

**▲ Read this handbook thoroughly and understand the whole information contained before trying to operate, inspect and service your machine!**

**OPERATING &  
MAINTENANCE  
INSTRUCTIONS**

**VIBRATING  
ROLLER**

**MODEL**

**SW800-II**

**SW850-II**

**SW850ND-II**

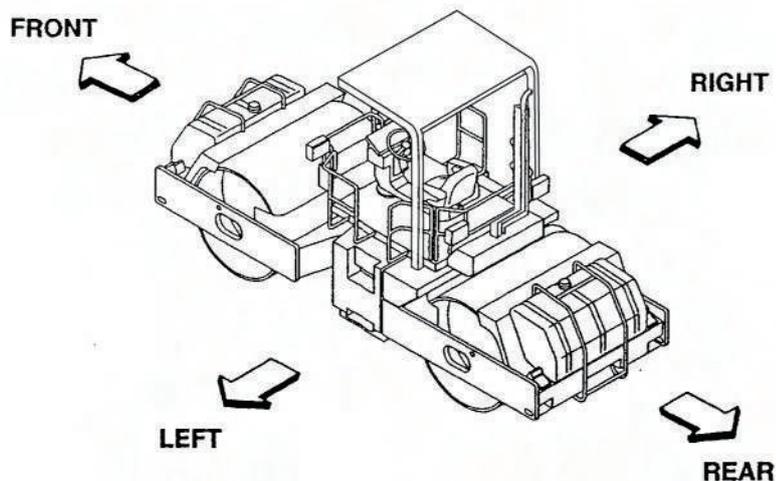
## PREFACE

This operator's manual serves as a guide for the use of your Sakai SW800-II, SW850-II and SW850ND-II Vibrating Roller for 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.

Read this manual thoroughly and try to fully understand the information before operating your machine. Keep this handbook at hand whenever you do your work.

The main subjects of this manual are:

(1) Basic precautions for safety, (2) Operation, (3) Daily 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 machine instructions of your machine due to the results of the investigation and improvement in its design. If you have any inquiry regarding your Machine or this manual, contact our distributors.



**SW800-II**  
**SW850-II**  
**SW850ND-II**

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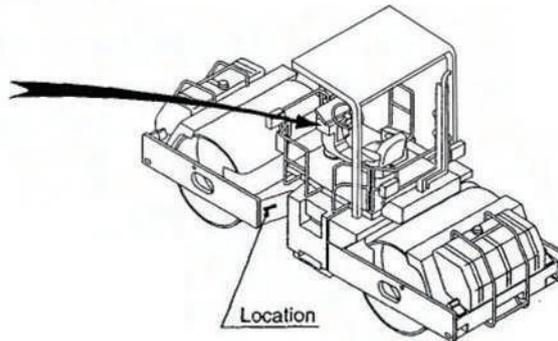
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## MACHINE AND ENGINE IDENTIFICATION NUMBERS

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

**(1) Machine model**

Indicated on the dashboard in the operator's station.



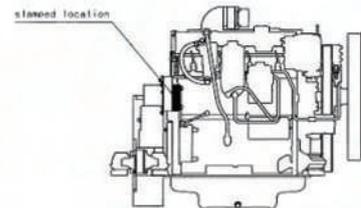
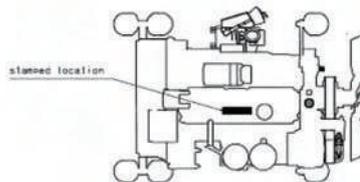
**(2) Machine serial number**

SW800-II-VSW25-○○○○○

SW850-II-4SW56-○○○○○

SW850ND-II-4SW56-○○○○○

**(3) Engine serial number**



## **SAFETY NOTICES**

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 a manner, other than that covered in this manual, you must assume responsibility for your own personal safety.

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

- |  |  |
|--|--|
|  <b>DANGER</b>    | Denotes that there is an extreme hazard. If you fail to take proper precautions, it is highly likely that you could be killed or seriously injured (The color of the symbol  is red). |
|  <b>WARNING</b> | Denotes that there is a hazard. If you fail to take proper precautions, you could be killed or seriously injured (Symbol  is orange).   |
|  <b>CAUTION</b> | Calls attention to safety practices. If you fail to take proper precautions, you could be injured or cause damage to the machine (Symbol  is yellow).                                  |

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

 **WARNING**

**Do not operate your machine before you read its operator's manual thoroughly.  
Incorrect operation can kill or cause injury.  
It is your responsibility to operate the machine safely.**

- ☆ Non-approved modifications can pose safety-related problems. Before making any modifications, consult your distributor. For an injury or damage to the machine caused by non-approved modifications, Sakai accepts no responsibility.
- ☆ Basic precautions for safe operation of your machine are discussed beginning on page 4.
- ☆ To operate and work with your machine, you must be qualified.

**⚠ WARNING:** Negligence of these instructions can lead to accidents.

## 1. BASIC PRECAUTIONS FOR SAFETY

### 1. BASIC PRECAUTIONS FOR SAFETY

#### 1.1 General Precautions

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

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



■ **Obey the worksite rules.**

- Follow the worksite rules such as matters forbidden or to be attended to, and working procedures.

■ **Wear protective clothing to suit the work.**

- Wear 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.
- According to the type of jobs, wear safety goggles or mask.



■ **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 of the machine or collapse of shoulder.

■ **Provide against an accident.**

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

■ **Know the capability of the machine.**

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

**⚠ WARNING:** Negligence of these instructions can lead to accidents.

**1. BASIC PRECAUTIONS FOR SAFETY**

**■ 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 after making sure that it is safe to operate.

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

- Always conduct the work paying attention to the workers around the machine.



**■ Be careful of hot parts.**

- After your machine has operated for some time, the coolant, engine oil and hydraulic fluid will become hot and the pressure will build up. If, in this state, you try to remove the filler caps, drain the oil or replace the filters, you can get burned. Perform this work in accordance with the correct procedures with the machine cooled down.
- To remove the radiator cap, slowly loosen the cap to relieve the pressure with the engine shut down and the coolant cooled down. (For the radiator cap with a lever, lift the lever to release the trapped pressure.)
- When removing the filler cap on the hydraulic tank, release the trapped pressure by turning it out slowly to prevent the oil from gushing out.
- Do not touch the muffler while the engine is running or immediately after it has been shut down. You can get burned.



**■ Be careful with fire.**

- The fuel, oil, and anti-freeze will catch fire if open flames or ignition sources are used close to them. Particularly, the fuel is highly flammable.



- Do not smoke or use a match or cigarette lighter close to inflammables (combustibles).
- When refueling, stop the engine and do not smoke.
- The filler caps of the fuel and oil tanks must be kept tight.



**▲ WARNING:** Negligence of these instructions can lead to accidents.

## 1. BASIC PRECAUTIONS FOR SAFETY

### ■ Mount on or dismount from your machine after it has come to a complete stop.

- For getting on and off, face the machine and use the handrail and step.
- Do not jump on or off a machine, particularly when it is moving.

### ■ To handle the hydraulic fluid.

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



## 1.2 Preparation for Safe Operation

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

- Do not place parts, tools or unnecessary articles on the step, operator's station and floor board.
- Keep the step, floor board, controls and handholds free from muds, oil, ice or water, as they can cause slippage. Repair them if found to be damaged. Tighten loose bolts.
- Keep your boot soles free of oil or muds. They can slip, leading to an accident.

### ■ Inspect your machine before operation

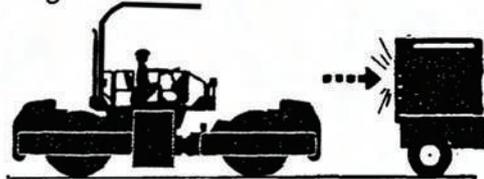
- Check your machine for damage such as cracks and deformation. If found to be abnormal, operate the machine after taking a proper measure to secure safety.
- Check the level of fluids (fuel, engine oil, coolant, anti-freeze and hydraulic oil). Add as necessary.
- Check the area where the machine has parked for signs of leakage of oil, fuel and water. If any leakage is noticeable, determine the cause and make corrections immediately.

**⚠ WARNING:** Negligence of these instructions can lead to accidents.

**1. BASIC PRECAUTIONS FOR SAFETY**

**■ Know the stopping distance.**

- When traveling on a road, bear in mind the stopping distance. Avoid excessive speed, and abrupt starting and stopping, and moving in a zigzag direction.



### 1.3 Before Starting the Engine

**■ 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 depressed to the full extent. Check to be sure that the brake pedal can be fully depressed without difficulty when you twist your body for reverse run.

**■ Secure forward and backward visibilities.**

- Adjust the rear view mirrors and under mirrors for good visibility. If dirty, clean them. If damaged, replace.

**■ Check that the horn, lamps and gauges 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.. Make sure there is no one in the immediate vicinity and there are no obstructions around the machine.



**▲ WARNING: Negligence of these instructions can lead to accidents.**

## **1. BASIC PRECAUTIONS FOR SAFETY**

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

- Exhaust fumes are dangerous if breathed in. When starting the engine in an enclosed area, provide good ventilation with windows and doors opened.



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

- Exhaust fumes are noxious if breathed in.

## **1.4 After Starting the Engine**

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

- Ensure that the area around the machine is clear of personnel and obstructions. Pay particular attention to dead spaces. Before starting, sound the horn.



### **■ Warm up the Engine**

- Do not put your machine into motion immediately after the engine has started, let it idle for several minutes until it is at operating temperature.

### **■ Have a trial run.**

- Make a test run in a safe place to check that there are no abnormal signs. If found to be abnormal, rectify the fault before traveling again.
- Listen for unusual sounds, and check for abnormal temperature rise. If abnormal, park the machine in a safe location and find the source of trouble before operating.

## **1.5 During Operation**

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

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

### **■ Before mounting, be sure areas around the machine are safe.**

- Before getting on the machine, make certain that there are no obstacles around the machine and no workers under it. If some workers are present or close to the machine, tell them that the machine is about to move, warning them to stay away from it.

**▲ WARNING:** Negligence of these instructions can lead to accidents.

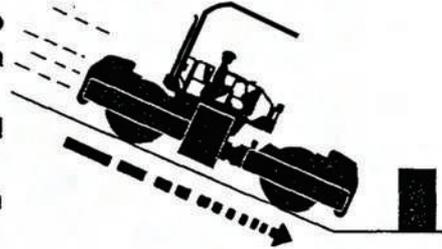
**1. BASIC PRECAUTIONS FOR SAFETY**

**■ Do not try to get on or off a moving machine.**

- Get on or off the machine after making sure it has come to a complete stop.

**■ To go uphill or downhill, run at low speeds. Do not attempt to shift speeds while traveling on a grade.**

- Shifting speeds on a slope can cause unexpected running down the slope.
- Going down hill at speeds other than low range can cause the machine to run down violently.



**■ Refrain from inattentive driving.**

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

**■ When changing the direction of travel, secure the safety on the path in the travel direction.**

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

- When making turns, do not allow anyone to come close to the pinch point.



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

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

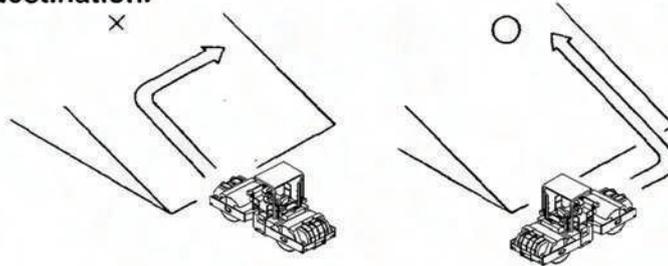
**■ Repair as soon as possible if found to be defective.**

- 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.

**⚠ WARNING:** Negligence of these instructions can lead to accidents.

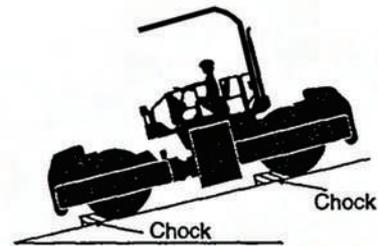
### 1. BASIC PRECAUTIONS FOR SAFETY

- Do not operate the machine except from the operator's seat. Do not drive in a standing posture.
- While making turns, do not run at abnormally high speed and do not turn the steering wheel abruptly and sharply.
- For the traveling on structures such as a bridge, make certain that they 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.
- Do not make turns on a slope and do not travel across sidehill. If necessary to do so, go down straight along the slope to the flat ground, move sideways and go up straight to the destination.



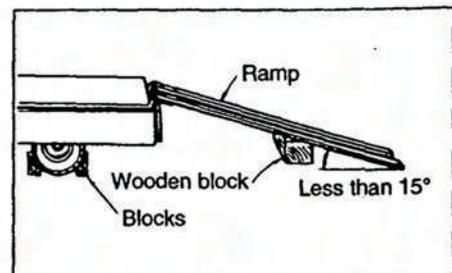
#### ■ When parking.

- Select level and hard ground. If necessary to park on a slope, block the front of the drums on the downside of the slope.
- When required to park on the public road, provide necessary markings such as flag, barriers and illumination. However, be sure they do not obstruct traffic.
- When getting off the machine, stop the engine and remove the key from the ignition switch.



### 1.6 Loading and Unloading

- Loading and unloading can accompany any danger. Use extreme care.
- Select level and hard ground leaving a sufficient distance from the shoulder.
- 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.



**⚠ WARNING:** Negligence of these instructions can lead to accidents.

### 1. BASIC PRECAUTIONS FOR SAFETY

- 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. If the machine is facing in the wrong direction, allow it to dismount from the ramps, correct the direction and try again.
- Do not use kinked, twisted or damaged wireropes for crane or winch operation. Use ones with ample strength.
- When loading is complete, fix the machine with wooden blocks placed under the drums and chains fastened to the machine.

## 1.7 Transportation

- Follow required regulations.
- Select a transporting route according to the overall width, overall height and gross weight of the trailer with the roller loaded.

## 1.8 Handling the Battery

■ When handling the battery:

- Battery electrolyte contains sulphuric acid. It will destroy clothing and skin. If it touches your clothing or skin, flush with large quantities of water.
- In case of eye contact, flush with clean water and seek medical help.
- If swallowed, drink large amount of water, milk, beaten egg or vegetable oil, and get medical help.
- Wear safety goggles when handling the battery. Wear safety goggles, full face shield, rubber gloves and rubber apron when adding fluids to the battery.
- The battery generates flammable gases that can cause an explosion. Do not smoke close to the battery. Keep the battery away from flames, sparks and ignition sources.



### **⚠ WARNING**

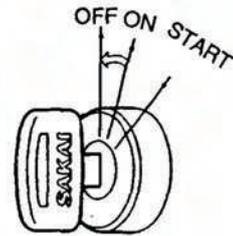
**Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm.**

**Wash hand after handling.**

**▲ WARNING: Negligence of these instructions can lead to accidents.**

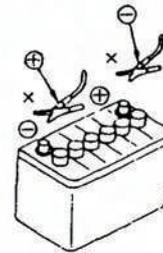
### 1. BASIC PRECAUTIONS FOR SAFETY

- Inspect or handle the battery with the engine shut down and the starter key in the OFF position.
- Keep metallic items such as tools away from the battery terminals.
- Loose terminals can cause sparks leading to an explosion. Secure the terminals tightly.



#### ■ 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 machine body. This can generate dangerous sparks.
- Do not connect the booster cable to wrong terminal. NEVER connect the positive terminal to the negative.
- Final connection to the engine block of the disabled machine can cause sparks. The connecting point should be as far as possible from the battery.



## 1.9 Towing

- To tow the machine, use wire ropes with ample strength.
- Do not perform towing on a slope.
- Do not use towing ropes twisted, kinked or damaged.
- Do not stride towing cables.
- Keep everyone away from the space between the machine and the towing vehicle when connecting the two.
- Align the connecting portions of the machine and towing vehicle straight when coupling the machine.

**▲ WARNING:** Negligence of these instructions can lead to accidents.

**1. BASIC PRECAUTIONS FOR SAFETY**

**1.10 Before Servicing**

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

- Serious accidents can occur if the machine is unexpectedly started or controls carelessly touched by an unauthorized person.
- Attach a warning tag at a clearly visible location in the operator's station and insure the key has been removed from the ignition switch.



**■ Use proper tools.**

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

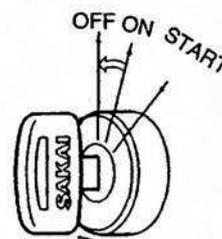


**■ Change safety-related parts at regular intervals.**

- Replace fuel hose and high pressure hydraulic hoses regularly to prevent fire. Replace high pressure hoses of the power steering system every two years.
  - ☆ Change these parts at regular intervals even if found to be normal. They will deteriorate as time goes on.
  - ☆ Change any hose found to be abnormal even if it is within its recommended service interval.

**■ Inspect or service your machine with the engine stopped.**

- If required to keep the engine running in such a case as radiator interior cleaning, perform the work with two persons. One of them should sit on the operator's seat getting ready for shutting down the engine. He must take care not to touch any of controls carelessly. Maintenance personnel must exercise extreme caution not to make contact with moving parts.



**▲ WARNING:** Negligence of these instructions can lead to accidents.

## 1. BASIC PRECAUTIONS FOR SAFETY

### ■ Supplying fuel and oils

- Spilled fuel or oil will be slippery. Wipe up immediately. Keep the filler caps tight. Do not use fuel for flushing oil. Handle fuel and oil in a well ventilated area.

### ■ Check the coolant level in the radiator.

- To check the coolant level, shut down the engine and allow the engine and radiator to cool down.

### ■ Illumination

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



## 1.11 During servicing

### ■ Keep unauthorized persons away

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



### ■ 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 sensors, connectors and the operator's station.

### ■ When repairing the electrical system

- For repairing the electrical system or for conducting welding, disconnect the negative cable from the battery to shut off the electricity.



### ■ Carefully handle high pressure hoses.

- Do not try to bend or hit hoses against a hard object. Do not use hoses or pipes that are bent or damaged. They will burst.
- Replace damaged fuel hose and hydraulic hoses. An oil or hydraulic fluid spill can cause a fire.

**▲ WARNING:** Negligence of these instructions can lead to accidents.

## 1. BASIC PRECAUTIONS FOR SAFETY

### ■ Be careful of high pressure hydraulic fluid.

- Bear in mind that the working equipment hydraulic systems are under internal pressure. Do not perform adding, draining, inspection or servicing of the hydraulic systems until the internal pressure has been relieved. Hydraulic fluid leaking through a fine hole at high pressure can penetrate your skin and eyes. Inspect leakage by holding a hard board close to suspected leaks wearing goggles. If affected by high pressure oil, get medical help immediately.



### ■ Be careful of hot parts

- After the machine has been operated for some time, the coolant, engine oil and hydraulic fluid will become hot.
- Removing the radiator cap or draining the coolant or oil can burn you. Perform this work in accordance with correct procedures after the systems have cooled down.



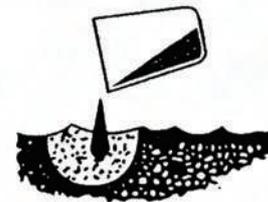
### ■ Use care when inspecting or servicing fan or belts in motion

- Secure loose clothing and keep articles away that could get caught in moving parts.
- Do not let your body or tools make contact with the fan blades or belts. They can be cut seriously.



### ■ Used oil disposal

- Do not throw 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 all local, state and federal environment regulations for the proper disposal of oil, fuel, coolant, battery electrolyte or any other fluids.



**▲ WARNING: Negligence of these instructions can lead to accidents.**

**1. BASIC PRECAUTIONS FOR SAFETY**

**1.12 Safety Decals**

Keep all decals clean. If lost, replace with new one. There are decals other than those shown below: Treat them in the same manner as the one shown here.

① 3998-16504-0

<b>▲ WARNING</b>
<p><b>1. When Handling the Machine:</b>          · Operate only while seated.          · Use the handrails and steps when boarding and getting off.          · Never carry passengers.          · Never attempt to board or get off the machine while it is moving.</p> <p><b>2. Preparation for Safe Operation</b>          · Clean the steps, operator's station and floorboards.          · Obey the worksite rules.          · Sakai accepts no responsibility for any injury or damage to the machine caused by unapproved modification.          · Do not use a machine which needs repair or maintenance.          · Sound the horn immediately prior to starting the engine to warn people in the vicinity.</p> <p><b>3. Starting the Engine</b>          · Check that all operating levers are in the neutral position.          · Idle the engine for about 5 minutes to warm it up prior to commencing work.</p> <p><b>4. Parking Precautions</b>          · When parking the machine, park it on level ground, set the parking switch and set the roller chocks.          · Allow the engine to cool off by running it for about 5 minutes before stopping.          · When getting off the machine, remove the key from the ignition switch.</p> <p style="text-align: right;"><small>3998-16504-0</small></p>

② 3998-16499-0

<b>▲ WARNING</b>
<p>· Do not open the hood with the engine running.          · Contact with hot parts will cause burns.          · Contact with rotating parts will cause severe injury.</p> <p style="text-align: right;"><small>3998-16499-0</small></p>

③ 3998-16500-0 (2 locations)

<b>▲ WARNING</b>
<p>· Avoid inhalation of exhaust gas.          · Avoid contact with exhaust pipe while engine is running and after it has been stopped. Contact with hot exhaust pipe will cause burns.</p> <p style="text-align: right;"><small>3998-16500-0</small></p>

④ 3998-16497-1

<b>▲ WARNING</b>
<p>· Do not operate your machine before you read its operator's manual thoroughly.          · Incorrect operation can cause severe injury or death.          · It is your responsibility to operate the machine safely.</p> <p style="text-align: right;"><small>3998-16497-1</small></p>

⑤ 3998-16502-0

<b>▲ DANGER</b>	
	<p>· Do not approach, or allow objects to touch, the rotating parts.          · Body parts contacting rotating mechanism will be severed.</p>
	<p>· Do not open the radiator cap when fluid is hot.          · Radiator fluid is flammable. Avoid exposure to flame when radiator cap has been removed.</p>
	<p>· Avoid contact with the machine parts in the vicinity of the engine while engine is running and after it has been stopped. Contact with hot parts will cause burns.</p> <p style="text-align: right;"><small>3998-16502-0</small></p>

⑥ 3998-16505-0

<b>▲ DANGER</b>	
	<p><b>Roll Over Prevention</b>          · Do not work in the vicinity of overhanging banks, or on grades steep enough to cause the machine to slide or roll over.          · Reduce speed prior to making turns.          · Pay particular attention when operating on uneven surfaces, as the machine may become unstable.</p> <p style="text-align: right;"><small>3998-16505-0</small></p>

⑦ 3998-36002-0 (2 locations)



⑧ 3998-16501-0

<b>▲ DANGER</b>
<p><b>Be Careful with Fire</b>          · When refueling, stop the engine and do not do not smoke.          · The filter cap of the fuel tank must be kept tight.</p> <p style="text-align: right;"><small>3998-16501-0</small></p>

⑨ 3998-06139-0



⑩ 3998-16510-0

<b>▲ CAUTION</b>
<p>Refill the specified quantity of oil in the vibrator case when changing oil.</p> <p style="text-align: right;"><small>3998-16510-0</small></p>

⑪ 3998-16507-0

<b>▲ CAUTION</b>
<p>Grease all nipples daily prior to commencing work.</p> <p style="text-align: right;"><small>3998-16507-0</small></p>

⑫ 3998-16489-0

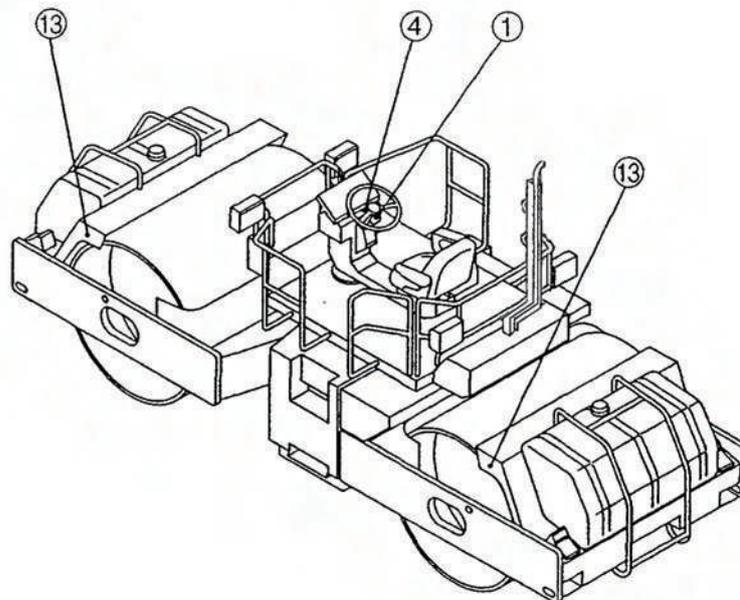
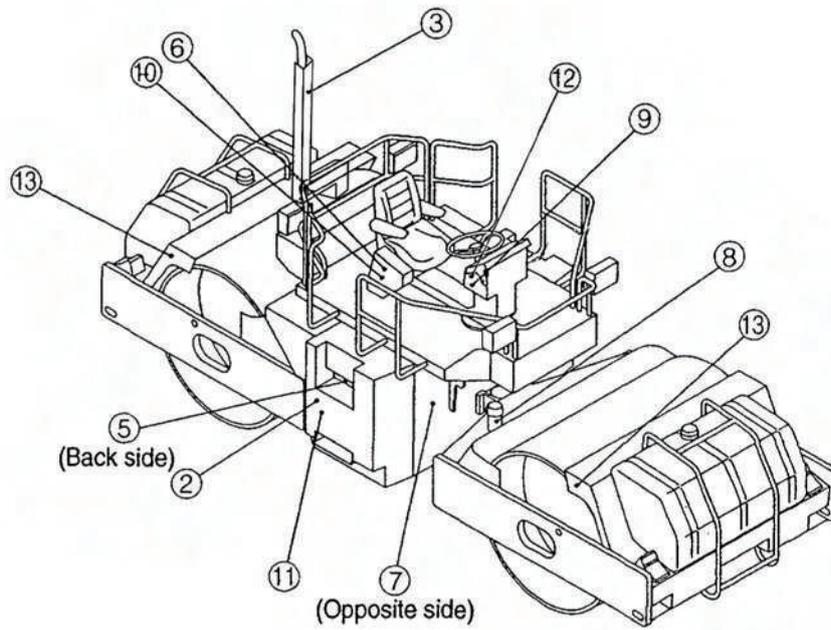
<p><b>CALIFORNIA</b>          Proposition 65 Warning          Diesel engine and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.</p>
--

⑬ 3998-16547-0(4 locations)

<b>▲ WARNING</b>
<p>Take care to avoid striking of heads or fingers when closing this cover.</p> <p style="text-align: right;"><small>3998-16547-0</small></p>

**⚠ WARNING: Negligence of these instructions can lead to accidents.**

**1. BASIC PRECAUTIONS FOR SAFETY**

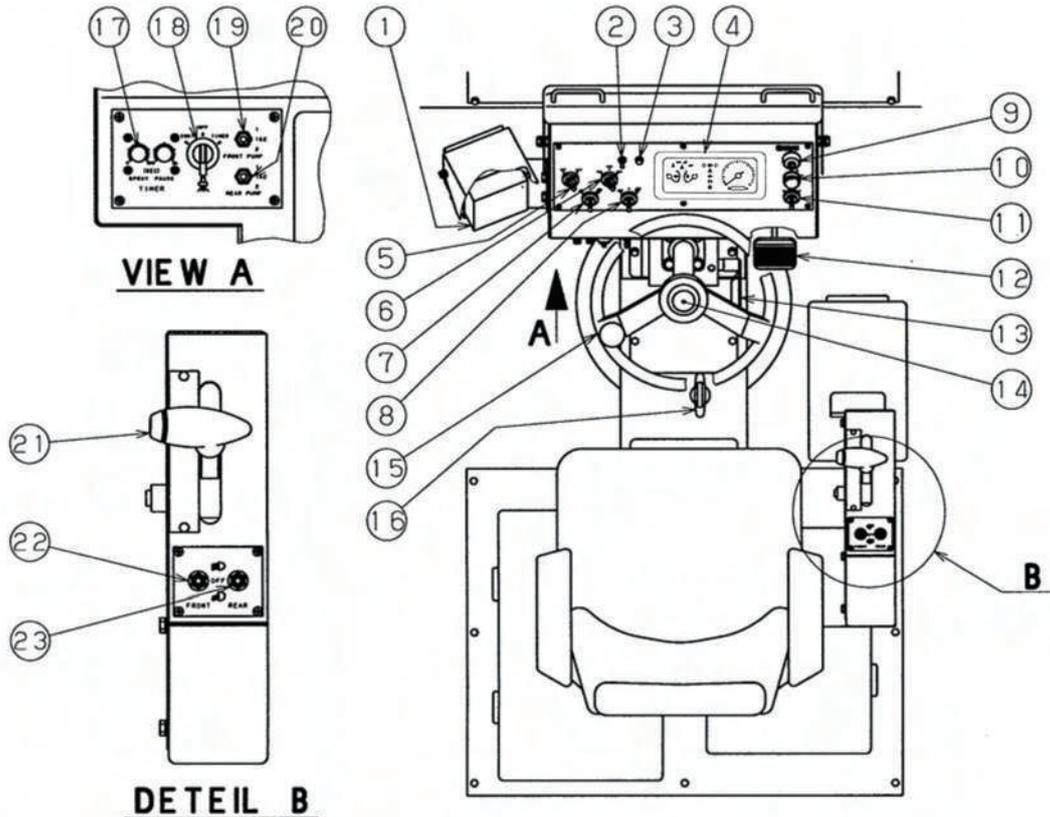


## 2. OPERATION

### 2. OPERATION

#### 2.1 Instruments and Controls

##### 2.1.1 Operator's station

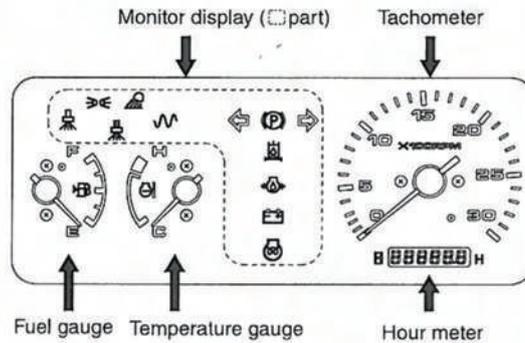


- |  |   |
|--|---|
| ① Impact meter (option)  | ⑨ Parking brake switch                                      |
| ② Diagnostic switch  | ⑩ Starter switch  |
| ③ Engine check lamp  | ⑪ Throttle switch   |
| ④ Combination meter  | ⑫ Brake pedal   |
| ⑤ Vibration mode selector switch<br>(for SW800-II, SW850-II)<br>Vibration CONT-OFF-AUTO selection<br>switch (for SW850ND-II) | ⑬ Steering wheel tilt lever                                 |
| ⑥ Vibration frequency selector switch<br>(for SW800-II, SW850-II)<br>N/A (for SW850ND-II)                                    | ⑭ Horn switch   |
| ⑦ Vibrator switch (Front wheel)<br>(for SW800-II, SW850-II)<br>Vibration Drum selector switch<br>(for SW850ND-II)            | ⑮ Steering wheel  |
| ⑧ Vibrator switch (Rear wheel)<br>(for SW800-II, SW850-II)<br>Vibration type selector switch<br>(Osc./Vib.)(for SW850ND-II)  | ⑯ Swivel lock lever   |
|  | ⑰ Sprinkler timer   |
|  | ⑱ Sprinkler CONT-TIMER elector switch                       |
|  | ⑲ Front spray pump switch                                   |
|  | ⑳ Rear spray pump switch                                    |
|  | ㉑ Forward-Reverse lever (F-R lever)<br>with vibrator switch |
|  | ㉒ Lamp switch   |
|  | ㉓ Flood lamp switch   |

### 2.1.2 Gauges, indicator lamps and warning lamps

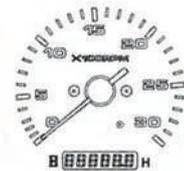
For safe execution of your job, fully understand the role and function of the systems involved.

#### Combination meter



#### Tachometer / Hour meter

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



Tachometer / Hour meter

#### Temperature gauge

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



Temperature gauge

#### Fuel gauge

Indicates the fuel level in the tank.

E: The tank is empty.

F: The tank is full.

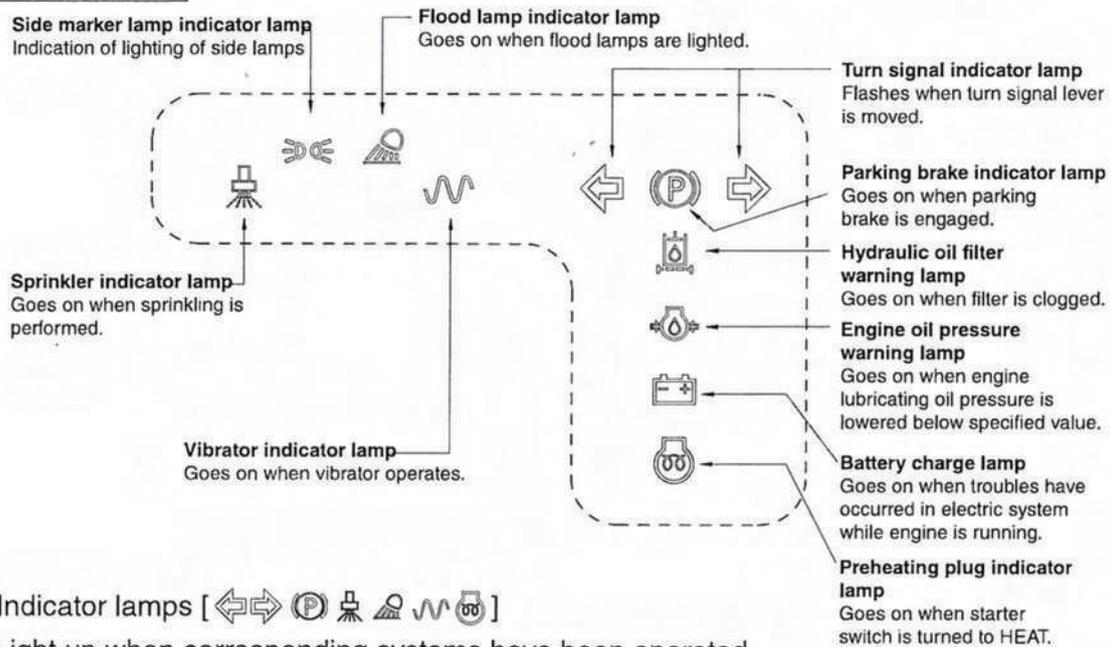
Replenish fuel appropriately before the fuel runs down.



Fuel gauge

## 2. OPERATION

### Monitor display



★ Indicator lamps [      ]

Light up when corresponding systems have been operated.

★ Warning lamps [    ]

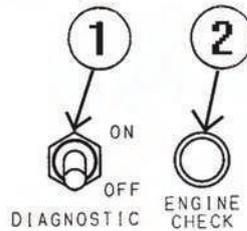
Go on when the starter switch is turned to the ON position and go off when the engine has started. If any of them lights up while the engine is running, this indicates a faulty condition. Stop the engine and trace the source of trouble.

- = Checking for warning lamp and parking brake indicator lamp =  
They should turn on light when the starter switch in ON position.  
If not, there is some trouble.  
Check and repair the combination meter or wiring harness.

### ⚠ CAUTION

- Hydraulic oil filter warning lamp may go on when the engine rpm is increased before the engine has been warmed up enough. Keep the engine idling until the lamp goes off, before starting your work.
- The engine check lamp lights up when the start switch is turned "ON," and it goes out when engine check finishes. If the engine check lamp will not go out during engine start-up or if it lights up during driving, the engine has failed or some error has occurred. Examine the cause.
- The boost temperature lamp lights up when the supercharging temperature is high. Examine the cause when the lamp lights up. (Air cleaner clogging, etc.)
- If the vibration error lamp lights up, operation with the required number of vibrations may be impossible. Contact our sales agency or the specified service shop. (Only SW770HF)
- The window of the combination meter may become invisible because of aged deterioration caused by fine sand or dust or ultraviolet-ray. When any flaw or mist is found on the window, contact our branch offices or designated factory.

### 2.1.3 ENGINE CHECK LAMP



With the diagnosis button ① the fault can be read out as a blink code. The diagnosis button ① and the fault light ② can be found on the vehicle driving stand.

Faults are indicated by a blinking or continuous illumination of the fault light ②.

More precise information regarding all existing faults can be read out in the form of a blink code, only when the engine is not running, in the following manner:

After actuating the diagnosis button ① for at two second, the fault light ② goes out and the first fault is, after releasing the key displayed as a blink code. Analyse the blink code as per the table on the engine manual. After the fault blink code has been displayed the fault light ② goes out for five seconds.

Then the next existing fault (i.e. the following one in the fault memory) can be shown by actuating the diagnosis button ① again. If the last existing fault has been shown, by actuating the diagnosis button ① once more the first fault will be shown again.

#### Examples

Blink code	Function / Component	Service
1-3-6	Monitoring air filter	Clean or replace element
2-2-8	Monitoring fuel filter water level	Drain water
2-3-5	Monitoring coolant state	Add coolant necessary

The blink code values in the first column indicate the number of preliminary short blink signals (illuminated duration approx. 0.4 s), the number of subsequent long blink signals (illuminated duration approx. 0.8 s) as well as the number of concluding short blink signals. The code 1-3-6 for the fault "Monitoring air filter" is made up of one short, three long and six short blink signals, for example.

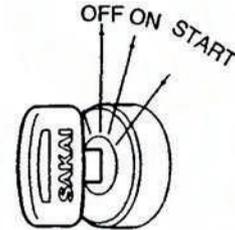
Other possible blink codes, their meaning and measures for correcting faults can be found in the table on the engine manual.

If a fault cannot be corrected by the measures given in the table please contacts your service representative responsible.

### 2.1.4 Switches

#### Starter switch

Starts and stops the engine.



**OFF:** 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.

**ON:** The charging circuit and lamp circuit are charged with electricity. Let the key stay in this position after the engine has started.

**START:** The engine is cranked and gets started. The moment the engine has started, release the key. It will automatically return to the ON position.

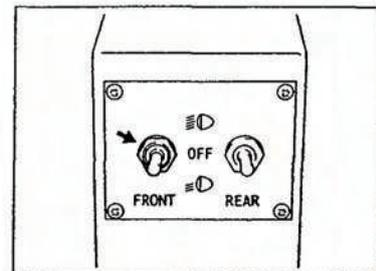
#### Lamp switch

Has three positions.

**OFF:** All lamps are switched off.

☰☉ : Head lamp low beam and combination meter lamp go on.

☰☉ : Head lamp high beam goes on.



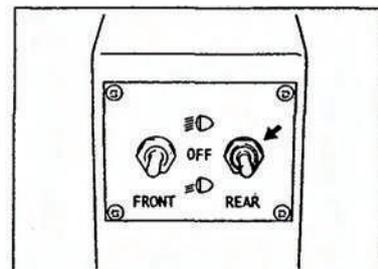
#### Flood lamp switch

Has three positions.

**OFF:** All lamps are switched off.

☰☉ : Flood lamp low beam and indicator lamp of OK Monitor display go on.

☰☉ : Flood lamp high beam goes on.

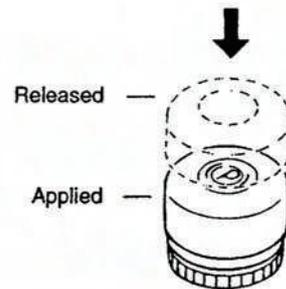


**2. OPERATION**

**Parking brake switch**

If switch (P) is pressed down, the parking brake applies with the indicator lamp (P) on the monitor display lighted up.

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

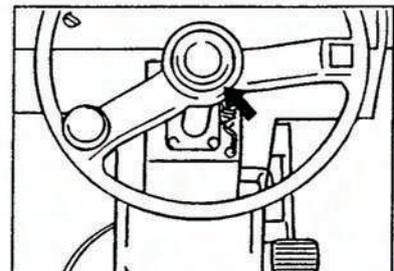


- ⚠ WARNING**
- To disengage the brake, be sure to press the button again instead of pulling it.
  - When dismantling from the machine, press the button to apply the brake without fail.
  - To make an emergency stop of your roller, be sure to use brake pedal.

- ⚠ CAUTION**
- Never pull the switch up.

**Horn switch**

Pressing the button at the center of the steering wheel makes the horn sound.



**Vibrator switch**

Shuts off vibration and selects drums. (for SW880-II & SW850-II)

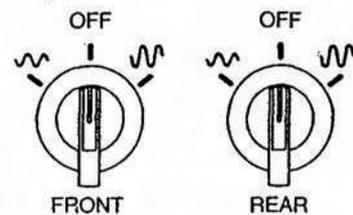
∩ (Front): The front drum vibrates.

∩ (Rear): The rear drum vibrates.

∩ : High amplitude vibration.

OFF: Vibration is shut down.

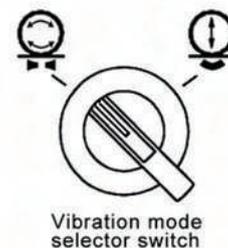
∩ : Low amplitude vibration.



Select ordinary or oscillational vibration. (only SW850ND-II)

⊕ : Ordinary vibration

⊕ : Oscillational vibration



## 2. OPERATION

Select vibration drum mode.(only SW850ND-II)

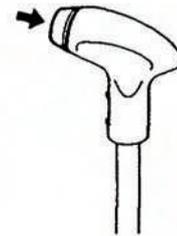
 : The front drum vibrates.

 : The front and rear drums (both drums) vibrate.

 : The rear drum vibrates.



The vibrator switch mounted on the F-R lever also shuts off vibration. When vibration switch (SW850ND-II:vibration CONT-OFF-AUTO switch.) remains OFF, even operating the switch on F-R lever does not cause vibration to start. Make sure that the vibration switch is in either “” or “” position(SW850ND-II:vibration CONT-OFF-AUTO switch “CONT” or “AUTO” position.), before operating the switch on the F-R lever.



### NOTE:

- For vibratory compaction, select “FULL” position of throttle switch.

### IMPORTANT

- 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.
- Shut off the vibrator immediately when the machine has been caught in the mud during vibratory operation.

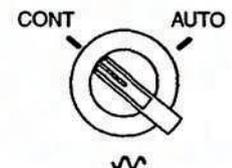
### Vibration mode selector switch

Selects choices; CONT mode and AUTO mode.  
Select either mode to meet the job requirements.

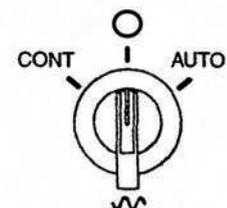
CONT mode: With the selector switch in the CONT position, select “” or “” (“” or “” for SW850ND-II)with the vibrator switch. The front or rear drum or both will start vibrating.

OFF mode: Shuts off vibration.(only SW850ND-II)

AUTO mode: Select “” or “” (“” or “” for SW850ND-II) with the vibrator switch. Shift the F-R lever forward or back-ward as desired. The moment the machine has started, the vibrator automatically goes into action. The vibrator stops automatically if the F-R lever is brought back to neutral.



SW800-II/SW850-II



SW850ND-II

## 2. OPERATION

### Vibration frequency selector switch

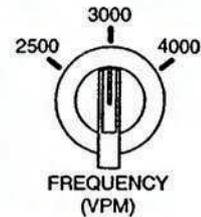
Allows to select vibration frequency. Select it in accordance with condition of the working site.

" 2500 " : Vibration is actuated at 2500vpm.

" 3000 " : Vibration is actuated at 3000vpm.

" 4000 " : Vibration is actuated at 4000vpm.

If either one of the vibration switches (front or rear) is in "∩" position (high amplitude stage), vibration take place at 3000vpm.



### NOTE:

Travel speed for vibrating compaction is optimum at 2.5-4.5 mph.

Actual selection however should be made in accordance with conditions of work site.

### Sprinkler switch / Sprinkler timer / Sprinkler indicator lamp

Switch (A) selects the sprinkler modes.

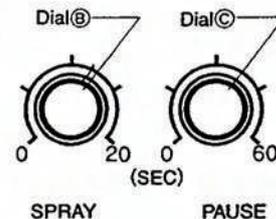
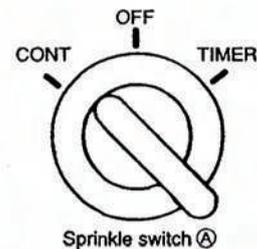
CONT : Continuous sprinkling is performed.

OFF : Sprinkling is shut off.

TIMER: Intermittent sprinkling takes place.

For the intermittent sprinkling, set the sprinkler timer at the desired sprinkling duration and idling duration (Sprinkling dial (B), idling dial (C) ). Then turn switch (A) to the TIMER position. Sprinkling will start.

Sprinkling duration can be adjusted within 0 ~ 20 seconds with dial (B). Idling duration can be set within 0 ~ 60 seconds by turning dial (C). Adjust the dials to meet job conditions.



The sprinkler indicator lamp stays bright as long as the sprinkling is being performed.

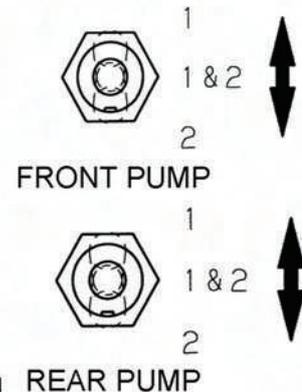
## 2. OPERATION

### Front spray pump switch /Rear spray pump switch (sprinkler)

Two sprinkling pumps are attached to front and rear each on a machine, and this switch is a select switch of a sprinkling pump.

There are three positions at a switch. Allows to select sprinkling pump. Select it in accordance with condition of the working site.

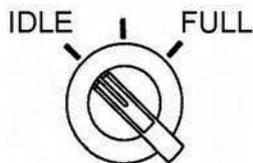
- " 1 " :Enable #1 pump
- " 1&2 " :Enable #1&#2 pump
- " 2 " :Enable #2 pump



### INFORMATION

Amount of sprinkling water may be increased twice, therefore sprinkling time maybe become a half.

### Throttle switch



Allows to select engine speed. Select it in accordance with condition of the working site.

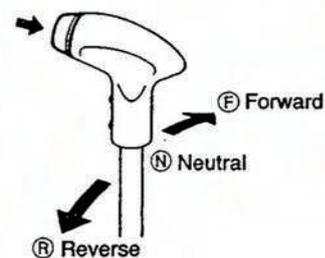
- "IDLE" :Warm up the engine
- "MIDDLE" :Propel the vehicle
- "FULL" :Propel the vehicle with vibration

### 2.1.5 Operating levers / pedals

#### Forward-reverse lever (F-R lever) with vibrator switch

Moving the F-R lever forward or backward makes the machine travel forward or backward respectively. The neutral position brings the machine to a stop. The vehicle speed increases or decreases in proportion to the lever displacement.

The vibrator ON-OFF control is easily made by the F-R lever top vibrator switch (See page 23).



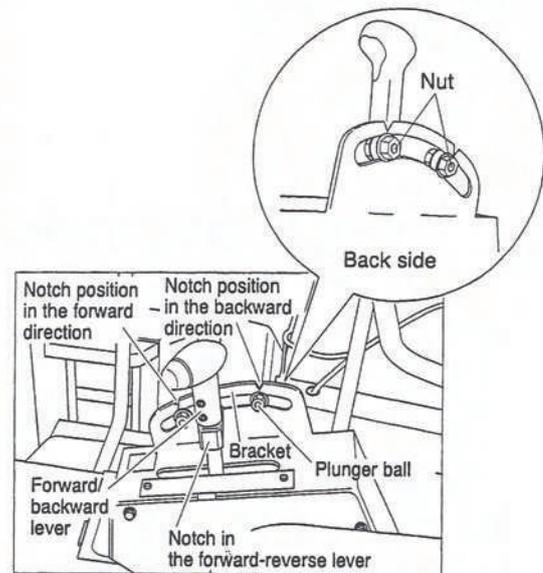
### IMPORTANT

- For normal braking, return the F-R lever back to neutral.
- In an emergency, depress the brake pedal. More powerful braking will take place.
- The reversible travel lever returns to neutral (N) position and brake is applied.

### Speed control mechanism of forward - reverse lever

When the forward - reverse lever is moved forward from the neutral position, the speed of vehicle increases. However, the plunger ball fixed the bracket by the nut enters the notch in the forward - reverse lever during operation, making you feel some resistance, and you can stop the forward - reverse lever at that position to keep the vehicle speed constant.

The position of the plunger ball and the strength of resistance can be changed in the following manner.



#### Control method

- (1) Loosen the nut that is fixing the plunger ball to the bracket.  
(Plunger balls are provided separately in the forward and backward directions.)
- (2) Move the respective plunger balls in the desired direction.  
Vehicle speed in the forward - reverse directions when the center of the notch in the bracket coincides with the plunger ball  
(set before shipment from the factory):  
**SW800-II** — 7.5 km / h (4.7 mile / h)
- (3) Change of the strength of resistance when the plunger ball enters the notch.  
When the plunger ball is moved toward the lever side — increasing the resistance  
When the plunger ball is moved away from the lever side — decreasing the resistance
- (4) After setting the plunger ball position and the strength of resistance, tighten the nut to set the plunger ball position.

## 2. OPERATION

### Brake pedal

In an emergency, push down on the pedal to the full extent, and the machine will come to a sudden stop.

### IMPORTANT

**Do not use the pedal wherever practicable except for an emergency. If used during the compacting operation of asphalt pavement, this can cause damage to its surface.**

**NOTE:** Depressing the brake pedal brings the F-R lever into neutral (N).

### Unloader valve

Lift the cover on the left side of the roller and you will find unloader valve.

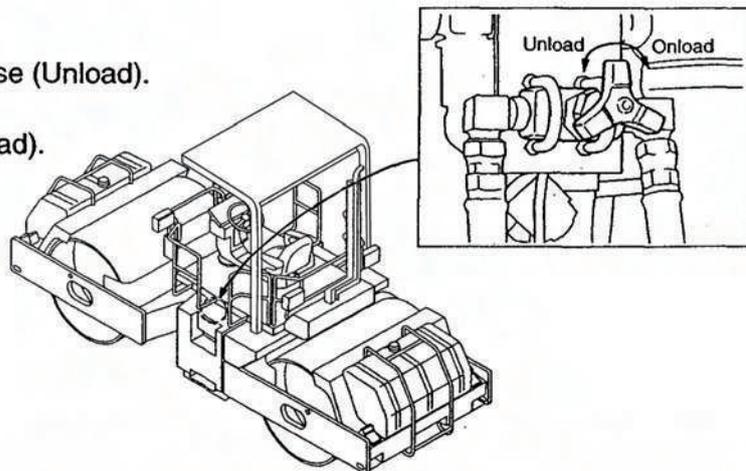
The unloader valve disengages the drive, playing a role like a clutch. Use this valve for towing the machine when the engine is disabled or when troubles have developed in the hydraulic drive.

For towing:

Turn the valve counter-clockwise (Unload).

For normal traveling:

Turn the valve clockwise (Onload).



### ⚠ WARNING

- On a slope, chock the wheels and use extreme care when handling the unloader valve and towing the machine.
- Be sure to apply the parking brake when operating the unloader valve.

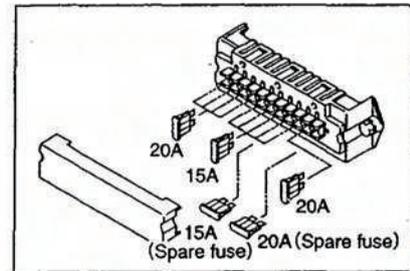
**NOTE:** For normal travel, be sure to hold the valve in the ONLOAD position.

## 2.1.6 Fuse box

**⚠ WARNING**

When changing a fuse, cut the power supply by turning the starter switch to the OFF position.

Fuses protect electrical components and wiring from burning. Change any fuse which has become powder-coated due to deterioration or which has a play between it and fuse holder. To replace fuses, take off the cover. Be sure to use fuses of correct capacity.



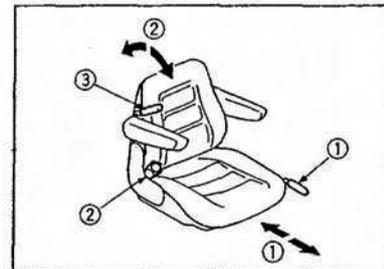
## 2.2 Handling and Adjustments

## 2.2.1 Seat adjustment

Adjust the seat for your best operating position. Move the lever as shown by arrow. With the lever held in that position, slide the seat forward or backward as desired. When properly adjusted, release the lever.

Adjust your seat position to suit you as follows:

- 1) Pull the lever ① and adjust seat position longitudinally.
- 2) Turn the backrest adjust dial ② for optimum angle.
- 3) Move the suspension lever ③ to select suitable suspension for your body weight.

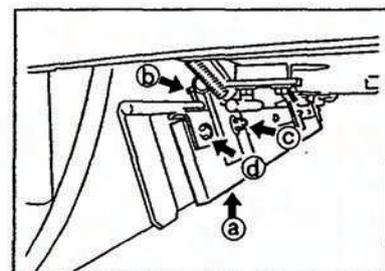
**⚠ WARNING**

The adjustment will be necessary when operating the machine first or when operators are alternated.

## 2.2.2 Scraper adjustment and replacement

## Scraper

- 1) Adjusting the gap between scraper blade ① and roll:
  - ① Loosen set bolt ② at 2 locations.
  - ② With nut ③ loosened, eliminate the clearance between scraper ① and roll before tightening the nut ③ again.
  - ③ Make fine adjustment of the gap between scraper blade ① and roll by means of set bolt ②.



## 2. OPERATION

### 2) Replacing the scraper blade:

- ① Remove bolt and nut ④ at 7 locations.
- ② Replace scraper blade ③ with new one.
- ③ Reinstall and tighten the bolts and nuts ④.

#### ⚠ WARNING

Use care not to get your fingers caught between the scraper blade and drum.

### 2.2.3 Disengaging the brake when towing

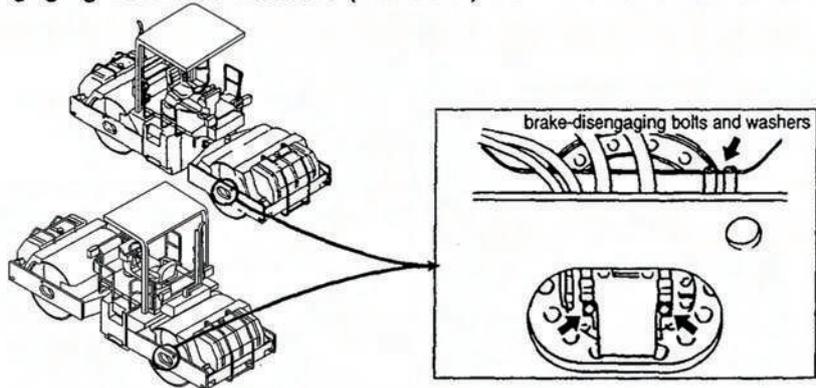
#### ⚠ WARNING

On a slope, chock the drums and prepare for towing before disengaging the brake.

For towing the machine when the engine is disabled or when troubles have developed in the hydraulic system for propulsion, disengage the brake as instructed below:

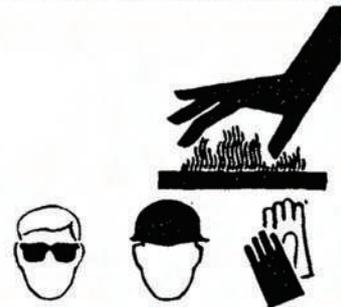
Use the same procedure for both front and rear roll.

- ① Remove the brake-disengaging bolts and washers (two each) from the machine frame.



#### ⚠ WARNING

- Do not try to release the brake immediately after a hot engine has been stopped. Let the oil cool down.
- For the brake disengagement, wear hard hat and safety goggles and protector glove.



- ② Remove the plugs (2 locations) from the motor.

**NOTE:** Conduct the work rapidly, as the oil will gush out when the plugs are taken off.

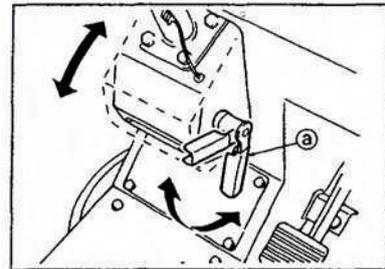
- ③ Screw in the removed bolts with the washers into the plug holes alternately. Screwing in them until they become a little tight will disengage the brake.

**NOTE:** Wash clean the brake release bolts and blank plugs before fitting to the motors.

- ④ After towing, replace the bolt and washer to original position and tighten the plug securely to the motor.

#### 2.2.4 Steering wheel position adjustment

- ① Pull the lever ① upward. Doing so disengages the lock off the wheel.
- ② Adjust and set the wheel for your operating ease.
- ③ Lower the lever ① to have the wheel locked.

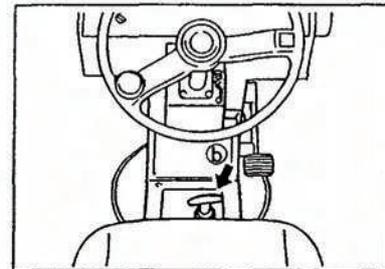


#### 2.2.5 Dashboard position adjustment

Dashboard rotates by 60 and 90 degrees, clockwise or counterclock-wise.

Set it at desired angle to allow you to easily watch roll edge during work.

- ① While pulling up the swivel lever ①, rotate the dashboard by pushing it with your hand.
- ② Soon as it starts rotating, release the swivel lever ① and continue to push the dashboard. At 60 degrees, it will be automatically locked.
- ③ Continuing the same action while pulling up the swivel lever ① further, causes the dashboard to be locked automatically at 90 degrees.



#### ⚠ CAUTION

Working while making turn or not completely locked may lead to unexpected accident. Make sure that lock is complete before starting to work.

## 2. OPERATION

### 2.3 Operation

#### ⚠ WARNING

- This machine is a one-man roller.
- Operate the machine from the operator's seat.

#### 2.3.1 Before-starting inspection

- (1) Check that the steering lock bar is in the carrying position.

#### ⚠ WARNING

Make sure that the steering lock bar is connected in the carrying position before putting the machine in motion. Steering is impossible if the bar is in the steering lock position.

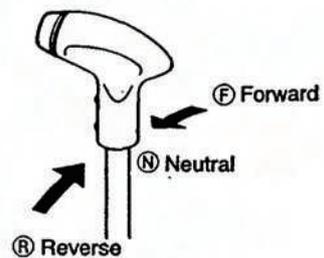
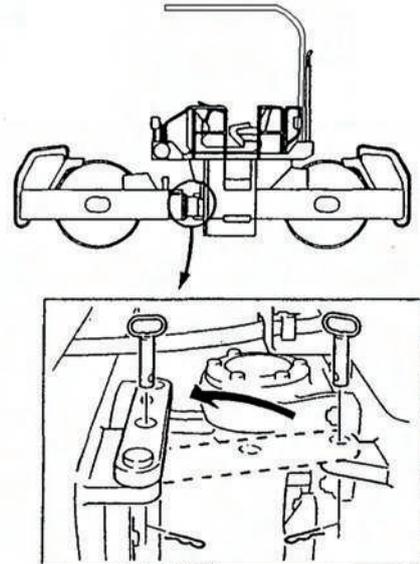
The bar is located at the left of the center of the machine.

To unlock the bar:

- ① Remove the spring pin.
- ② Pull out the lock pin.
- ③ Set the bar in the carrying position.

**NOTE:** Retain the lock bar in the locked position by inserting the lock pin into the lock holes. Fix the lock pin with the spring pin.

- (2) Check that the F-R lever is in the neutral position (N).



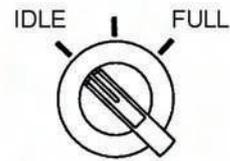
**NOTE:** The engine does not start if the F-R lever is not in the neutral position (N).

2.3.2 Starting the engine

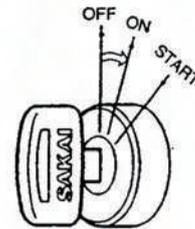
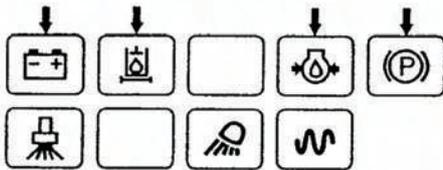
**▲ WARNING**

Check that the F-R lever is in the neutral position, and sound the horn when starting the engine after making certain that there are no one and no objects close to the machine.

(1) Select "IDLE" position of throttle switch.

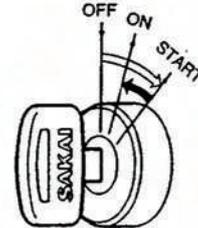


(2) Turn the starter switch to the ON position and check that the warning lamps and parking brake indicator lamp on the monitor display are on.



## 2. OPERATION

- (4) Turning the key to the START position makes the engine start. Release the key the moment the engine has started. The key will automatically return to the ON position.



### ⚠ CAUTION

- Do not allow the starter key to stay in the START position for more than 15 seconds.
- If the engine does not start, allow an interval before trying again.
- Check that the warning lamps on the monitor display go off immediately after the engine is started. If any of these warning lamps becomes bright while the engine is running, shut down the machine, determine the cause and rectify the fault.

### 2.3.3 After starting the engine

Try not to move to operation immediately after starting but observe the following:

### IMPORTANT

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

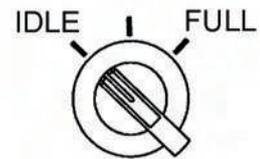
- ① Run the engine at idling for about 5 minutes to warm it up. Warming-up run allows the lubricating oil to reach the vital parts of the engine and hydraulic system, while gradually bringing up the engine oil and hydraulic oil to the working temperature.
- ② After the warm-up operation, check that:
  - Temperature gauge.....Pointer falls near the center zone.
  - Fuel gauge.....Pointer falls between the E and F marks
  - Charge lamp.....Has gone off.
  - Engine oil pressure warning lamp.....Has gone off.
- ③ Check for the color of exhaust gas, listen for unusual sounds and vibration. If abnormal, determine the cause and correct the problem.

2.3.4 Traveling

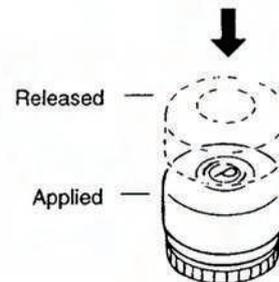
**⚠ CAUTION**  
While travelling, do not turn the starter switch OFF.

**⚠ WARNING**  
When starting, operate the horn after securing the safety around the machine.  
Clear away obstacles on the road.

- (1) Select "MIDDLE" or "FULL" position of throttle switch for engine speed up.



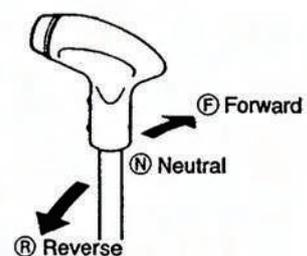
- (2) Press down parking brake switch button (P) to release the brake. Check that indicator lamp (P) on the monitor display goes off.



- (3) Moving the reversible travel lever either forward or backward causes the roller to start traveling.

**⚠ CAUTION**  
Avoid abrupt operation of the F-R lever.

**NOTE:** The travel speed can be controlled by the F-R lever.



**⚠ WARNING**  
Pay extreme attention to the area behind the machine when backing, since the space just behind it tends to be a blind spot.

## 2. OPERATION

### 2.3.5 Stopping / Parking

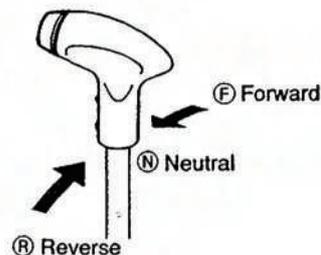
#### ⚠ WARNING

- Avoid abrupt braking. Try to leave enough time for braking.
- Avoid parking on a grade.
- If necessary to park on a grade, block the wheel to prevent unexpected moving down the grade.

- (1) Bring the F-R lever to the neutral position (N), and the machine will come to a halt.

#### ⚠ CAUTION

- For normal braking, move the F-R lever back to the neutral position. In an emergency, depress the brake pedal. The F-R lever is brought back to the neutral position.



- (2) Press the parking switch button securely, and check that indicator lamp (P) illuminates.

### 2.3.6 Stopping the Engine

- (1) Cool down the engine gradually by idling it for about 5 minutes.

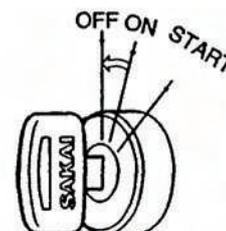
#### IMPORTANT

- Do not bring a hot engine to a sudden stop except for an emergency. This will shorten the life of its component parts.
- Do not also allow an overheated engine to come to a sudden stop, but run it at idling speed for gradual cooling down.

- (2) Turn the starter key to the OFF position to stop the engine.

#### ⚠ CAUTION

While travelling, do not turn the starter switch OFF.



- (3) Remove the starter key.

#### ⚠ WARNING

- When dismantling from the machine, apply the parking brake by actuating the parking brake switch. If necessary to park on a slope, chock the drums.
- Remove the starter switch key.

**2.3.7 Check after Stopping the Engine**

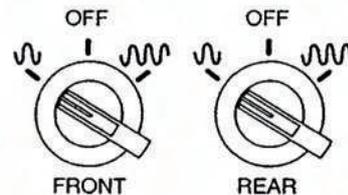
- (1) Perform the walk around checks for oil and water leakage, abnormal signs around the drums.
- (2) Fill the fuel tank.
- (3) Remove waste paper if any from the engine compartment, as this will pose a possible fire hazard.
- (4) Scrape mud or other materials from and around the drums.
- (5) For transportation, obey traffic regulations.

**2.4 Vibratory Operation**

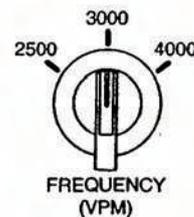
- (1) Select "FULL" position of throttle switch.

**For SW800-II/SW850-II:**

- (2) To generate vibration, set the vibrator switch in the LOW position (low amplitude) or HIGH (high amplitude).



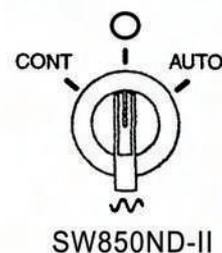
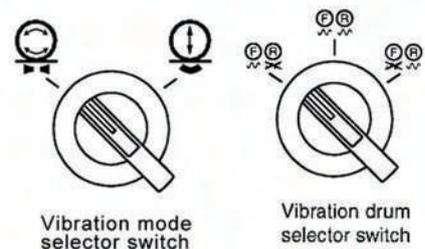
- (3) Turning the vibration frequency selector switch allows you to select the frequency. Turning the vibration frequency selector switch to the left causes the vibration to take place at 2500vpm, to the center at 3000vpm and to the right at 4000vpm respectively. In case either one of the vibration switches (front or rear) remains placed at high amplitude side, however, even if the vibration frequency selector switch is turned to right, vibration takes place at 3000vpm.



SW800-II/SW850-II

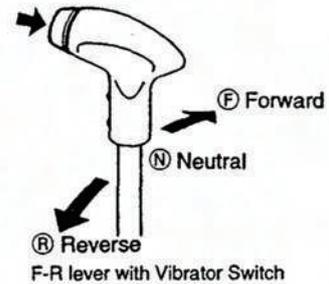
**For SW850ND-II:**

- (2) Select the vibration Drum and vibration Type. (OSC. or ORD.)
- (3) To generate vibration, set the vibration CONT-OFF-AUTO switch in the 'CONT' or 'AUTO' position.



## 2. OPERATION

- (4) Vibration can be turned ON or OFF with the switch provided on the F-R lever as well. Pressing the switch starts the vibration and pressing it again stops the vibration. The switch on the F-R lever should be used with the vibration switch on the panel remaining at "  " or "  " (SW850ND-II: "  " or "  ") position and vibration mode selector switch (SW850ND-II: vibration CONT-OFF-AUTO select switch) is selected "CONT" mode.

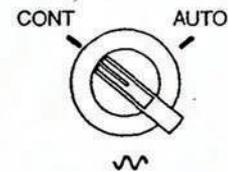


- (5) Vibration mode selector switch allows you to select the mode of vibration between "CONT" and "AUTO". Vibration can be actuated in the following manner, in either case:

CONT position : (SW800/850-II)

With the vibration switch placed at "  " or "  " position, turning the switch on F-R lever to ON position, causes the vibration to start.

When the vibration mode selector switch is at CONT position, turning either the vibration switch to OFF position or the switch on F-R lever to OFF position, cause the vibration to come to stop.

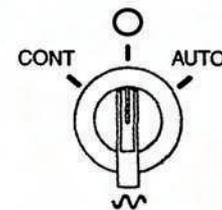


SW800/850-II

CONT position : (only SW850ND-II)

With the switch on F-R lever to ON position, causes the vibration to start according to the vibration type select switch.

When the vibration CONT-OFF-AUTO select switch is at CONT position, the switch on F-R lever to OFF position, causes the vibration to come to stop.



SW850ND-II

OFF position: (only SW850ND-II)

The vibration to stop.

- AUTO position : With the vibration switch placed at "  " or "  " position (SW850ND-II: the vibration type select switch placed at "  " or "  " position), placing the F-R lever at Forward or Reverse position causes the travel and vibration to start simultaneously. Returning the F-R lever to neutral causes the vibration to stop.

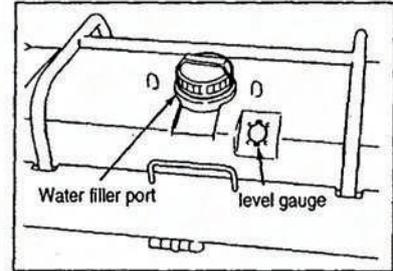
- (6) Proper travel speed for vibratory compaction is 2.5 – 4.5 mph, however, select speeds depending upon job requirements.

### ⚠ CAUTION

- Keep the vibrator shut off when the machine is not rolling.
- Shut off the vibrator immediately when the machine has been caught in the mud during vibratory operation.

### 2.5 Sprinkler

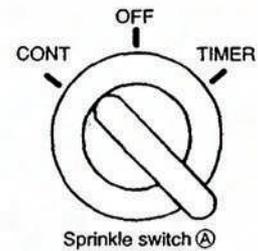
- (1) Before sprinkling, check for the water level in the sprinkler tank with the sight gauge. Add water as necessary.  
Check water level with the gauge provided on the tank.



**IMPORTANT**  
Use clean water wherever practicable.

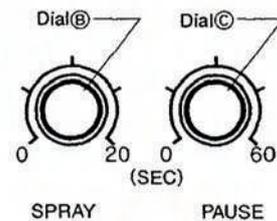
- (2) Continuous and intermittent spray selector switch  
The switch (A) allows to select continuous or time spray.

- CONT : For continuous spray
- OFF : Sprinkling discontinued.
- TIMER : For Intermittent spray.



For intermittent spray, set the spray time in the following manner:

Spray time is adjustable between 0~20 seconds with Spray Dial (B) and so is pause time between 0~60 seconds with PAUSE Dial (C) respectively as desired. Adjust it according to the job requirement.

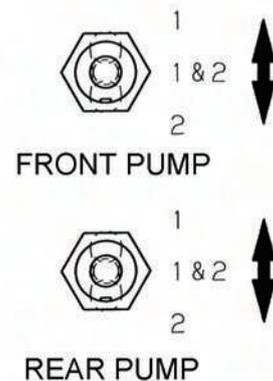


- (3) Front spray pump switch/Rear spray pump switch

Two sprinkling pumps are attached to front and rear each on a machine, and this switch is a select switch of a sprinkling pump.

There are three positions at a switch. Allows to select sprinkling pump. Select it in accordance with condition of the working site.

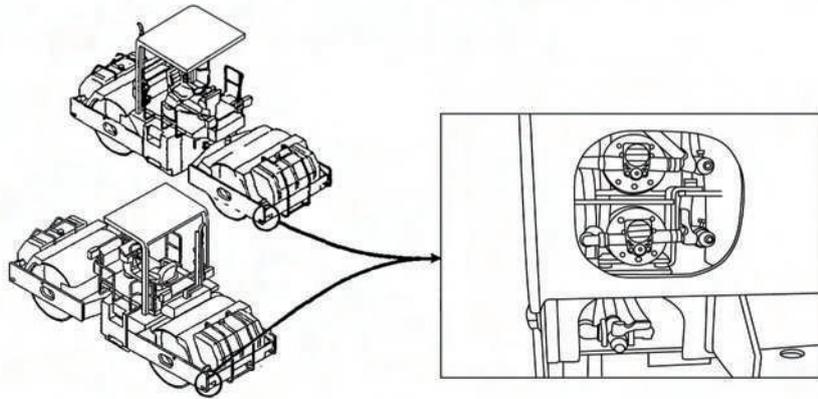
- " 1 " :Enable #1 pump
- " 1&2 " :Enable #1&#2 pump
- " 2 " :Enable #2 pump



**IMPORTANT**  
When starting asphalt compaction, place the spray switch at CONT position and moisten the roll surface completely before selecting TIMER spray.  
For resuming the work after short break, too, follow the same procedure.

## 2. OPERATION

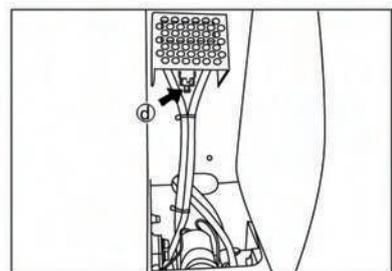
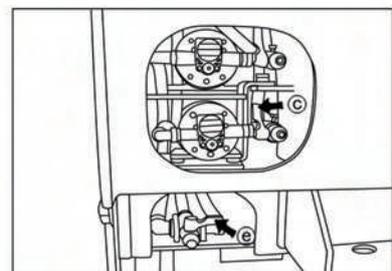
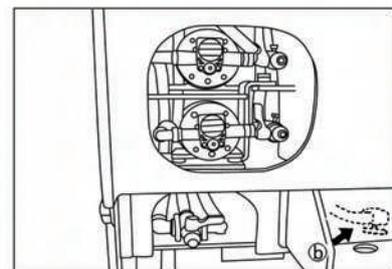
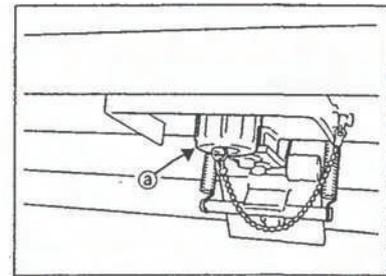
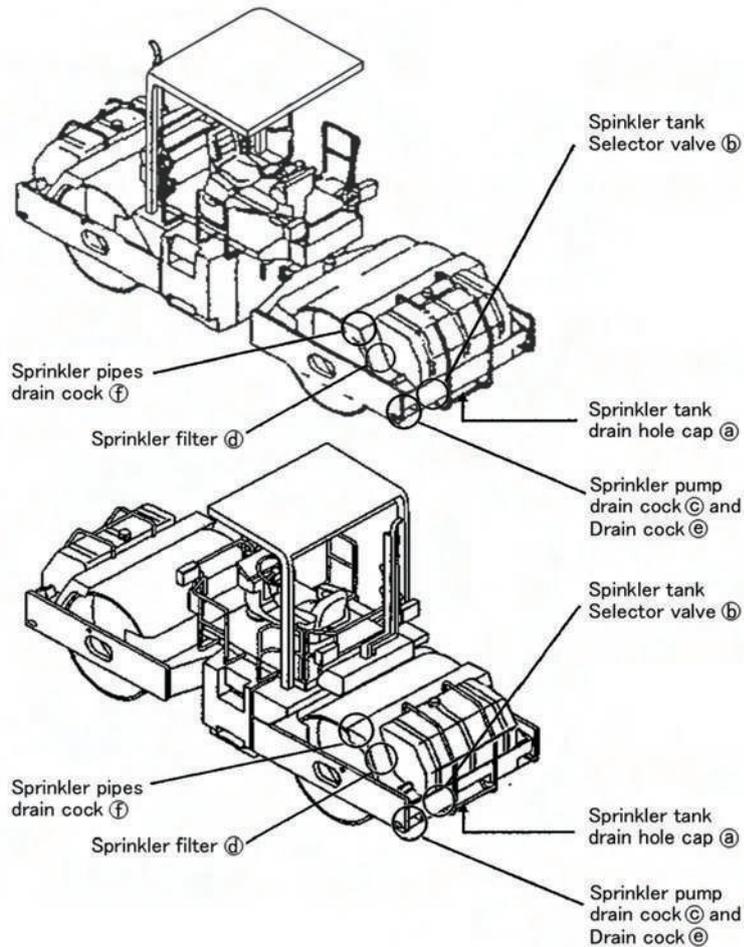
**NOTE:** After draining the tank, there may be a case where water does not come out of sprinkler nozzle even if you attempt to sprinkle. If that is the case, turn a valve located at the sprinkler pump drain valve 90 degrees for air venting. Be sure to return the valve to original position after completion of venting.



### **⚠ CAUTION**

- To avoid freezing, fully drain the sprinkler tank, pipes and filter in cold weather.
- Pay attention to level of water because turning the pump with empty tank results in trouble.

## 2. OPERATION



### To drain water:

- ① Take off the drain caps (a) of sprinkler tanks and drain water from the tanks completely.
- ② Open drain cocks (f) of sprinkler pipes at front and rear, to drain water completely.
- ③ Turn counterclockwise the lever of sprinkler tank selector valves (b), open the drain cocks (c) of sprinkler pumps and open drain cocks (e).  
Take off the bowl from sprinkler filters then throw away water in the bowl then put the bowl back on the sprinkler filters.
- ④ Run the sprinkler pumps 30 seconds approximately with the drain cocks open.
- ⑤ Make sure there are no water in any hoses, sprinkler pumps and nozzles completely.

## 2. OPERATION

### 2.6 Precautions for Work

#### 2.6.1 Compaction operation

■ **Do not operate the vibrator on hard surface.**

- 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.

■ **Change the direction of travel gently.**

- When changing the direction of travel during asphalt mix compaction, slowly shift the F-R lever.

#### 2.6.2 When going downhill

■ **Use the F-R lever.**

- Run slowly by the operation of the F-R lever even if the travel distance is short.

■ **Use the engine brake**

- Go downhill by applying the engine brake along with the F-R lever operation.

#### 2.6.3 On a slope

■ **Working on a sidehill**

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

## 2.7 Applicable Jobs

The machines do a variety of jobs as listed below.

### 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

### Layers to be compacted

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

## 2. OPERATION

### 2.8 After Operation

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

Follow the procedures below to prevent the machine from falling into an unworkable condition the following morning caused by muds and other extraneous matter on the drum, or frozen drums:

- 1) Remove muds and water from the machine. Muds can get into the seals together with water drops on the hydraulic cylinder piston rod. Damaged seals will result.
- 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 batteries or take them off from the machine and store in a warm place for the following day's operation.
- 4) To prevent freezing, drain water from the sprinkler system (See page 41).

#### IMPORTANT

Insufficient draining of water can cause troubles or damage to the system.

### 2.9 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 drums 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, allow it to dismount from the ramps and correct the direction.

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

#### 2.9.1 Use of a trailer equipped with a winch

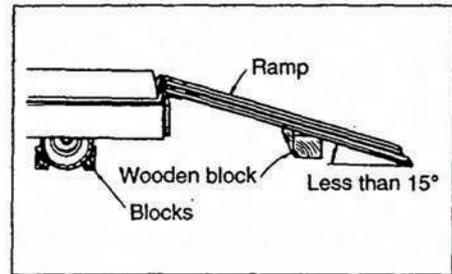
#### WARNING

Placing the unloader valve in UNLOAD position disrupts the power for traction. Do not enter the areas ahead of and behind the machine. It is very dangerous.

## 2. OPERATION

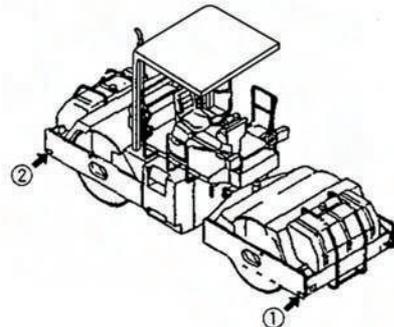
(1) Engage the trailer brake and chock its wheels. Fix the ramps so that the machine and trailer are completely aligned.

- ☆ The angle between the ramps and ground must be less than 15 degrees.
- ☆ Leave a proper space between the ramps according to the width of the roller drum.



(2) Decide the correct direction of run and make the machine run forward to the ramps.

(3) Draw the wire rope from the trailer winch and put its hook on the hooking point ① or ② (One each on right and left) of the roller.



(4) Place the unloader valve located at the engine room to the UNLOAD position (See "Unloader valve" on page 28).

(5) With the engine running at idle, perform loading by means of the trailer winch.

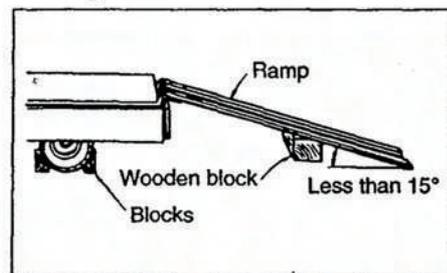
(6) When the loading is completed, set the unloader valve back in the ONLOAD position.

(7) Locate the machine correctly on the trailer.

### 2.9.2 Self-propelling

(1) Engage the trailer brake and chock its wheels. Fix the ramps so that the machine and trailer are completely aligned.

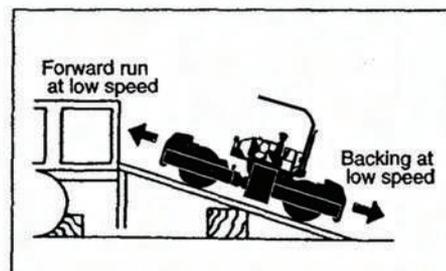
- ☆ The angle between the ramps and ground must be less than 15 degrees.
- ☆ Leave a proper space between the ramps according to the width of the roller drum.



(2) Decide the correct direction of run and conduct loading or unloading at low speed.

For loading, run forward at low speed.  
For unloading, run backward at low speed.

(3) Locate the machine correctly on the trailer.



## 2. OPERATION

### 2.10 After Loading the Machine

When the machine has been located properly on the trailer, tie it down as follows:

- 1) Press the parking switch button to apply the parking brake. Place wooden blocks under the drums to prevent movement.
- 2) Fix the machine with ropes tied at the front and rear towing hook holes. Particularly, pay attention to sidewise skidding.

### 2.11 Transportation

#### **▲ WARNING**

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

For transportation, obey traffic regulations.

### 2.12 Operation in Cold Weather

In cold weather, take the following measures to prevent troubles such as starting difficulty and coolant freeze-up.

#### 2.12.1 Fuel oil and grease

Use fuel and oil with low viscosity. See "Rating" on page 72.

#### 2.12.2 Coolant

#### **▲ WARNING**

Do not bring an open flame to the antifreeze or do not smoke when handling it. It is inflammable.

#### **▲ CAUTION**

Never use methanol-, ethanol- and propanol-base antifreeze.

Use soft water for coolant.

In freezing weather, add antifreeze to the coolant referring to the table below. Select the most suitable mix ratio according to the lowest temperature in the job location.

## 2. OPERATION

SW800/850/850ND-II

### CAPACITY LITER (Q)

Ambient temperature	-33°C (-27.4°F)	-26°C (-14.°F)	-20°C (-4°F)	-16°C (3.2°F)
Amount of anti-freeze	8.5L(9.0)	7.7L(8.1)	6.8L(7.2)	6.0L(6.3)
Amount of water	8.5L(9.0)	9.3L(9.9)	10.2L(10.8)	11L(11.7)
Ratio	50%	45%	40%	35%

Long Life Coolant is used in our roller. Useful life of this antifreeze coolant is 2 years.

### IMPORTANT

Use of a high consistency antifreeze coolant in summer time can cause the engine to overheat depending upon job conditions. Use a coolant with the water-antifreeze ratio of 65 to 35.

### 2.12.3 Battery

#### ⚠ WARNING

- Batteries generate explosive gases. Do not use an open flame close to batteries.
- The battery electrolyte is corrosive. Keep the electrolyte away from your eyes and skin. If you are affected by the electrolyte, flush with large quantities of water and get medical help.

At low temperature, batteries are less efficient. The level of charge is lowered and batteries will tend to freeze. Maintain batteries full charged wherever practicable, and give attention to heat insulation at night for the next day's operation.

For the level of charge, check the specific gravity of electrolyte and use the following table of conversion.

Temperature	20°C (68°F)	0°C (32°F)	-10°C (14°F)	-20°C (-4°F)
Level of charge (%)				
100		1.29	1.30	1.31
90	1.26	1.27	1.28	1.29
80	1.24	1.25	1.26	1.27
75	1.23	1.24	1.25	1.26

## 2. OPERATION

### 2.13 When the Cold Season is Over

When winter is over and the warm season has come, proceed as follows:

- 1) Change oil and fuel with those for use in warm season referring to "Rating" on page 72.
- 2) If AF-PT antifreeze is in use, drain the coolant completely, wash clean inside the cooling system, and then fill with clean water (city water).

### 2.14 For a Long Storage Period

For leaving the machine unused for longer than one month, proceed as follows:

- 1) Store the machine in a closed area after cleaning.
- 2) Conduct oiling, greasing and changing of oil.
- 3) Grease lubricate the exposed portion of hydraulic cylinder piston rods.
- 4) Cover the battery after disconnecting the negative cable or take off the battery from the machine and store in a safe place.
- 5) If the temperature is expected to go down below 32°F, add antifreeze to the coolant.
- 6) Completely drain the sprinkler system.
- 7) Place the F-R and Vibrator lever in the neutral position (N), and apply the parking brake.
- 8) Chock the machine.
- 9) Remove the starter switch key.

### 2.15 During the Storage Period

#### **▲ WARNING**

**If necessary to operate the machine for anti-corrosive purpose in closed area, ensure good ventilation keeping windows and doors open to prevent gas poisoning.**

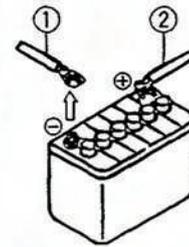
During storage, operate the machine at least once a month to prevent the oil films on the lubricated parts from deteriorating and to charge the batteries.

## 2.16 When the Battery has Discharged

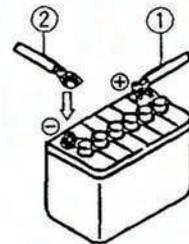
### ⚠ WARNING

- To check and handle the batteries, keep the engine stopped with the starter switch in the OFF position.
- The batteries give off explosive gases. Do not smoke close to the batteries. Keep flames and sparks away from the batteries.
- The electrolyte is very corrosive and will harm your clothing or skin. If the electrolyte has come into contact with your clothing or skin, flush with sufficient amount of water. In case the electrolyte has gotten into your eyes, flush with water and get medical help.
- To disconnect the battery cables, start with the negative terminal (earth). When connecting, start with the positive terminal. Do not allow a metallic item to bridge between the positive terminal and machine body. This can generate sparks, causing an explosion.
- Loose battery terminals can cause sparks. An explosion will result. When connecting the terminals, make certain that they are tight.

Disconnect with negative cable first



Connect with positive cable first

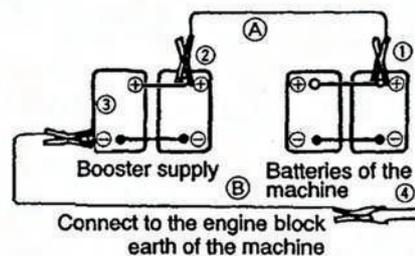


### 2.16.1 Connection and disconnection of booster cables

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

#### ■ Connection of booster cables

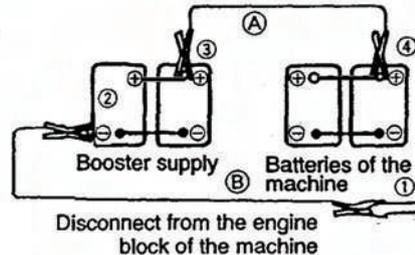
- (1) Connect one end of the positive booster cable (A) to the positive (+) terminal of the battery on the machine.
- (2) Connect the other end of the positive booster cable to the positive (+) terminal of the booster supply.
- (3) Connect the negative booster cable (B) to the negative (-) terminal of the booster supply.
- (4) Connect the other end of the negative booster cable to a good earth of the engine block of the machine.



## 2. OPERATION

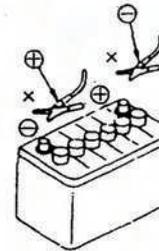
### ■ Disconnection of booster cables

- (1) Disconnect the negative booster cable (B) from the engine block earth.
- (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.



### ▲ 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 careless contact with the booster supply.
- Do not make wrong connections. Connect the negative (-) cable to the engine block earth far away from the battery, as sparks may occur when connecting.



### ▲ CAUTION

- Use booster cables and end clips of proper size suited to the battery capacity.
- Use the batteries of the equal capacity for the machine and booster supply.
- Check booster cables and end clips for signs of damage and corrosion.
- Connect the clips positively.

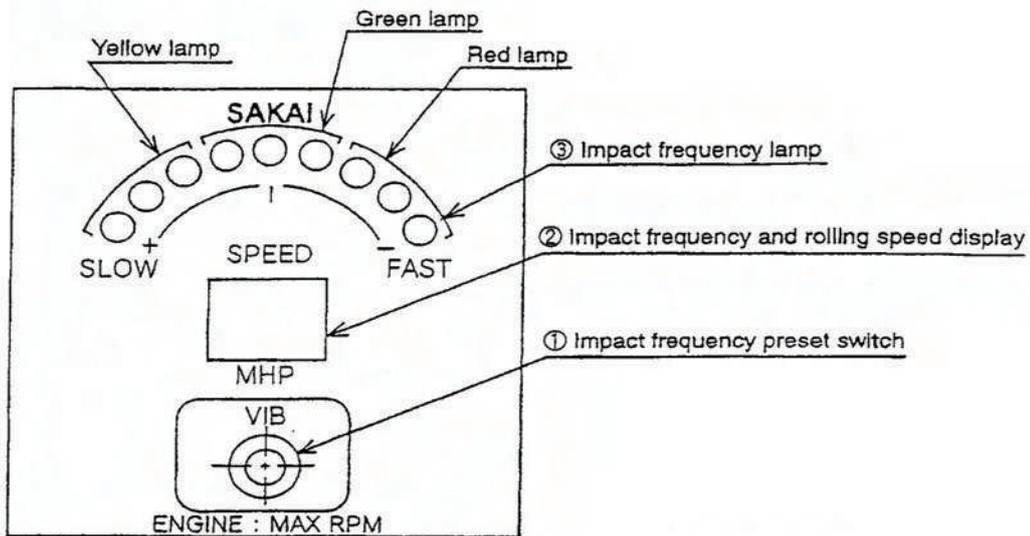
## 2. OPERATION

### 2.17 Exact Compact Operation

# SAKAI EXACT COMPACT METER

(IMPACT SPACE INDICATOR & SPEED METER)

#### Operating Instruction



#### 1) Impact frequency preset switch

This switch allows you to preset impact frequency within the range of 8 to 20 impacts. Pressing the switch causes the frequency to be shown in the display and pressing it again within five (5) seconds allows you to change the frequency.

While the frequency is shown in the display, each time you press the switch, the frequency increases by one. After reaching 20, pressing the switch causes the frequency to return to 8.

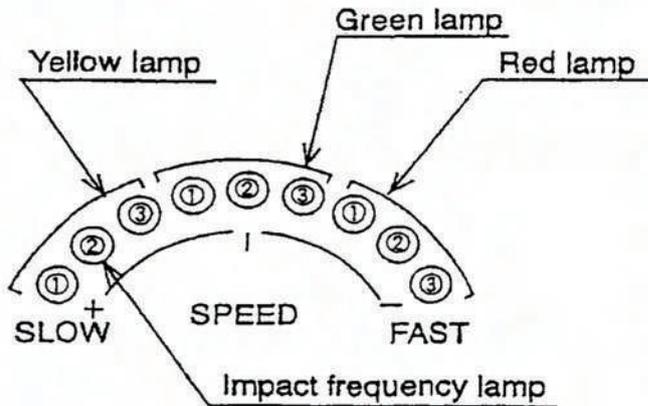
Preset frequency represents impact frequency with vibration roll per one foot of travel. Preset frequency will not be deleted even when the power supply is disconnected.

#### 2) Impact frequency and rolling speed display

When powered up, preset impact frequency appears for the period of 5 seconds before it changes to show rolling speed. While the machine is not moving, the display will read [0.0].

3) Impact frequency lamp

The position where the impact frequency lamp flashes, indicates whether actual impact frequency is greater or fewer than preset impact frequency. Such difference is known in the following manner:



- +7 < Yellow lamp ① flashes.
- +7 ≥ Yellow lamp ② flashes > +5
- +3 < Yellow lamp ③ flashes ≤ +5
- +3 ≥ Green lamp ① flashes > +1
- 1 ≤ Green lamp flashes ≤ +1 (at center)
- 1 > Green lamp ③ flashes ≥ -3
- 5 ≤ Red lamp ① flashes < -3
- 5 > Red lamp ② flashes ≥ -7
- Red lamp ③ flashes < -7

Operation

- Turning the engine starter switch to "ON" position, causes the display to show preset impact frequency for 5 seconds, before changing to show the rolling speed of [0.0]. At this time, impact frequency lamp does not go on.
- By means of vibration frequency selector switch on the control panel, preset the desirable vibration frequency among 2500vpm, 3000vpm, and 4000vpm suitable to your compaction work.
- Establish the impact frequency by means of impact preset switch.
- With the machine standing still, turning "ON" the vibration switch causes impact frequency lamp, Yellow (1), to flash.
- When the machine travels with vibration turned on, flashing position of the impact frequency lamp moves in accordance with the rolling speed.
- In order to execute compaction work at preset impact frequency, the work should be performed at the rolling speed where the center lamp, Green (2) flashes.

**Note:** Increase rolling speed when Yellow lamp flashes.  
Reduce the rolling speed when Red lamp flashes.

-- CAUTION --

- For checking the impact frequency with the lamp flashing point, be sure to run the engine at its maximum speed.
- Unless engine is running at its maximum speed, error at the impact meter may be too great to allow an accurate checking.

### 3. PERIODICAL MAINTENANCE

#### 3.1 Precautions

Whether or not the inspection service and lubrication are performed at the correct regular intervals exerts significant influence on the occurrence of trouble and service life of the machine. In this manual, typical intervals for inspection and service are given. However, flexibility should be introduced as to interval or type of services to enable your machine to always operate in the best condition.

##### 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.
- 4) For checking oil level or changing oil, park the machine on a level and hard surface.
- 5) Change oil while its temperature remains high after operation.
- 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) For the hydraulic pump and motor, have them serviced at authorized service shops.
- 9) Turn the starter switch OFF when performing services such as repairing broken wires, short circuits and tightening loose terminals.

#### Periodical Replacement of Essential Maintenance Parts

In order secure safety for work and travel, conduct inspection and services.

Further, for enhanced safety, following parts and components should be replaced periodically. 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, which makes it necessary to replace with new ones after certain period of service to maintain their perfect function.

If any abnormality is detected such as crack, deformation or oil leakage, go ahead and replace them even if it is within scheduled replacement time.

System or Mechanism	Part name	Periodical replacement maintenance parts	Replacement period	Remarks
1. Brake system	Master cylinder	Seals (rubber parts)	2 years	Adopted machines only
	Wheel cylinder	Seals (rubber parts)	2 years	♦
	Brake piping parts	Brake hose	2 years	
		Air hose	2 years	Adopted machines only
	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 (inclusive of axle)	Axle	Seals (rubber parts)	4 years	Adopted machines only
	Travel pump	Seals (rubber parts)	4 years	♦
	Travel motor	Seals (rubber parts)	4 years	♦
	Hydraulic piping parts	Hydraulic hose	4 years	♦
	Isolation rubber	Isolation rubber itself	4 years	♦
4. Fuel system	Piping parts	Fuel hose	4 years	
5. Engine related	Engine mounting parts	Isolation rubber	4 years	
	Seals (rubber parts)	Packing and others	4 years	
	Drive parts	V-belt	2 years	
6. Cooling system	Piping parts	Radiator hose	2 years	
7. Control related parts	Cable	Cable	4 years	Adopted machines only

### ⚠ CAUTION

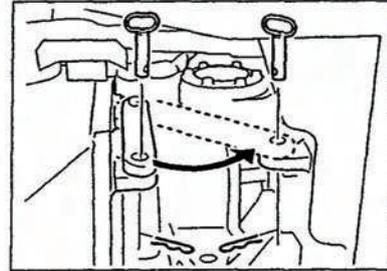
- With a new machine, change the engine oil and change the engine oil filter elements after 50 hours of operation for the first time only.
- When trouble occurs in the location indicated by the indicator lamp on the monitor display, sensor will work and corresponding lamp comes on. If this occurs, conduct necessary service regardless of the periodical service interval recommendation.
  - 1) The hydraulic filter (line filter) warning lamp ⇨ Replace elements
- Check the electric wiring at a regular interval not exceeding one month:
  - 1) Damage to the wire harness and loose clamps
  - 2) Loose sockets
  - 3) Function of electrical systems

### 3. PERIODICAL MAINTENANCE

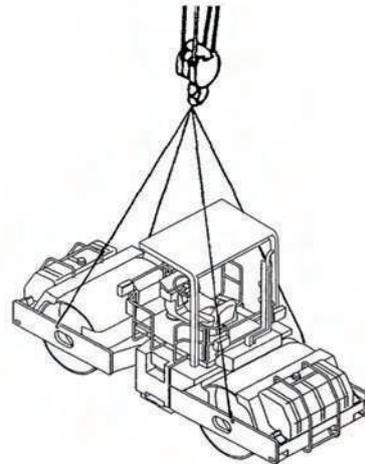
#### 3.1.1 In using the crane

##### ⚠ WARNING

- Operator of the crane for lifting or lowering, has to have a lawful license.
- For lifting the roller, use wire rope with sufficient strength.
- When lifting, be sure to lock the articulation of the roller with the lock bar located at the side of center pin.

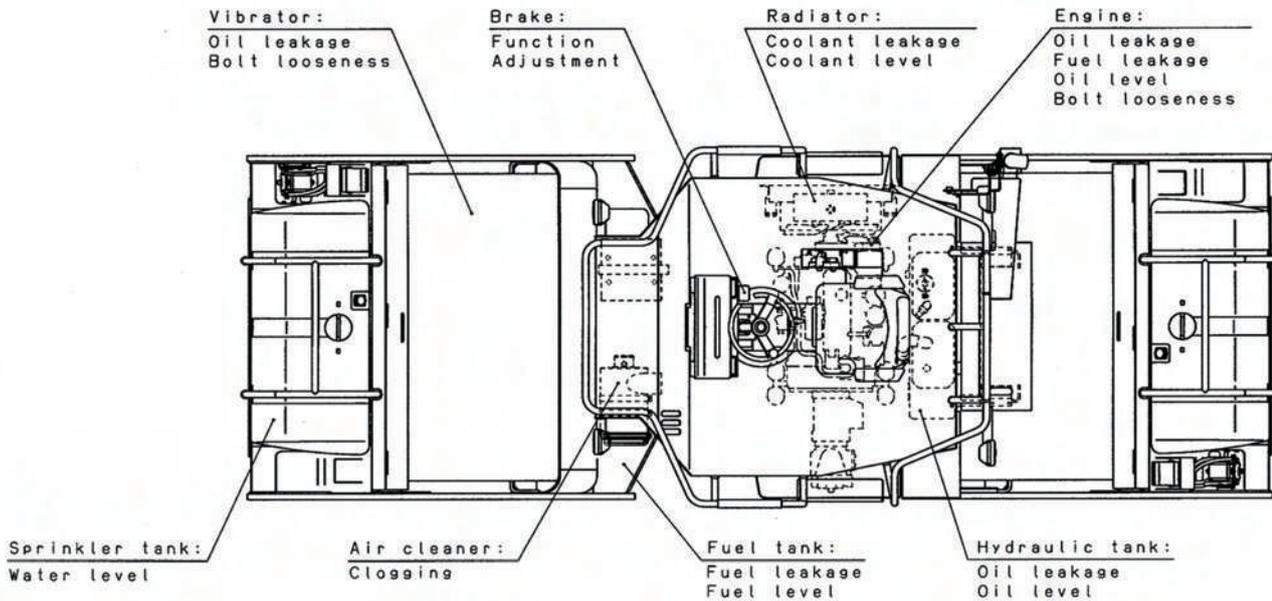


- (1) Engage wire to the hook securely as shown in sketch.
- (2) When lifting, if wire and machine are likely to come into contact, protect the machine with cloth or wood applied and work carefully.
- (3) Load or unload the machine, while making sure of the balance.
- (4) Load the machine at prescribed spot on the truck bed.



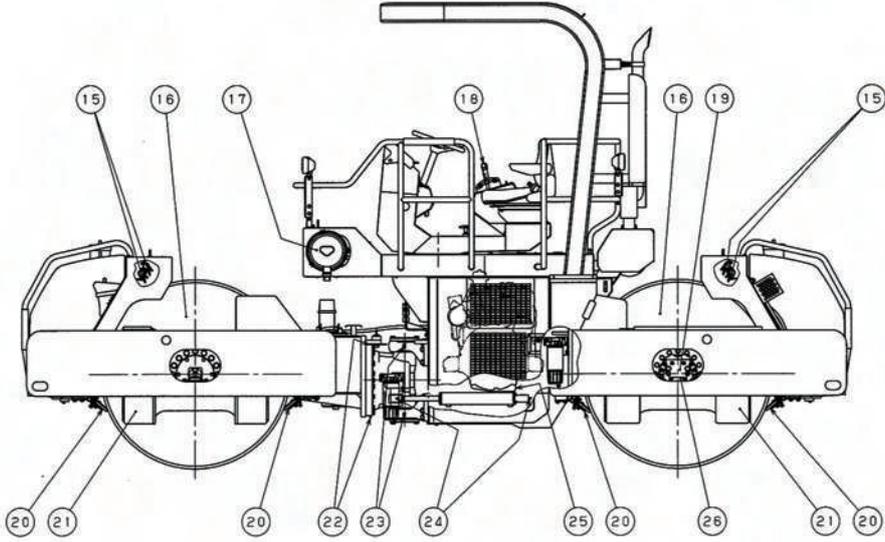
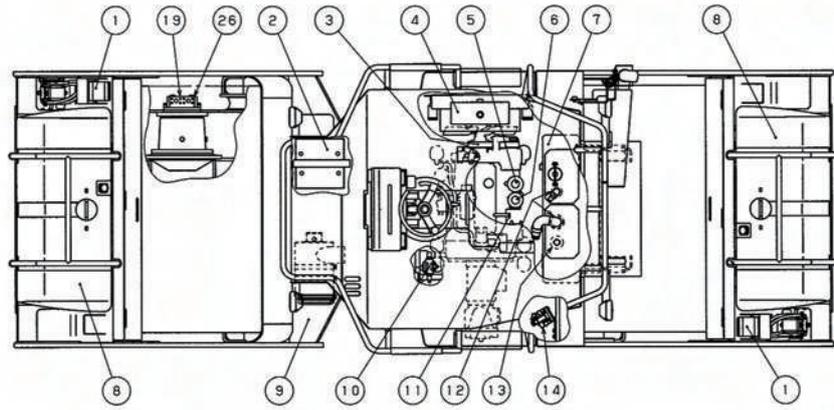
### 3.2 Walk-around Checking

For efficient operation, daily, before-operation checking is very important. Before starting, perform walk-around checking for loose bolts, nuts and signs of leakage in addition to items as shown below:



### 3. PERIODICAL MAINTENANCE

#### 3.3 Periodical Maintenance Points



### 3. PERIODICAL MAINTENANCE

#### Periodical Maintenance

Interval	REF. No.	Item	Service	Lubricant	Q'ty
Every 10 hours or daily	④	Radiator reserve tank	Check coolant level,add as necessary	Coolant	1
	⑪	Engine oil level gauge	Check oil level,add as necessary	Engine oil	1
Every 50 hours	①	Sprinkler filter	Clean element		2
	②	Battery	Check fluid level,add as necessary	Battery fluid	1
	⑦	Hydraulic oil tank	Check oil level,add as necessary	Hydraulic oil	1
	⑭	Fuel sedimenter (with Fuel prefilter)	Check and drain water and dirt		1
Every 250 hours	③	Fan belt	Check looseness,adjust as necessary		1
	⑤	Engine oil filter	Change element		1
	⑮	Sprinkler pipe	Clean		4
	⑯	Vibrator	Check oil level	Gear oil	2
	⑰	Shockmounts(roll mount)	Check cracks		16
	⑳	Engine oil pan	Change oil	Engine oil	1
Every 500 hours	⑥	Fuel filter	Replace element		1
	⑩	Line filter	Replace element		1
	⑬	Return filter	Replace element		1
	⑭	Fuel prefilter (with Fuel sedimenter)	Replace element		1
	⑱	Control links	Check looseness and adjust		3
	㉒	Tilt pin bearing	Apply grease	Grease	2
	㉓	Center pin bearing	Apply grease	Grease	2
	㉔	Steering cylinder	Apply grease	Grease	4
Every 1000 hours	⑦	Hydraulic oil tank	Change oil	Hydraulic oil	1
	⑫	Suction filter	Clean element		2
	⑯	Vibrator	Change oil	Gear oil	2
	⑲	Gear case / Wheel motor	Change oil	Gear oil	2
	㉖	Brake	Check brake disk thickness or replace		2
As required	⑧	Sprinkler tank	Clean inside		2
	⑨	Fuel tank	Clean inside		1
	⑰	Air cleaner	Clean or replace element		1
	㉚	Scraper	Adjust or replace blade		4

### 3. PERIODICAL MAINTENANCE

#### 3.4 Maintenance Procedure

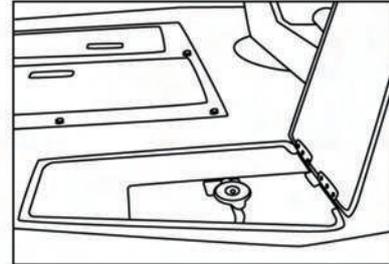
➔ For servicing the engine, see the separate engine manual.

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

###### ④ Radiator reserve tank

With the cap removed, check to see if the coolant level is near the port. Add as necessary.

Further, run the engine at idling speed for a few more minutes and make sure that coolant level at sight glass of reservoir tank. If insufficient, replenish with the tank cap removed. Use soft water only.



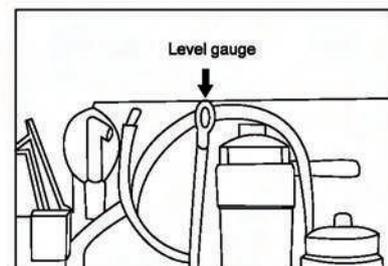
###### ⚠ WARNING

Do not remove the radiator cap while the coolant is hot.



###### ⑪ Engine oil level gauge

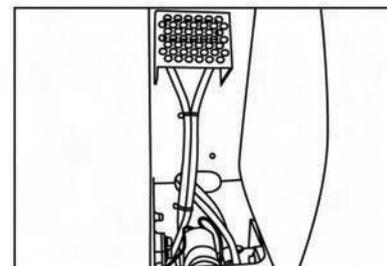
Shut down the engine and check the engine oil level. If it is not between MAX and MIN marks, add oil through the fill hole.



##### (2) Every 50 hours

###### ① Sprinkler filter

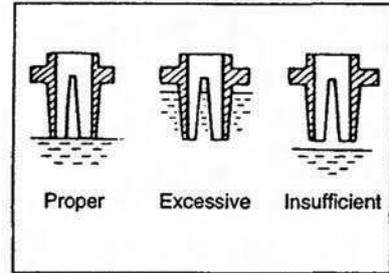
Take off the filter bowl by turning counter-clockwise as viewed from the bottom. Clean the element.



### 3. PERIODICAL MAINTENANCE

#### ② Battery

- (1) With the caps removed, check to see if the electrolyte level is above the plates.
- (2) Add distilled water or battery fluid commercially available if the level is too low.
- (3) Retighten any loose terminal. Apply grease or vaseline to the terminals to retard rusting.



#### ⚠ WARNING

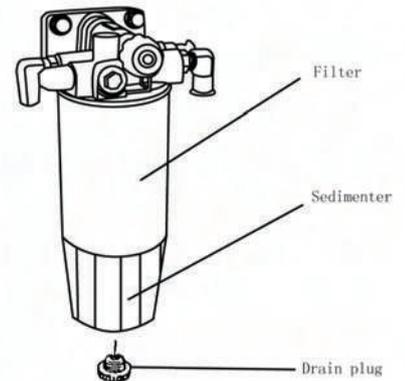
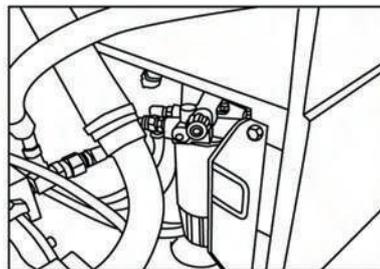
Using or charging battery with electrolyte level below **LOWER LEVEL** mark on its side, could result in explosion. Continuing to use battery with insufficient electrolyte accelerates deterioration of the battery container internals. Be sure to have the electrolyte always replenished to the prescribed level.

#### ⑭ Fuel sedimenter

Turn counterclockwise the drain plug at the bottom of filter and drain water.

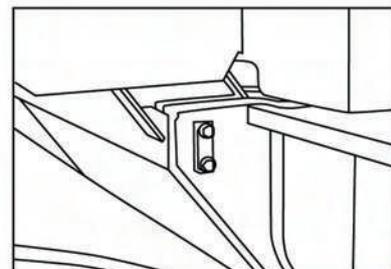
#### IMPORTANT

When the sedimenter is filled up by water, the engine check lamp is blinked or lighted on.



#### ⑦ Hydraulic oil tank

Check the oil level with the sight glass on the side of tank. The level is proper if it is between H and L marks. If necessary, add the hydraulic oil from the fill port.



### 3. PERIODICAL MAINTENANCE

#### (3) Every 250 hours

##### ③ Fan belt

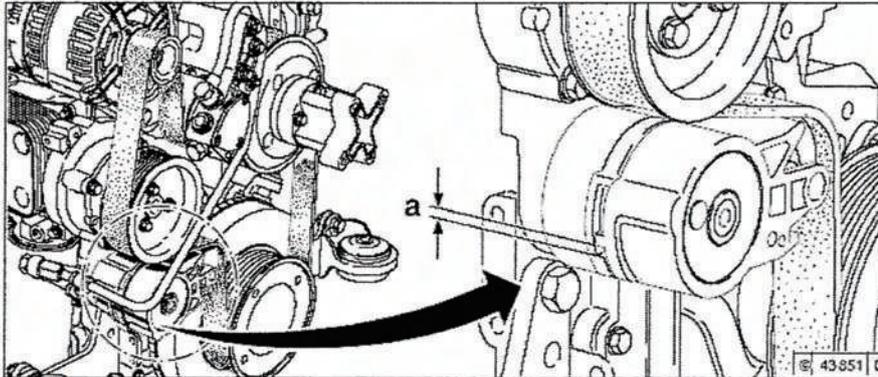
(1) Check the fan belt for wear and damage. Replace as necessary.

(2) Checking wear limit of V-rib belt

The wear limit of the V-rib belt is checked as follows:

Check the distance between the projection of the moving tension arm and the contact with the fixed tensioner housing.

If the distance "a" is less than 3 mm, the V-rib belt should be changed.



(3) V-rib belt tension:

The V-rib belt has a spring-loaded tension pulley which tightens automatically and is not re-tightened.

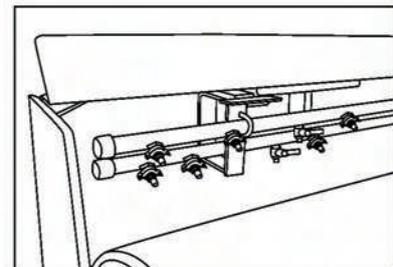
##### ⑮ Sprinkler pipe, nozzle

(1) Pipe

Remove the cap from both ends of each sprinkler pipe. Operate the sprinkler pump to wash out dust from inside the pipe.

(2) Nozzle

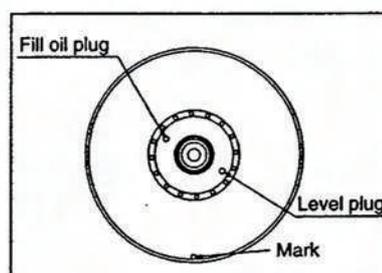
- Remove the nozzles from the sprinkler pipes and separate the filter from each nozzle.
- Clean the filters. Use a needle or the like to clean nozzle hole. Refit the filters to the nozzles.
- Fit the nozzles to the pipes so that the water is sprayed in the form of a hand fan in parallel with the pipe.



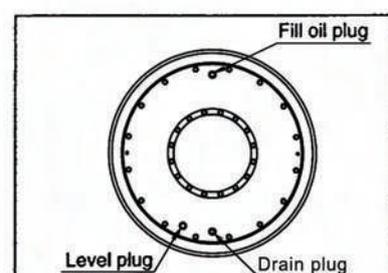
##### ⑯ Vibrator

Check for the oil level and leakage.

SW800/850-II:



SW850ND-II:



### 3. PERIODICAL MAINTENANCE

⑤ Engine oil filter

②⑤ Engine oil pan

➔ See the separate engine manual.

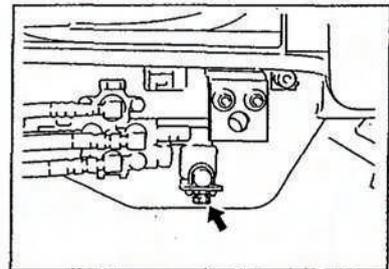
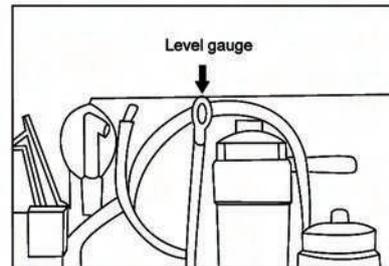
(1) After completion of operation and while the oil is warm, drain the oil with the drain plug removed.

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

(2) Refit the drain plug and fill the crankcase with the engine oil from the fill hole on the cylinder head cover.

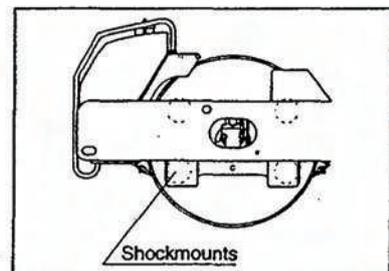
(3) Change the oil filter.

**NOTE:** For a new machine, change oil at 50 operating hours for the initial time only.



②① Shockmounts: Roll mount

Check the rubber blocks for cracks, and their mounting bolts for looseness.

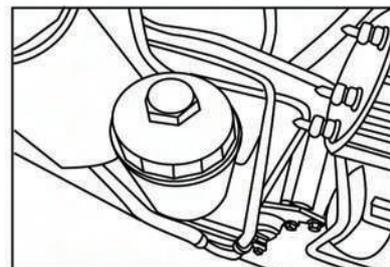


(4) Every 500 hours

④ Fuel filter

➔ See the separate engine manual.

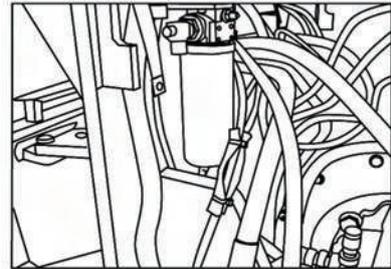
Change the filter cartridge.



### 3. PERIODICAL MAINTENANCE

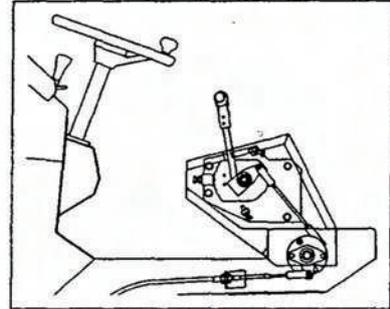
#### ⑩ Line filter

Turn-out and remove filter element by turning it counter clockwise before replacing it.



#### ⑱ Control link

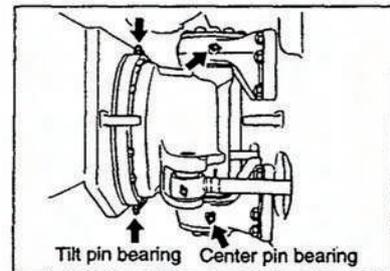
Check the bolts and nuts for looseness. Adjust the rod.



#### ⑳ Tilt pin bearing

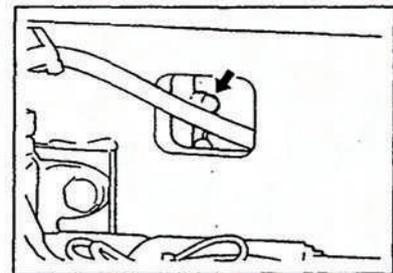
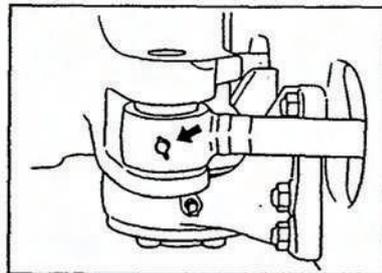
#### ㉓ Center pin bearing

Grease lubricate two locations.



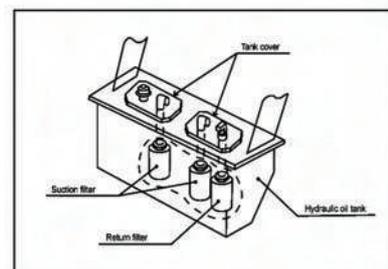
#### ㉔ Steering cylinder

Apply grease to the cylinder head and anchor pin.



#### ⑬ Return filter

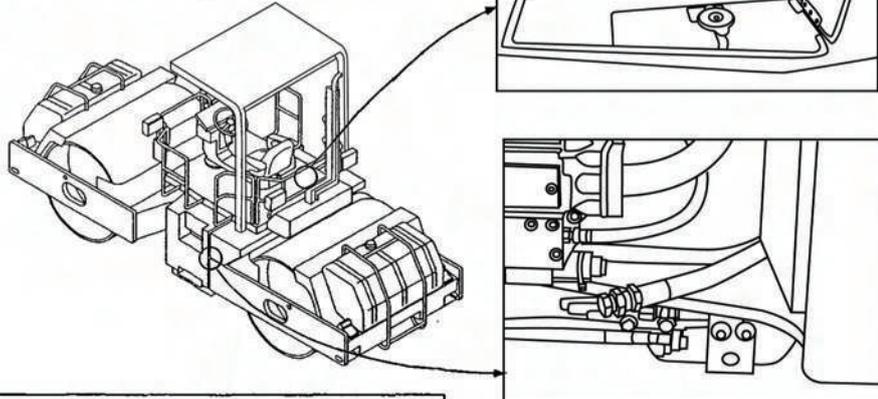
Take off the hydraulic tank cover. Take off and clean the element, change the element necessary.



(5) Every 1000 operating hours

⑦ Hydraulic tank

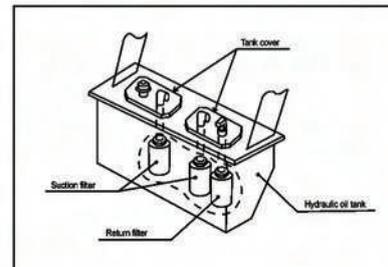
- (1) Remove the drain plug and drain the oil while it is warm.
- (2) After cleaning the inside of the tank, fill the tank to the specified level with new hydraulic fluid.
- (3) Start and run the engine at idling for 2 ~ 5 minutes. When air bubbles have disappeared from the oil, stop the engine and check the oil level again.



**▲ WARNING**  
When draining a hot oil, be careful not to get burned.

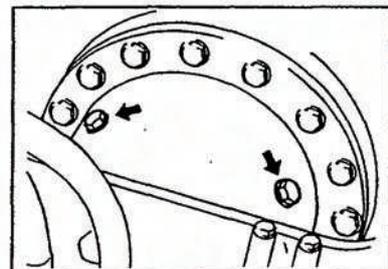
⑫ Suction filter

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



⑰ Gear case / Wheel motor

- (1) Position it so that drain plug comes to the bottom.
- (2) While oil is warm, drain it with drain plug and level plug removed.
- (3) Rotate the roll so that drain port comes to top (or side) and level plug to side (or top). Feed oil until it overflows from the level port.
- (4) Replace the drain plug and level plug to original positions.



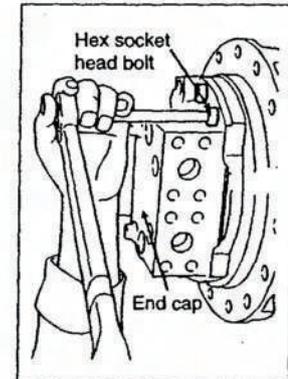
**▲ WARNING**  
When draining a hot oil, use care not to get burned.

### 3. PERIODICAL MAINTENANCE

#### 26 Brake

- (1) Loosen hex socket bolts (6 bolts) which have been fixing end cap.  
Loosen them uniformly because the brake spring tends to push up the end cap.

Model of Motor	SW800-II	SW850/850ND-II
Bolt size	M14x45L	M16x50L
Hex socket head across flats	12	14

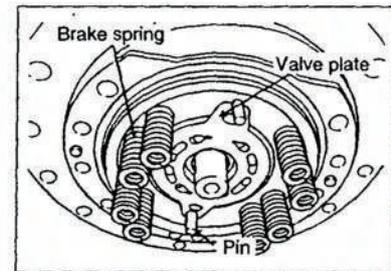


#### ⚠ CAUTION

Mating surfaces of end cap, valve plate and cylinder block having been lapped, care should be taken not to damage them.

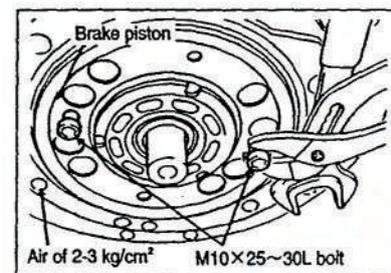
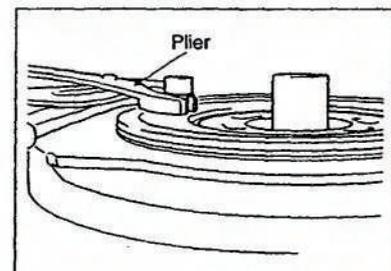
- (2) Remove following parts which will be exposed after removing the end cap.

Item	Quantity
Valve plate	1
Brake spring	8
Pin	2
O-Ring (large)	1
O-Ring (Small)	1



It is recommended that O-Rings are replaced with new ones.

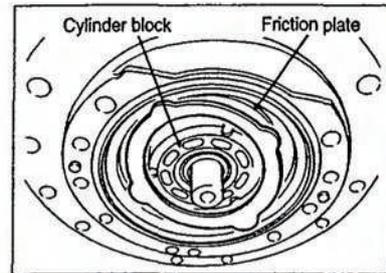
- (3) Blowing compressed air of 2-3 kgf/cm<sup>2</sup> into hole shown in sketch, brake piston will come up. (Have the opposite side hole plugged.)  
Or, with M10x25~30L bolt turned into tapped hole at 2 locations of brake piston, lift it alternately using a wrench or the like as fulcrum point.



### 3. PERIODICAL MAINTENANCE

(4) Take out separate and friction plates. Using a wire with its end bent, will allow you to take them out more easily.

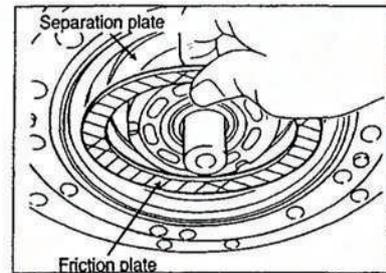
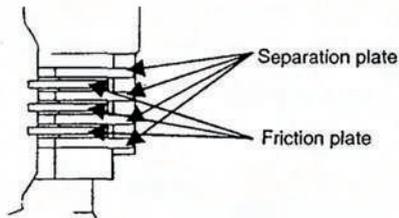
Item	Quantity
Separate sheet	4
Friction plate	3



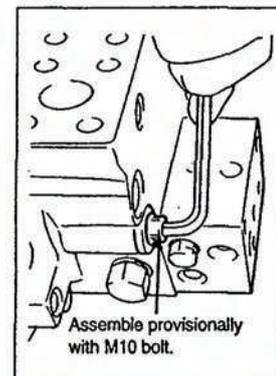
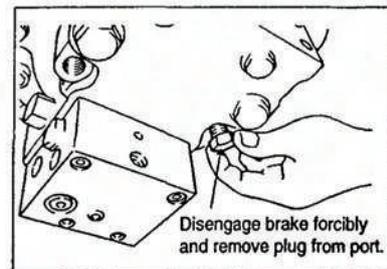
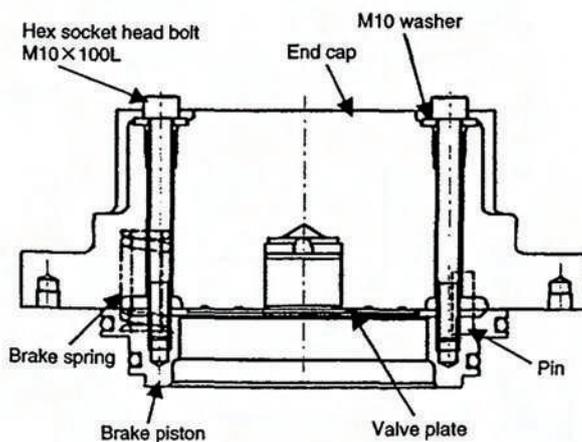
#### ⚠ CAUTION

**Do not pull out the cylinder block. Pulling it out at this stage makes it impossible to reassemble.**

(5) Install separate plate and friction plate alternately. Be careful to install them in the correct quantity and order.



(6) Remove brake releasing port plug (19 across flats) from end cap. Sub-assemble, with M10 bolt, the brake spring, valve plate and pin so that they are held between the end cap and brake piston (provisional assembling).

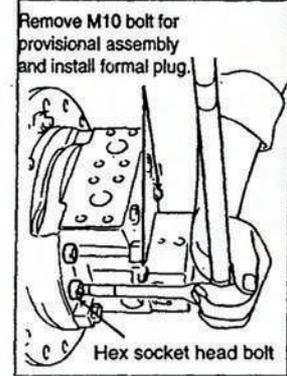
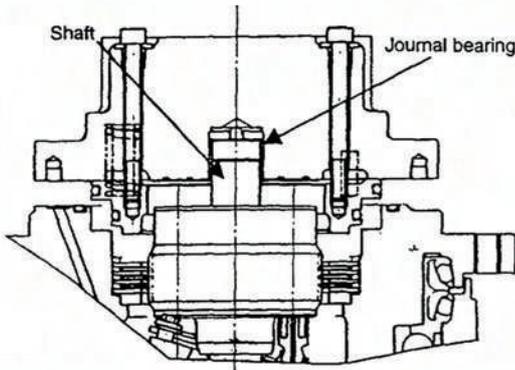


### 3. PERIODICAL MAINTENANCE

(7) Tighten this sub-assembled end cap to the housing with hex socket head bolt.

**⚠ CAUTION**

Install as straightly as possible so that the shaft end does not damage journal bearing which has been press-fit to end cap.



<Tightening torque for the hex socket head bolt>

Model of Motor	SW800-II	SW850/850ND-II
Plug size	M14x45L	M16x50L
Tightening torque	107-136 ft lb	170-214 ft lb

<Tightening torque for the hex socket head bolt>

Model of Motor	Common to SW800-II SW850-II SW850ND-II
Plug size	9/16-18 UNF
Tightening torque	40-70-ft lb

### 3. PERIODICAL MAINTENANCE

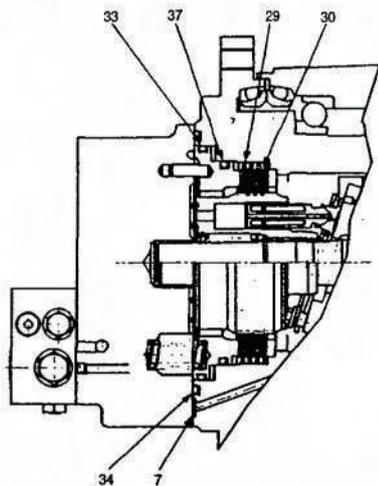
#### List of replacement parts

It is recommendable that, in addition to friction and separate plates, relevant O-Ring are replaced with new ones as well.

No	Item	Quantity	SW800-II	SW850 / 850ND-II
			Drawing # (DAIKIN Dwg.# (Standard JIS Nominal))	
			BM55AJ / BM55AL	BM75BP / BM75BN
7	O-Ring	2(0)	KP1B010A / 1BP10A	—————
29	Separate plate	4	1731865	1731874
30	Friction plate	3	SP1081	SP1081
33	O-Ring	1	KG1B170 / 1BG170	KG1B185 / 1BG185
34	O-Ring	1	KG1B195 / 1BG195	SP1092 / WG45
37	O-Ring	1	KG1B145 / 1BG145	KB1B160 / 1BG160

**Note:** Quantity for No.7 O-ring: 4 for BMV55/ and 2 for BM55.

For BMV series, as the seal for the second speed selection passage, 2 more are in use than for BM series.



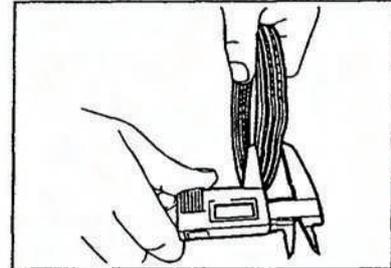
If it falls in any of the following cases, without waiting for 1,000 operating hours, replace the friction and separate plates altogether.

- (1) When the braking force becomes weaker than driving force of hydraulic motor (Despite that the brake is being actuated, hydraulic motor rotates when HST drive is engaged)  
 Checking procedure: While depressing the parking brake switch, open the throttle fully and engage the reversible travel lever. If traveling starts, replace the plates.
- (2) When total thickness of friction and separate plate falls short of the value in the chart below.

### 3. PERIODICAL MAINTENANCE

Standard dimensions		
Separate plate	4 plates:	2.3 (per plate)
Friction plate	3 plates:	3.3 (per plate)
Total thickness		19.1
Standard total thickness for replacement		18.5

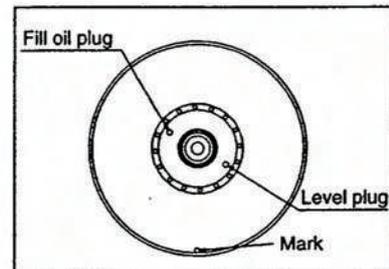
→ Checking procedure: Disassemble and measure the plate thickness in every 500 hours of operation in accordance with the instruction given earlier.



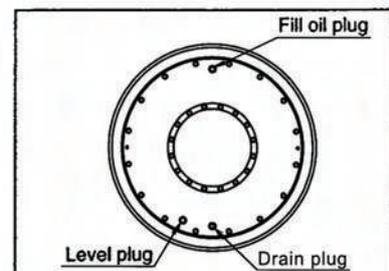
#### ⑩ Vibrator

- (1) Rotate the drum till the drain plug comes to bottom.
- (2) Remove the drain and level plugs.
- (3) Drain the vibrator oil.  
(Only SW850ND-II: The gear oil which remain in the inside of the Roll is drained by using a pump or making roll slanting.)
- (4) Rotate the roll until the mark on its inside comes to the bottom.
- (5) Feed oil from top filler port until oil overflows out of level gauge port.
- (6) After cleaning, reinstall level gauge plug and filler ports plug.

SW800/850-II:



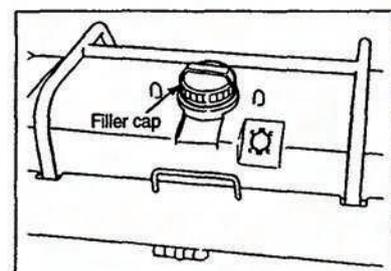
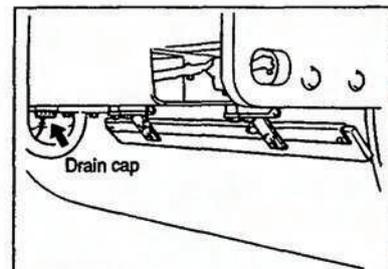
SW850ND-II:



#### (6) As required

#### ⑧ Sprinkler tank

- (1) With the drain cap removed, remove the water and sediment from the bottom of the tank.
- (2) If sedimentation is substantial, remove the drain plug and clean the interior of the tank.
- (3) When the necessary work is complete, refit the drain cap and filler cap.

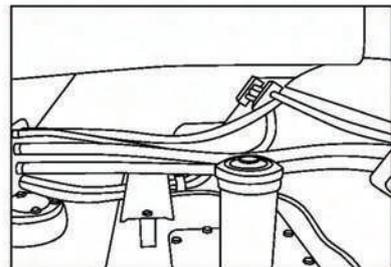
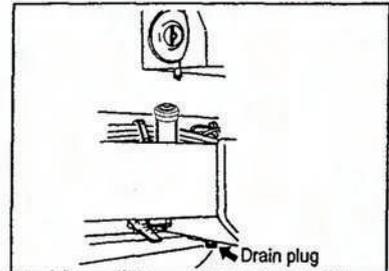


### 3. PERIODICAL MAINTENANCE

#### ⑨ 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 interior of the tank.
- (3) When the necessary work and refueling are complete, tighten the filler cap positively.

**NOTE:** When removing the water and sediment from the tank filled with the fuel, the fuel will gush out if the drain plug is screwed out completely.



#### ⚠ WARNING

- The fuel will catch fire if open flames or ignition sources are used close to it.
- Do not smoke or use a match or cigarette lighter close to it.



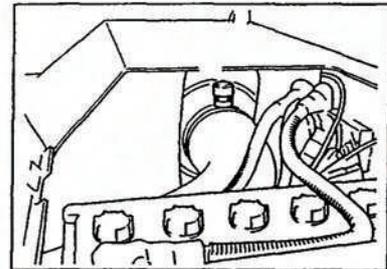
#### ⑰ Air cleaner

Clean the element as described below:

- (1) Take off clips and then the cover, and pull out element.
- (2) Blow compressed air from inside of the element (A) to clean.

#### ⚠ WARNING

- Exercise caution not to get a speck of dust in your eyes.

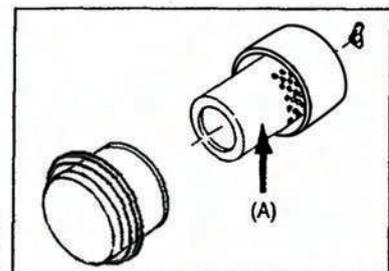


- (3) Check the element there is any damage or not. If there is any damage, replace element.
- (4) Assembly the element and cover.

**NOTE:** Replace the element once in every sixth cleaning.

#### IMPORTANT

- When the air cleaner is clogged with in dust, the engine check lamp is blinked or lighted on.



### 3. PERIODICAL MAINTENANCE

**NOTE:** In normal use, change the outer element once in every six cleanings

#### 20 Scraper

When the blade is worn, adjust the scraper properly.

See page 29 for adjustment. If the clearance is beyond the adjustable range, change the blade.

#### **▲ WARNING**

**Be careful not to pinch your fingers between the drum and blade.**

### 3.5 Filling Water and Lubricants

#### 1. General rules

- 1) Never feed water or lubricant with the strainer removed.
- 2) Use recommended lubricant and hydraulic fluid.
- 3) Do not use lubricants and hydraulic fluid of different brands.
- 4) When replacing oil, drain it completely and clean the container with flushing oil before filling new oil.

#### 2. Capacity

Compartment	Type of fluid	Capacity in liters(gal.)		
		SW800-II	SW850-II	SW850ND-II
Engine oil pan	Engine oil	10L(2.6)	10L(2.6)	10L(2.6)
Front drum motor	Gear oil	3.2L(0.9)	3.6L(0.95)	3.6L(0.95)
Rear drum motor	Gear oil	3.2L(0.9)	3.6L(0.95)	3.6L(0.95)
Vibrator	Gear oil	19Lx2(5.0x2)	22Lx2(5.8x2)	75Lx2(19.8x2)
Hydraulic	Hydraulic oil	80L(21)	80L(21)	80L(21)
Fuel tank	Diesel oil	220L(58)	250L(66)	250L(66)
Radiator	Coolant	17L(4.5)	17L(4.5)	17L(4.5)
Sprinkler tank	Water	500Lx2(132x2)	600Lx2(159x2)	600Lx2(159x2)

### 3. PERIODICAL MAINTENANCE

#### 3. Rating

Lubricant	Service classification	Ambient temp. and applicable viscosity			Applicable standards
		-15~30°C (5~86° F) Cold	-0~40°C (32~104° F) Moderate	15~55°C (59~131° F) Tropical	
Engine oil	API grade CH-4	SAE 10W-30	SAE 30	SAE 40	MIL-L-2104D
Gear oil	API grade GL4	SAE 80W-90	SAE 90	SAE 140	MIL-L-2105
Hydraulic oil	Wear resistant	ISO-VG32 over VI 140	ISO-VG46 over VI 140	ISO-VG68 over VI 110	ISO-3448
Grease	Lithium type extreme pressure				NLGI-2
Fuel	Diesel oil				ASTM D975-2D

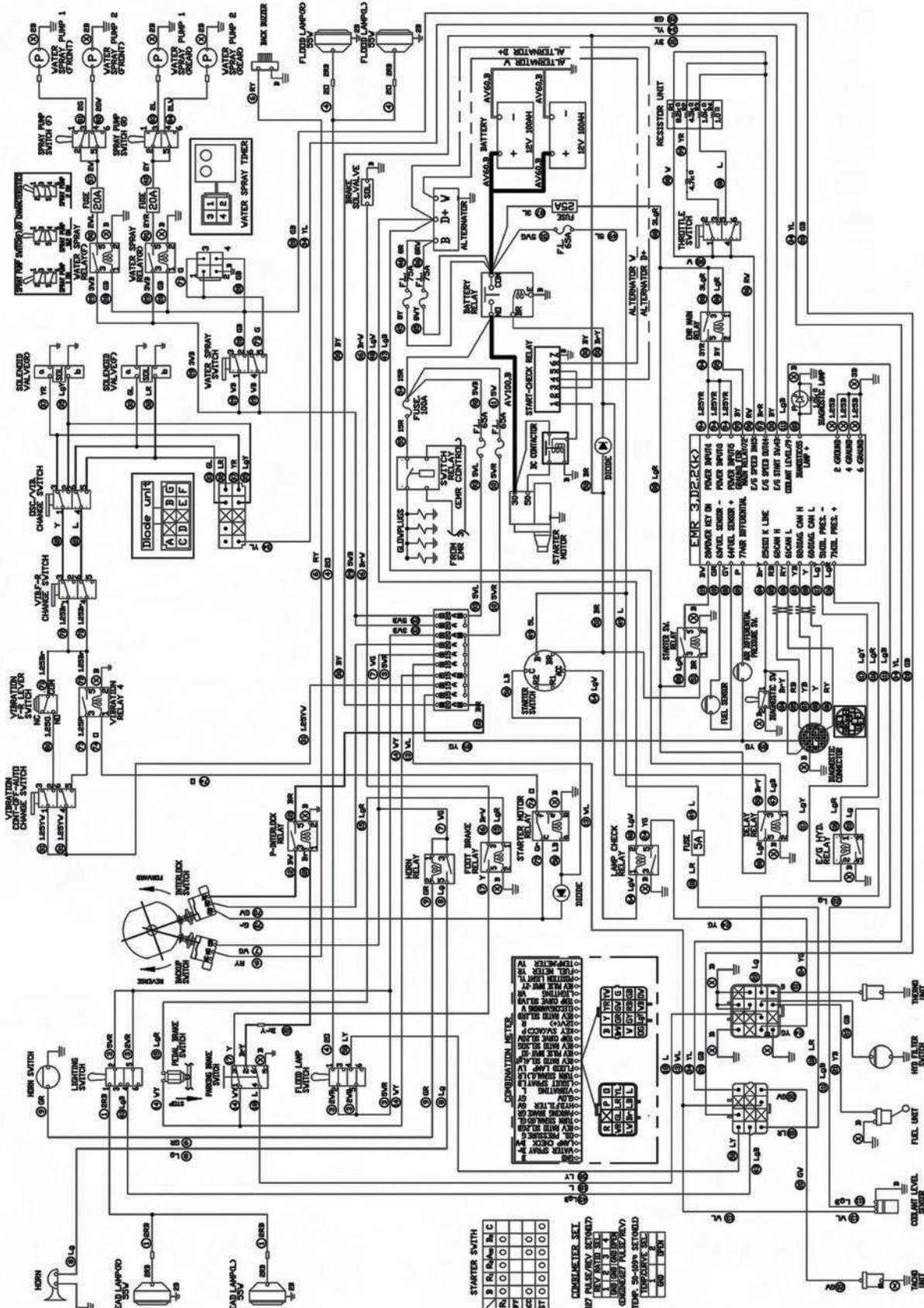
#### 4. Recommended lubricants

oil company \ Lubricant	Engine oil API CH-4	Gear oil API GL-4	Hydraulic oil VG 46	Grease (NLGI- II)
CALTEX	DELO 400 oil	Universal Thuban 90	Rando oil HD 46	Martifack EP 2
BP	BP Vanellus MG	BP Gear oil EP 90	BP Enegol HLP 46	BP Energrease LP-EP 2
ESSO	Esso Lube XD-3 extra	Esso Gear oil GP 90	Nuto H 46	Beacon EP 2
MOBIL	Mobil Delvac 1300 super	Mobil Pegasus Gear oil 90	Nuto oil 25	Beacon EP 25
SHELL	Shell Rotella T	Shell Spirax 90 EP	Shell Tellus Oil 46	Shell Alvania EP Grease 2
CASTROL	Castrol Elexion	Castrol Hypoy 90	Hyspin AWS 46	Sphrrol ELP 2



### 3. PERIODICAL MAINTENANCE

For SW850D-II

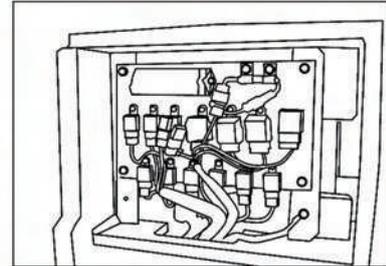


### 3. PERIODICAL MAINTENANCE

#### Fuse box

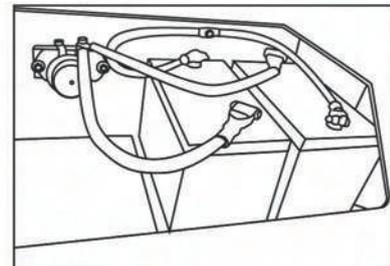
The fuse box houses five 15A- and five 20A- fuses lined up with spares fitted for 15A- and 20A- fuses. Use fuses of correct capacity. See page 29.

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



#### Battery

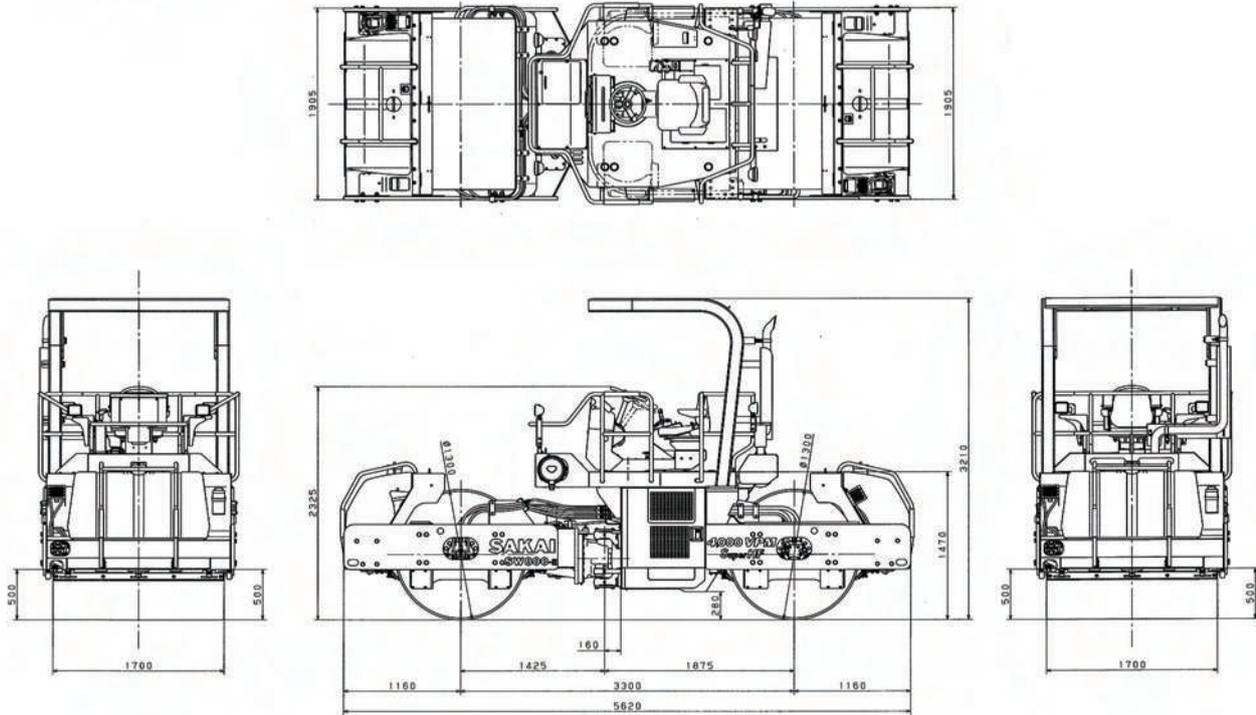
- ★ Leaving the battery unused for long without attention or its power excessively at a time can cause damage to the plates, leading to a shortened life.
- ★ For long-term storage, charge it fully, tighten the caps securely, store in a cool and dry place, and check the level of charge at least once a month.
- ★ Maintain the level of charge above 75%.
- ★ In cold weather, it is desirable to start the engine with the battery charged 100 %. Do not try to start the engine with less than 75 %.



## 4. SPECIFICATIONS

### 4. SPECIFICATIONS

SW800-II



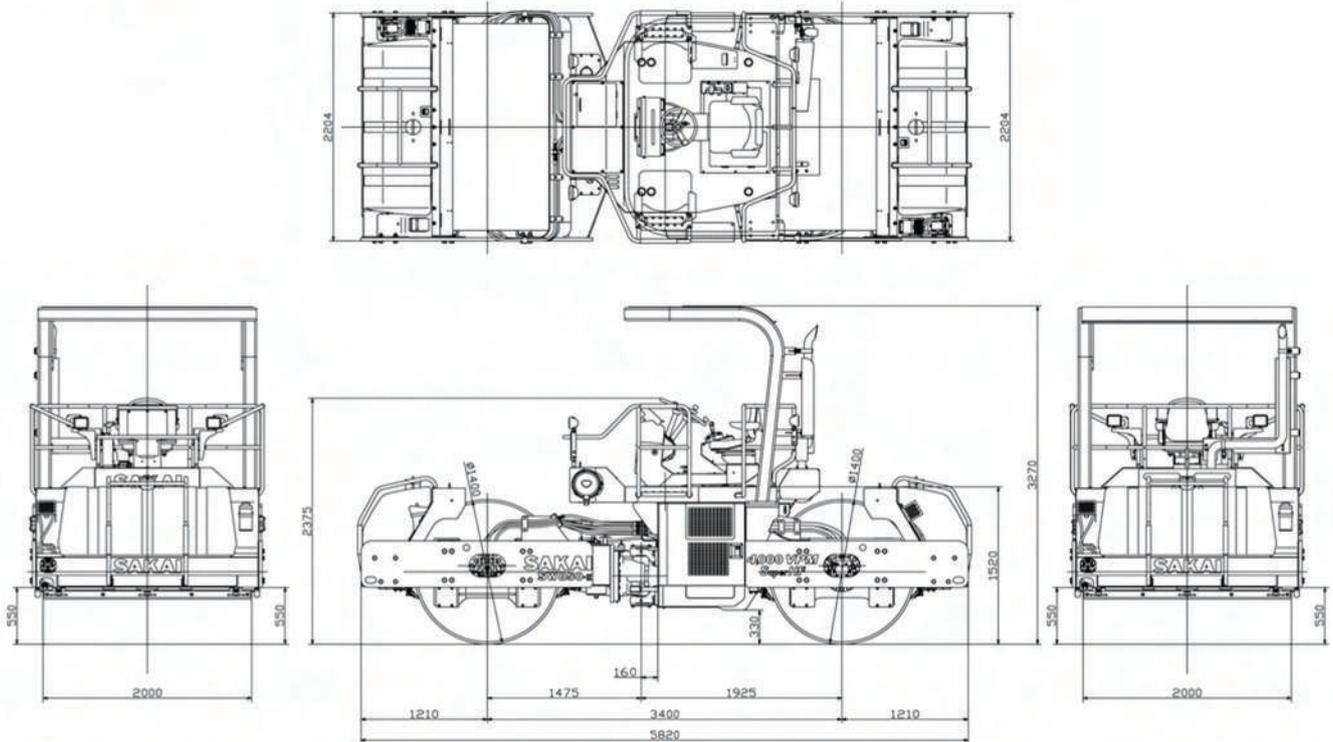
### SW800-II SPECIFICATIONS

<b>Model</b>		SW800-II
<b>Weight:</b>		
Gross weight		10,900 kg (24,030 lbs)
Empty weight		9,900 kg (21,825 lbs)
<b>Dimension:</b>		
Overall length		5,620 mm (221")
Overall width		1,905 mm (75")
Overall height		
Steering wheel		2,325mm (91.5")
Rops		3,210 mm (126")
Wheelbase		3,300 mm (130")
<b>Wheel</b>		
Front		Roll (dia. × width) 1,300 × 1,700 mm (51" × 67")
Rear		Roll (dia. × width) 1,300 × 1,700 mm (51" × 67")
<b>Performance:</b>		
Travel speed	1st	0 ~ 7.5 km/h (0 ~ 4.7 mile/h)
(forward/reverse)	2nd	0 ~ 12.5 km/h (0 ~ 7.8 mile/h)
<b>Vibrating power:</b>		
Gradability		33% (18.3°)
Rolling width		1,700 mm (67")
Minimum turning radius		6.0 m (237")

<b>Vibrating power:</b>			
<b>Low amplitude</b>			
Frequency	67 Hz {4,000 vpm}	50 Hz {3,000 vpm}	42 Hz {2,500 vpm}
Centrifugal force	121 kN (27,120 lbs)	68 kN (15,210 lbs)	47 kN (10,580 lbs)
<b>High amplitude</b>			
Frequency	50 Hz {3,000 vpm}		42 Hz {2,500 vpm}
Centrifugal force	108 kN (24,250 lbs)		76 kN (16,980 lbs)
<b>Engine:</b>			
Model	DEUTZ "TCD2012L04-2V" Diesel Engine(EPA Tire3) (with turbo charger)		
Total displacement	4,038 cc (246 cu.in)		
Rated output	95 kW / 2,300 min <sup>-1</sup> (rpm) (127.4HP / 2,300 rpm)		
Max. torque	495 N·m / 1,600 min <sup>-1</sup> (rpm) (365 ft-lb / 1,600 rpm)		
<b>Tank capacity:</b>			
Fuel tank	220 liters (58gal)		
Hydraulic tank	80 liters (21gal)		
Sprinkler tank	500 liters × 2 (132gal × 2)		

## 4. SPECIFICATIONS

### SW850-II



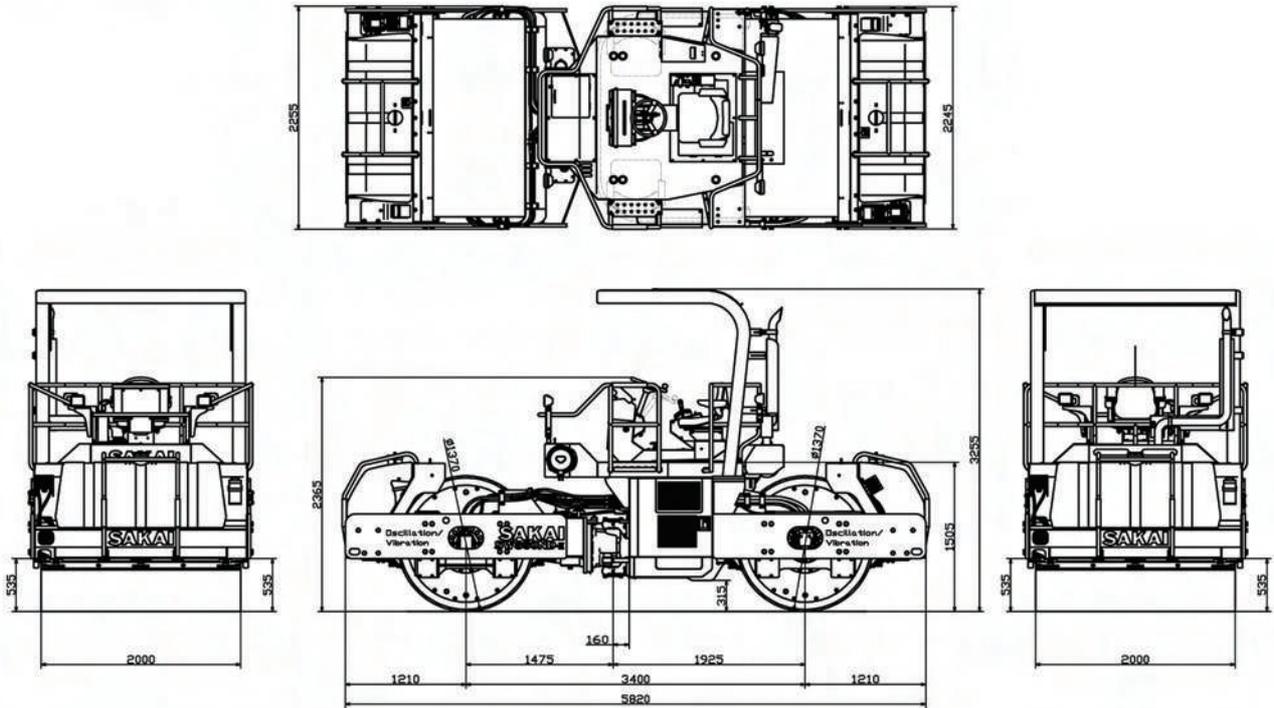
### SW850-II SPECIFICATIONS

<b>Model</b>		SW850-II	
<b>Weight:</b>			
Gross weight	13,170 kg (29,030 lbs)		
Empty weight	11,970 kg (26,390 lbs)		
<b>Dimension:</b>			
Overall length	5,820 mm (229")		
Overall width	2,205 mm (87")		
Overall height			
Steering wheel	2,340mm (92")		
Rops	3,270 mm (129")		
Wheelbase	3,400 mm (134")		
Wheel			
Front	Roll (dia. × width) 1,400 × 2,000 mm (55" × 79")		
Rear	Roll (dia. × width) 1,400 × 2,000 mm (55" × 79")		
<b>Performance:</b>			
Travel speed	1st	0 ~ 7.0 km/h (0 ~ 4.3 mile/h)	
(forward/reverse)	2nd	0 ~ 11.0 km/h (0 ~ 6.8 mile/h)	
<b>Vibrating power:</b>			
Gradability	31% (17.2°)		
Rolling width	2,000 mm (79")		
Minimum turning radius	6.3 m (249")		

<b>Vibrating power:</b>			
<b>Low amplitude</b>			
Frequency	67 Hz {4,000 vpm}	50 Hz {3,000 vpm}	42 Hz {2,500 vpm}
Centrifugal force	121 kN (27,120 lbs)	68 kN (15,210 lbs)	47 kN (10,580 lbs)
<b>High amplitude</b>			
Frequency	50 Hz {3,000 vpm}		42 Hz {2,500 vpm}
Centrifugal force	108 kN (24,250 lbs)		76 kN (16,980 lbs)
<b>Engine:</b>			
Model	DEUTZ "TCD2012L04-2V" Diesel Engine(EPA Tire3) (with turbo charger)		
Total displacement	4,038 cc (246 cu.in)		
Rated output	95 kW / 2,300 min <sup>-1</sup> (rpm) (127.4HP / 2,300 rpm)		
Max. torque	495 N·m / 1,600 min <sup>-1</sup> (rpm) (365 ft-lb / 1,600 rpm)		
<b>Tank capacity:</b>			
Fuel tank	250 liters (66gal)		
Hydraulic tank	80 liters (21gal)		
Sprinkler tank	600 liters × 2 (159gal × 2)		

#### 4. SPECIFICATIONS

### SW850ND-II



### SW850ND-II SPECIFICATIONS

Model	SW850ND-II		Vibrating power:	
Weight:			Oscillation	
Gross weight	13,370 kg (29,480 lbs)		Frequency	47Hz
Empty weight	12,170 kg (26,835 lbs)			{2,800 vpm}
Dimension:			Centrifugal force	171 kN
Overall length	5,820 mm (229")			(38,440 lbs)
Overall width	2,205 mm (87")		Vibration	
Overall height			Frequency	47Hz
Steering wheel	2,330mm (92")		Centrifugal force	138 kN
Rops	3,255 mm (128")			(31,025 lbs)
Wheelbase	3,400 mm (134")		Engine:	
Wheel			Model	DEUTZ "TCD2012L04-2V" Diesel Engine(EPA Tire3)
Front	Roll (dia. x width)			(with turbo charger)
	1,370 x 2,000 mm (54" x 79")		Total displacement	4,038 cc (246 cu.in)
Rear	Roll (dia. x width)		Rated output	95 kW / 2,300 min <sup>-1</sup> [rpm]
	1,370 x 2,000 mm (54" x 79")			(127.4HP / 2,300 rpm)
Performance:			Max. torque	495 N·m / 1,600 min <sup>-1</sup> [rpm]
Travel speed	1st	0 ~ 7.0 km/h (0 ~ 4.3 mile/h)		(365 ft-lb / 1,600 rpm)
(forward/reverse)	2nd	0 ~ 11.0 km/h (0 ~ 6.8 mile/h)	Tank capacity:	
Vibrating power:			Fuel tank	250 liters (66gal)
Gradability	30% (17°)		Hydraulic tank	80 liters (21gal)
Rolling width	2,000 mm (79")		Sprinkler tank	600 liters x 2 (159gal x 2)
Minimum turning radius	6.3 m (249")			

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