No. 3498-35550-2

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

OPERATING & MAINTENANCE INSTRUCTIONS

MODEL

SW800
SW850
SW900

From SW800 — VSW35 — 10101
SW850 — VSW32 — 10101
SW900 — VSW33 — 10101

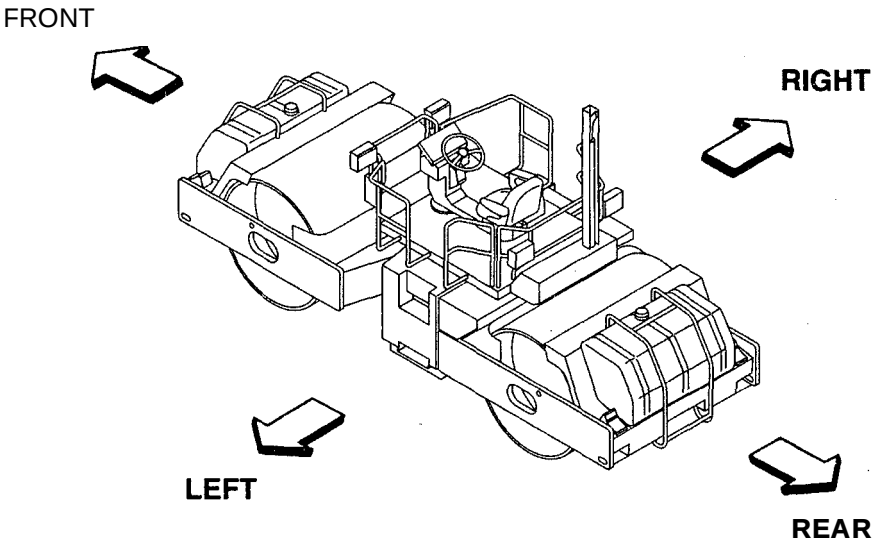
SAKAI®

PREFACE

This operator's manual serves as a guide for the use of your Sakai SW800, SW850 and SW900 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, SW850, SW900

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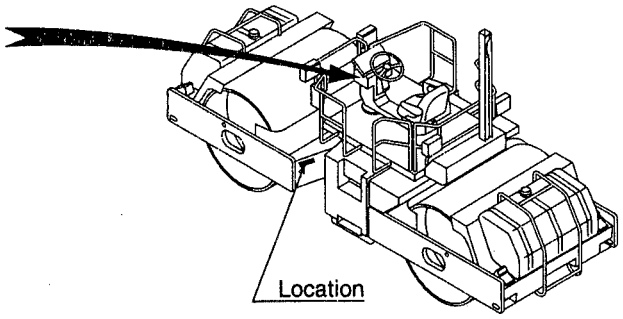
MACHINE AND ENGINE IDENTIFICATION NUMBERS

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

(1) Machine model

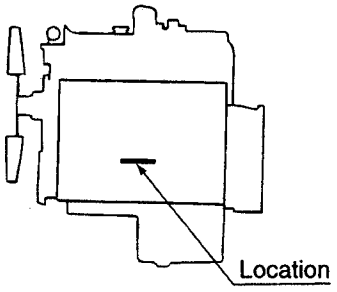
Indicated on the dashboard in the operator's station.



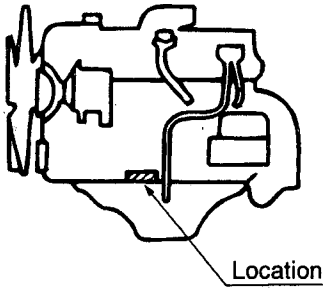
(2) Machine serial number

SW800	VSW35 – 0 0 0 0 0
SW850	VSW32 – 0 0 0 0 0
SW900	VSW33 – 0 0 0 0 0

(3) Engine serial number



SW800



SW850/SW900

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:

A DANGER 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 A is red).

A WARNING Denotes that there is a hazard. If you fail to take proper precautions, you could be killed or seriously injured (Symbol A is orange).

A CAUTION Calls attention to safety practices. If you fail to take proper precautions, you could be injured or cause damage to the machine (Symbol A 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 decales.

⚠ WARNING

*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.

1. BASIC PRECAUTIONS FOR SAFETY

1.1 General Precautions

III 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.

II 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.

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■ **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.

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

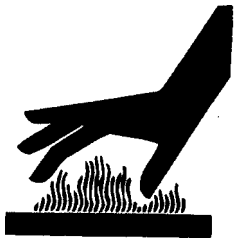
- Before working, perform necessary inspections. Start operation only after making certain the machine is in good operating condition. If found to be abnormal, report to the responsible person and have the fault corrected. Operate the machine after making sure that it is safe to operate.

■ 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.

■ 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.

1111 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

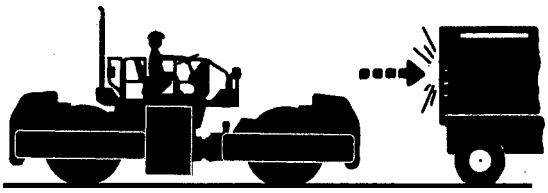
- **Clean the step, operator's station and floor board.**
- Do not place parts, tools or unnecessary articles on the step, operator's station and floor board.
- Keep the step, floor board, controls and handholds free from muds, oil, ice or water, as they can cause slippage. Repair them if found to be 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.

■ 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.

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■ **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.
- Check the area where the machine has parked for signs of leakage or oil, fuel and water. If any leakage is noticeable, determine the cause and make corrections immediately.

■ **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.**

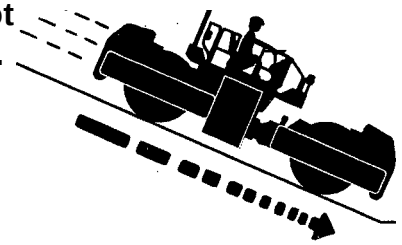
- Before getting on the machine, make certain that there are no obstacles around the machine and no workers under it. If some workers are present or close to the machine, tell them that the machine is about to move, warning them to stay away from it.

■ **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.



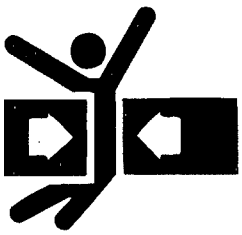
1111 Refrain from inattentive driving.

- 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.**

III 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.**

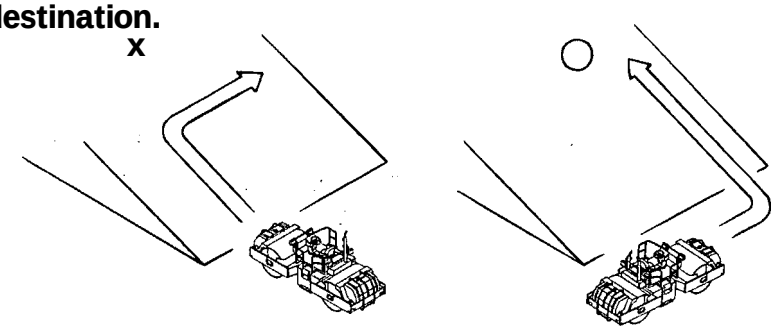
- If the machine is found to be faulty, stop the machine and repair. Do not operate the machine until the problem is corrected. When any warning lamp indicates faulty operation, inspect the machine after moving it to the nearest safe location.

■ **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.**

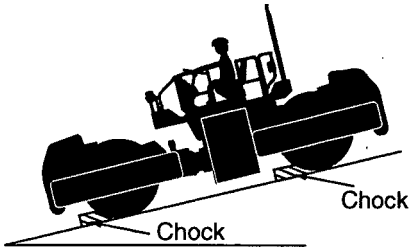
III For the traveling on structures such as a bridge, make certain that they can support your machine. Before traveling on the structure, you must know the load capacity of the structure and the load weight of the machine you are operating to insure safe travel across the structure.

■ **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.**



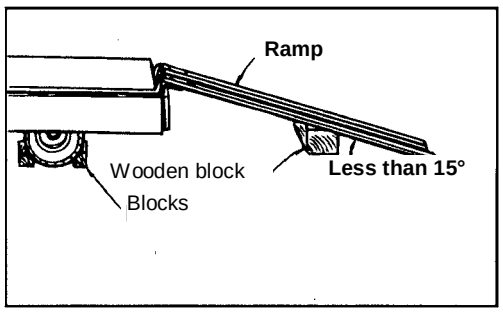
■ **When parking.**

- 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.



- 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:

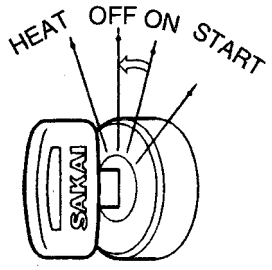
- Battery electrolyte contains sulphuric acid. It will destroy clothing and skin. If it touches your clothing or skin, flush with large quantities of water.
- In case of eye contact, flush with clean water and seek medical help.
- If swallowed, drink large amount of water, milk, beaten egg or vegetable 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.

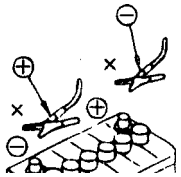
Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm.

Wash hand after handing.

- 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.

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.

A DANGER

■ **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.

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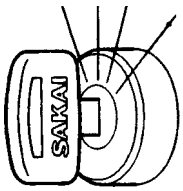


■ Supplying fuel and oils

- 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.

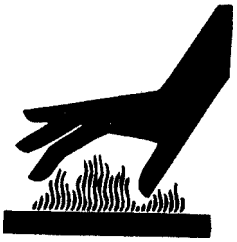
- Do not try to bend or hit hoses against a hard object. Do not use hoses or pipes that are bent or damaged. They will burst.
- Replace damaged fuel hose and hydraulic hoses. An oil or hydraulic fluid spill can cause a fire.

A WARNING: Negligence of these instructions can lead to accidents.

■ Be careful of high pressure hydraulic fluid.

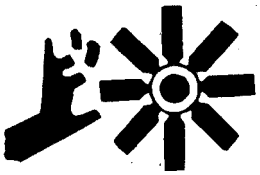
- Bear in mind that the working equipment hydraulic systems are under internal spressure. Do not perform adding, draining, inspection or servicing of the hydraulic systems until the internal pressure has been relieved. Hydraulic fluid leaking through a fine hole at high pressure can penetrate your skin 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



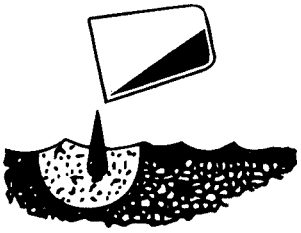
- After the machine has been operated for some time, the coolant, engine oil and hydraulic fluid will become hot.
- Removing the radiator cap or draining the coolant or oil can burn you. Perform this work in accordance with correct procedures after the systems have cooled down.

■ 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.

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.

() 3998-16504-0

A WARNING

1.When Handling the Machine:
Operate only while sealed.
Ilse the handrails and steps when boerding and getting oft. - Never carrr passengers.
Never ellempl to board or get off the machine while it is moving.
2.Preparotion for Sole Operation
Clear, the steps. operator' s slolion and floorboards.
'Obey the morkslle rules.
'Sakai accepts no responsibility for any injury or damage to the machine caused by unapproved modification. -Do net use a machine which needs repair or maintenance. Sound the horn immediately prior to starting the engine to morn people in the vicinity.
3.Starting the Engine
-Check that all operating levers ore in the neutral position. 'Idle the engine for shout 5 minutes to warm it up prior to commencing work.
4.Parking Precautions
.When parking the machine. perk it on level ground. set the perking switch and set the roller chocks.
Allow the engine to coot off by running it for about 5 minutes before stopping.
-When getting off the machine, remove the key from the ignition switch.

7,93-16,04-0

3998-16499-0

A WARNING

.Do not open the hood with the engine running.
.Contoet with hot parts will cause burns. - Contact with rotating ports will cause severe in)ury.

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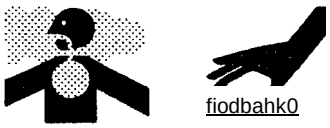
U3 3998-16500-0 (2 locations)

A WARNING



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Avoid inhalation of coolant gas.
•Avoid contact with exhaust pipe while engine is running and after it has been stopped. Contact with hot exhaust pipe ■mill cause burns.

asse• 16500..0

® 3998-16497-1

A WARNING

.Do not operate your machine before you read its operator's manual thoroughly-
-Incorrect operation can cause severe in)ury or death. 'It is your responsibility to operate the machine safely.

7993-16497-1

3998-16502-0

A DANGER

\/ / °C= t3	.00 not approach, or allow objects to touch, the rotating parts. Body parts contacting rotating mechanism will be severed.
74111	-Do not open the radiator cop when fluid is hot. 'Rodiator fluid is flammable. Avoid exposure to flame when radiator cop has been removed.
	Avoid contact with the machine parts in the vicinity of the engine while engine is running and after II has been stopped. Contact _ will, hot parts will souse burns.

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0 3998-16505-0

A DANGER

Poll Over Prevention
.Do not work in the vicinity or overhanging banks, or on grades steep enough to souse the machine to slide or roll over. Reduce speed prior to malting turns.
.Pay particular attention when operating on uneven surfaces. es the machine may become unstable.

.9.0.16150.0

C) 3998-36002-0 (2 locations)

0 3998-16501-0

A DANGER

Be Careful with Fire
'When refueling, stop the engine and do not do not smoke.
.ihe filter cap of the fuel tank must be kept tight.

® 3998-06139-0

40 3998-16510-0

A CAUTION

Refit the specified quantity of oil in the vibrator case when changing oil.

® 3998-16507-0

A CAUTION

Grease all nipples daily prior to commencing work.

79•3•16507.0

® 3998-16489-0

CALIFORNIA
Proposition 65 Morning
Diesel engine and some of Its constituents are known le the Stole of California to couse cancer, birth defects, end other reproductive harm.

3998-16547-0(4 locations)

A WARNING

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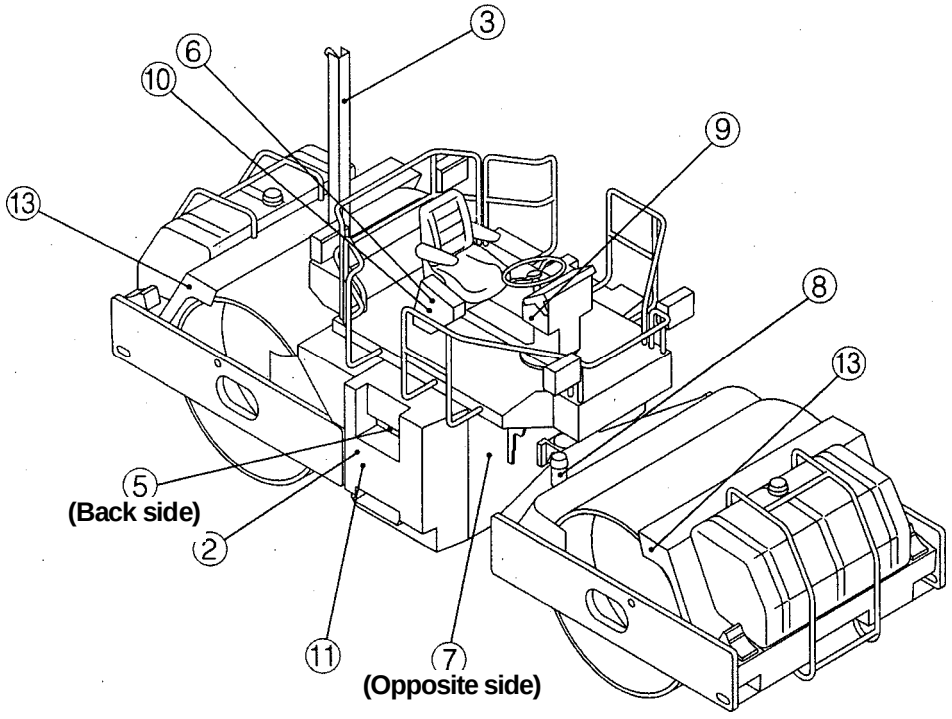
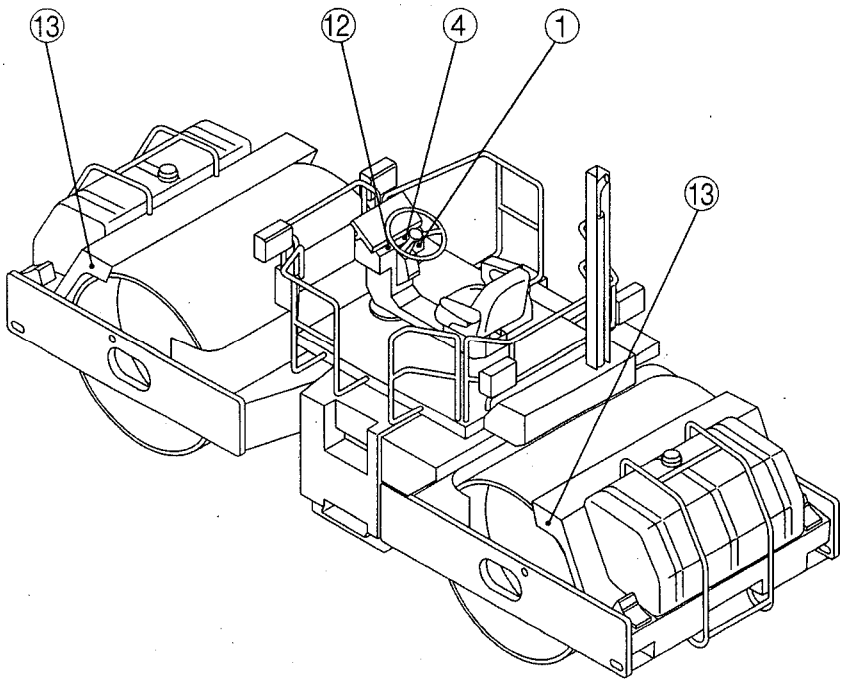
SW800,SW850,SW900

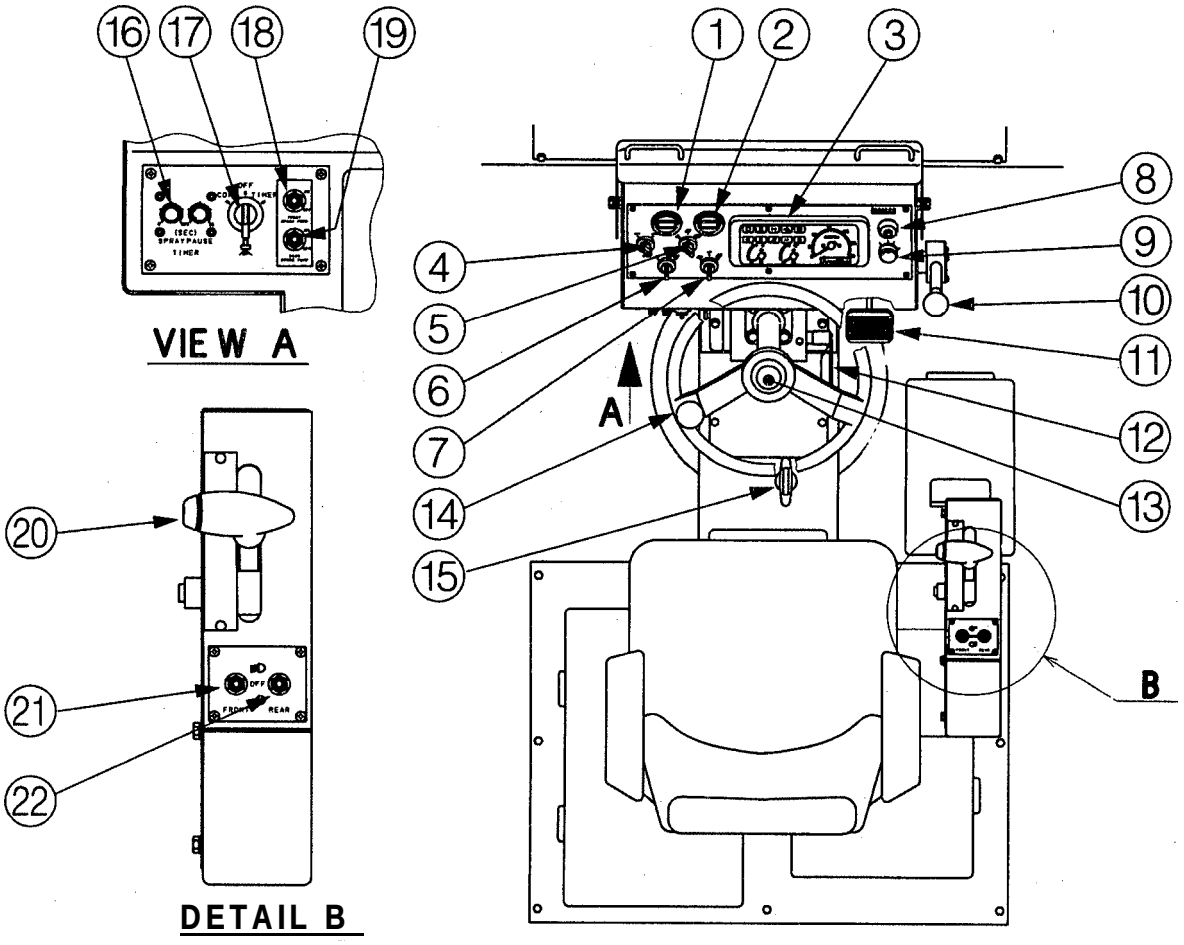




2. OPERATION

2.1 Instruments and Controls

2.1.1 Operator's station



CI Vibration frequency meter (Option)

- Speed meter (Option)
  Combination meter

® Vibration mode selector switch

© Vibration frequency selector switch ©
Vibrator switch (Front wheel)

© Vibrator switch (Rear wheel)

® Parking brake switch

® Starter switch

(t) Throttle lever
Brake pedal

© Steering wheel tilt lever

- Horn switch
- Steering wheel
  Swivel lock lever

ID Sprinkler timer

- Sprinkler CONT-TIMER selector switch

(1D Front auxiliary pump switch (Option)

(I) Rear auxiliary pump switch (Option)

® Forward-Reverse lever (F-R lever)
with vibrator switch

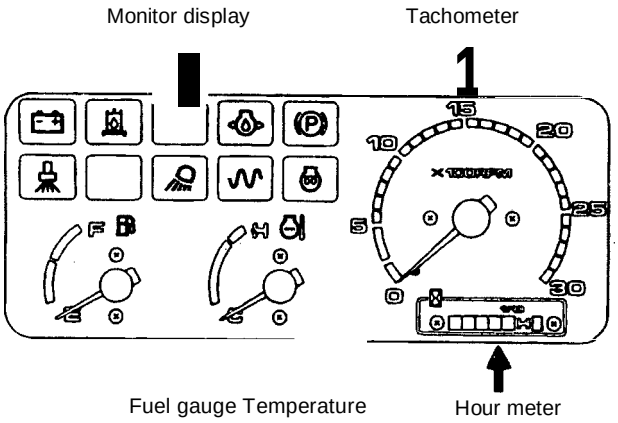
® Lamp switch

a 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 mater



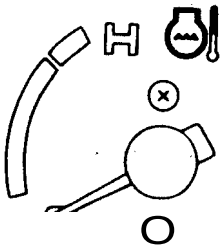
Tachometer / Hour meter

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.



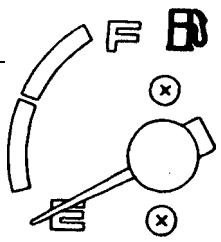
Temperatune gauge

Fuel gauge

Indicates the fuel level in the tank.

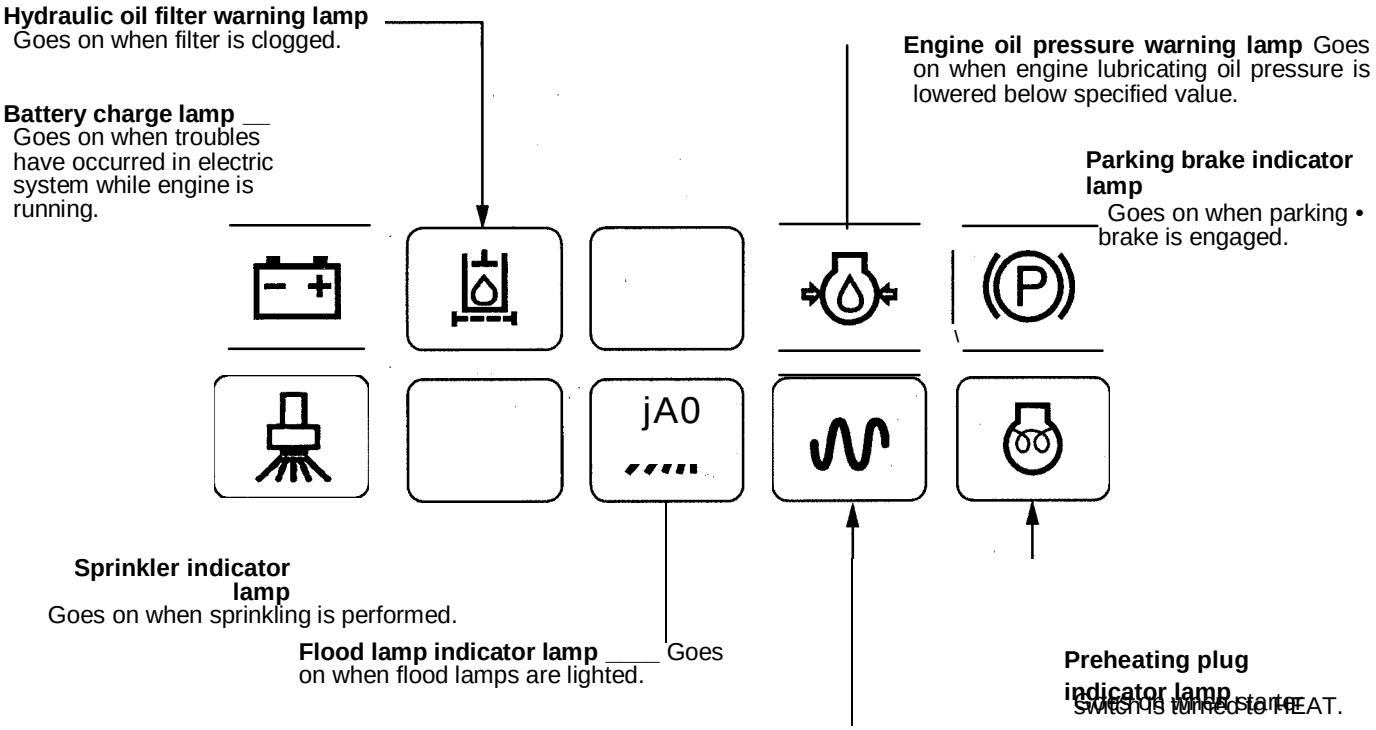
E: The tank is empty.

F: The tank is full.



Fuel gauge

Monitor display



*Indicator lamps [11 ,moo

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.

* Bulb failure check

= Warning lamps and parking brake indicator lamp =

They should go on when the starter switch is turned to the ON position.

If not, corresponding bulb has burnt out.

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.

2.1.3 Switches

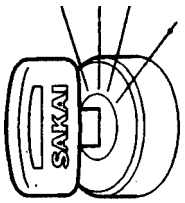
Starter switch

Starts and stops the engine.

HEAT : When the engine is cold, hold the starter switch in the HEAT position, the heater indicator lamp will go on. Stay in that position until the indicator

-C OFF ON

497.



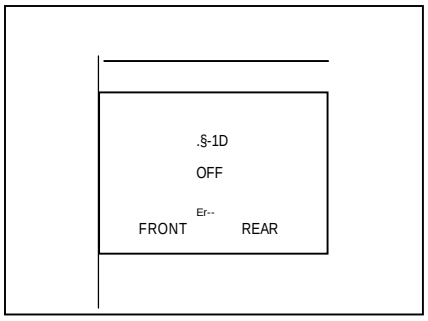
Lamp switch

Has three positions.

OFF : All lamps are switched off.

-,-D : Head lamp low beam and combination meter lamp go on.

: Head lamp high beam goes on.



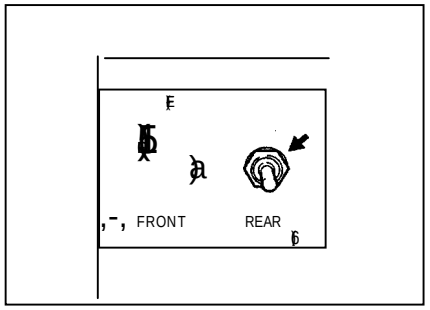
Flood lamp switch

Has three positions.

OFF : All lamps are switched off.

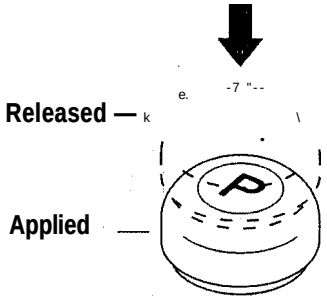
: Flood lamp low beam and indicator lamp of OK Monitor display go on.

: Flood lamp high beam goes on.



Parking brake switch

If switch J is pressed down, the parking brake applies with the indicator lamp (®) on the monitor display lighted up.
When pressed again, the brake is released and the indicator lamp goes off.



WARNING

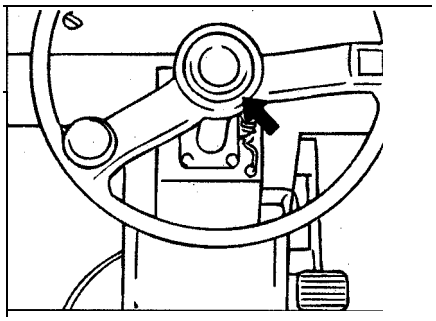
- **To disengage the brake, be sure to press the button again instead of pulling it.**
- **When dismounting from the machine, press the button to apply the brake without fail.**
- **To make an emergency stop of your roller, be sure to use brake pedal.**

CAUTION

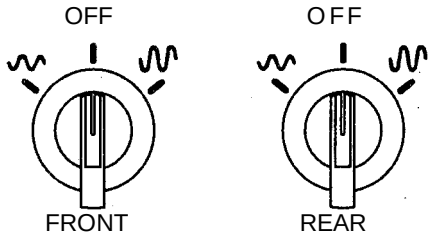
Never pull the switch up.

Horn switch

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

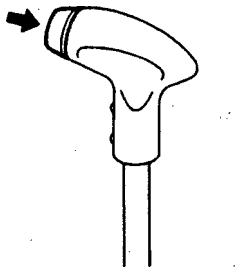


Vibrator switch



Shuts off vibration and selects drums.
AP (Front): The front drum vibrates.
AP (Rear): The rear drum vibrates.

: High amplitude vibration.
OFF: -Vibration is shut down. :
Low amplitude vibration.



The vibrator switch mounted on the F-R lever also shuts off vibration. When vibration switch remains OFF, even operating the switch on reversible travel lever does not cause vibration to start. Make sure that the vibration switch is in either " " or " " position, before operating the switch on reversible travel lever.

NOTE: For vibratory compaction, run the engine at 2,200 rpm or higher.

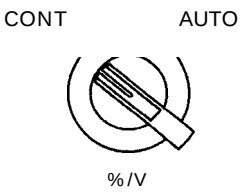
— IMPORTANT

- **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 " **ınr "** with the vibrator switch. The front or rear drum or both will start vibrating.



AUTO mode: Select " vv. " or " tnp " with the vibrator switch. Shift the F-R lever forward or back-ward as desired. The moment the machine has started, the vibrator automaically goes into action. The vibrator stops automatically if the F-R lever is brought back to neutral.

Vibration frequency selector switch

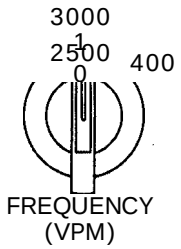
Allows to select vibration frequency. Select it in accordance with condition of the working site.

" 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 " **al% "** position (high amplitude stage),vibration take place at 3000vpm.



NOTE: Travel speed for vibrating compaction is optimum at 2-7km/h.

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

Sprinkler switch / Sprinkler timer / Sprinkler indicator lamp

Switch ® selects the sprinkler modes.

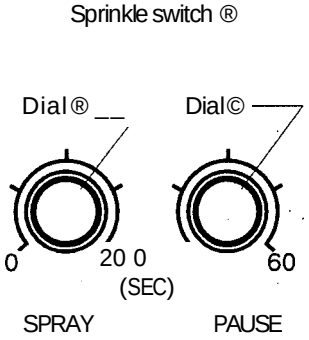
CONT : Continuous sprinkling is performed.

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 0, idling dial ©). Then turn switch 0 to the TIMER position. Sprinkling will start.

Sprinkling duration can be adjusted within 0 - 20 seconds with dial 0. Idling duration can be set within 0 - 60 seconds by turning dial ©. Adjust the dials to meet job conditions.



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

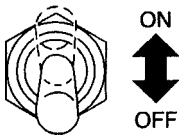
Front Auxiliary Pump switch / Rear Auxiliary Pump switch (Sprinkler)

(OPTION)

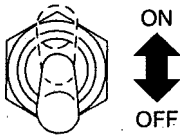
To be used at the time of main sprinkler pump failure.
Turning ON the auxiliary pump switch for the failed side (front or rear), causes the auxiliary pump to start sprinkling.

ON : Auxiliary pump is usable.

OFF : Main sprinkler pump is usable.



F R O N T
AUX.PUMP



R E A R
AUX.PUMP

A WARNING

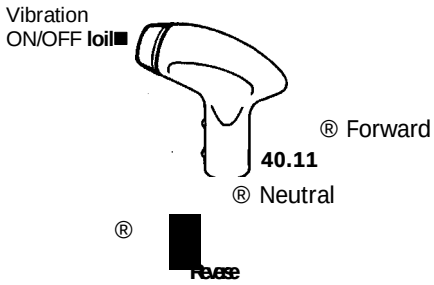
During normal operation (while main sprinkler pump is in operation), this switch should remain at OFF position. Before turning this switch on, be sure to turn the three way cock to the auxiliary pump side. (See Page 41).

2.1.4 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).



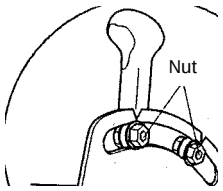
IMPORTANT

- **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 position ® and brake is applied.**

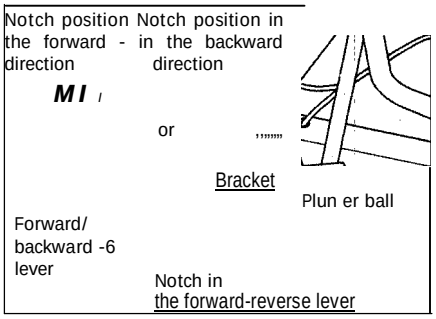
Speed control mechanism of forward - reverse lever

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.



Back side



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 — 7.5 km / h (4.7 mile / h)
SW850 / 900 — 7.0 km / h (4.4 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.

Throttle lever

Shifts the engine RPM.

The engine RPM increases when moved toward the operator.

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 ashalt pavement, this can cause damage to its surface.

NOTE: Depressing the brake pedal brings the F-R lever into neutral position

Unloader valve

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

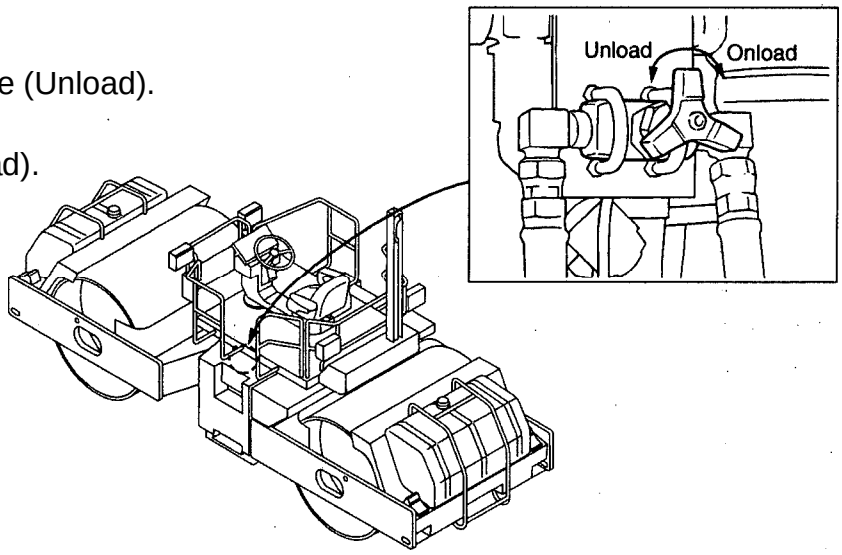
The unloader valve disengages the drive, playing a role like a clutch. Use this valve for towing the machine when the engine is disabled or when troubles have developed in the hydraulic drive.

For towing:

Turn the valve counter-clockwise (Unload).

For normal traveling:

Turn the valve clockwise (Onload).



__ WARNING

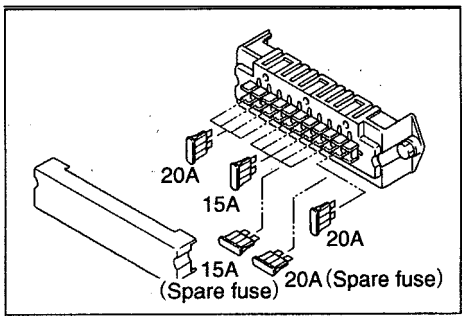
- **On a slope, chock the wheels and use extreme care when handling the unloader valve and towing the machine.**
- **Be sure to apply the parking brake when operating the unloader valve.**

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

2.1.5 Fuse box

A WARNING

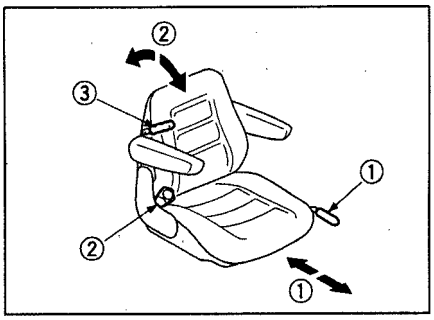
When changing a fuse, cut the power supply by turning the starter switch to the OFF position.



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.

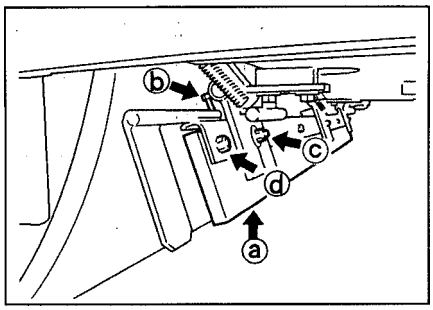
Adjust your seat position to suit you as follows:

1) Pull the lever D and adjust seat position longitudinally.
2) Turn the backrest adjust dial 0 for optimum angle.
3) Move the suspension lever © 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 ® and roll: 0 Loosen set bolt ,$) at 2 locations.
   ©With nut © loosened, eliminate the clearance between scraper and roll before tightening the nut © again.
   © Make fine adjustment of the gap between scraper blade ® and roll by means of set bolt (b),

2) Replacing the scraper blade:

0 Remove bolt and nut e at 7 locations.
Replace scraper blade 0 with new one.
0 Reinstall and tighten the bolts and nuts e.

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

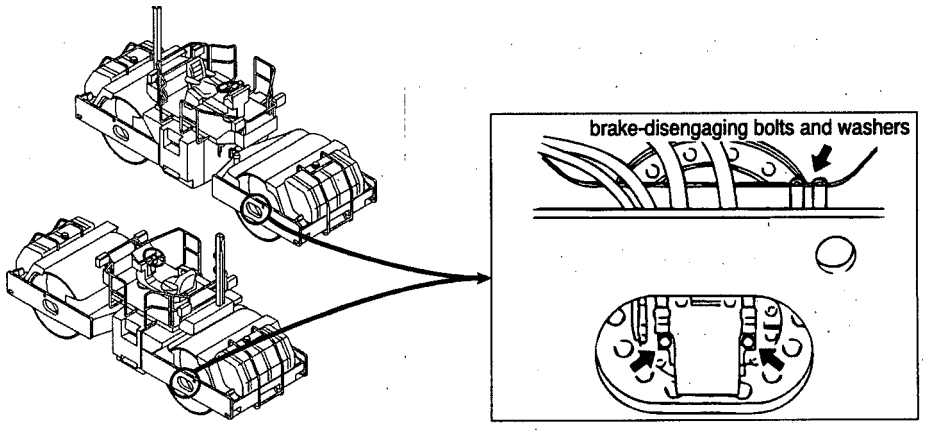
2.2.3 Disengaging the brake when towing

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:

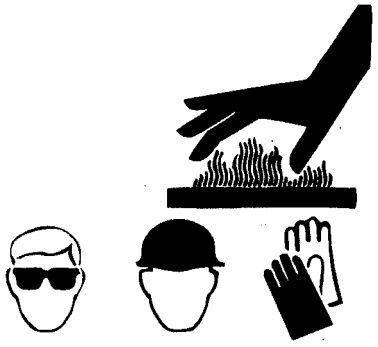
Use the same procedure for both front and rear roll.

CD 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.**



o 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.

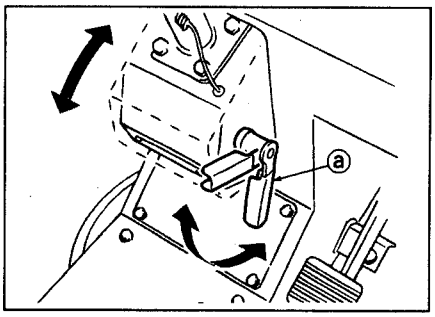
o Screw in the removed bolts with the washers into the plug holes alternately. Screwing in them until they become a little tight will disengage the brake.

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

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

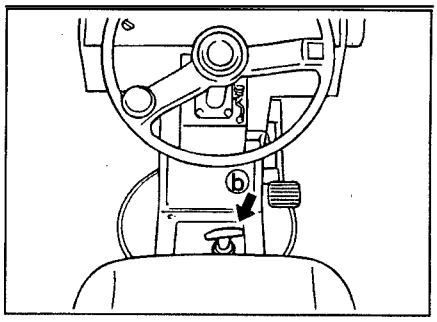
2.2.4 Steering wheel position adjustment

o Pull the lever Ⓡ upward. Doing so disengages the lock off the wheel.
Adjust and set the wheel for your operating ease. 0
Lower the lever Ⓡ 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.



o While pulling up the swivel lever U, rotate the dashboard by pushing it with your hand.

e Soon as it starts rotating, release the swivel lever and continue to push the dashboard. At 60 degrees, it will be automatically locked.

o Continuing the same action while pulling up the swivel lever (b) further, causes the dashboard to be locked automatically at 90 degrees.

A CAUTION

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

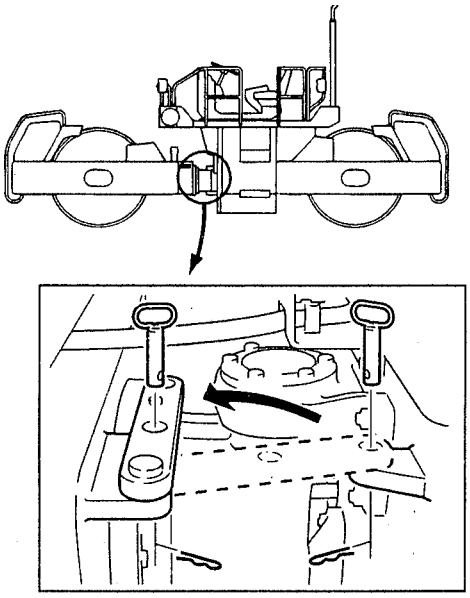
2.3 Operation

A 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.



A WARNING

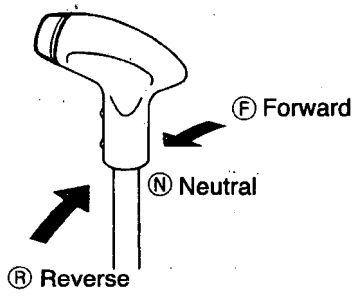
Make sure that the steering lock bar is connected in the carrying position before putting the machine in motion. Steering is impossible if the bar is in the steering lock position.

The bar is located at the left of the center of the machine.
To unlock the bar:

- Remove the spring pin.
  Pull out the lock pin.
- 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



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

2.3.2 Starting the engine

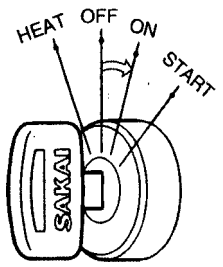
Check that the F-R lever is in the neutral position, and sound the horn when starting the engine after making certain that there are no one and no objects close to the machine.

(1) Set the throttle lever in a position slightly higher than IDLING.

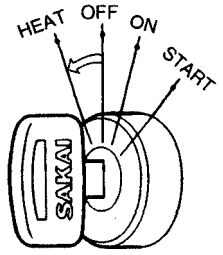
Idling

Full throttle

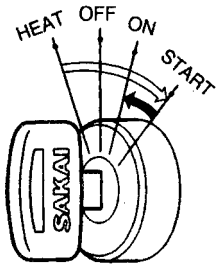
(2) Turn the starter switch to the ON position and check that the warning lamps and parking brake indicator lamp on the monitor display are on.



(3) In cold weather, hold the starter switch in the HEAT position until the heater indicator lamp goes on. Let the switch, key to stay in this position till the indicator lamp goes off. Now the engine is ready to start.



(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.



Ak 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.

D Run the engine at around 1,200 rpm 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.

O 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.

°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

A CAUTION

While travelling, do not turn the starter switch OFF.

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

(1) Speed up the engine by pulling the throttle lever towards you. ,

Idling

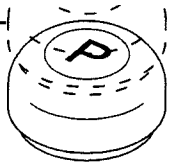
Full throttle

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

7

Released —

Applied —



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

A CAUTION

Avoid abrupt operation of the F-R lever.

® Forward

® Neutral

® Reverse

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

A WARNING

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

2.3.5 Stopping I Parking

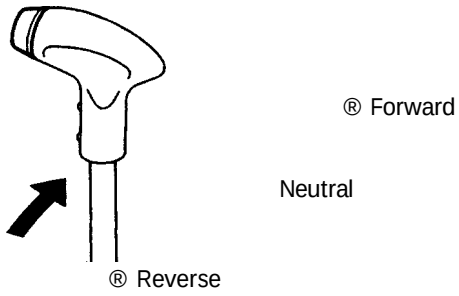
A WARNING

- **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 and the machine will come to a halt.

A 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 (®) illuminates.

2.3.6 Stopping the Engine

(1) Cool down the engine grabually by idling it for about 5 minutes with throttle lever left in idling position.

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.**

(3) Remove the starter key.

WARNING

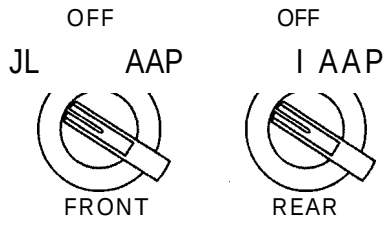
- **When dismounting from the machine, apply the parking brake by actuating the parking brake switch. If necessary to park on a slope, chock the drums.**
- **Remove the starter switch key.**

2.3.7 Check after Stopping the Engine

(1) Perform the walk afround 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.

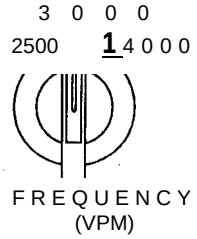
2.4 Vibratory Operation

(1) Run the engine at 2,200 rpm or higher by operating the throttle lever.

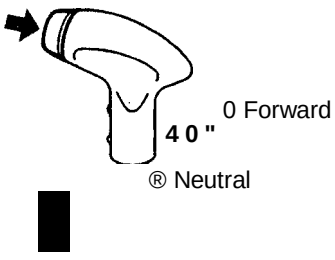


(2) To generate vibration, set the vibrator switch in the LOW position (low amplitude) or HIGH (high amplitude).

(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.



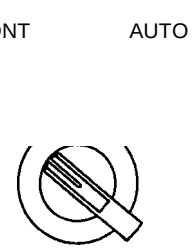
(4) Vibration can be turned ON or OFF with the switch provided on the F-R lever as well. Pressing the switch starts the vibration and pressing it again stops the vibration.
The switch on the F-R lever should be used with the vibration switch on the panel remaining at " 4v· " or " ıN% " position.



F-R lever with Vibrator Switch

(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 : With the vibration switch placed at" 4v` " or " dV% " 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.



AUTO position : With the vibration switch placed at " •AP " or " " position and the switch no F-R lever turned ON, 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.

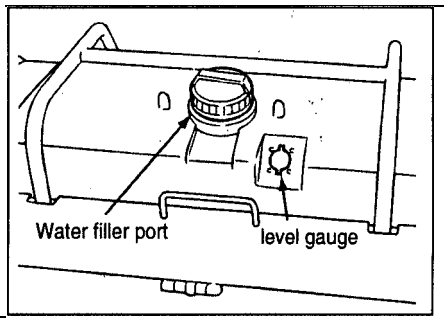
(7) Proper travel speed for vibratory compaction is 2-7 km/h, however, select speeds depending upon job requirements.

A 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.

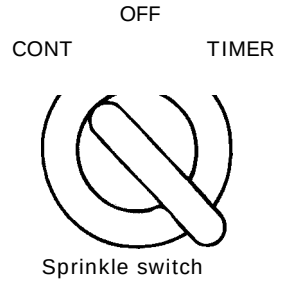


IMPORTANT

Use clean water wherever practicable.

(2) Continuous and intermittent spray selector switch The switch 0 allows to select continuous or time spray.

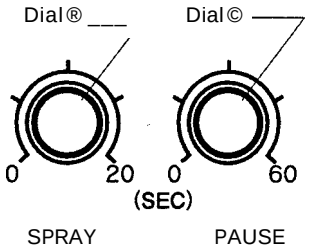
CONT : For continuous spray OFF
: Sprinkling discontinued.
TIMER : For Intermittent spray.



Sprinkle switch

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

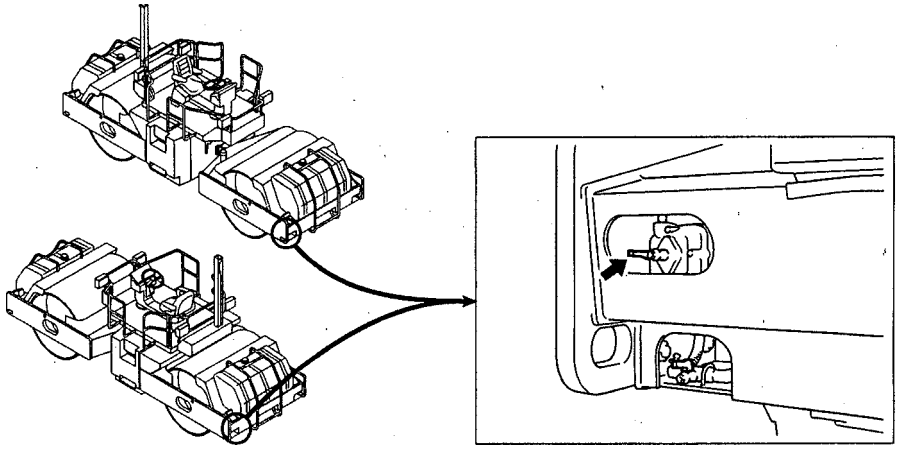
Spray time is adjustable between 0-20 seconds with Spray Dial 0 and so is pause time between 0-60 seconds with PAUSE Dial © respectively as desired. Adjust it according to the job requirement.



IMPORTANT

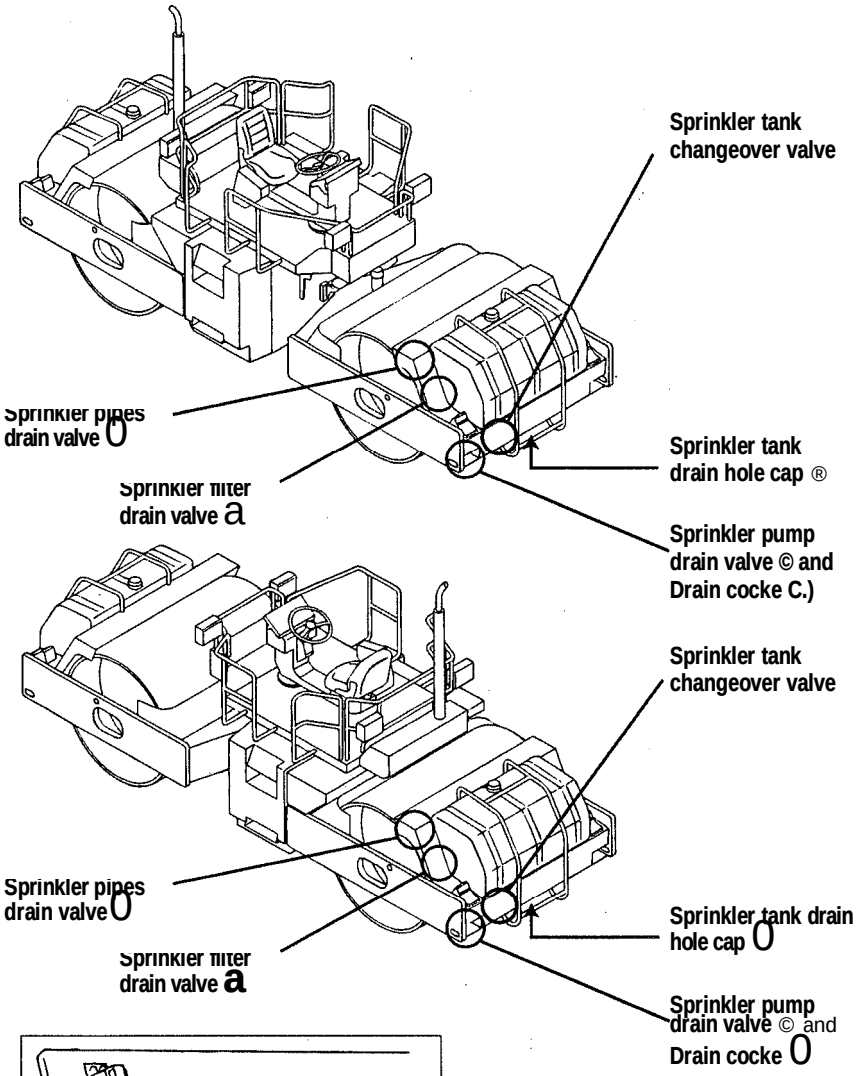
- **When starting asphalt compaction, place the spray switch at CONT position and moisten the roll surface completely before selecting TIMER spray.**
- **For resuming the work after short break, too, follow the same procedure.**

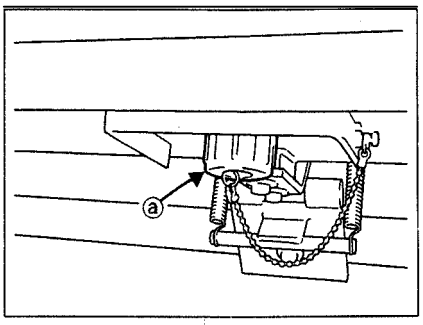
NOTE: After draining the tank, there may be a case where water does not come out of sprinkler nozzle even if you attempt to sprinkle. If that is the case, turn a valve located at the sprinkler pump drain valve 90 degrees for air venting. Be sure to return the valve to original position after completion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

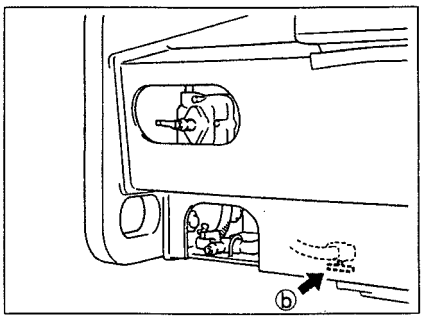


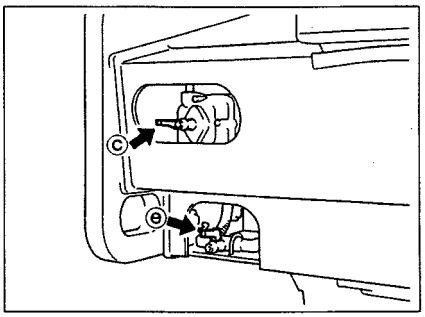
CAUTION

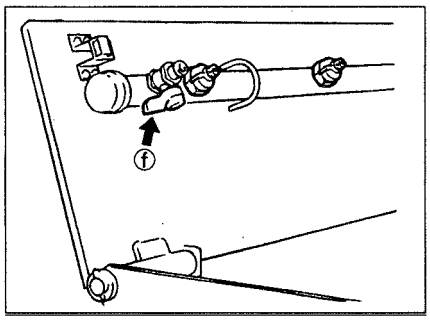
- **To avoid freezing, fully drain the sprinkler tank, pipes and filter in cold weather.**
- **Pay attention to level of water because turning the pump with empty tank results in trouble.**

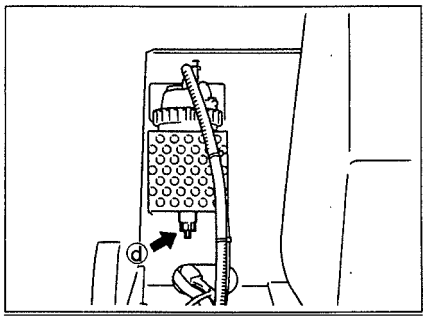












To drain water:

C) Remove spray water tank drain cap ® and drain water from the tank completely.

()With the tank selector valve 6 fully opened, open drain valves for water spray pump ©and spray water filter a as well as drain cock © to drain water completely.

Open drain valves0 of sprinkler pipes at front and rear, to drain water completely.

® With the drain valve of spray water pump opened, idle the pump for about 30 seconds, so that water inside is drained completely.

® Drain water remaining in any hose, pump or nozzle completely.

= **Sprinkler back-up system (Option)** =

In case main sprinkler pump should fail, sprinkling operation can continue by actuating the auxiliary pump in the following manner:

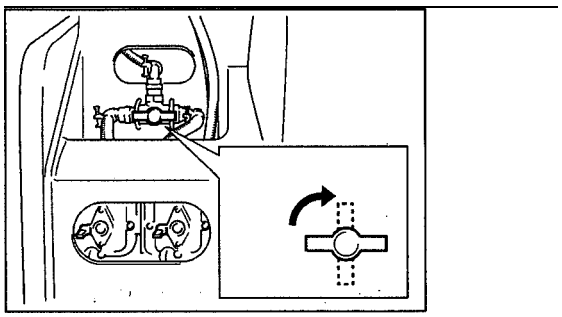
CD Switch the three way cock of the failed side (front or rear) to auxiliary side.

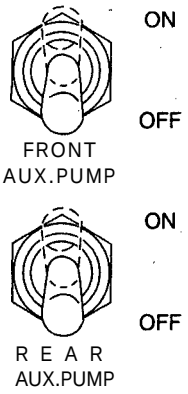
© Turn ON the auxiliary pump switch, located on the control panel at the operator seat. (Make sure that the three way cock has been turned to the auxiliary pump side.)

0 That allows you to continue sprinkler operation normally.

® After completing your work, replace the failed pump.

© Turn the three way cock to the main pump side and turn OFF the auxiliary pump switch.





2.6 Precautions for Work

2.6.1 Compaction operation

■ Do not operate the vibrator on hard location

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

■ 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 avariety 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

2.8 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 40).

_ 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

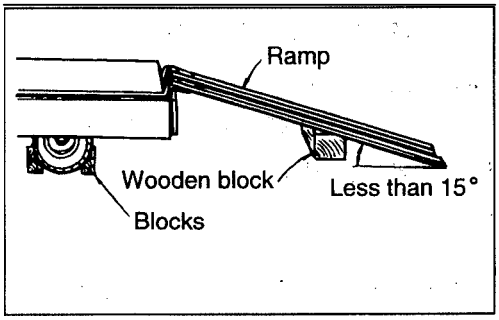
__ WARNING _____

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.

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

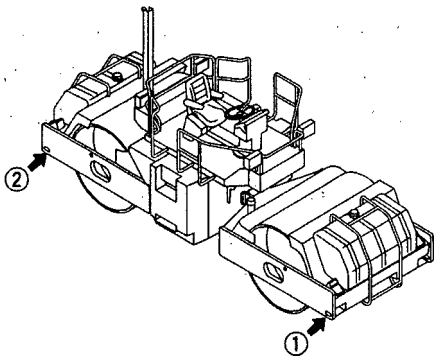
r The angle between the ramps and ground must be less than 15 degrees.

* 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 © or 0 (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 27).

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

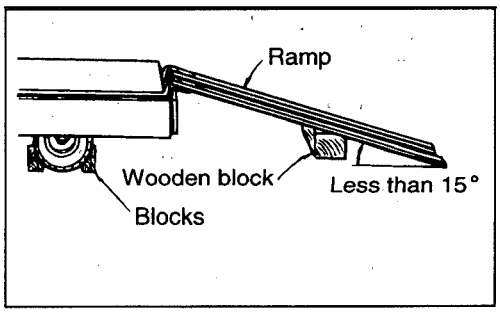
(6) When the loading is completed, set the unloader valve back in the ONLOAD position.

(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.

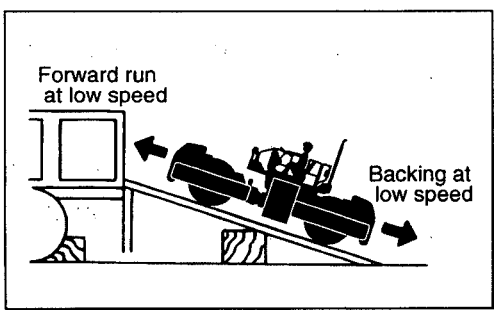
r The angle= between the ramps and ground must be less than 15 degrees.



' 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.

2.10 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.

2.1.2.1 Fuel oil and grease

Use fuel and oil with low viscosity. See "Rating" on page 70.

2.12.2 Coolant

WARNING

Do not bring an open flame to the untifreeze 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 the lowest temperature in the job location.

SW800

Ambient temperature	–33°C (-27.4°F)	–26°C (-14.8°F)	–20°C (-4°F)	–16°C (3.2°F)	–11°C (12.2°F)
Amount of anti-freeze	10 2	9 *2*	8 *2*	*7 2*	6 *2*
Amount of coolant	10 2	11 *2*	12 *2*	13 *2*	14 2
Ratio	50 %	45 %	40 %	35 %	30

SW850 • SW900

Ambient temperature	–33°C (-27.4°F)	–26°C (-14.8°F)	–20°C (-4°F)	–16°C (3.2°F)	–11°C (12.2°F)
Amount of anti-freeze	11.5 2	10.3 2	9.2 *2*	8 *2*	6.9 2
Amount of coolant	11.5 2	12.7 2	13.8 2	15 *2*	16.1 2
Ratio	50 %	45 %	40 %	35 %	30 %

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

IMPORTANT

Use of a high consistency untifreeze coolant in summer time can cause the engine to overheat depending upon job conditions. Use a coolant with the water-untifreeze ratio of 70 to30.

2.12.3 Battery

IN

- **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 Level of charge (%) N	20°C (68°F)	0°C (32°F)	—10°C (14°F)	—20°C (-4°F)
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

2.13 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 70.
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 0°C, add antifreeze to the coolant.
6) Completely drain the sprinkler system.
7) Place the F-R and Vibrator lever in the neutral position 0, 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.

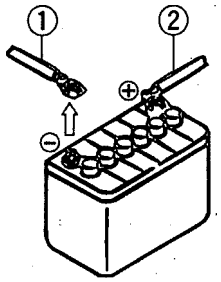
During storage, operate the machine at least once a month to prevent the oil films on the lubricated parts from deteriorating and to charge the batteries.

2.16 When the Battery has Discharged

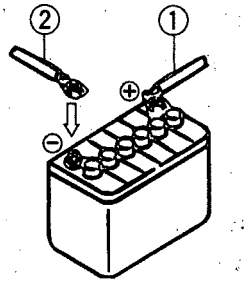
A WARNING

- **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:

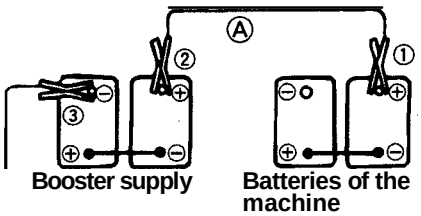
■ Connection of booster cables

(1) Connect one end of the positive booster cable 0 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 ® to the negative (—) terminal of the booster supply.

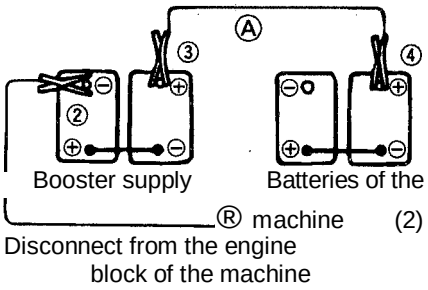
(4) Connect the other end of the negative booster cable to a good earth of the engine block of the machine.



Connect to the engine block earth of the machine

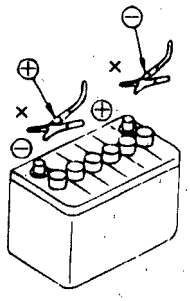
IM Disconnection of booster cables

(1) Disconnect the negative booster cable Ⓡ from the engine block earth.
(2) Disconnect the negative booster cable from the booster supply.
(3) Disconnect the positive booster cable Ⓡ from the booster supply.
(4) Disconnect the positive booster cable Ⓡ from the machine.



A WARNING

- **Do not allow the positive** (+) **terminal to make contact with the negative H terminal when connecting the booster cables.**
- **Wear safety goggles when jump-staring 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.**



A 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.**

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 lubricant's.
3) For hydraulic oil replenishment, changing, level checking, filter cleaning 6r 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.

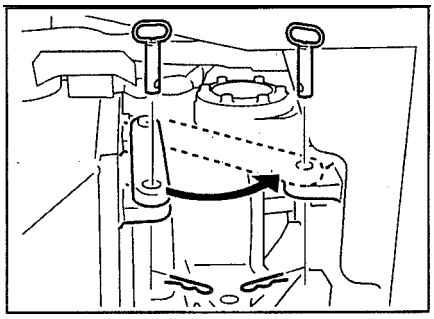
__ CAUTION

- **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 ^{E}> 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

3.1.1 In using the crane

WARNING

Operator of the crane for lifting or lowering, has to have a lawful license.



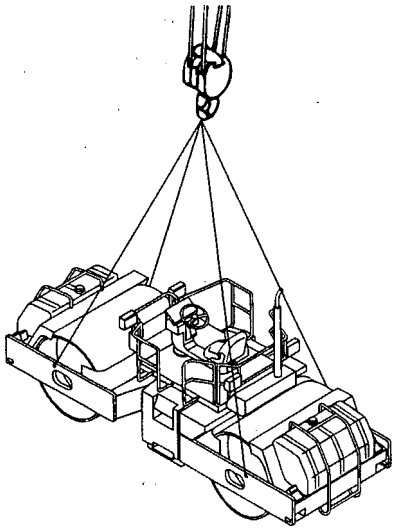
- **For lifting the roller, use wire rope with sufficient strength.**
- **When lifting, be sure to lock the articulation of**

(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.

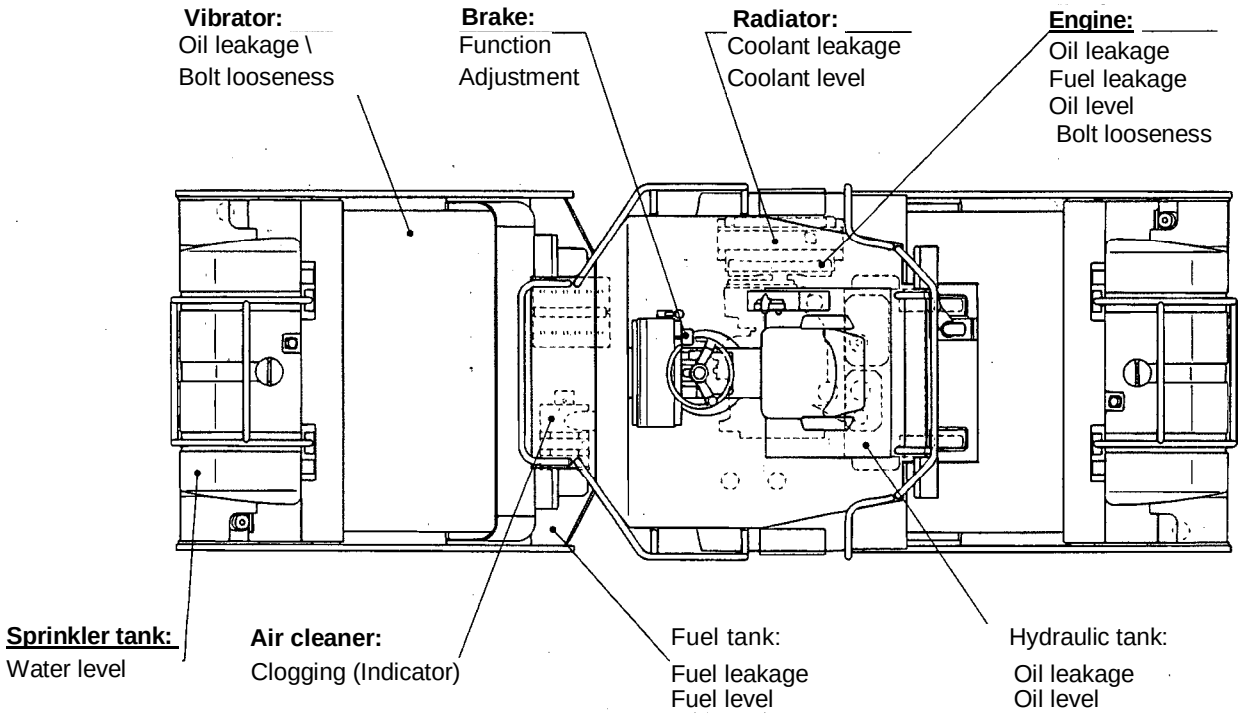
(3) Load or unload the machine, while making sure of the balance.

(4) Load the machine at prescribed spot on the truck bed.

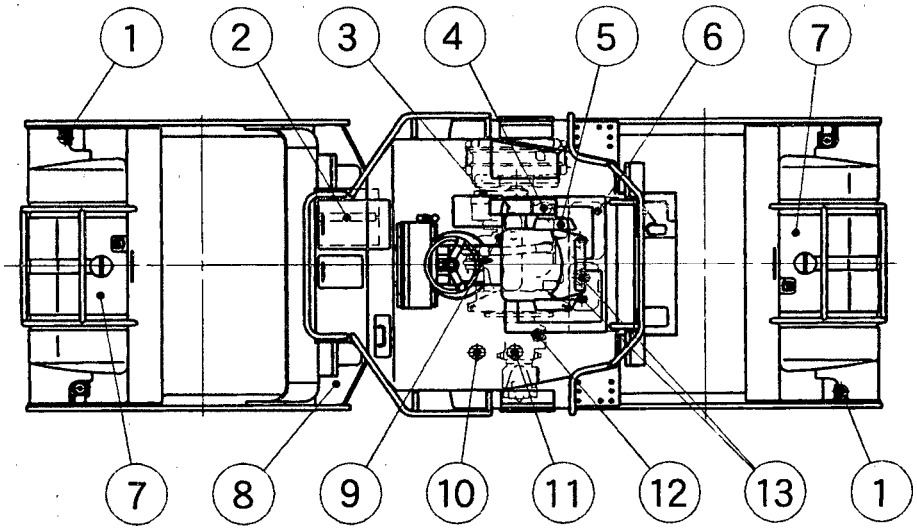


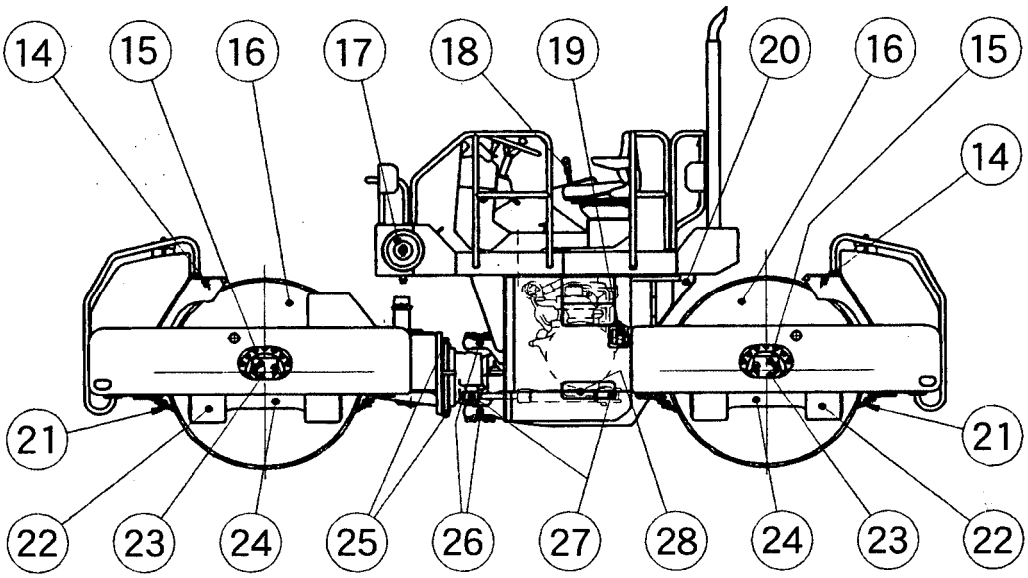
3.2 Walk-around Checking

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:



3.3 Periodical Maintenance Points





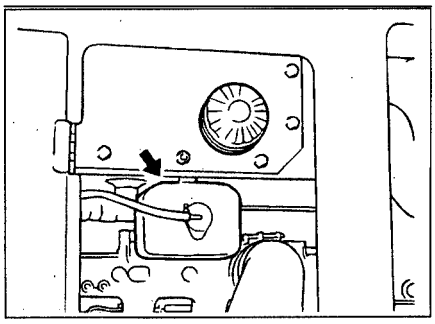
Interval	Ref. No.	Item	Service	Lubricant	Q'ty
Every 10 hours or daily	®	Radiator riserve rank	Check coolant level, add as necessary	Coolant	1
	O	Engine oil pan	Check oil level, add as necessary	Engine oil	1
Every 50 hours	®	Sprinkler filter	Clean element		2
	©	Battery	Check fluid level, add as necessary	Battery fluid	1
	iQ	Fuel sedimenter	Check and drain water and dirt		1
		Hydraulic oil tank	Check oil level, add as necessary	Hydraulic oil	1
Every 250 hours	O	Fan belt	Check looseness,' adjust as necessary		1
	0	Sprinkler pipe	Clean		2
	8	Vibrator	Check oil level	Gear oil	2
	is	Engine oil filter	Change element '		1
		Shockmounts (Roll mount)	Check cracks		16
	0	Engine oil pan	Change oil	Engine oil	1
Every 500 hours		Fuel filter	Replace element		1
	O	Line filter	Replace element		1
		Return filter	Replace element		1
		Control links	Check looseness and adjust		3
	a	Tilt pin bearing	Apply grease	Grease	2
	0	Senter pin bearing	Apply grease	Grease	2
	©	Steering cylinder	Apply grease	Grease	4
Every 1000 hours	®	Hydraulic oil tank	Change oil	Hydraulic oil	1
	©	Suction filter	Clean element		2
	0	Gear case / Wheel motor	Change oil	Gear oil	2
	0	Brake	Check brake disk thickness or replace		2
		Vibrator	Change oil	Gear oil	2
As required	O	Sprinkler tank	Clean inside		
		Fuel tank	Clean inside		1
		Air cleaner	Clean or replace element		1
		Scraper	Adjust or replace blade		2

3.4 Maintenance Procedure

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

(1) Every 10 hours or daily

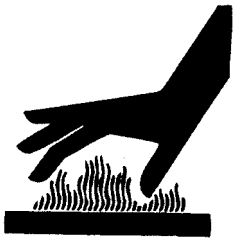
0 Radiator reserve tank



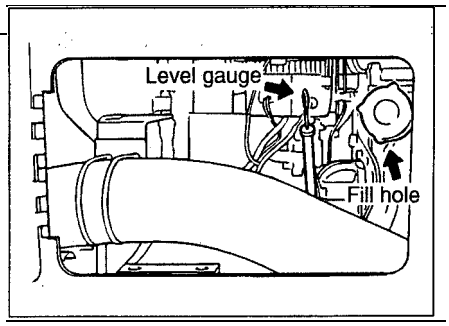
With the cap removed, check to see if the coolant level is near the port. Add as necessary.
Further, run the engine at idling speed for a few more minutes and make sure that coolant level in reservoir tank is between. L and H marks. If insufficient, replenish with the tank cap removed. Use soft water only.

WARNING

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



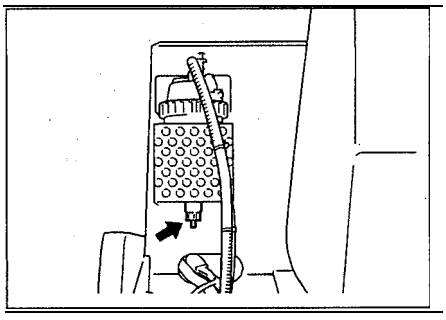
Engine oil pan



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

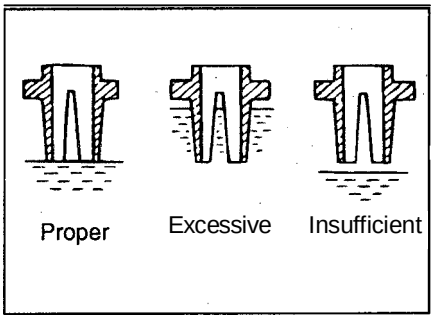
Sprinkler filter



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

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.

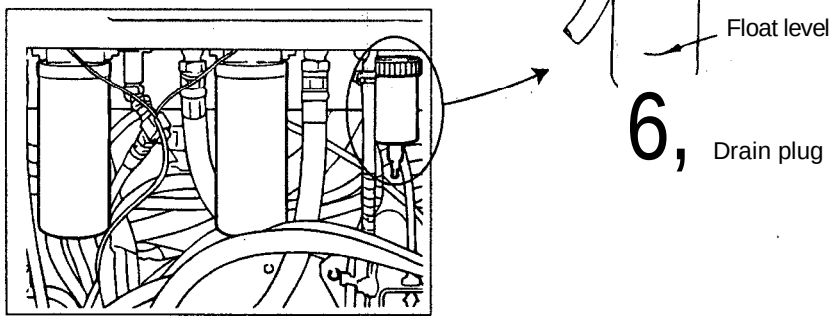


⚠ WARNING

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.

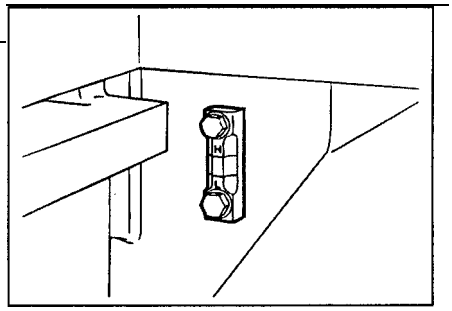
Fuel sedimenter

Check the float level. If it comes up to the warning mark, take off the plug at the bottom and drain water.



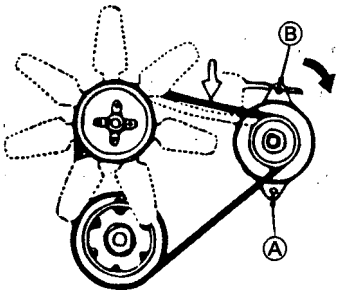
Hydraulic tank

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) Every 250 hours

U Fan belt



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

(2) Check the tension. Depress the middle of the belt with a push of about 10kg. A properly adjusted belt deflects 10 to 15 mm.

(3) To adjust, loosen alternator bracket bolt 0 and plate bolt 8, and slide the alternator.

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.

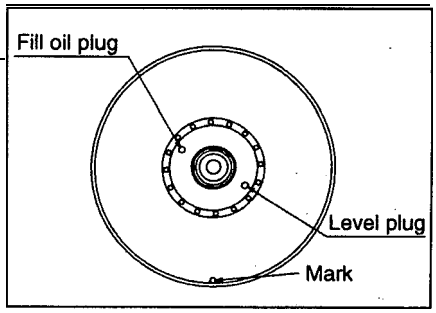
t111.
filp ;or;

(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.

Vibrator

Check for the oil level and leakage.



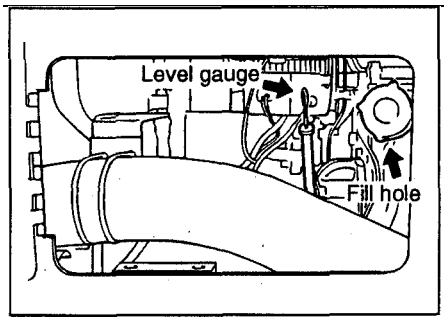
Engine oil filter

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.

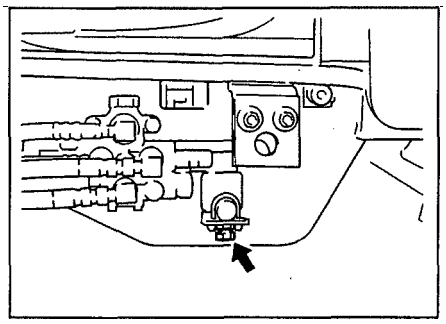
- **A WARNING**
When draining a hot oil, use care not to get burned.



(2) Refit the drain plug and fill the crankcase with the engine oil from the fill hole on the cylinder head cover. (3)

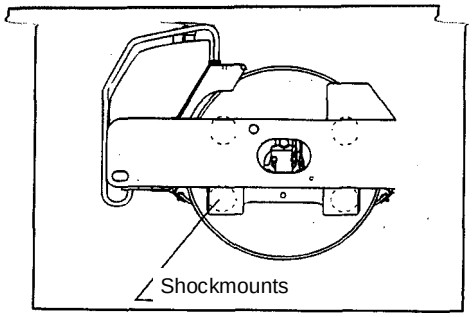
(4) Change the oil filter. (5)

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



[illegible]

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

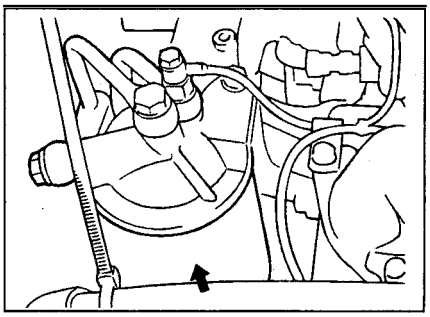


(4) Every 500 hours

Fuel filter

See the separate engine manual.

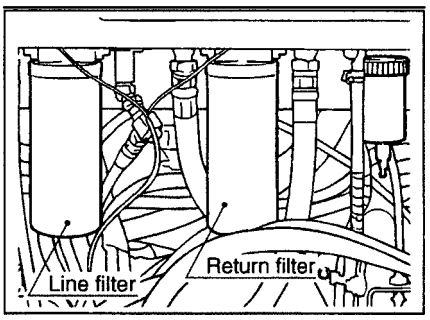
Change the filter cartridge.



Line filter

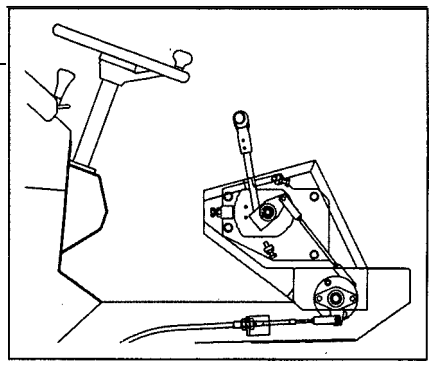
Return filter

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



Control link

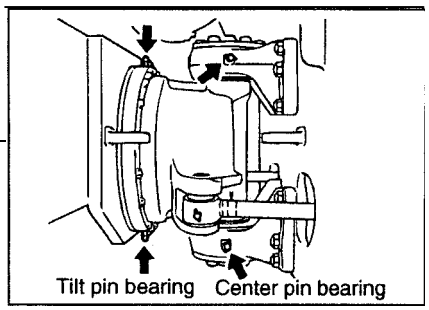
Check the bolts and nuts for looseness. Adjust the rod.



Tilt pin bearing

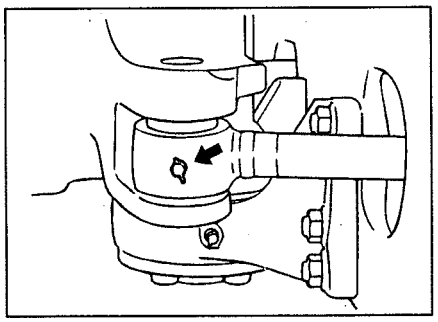
Center pin bearing

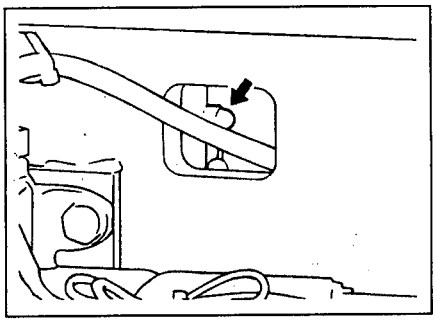
Grease lubricate two locations.



Steering cylinder

Apply grease to the cylinder head and anchor pin.

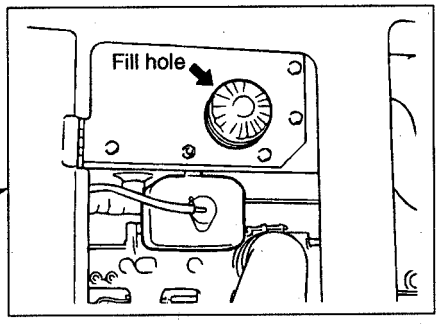


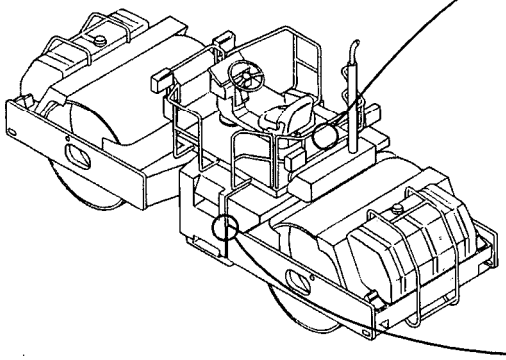


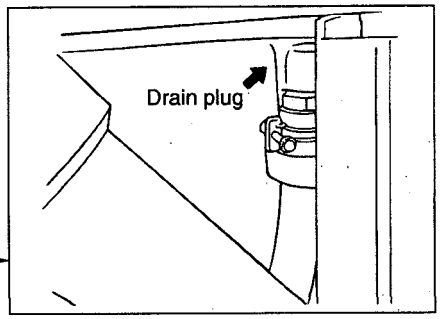
(5) Every 1000 hours

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

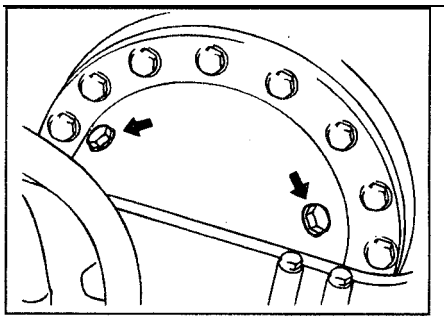
When draining a hot oil, be careful not to get burned.

Suction filter

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

Gear case / Wheel motor

(5)

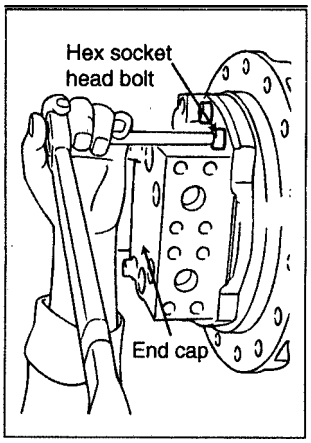


(1) Position it so that drain plug comes to the bottom.
(2) While oil is warm, drain it with drain plug and level plug removed.
(3) Rotate the roll so that drain port comes to top (or side) and level plug to side (or top). Feed oil until it overflows from the level port.
(4) Replace the drain plug and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

⚠ WARNING

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

Brake



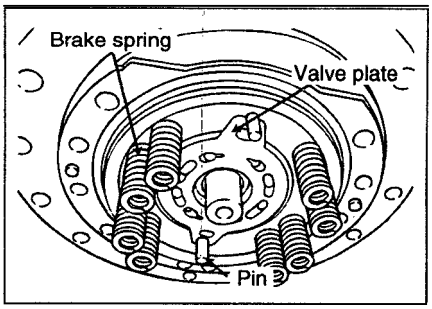
(1) Loosen hex socket bolts (6 bolts) which have been fixing end cap.
Loosen them uniformly because the brake spring tends to push up the end cap.

Model of Motor	SW800	SW850/SW900
Bold size	M14X45L	M16X5OL
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.

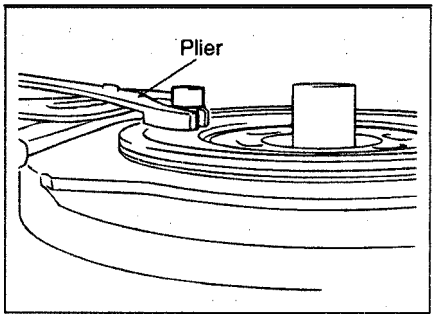
(2) Remove following parts which will be exposed after removing the end cap.

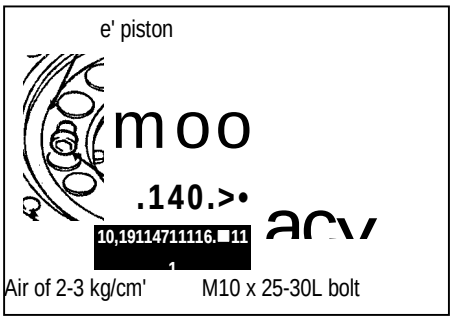


Item	Quantity
Valve plate	1
Brake spring	8
Pin	2
0-Ring (large)	1
0-Ring (Small)	

It is recommended that 0-Rings are replaced with new ones.

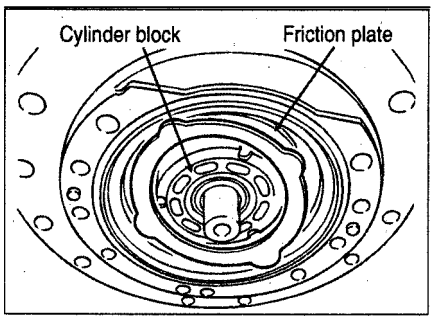
(3) Blowing compressed air of 2-3 kgf/cm^2 into hole shown in sketch, brake piston will come up. (Have the opposite side hole plugged.)
Or, with M10x25-30L bolt turned into tapped hole at 2 locations of brake piston, lift it alternately using a wrench or the like as fulcrum point.





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

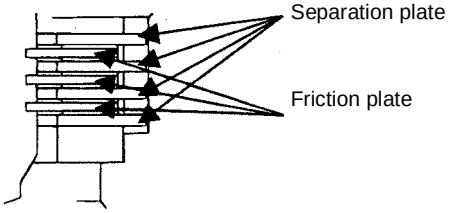
Item	Quantity
Separate sheet	4
Friction plate	3

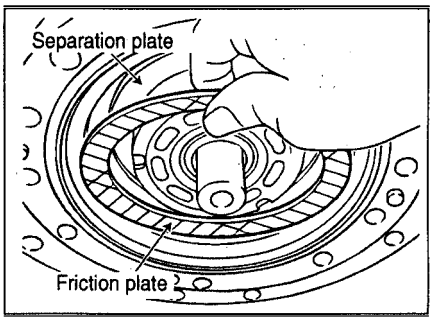


A CAUTION

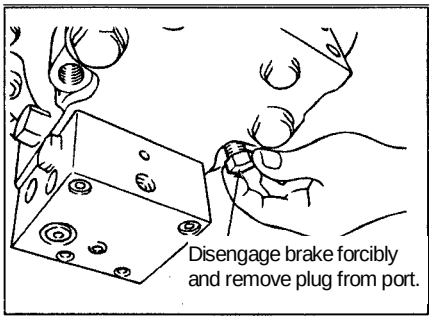
Do not pull out the cylinder block. Pulling it out at this stage makes it impossible to reassemble.

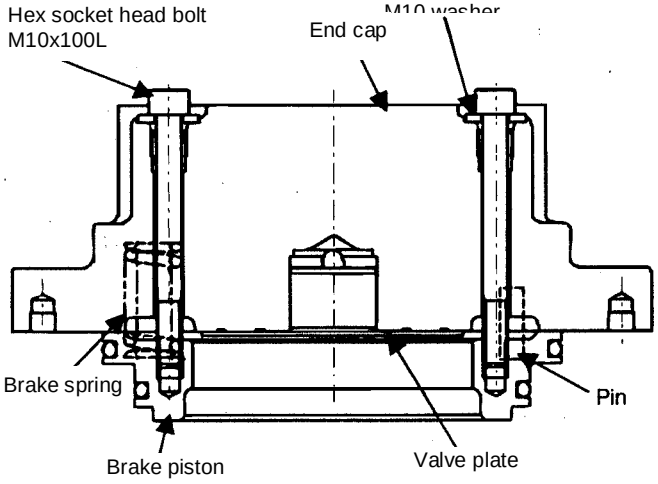
(5) Install separate plate and friction plate alternately. Be careful to install them in the correct quantity and order.

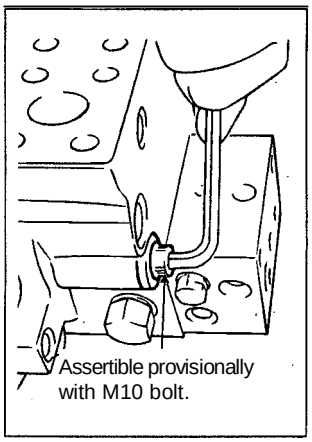




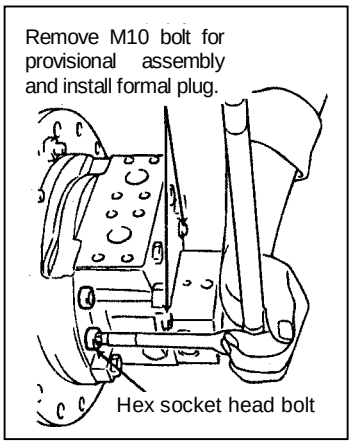
(6) Remove brake releasing port plug (19 across flats) from end cap. Sub-assemble, with M10 bolt, the brake spring, valve plate and pin so that they are held between the end cap and brake piston (provisional assembling).





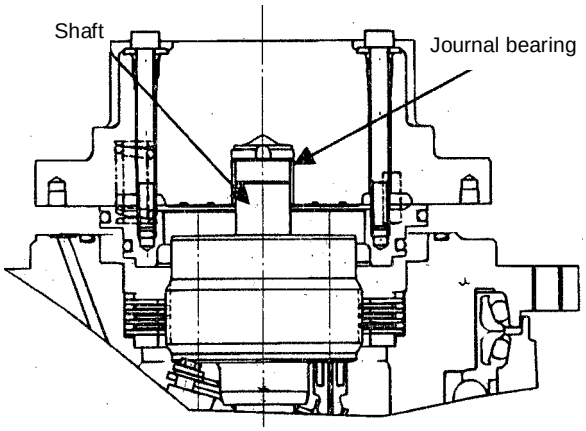


(7) Tighten thus sub-assembled end cap to the housing with hex socket head bolt.



- **A 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	SW850/SW900
Bold size	M14X45L	M16X5OL
Tightening torque	1300-1600 kgf-cm	2350-2940 kgf-cm

<Tightening torque for the hex socket head bolt>

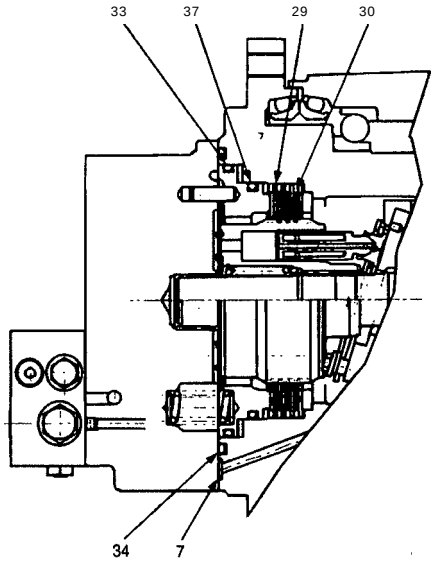
Model of Motor	Common to SW800 / SW800/SW900
plug size	9 / 16-18 UNF
Tightening torque	277-484 kgf-cm

List of replacement parts

It is recommendable that, in addition to friction and separate plates, relevant 0-Ring are replaced with new ones as well.

No	Item	Quantity	SW800	SW850/SW900
			Drawing # (DAIKIN Dwg.# (Standard JIS Nominal)	
			BMV55, BM55	BMV75, BM75
7	0-Ring	4 (2)	KP1B010A / 1BP10A	KP1B010A / 1BP10A
29	Separate plate	4	1731865	1731874
30	Friction plate	3	SP1081	SP1051
33	0-Ring	1	KG1B170 /1BG170	KG1B185 / 1BG185
34	0-Ring	1	KG1B195 / 1BG195	SP1092 / WG45
37	0-Ring	1	KG1B145 / 1BG145	KG1B160 / 1BG160

Note: Quantity for No.7 0-ring: 4 for BMV55/BMV75 and 2 for BM55 and BM75.
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.

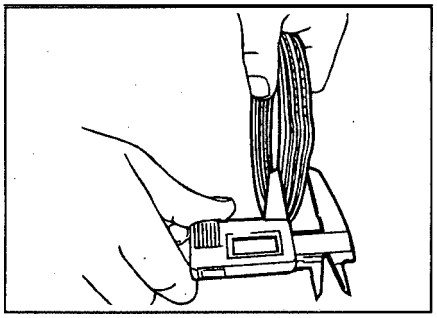
(1) When the braking force becomes weaker than driving force of hydraulic motor (Despite that the brake is being actuated, hydraulic motor rotates when HST drive is engaged) Checking procedure: While depressing the parking brake switch, open the throttle fully and engage the reversible travel lever. If traveling starts, replace the plates.

(2) When total thickness of friction and separate plate falls short of the value in the chart below.

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

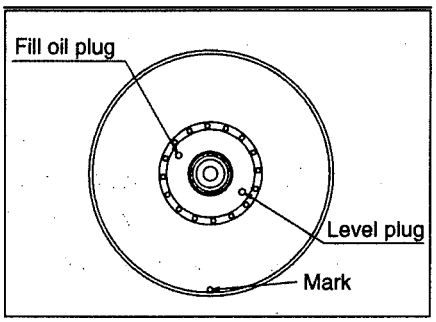
Thickness of separate and friction plates for SW800 and SW850 are the same.

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



Vibrator

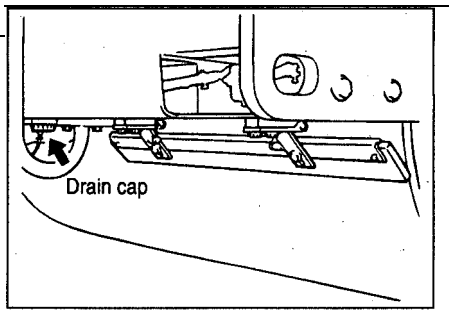
(1) Rotate the drum till the drain plug comes to bottom.
(2) Remove the drain and level plugs.
(3) Drain the vibrator oil.
(4) Rotate the roll ,until the mark on its inside comes to the bottom.
(5) Feed oil from top filler port until oil overflows out of level gauge port.
(6) After cleaning, reinstall level gauge plug and filler ports plug.

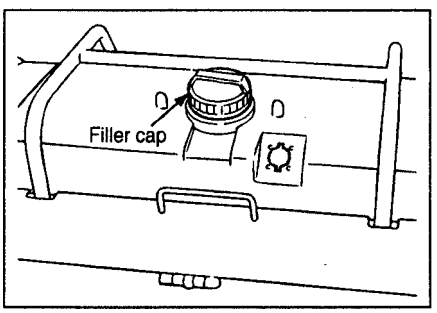


(6) As required

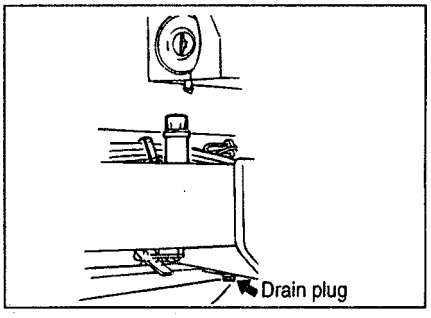
Sprinkler tank

(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.

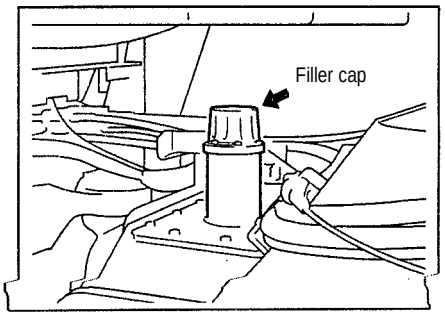




Fuel tank



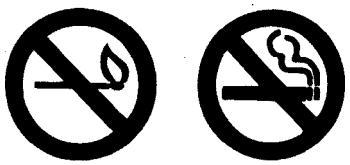
(1) With the drain plug removed, remove the water and sediment from the bottom of the tank.
(2) If sedimentation is substantial, remove the drain plug and clean the interior of the tank.
(3) When the necessary work and refueling are complete, tighten the filler cap positively.



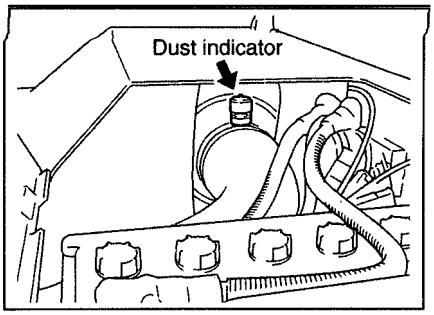
NOTE: When removing the water and sediment from the tank filled with the fuel, the fuel will gush out if the drain plug is screwed out completely.

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.**



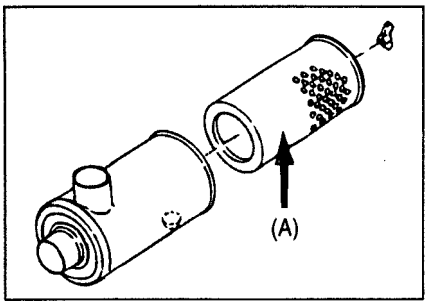
Air cleaner



When the red float of the dust indicator reaches the service level (a mark on the indicator), clean the element as described below:
(1) Remove the butterfly nut and pull out the 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 eye.



(3) Check the element for damage. Change if found to be abnormal.

(4) Refit the element and tighten the butterfly nut.

CAUTION
Replace the element when the red float reaches the service level even if it is cleaned.

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

Scraper

When the blade is worn, adjust the scraper properly.
See page 27 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 Feeding 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

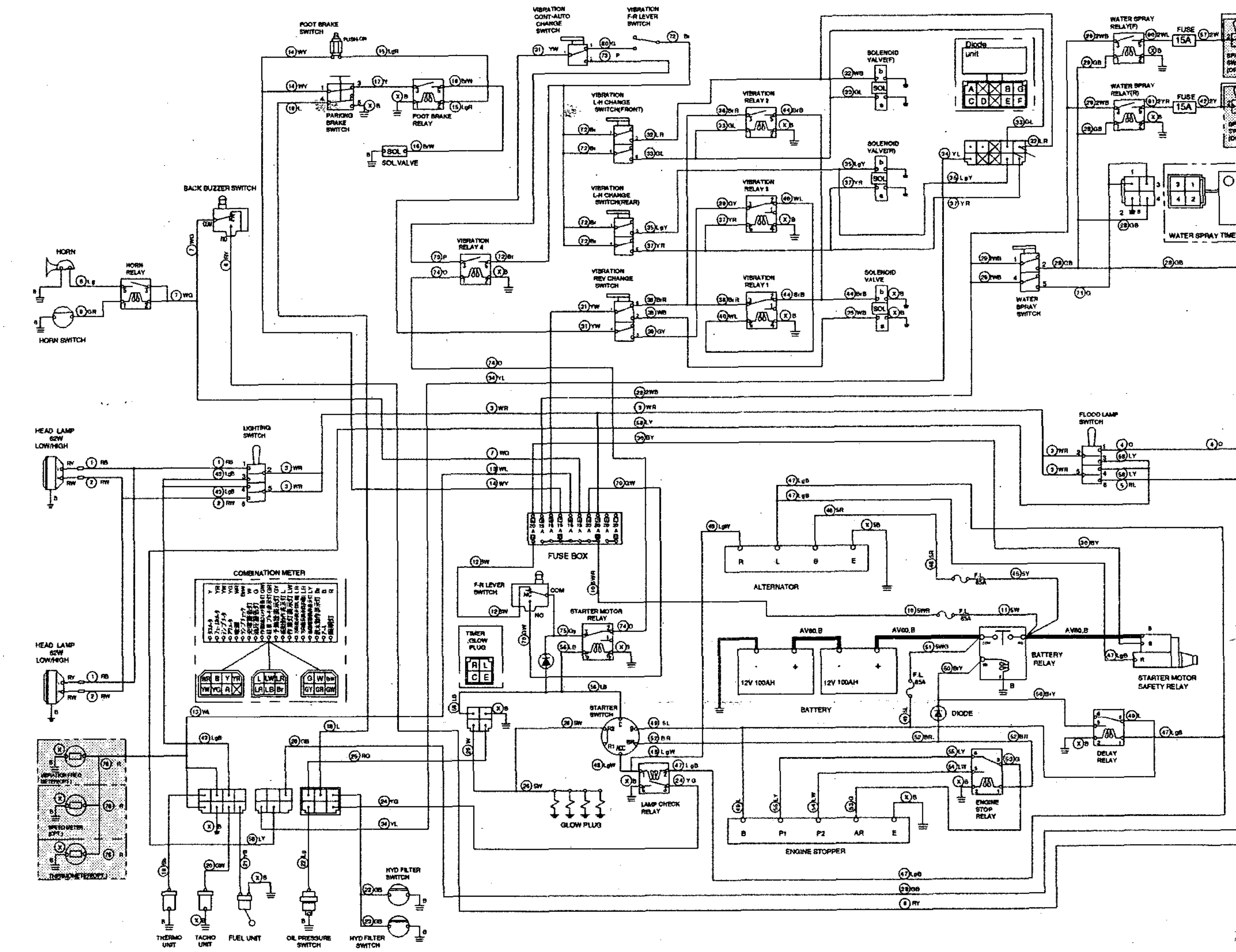
Compartment	Type of fluid	Capacity in liters (gal)		
		SW800	SW850	SW900
Engine oil pan	Engie oil	12 *2 (3.2)*	12 2 (3.2)	12 *2 (3.2)*
Front wheel motor	Gear oil	3.2 *£ (0.9)*	3.9 *£ (1.0)*	3.9 *2 (1.0)*
Rear wheel motor	Gear oil	3.2 *£ (0.9)*	3.9 *2 (1.0)*	3.9 *2 (1.0)*
Vibrator	Gear oil	192X2 (5.0X2)	222X2 (5.8X2)	21.2X2 (5.5X2)
Hydraulic tank	Hydraulic oil	80 2 (21)	80 .2 (21)	80 *2* (21)
Fuel tank	Diesel oil	220 *2* (58)	250 *2* (66)	270 *g* (66)
Radiator	Coolant	19.5 *2 (5.2)*	23 *2 (6.1)*	23 *2 (6.1)*
Sprinkler tank	Water	500 *2* X2 (132X2)	600 *2* X2 (159X2)	600 *2* X2 (159X2)

3. Rating

Lubricant	Service classificatio	Ambient temp and applicable viscosity rating			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 CD	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

5. Recommended lubricants

Lubricant / Oil company	Engine oil API - CC	Gear oil API GL 4	Hydraulic oil VG 46	Grease (NLGI - II)
CALTEX	RPM DELO 300 oil	Universal Thuban 90	Rando Oil HD 46	Martifack EP 2
BP	BP Vanellus C3-30	BP Gear Oil EP 90	BP Energol HLP 46	BP Energrease LS - EP 2
ESSO	Esso Lube D3-30	Esso Gear Oil GP 90	Nuto H 46	Beacon EP 2
MOBIL	Mobil Delvac 1330	Mobil Pegasus Gear Oil 90	Nuto Oil 25	Beacon EP 25
SHELL	Shell Rotella CT Oil 30	Shell Spirax 90 EP	Shell Tellus Oil 46	Shell Alvania EP Grease 2
CASTROL	Castro! CRD 30	Castro! Hypoy 90	Hyspin AWS 46	Spherrol ELP 2



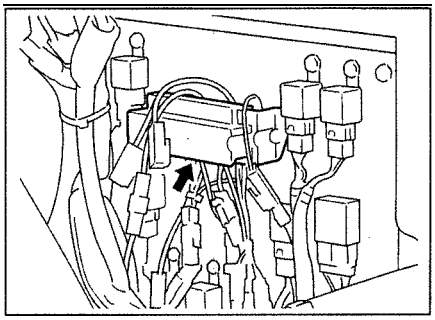
T N: Size of wires not indicated by letters are AV 0.85.

Color of wire

B	Black	BrR	Brown/Red stripe		Green/Red stripe		Blue/Red stripe		Pink		Red/White stripe
BR	Black/Red stripe		Brown/White stripe		Green/White stripe		Blue/White stripe		Red/Yellow stripe		White/Red stripe
	Black/White stripe		Green		Green/Yellow stripe	LY	Blue/Yellow stripe	RB	Red/Black stripe		White
	Black/Yellow stripe		Green/Black stripe		Gray	Lg	Light green	RG	Red/Green strops	WB	White/Black stripe
			Blue	0	Orange	RL	Red/Blue stripe		White/Blue stripe		

YR	Yellow/Red stripe		Yellow/White stripe
	Yellow/Green stripe	BrY	Brown/Yellow stripe
	Yellow/Black stripe		Blue
	Yellow/Blue stripe		Black/Green stripe
	Blue/Black stripe		Blue/White stripe

Fuse box

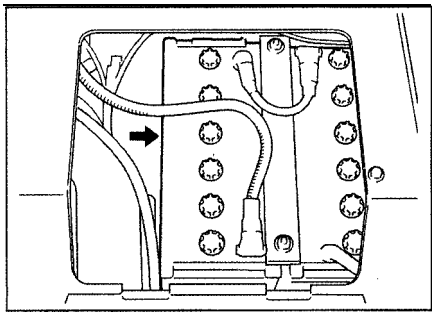


The fuse box houses five 15A- and five 20A- fuses lined up with spares fitted for 15A- and 20A- fuses.
Use fuses of correct capacity. See page 28.

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

Battery

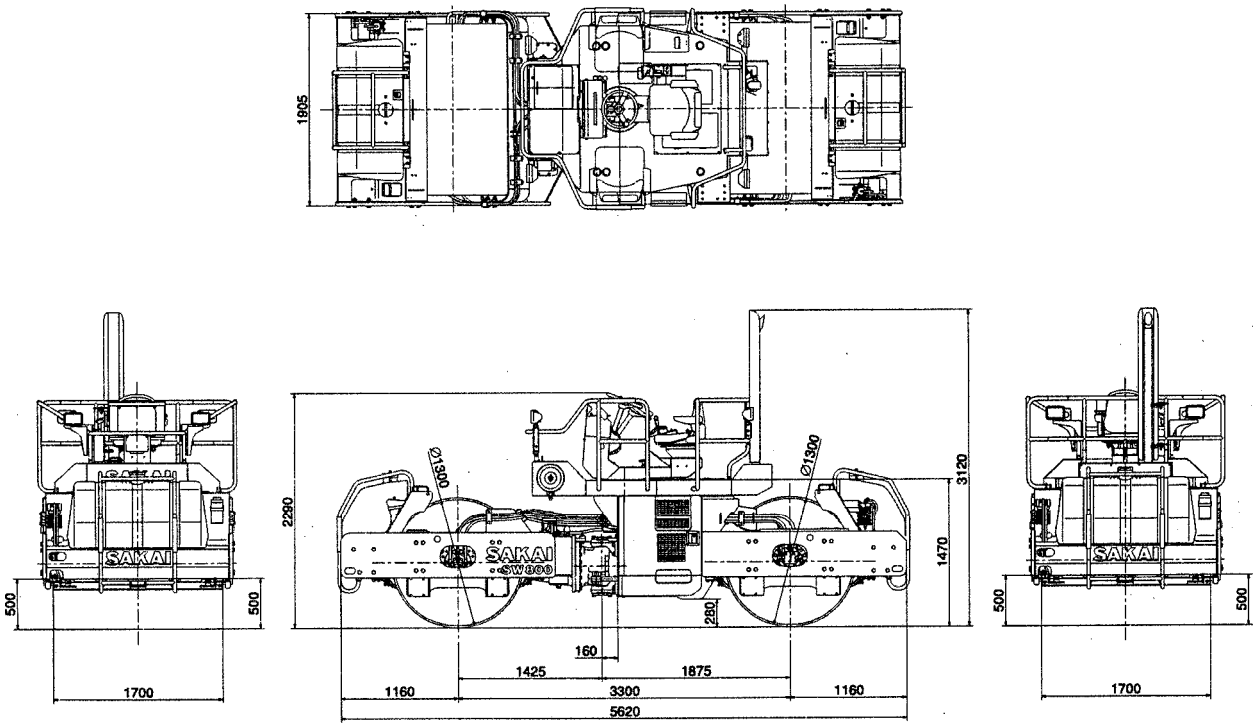
*



* 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 battaru charged 100% Do not try to start the engine with less than 75%.

4. SPECIFICATIONS

(1) SW800



Model	SW800
Weight:	
Gross weight	10,400 kg (22,930 lbs)
Empty weight	9,400 kg (20,720 lbs)
Dimension:	
Overall length	5,620 mm (221")
Overall width	1,905 mm (75")
Overall height	3,120 mm (123")
Wheelbase	3,300 mm (130")
Wheel	
Front	Roll (dia. x width) 1,300 x 1,700 mm (51" x 67")
Rear	Roll (dia. x width) 1,300 x 1,700 mm (51" x 67")
Performance:	
Travel speed (forward/reverse)	1st 0 7.5 km/h (- 4.7 mile/h)
	2nd **0 -** 12.5km/h (0 7.8 mile/h)
Vibrating power:	
Gradability	33 % (18.3°)
Rolling width	1,700 mm (67")
Minimum turning radius	6.0 m (237")

Vibrating power:			42 Hz
Low amplitude			
Frequency	67 Hz {4,000 vpm}	50 Hz {3,000 vpm}	{2,500 vpm}
Centrifugal force	121 kN (27,120 lbs)	68 kN (15,210 lbs)	47 kN (10,580 lbs)

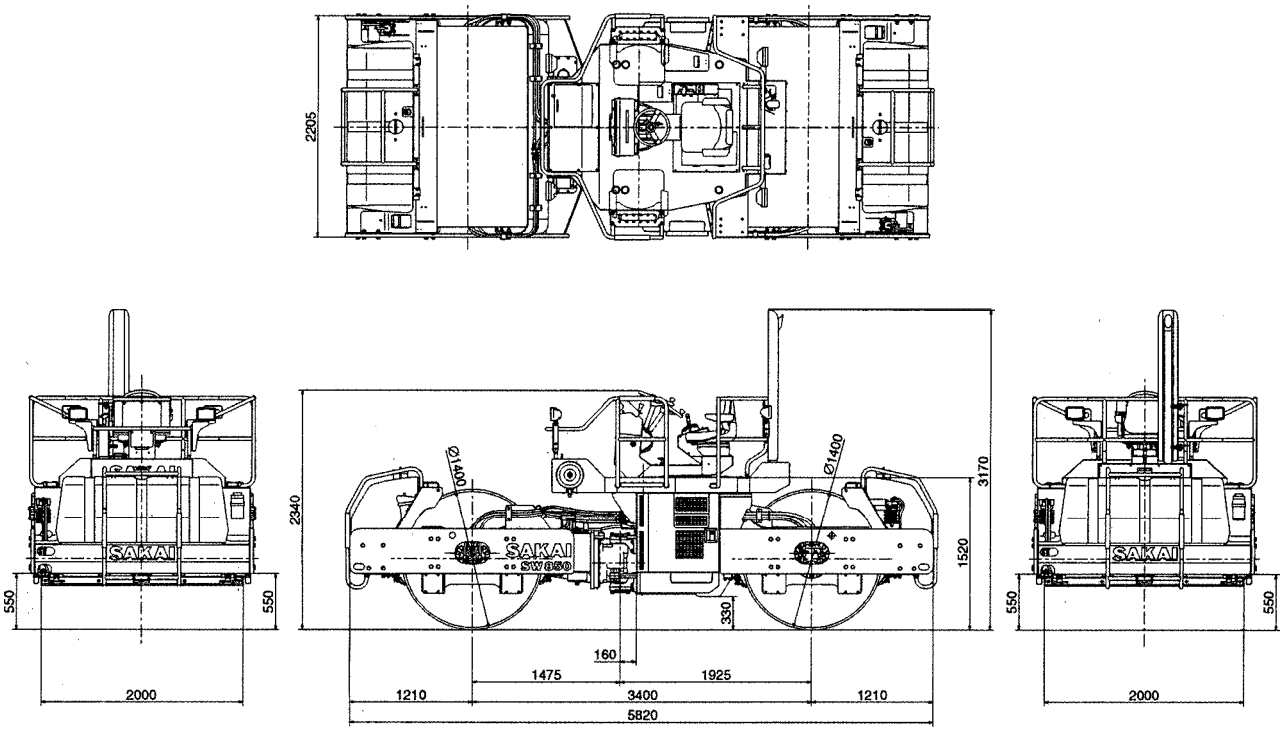
High amplitude		
Frequency	50 Hz {3,000 vpm}	42 Hz {2,500 vpm}
Centrifugal force	108 kN (24,250 lbs)	76 kN (16,980 lbs)

Engine:	
Model	ISUZU "DD-4BG1T" Diesel Engine (with turbo charger)
Total displacement	4,329 cc (264 cu.in)
Rated output	90 kw {110 PS} / 2,300 min-' {rpm) (120.7 HP / 2,300 rpm)
Max. torque	387 **N** -rn / 2,000 mirr' {rpm} (285 ft-lb / 2,000 rpm)

Tank capacity:	
Fuel tank	220 liters (58gal)
Hydraulic tank	80 liters (21gal)
Sprinkler tank	500 liters x 2 (132 gal x 2)

NOTE: Gradability is the calculated value. It may vary with ground surface conditions.

(2) SW850



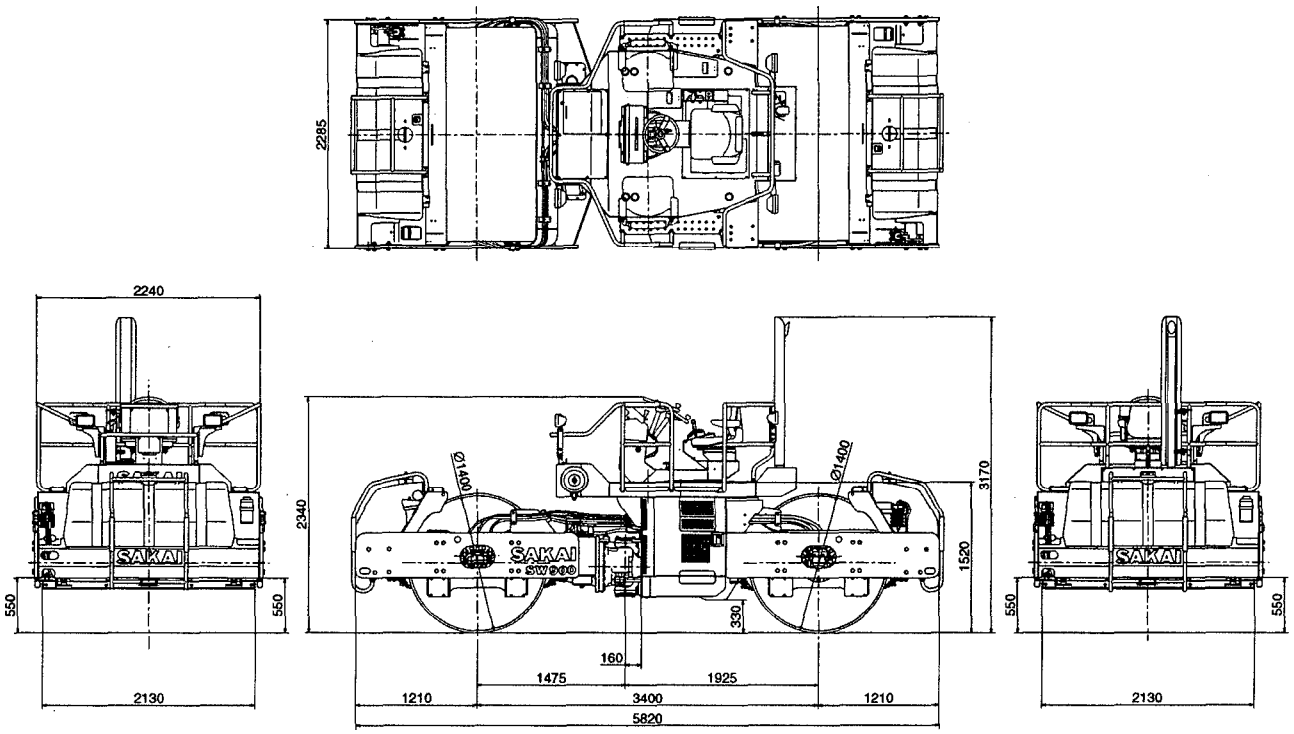
Model	SW850
Weight:	
Gross weight	12,500 kg (27,560 lbs)
Empty weight	11,300 kg (24,920 lbs)
Dimension:	
Overall length	5,820 mm (229")
Overall width	2,205 mm (87")
Overall height	3,170 mm (125")
Wheelbase	3,400 mm (134")
Wheel	
Front	Roll (dia. x width) 1,400 x 2,000 mm (55" x 79")
Rear	Roll (dia. x width) 1,400 x 2,000 mm (55" x 79")
Performance:	
Travel speed (forward/reverse)	1st 0 - 7.0km/h (**0** -4.3 mile/h) 2nd **0 -** 11.0km/h (0 6.8 mile/h)
Vibrating power:	
Gradability	31 'Y. (17.2°)
Rolling width	2,000 mm (79")
Minimum turning radius	6.3 m (248")

Vibrating power:			
Low amplitude			
Frequency	67 Hz {4,000 vpm}	50 Hz {3,000 vpm}	42 Hz {2,500 vpm}
Centrifugal force	148 kN (33,290 lbs)	82 kN (18,520 lbs)	58 kN (13,010 lbs)
High amplitude			
Frequency	50 Hz {3,000 vpm}	42 Hz {2,500 vpm}	
Centrifugal force	141 kN (31,750 lbs)	100 kN (22,490 lbs)	

Engine:	
Model	ISUZU "DD-4BG1T" Diesel Engine (with turbo charger)
Total displacement	4,329 cc (264 cu.in)
Rated output	90 kw {110 PS) / 2,300 min-' {rpm) (120.7 HP / 2,300 rpm)
Max. torque	38711-m / 2,000 min-' {rpm) (285 ft-lb / 2,000 rpm)
Tank capacity:	
Fuel tank	250 liters (66gal)
Hydraulic tank	80 liters (21 gal)
Sprinkler tank	600 liters x 2 (159 gal x 2)

NOTE: Gradability is the calculated value. It may vary with ground surface conditions.

(3) SW900



Model	SW900
Weight:	
Gross weight	13,000 kg (28,660 lbs)
Empty weight	11,800 kg (26,020 lbs)
Dimension:	
Overall length	5,820 mm (229")
Overall width	2,285 mm (90")
Overall height	3,170 mm (125")
Wheelbase	3,400 mm (134")
Wheel	
Front	Roll (dia. x width) 1.400 x 2.130 mm (55" x se)
Rear	Roll (dia. x width) 1,400 x 2,130 mm (55" x 84")
Performance:	
Travel speed (forward/reverse)	1st 0 - 6.7 km/h (0 4.2 mile/h)
	2nd 0 - 10.5 km/h (0 6.5 mile/h)
Vibrating power:	
Gradability	30.5 % (17.0°)
Rolling width	2,130 mm (84")
Minimum turning radius	**6.6** m (260")

Vibrating power:			
Low amplitude			
Frequency	67 Hz {4,000 vpm}	50 Hz {3,000 vpm}	42 Hz {2,500 vpm}
Centrifugal force	173 kN (38,800 lbs)	97 kN (21,830 lbs)	68 kN (15,210 lbs)
High amplitude			
Frequency	50 Hz {3,000 vpm}		42 Hz {2,500 vpm}
Centrifugal force	167 kN (37,480 lbs)		116 kN (26,010 lbs)

Engine:	
Model	ISUZU "BB-6BG1T" Diesel Engine (with turbo charger)
Total displacement	6.169 cc (396 cu.in)
Rated output	124 kw {169 PS} / 2,200 min-' {rpm} (166 HP / 2,200 rpm)
Max. torque	559 Wm / 1,800 min' {rpm} (412 ft-lb / 1,800 rpm)
Tank capacity:	
Fuel tank	270 liters (66ga1)
Hydraulic tank	80 liters (21gal)
Sprinkler tank	600 liters x 2 (159 gal x 2)

NOTE: Gradability is the calculated value. It may vary with ground surface conditions.

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SAKAI HEAVY INDUSTRIES,LTD.