the shells using a crane must be legally qualified to do so.
- Use a wire rope of adequate strength when hoisting the shells.
- Be sure to attach the wire rope to the hooks firmly as shown in the diagram.
- Check the balance before hoisting and lowering.



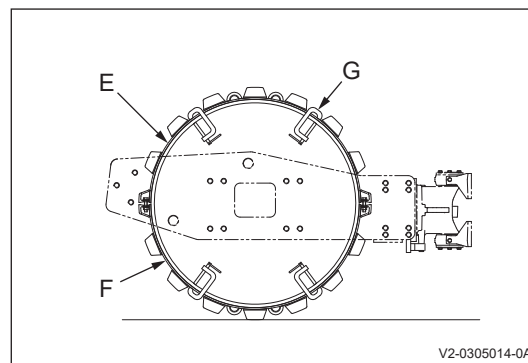
### SV544DF-1

#### (1) Removing the shells

- 1) Remove the scrapers (A, B, C and D).

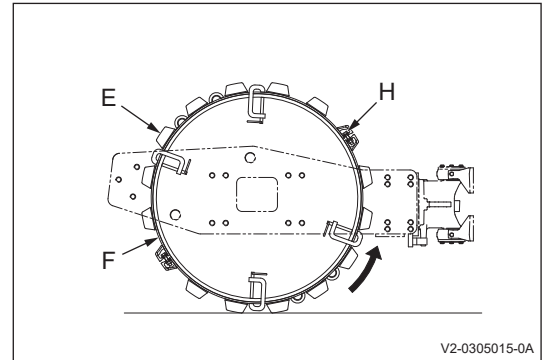


- 2) Use screw clamps (G) to fix the shells (E and F) onto the roller at eight locations.

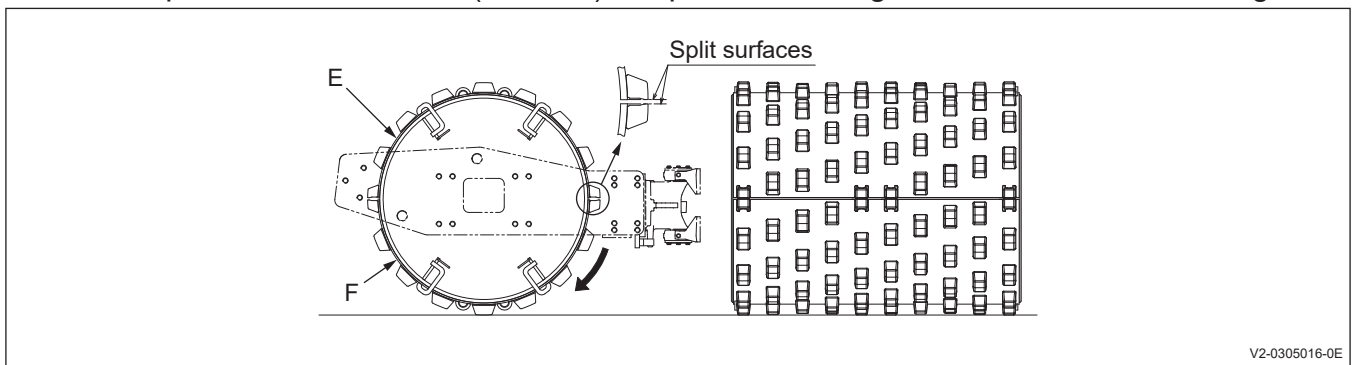


## 2 OPERATION

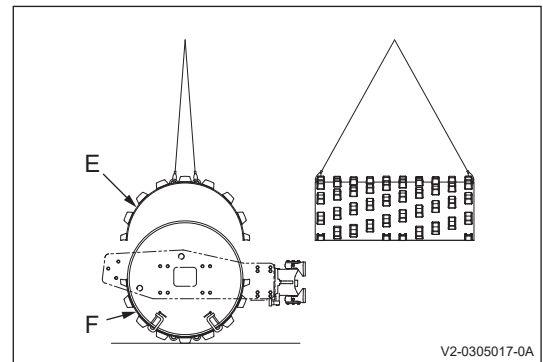
- 3) Make sure the screw clamps do not bite into the Frame while rotating the roller as shown in the diagram to make it easier to loosen the nuts and bolts (**H**), then remove them (**H**) (from eight locations).



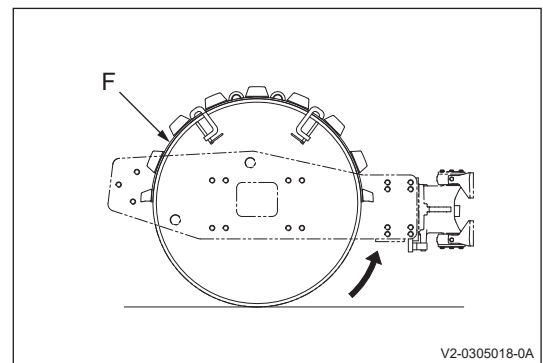
- 4) Make sure the screw clamps do not bite into the frame while rotating the roller so that the split surfaces of shells (**E** and **F**) are parallel to the ground as shown in the diagram.



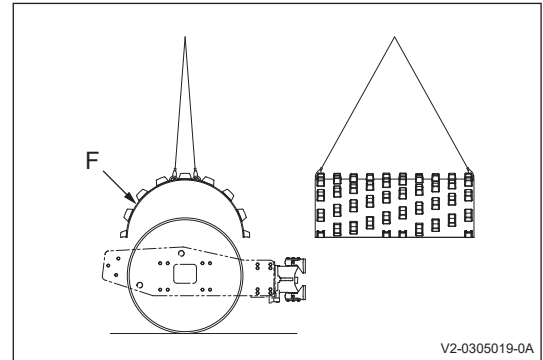
- 5) Remove the screw clamps holding down shell (**E**) and hoist shell (**E**) using a crane to remove it. The shell weights 770 kg (1,700 lbs).



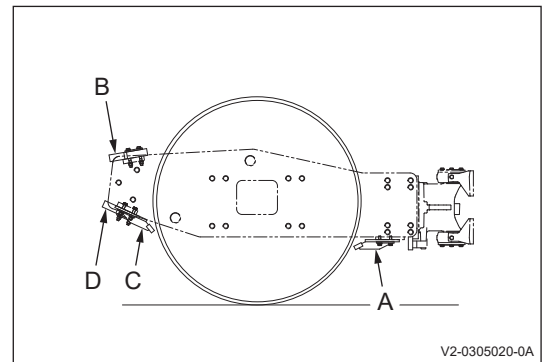
- 6) Make sure the screw clamps do not bite into the frame while rotating the roller into a position that will allow the hoisting of shell (**F**) using a crane.



- 7) Remove the screw clamps holding down shell (F) and hoist shell (F) using a crane to remove it.



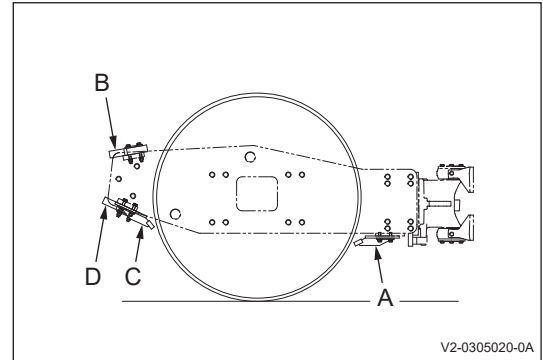
- 8) Attach scrapers (A, B, C and D), refer to "2.3.2 Scraper".  
Safety store the removed shells.



## 2 OPERATION

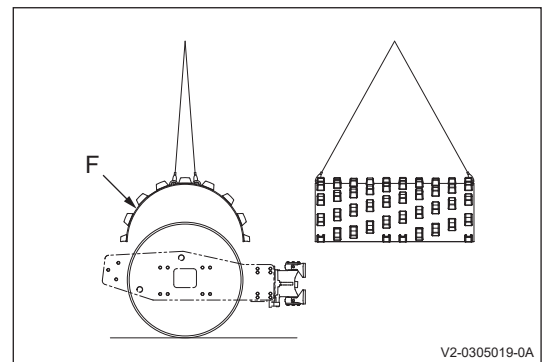
### (2) Attaching the shells

1) Remove the scrapers (**A**, **B**, **C** and **D**).

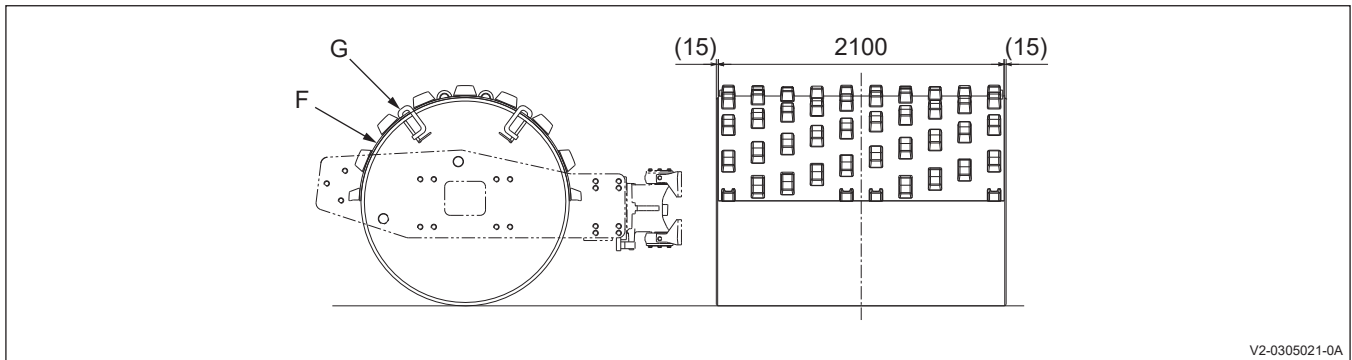


2) Clean the contact surfaces of the shells and roller, then use a crane to hoist shell (**F**), and lower it onto the roller.

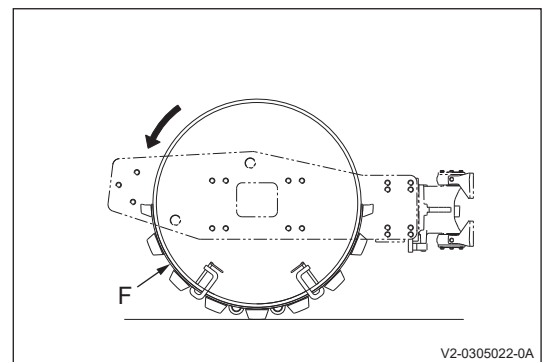
The shell weighs 770 kg (1,700 lbs).



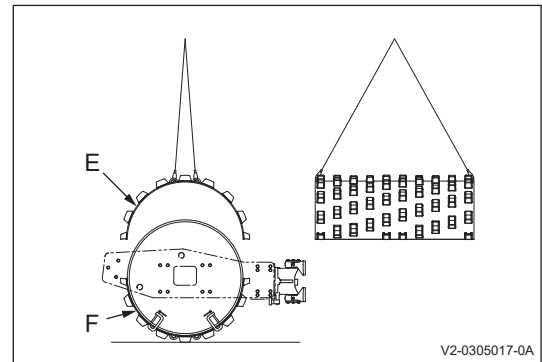
3) Lower shell (**F**) onto the center of the roller, and fix it in position using screw clamps (**G**) at four Locations.



4) Make sure the screw clamps do not bite into the frame while rotating the roller so that shell (**F**) is directly below the roller.

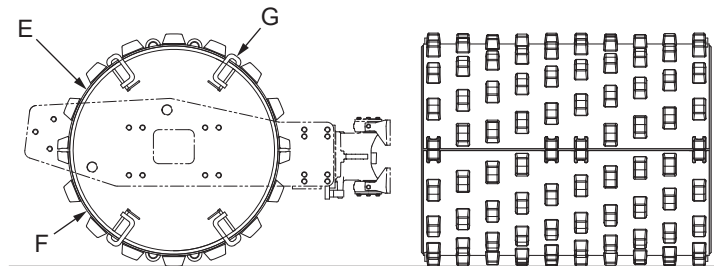


5) Hoist shell (E), and lower it onto the roller.

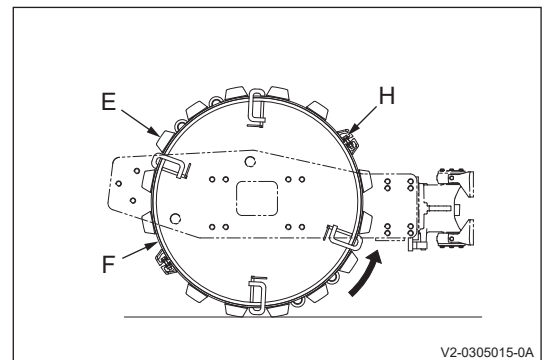


6) Align the edges of shell (E) with the edges of shell (F), and adjust it so that the gaps between the shells are the same on both sides.

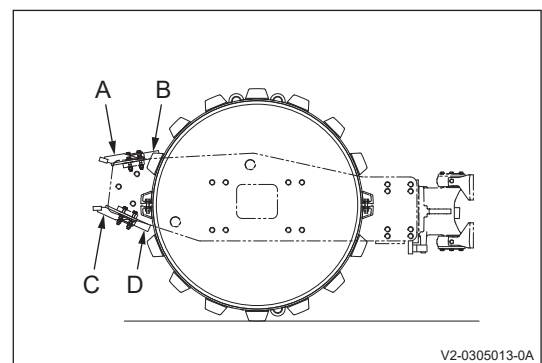
7) Fix shell (E) in position using screw clamps (G) at four locations.



8) Make sure the screw clamps do not bite into the Frame while rotating the roller as shown in the Diagram to make it easier to attach the nuts and bolts (H), then attach (at eight locations) and tighten them (H) with a tightening torque of 539 N·m.



9) Remove the screw clamps and attach scraper (A, B, C and D), refer to “2.3.2 Scraper”.



## 2 OPERATION

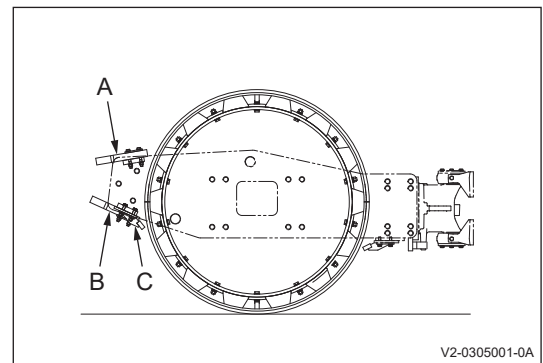
### SV544TF-1

#### **⚠ WARNING**

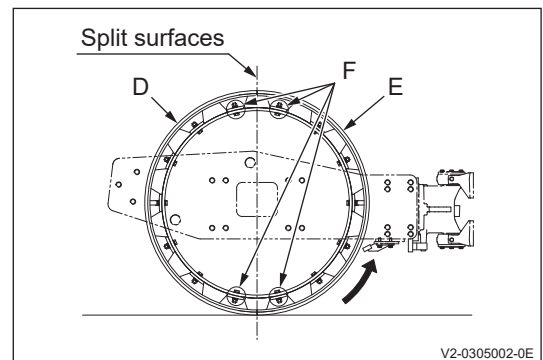
- Worn shells that have been used for a long time may become warped. If they are, stop using them immediately, and replace them with new ones.
- The split sections between the shells may emit some metallic noise while running, but this is not a quality issue.

#### (1) Removing the shells

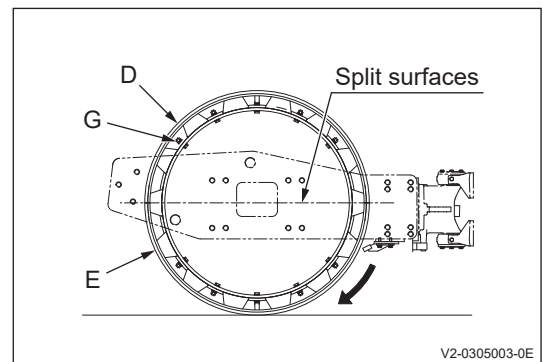
1) Remove the scrapers (A, B and C).



2) Rotate the roller so that split surfaces of shells (D and E) are perpendicular to the ground, then remove the nuts and bolts (F) (from eight locations).

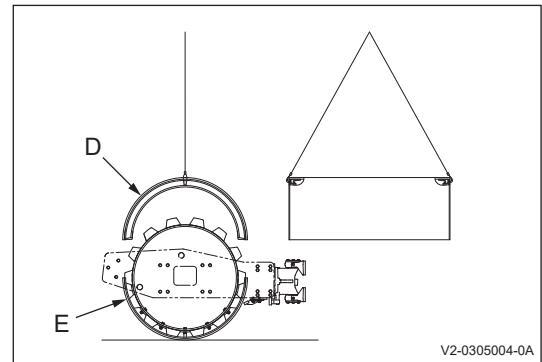


3) Rotate the roller so that split surfaces of shells (D and E) are parallel to the ground, then remove the nuts and bolts (G) on shell (D) (from eight locations).

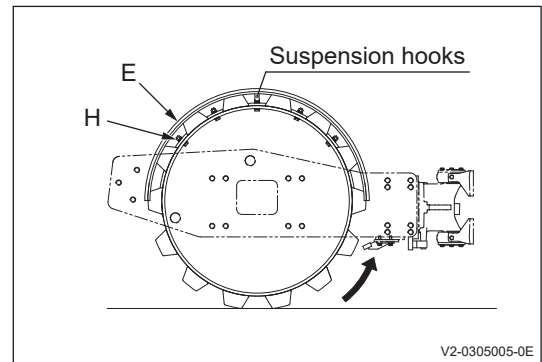




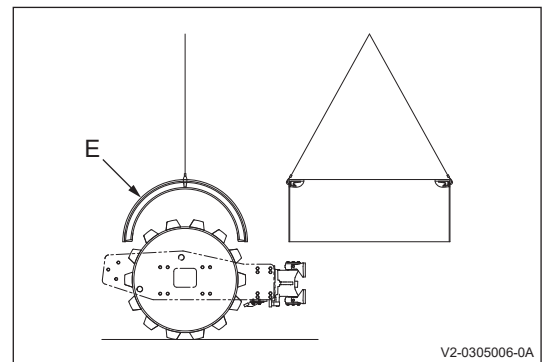
- 4) Hoist shell (**D**) using a crane to remove it.  
The shell weighs 1,090 kg (2,405 lbs).



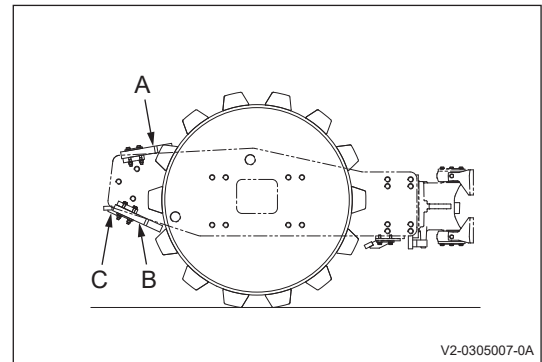
- 5) Rotate the roller so that the suspension hooks on shell (**E**) are positioned at the top of the roller, then remove the nuts and bolts (**H**) (from ten locations).



- 6) Hoist shell (**E**) using a crane to remove it.



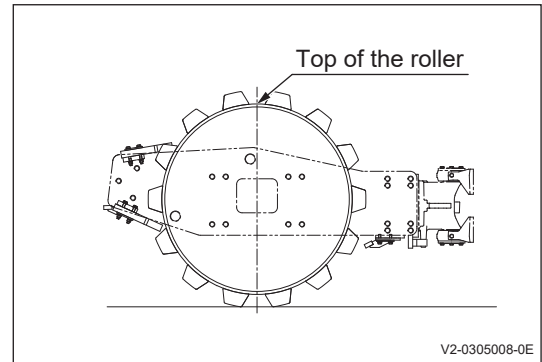
- 7) Attach scrapers (**A**, **B** and **C**), refer to “2.3.2 Scraper”.  
Safety store the removed shells.



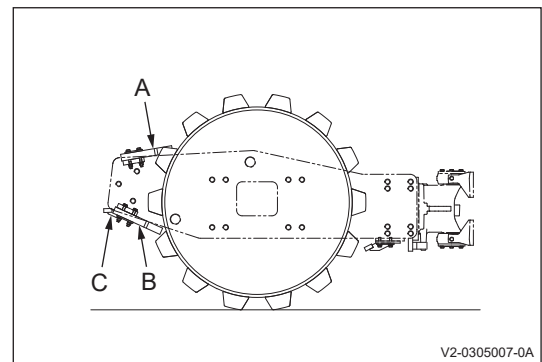
## 2 OPERATION

### (2) Attaching the shells

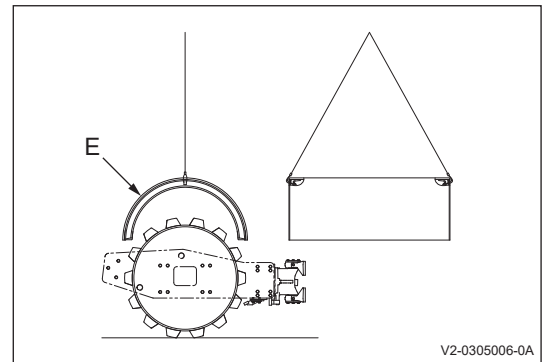
- 1) Rotate the roller so that the shell attachment hole of your choice is positioned at the top of the roller.



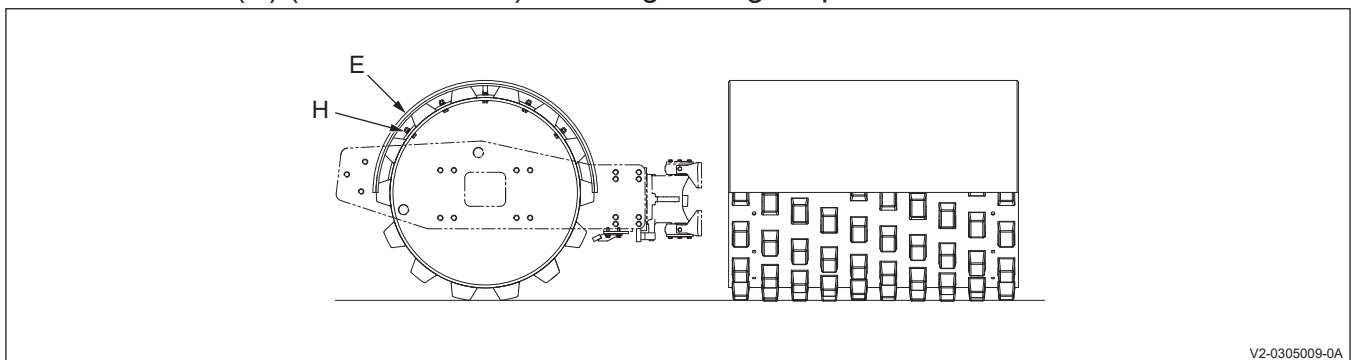
- 2) Remove the scrapers (**A**, **B** and **C**).



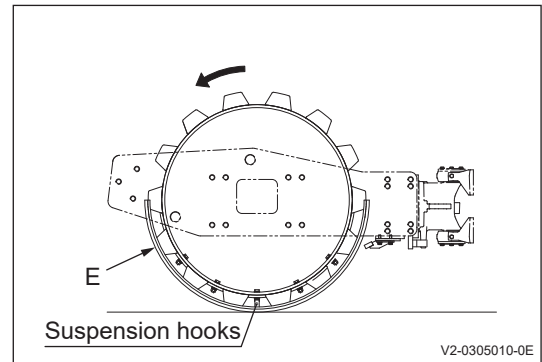
- 3) Clean the contact surfaces of the shells and roller, then use a crane to hoist shell (**E**), and lower it onto the roller.  
The shell weighs 1,900 kg (2,405 lbs).



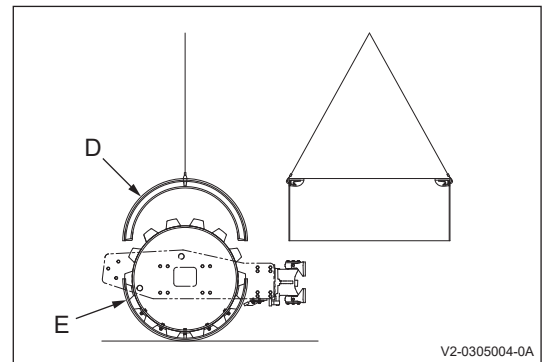
- 4) Align the edge of shell (**E**) with the edge of the roller, then attach and tighten the nuts and bolts (**H**) (at ten locations) with a tightening torque of 539 N·m.



- 5) Rotate the roller so that the suspension hooks on shell (E) are positioned at the bottom of the roller.

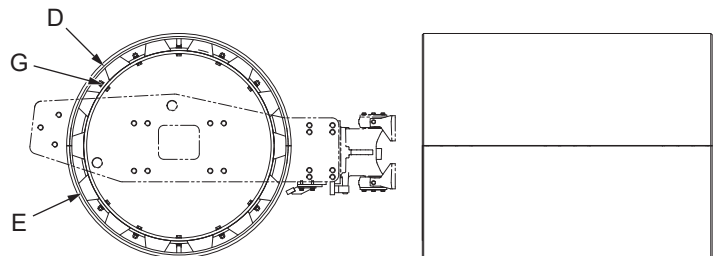


- 6) Hoist shell (D), and lower it onto the roller.



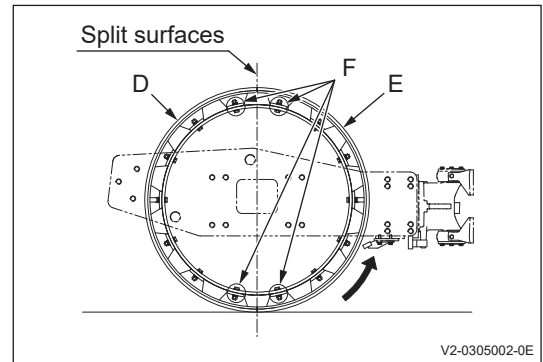
- 7) Align the edges of shell (D) with the edges of shell (E), and adjust it so that the gaps between the shells are the same on both sides.

- 8) Attach and tighten the nuts and bolts (G) (at ten locations) with a tightening torque of 539 N·m.

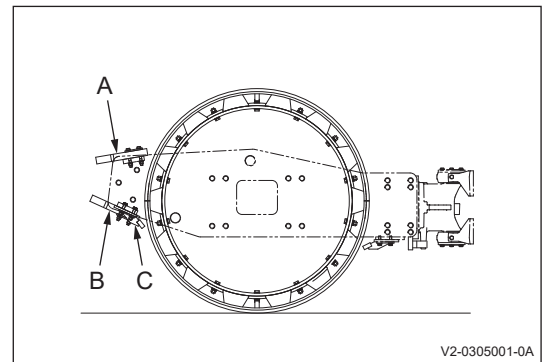


## 2 OPERATION

- 9) Rotate the roller so that the split surfaces of shells (**D** and **E**) are perpendicular to the ground, then attach and tighten the nuts and bolts (**F**) (at eight locations) with a tightening torque of 539 N·m.



- 10) Attach scrapers (**A**, **B** and **C**), refer to "2.3.2 Scraper".



## 2.4 Operation

### **⚠ WARNING**

- This machine is a one-man roller.
- Operate the machine from the operator's seat.
- Be sure to wear the seatbelt during operation.

### 2.4.1 Inspection before starting

### **⚠ WARNING**

**Make sure that the Lock pin is connected in the Unlock position before moving the machine. Steering is impossible if the Lock pin is in the Lock position.**

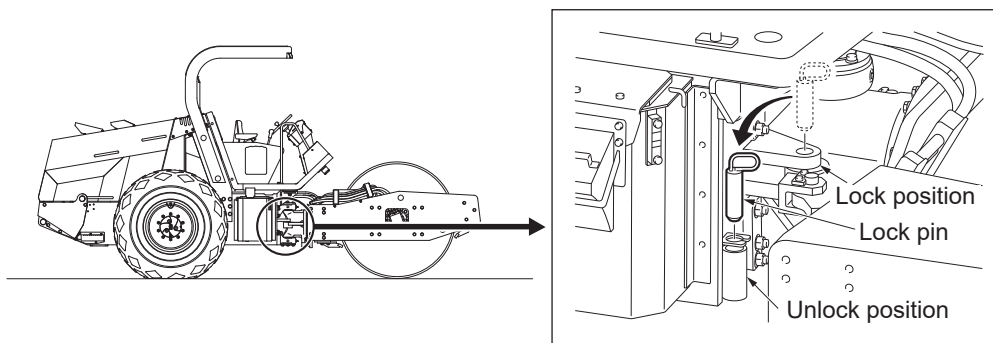
1) Check that the Lock pin is in the Unlock position.

The Lock pin is located at the center of the right side of the machine.

To unlock the Lock pin

1)-1 Pull out the Lock pin.

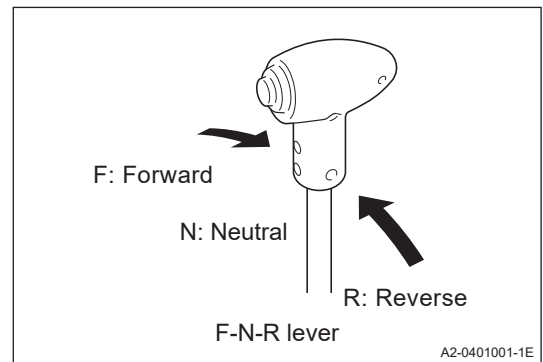
1)-2 Set the Lock pin in the Unlock position.



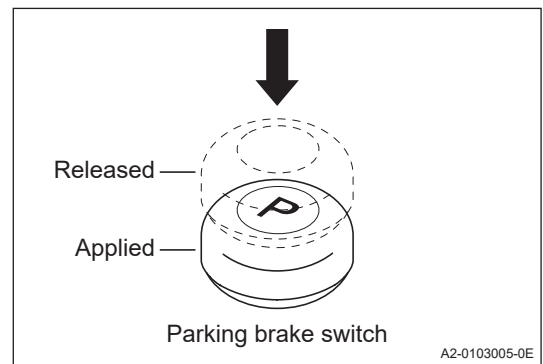
V2-0401003-0E

## 2 OPERATION

- 2) After setting the Lock pin in the Unlock position, check that the F-N-R lever is in the Neutral (**N**) position.



- 3) Confirm that the parking brake is engaged.



### NOTICE

**When the F-N-R lever is not in the Neutral (N) position, or the parking brake is released, the interlocking system will be operated and the engine will not start.**

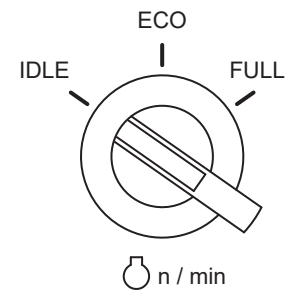
## 2.4.2 Starting the engine

**⚠ WARNING**

Check that there are no people or obstacles around the machine and beep the horn before starting the engine.

- 1) Set the Engine speed selector switch in the **IDLE** position.

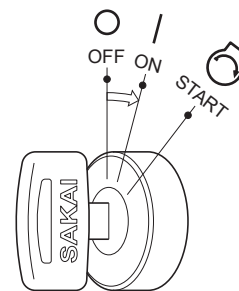
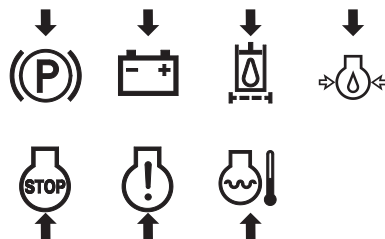
| Engine speed | (±50 min <sup>-1</sup> ) |                        |                        |
|--------------|--------------------------|------------------------|------------------------|
|              | IDLE                     | ECO                    | FULL                   |
|              | 900 min <sup>-1</sup>    | 1850 min <sup>-1</sup> | 2200 min <sup>-1</sup> |



Engine speed selector switch

A2-0103046-0E

- 2) Turn the Starter switch to the **I** position and check that the warning lamps and Parking brake indicator lamp on the Monitor display turn on.

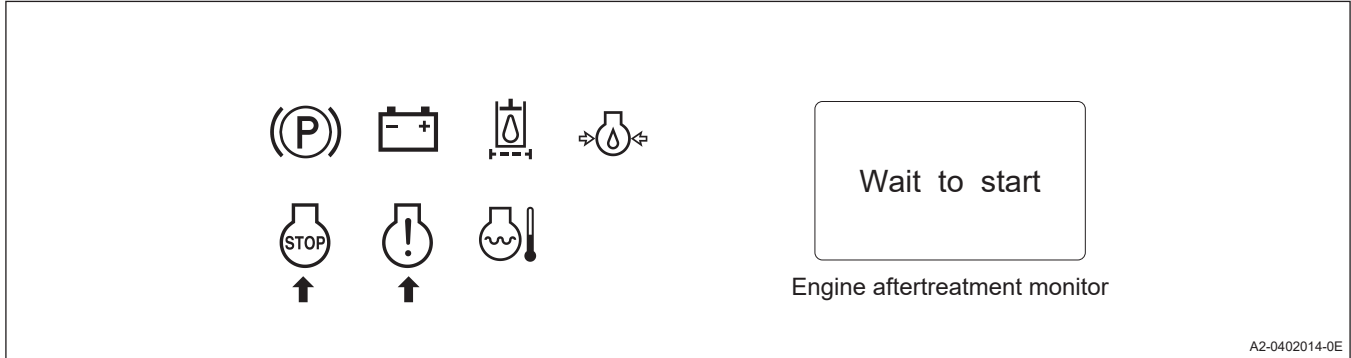


Starter switch

A2-0402013-0E

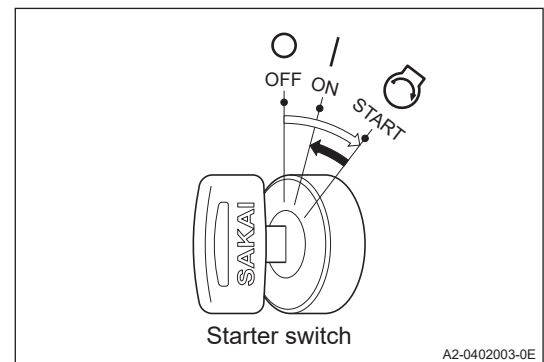
## 2 OPERATION

3) Start the engine after the Engine check lamp and **Wait to start** lights up and goes out.



4) Turning the key to the  position makes the engine start.

Release the key the moment the engine is started.  
The key will automatically return to  position.



### NOTICE

- Do not keep the Starter switch at the  position for more than 15 seconds.
- When the engine fails to start, or you want to restart the engine immediately after turning it off, wait around 30 seconds before restarting it.
- Check that the warning lamps on the Monitor display turn off immediately after the engine is started. If any of these warning lamps stay on while the engine is running, shut down the machine, determine the cause and fix the fault.



### 2.4.3 After starting the engine

Do not move the machine immediately after starting the engine.  
Perform the following steps.

#### NOTICE

**Avoid increasing the engine speed abruptly before warming up is completed.**

- 1) Run the engine at IDLE position for about 5 minutes to warm up. The warming up run allows the lubricating oil to reach the vital parts of the engine and the hydraulic system and gradually warming up the engine, the engine oil and the hydraulic oil to prepare the machine for driving.
- 2) After the warm up operation, check that:
  - Temperature gauge ..... Pointer stays near the center zone
  - Fuel gauge ..... Pointer stays between the E and F marks
  - Battery charge lamp ..... turned off
  - Engine oil pressure warning lamp ..... turned off
  - Engine stop warning lamp ..... turned off
  - Parked manual regeneration lamp / Regeneration lamp (amber) ..... turned off
- 3) Check for the color of exhaust gas, listen for unusual sounds and vibration. If abnormal, determine the cause and correct the problem.

#### WARNING

**Stay in driver's seat while starting the engine and during the operation.**

## 2 OPERATION

### 2.4.4 Traveling

#### **⚠ WARNING**

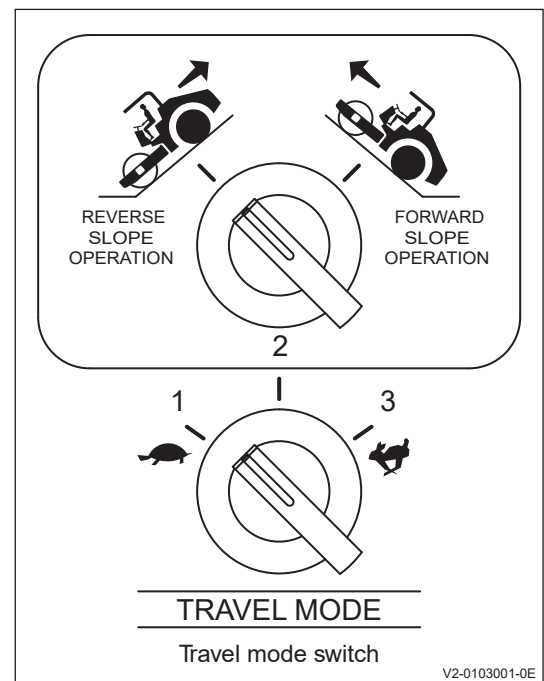
- When starting to move, operate the horn after securing the safety around the machine.
- Be sure to wear the seatbelt during operation.

#### **NOTICE**

While traveling, do not turn the Starter switch to the ○ position.

- 1) Select the Travel mode switch according to operating condition.

|      | km/h (mile/h)                                                                         |                 |                                                                                       |
|------|---------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------|
|      |  1st | 2nd             |  3rd |
| ECO  | 0 - 3 (0 - 1.8)                                                                       | 0 - 5 (0 - 3.1) | 0 - 8 (0 - 5.0)                                                                       |
| FULL | 0 - 4 (0 - 2.5)                                                                       | 0 - 6 (0 - 3.7) | 0 - 10 (0 - 6.2)                                                                      |



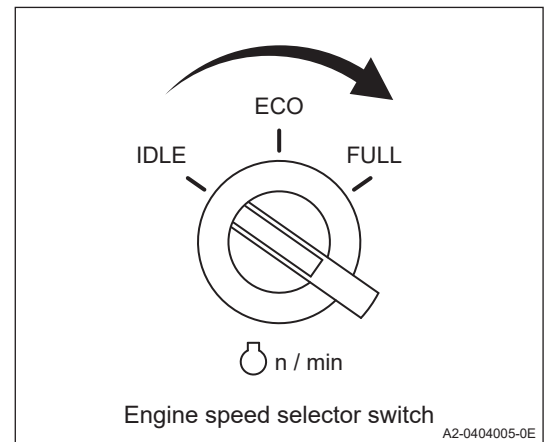
#### **⚠ WARNING**

- On a steep slope, run the machine at low speed.
- Be sure to shift gears while the machine is being stopped. Do not shift gears during running.

- 2) Select **ECO** or **FULL** position of the Engine speed selector switch.

( $\pm 50 \text{ min}^{-1} \text{ (rpm)}$ )

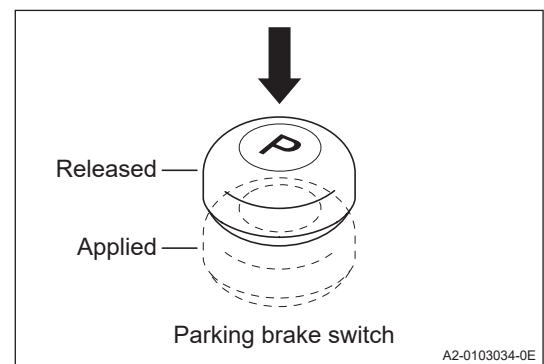
| Engine speed | IDLE                   | ECO                     | FULL                    |
|--------------|------------------------|-------------------------|-------------------------|
|              | $900 \text{ min}^{-1}$ | $1850 \text{ min}^{-1}$ | $2200 \text{ min}^{-1}$ |



### NOTICE

**Machine speed can be reached at FULL position of the Engine speed selector switch.  
Maximum speed is a reference value.**

- 3) Press down the Parking brake switch to release the brake. Check that the Parking brake indicator lamp (P) on the Monitor display turns off.

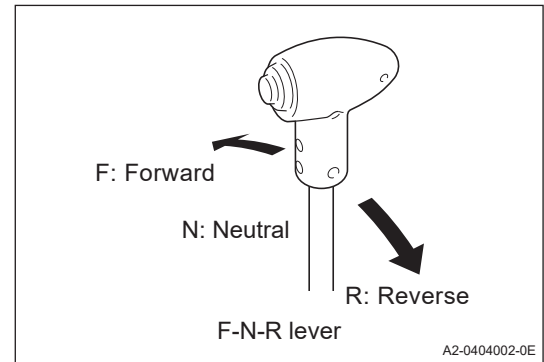


### NOTICE

**Do not pull the switch. It may damage the switch.**

## 2 OPERATION

- 4) Move the F-N-R lever in the direction you want to travel, and the machine will start traveling.



### **⚠ WARNING**

- Pay extreme attention to the area behind the machine when reversing, since the space just behind the machine tends to be a blind spot.
- Pay careful attention to your surroundings and maintain the control of the machine when changing the switches.
- Stop the machine before operating the switch.

### **NOTICE**

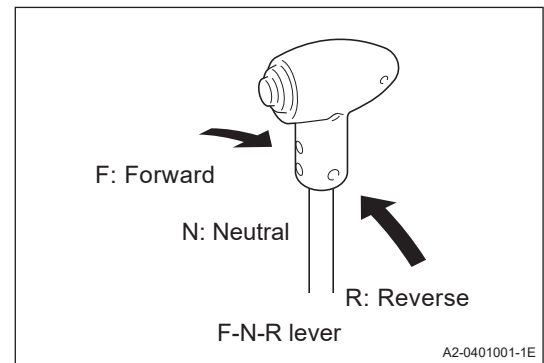
- Do not operate the F-N-R lever quickly.
- The traveling speed can be controlled by the Engine speed selector switch and the F-N-R lever.
- If the engine speed drops during operation, set the Engine speed select switch to the FULL position.

### 2.4.5 Braking and parking

#### **⚠ WARNING**

- **Avoid abrupt braking. Leave enough space from other vehicles or objects for braking safely.**
- **Avoid parking on a slope.**  
**If necessary to park on a slope, chock the wheels to prevent unexpected moving down the slope.**

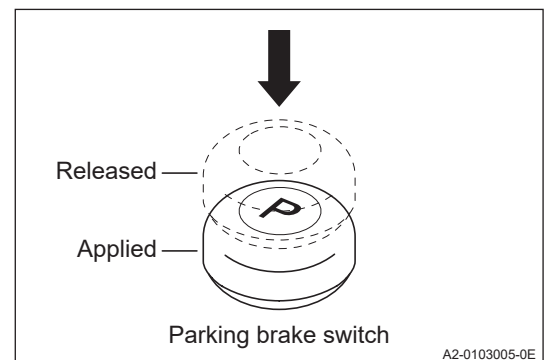
- 1) Move the F-N-R lever to the Neutral (**N**) position, and the machine will come to a halt.



#### **NOTICE**

- **For normal braking, move the F-N-R lever back to the Neutral (**N**) position.**
- **In an emergency, depress the Brake pedal.**
- **Frequent use of the Brake pedal may damage the brake system.**

- 2) Press the Parking brake switch securely, and check that the Parking brake indicator lamp (**P**) illuminates.



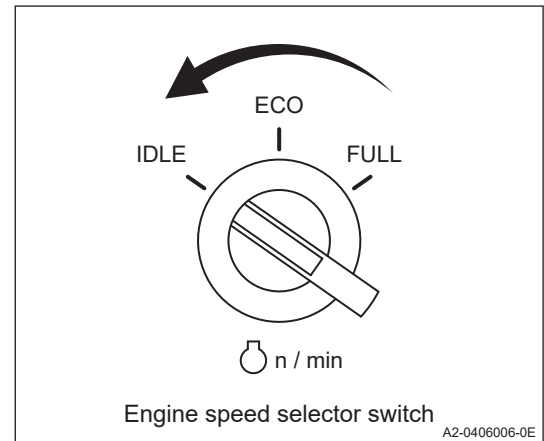
#### **NOTICE**

**Do not pull the switch. It may damage the switch.**

## 2 OPERATION

### 2.4.6 Stopping the engine

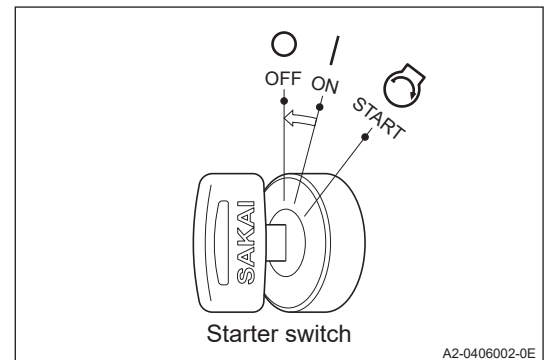
- 1) Set the Engine speed selector switch to the **IDLE** position, wait for about 5 minutes with the engine idling to gradually cool down the engine.



#### NOTICE

- Do not bring a hot engine to a sudden stop except in an emergency. This will shorten the life of its component parts.
- When the Engine overheat warning lamp lights, there is a possibility of overheating. Stop the machine and cool the engine gradually by abnormal.

- 2) Turn the Starter switch to the **○** position to stop the engine.



#### NOTICE

While traveling, do not turn the Starter switch to **○** position.

- 3) Remove the Starter switch key.

#### ⚠ WARNING

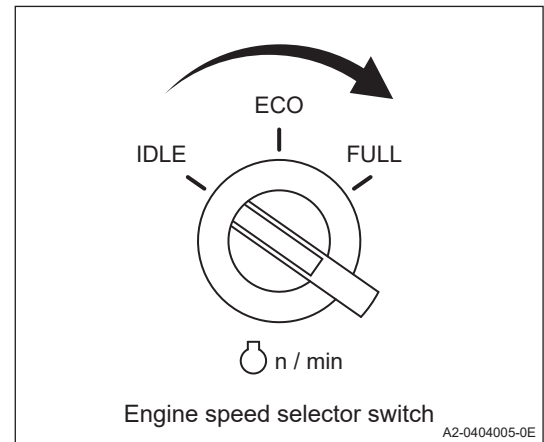
- When dismounting from the machine, apply the brake by pressing the Parking brake switch. If necessary to park on a slope, chock the wheels to prevent unexpected moving down the slope.
- Never fail to remove the Starter switch key when leaving the machine.

**2.4.7 Check after stopping the engine**

- 1) Perform the walk-around checks for oil and water leakage, and abnormal signs around the tires.
- 2) Fill the fuel tank.
- 3) Remove waste paper if any from the engine compartment, as this will pose a possible fire hazard.
- 4) Scrape mud or other materials from and around the tires.
- 5) When transporting the machine, please strictly comply with all applicable laws and regulations.

### 2.5 Vibratory Operation

- 1) Turn the Engine speed selector switch clockwise to set the engine RPM to **ECO** or **FULL** position.



#### NOTICE

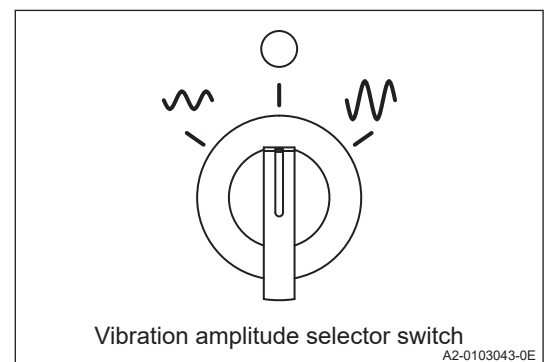
- It is possible to conduct the rolling compactions as much as the vibration specifications when setting the Engine speed select switch to ECO or FULL position. ECO position is fuel efficient position called the ECO MODE.
- The ECO MODE is recommended when working on flat road surfaces as the maximum speeds and the hill climbing performances are degraded. Please conduct the rolling compactions by setting to the FULL position when working on soft, steep sloped and rugged road surfaces.

- 2) Use the Vibration amplitude selector switch installed at the control panel on the top of the dashboard to select low or high amplitude and ON or OFF of vibration.

 position : Turning the Vibration amplitude selector switch clockwise causes the vibration to start with high amplitude.

 position : Vibration is shut down.

 position : Turning the Vibration amplitude selector switch counterclockwise causes vibration to start with low amplitude.



#### NOTICE

For vibratory rolling, run the engine at ECO or FULL position.



Vibration can be turned ON or OFF with the Vibration switch. Select a suitable setting depending on a working site condition.

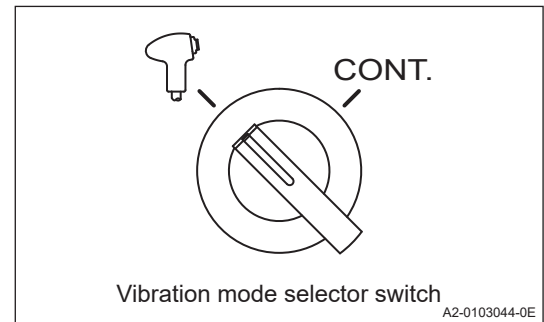
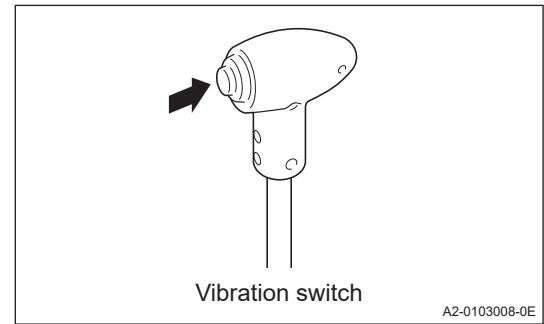


**position :** Vibration can be turned ON or OFF with the switch located on the F-N-R lever. Pressing this switch causes the vibration to start and pressing it again to stop.

This Vibration switch on the lever should be used with the Vibration amplitude selector switch on the panel placed at  or  position.

**CONT. position :** Have this switch placed at this position when vibration is not to be actuated.

At this point, use the amplitude Vibration switch to turn ON or OFF vibration.



3) Proper travel speed for vibratory compaction is 2 - 5 km/h (1.2 - 3.1 mile/h), however, select speeds depending upon job requirements.

### NOTICE

- **Keep the vibrator shut off when the machine is not rolling.**
- **Avoid vibratory working on sidehill with the machine inclining sideways for an extended period.**
- **Stop vibration if the machine has encountered a running difficulty, for example, when it gets stuck in the mud.**
- **Set the Speed change switch in the 1-2 (LOW) position during vibratory rolling compaction. Use the 3 (HIGH) position only for driving on flat straight roads.**

### 2.6 Engine Aftertreatment

#### 2.6.1 DPF (Diesel Particulate Filter)

The DPF is a filter, which collects PM (particulate matter) contained in the exhaust gas. To remove the PM collected in the DPF, it is burned (regenerated) automatically or manually.

#### ⚠ CAUTION

- DPF should be periodic maintenance. Refer to “3.3 Periodic Maintenance Points”
- Do not modify the DPF and exhaust pipe.  
Modifying it may cause machine break downs. It may also cause the DPF failures and will not satisfy the exhaust gas emission standards.

#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### 2.6.2 SCR (Selective Catalytic Reduction)

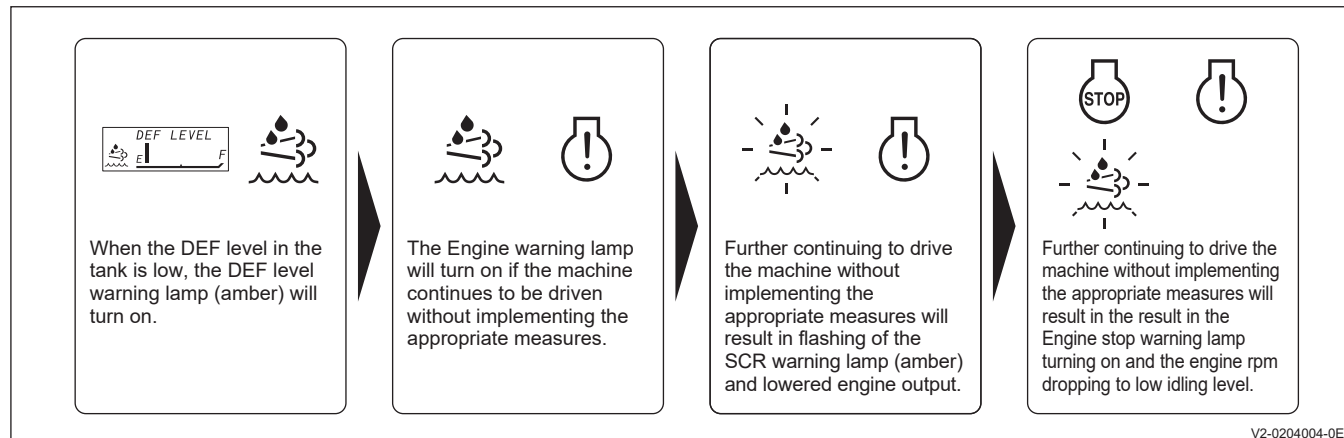
The SCR breaks down toxic nitrogen oxides (NOx) contained in the exhaust gas into harmless nitrogen and water. DEF is sprayed into the exhaust gas, and the ammonia generated by the urea reacts with the nitrogen oxides breaking them down into nitrogen and water.

#### NOTICE

- Do not use DEF until tank is empty, but fill it up regularly.
- Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

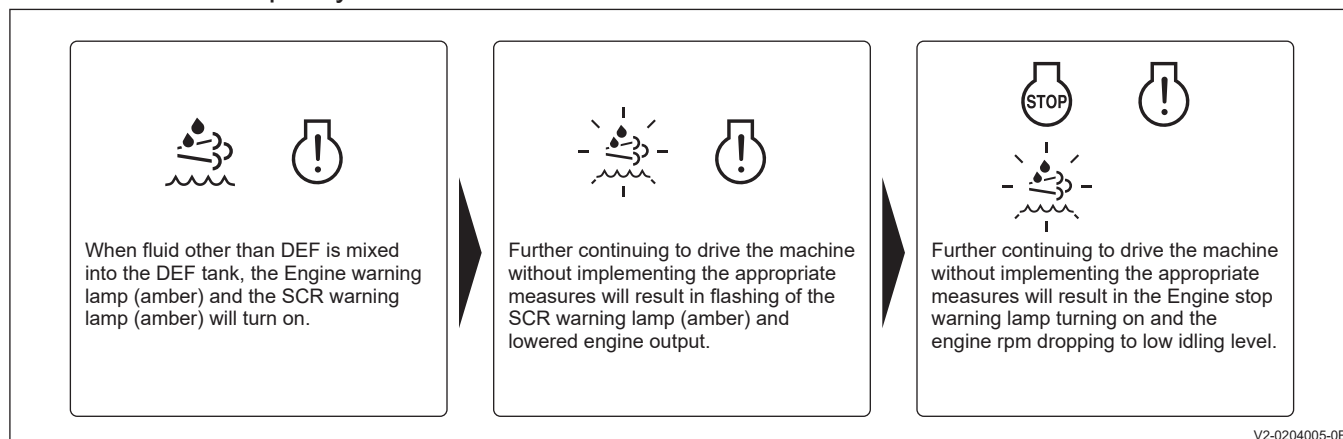
Implement the following procedures when there is an abnormality in the SCR.

- When the DEF level is low



**Countermeasure:** When the above warning is displayed, moving to the nearest safe location and stop the machine. Stop the engine and fill the tank with DEF. After fill the tank with DEF, start engine and run at “**IDLE**” speed for 5 minutes. If the lamp remains on even after refilling the DEF, contact your dealer.

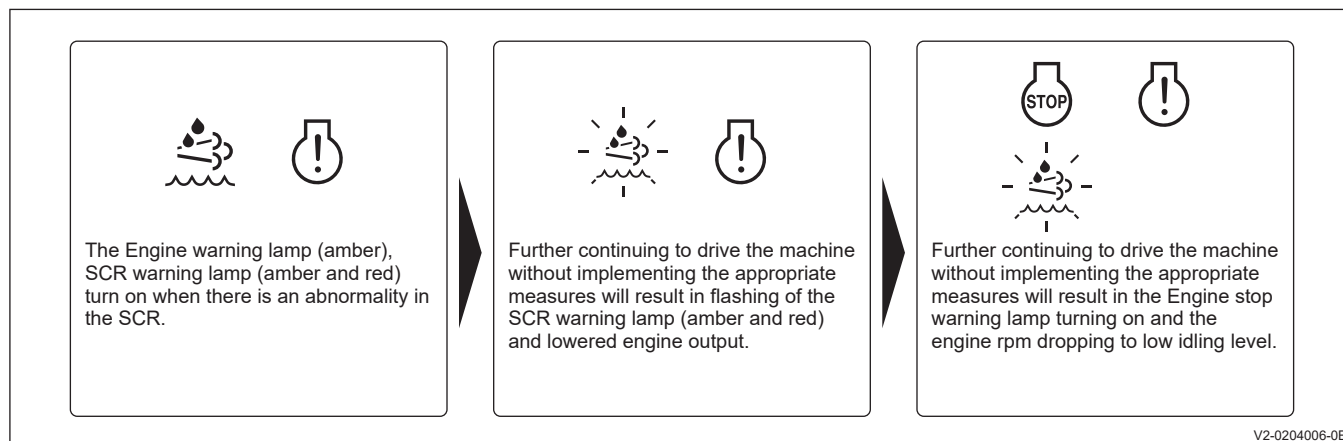
• When the DEF quality is abnormal



V2-0204005-0E

**Countermeasure:** When the above warning is displayed, moving to the nearest safe location and stop the machine. Stop the engine and completely drain the DEF. Refill the tank with DEF, start engine and run at “**IDLE**” speed for 5 minutes. If the lamp remains on even after refilling the DEF, contact your dealer.

• When the SCR is abnormal



V2-0204006-0E

**Countermeasure:** When the above warning is displayed, contact your dealer.

### WARNING

- DEF on the skin may cause inflammation in some people, so contaminated clothes, shoes, etc., should be taken off and washed in cold or warm water. If there are any changes in appearance or pain, promptly seek medical help.
- If the DEF is accidentally swallowed, rinse out your mouth well with water, and promptly seek medical help.
- If the DEF gets in your eyes, rinse it out immediately in clean water for several minutes, then promptly seek medical help.
- Wear protective glasses when there is a danger of the DEF splattering. Wear rubber gloves if work requires you to come into contact with the DEF.
- Do not put anything other than the DEF into the DEF tank. Diesel, gasoline, etc., in particular may cause fires. Moreover, putting additives in the tank may lead to generation of toxic gases.
- Opening the DEF tank cap may release toxic ammonia gas. When opening the cap or filling the tank, keep your face away from the Filler port.
- If the DEF is spilled, promptly wipe it clean and wash with water. Neglecting to do so may lead to toxic gases or corrosive substances being given off.

### CAUTION

- Put ISO (International Organization for Standardization) AUS32 ISO22241-1 certified DEF in the DEF tank.
- Never modify the SCR.  
The machine will not be able to function properly, and it will not satisfy exhaust gas emissions standards. It may also damage the machine.
- The machine will continue running for several minutes after the Starter switch to the ○ position, but this is to pump the DEF left in the pipes, injector and supply pump back into the DEF tank, and it is not abnormal.
- Keep the DEF tank topped up by refilling it at the right time.
- When storing the machine for a month or more, fill up the DEF tank (except for on cold days).
- If the machine is not used for two month or more after storage, change the DEF pump filter and fill up the DEF tank before starting the engine.
- If a year or more has passed since refilling the DEF tank, to change the DEF pump filter and the DEF before starting the engine. Starting the engine without doing so may cause the SCR to break down.
- Check the SCR to make sure there are no abnormalities after starting the engine. If there is something wrong with the SCR, stop the engine and restart it.

### 2.6.3 DPF Regeneration

#### (1) DPF regeneration is performed as follows:

- Automatic regeneration  
The Exhaust equipment high temperature lamp (amber)  will turn on.

#### NOTICE

**The machine can be driven or operated as usual during the automatic regeneration.**

- Parked manual regeneration request  
When the automatic regeneration is done but the DPF regeneration is not completed. The Parked manual regeneration lamp / Regeneration lamp (amber)  will turn on. Press the Parked manual regeneration switch  to start parked manual regeneration. When the regeneration begins, the Exhaust equipment high temperature lamp (amber)  will turn on and the Parked manual regeneration lamp / Regeneration lamp (amber)  will flash.
- Parked manual regeneration urgent request  
When you continue driving without carrying out the Parked manual regeneration. The Parked manual regeneration lamp / Regeneration lamp (amber)  and Engine warning lamp  will turn on. And the engine output decreases. Press the Parked manual regeneration switch  to start parked manual regeneration. When the regeneration begins, the Exhaust equipment high temperature lamp (amber)  will turn on and the Parked manual regeneration lamp / Regeneration lamp (amber)  will flash.

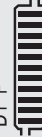
#### WARNING

- Do not carry out the regeneration in an enclosed space with poor ventilation, such as inside a garage or a room. There is a danger of carbon monoxide poisoning.
- Check to make sure that there are no flammables near the exhaust pipe outlet to prevent fires.
- Do not touch or let people go near the exhaust pipe or muffler, which be hot during regeneration, and for a while after regeneration.

#### NOTICE

- The regeneration may be necessary regardless of the amount of DPF.
- The engine sound, exhaust gas smell, etc., may change during the regeneration.
- Do not turn the engine off immediately after regeneration.  
Set the Engine speed select switch to “IDLE” position after regeneration, and let the engine cool gradually for around 5 minutes. Stopping the engine suddenly without letting it cool may shorten the life span of the engine parts.

## Regeneration “RGN” of DPF for Operator / Engine Diagnosis

| Level<br>(Stage)                            | DPF meter                                                                                                                                                                            | Parked manual<br>RGN lamp /<br>RGN lamp<br>(amber)                                          | Manual RGN<br>switch                                                                                                                                                                                                             | Engine<br>Warning lamp                                                                         | Engine Stop<br>Warning lamp                                                                   | Operations                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b><br>Auto RGN                        |                                                                                                                                                                                      | OFF                                                                                         |                                                                                                                                                                                                                                  | OFF                                                                                            | OFF                                                                                           | Normal machine operation is available.<br>When the Exhaust equipment high temperature lamp (amber)  will turn on during Auto RGN.                                                                                                                                                                                                   |
| <b>2</b><br>Requesting<br>Parked RGN        |  DPF  10 (Max) |  Lamp ON | <br>Start Parked RGN by pushing the switch.  will turn on. | OFF                                                                                            | OFF                                                                                           | Procedure<br>1) Move the machine to safe location.<br>Insure hot exhaust is dissipated away from combustible materials.<br>2) Shift the F-N-R lever into the Neutral (N).<br>3) Push on the Parking brake switch.<br>4) Keep the engine rpm at "IDLE".<br>5) Push on the Manual RGN switch.<br>The Parked manual RGN lamp / RGN lamp (amber) turn off when RGN is completed.<br>Idle for 5 minutes after Parked RGN. |
| <b>3</b><br>Parked RGN<br>Urgent<br>request |                                                                                                                                                                                      |  Lamp ON |                                                                                                                                                                                                                                  | <br>Lamp ON | OFF                                                                                           | Perform the Parked RGN<br><br>Perform urgently the Parked RGN.                                                                                                                                                                                                                                                                                                                                                       |
| <b>4</b><br>Clean the DPF                   |                                                                                                                                                                                      | OFF                                                                                         |                                                                                                                                                                                                                                  | OFF                                                                                            | <br>Lamp ON | Stop the machine in a safe location and stop the engine.<br>Contact your dealer.                                                                                                                                                                                                                                                                                                                                     |

**⚠ WARNING**

Do not touch or let people go near the exhaust pipe or muffler, which be hot during regeneration, and for a while after regeneration.

**⚠ CAUTION**

Never modify the SCR.

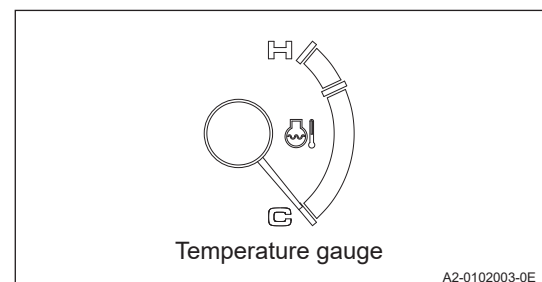
The machine will not be able to function properly, and it will not satisfy exhaust gas emissions standards. It may also damage the machine.

**NOTICE**

- Do not turn the engine off immediately after regeneration.  
Set the Engine speed select switch to “IDLE” position after regeneration, and let the engine cool gradually for around 5 minutes. Stopping the engine suddenly without letting it cool may shorten the life span of the engine parts.
- When you continue driving without carrying out the Parked manual regeneration.  
The Parked manual regeneration lamp / Regeneration lamp (amber)  and Engine warning lamp  will turn on. And the engine output decreases.
- Operating the Engine speed change switch during the Parked manual regeneration will automatically stop regeneration. Restart the Parked manual regeneration in accordance with the prescribed procedure.

**(2) DPF regeneration in cold weather**

Be sure to let the engine warm up adequately on Cold weather before carrying out the regeneration.  
As a rough guide, let the engine warm up until the Temperature gauge indicates the position shown in the illustration on the right.

**(3) Disable regeneration**

If there is a danger of hot gas contact with nearby flammable materials, disable the regeneration by turning the Disable regeneration switch to the **I** position to prevent fires and burns from high temperature exhaust gas during the regeneration.  
When the safety is secured, promptly turn the Disable regeneration switch to the **O** position.

Turning the Disable regeneration switch to the **I** position will turn on the Disable regeneration lamp (amber)  and the disable regeneration.

Turning the Disable regeneration switch to the **O** position will turn off the Disable regeneration lamp (amber)  and enable the regeneration.

### 2.7 Safety Precautions for Work

#### 2.7.1 Compaction operation

##### ■ Change the direction of travel gently

- When changing the direction of travel, slowly shift the F-N-R lever.

#### NOTICE

**Increase the engine RPM when the engine speed drops drastically during rolling compaction.**

##### ■ Drive at a speed appropriate for the road surface conditions

- Drive slowly on uneven surfaces.

##### ■ Do not operate the vibrator on hard location

- Do not work the vibrator on a hard surface such as concrete pavement, as this can cause the machine to jump and give abnormal shock load. Damage to shock isolators will result.

#### 2.7.2 When going downhill

##### ■ Use the F-N-R lever

- Run slowly when going downhill. Do not use excessive speed. Avoid changing the speed if possible when going downhill. Start slowly and stop slowly when on steep slopes.

##### ■ Use the engine brake

- Go downhill by applying the engine brake along with the F-N-R lever operation. If there is a gear shift switch or lever, set to low speed.

#### WARNING

- When going downhill, adjust the travel speed not to allow the engine speed to exceed 2,500 min<sup>-1</sup>(rpm) .  
If you suddenly shift the F-N-R lever while driving, the engine speed may exceed 2,500 rpm, so do not make sudden operations.
- When going uphill or downhill, run at low speed. Do not attempt to shift speeds during traveling. The machine can slip down the slope.

#### 2.7.3 On a slope

##### ■ Working on a sidehill

- Work in an uphill/downhill direction, and avoid working on sidehill with the machine inclining sideways.



## 2.8 Applicable Jobs

This machine can be used for the variety of jobs as listed below:

### (1) This machine is mainly used for:

- Static compacting work
- Vibratory compacting work

### (2) Road rollers do a variety of jobs as listed below.

This machine most effectively handles works or materials marked ☆ .

#### Work

- Asphalt road paving
- Dust removal treatment for road
- ☆ Road improvement
- ☆ Embankment construction
- ☆ Dam construction
- Construction of forestry and farm roads
- Foundation building
- Construction of sidewalk, shoulder and gutter foundation

#### Material to be compacted

- Asphalt pavement
- ☆ Crusher run
- ☆ Cement concrete
- ☆ Sands
- ☆ Soils
- ☆ Slag
- ☆ Soft rock

#### NOTICE

**If the compaction material is hard, the rolls may wear prematurely due to rolling pressure or scratch.**

#### Layers to be compacted

- Surface course, Binder course
- ☆ Base course
- ☆ Subgrade
- ☆ Embankment
- Shoulder
- Sidewalk

### 2.9 After Operation

Check for the coolant temperature, engine oil pressure and fuel level.

Observe the following to prevent the machine getting stuck or unworkable next morning due to mud, extraneous matter on the tires or due to freezing in the cold weather:

- 1) Remove mud and water from the machine. Especially the mud on the hydraulic cylinder piston rod may get into the seals together with water drops damaging the seals.
- 2) Park the machine on a hard and dry surface. If such a place is not available, cover the ground with hard plates.
- 3) Low temperature will cause a significant reduction of battery efficiency. Cover the batteries or remove from the machine and store in a warm place till the following day's operation. Take care not to tilt the battery when removing from the machine as there is a danger of battery fluid leaking.

#### NOTICE

**Do not clean with high pressure water around the instrument panel or behind the dash board. It may cause instrument failures.**

## 2.10 Towing

### ⚠ WARNING

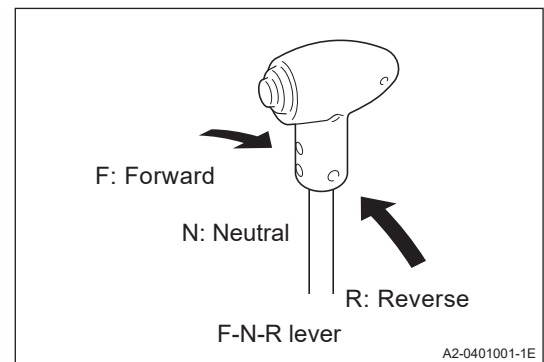
- Do not tow if the braking system is broken as it is dangerous.
- Do not perform towing on a slope.
- Do not use twisted, kinked or damaged cables when towing.
- Do not step over the wire rope.
- To tow the machine, use cables with ample strength.
- Keep everyone away from the space between the machine and the towing machine when connecting them and while towing.
- Align the connection points of the failed machine and the towing machine in a straight line when connecting.
- Be sure to attach the wire rope firmly to the towing hook.

### NOTICE

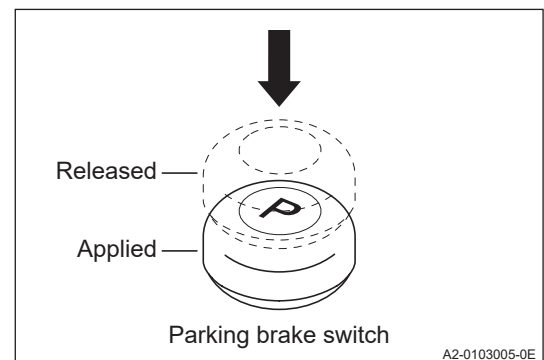
Towing should only be carried out in emergencies and over the short distances. A truck or trailer should be used for long distance transport.

#### 2.10.1 If the engine can be started

1) Move the F-N-R lever to the Neutral (N) position.



2) Press the Parking brake switch securely, and check the Parking brake indicator lamp (P) illuminates.

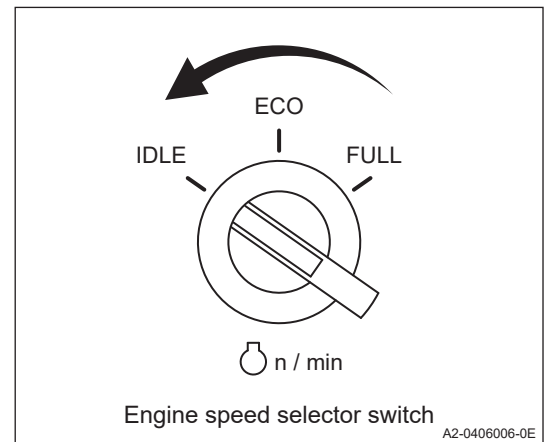


### NOTICE

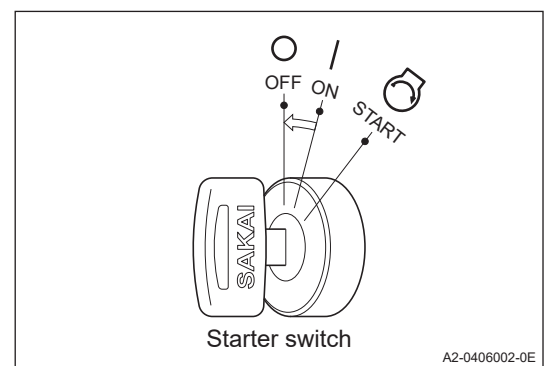
Do not pull the switch. It may damage the switch.

## 2 OPERATION

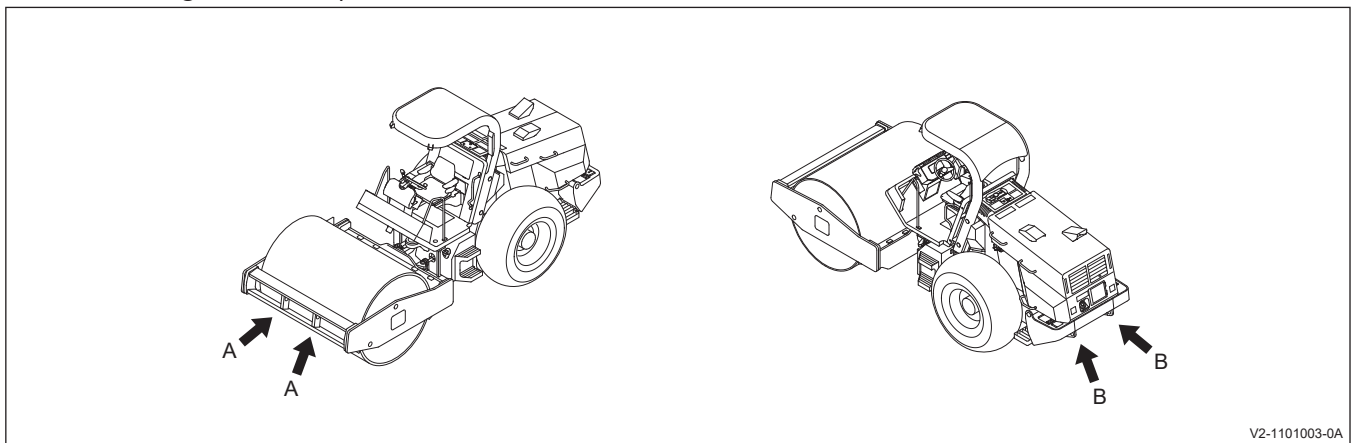
- 3) Set the Engine speed selector switch at the **IDLE** position.



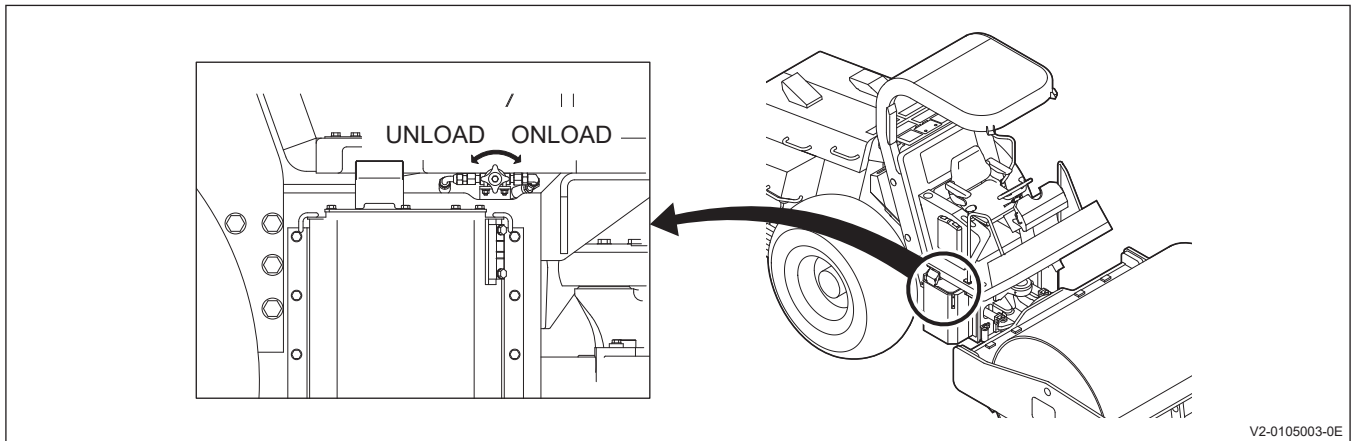
- 4) Turn the Starter switch to the **O** position to stop the engine.



- 5) Draw the wire rope from the other machine and put its hook on the hooking point (**A** or **B**) (one each on right and left) of the machine.



- 6) Turn the Unloader valve counterclockwise to the **UNLOAD** position.  
Refer to “2.1.5 Unloader valve”.



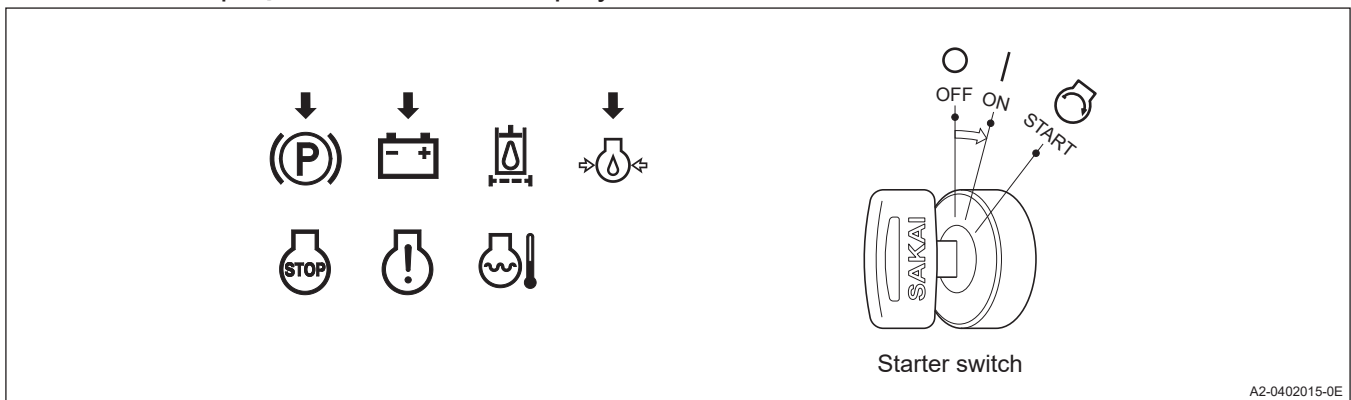
### ⚠ WARNING

- If operating the Unloader valve or towing on a slope is unavoidable, use wheel chocks and exercise extreme caution.
- Be sure to apply the parking brake before opening the Unloader valve.
- The Unloader valve disconnects the engine from the hydraulic drive, similar to a clutch. Do not enter the areas ahead and behind the machine as it is very dangerous.

### NOTICE

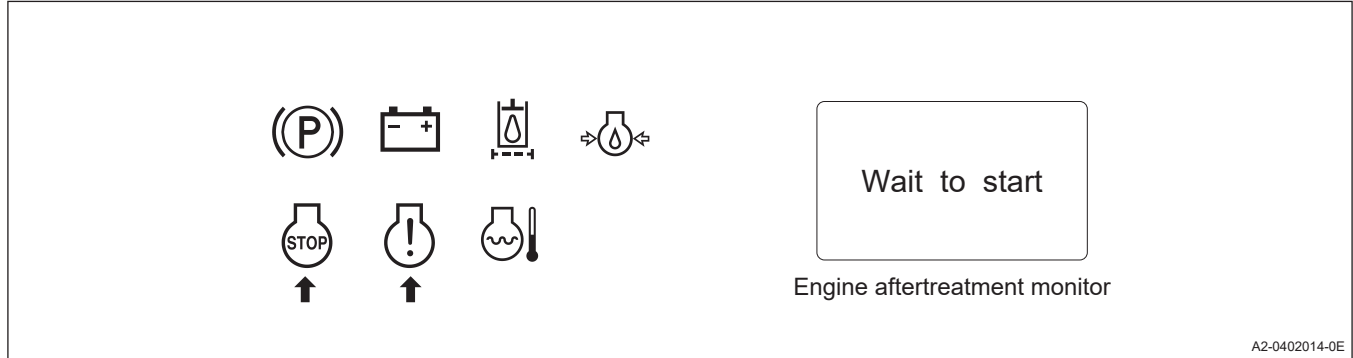
For normal operation, be sure the Unloader valve is in the **ONLOAD** position.

- 7) Turn the Starter switch to the **I** position and check that the warning lamps and Parking brake indicator lamp **(P)** on the Monitor display are on.

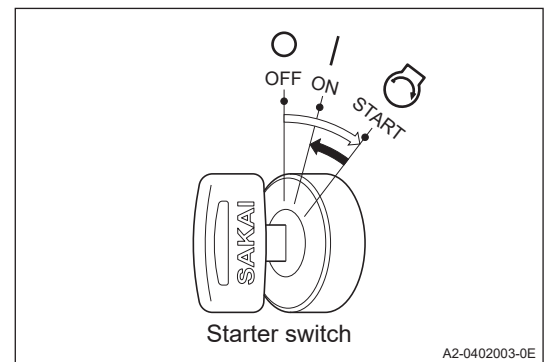


## 2 OPERATION

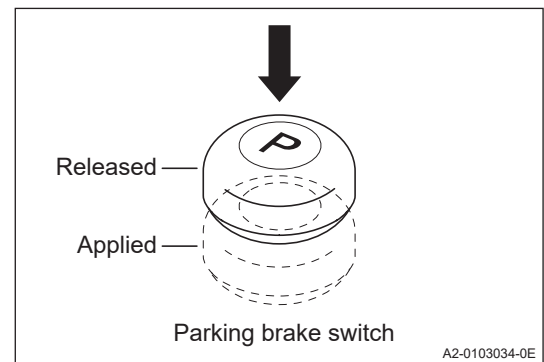
8) Start the engine after the Engine check lamp and **Wait to start** lights up and goes out.



9) Turning the key to the  position makes the engine start. Release the key at the moment when the engine started. The key will automatically return to  position.



10) Press down the Parking brake switch to release the brake. Check that the Parking brake indicator lamp  on the Monitor display turns off.



11) Tow the machine.

**⚠ WARNING**

- Do not release the Parking brake switch until towing begins. Take release the Parking brake switch when the wire rope gets under tension. The steering of the machine can be done while towing.
- Hold the Steering wheel.
- Do not touch the F-N-R lever. It may cause unexpected movements.
- Depress the Brake pedal in an emergency.
- Tow the machine slowly. It may move in unexpected ways.

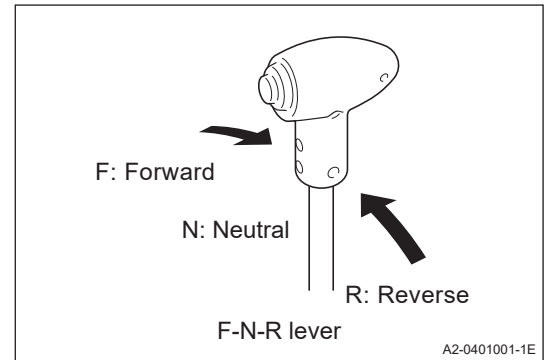
12) Turn the Unloader valve clockwise to the **ONLOAD** position.  
Refer to “2.1.5 Unloader valve”.

## 2 OPERATION

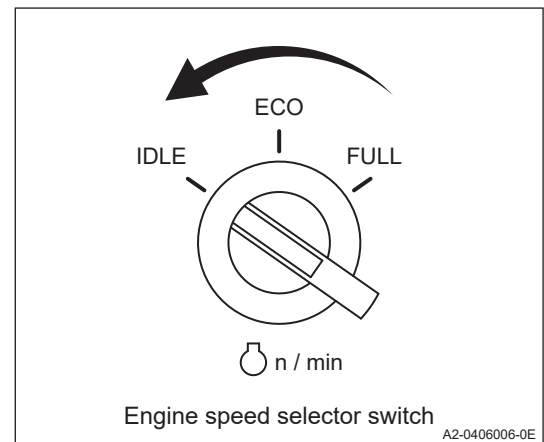
### 2.10.2 If the engine cannot be started

This section applies to situations in which the parking brake cannot be applied or released by operating the Parking brake switch.

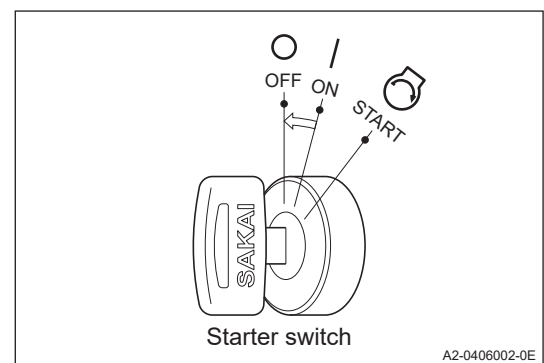
1) Move the F-N-R lever to the Neutral (**N**) position.



2) Set the Engine speed selector switch at the **IDLE** position.

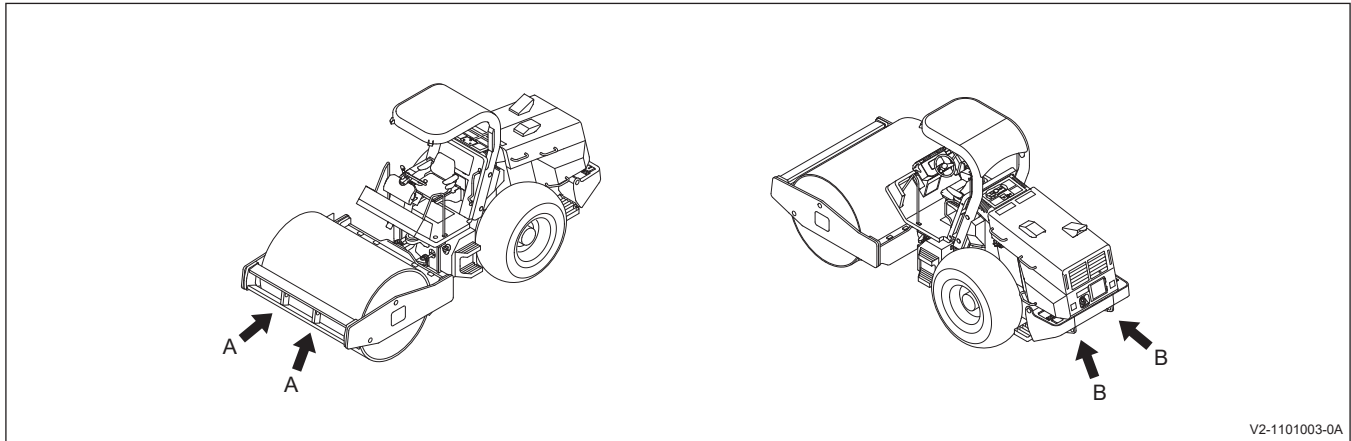


3) Turn the Starter switch to the **O** position.

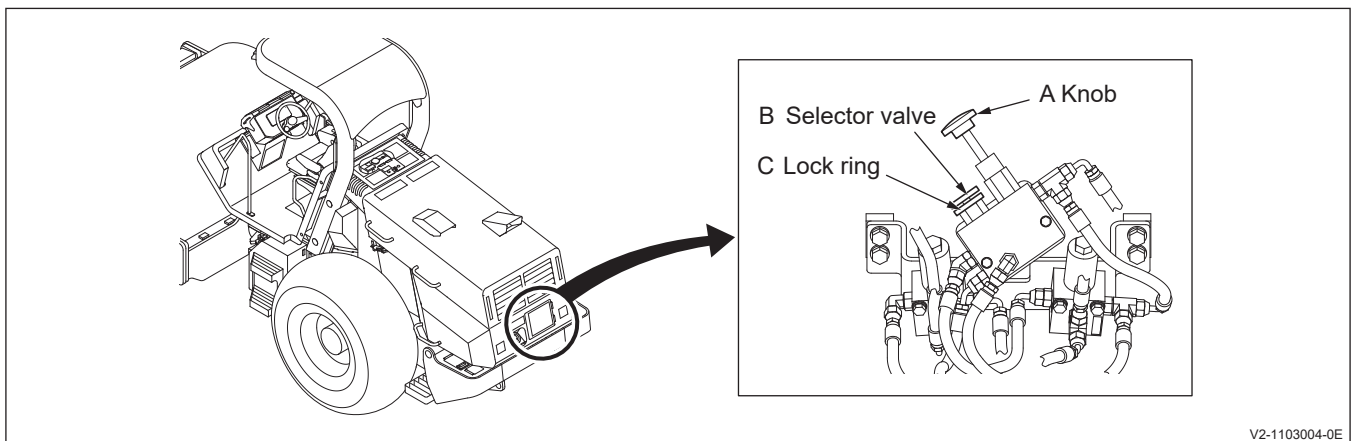




- 4) Draw the wire rope from the other machine and put its hook on the hooking point (**A** or **B**) (one each on right and left) of the machine.



- 5) Release the brake.  
Refer to “2.10.3 Release the brake”.



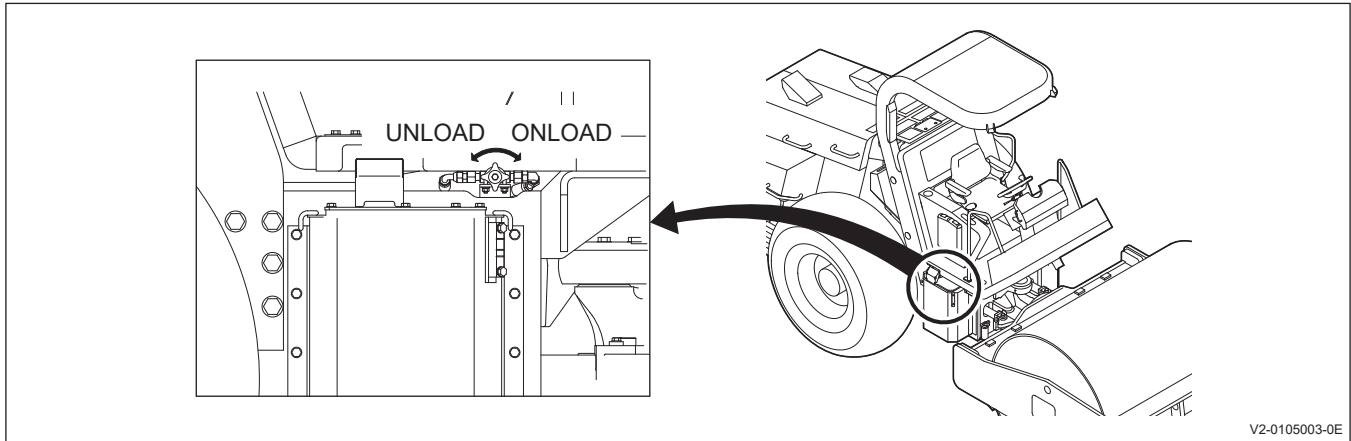
### **⚠ WARNING**

- Before release the brake, be sure that the Unloader valve is in the ONLOAD position.
- Disengage the brake on a flat ground.
- Chock the wheels.
- Do not try to release the brake immediately after stopping a hot engine. Let the oil cool down.
- For the brake disengaging work, wear a hard hat, safety goggles and protector gloves.



## 2 OPERATION

- 6) Turn the Unloader valve counterclockwise to the **UNLOAD** position.  
Refer to “2.1.5 Unloader valve”.



### ⚠ WARNING

- If operating the Unloader valve or towing on a slope is unavoidable, use wheel chocks and exercise extreme caution.
- The Unloader valve disconnects the engine from the hydraulic drive, similar to a clutch. Do not enter the areas ahead and behind the machine as it is very dangerous.

- 7) Tow the machine.

### ⚠ WARNING

- Keep away from the machine.
- Tow the machine slowly. It may move in unexpected ways.

- 8) Turn the Unloader valve clockwise to the **ONLOAD** position.  
Refer to “2.1.5 Unloader valve”.

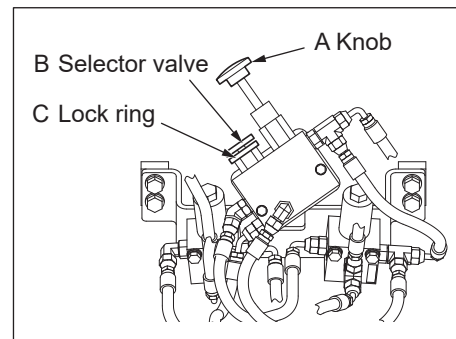
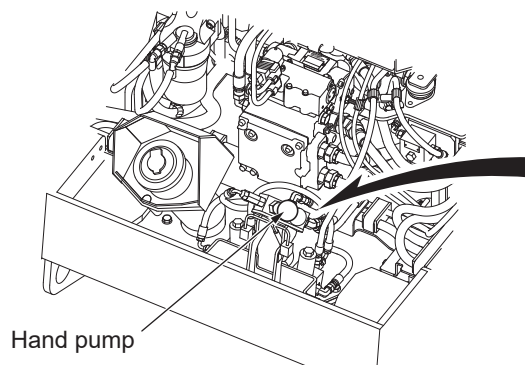
## 2.10.3 Release the brake

**⚠ WARNING**

- Before release the brake, be sure that the Unloader valve is in the ONLOAD position.
- Disengage the brake on a flat ground.
- Chock the wheels.
- Do not try to release the brake immediately after stopping a hot engine. Let the oil cool down.
- For the brake disengaging work, wear a hard hat, safety goggles and protector gloves.



- 1) Loosen the Lock ring (C) of the Selector valve (B) and turn the Selector valve (B) counterclockwise until it stops.
- 2) Pull up and press the Knob (A) of the pump. The parking brake can be released by pressing it about 35 times.
- 3) After towing is completed, be sure to turn the Selector valve (B) clockwise until it stops and fix it with the Lock ring (C).



V2-1103003-0E

### 2.11 Loading and Unloading

#### **⚠ WARNING**

- Use sturdy ramps with proper width, length and thickness which allow safe loading and unloading.
- If the ramps deflect considerably under load, apply wooden blocks to reinforce them.
- Loading should be conducted on a level and hard ground. Leave a sufficient distance between the machine and the shoulder.
- To prevent slippage on the ramps, keep the tires free from mud, oils, etc. The ramps must also be free of grease, oil and ice.
- Do not steer the machine on the ramps. If the machine is facing in the wrong direction, bring down the machine from the ramps without steering and correct the direction.

#### **NOTICE**

For loading and unloading, use ramps or a proper loading stand.

#### 2.11.1 If the engine can be started

- 1) Apply the brakes and chock the wheels of the truck or trailer.

Aligned the center of the machine with the center of the truck or trailer and fix the ramps securely.

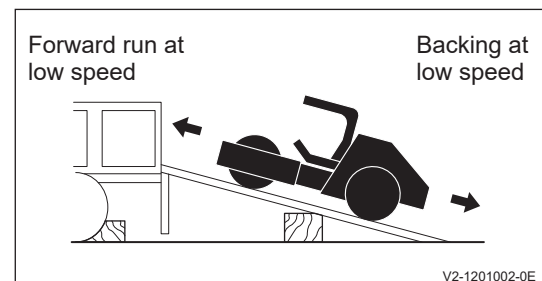
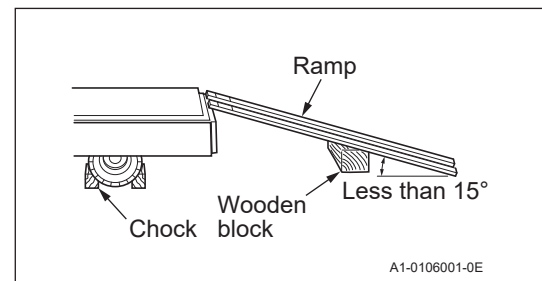
The angle between the ramps and ground must be less than 15 degrees.

The spacing of the ramps should match the contact width. If there are tires, the spacing should match the tread width.

- 2) Decide the direction correctly and conduct loading or unloading at low speed.

For loading, run forward at low speed.

For unloading, run backward at low speed.



- 3) Stop the machine safely in the correct position on the truck or trailer.

## 2.11.2 If the engine cannot be started

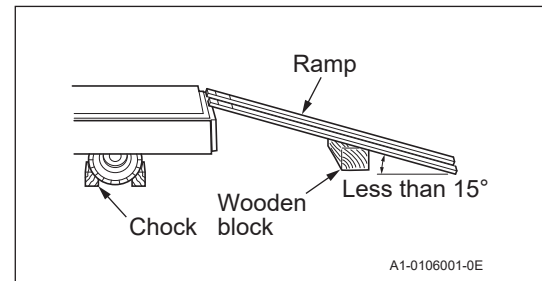
**⚠ WARNING**

The Unloader valve disconnects the engine from the hydraulic drive, similar to a clutch. Do not enter the areas ahead and behind the machine as it is very dangerous.

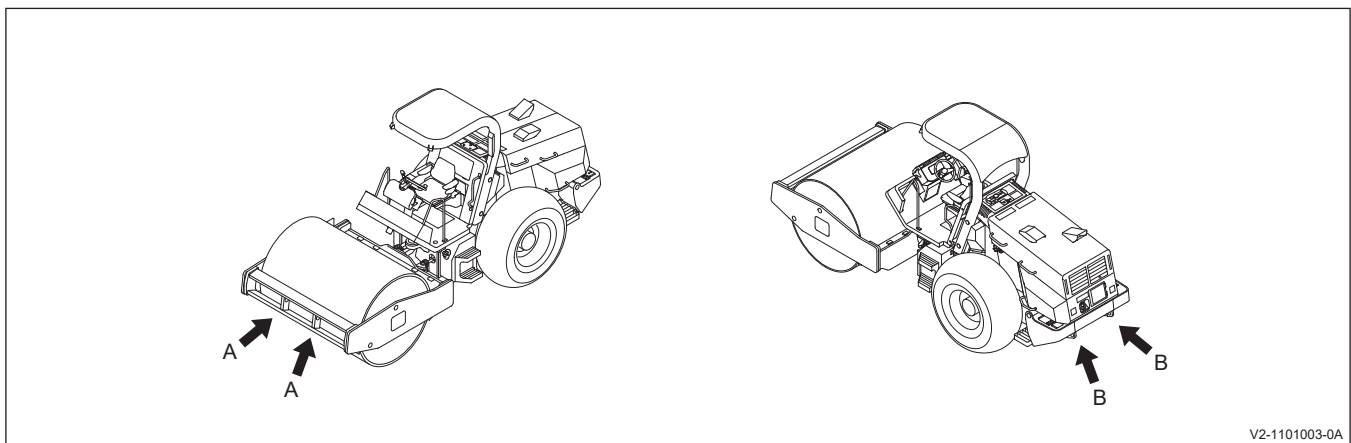
- 1) Aligned the center of the machine with the center of the truck or trailer and fix the ramps securely. Apply the brakes and chock the wheels of the truck or trailer.

The angle between the ramps and ground must be less than 15 degrees.

The spacing of the ramps should match the contact width. If there are tires, the spacing should match the tread width.



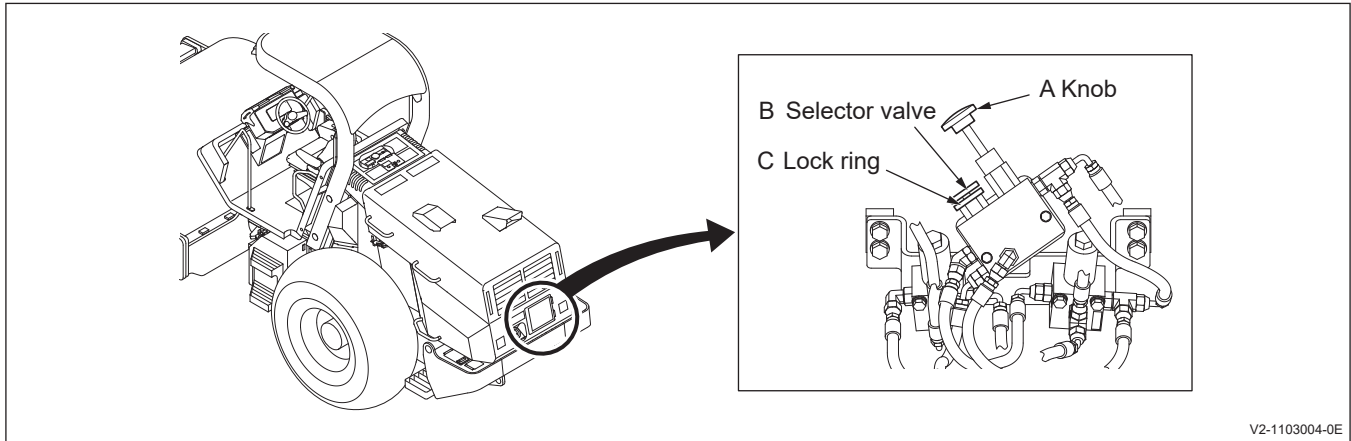
- 2) Draw the wire rope from the truck or trailer winch and put its hook on the hooking point (**A** or **B**) of the machine.



## 2 OPERATION

### 3) Release the brake.

Refer to “2.10.3 Release the brake”.

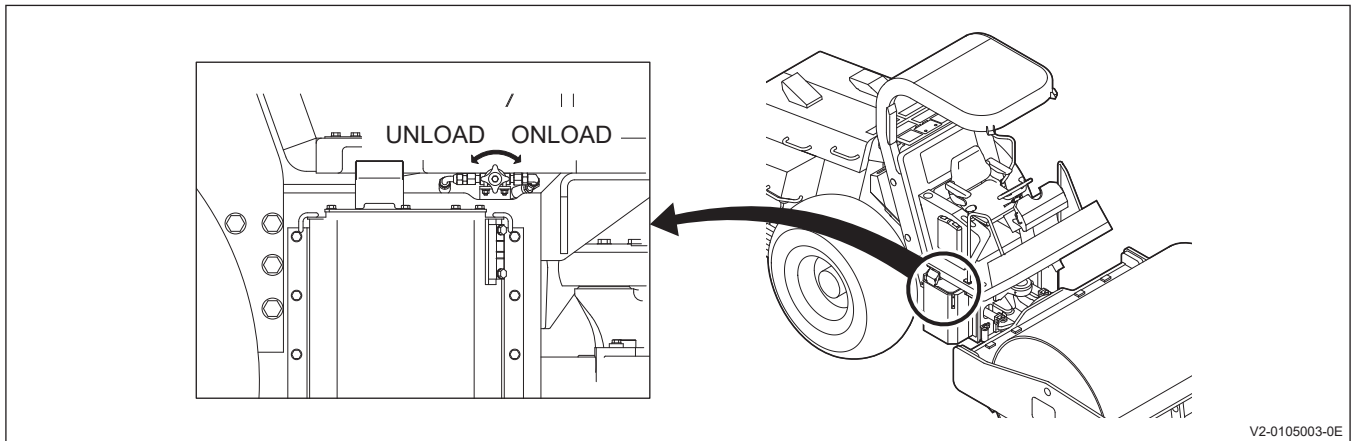


### **⚠ WARNING**

- Disengage the brake on a flat ground.
- Chock the wheels.
- Do not try to release the brake immediately after stopping a hot engine. Let the oil cool down.
- For the brake disengaging work, wear a hard hat, safety goggles and protector gloves.



- 4) Turn the Unloader valve counterclockwise to the **UNLOAD** position.  
Refer to “2.1.5 Unloader valve”.



### **⚠ WARNING**

- If operating the Unloader valve or towing on a slope is unavoidable, use wheel chocks and exercise extreme caution.
- The Unloader valve disconnects the engine from the hydraulic drive, similar to a clutch. Do not enter the areas ahead and behind the machine as it is very dangerous.

- 5) Perform loading by means of the truck or trailer winch.  
6) Stop the machine safely in the correct position on the truck or trailer.  
7) After the loading is completed, return the Unloader valve to the **ONLOAD** position,

### 2.12 After Loading the Machine

Tie the machine as follows after stopping it safely in the correct position on the truck or trailer.

- 1) Press the Parking brake switch to apply the parking brake. Place the chocks under the wheels to prevent movement.  
If the brake is released before loading, apply the brake.  
Refer to “2.10.3 Release the brake”.
- 2) If the Unloader valve to **UNLOAD** position before loading, return the Unloader valve to the **ONLOAD** position,  
Refer to “2.1.5 Unloader valve”.
- 3) Fix the machine firmly with ropes tied at the front and rear towing hook holes and be careful that it does not slip sideways.

### 2.13 Transportation

#### NOTICE

**To decide the transporting route, check the width of the road, height and weight (including the roller) of the truck or trailer. Obey relevant regulations.**

For transportation, obey traffic regulations.



## 2.14 Operation in Cold Weather

In cold weather, take the following measures to prevent troubles such as starting difficulties and coolant freezing.

### 2.14.1 Fuel, oil and grease

Use the fuel and oil with low viscosity (refer to “3.6 Fluid and Lubricant Capacities”).

### 2.14.2 Coolant

#### WARNING

- Coolant is flammable. Do not bring open flames close and do not smoke when handling it.
- Do not remove the radiator cap while the coolant is hot. Hot water may spurt out and cause burns. When the water temperature drops, slowly turn the cap to release the pressure and remove the Auxiliary tank cap.

#### NOTICE

**Use ethylene glycol-base antifreeze.**

Use soft water as cooling water. And mix the antifreeze to it.  
Please refer to the following table for the mixing ratio.

|                      |                  |
|----------------------|------------------|
| Ambient temperature  | Always           |
| Amount of antifreeze | 12.5 L (3.3 gal) |
| Amount of water      | 12.5 L (3.3 gal) |
| Ratio                | 50 %             |

Our machines are filled with a long-life coolant.  
The life of the antifreeze is two years.  
Use non-amine type long-life coolant when changing.

#### NOTICE

**Failure to follow this procedure can result in severe engine damage.**

- 1) Fill coolant at 3 gallons per minute (12 liters per minute) until coolant reaches the bottom of the fill neck. Wait for 1 minute, then top of coolant to the bottom of the fill neck if needed.
- 2) Start engine and run at “ECO” speed for 1 minute.
- 3) Turn off engine and top up coolant to bottom of fill neck if needed.
- 4) Replace coolant cap.

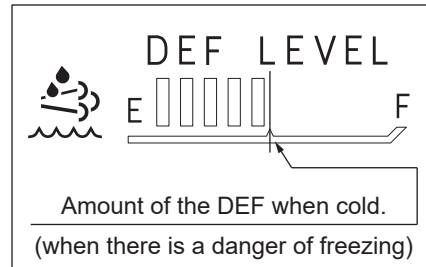
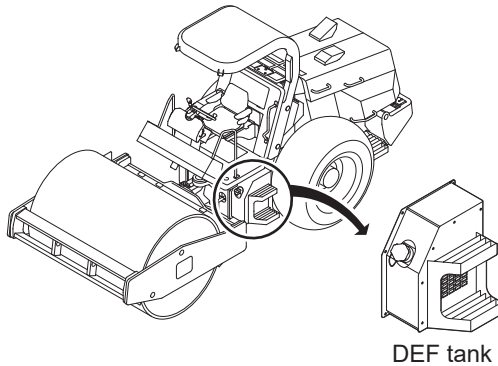
## 2 OPERATION

### 2.14.3 DEF

When the DEF inside the tank freezes, it may expand damaging the equipment inside the tank and parts.

When there is a risk of freezing, adjust the amount of DEF less than half of the tank.

The DEF freezes at  $-11^{\circ}\text{C}$  ( $12^{\circ}\text{F}$ ).



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#### 2.14.4 Battery

##### WARNING

- The battery generates hydrogen gas, so there is a danger of explosions. When there is a danger of generating sparks in poorly ventilated places, avoid recharging the battery and keep away the cigarettes and flames etc.
- The battery contains diluted sulfuric acid, which will dissolve clothes and burn skin. If you get battery fluid on your clothes or skin, wash it off immediately with plenty of clean water.
- If you get it in your eyes, rinse them immediately with clean water and seek the medical help of a doctor.
- If you accidentally ingest it, drink plenty of water and immediately seek the medical help of a doctor.
- Always wear safety goggles when handling the battery.
- The inspection and handling of batteries should be carried out with the engine turned off and the Starter switch in the ○ position.
- Turn the Starter switch to the ○ position, then wait at least 2 minutes before removing the battery. If not, an abnormality may arise in the ECM (Engine Control Module).
- Be careful not to connect the two battery terminals together by tools or other metallic objects.
- To disconnect the battery cables, start with the negative terminal (ground). When connecting, start with the positive terminal. Do not allow a metallic item to bridge between the positive terminal and the machine body. This can generate sparks, causing an explosion.
- Loose terminals may generate sparks due to improper connections, resulting in the danger of explosions. Make sure terminals are connected firmly.
- The battery is for starting the engine and operating the electrical equipment on the machine. Do not use it for any other purpose.

##### NOTICE

**The power-supply voltage of this machine is 24 V.**

When the temperature decreases, the battery capacity will lower, possibly freezing the electrolyte. The battery should be maintained in a good state at all times, with care taken to keep it warm in preparation for use the next morning.

Check the color of the hydrometer attached on the battery top to charge or replace the battery.

Green ..... Satisfactory (Good)

White ..... Charging is necessary (Charging required)

Red ..... Replacement is necessary (Electrolyte insufficient)

Carry out inspections in accordance with “3.3 Periodic Maintenance Points”.

### 2.15 When the Cold Season is Over

Proceed as follows when the winter is over and the warm climate begins:

- 1) Change the oil and the fuel with those suitable for warm season.  
Refer to “3.6 Fluid and Lubricant Capacities”.
- 2) If AF-PT antifreeze is in use, drain the coolant completely, wash inside the cooling system, and refill with coolant.  
Refer to “2.14.2 Coolant”.
- 3) Check that there is no damage to the parts inside the DEF tank. Replace any damaged parts if necessary.

### 2.16 Extended Storage

Proceed as follows to leave the machine unused for more than a month:

- 1) Store the machine in a closed area after cleaning.
- 2) Conduct oiling, greasing and changing of oil.
- 3) Fill up the DEF tank with DEF. If there is a risk of freezing, keep the DEF tank below half full.
- 4) Grease the exposed portion of hydraulic cylinder piston rods.
- 5) Cover the battery after disconnecting the negative cable or remove the battery from the machine and store in a safe place.
- 6) If the temperature is expected to go down below 0°C, add antifreeze to the coolant.
- 7) Place the F-N-R lever to the Neutral (**N**) position, the Vibration mode selector switch to the **O** position and apply the Parking brake.
- 8) Chock the wheels.
- 9) Remove the Starter switch key.

## 2.17 During and After the Storage Period

### WARNING

**If it is necessary to operate the machine in indoor storage space, ensure good ventilation by keeping windows and doors of the storage area open to prevent gas poisoning.**

- During storage period, operate the machine at least once a month to prevent the oil films on the lubricated parts from deteriorating and also to charge the batteries.
- To prevent the parking brake from seizing, release the parking brake and move the machine back and forth at least once a month. Finally, engage the parking brake.

### CAUTION

**Follow the procedures below if the machine is not used for two months or more after storage.**

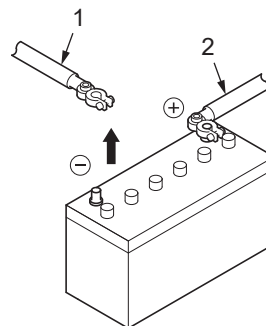
- **Change the DEF pump filter and fill up the DEF tank before starting the engine.**
- **Check the SCR to make sure there are no abnormalities after starting the engine.**
- **If there is something wrong with the SCR, stop the engine and restart it.**  
**If there is an abnormality in the SCR even after restarting the engine, contact your dealer.**
- **If a year or more has passed since refilling the DEF tank, contact your dealer to change the DEF pump filter and the DEF.**
- **Dispose of the drained DEF in accordance with the local environmental laws, rules and regulations.**  
**Old DEF may give off an ammonium smell. Change the DEF in a well-ventilated place.**

### 2.18 When the Battery Has Discharged

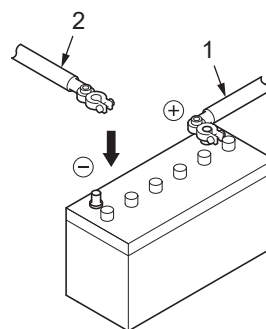
#### **⚠ WARNING**

- To check and handle the batteries, keep the engine stopped with the Starter switch in the **○** position.
- The batteries release explosive gases. Do not smoke close to the batteries. Keep flames and sparks away from the batteries.
- The battery liquid is very corrosive and will harm your clothing or skin. If it contacts your clothing or skin accidentally, flush with sufficient amount of water. In case if you get it in your eyes, flush with water and get medical help.
- To disconnect the battery cables, start with the negative terminal (ground). When connecting, start with the positive terminal. Do not allow a metallic item to bridge between the positive terminal and the machine body. This can generate sparks, causing an explosion.
- Loose battery terminals can cause sparks resulting an explosion. When connecting the terminals, make certain that they are tight.

Remove from ground side



Attach from the positive terminal side



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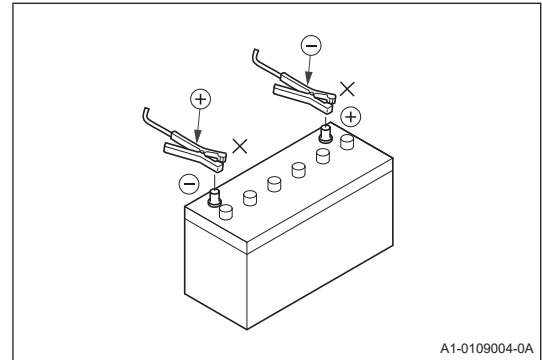
#### **NOTICE**

The power-supply voltage of this machine is 24 V.

## 2.18.1 Connection and disconnection the booster cables

**⚠ WARNING**

- Do not allow the positive terminal to make contact with the negative terminal when connecting the booster cables.
- Wear safety goggles when jump-starting the engine.
- Do not allow the machine to make contact with the booster supply.
- Do not make wrong connections. Connect the negative cable to the engine block earth as much as far from the battery, as sparks may occur when connecting.



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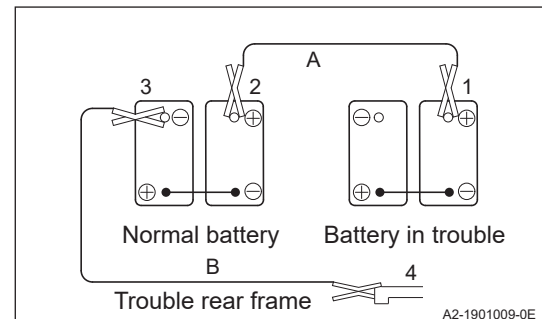
**NOTICE**

- Use the booster cables and the end clips of proper size suited to the battery capacity.
- Use the batteries of the equal capacity for the machine and the booster supply.
- Check the booster cables and the end clips for signs of damage and corrosion.
- Securely connect the clips.
- The power-supply voltage of this machine is 24 V.

When jump-starting the engine, connect the booster cables as follows:

**■ Connecting the booster cables**

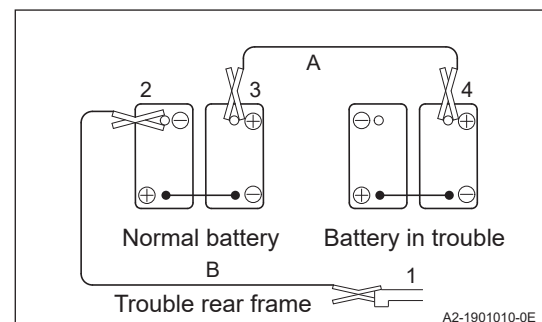
- 1) Connect one end of the positive booster cable (**A**) to the positive terminal of the battery on the machine.
- 2) Connect the other end of the positive booster cable (**A**) to the positive terminal of the booster supply.
- 3) Connect the negative booster cable (**B**) to the negative terminal of the booster supply.
- 4) Connect the other end of the negative booster cable (**B**) to a frame of the machine.



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**■ Disconnection of booster cables**

- 1) Disconnect the negative booster cable (**B**) from the frame of the machine.
- 2) Disconnect the negative booster cable (**B**) from the booster supply.
- 3) Disconnect the positive booster cable (**A**) from the booster supply.
- 4) Disconnect the positive booster cable (**A**) from the machine.



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***MEMO***



## 3 PERIODIC MAINTENANCE

### 3.1 Precautions

#### 3.1.1 Inspection and maintenance

Failure to inspect and lubricate the machine at the correct regular intervals increases the chance of occurring problems and reduces the service life of the machine.

This manual describes the standard inspection / maintenance period, but it is necessary to use the machine always in the best condition by shortening the period and enhancing the content depending on the usage conditions such as site conditions and work conditions.

#### WARNING

**Be careful not to get burn yourself when replacing filters, elements, oil, etc. which are hot after use.**

#### NOTICE

- **After maintenance and inspection, record the inspection results. Note that the replacing filter elements, refilling or changing oil and grease and cleaning the radiator fins are important.**
- **Waste oil, waste coolant, and used filters, elements, etc., should be handled by specialized disposal companies.**

#### 3.1.2 General precautions

- 1) Always use SAKAI genuine parts for replacement.
- 2) Use lubricants recommended by SAKAI. Avoid mixing different brand lubricants.
- 3) For hydraulic oil replenishment, changing, level checking, filter cleaning or replacement, oiling and greasing, use extreme care to prevent dust from entering these systems.
- 4) For checking the oil level or changing oil, park the machine on a level and hard surface.
- 5) Change the oil while it's warm.
- 6) For a long-term storage, fill the fuel tank, lubricate necessary points and run the machine for more than 20 minutes once a month.
- 7) In freezing weather, add antifreeze to the coolant according to the ambient temperature.
- 8) Repair and service the hydraulic pumps and motors in the authorized service shops.
- 9) Turn the Starter switch to O position when performing services such as repairing broken wires, short circuits and tightening loose terminals.

### 3 PERIODIC MAINTENANCE

#### 3.1.3 Periodic replacement of important maintenance parts

The following parts and components should be replaced periodically as detailed on the next page.

These parts are prone to material deterioration due to aging or physical change due to friction. While it is difficult to determine their useful limit by regular inspection, you should replace with new ones after certain periods of service to ensure they function as intended.

If any defects are detected such as crack, deformation or oil leakage, replace them even if it is within the scheduled replacement time.

| System or Mechanism                                | Part name              | Periodical replacement maintenance part | Replacement period | Remarks      |
|----------------------------------------------------|------------------------|-----------------------------------------|--------------------|--------------|
| 1 Brake system                                     | Master cylinder        | Seals (rubber parts)                    | 2 years            |              |
|                                                    | Wheel cylinder         | Seals (rubber parts)                    | 2 years            |              |
|                                                    | Brake piping parts     | Brake hose                              | 2 years            |              |
|                                                    |                        | Air hose                                | 2 years            |              |
|                                                    | Operating parts        | Cable                                   | 4 years            |              |
| 2 Steering system                                  | Orbitrol               | Seals (rubber parts)                    | 2 years            |              |
|                                                    | Hydraulic piping parts | Hydraulic hose                          | 2 years            |              |
|                                                    | Steering cylinder      | Seals (rubber parts)                    | 2 years            |              |
|                                                    | Hydraulic pump         | Seals (rubber parts)                    | 4 years            |              |
| 3 Power transmission system<br>(inclusive of axle) | Axle                   | Seals (rubber parts)                    | 4 years            |              |
|                                                    | Travel pump            | Seals (rubber parts)                    | 4 years            |              |
|                                                    | Travel motor           | Seals (rubber parts)                    | 4 years            |              |
|                                                    | Hydraulic piping parts | Hydraulic hose                          | 4 years            |              |
|                                                    | Isolator rubber        | Isolator rubber itself                  | 4 years            |              |
| 4 Fuel system                                      | Piping parts           | Fuel hose                               | 2 years            |              |
| 5 Engine related parts                             | Engine mounting parts  | Isolator rubber                         | 4 years            |              |
|                                                    | Seals (rubber parts)   | Packing and others                      | 4 years            |              |
|                                                    | Drive parts            | V-belt                                  | 2 years            | or 500 hours |
|                                                    | Piping parts           | Engine drain hose                       | 4 years            |              |
| 6 Cooling system                                   | Piping parts           | Radiator hose                           | 2 years            |              |
|                                                    |                        | Radiator drain hose                     | 4 years            |              |
| 7 Control related parts                            | Cable                  | Cable                                   | 4 years            |              |
| 8 Intake system                                    | Piping parts           | Intake hose                             | 2 years            |              |
|                                                    |                        | CAC hose                                | 2 years            |              |
| 9 Hydraulic system                                 | Hydraulic piping parts | Hydraulic hose                          | 4 years            |              |
| 10 Urea system                                     | Piping parts           | Coolant hose for urea system            | 2 years            |              |
|                                                    |                        | Urea hose                               | 9000 hours         |              |

**NOTICE**

- With a new machine, change the engine oil, change the engine oil filter and tighten the Wheel hub nut after 50 hours of operation for the first time only (refer to “3.4 Maintenance Procedure”).
- When trouble occurs in the location indicated by the indicator lamp on the dashboard display, sensor will work and corresponding lamp comes on. If this occurs, conduct necessary service regardless of the periodic service interval recommendation.
  - 1) The hydraulic oil filter warning lamp ⇨ Replace elements
  - 2) The battery charge lamp ⇨ Charge the battery
- Check the electric wiring at regular intervals not exceeding one month. Replace it if there is any abnormality.

If there is any trouble on the electric wiring, replace it with new one.

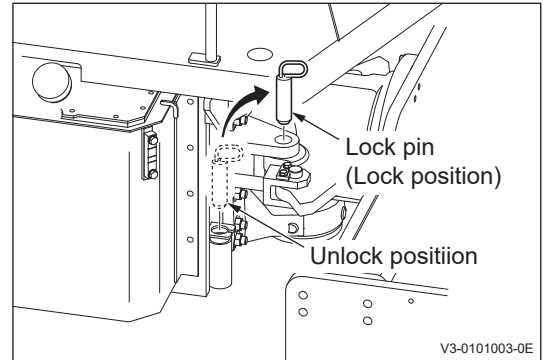
  - 1) Damage to the wire harness and loose clamps
  - 2) Loose sockets
  - 3) Function of electrical systems
- For the parts other than listed above, if any abnormality is found during periodical inspection, replace or repair it immediately.

### 3 PERIODIC MAINTENANCE

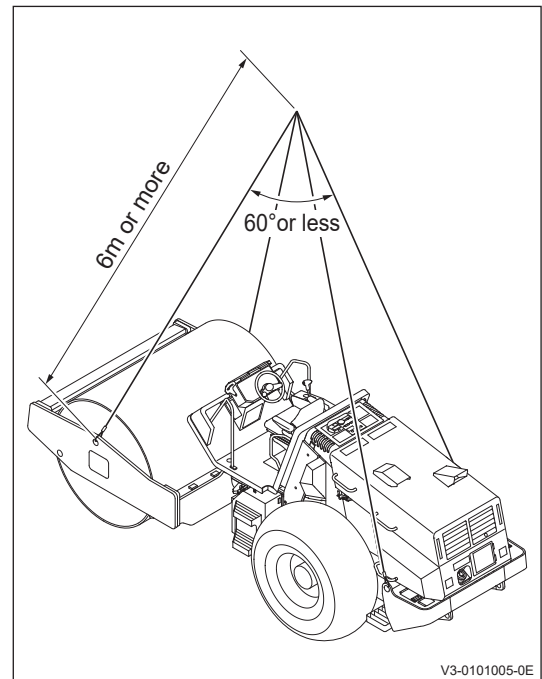
#### 3.1.4 Lifting the machine by using a crane

##### **⚠ WARNING**

- Get a qualified person to lift and lower the machine using a crane.
- Lock the articulation with the Lock pin located at the center of the machine.
- Do not use twisted, kinked or damaged wire ropes when lifting.
- Use the wire ropes appropriate for the weight of the machine when hoisting it.



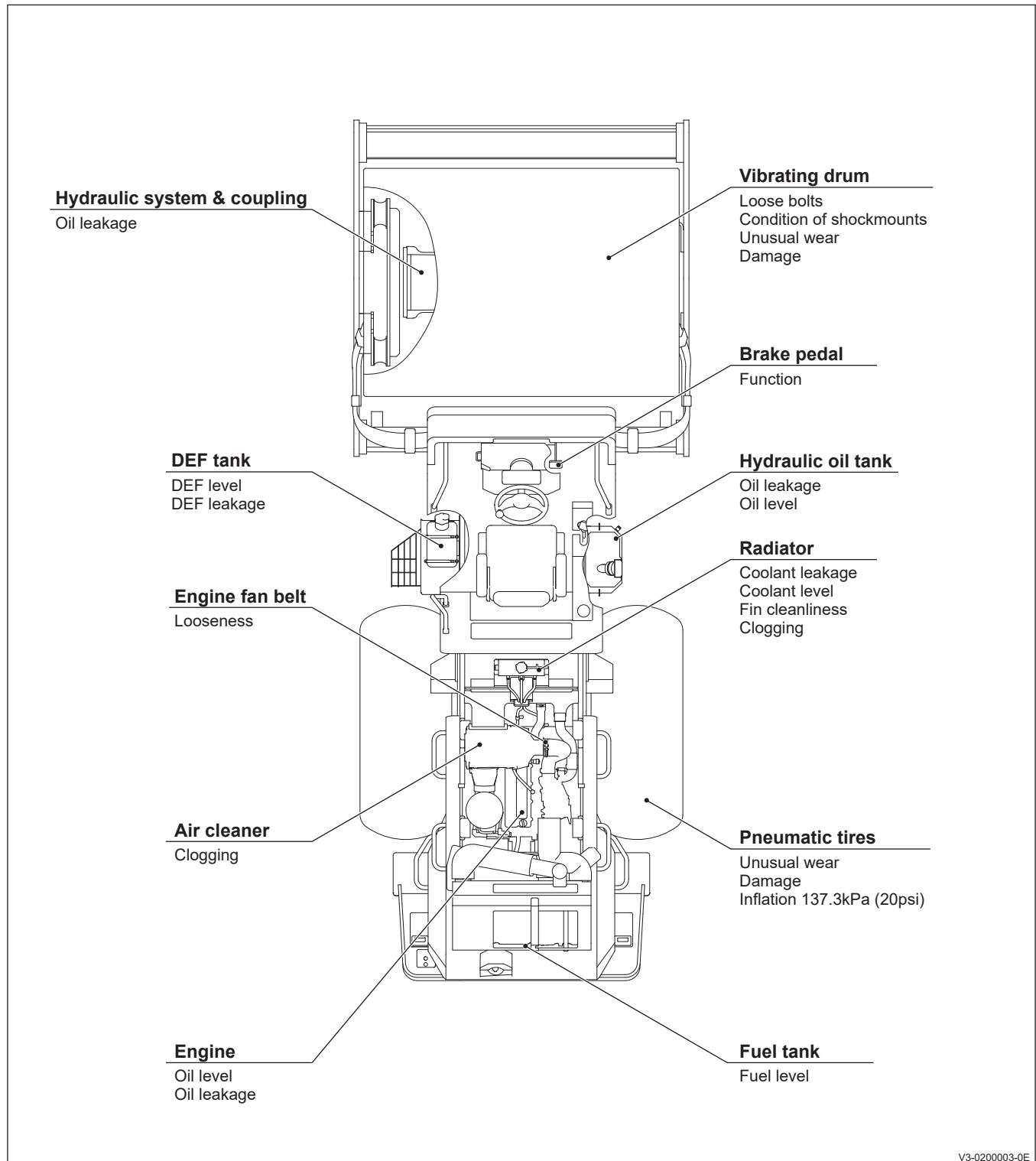
- 1) Hang the wire ropes securely on the hook and lifting points as shown.
- 2) If the wire ropes make contact with the other parts of the machine, put pieces of cloth or wooden blocks at the contact points. Carefully perform lifting.
- 3) When lifting, keep the machine properly balanced.





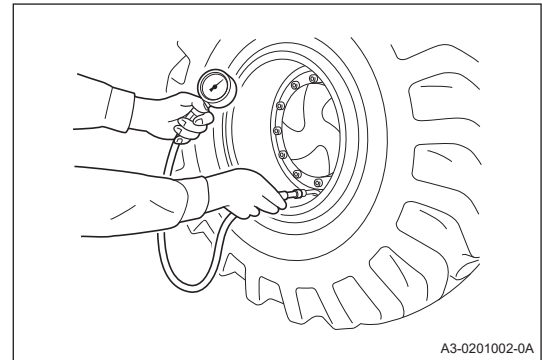
## 3.2 Walk-around Inspection

Daily walk-around inspection is important for efficient operation of this machine. Therefore, perform walk-around inspection and look for loose bolts, nuts and signs of leakage in addition to the following before using this machine each day.



#### 3.2.1 Tire inflation check

Use a tire gauge to check the inflation pressure when the tire is cool, to make sure it is 137 kPa (1.4 kgf/cm<sup>2</sup>, 20 psi). Adjust the pressure when it is not at the designated pressure above.



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#### **⚠ WARNING**

**Improper handling of tires have a risk of tire breakage and rim scattering. When checking for the inflation pressure and inflating the tires, do not stand facing the rim, but stand behind the tread of the tire.**

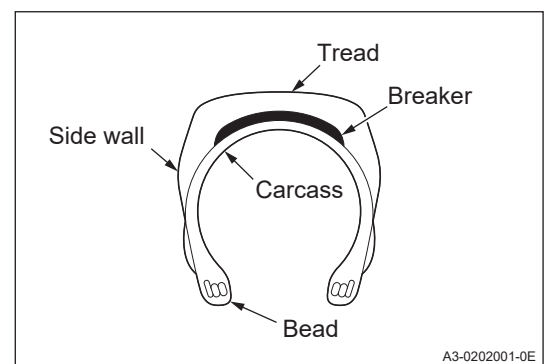
#### 3.2.2 Tire damage check

Check the tires for damage and the extent to which they are damaged (Check to see if the damage penetrates to the carcass).

- 1) Check the tire tread for cuts.
- 2) Check the rim for cracks and the rim flange for deformation.

Tires that have problems as listed below are not serviceable. Replace with new ones to secure safety.

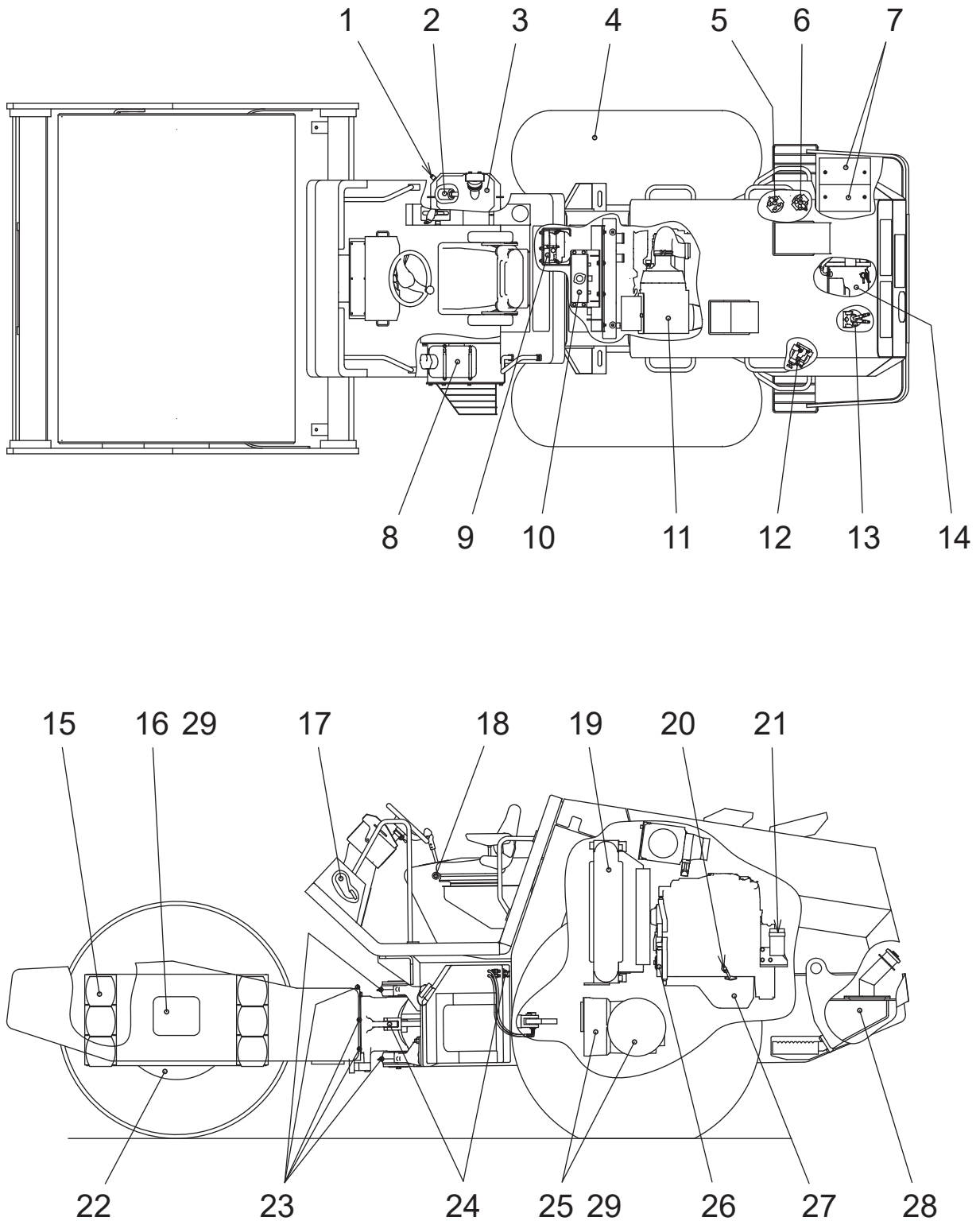
- Tire with bead wires damaged or noticeably deformed.
- Tires markedly worn with carcass ply exposed.
- Tires with carcass damaged beyond one third of their width.
- Tires having signs of flaking.
- Tires with radiated cracks penetrating to the carcass.
- Tires with marked wear, deformation and damage which make the tires unbearable to use.



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Tires are found to be damaged or huge difference in amount of wear is noticed between the front and rear tires or between the left and right tires or the rim is found to be bent, have them checked by a qualified workshop.

### 3.3 Periodic Maintenance Points



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### 3 PERIODIC MAINTENANCE

| Interval                                                            | No. | Item                            | Service                                    | Lubricant     | Q'ty |
|---------------------------------------------------------------------|-----|---------------------------------|--------------------------------------------|---------------|------|
| Every 10 service hours or daily                                     | 10  | Auxiliary tank                  | Check coolant level, add as necessary      | Coolant       | 1    |
|                                                                     | 11  | Air cleaner                     | Check indicator                            |               | 1    |
|                                                                     | 12  | Fuel prefilter                  | Check water level, drain water and dirt    |               | 1    |
|                                                                     | 20  | Engine oil level gauge          | Check oil level, add as necessary          | Engine oil    | 1    |
|                                                                     | 26  | Fan belt                        | Check tension and unusual wear             |               | 1    |
| Initial 50 hours                                                    | 4   | Tire : Wheel hub nut            | Check looseness                            |               | 2    |
|                                                                     | 21  | Engine oil filter               | Change filter                              |               | 1    |
|                                                                     | 27  | Engine oil pan                  | Change engine oil                          | Engine oil    | 1    |
| Every 50 service hours                                              | 1   | Hydraulic oil level gauge       | Check oil level, add as necessary          | Hydraulic oil | 1    |
|                                                                     | 7   | Battery                         | Check looseness of terminal and appearance |               | 2    |
|                                                                     | 17  | Brake                           | Check function and adjust and apply grease | Grease        | 1    |
| Every 250 service hours                                             | 15  | Rubber dampers                  | Check for cracks                           |               | 10   |
|                                                                     | 22  | Vibrator                        | Check oil level, add as necessary          | Gear oil      | 1    |
|                                                                     | 23  | Center pin and tilt pin bearing | Apply grease                               | Grease        | 6    |
|                                                                     | 24  | Steering cylinders              | Apply grease                               | Grease        | 4    |
|                                                                     | 25  | Transmission                    | Check oil level, add as necessary          | Gear oil      | 1    |
|                                                                     | 25  | Final drive                     | Check oil level, add as necessary          | Gear oil      | 2    |
|                                                                     | 25  | Differential case               | Check oil level, add as necessary          | Gear oil      | 3    |
| Every 500 service hours                                             | 5   | Hydraulic oil line filter       | Change filter                              |               | 1    |
|                                                                     | 6   | Hydraulic oil return filter     | Change filter                              |               | 1    |
|                                                                     | 18  | Control links                   | Apply grease                               | Grease        | 1    |
|                                                                     | 21  | Engine oil filter               | Change filter                              |               | 1    |
|                                                                     | 25  | Transmission                    | Change gear oil                            | Gear oil      | 1    |
|                                                                     | 25  | Final drive                     | Change gear oil                            | Gear oil      | 2    |
|                                                                     | 25  | Differential case               | Change gear oil                            | Gear oil      | 3    |
|                                                                     | 27  | Engine oil pan                  | Change engine oil                          | Engine oil    | 1    |
| Every 500 hours or 3 months, or each time after brake pedal is used | 29  | Parking brake                   | Check function                             |               | 2    |
| Every 1000 service hours                                            | 2   | Hydraulic oil suction filter    | Change filter                              |               | 1    |
|                                                                     | 3   | Hydraulic oil tank              | Change hydraulic oil                       | Hydraulic oil | 1    |
|                                                                     | 12  | Fuel prefilter                  | Change filter                              |               | 1    |
|                                                                     | 13  | Fuel filter                     | Change filter                              |               | 1    |
|                                                                     | 16  | Gear case                       | Change gear oil                            | Gear oil      | 1    |
|                                                                     | 22  | Vibrator                        | Change gear oil                            | Gear oil      | 1    |
| Every 4000 Service hours                                            | 9   | DEF pump filter                 | Change filter                              |               | 1    |
|                                                                     | 14  | DPF                             | Check DPF or change DPF                    |               | 1    |
| As needed                                                           | 4   | Tire : Wheel hub nut            | Check looseness wheel hub nut              |               | 2    |
|                                                                     | 8   | DEF tank                        | Check DEF level, add as necessary          | DEF           | 1    |
|                                                                     | 11  | Air cleaner                     | Change element                             |               | 1    |
|                                                                     | 19  | Radiator                        | Clean fin                                  |               | 1    |
|                                                                     | 28  | Fuel tank                       | Drain water and dirt                       |               | 1    |

#### 3.4 Maintenance Procedure

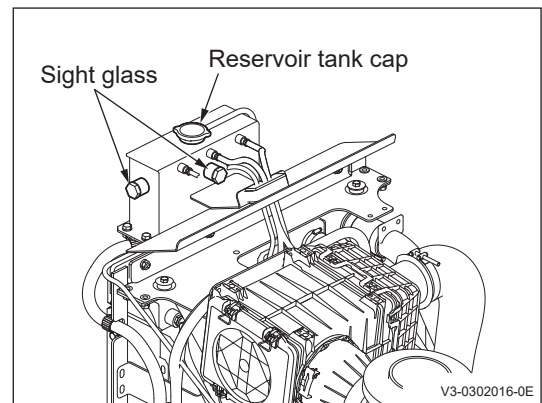
➔ For servicing the engine, see the separate engine manual.

##### (1) Every 10 service hours or daily

###### 10 Auxiliary tank

Check the coolant level in the sight glass. If the coolant can not be seen, open the Auxiliary tank cap and replenish.

Our machines are filled with a long-life coolant. The life of the antifreeze is two years. Use non-amine type long-life coolant when changing. Refer to “2.14.2 Coolant”.



#### ⚠ WARNING

Do not remove the Radiator cap or Reservoir tank cap while the coolant is hot. Hot water may be spouted out that can cause scald.

Relieve pressure by slowly turning the cap after the water temperature is dropped, then remove the cap.



#### NOTICE

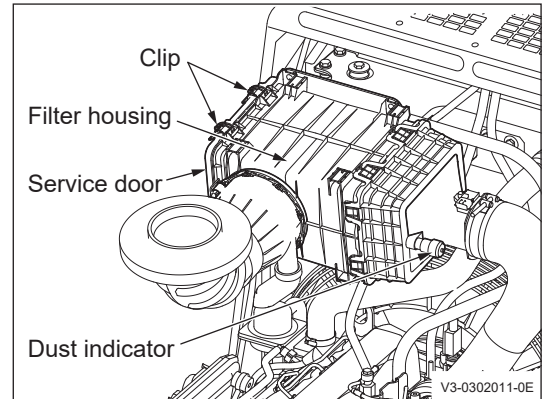
Failure to follow this procedure can result in severe engine damage.

- 1) Fill coolant at 3 gallons per minute (12 liters per minute) until coolant reaches the bottom of the fill neck. Wait for 1 minute, then top of coolant to the bottom of the fill neck if needed.
- 2) Start engine and run at “ECO” speed for 1 minute.
- 3) Turn off engine and top up coolant to bottom of fill neck if needed.
- 4) Replace coolant cap.

#### 11 Air cleaner

When the red float of the Dust indicator reaches the service level (a mark on the indicator), replace the element.

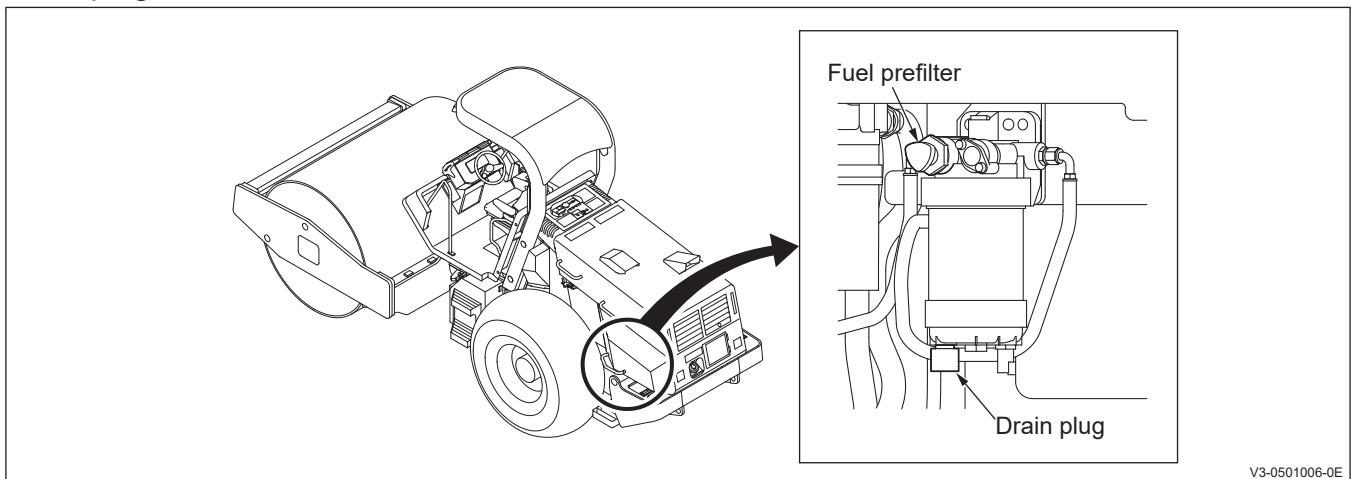
Refer to “(9) As needed”.



#### 12 Fuel prefilter

Drain the water accumulated in the fuel pre-filter.

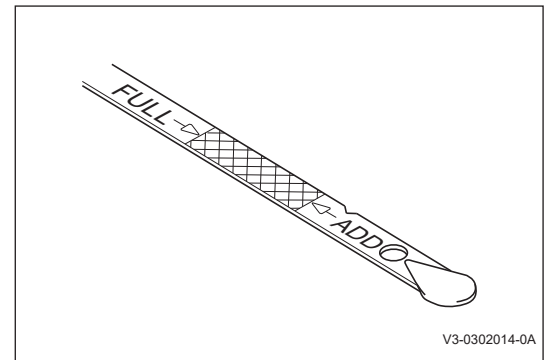
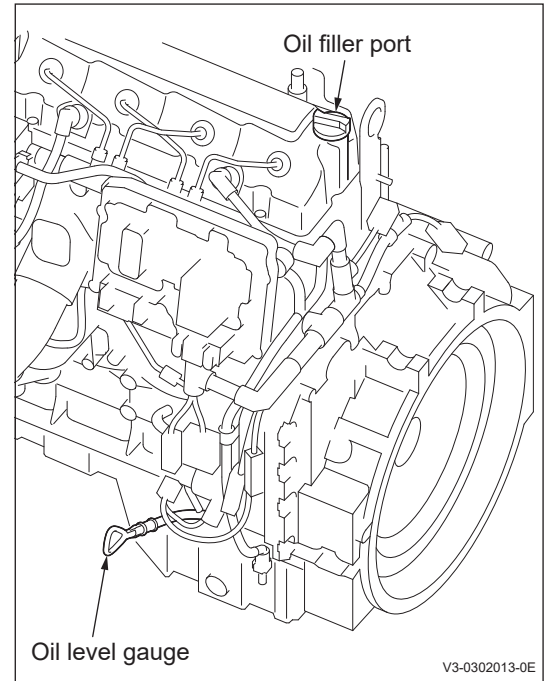
Loosen the Drain plug counterclockwise to drain the water. After draining the water, tighten the Drain plug clockwise.



### 3 PERIODIC MAINTENANCE

#### 20 Engine oil level gauge

Stop the engine and check the engine oil level.  
Pull out the Oil level gauge and wipe off the oil. Then insert into the full length of the oil dip pipe again and pull it out.  
Check that the oil level is between **FULL** and **ADD**.  
In case of shortage, add oil through the Oil filler port.



#### ⚠ WARNING

The engine, engine oil and the engine parts are hot and may cause burn immediately after the engine is stopped. Please wait until the temperature is dropped before inspecting.



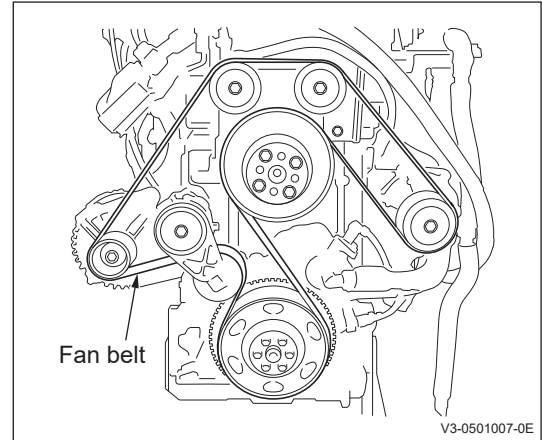
#### NOTICE

- When checking the amount of oil after running the engine, please check at least 15 minutes after the engine is stopped. If the machine is inclined, please move it to a flat ground before checking the oil level.
- Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### 26 Fan belt

Check the Fan belt for wear and damage. Replace as necessary.

The fan belt on this machine has an automatic belt tensioner, so manual adjustment is not required. If there is any abnormality, contact your dealer.



#### **⚠ WARNING**

**Make sure the engine is completely stopped to avoid any risks when checking the looseness, tensions or damages of the Fan belt.**

**Also make sure that the Starter switch key is removed from the Starter switch.**

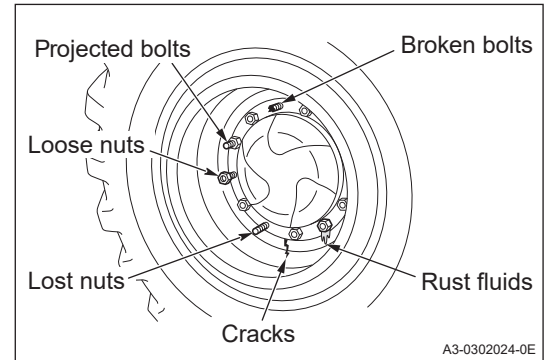
### 3 PERIODIC MAINTENANCE

#### (2) Initial 50 hours

##### 4 Tire : Wheel hub nut

Check whether or not the wheel nuts are loose.  
Check if the wheel hub nuts are loose or fallen off or if wheel hub bolts are broken. Also check if there are any rust fluids and/or whether or not the lengths of all the wheel hub bolts projected out of the wheel hub nuts are the same.

Check the wheel hub nut for looseness. If it is loose, tighten it. Be sure to torque it to the specified value.  
Tightening torque: 785 N·m

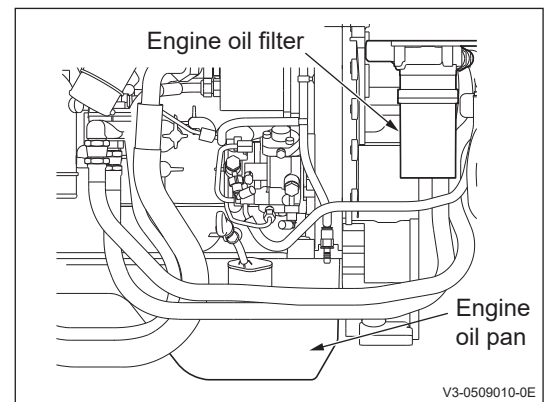


#### **⚠ CAUTION**

- Turn the wheel hub nut in the tightening direction during inspection.
- Excessive tightening of the wheel hub nut will lead to breakage of bolts or cracks in the disc wheel. Be sure to observe the specified torque.

##### 21 Engine oil filter

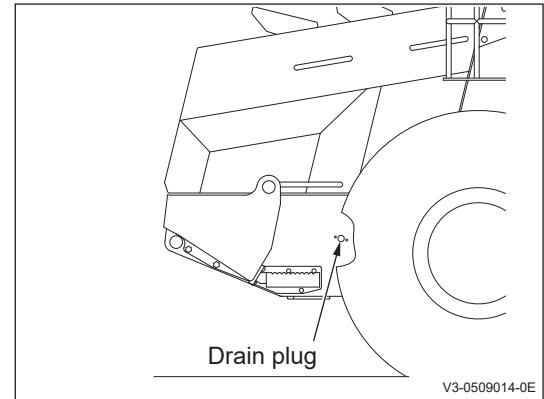
Change the Engine oil filter.



#### 27 Engine oil pan

Change the Engine oil.

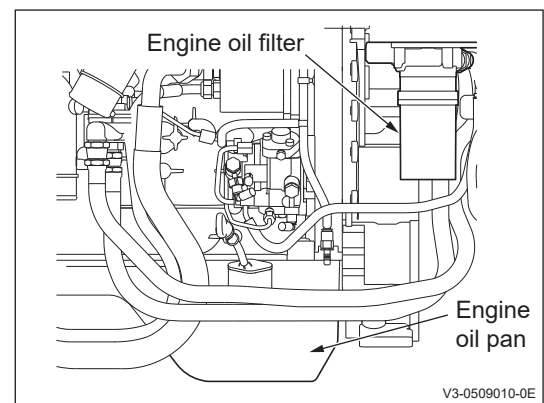
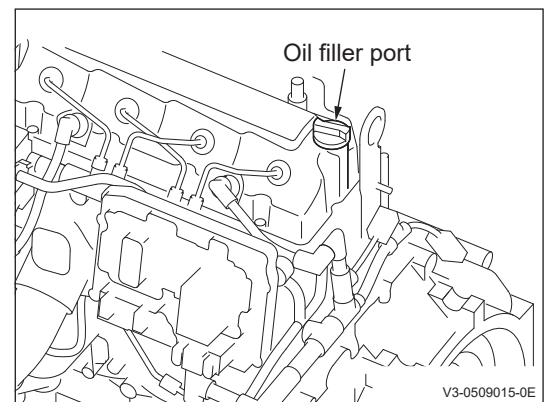
- 1) Remove the Drain plug and drain the oil while it is warm after operation.



#### **⚠ WARNING**

**Be careful not to get burned when draining warm oil.**

- 2) Refit the Drain plug and fill the crankcase with the engine oil from the Oil filler port on the cylinder head cover.



#### **NOTICE**

**Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.**

### 3 PERIODIC MAINTENANCE

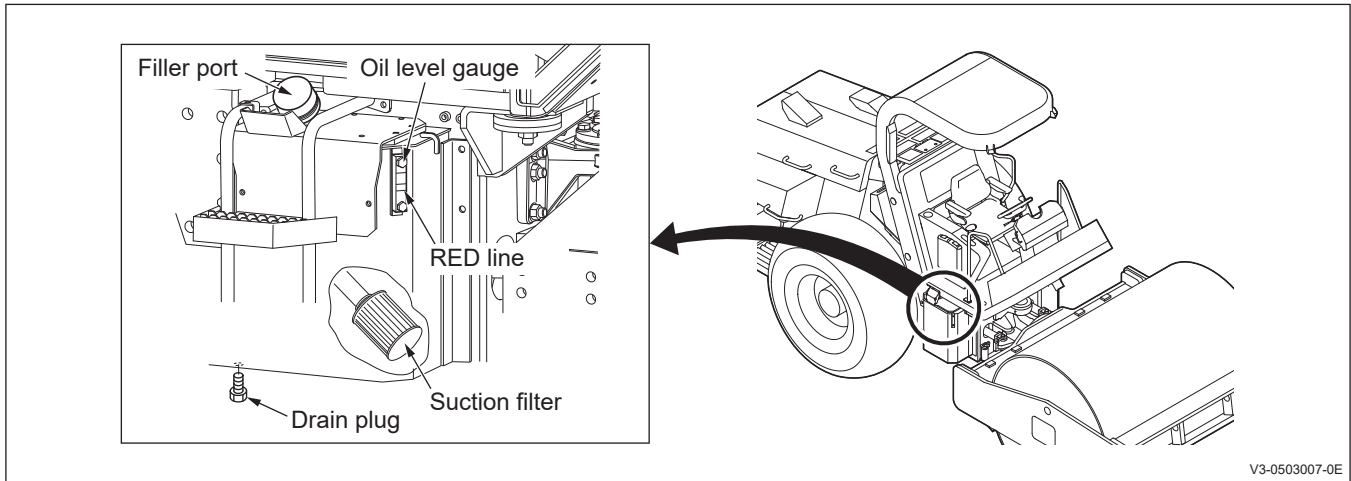
#### (3) Every 50 service hours

##### 1 Hydraulic oil level gauge

Check the oil level with the Oil level gauge on the side of the tank.

The level is proper if it is on the RED line.

If necessary, add hydraulic oil from the Filler port.



#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.



## 7 Battery

This machine is installed with a maintenance-free battery at the time of shipment.

Inspection and maintenance of the Battery installed at the time of shipment.

- 1) Check the color of the Hydrometer attached on the battery top to charge or replace the battery.  
     Green ... Satisfactory (Good)  
     White ... Charging is necessary (Charging required)  
     Red ..... Replacement is necessary (Electrolyte insufficient)
- 2) If the terminals are loose, tighten the terminals and apply a thin coat of petroleum jelly or grease to prevent rust.
- 3) Make sure that the surface of the battery is normal.
- 4) Be sure to tighten the battery holder if it is loose.

**⚠ WARNING**

- The battery generates hydrogen gas, so there is a danger of explosions. When there is a danger of generating sparks in poorly ventilated places, avoid recharging the battery and keep away the cigarettes and flames etc.
- The battery contains diluted sulfuric acid, which will dissolve clothes and burn skin. If you get battery fluid on your clothes or skin, wash it off immediately with plenty of clean water.
- If you get it in your eyes, rinse them immediately with clean water and seek the medical help of a doctor.
- If you accidentally ingest it, drink plenty of water and immediately seek the medical help of a doctor.
- Always wear safety goggles when handling the battery.
- The inspection and handling of batteries should be carried out with the engine turned off and the Starter switch in the ○ position.
- Turn the Starter switch to the ○ position, then wait at least 2 minutes before removing the battery. If not, an abnormality may arise in the ECM (Engine Control Module).
- Be careful not to connect the two battery terminals together by tools or other metallic objects.
- To disconnect the battery cables, start with the negative terminal (ground). When connecting, start with the positive terminal. Do not allow a metallic item to bridge between the positive terminal and the machine body. This can generate sparks, causing an explosion.
- Loose terminals may generate sparks due to improper connections, resulting in the danger of explosions. Make sure terminals are connected firmly.
- The battery is for starting the engine and operating the electrical equipment on the machine. Do not use it for any other purpose.

**NOTICE**

The power-supply voltage of this machine is 24 V.

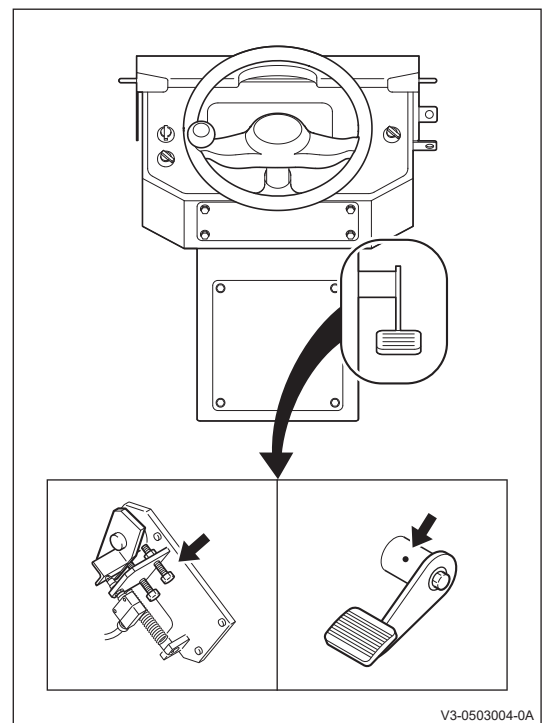
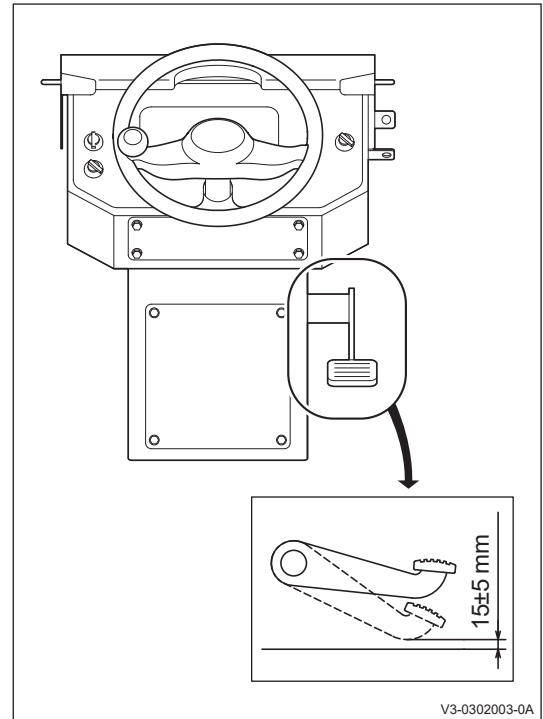
### 3 PERIODIC MAINTENANCE

#### 17 Brake

Check that each bolt is not loose, the motion of the Brake pedal is smooth, and the Brake pedal is properly resilient when stepping it on.

It is appropriate if the gap between the Brake pedal and floor panel is  $15 \text{ mm} \pm 5 \text{ mm}$ .

Apply grease to the Brake pedal shaft.



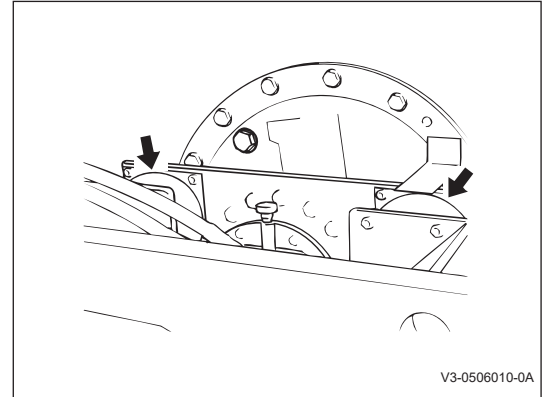
#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### (4) Every 250 service hours

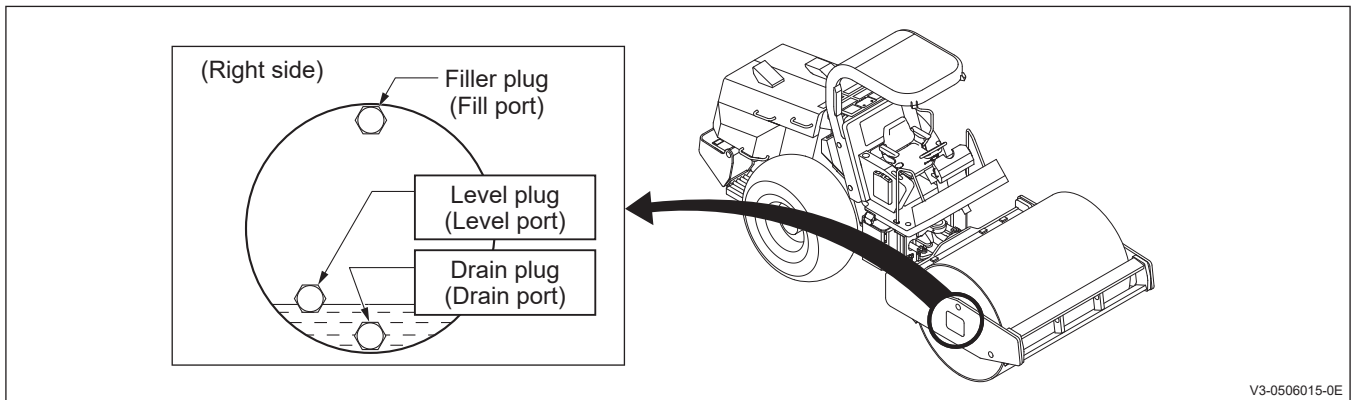
##### 15 Rubber dampers

Check the Rubber dampers for cracks, and their mounting bolts for looseness.



##### 22 Vibrator

Check for the oil level and leakage.  
Add gear oil as needed.



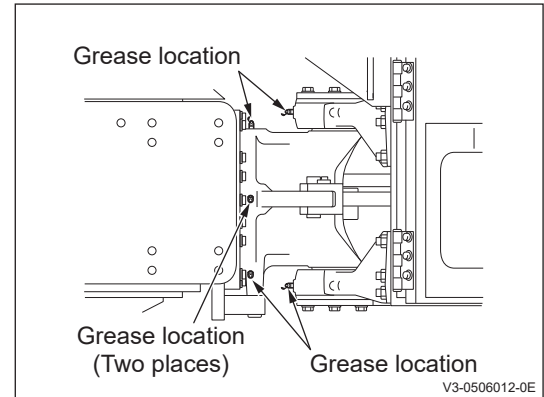
#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

### 3 PERIODIC MAINTENANCE

#### 23 Center pin and tilt pin bearings

Apply grease at 6 locations.

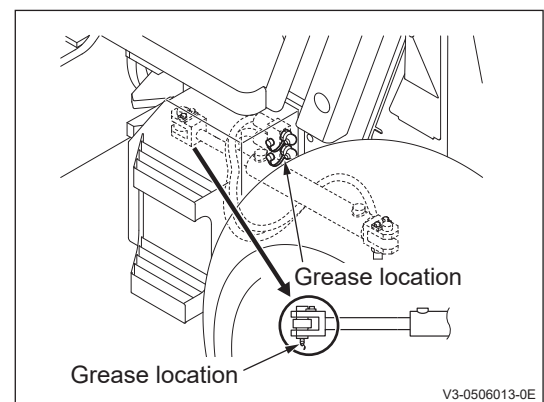


#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### 24 Steering cylinders

Apply grease to the cylinder head and both sides of the anchor pin at 4 locations.



#### NOTICE

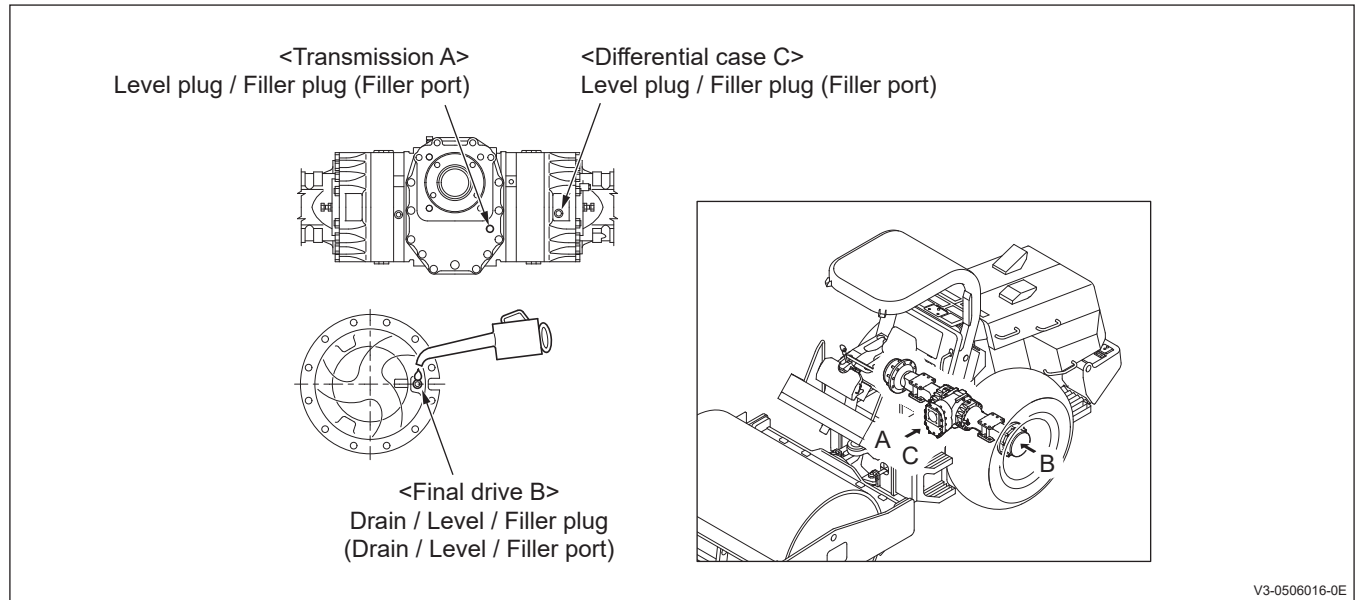
Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### 25 Transmission

#### 25 Final drive

#### 25 Differential case

Check for oil level, and add gear oil through the Filler / Level port as necessary.



#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

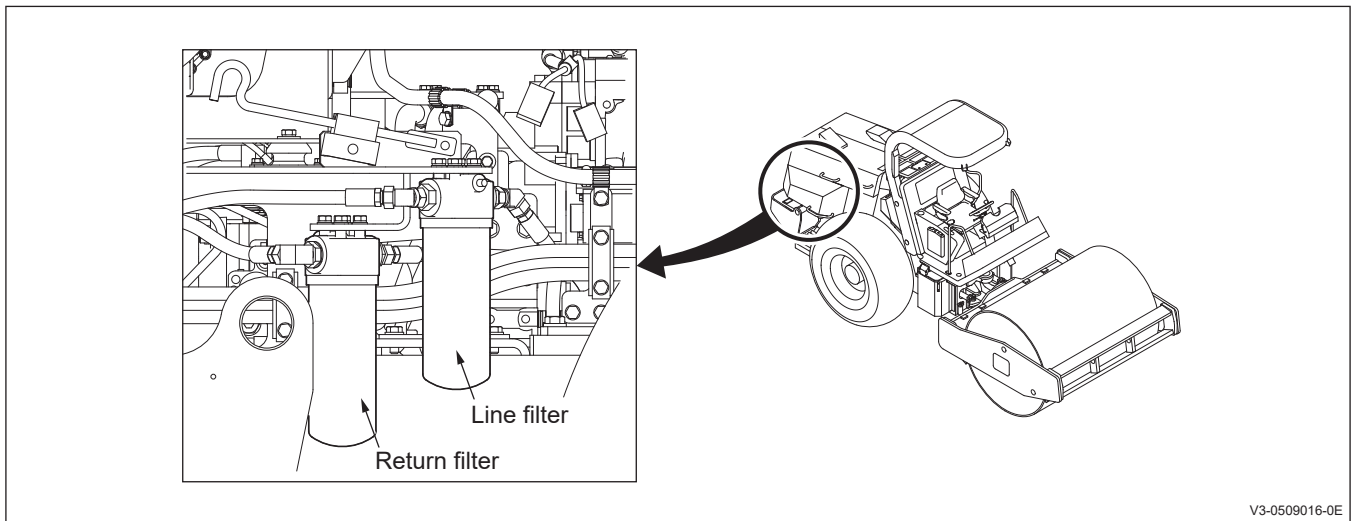
### 3 PERIODIC MAINTENANCE

#### (5) Every 500 service hours

##### 5 Hydraulic oil line filter

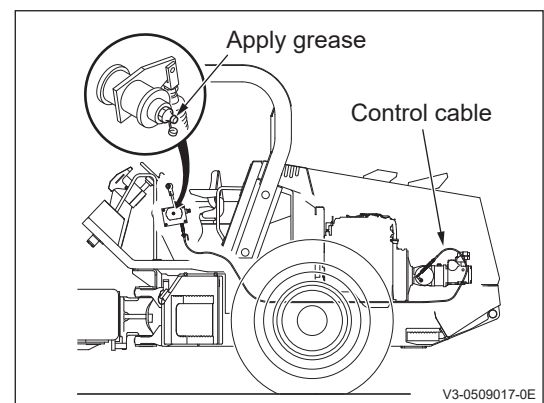
##### 6 Hydraulic oil return filter

Change the Filter.



##### 18 Control links

Check the bolts and nuts for looseness.  
Apply grease to F-N-R lever shaft.

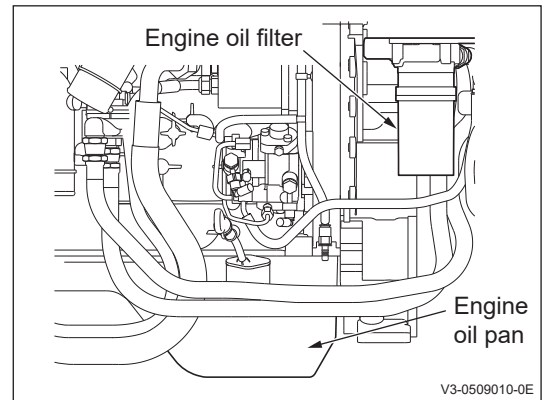


#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### 21 Engine oil filter

Change the Engine oil filter.



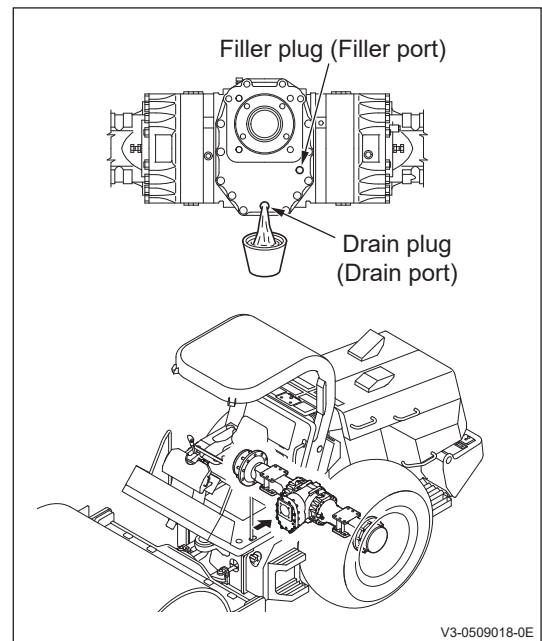
#### NOTICE

- Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.
- For a new machine, change the Engine oil filter at 50 operating hours for the initial time only.

#### 25 Transmission

Change the Gear oil.

- 1) Drain the gear oil by removing the Drain plug.
- 2) Refit the Drain plug.
- 3) Remove the Filler plug.
- 4) Fill the gear oil through the Filler port until it overflows from the Filler port.
- 5) Refit the Filler plug.



#### NOTICE

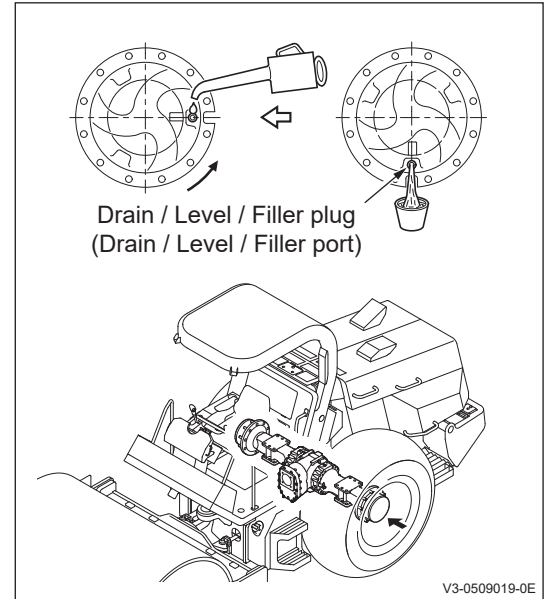
Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

### 3 PERIODIC MAINTENANCE

#### 25 Final drive

Change the Gear oil.

- 1) Rotate the wheel, adjust the position of Filler / Level / Drain port until at the lowest position. Remove Filler / Level / Drain plug to drain the gear oil.
- 2) Rotate the wheel, adjust the position of Filler / Level / Drain plug until at parallel to the ground.
- 3) Fill the gear oil through the Filler / Level / Drain port until it overflows from the Filler / Level / Drain port.
- 4) Refit the Filler / Level / Drain plug.



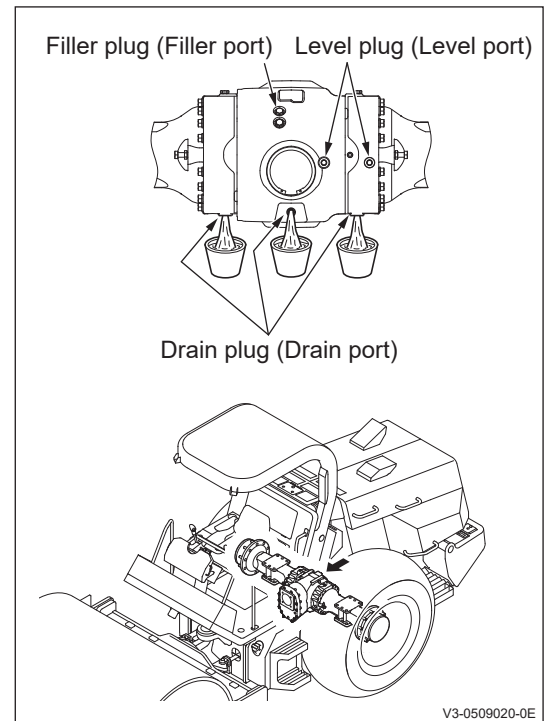
#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### 25 Differential case

Change the Gear oil.

- 1) Drain the gear oil by removing the Drain plug, Filler plug and Level plug.
- 2) Refit the Drain plug.
- 3) Fill the gear oil through the Filler port until it overflows from the Level port.
- 4) Refit the Filler plug and the Level plug.



#### NOTICE

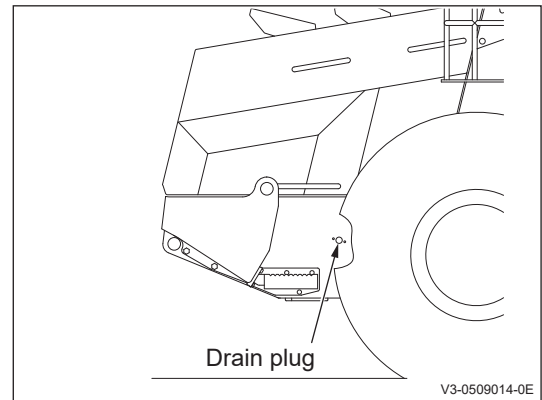
Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.



#### 27 Engine oil pan

Change the engine oil.

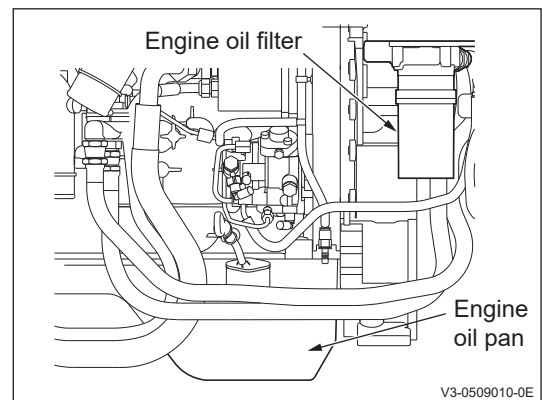
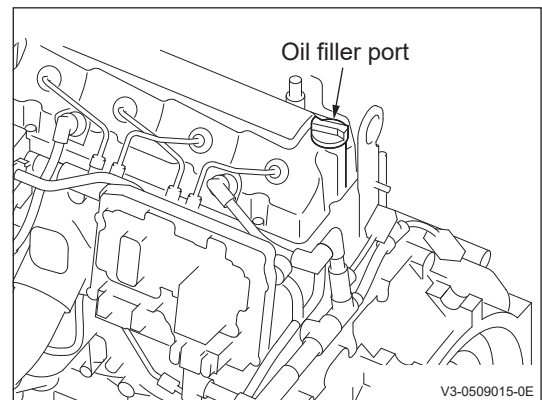
- 1) Remove the Drain plug and drain the oil while it is warm after operation.



#### ⚠ WARNING

**Be careful not to get burned when draining warm oil.**

- 2) Refit the Drain plug and fill the crankcase with the engine oil from the Oil filler port on the cylinder head cover.



#### NOTICE

- Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.
- For a new machine, change the Engine oil at 50 operating hours for the initial time only.

### 3 PERIODIC MAINTENANCE

(6) Every 500 service hours or 3 months, or each time after brake pedal is used

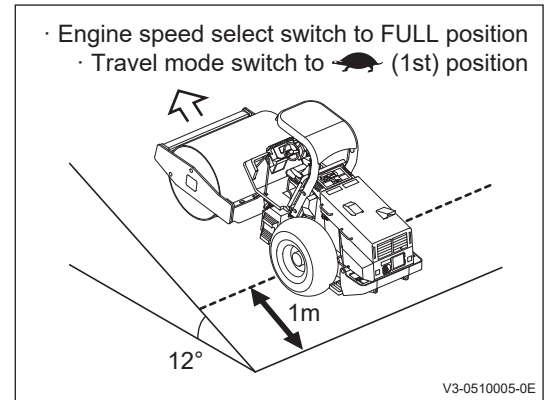
#### 29 Parking brake

##### ⚠ WARNING

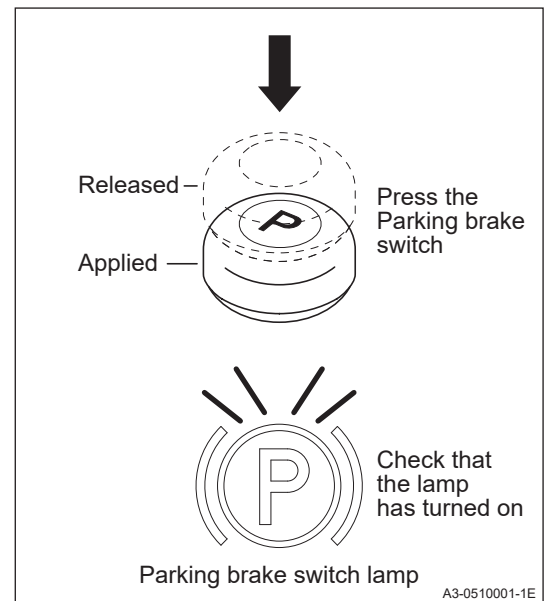
- Make sure there are no people or obstacles near the machine to ensure safety.
- Keep your hands on the F-N-R lever and the Steering wheel during this inspection.

The machine may move unexpectedly during the inspection, which may lead to accidents.

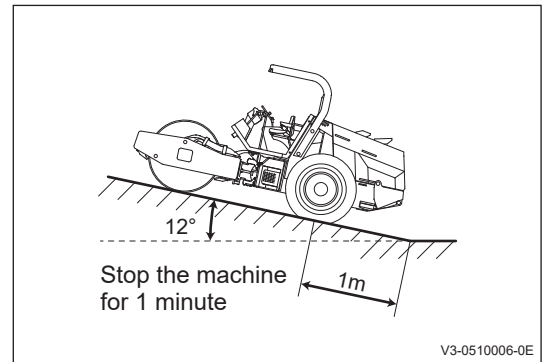
- 1) Adjust the engine speed to **FULL** position. And Travel mode switch set to the  (1st) position.
- 2) With the engine running, move the machine upward by 12° (20%) (slope with upward inclination of 12°) on a hard surface such as asphalt pavement.



- 3) Press the Parking brake switch  to engage the parking brake. Check that the Parking brake indicator lamp  turns on.  
If the lamp  does not turn on, contact your dealer.



- 4) Remain seated to make sure the machine remains completely still for 1 minute. If it moves, move it immediately to a flat ground, stop using it, contact your dealer, and have it repaired.



#### **⚠ WARNING**

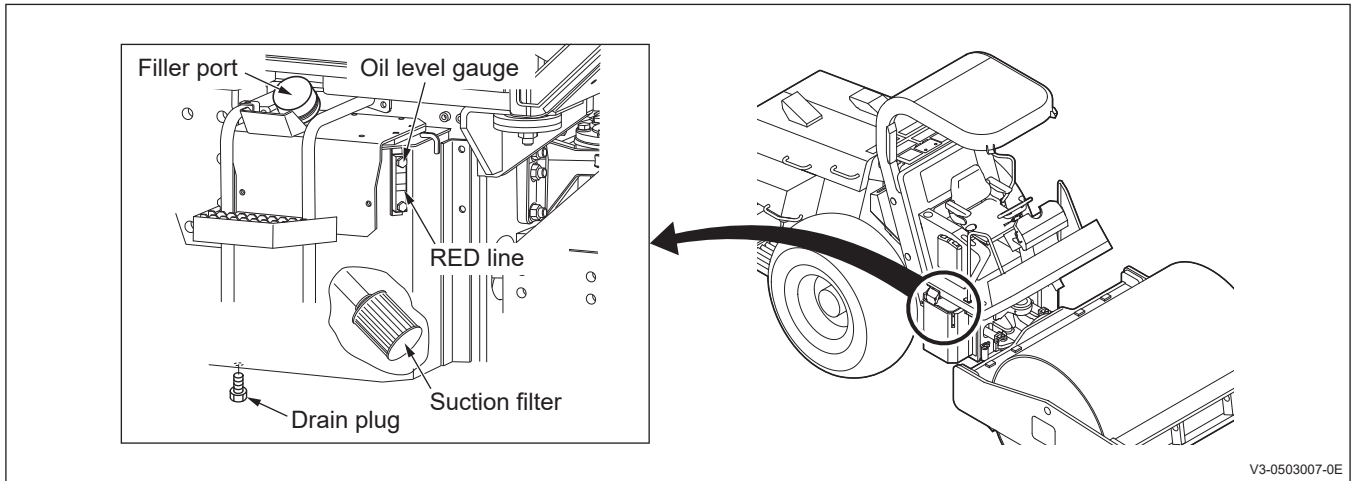
- This inspection should be performed each time the Brake pedal is used. If not inspected, the parking brake may malfunction the next time when you try to use it, resulting in a serious accident.
- Do not modify the machine without the permission for safety reasons. We are not responsible for injuries, death or breakdowns caused by the modifications.

### 3 PERIODIC MAINTENANCE

#### (7) Every 1000 service hours

##### 2 Hydraulic oil suction filter

Take off the hydraulic tank cover. Take out and clean the Suction filter, change the Suction filter if necessary.

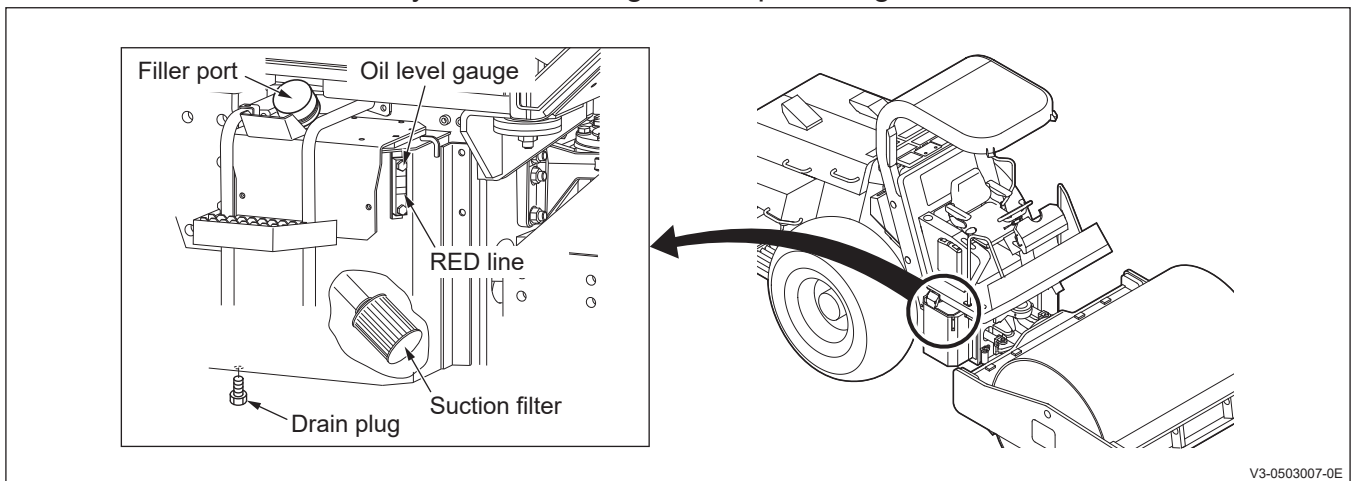


##### 3 Hydraulic oil tank

Clean the Hydraulic oil tank and change the hydraulic oil.

- 1) Remove the Drain plug and drain the oil while it is warm.
- 2) Clean inside of the tank, and fill it with fresh oil to the specified level.
- 3) Start the engine and run at idling for 2 - 5 minutes.

When the bubbles in the hydraulic oil are gone, stop the engine and recheck the oil level.



#### ⚠ WARNING

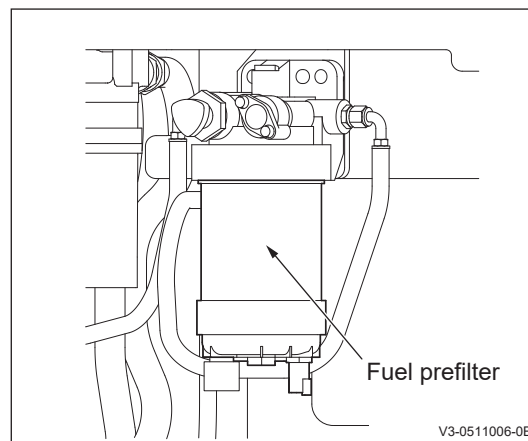
Be careful not to get burned when draining warm oil.

#### NOTICE

Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

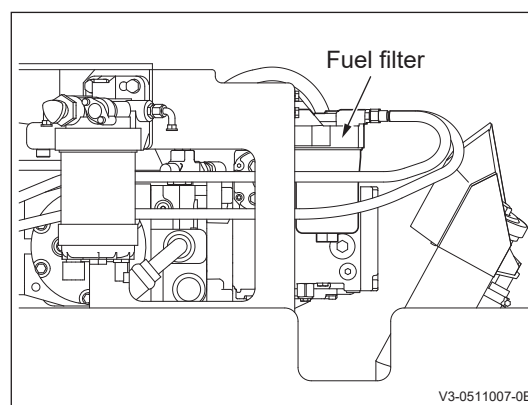
#### 12 Fuel prefilter

Change the Fuel prefilter.



#### 13 Fuel filter

Change the Fuel filter.

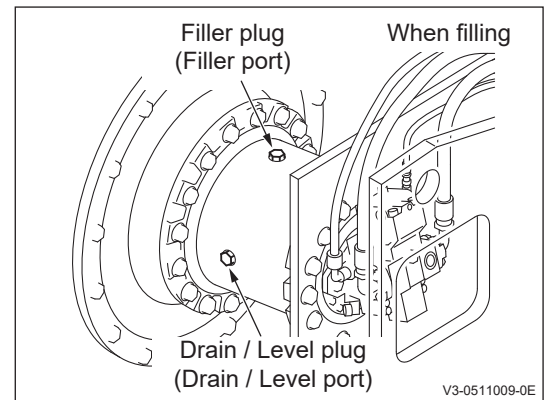
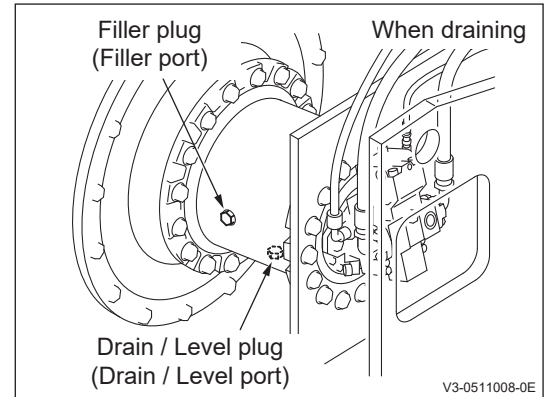


### 3 PERIODIC MAINTENANCE

#### 16 Gear case

Change the gear oil.

- 1) Rotate the wheel, adjust the position of Filler / Level / Drain port until at the lowest position while it is warm after operation.
- 2) Remove Filler plug and Drain / Level plug to drain the gear oil.
- 3) Rotate the wheel, adjust the position of Filler port until at the highest position.  
Then the position of Drain / Level port at parallel to the ground.
- 4) Fill the gear oil through the Filler port until it overflows from the Drain / Level port.
- 5) Refit the Filler plug and Drain / Level plug.



#### ⚠ WARNING

Be careful not to get burned when draining warm oil.

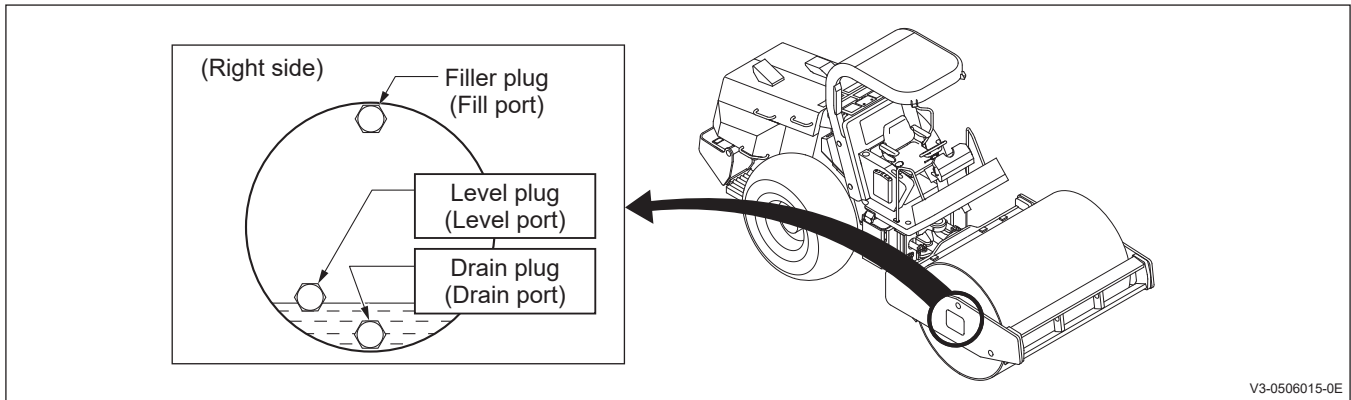
#### NOTICE

Be sure to use recommended lubricants, refer to "3.6 Fluid and Lubricant Capacities".

**22 Vibrator**

Change the gear oil.

- 1) Rotate the wheel, adjust the position of the Drain plug until at the lowest position.
- 2) Remove Drain plug, Level plug and Filler plug.
- 3) Drain the gear oil.
- 4) Clean the Drain plug before refit the Drain plug.
- 5) Fill the gear oil through the Filler port until it overflows from the Level port.
- 6) Clean the Level plug and the Filler plug before refit the Level plug and the Filler plug.

**⚠ WARNING**

When draining a hot oil, use care not to get burned.

**NOTICE**

- The oil capacity of the vibrator is 34 liters (9 gal) each. Do not fill more than 34 liters (9 gal).
- Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

#### (8) Every 4000 hours

##### 9 DEF pump filter

#### ⚠ WARNING

The filter cannot be changed immediately after turning off the engine, because the outside will be hot. Change it after everything has cooled down.

#### NOTICE

- Use genuine SAKAI products for replacement parts.
- Driving the machine without a DEF pump filter, or using non-genuine SAKAI filters may lead to breakdowns due to contaminants entering the DEF pump or DEF injector.  
Never drive the machine without a DEF pump filter, or a non-genuine SAKAI filter.
- The DEF pump filter cannot be washed. Washing it will lower its performance, causing breakdowns in the DEF pump and DEF injector. The element must never be reused.
- If the DEF pump filter is not assembled properly, it may cause the DEF to leak.  
Follow the correct procedures when changing the DEF pump filter.
- The DEF freezes at  $-11^{\circ}\text{C}$  ( $12^{\circ}\text{F}$ ). Freezing makes changing the filter difficult. Change the filter when the surrounding temperature exceeds  $-11^{\circ}\text{C}$  ( $12^{\circ}\text{F}$ ), so that the DEF will not freeze.
- Discharged / used DEF from lines during service cannot be reused or SCR malfunction may result.

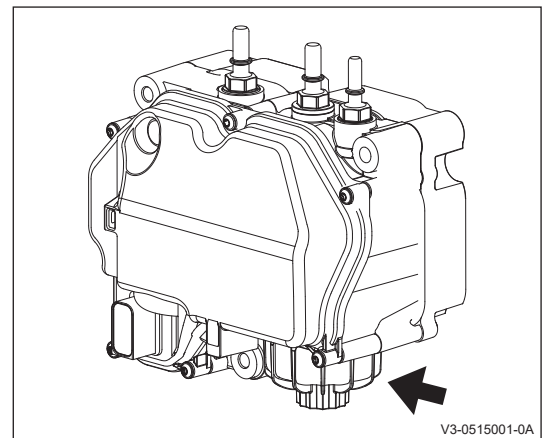
Change the DEF pump filter.

To prevent freezing of the DEF and malfunctions caused by precipitation of urea after the engine is turned off, the DEF machine system automatically sucks out the DEF remaining inside the DEF injector and DEF pump, and returns it to the tank.

After the engine is stopped, the DEF machine system continues to operate for several minutes. When replacing the filter, ensure that the DEF pump has stopped, and clean the area around the DEF pump before performing the work.

The DEF pump filter is located at the bottom of the DEF pump.

The steps are as follows.



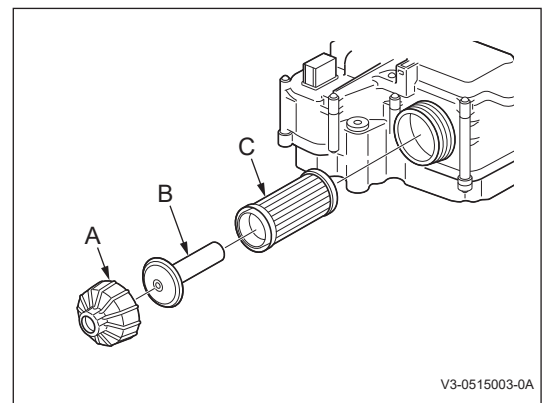
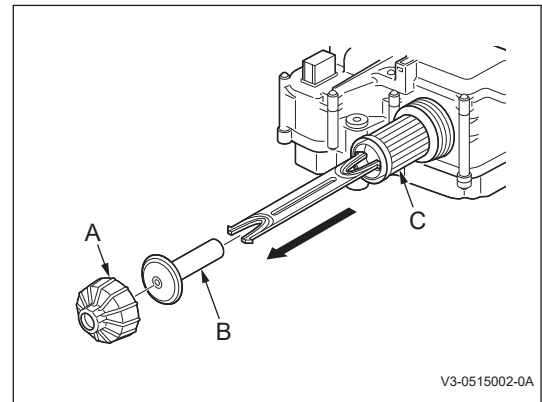


- 1) Unscrew the DEF pump filter cap (**A**). A 27 mm wrench can be used to remove the cap (**A**).
- 2) Remove the aftertreatment DEF pump filter equalizing Element (**B**).
- 3) Remove the old aftertreatment DEF dosing unit filter Element (**C**).

The new filter includes a disposable service tool to help you remove the oil filter. Use the appropriate end of the tool, depending on the color of the plastic on the filter. When inserting the tool, a “click” sound can be heard which indicates proper engagement with the filter.

- 4) Insert the DEF pump filter equalizing element (**B**) into the DEF pump filter cartridge (**C**).
- 5) Insert the assembly into the aftertreatment DEF dosing unit.
- 6) Install and tighten the cap (**A**). A 27 mm wrench can be used to tighten the filter cap (**A**).

Specified torque: 20 N·m (177 in·lb)



#### 14 DPF

Contact your dealer for how to clean the DPF.

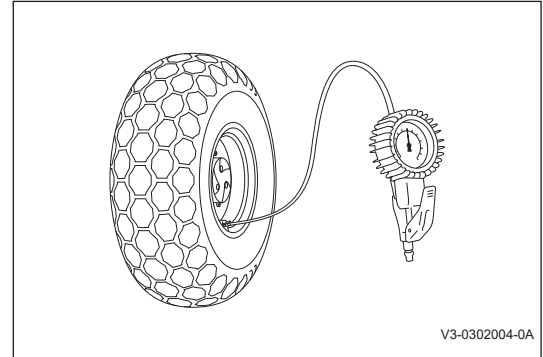
### 3 PERIODIC MAINTENANCE

#### (9) As needed

##### 4 Tires : Wheel hub nut

##### 1) Check air pressures.

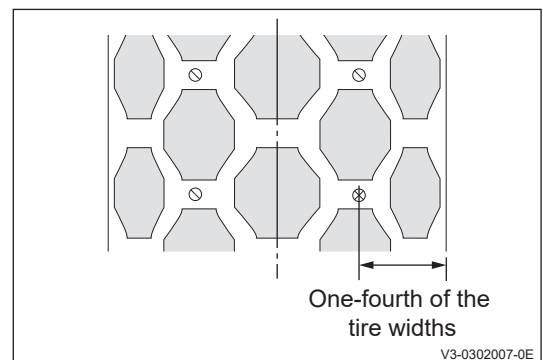
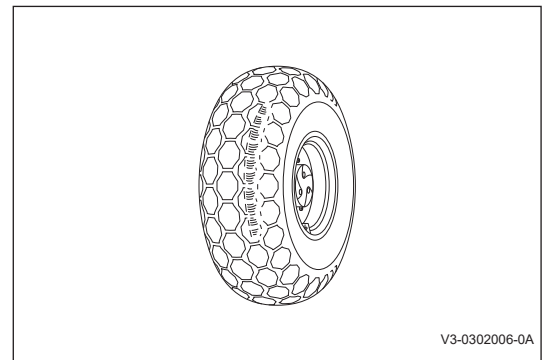
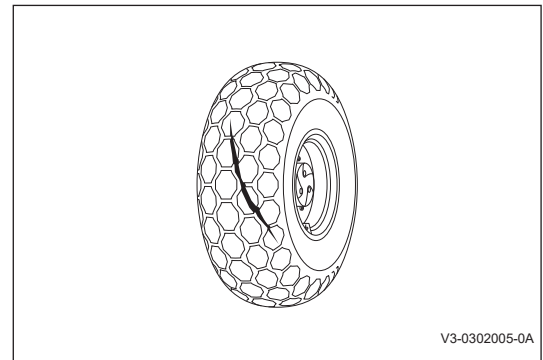
Check air pressures with tire gauges when tires are cool enough, and make certain that they are at 137 kPa (1.4 kgf/cm<sup>2</sup>, 20 psi). Adjust air pressures of the tires if they are not appropriate.



##### 2) Check if there are wears and flaws.

Please check if there are any cracks and damages such as wears on one side, partial wears, step-shaped wears, nails and stones stuck or cut into the tires on the contacting surfaces with the grounds, both side surfaces and all around of the tires.

If you find any abnormal conditions, replace tires. Check if the tire thread depths on the contacting surface with the grounds are 4 mm or more. Measure the tire thread depths at the areas indicated in the figure. When the depths become equal to or less than 4 mm, replace tires.

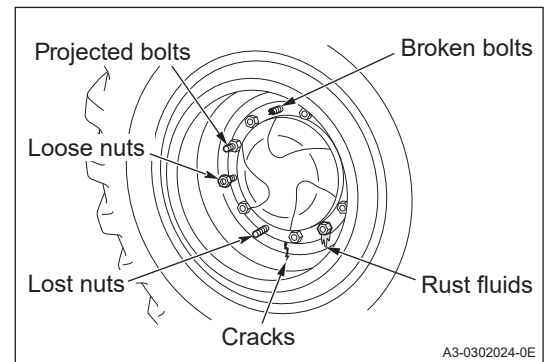


3) Check whether or not the wheel nuts are loose.

Check if the wheel hub nuts are loose or fallen off or if wheel hub bolts are broken. Also check if there are any rust fluids and/or whether or not the lengths of all the wheel hub bolts projected out of the wheel hub nuts are the same.

Check the wheel hub nut for looseness. If it is loose, tighten it. Be sure to torque it to the specified value.

Tightening torque: 785 N·m



#### NOTICE

- Turn the wheel hub nut in the tightening direction during inspection.
- Excessive tightening of the wheel hub nut will lead to breakage of bolts or cracks in the disc wheel. Be sure to observe the specified torque.
- Tighten the wheel hub nut 50 hours after purchase of a new machine or replacement of tires.

#### Roll

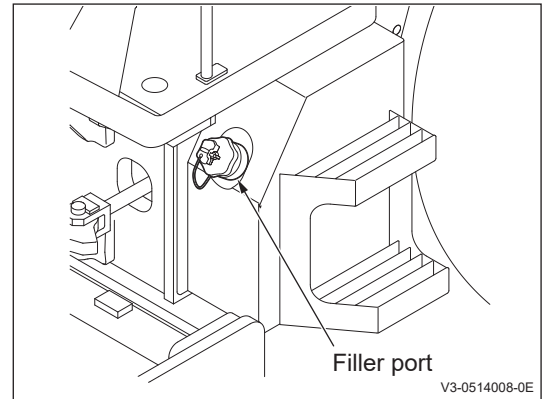
The roll may be worn deeply and broken depending on the operation method and the condition of the site. Check the roll occasionally in the same way as tires.

### 3 PERIODIC MAINTENANCE

#### 8 DEF tank

Check the DEF level.

If level is insufficient, remove the Filler cap and fill the tank through the filler port.



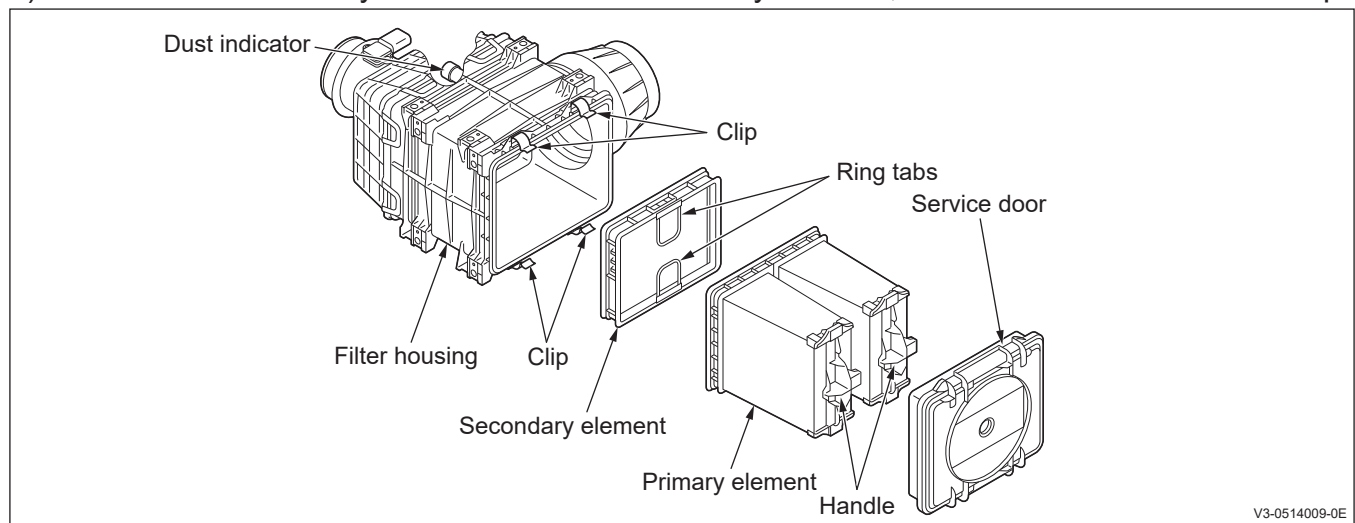
#### NOTICE

- Turn the Starter switch to the ○ position.
- Be sure to use recommended lubricants, refer to “3.6 Fluid and Lubricant Capacities”.

**11 Air cleaner**

When the red float of the Dust indicator reaches the service level (mark on the Dust indicator), change the Element in the manner shown below.

- 1) Remove the Clip on the Service door, and remove the Service door. Pull the Primary element straight out of the filter housing.
- 2) Primary element:  
Grasp the Handle in the center of the Primary element and pull the Primary element outward. Clean the inside of the Filter housing with a damp rag to remove all loose dirt and dust.
- 3) Secondary element:  
The Secondary element should be changed every third time that the Primary element is changed, if the Primary element has been breached then an inspection of the Secondary element must be performed and changed if necessary.  
The Secondary element is removed by pulling on the plastic Ring tabs on the inside face of the Secondary element.
- 4) After attach the Primary element and the Secondary element, the Service door it with the Clip.



V3-0514009-0E

**⚠ CAUTION**

To prevent dust from getting into your eyes and nose, wear protective equipment such as safety goggles and dust respirators before cleaning the air cleaner or outer element.

**NOTICE**

- Stop the engine before inspection, cleaning or maintenance, otherwise dust will enter the engine, causing the breakdown of the engine.
- Take caution when removing the Secondary element. Any loose debris can fall into the air intake plumbing leading directly to the engine. Clean the area around the Secondary element and replace the Secondary element promptly.
- Do not attempt to clean Elements. Cleaning Elements by impact or compressed air voids the warranty and can degrade or damage the Element leading to malfunction.
- Be sure to use genuine SAKAI replacement elements.

### 3 PERIODIC MAINTENANCE

#### 19 Radiator

Clean the cooling fins.

If there is grime or dirt on the cover, clean it as required.

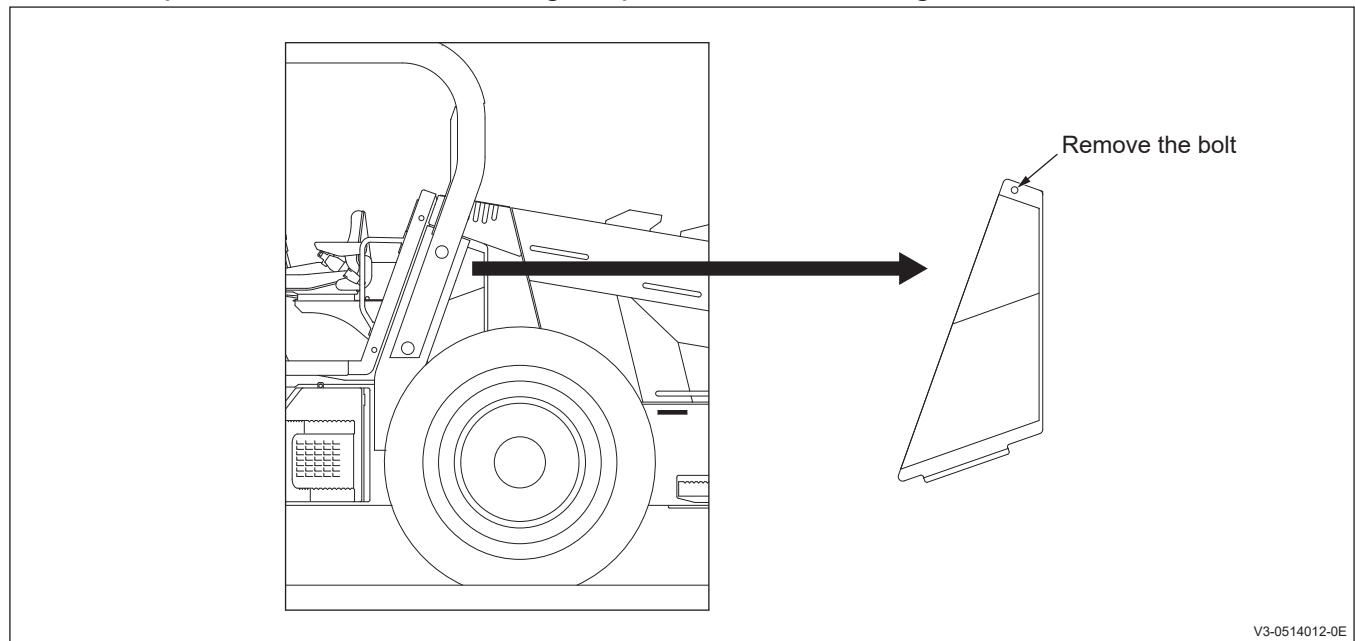
If the cover is clogged up, it may restrict the flow of air leading to overheating.

This cover can be taken off by removing the single bolt at the top.

Moreover, the radiator fins should be inspected at times to make sure there is no grime or dust on them.

If there is grime or dust on the fins, clean them with an air blower or water.

Be sure to put the cover back in its original position after cleaning the fins.



#### ⚠ CAUTION

Use the safety glasses or goggles during the use of compressed air.

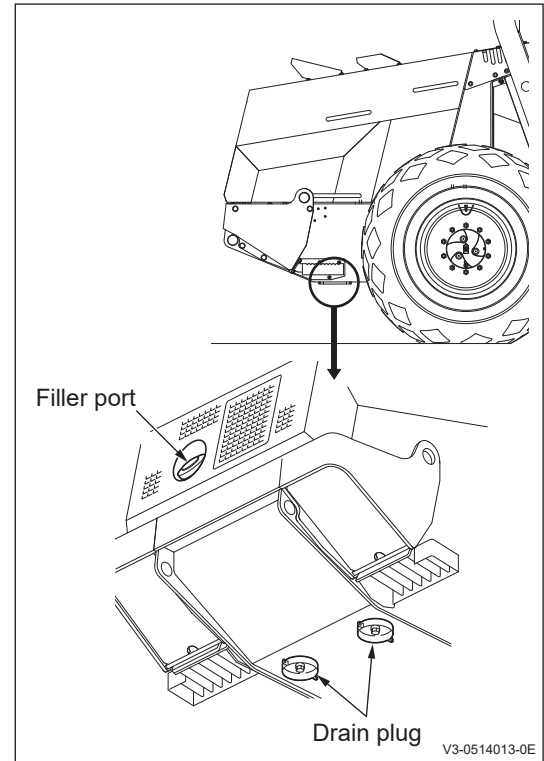
#### NOTICE

- If the discharge rate of compressed air or tap water is too high, it can damage the radiator or the fins of the oil cooler. Keep a distance of 500 mm or more between the nozzle and the core surface.
- Do not use any driver or steel spatula (or paddle). If it rubs the fins, it can damage the tubing.

#### 28 Fuel tank

Clean the inside of Fuel tank.

- 1) With the Drain plug removed, remove the water and sediment from the bottom of the tank.
- 2) If sedimentation is substantial, remove the Drain plug and clean the inside of the tank.
- 3) After completing the necessary work and refueling, tighten the Filler cap securely.



#### ⚠ WARNING

- The fuel will ignite if open flames or ignition sources are used close to it.



#### NOTICE

When removing the water or sediment from a tank filled with fuel, the fuel will gush out when the Drain plug is fully screwed out.

### 3.5 Consumable Parts

Replace consumable parts such as filter elements and air cleaner elements during periodical maintenance or before reaching the wear limit. Proper replacement of consumable parts will improve the overall life of the machine, resulting in cost-effective operations.

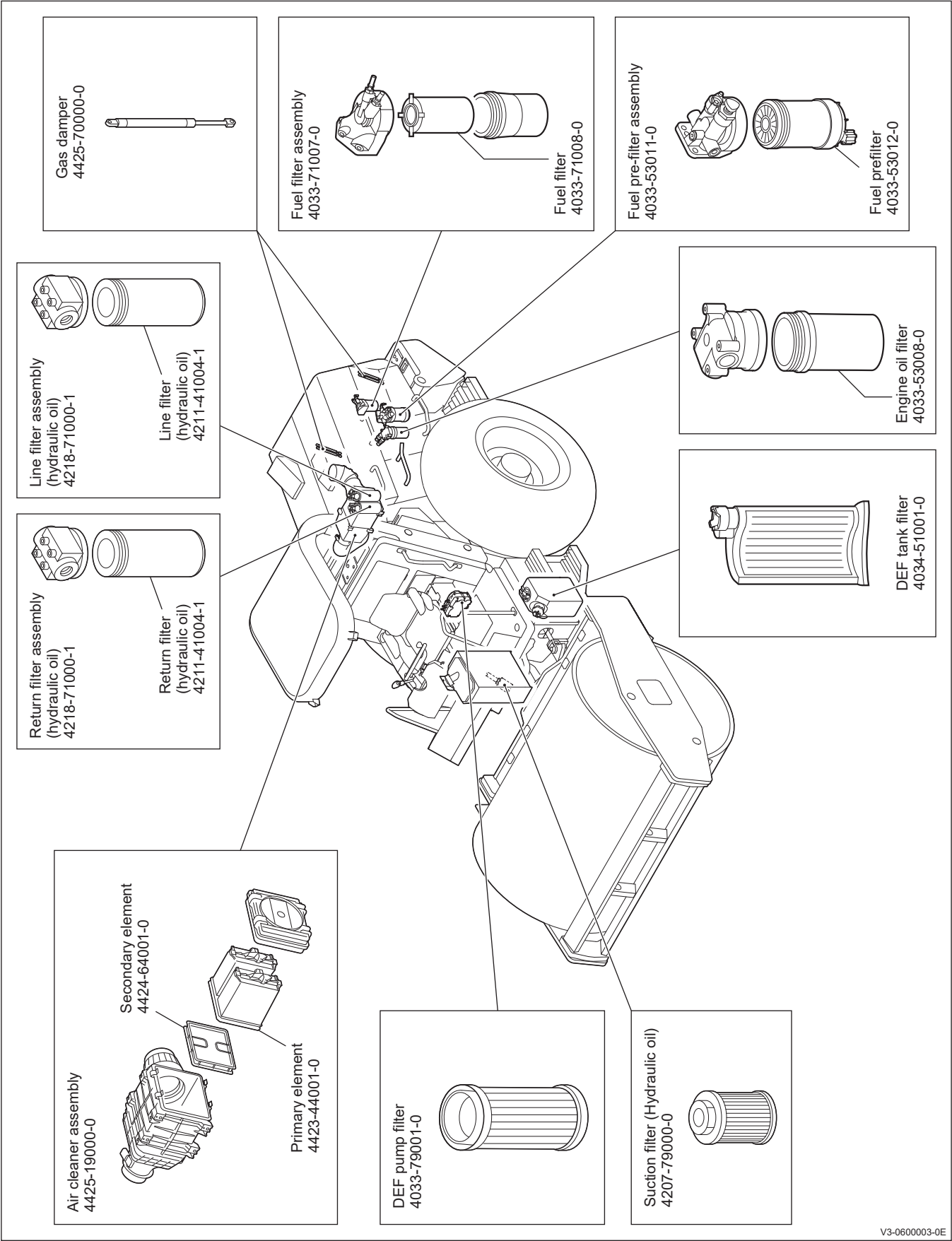
Use genuine SAKAI parts as replacement parts.

The part numbers are subject to change due to the improvements to the parts.

When ordering parts, make sure to obtain the latest part numbers by checking with our distributorship or one of our certified service shops of the version, model name and model number of the machine in use.

| Consumable Part                        | Part No.     | Interval                  |                                   | Remark                                        |
|----------------------------------------|--------------|---------------------------|-----------------------------------|-----------------------------------------------|
|                                        |              | Annual replacement (year) | Replacement per operation (hours) |                                               |
| Engine oil filter                      | 4033-53008-0 | 0.5                       | 500                               |                                               |
| Fuel prefilter assembly                | 4033-53011-0 |                           | As needed                         |                                               |
| Fuel prefilter                         | 4033-53012-0 | 1                         | 1000                              |                                               |
| Fuel filter assembly                   | 4033-71007-0 |                           | As needed                         |                                               |
| Fuel filter                            | 4033-71008-0 | 1                         | 1000                              |                                               |
| DEF pump filter                        | 4033-79001-0 |                           | 4000                              |                                               |
| DEF tank filter                        | 4034-51001-0 |                           | As needed                         |                                               |
| Suction filter (hydraulic oil)         | 4207-79000-0 |                           | 1000                              |                                               |
| Return filter assembly (hydraulic oil) | 4218-71000-1 |                           | As needed                         |                                               |
| Return filter (hydraulic oil)          | 4211-41004-1 |                           | 500                               |                                               |
| Line filter assembly (hydraulic oil)   | 4218-71000-1 |                           | As needed                         |                                               |
| Line filter (hydraulic oil)            | 4211-41004-1 |                           | 500                               |                                               |
| Air cleaner assembly                   | 4425-19000-0 |                           | As needed                         |                                               |
| Primary element                        | 4423-44001-0 |                           | As needed                         |                                               |
| Secondary element                      | 4424-64001-0 |                           | As needed                         | every three times the Primary element changed |
| Gas damper                             | 4425-70000-0 |                           | 2                                 |                                               |
| Battery                                | 4906-11000-1 |                           | As needed                         | 105D31R                                       |





### 3.6 Fluid and Lubricant Capacities

#### (1) General rules

- Never add water or lubricant with the strainer removed.
- Use the recommended lubricant and hydraulic fluid.
- Do not use different brands of lubricants and hydraulic fluids.
- Be careful of contaminants entering fluid reservoirs when refilling them.
- When replacing oil, drain it completely and clean the container with flushing oil before filling it with new oil.
- Nonconformities or problems resulting from the use of fuels and lubricants other than those specified by SAKAI are not covered by our warranty. Always use fuels and lubricants that comply with the standards specified or recommended by SAKAI, or with equivalent standards.

#### (2) Capacity

| Compartment        | Type of fluid | Capacity in liters (gal.) |
|--------------------|---------------|---------------------------|
| Engine oil pan     | Engine oil    | 12 (3.2)                  |
| Radiator           | Coolant       | 25 (6.6)                  |
| Fuel tank          | Diesel oil    | 200 (52.8)                |
| DEF tank           | DEF           | 24 (6.3)                  |
| Hydraulic oil tank | Hydraulic oil | 53 (14)                   |
| Vibrator           | Gear oil      | 34 (9)                    |
| Gear case          | Gear oil      | 2.9 (0.77)                |
| Transmission       | Gear oil      | 1.2 (0.32)                |
| Differential case  | Gear oil      | 11 (2.9)                  |
| Final drive        | Gear oil      | 2.0 (0.53) x 2            |

**(3) Storing the DEF**

- Keep the DEF containers airtight, and store them indoors in a well ventilated place avoiding direct sunlight.
- Use the container that the DEF was bought in to store it. Never store it in other containers as it will lead to loss of quality.
- Commission the disposing of the DEF to an industrial waste treatment company to make sure it is handled appropriately. Moreover, the DEF containers are to be treated as industrial waste, so they too, must be disposed of in the same way.
- The temperature requirements and storage period for the DEF are as shown below.

| Temperature during storage | Below 10°C      | Below 25°C      | Below 30°C      | Below 35°C     |
|----------------------------|-----------------|-----------------|-----------------|----------------|
| Storage period             | Up to 36 months | Up to 18 months | Up to 12 months | Up to 6 months |

**⚠ WARNING**

- **DEF on the skin may cause inflammation in some people, so contaminated clothes, shoes, etc., should be taken off and washed in cold or warm water. If there are any changes in appearance or pain, promptly seek medical help.**
- **If the DEF is accidentally swallowed, rinse out your mouth well with water, and promptly seek medical help.**
- **If the DEF gets in your eyes, rinse it out immediately in clean water for several minutes, then promptly seek medical help.**
- **Wear protective glasses when there is a danger of the DEF splattering. Wear rubber gloves if work requires you to come into contact with the DEF.**
- **Do not put anything other than the DEF into the DEF tank. Diesel, gasoline, etc., in particular may cause fires. Moreover, putting additives in the tank may lead to generation of toxic gases.**
- **Opening the DEF tank cap may release toxic ammonia gas. When opening the cap or filling the tank, keep your face away from the Filler port.**
- **If the DEF is spilled, promptly wipe it clean and wash with water. Neglecting to do so may lead to toxic gases or corrosive substances being given off.**

### 3 PERIODIC MAINTENANCE

#### (4) Rating

| Lubricant     | Service classification        | Ambient temp. and applicable viscosity rating |                                      |                                       | Applicable standards |
|---------------|-------------------------------|-----------------------------------------------|--------------------------------------|---------------------------------------|----------------------|
|               |                               | -15 – 30°C<br>(5 – 86°F)<br>Cold              | 0 – 40°C<br>(32 – 104°F)<br>Moderate | 15 – 55°C<br>(59 – 131°F)<br>Tropical |                      |
| Engine oil    | API CJ-4*                     | SAE 15W-40**                                  |                                      |                                       |                      |
| Gear oil      | API GL-5                      | SAE 80W-90                                    | SAE 90                               | SAE 140                               | MIL-L-2105B          |
| Hydraulic oil | Anti wear                     | ISO VG32<br>over VI 140                       | ISO VG46<br>over VI 140              | ISO VG68<br>over VI 110               | ISO-3448             |
| Grease        | Lithium type extreme pressure |                                               |                                      |                                       | NLGI-2               |
| Fuel          | Diesel oil                    |                                               |                                      |                                       | ASTM D975-2D         |
| DEF           | AUS32                         |                                               |                                      |                                       | ISO 22241            |

\* Alternative: API CK-4

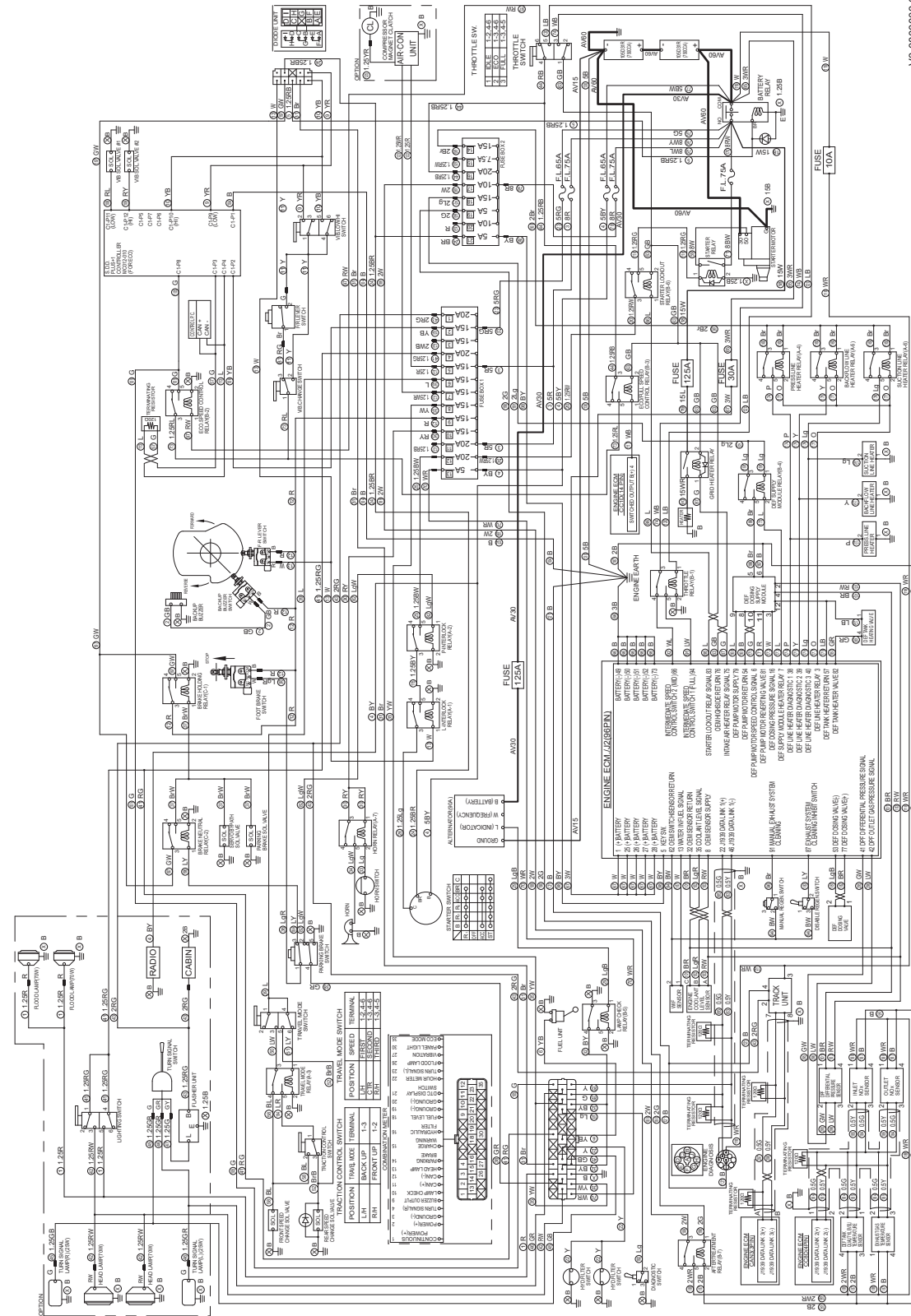
\*\* Alternative: SAE 5W-40

### (5) Recommended lubricants

| Oil company \ Lubricant | Engine oil<br>API CJ-4      | Gear oil<br>API GL-5 | Hydraulic oil<br>ISO VG46 | Grease<br>NLGI-2    |
|-------------------------|-----------------------------|----------------------|---------------------------|---------------------|
| <b>CHEVRON</b>          | DELO 400 LE<br>DELO 400 MGX | DELO<br>Gear EP-5    | Rando<br>HDZ              | Multifak<br>EP      |
| <b>BP</b>               | Venellus<br>Max Super       | Energear<br>HYPO     | Bartran<br>HV             | Energrease<br>LS-EP |
| <b>CASTROL</b>          | VECTON                      | Axle<br>EPX          | Hyspin<br>AWH             | Spheerol<br>EPL     |
| <b>EXXON MOBIL</b>      | Delvac<br>MX ESP            | Mobilube<br>HD       | DTE<br>10 Excel           | Alvania<br>EP       |
| <b>SHELL</b>            | Rimula R4 L<br>Rimula R4 X  | Spirax<br>EP         | Tellus<br>S2 V            | Mobilux<br>EP       |

### 3 PERIODIC MAINTENANCE

## 3.7 Electric Wiring Diagram



CAUTION: Size of wires not indicated by letters are AV 0.85.

V3-0800003-0E

### 3.8 Fuse Box

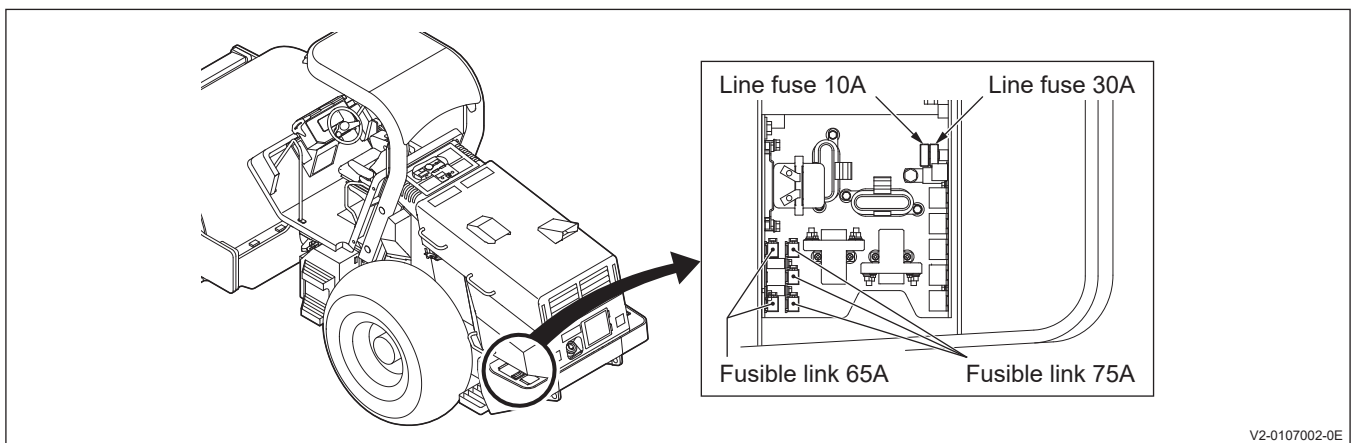
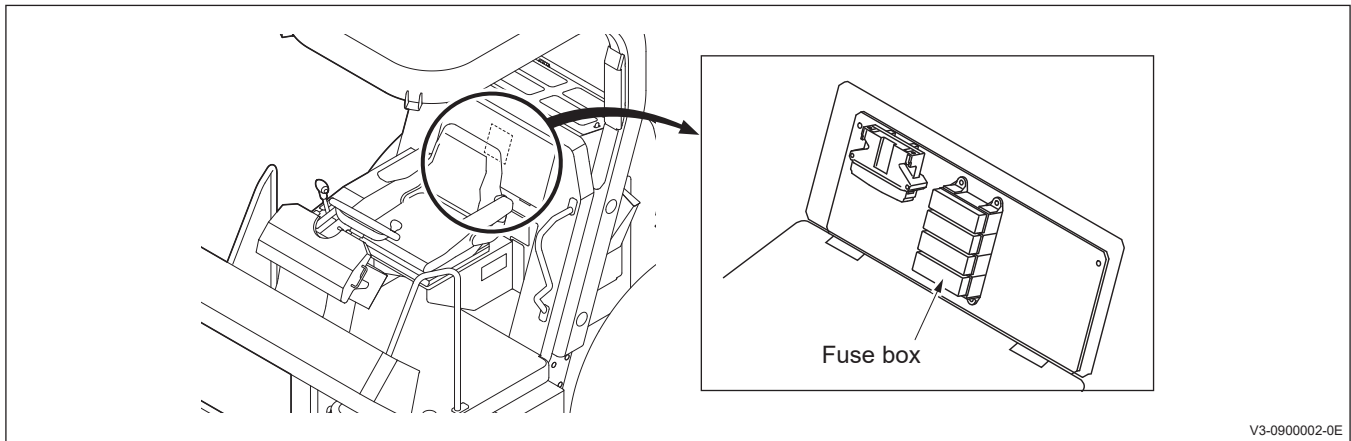
The fuse box contains three 5 A-, one 7.5 A-, two 10 A-, ten 15 A-, and five 20 A- fuses lined up with spares fitted for two 5 A-, one 7.5 A-, one 10 A-, two 15 A- and two 20 A-fuses. Refer to “2.1.6 Fuse box”.

#### ⚠ CAUTION

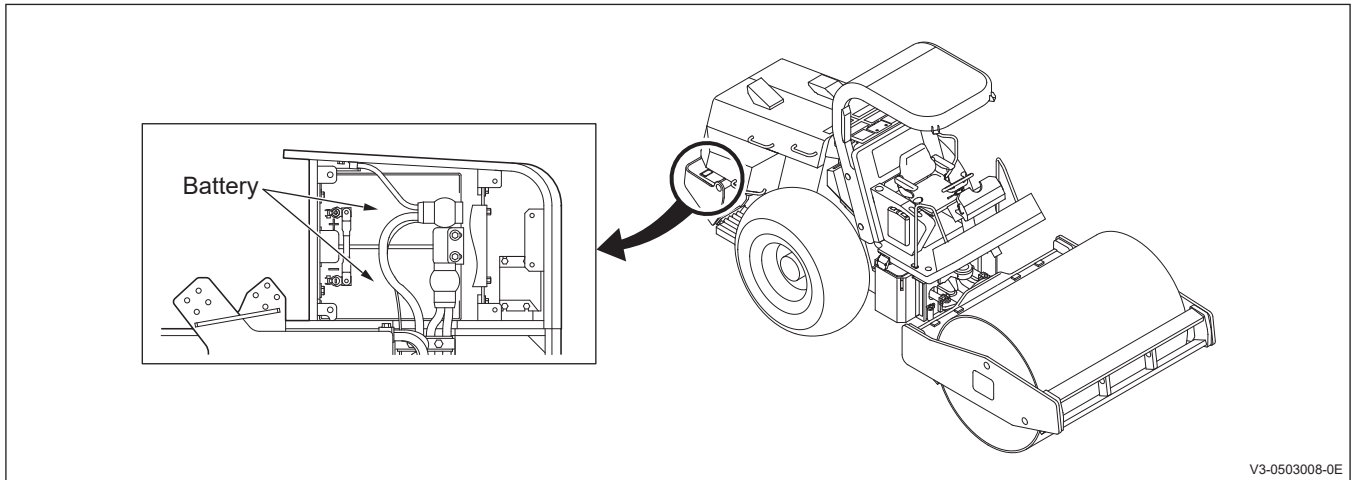
- When replacing the fuse or fusible link, always turn the Starter switch to the ○ position and disconnect the negative terminal of the battery.
- Use fuses of correct capacity. Using the wrong fuses may cause fires.

#### NOTICE

When a fuse is burned, determine the cause before replacing.

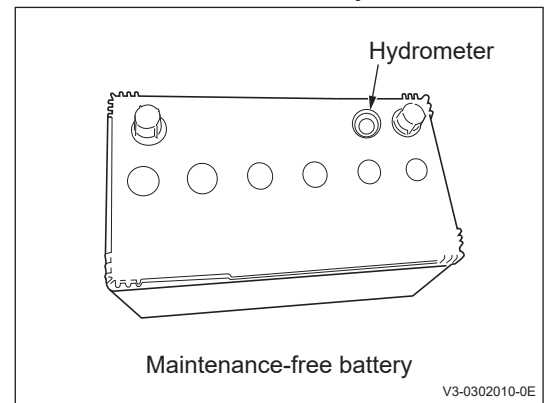


## 3.9 Battery



This machine is shipped from the factory equipped with a maintenance-free battery.

- Leaving the battery unused for a long time or using its power excessively at any time may damage the plates and shorten its life.
- Keep the battery in a satisfactory condition at all times.
- The battery should be in a satisfactory condition when the engine is to be started on cold days. Avoid starting the engine with the battery in a poor condition at any time.
- For long-term storage, charge it fully, store in a cool and dry place, and check the level of charge at least once a month.





**⚠ WARNING**

- The battery generates hydrogen gas, so there is a danger of explosions. When there is a danger of generating sparks in poorly ventilated places, avoid recharging the battery and keep away the cigarettes and flames etc.
- The battery contains diluted sulfuric acid, which will dissolve clothes and burn skin. If you get battery fluid on your clothes or skin, wash it off immediately with plenty of clean water.
- If you get it in your eyes, rinse them immediately with clean water and seek the medical help of a doctor.
- If you accidentally ingest it, drink plenty of water and immediately seek the medical help of a doctor.
- Always wear safety goggles when handling the battery.
- The inspection and handling of batteries should be carried out with the engine turned off and the Starter switch in the ○ position.
- Turn the Starter switch to the ○ position, then wait at least 2 minutes before removing the battery. If not, an abnormality may arise in the ECM (Engine Control Module).
- Be careful not to connect the two battery terminals together by tools or other metallic objects.
- To disconnect the battery cables, start with the negative terminal (ground). When connecting, start with the positive terminal. Do not allow a metallic item to bridge between the positive terminal and the machine body. This can generate sparks, causing an explosion.
- Loose terminals may generate sparks due to improper connections, resulting in the danger of explosions. Make sure terminals are connected firmly.
- The battery is for starting the engine and operating the electrical equipment on the machine. Do not use it for any other purpose.

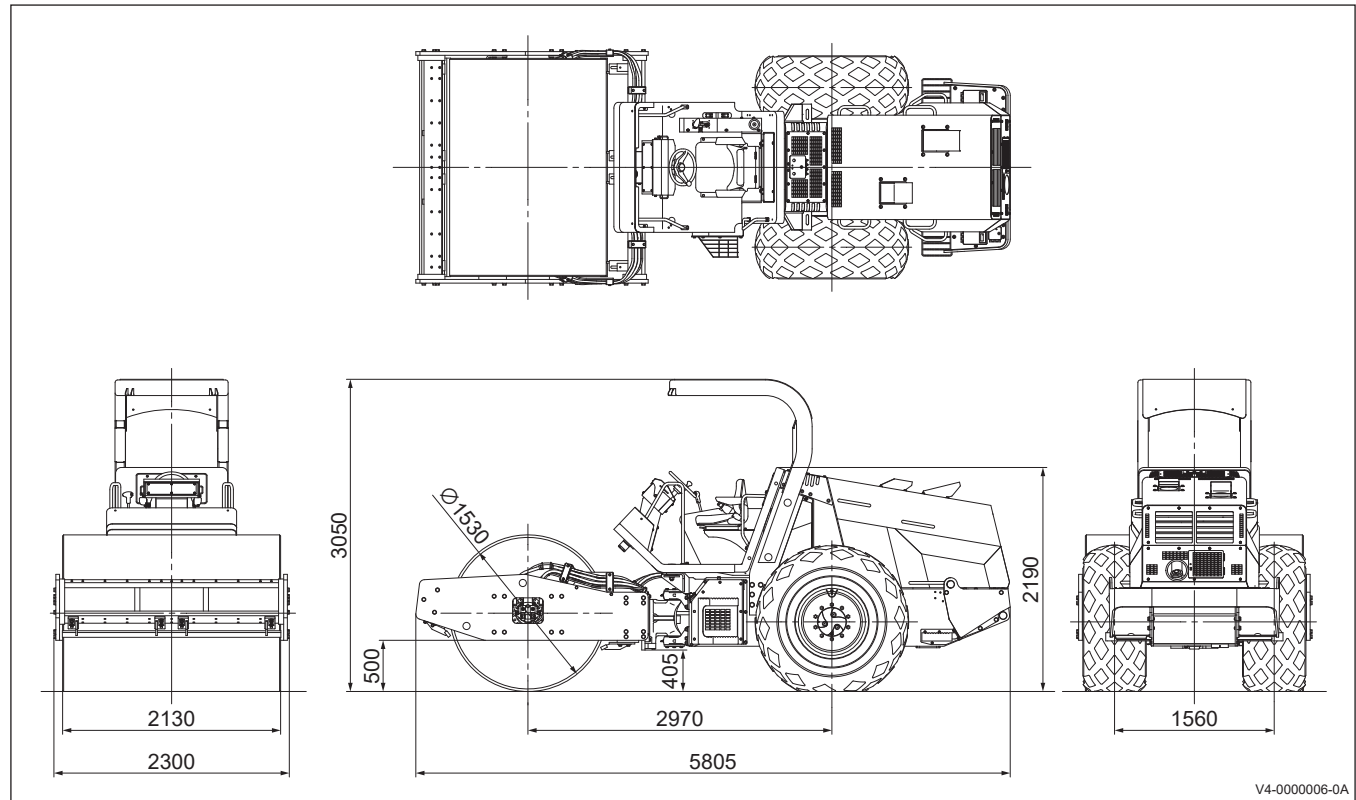
**NOTICE**

The power-supply voltage of this machine is 24 V.



## 4 SPECIFICATIONS

### (1) SV544D-1



| Model              |     | SV544D-1                     | Performance            |                                                                                                                  |
|--------------------|-----|------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Weight</b>      |     |                              | Gradeability           | 63 % (32°)                                                                                                       |
| Operating weight   |     | 11,070 kg (24,405 lbs)       | Compaction width       | 2,130 mm (84")                                                                                                   |
| On front axle      |     | 5,730 kg (12,630 lbs)        | Minimum turning radius | 6.0 m (237")                                                                                                     |
| On rear axle       |     | 5,340 kg (11,770 lbs)        | <b>Vibrating power</b> |                                                                                                                  |
| <b>Dimension</b>   |     |                              |                        | <b>Low</b> <b>High</b>                                                                                           |
| Overall length     |     | 5,805 mm (229")              | Frequency              | 33.3 Hz (2,000 vpm)    28.8Hz (1,730 vpm)                                                                        |
| Overall width      |     | 2,300 mm (91")               | Centrifugal force      | 150 kN (33,720 lbs)    255 kN (57,325 lbs)                                                                       |
| Overall height     |     | 3,050 mm (120")              |                        | {15,295 kgf}      {26,000 kgf}                                                                                   |
| Wheelbase          |     | 2,970 mm (117")              | <b>Engine</b>          |                                                                                                                  |
| Wheel              |     |                              | Model                  | CUMMINS "F3.8" Diesel engine with turbo charger                                                                  |
| Front              |     | Roll (dia. x width)          | Total displacement     | 3.758 liters (229.0 cu.in) {3,758 cc}                                                                            |
| Smooth             |     | 1,530 x 2,130 mm (60" x 84") | Rated output           | 110.0 kW / 2,200 min <sup>-1</sup><br>(148 HP / 2,200 min <sup>-1</sup> )<br>{150 PS / 2,200 min <sup>-1</sup> } |
| Rear               |     | Tire                         | Max. torque            | 600 N·m / 1,500 min <sup>-1</sup><br>(443 ft·lb / 1,500 min <sup>-1</sup> )                                      |
|                    |     | 23.1-26-8PR(OR)              | <b>Tank capacity</b>   |                                                                                                                  |
| <b>Performance</b> |     |                              | Fuel tank              | 200 liters (52.8 gal)                                                                                            |
| Traveling speed    | 1st | 0 - 4 km/h (0 - 2.5 mile/h)  | Hydraulic oil tank     | 53 liters (14.0 gal)                                                                                             |
|                    | 2nd | 0 - 6 km/h (0 - 3.7 mile/h)  |                        |                                                                                                                  |
|                    | 3rd | 0 - 10 km/h (0 - 6.2 mile/h) |                        |                                                                                                                  |

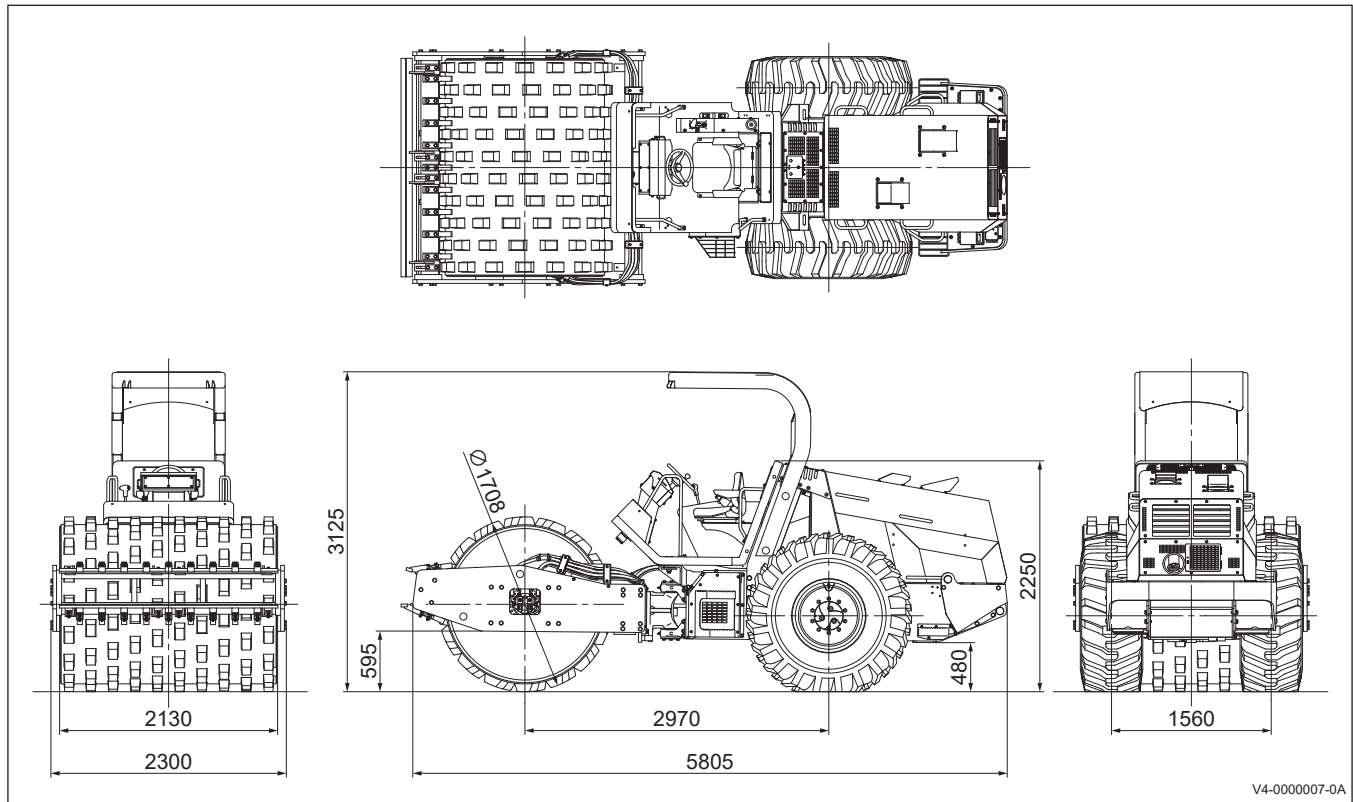
**NOTE :** 1) Gradeability is the calculated value. It may vary with ground surface conditions.

2) According to European Standards (EN500-1, ISO 6165, etc.), the weight are defined as follows.

Operating weight : Fuel=50%, Water=50%, Operator=75kg.

## 4 SPECIFICATIONS

### (2) SV544DF-1



V4-0000007-0A

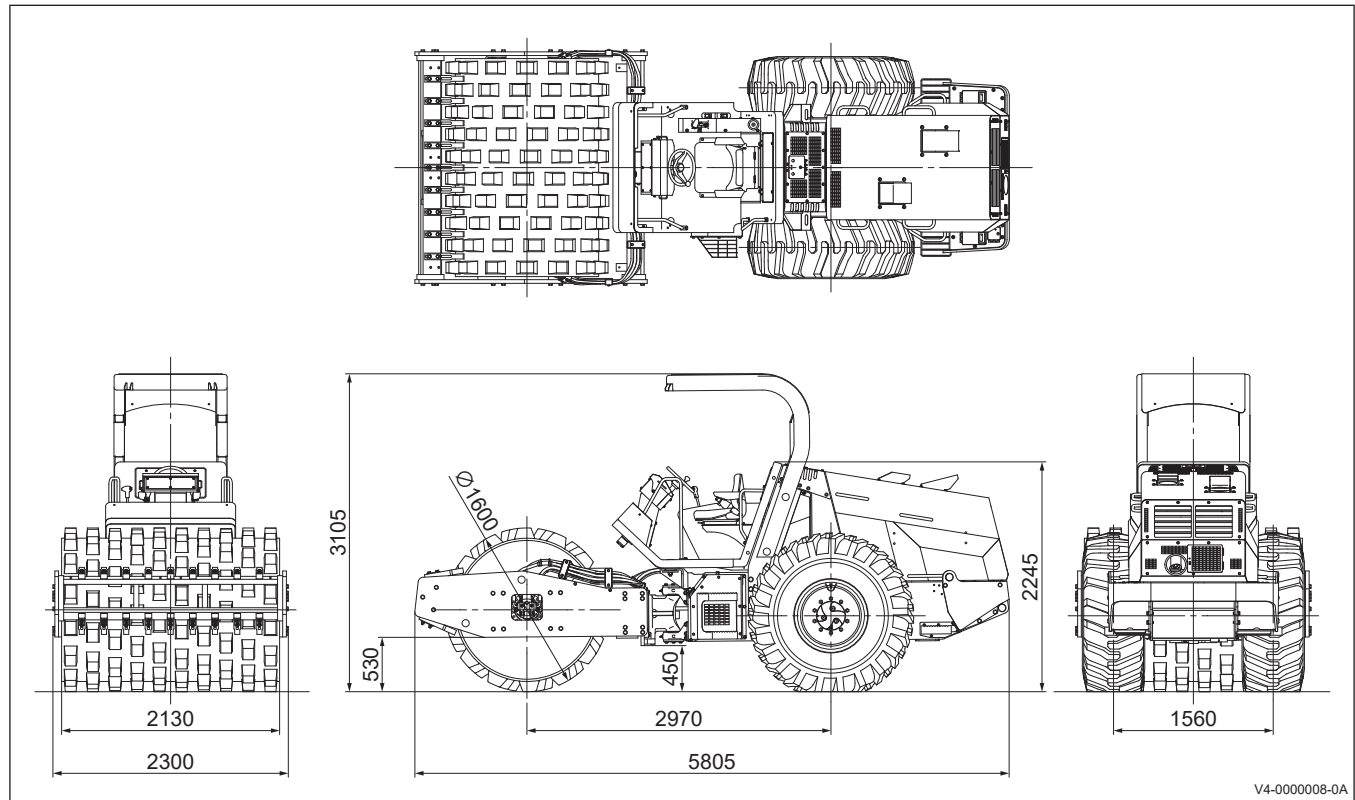
| Model              |     | SV544DF-1                    | Performance            |                                                                          |
|--------------------|-----|------------------------------|------------------------|--------------------------------------------------------------------------|
| <b>Weight</b>      |     |                              |                        |                                                                          |
| Operating weight   |     | 12,790 kg (28,195 lbs)       | Gradeability           | 63 % (32°)                                                               |
| On front axle      |     | 7,480 kg (16,490 lbs)        | Compaction width       | 2,130 mm (84")                                                           |
| On rear axle       |     | 5,310 kg (11,705 lbs)        | Minimum turning radius | 5.5 m (217")                                                             |
| <b>Dimension</b>   |     |                              | <b>Vibrating power</b> | <b>Low</b> <b>High</b>                                                   |
| Overall length     |     | 5,805 mm (229")              | Frequency              | 33.3 Hz (2,000 vpm) 28.8Hz (1,730 vpm)                                   |
| Overall width      |     | 2,300 mm (91")               | Centrifugal force      | 150 kN (33,720 lbs) 255 kN (57,325 lbs)                                  |
| Overall height     |     | 3,125 mm (123")              |                        | {15,295 kgf} {26,000 kgf}                                                |
| Wheelbase          |     | 2,970 mm (117")              | <b>Engine</b>          |                                                                          |
| Wheel              |     |                              | Model                  | CUMMINS "F3.8" Diesel engine with turbo charger                          |
| Front              |     | Roll (dia. x width)          | Total displacement     | 3.758 liters (229.0 cu.in) {3,758 cc}                                    |
| Smooth             |     | 1,530 x 2,130 mm (60" x 84") | Rated output           | 110.0 kW / 2,200 min <sup>-1</sup> (148 HP / 2,200 min <sup>-1</sup> )   |
| Pad                |     | 1,708 x 2,130 mm (67" x 84") |                        | {150 PS / 2,200 min <sup>-1</sup> }                                      |
| Rear               |     | Tire                         | Max. torque            | 600 N·m / 1,500 min <sup>-1</sup> (443 ft·lb / 1,500 min <sup>-1</sup> ) |
|                    |     | 23.1-26-12PR(OR)             | <b>Tank capacity</b>   |                                                                          |
| <b>Performance</b> |     |                              | Fuel tank              | 200 liters (52.8 gal)                                                    |
| Traveling speed    | 1st | 0 - 4 km/h (0 - 2.5 mile/h)  | Hydraulic oil tank     | 53 liters (14.0 gal)                                                     |
|                    | 2nd | 0 - 6 km/h (0 - 3.7 mile/h)  |                        |                                                                          |
|                    | 3rd | 0 - 10 km/h (0 - 6.2 mile/h) |                        |                                                                          |

**NOTE :** 1) Gradeability is the calculated value. It may vary with ground surface conditions.

2) According to European Standards (EN500-1, ISO 6165, etc.), the weight are defined as follows.

Operating weight : Fuel=50%, Water=50%, Operator=75kg.

### (3) SV544T-1



| Model              |     | SV544T-1                     | Performance            |                                                                                                            |
|--------------------|-----|------------------------------|------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Weight</b>      |     |                              |                        |                                                                                                            |
| Operating weight   |     | 11,490 kg (25,330 lbs)       | Gradeability           | 63 % (32°)                                                                                                 |
| On front axle      |     | 6,120 kg (13,490 lbs)        | Compaction width       | 2,130 mm (84")                                                                                             |
| On rear axle       |     | 5,370 kg (11,840 lbs)        | Minimum turning radius | 5.5 m (217")                                                                                               |
| <b>Dimension</b>   |     |                              | <b>Vibrating power</b> | <b>Low</b> <b>High</b>                                                                                     |
| Overall length     |     | 5,805 mm (229")              | Frequency              | 33.3 Hz (2,000 vpm) 28.8Hz (1,730 vpm)                                                                     |
| Overall width      |     | 2,300 mm (91")               | Centrifugal force      | 150 kN (33,720 lbs) 255 kN (57,325 lbs)                                                                    |
| Overall height     |     | 3,105 mm (122")              |                        | {15,295 kgf} {26,000 kgf}                                                                                  |
| Wheelbase          |     | 2,970 mm (117")              | <b>Engine</b>          |                                                                                                            |
| Wheel              |     |                              | Model                  | CUMMINS "F3.8" Diesel engine with turbo charger                                                            |
| Front              |     | Roll (dia. x width)          | Total displacement     | 3.758 liters (229.0 cu.in) {3,758 cc}                                                                      |
| Pad                |     | 1,600 x 2,130 mm (63" x 84") | Rated output           | 110.0 kW / 2,200 min <sup>-1</sup> (148 HP / 2,200 min <sup>-1</sup> ) {150 PS / 2,200 min <sup>-1</sup> } |
| Rear               |     | Tire                         | Max. torque            | 600 N·m / 1,500 min <sup>-1</sup> (443 ft·lb / 1,500 min <sup>-1</sup> )                                   |
|                    |     | 23.1-26-12PR(OR)             | <b>Tank capacity</b>   |                                                                                                            |
| <b>Performance</b> |     |                              | Fuel tank              | 200 liters (52.8 gal)                                                                                      |
| Traveling speed    | 1st | 0 - 4 km/h (0 - 2.5 mile/h)  | Hydraulic oil tank     | 53 liters (14.0 gal)                                                                                       |
|                    | 2nd | 0 - 6 km/h (0 - 3.7 mile/h)  |                        |                                                                                                            |
|                    | 3rd | 0 - 10 km/h (0 - 6.2 mile/h) |                        |                                                                                                            |

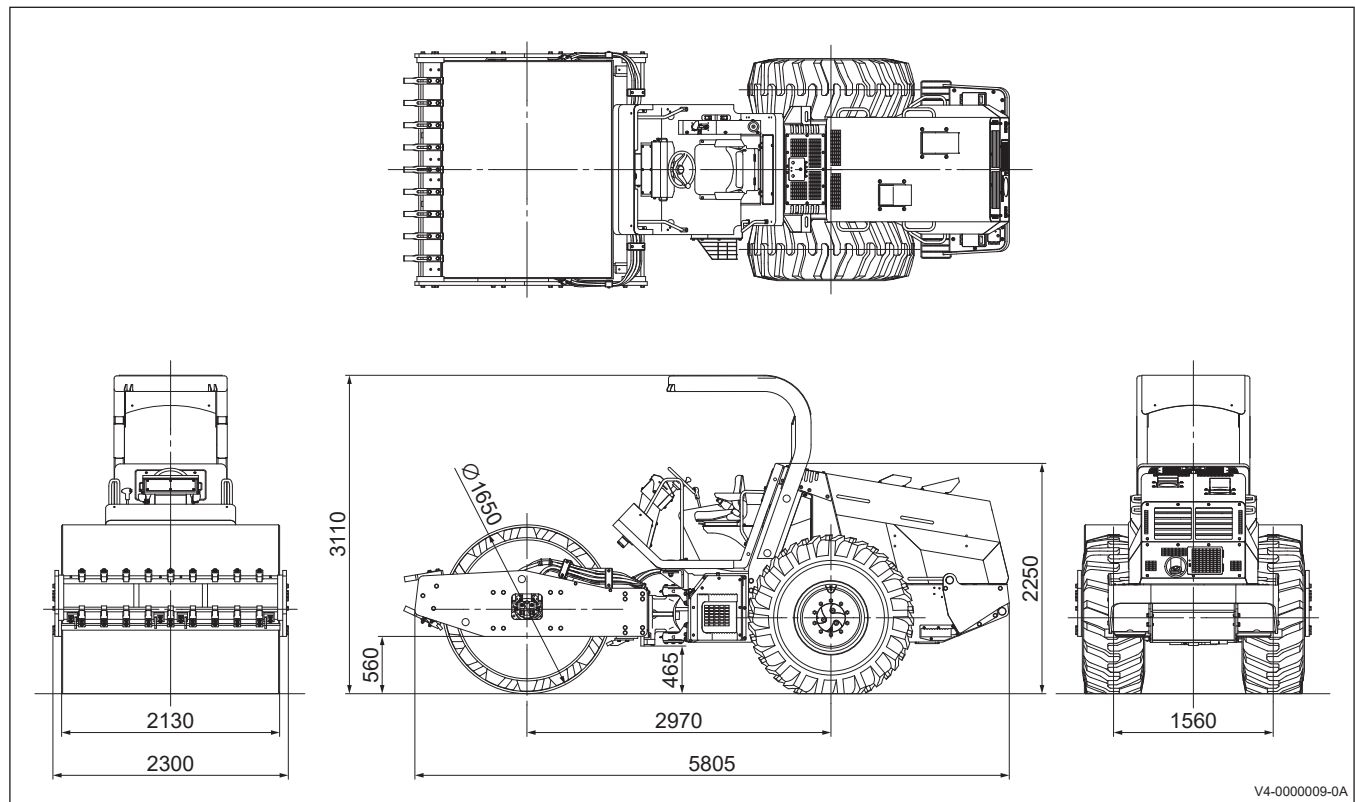
**NOTE :** 1) Gradeability is the calculated value. It may vary with ground surface conditions.

2) According to European Standards (EN500-1, ISO 6165, etc.), the weight are defined as follows.

Operating weight : Fuel=50%, Water=50%, Operator=75kg.

## 4 SPECIFICATIONS

### (4) SV544TF-1



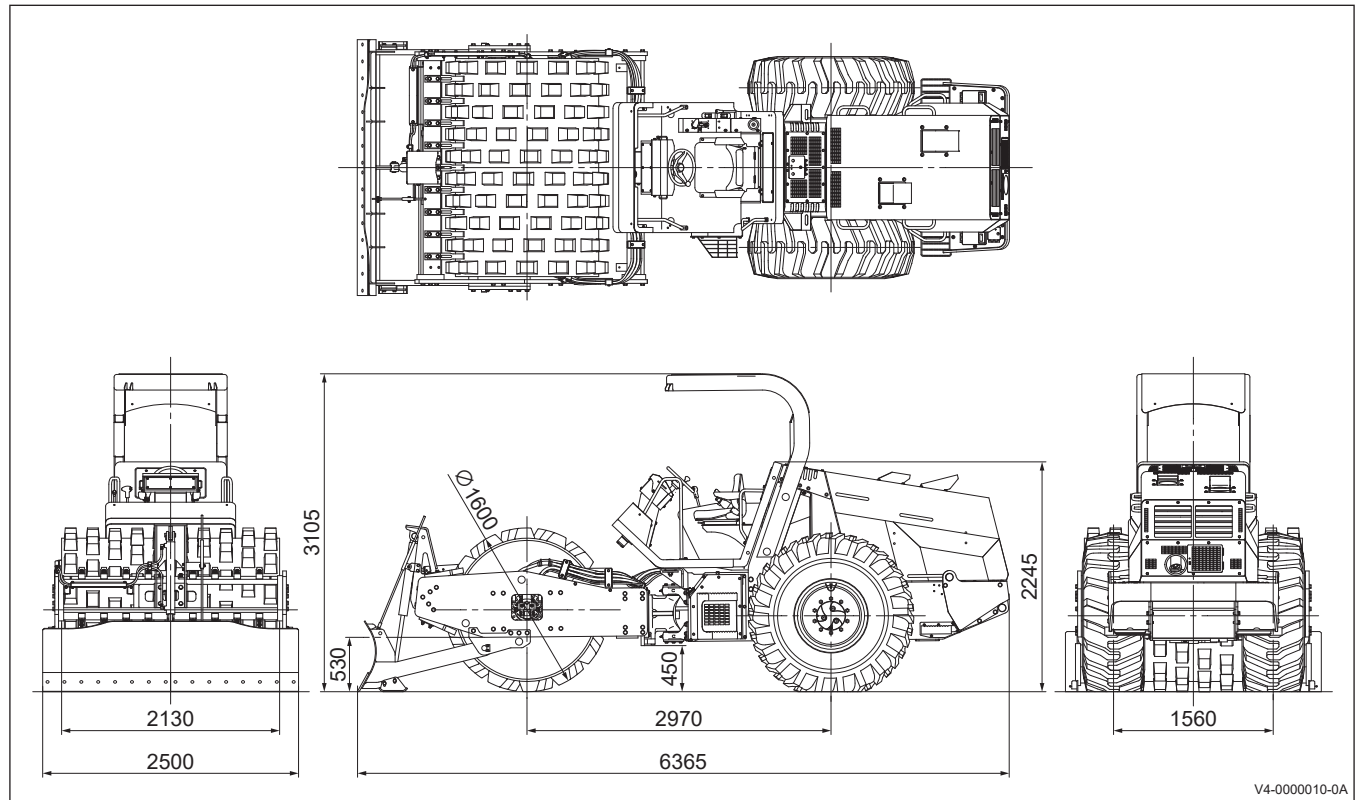
| Model              |     | SV544TF-1                    | Performance            |                                                 |
|--------------------|-----|------------------------------|------------------------|-------------------------------------------------|
| <b>Weight</b>      |     |                              |                        |                                                 |
| Operating weight   |     | 13,760 kg (30,335 lbs)       | Gradeability           | 63 % (32°)                                      |
| On front axle      |     | 8,410 kg (18,540 lbs)        | Compaction width       | 2,130 mm (84")                                  |
| On rear axle       |     | 5,350 kg (11,795 lbs)        | Minimum turning radius | 5.5 m (217")                                    |
| <b>Dimension</b>   |     |                              | <b>Vibrating power</b> | <b>Low</b> <b>High</b>                          |
| Overall length     |     | 5,805 mm (229")              | Frequency              | 33.3 Hz (2,000 vpm) 28.8Hz (1,730 vpm)          |
| Overall width      |     | 2,300 mm (91")               | Centrifugal force      | 150 kN (33,720 lbs) 255 kN (57,325 lbs)         |
| Overall height     |     | 3,110 mm (122")              |                        | {15,295 kgf} {26,000 kgf}                       |
| Wheelbase          |     | 2,970 mm (117")              | <b>Engine</b>          |                                                 |
| Wheel              |     |                              | Model                  | CUMMINS "F3.8" Diesel engine with turbo charger |
| Front              |     | Roll (dia. x width)          | Total displacement     | 3.758 liters (229.0 cu.in) {3,758 cc}           |
| Smooth             |     | 1,650 x 2,130 mm (65" x 84") | Rated output           | 110.0 kW / 2,200 min <sup>-1</sup>              |
| Pad                |     | 1,600 x 2,130 mm (63" x 84") |                        | (148 HP / 2,200 min <sup>-1</sup> )             |
| Rear               |     | Tire                         |                        | {150 PS / 2,200 min <sup>-1</sup> }             |
|                    |     | 23.1-26-12PR(OR)             | Max. torque            | 600 N·m / 1,500 min <sup>-1</sup>               |
| <b>Performance</b> |     |                              |                        | (443 ft·lb / 1,500 min <sup>-1</sup> )          |
| Traveling speed    | 1st | 0 - 4 km/h (0 - 2.5 mile/h)  | <b>Tank capacity</b>   |                                                 |
|                    | 2nd | 0 - 6 km/h (0 - 3.7 mile/h)  | Fuel tank              | 200 liters (52.8 gal)                           |
|                    | 3rd | 0 - 10 km/h (0 - 6.2 mile/h) | Hydraulic oil tank     | 53 liters (14.0 gal)                            |

**NOTE :** 1) Gradeability is the calculated value. It may vary with ground surface conditions.

2) According to European Standards (EN500-1, ISO 6165, etc.), the weight are defined as follows.

Operating weight : Fuel=50%, Water=50%, Operator=75kg.

### (5) SV544TB-1



| Model               |  | SV544TB-1                    |  | Performance                            |  |
|---------------------|--|------------------------------|--|----------------------------------------|--|
| <b>Weight</b>       |  |                              |  |                                        |  |
| Operating weight    |  | 12,260 kg (27,030 lbs)       |  | Gradeability                           |  |
| On front axle       |  | 7,180 kg (15,830 lbs)        |  | Compaction width                       |  |
| On rear axle        |  | 5,080 kg (11,200 lbs)        |  | Minimum turning radius                 |  |
| <b>Dimension</b>    |  |                              |  | <b>Vibrating power</b>                 |  |
| Overall length      |  | 6,365 mm (251")              |  |                                        |  |
| Overall width       |  | 2,500 mm (98")               |  |                                        |  |
| Overall height      |  | 3,105 mm (122")              |  |                                        |  |
| Wheelbase           |  | 2,970 mm (117")              |  |                                        |  |
| Wheel               |  |                              |  |                                        |  |
| Front               |  | Roll (dia. x width)          |  |                                        |  |
| Pad                 |  | 1,600 x 2,130 mm (63" x 84") |  |                                        |  |
| Rear                |  | Tire                         |  |                                        |  |
|                     |  | 23.1-26-12PR(OR)             |  |                                        |  |
| <b>Performance</b>  |  |                              |  | <b>Engine</b>                          |  |
| Traveling speed 1st |  | 0 - 4 km/h (0 - 2.5 mile/h)  |  | Model                                  |  |
| 2nd                 |  | 0 - 6 km/h (0 - 3.7 mile/h)  |  | CUMMINS "F3.8" Diesel engine           |  |
| 3rd                 |  | 0 - 10 km/h (0 - 6.2 mile/h) |  | with turbo charger                     |  |
|                     |  |                              |  | Total displacement                     |  |
|                     |  |                              |  | 3.758 liters (229.0 cu.in) {3,758 cc}  |  |
|                     |  |                              |  | Rated output                           |  |
|                     |  |                              |  | 110.0 kW / 2,200 min <sup>-1</sup>     |  |
|                     |  |                              |  | (148 HP / 2,200 min <sup>-1</sup> )    |  |
|                     |  |                              |  | {150 PS / 2,200 min <sup>-1</sup> }    |  |
|                     |  |                              |  | Max. torque                            |  |
|                     |  |                              |  | 600 N·m / 1,500 min <sup>-1</sup>      |  |
|                     |  |                              |  | (443 ft·lb / 1,500 min <sup>-1</sup> ) |  |
|                     |  |                              |  | <b>Tank capacity</b>                   |  |
|                     |  |                              |  | Fuel tank                              |  |
|                     |  |                              |  | 200 liters (52.8 gal)                  |  |
|                     |  |                              |  | Hydraulic oil tank                     |  |
|                     |  |                              |  | 53 liters (14.0 gal)                   |  |

**NOTE :** 1) Gradeability is the calculated value. It may vary with ground surface conditions.

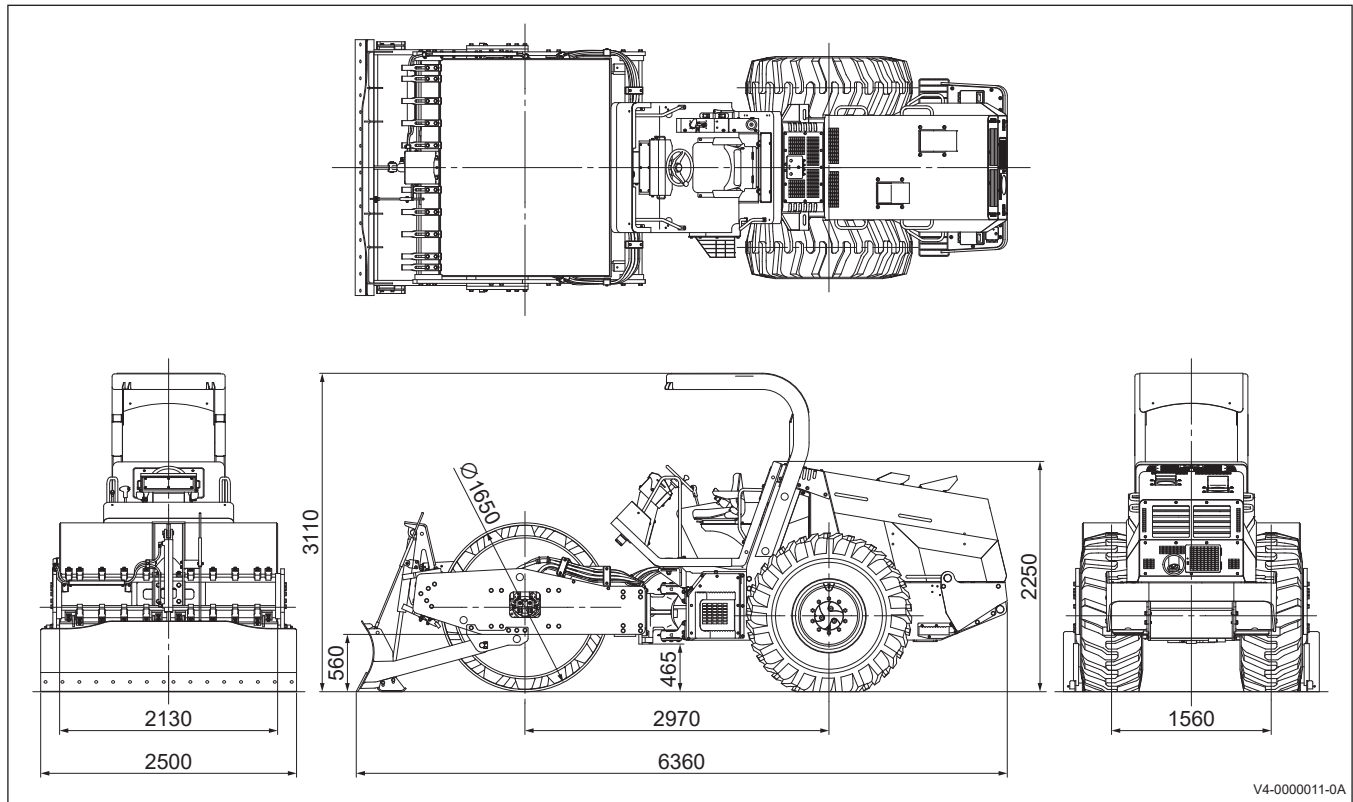
2) According to European Standards (EN500-1, ISO 6165, etc.), the weight are defined as follows.

Operating weight : Fuel=50%, Water=50%, Operator=75kg.



## 4 SPECIFICATIONS

### (6) SV544FB-1



| Model              |     | SV544FB-1                    | Performance            |                                                 |
|--------------------|-----|------------------------------|------------------------|-------------------------------------------------|
| <b>Weight</b>      |     |                              |                        |                                                 |
| Operating weight   |     | 14,530 kg (32,035 lbs)       | Gradeability           | 63 % (32°)                                      |
| On front axle      |     | 9,500 kg (20,945 lbs)        | Compaction width       | 2,130 mm (84")                                  |
| On rear axle       |     | 5,030 kg (11,090 lbs)        | Minimum turning radius | 5.5 m (217")                                    |
| <b>Dimension</b>   |     |                              | <b>Vibrating power</b> | <b>Low</b> <b>High</b>                          |
| Overall length     |     | 6,360 mm (250")              | Frequency              | 33.3 Hz (2,000 vpm) 28.8Hz (1,730 vpm)          |
| Overall width      |     | 2,500 mm (98")               | Centrifugal force      | 150 kN (33,720 lbs) 255 kN (57,325 lbs)         |
| Overall height     |     | 3,110 mm (122")              |                        | {15,295 kgf} {26,000 kgf}                       |
| Wheelbase          |     | 2,970 mm (117")              | <b>Engine</b>          |                                                 |
| Wheel              |     |                              | Model                  | CUMMINS "F3.8" Diesel engine with turbo charger |
| Front              |     | Roll (dia. x width)          | Total displacement     | 3.758 liters (229.0 cu.in) {3,758 cc}           |
| Smooth             |     | 1,650 x 2,130 mm (65" x 84") | Rated output           | 110.0 kW / 2,200 min <sup>-1</sup>              |
| Pad                |     | 1,600 x 2,130 mm (63" x 84") |                        | (148 HP / 2,200 min <sup>-1</sup> )             |
| Rear               |     | Tire                         |                        | {150 PS / 2,200 min <sup>-1</sup> }             |
|                    |     | 23.1-26-12PR(OR)             | Max. torque            | 600 N·m / 1,500 min <sup>-1</sup>               |
| <b>Performance</b> |     |                              |                        | (443 ft·lb / 1,500 min <sup>-1</sup> )          |
| Traveling speed    | 1st | 0 - 4 km/h (0 - 2.5 mile/h)  | <b>Tank capacity</b>   |                                                 |
|                    | 2nd | 0 - 6 km/h (0 - 3.7 mile/h)  | Fuel tank              | 200 liters (52.8 gal)                           |
|                    | 3rd | 0 - 10 km/h (0 - 6.2 mile/h) | Hydraulic oil tank     | 53 liters (14.0 gal)                            |

**NOTE :** 1) Gradeability is the calculated value. It may vary with ground surface conditions.

2) According to European Standards (EN500-1, ISO 6165, etc.), the weight are defined as follows.

Operating weight : Fuel=50%, Water=50%, Operator=75kg.



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