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1 BASIC PRECAUTIONS FOR SAFETY

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

■ Be careful of hot parts

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



■ Be careful with fire

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



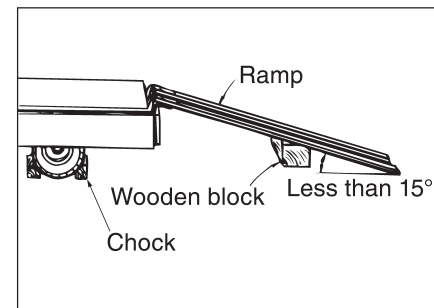
■ In case of machine fire

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

1 BASIC PRECAUTIONS FOR SAFETY

1.6 Loading and Unloading

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



1.7 Transportation

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

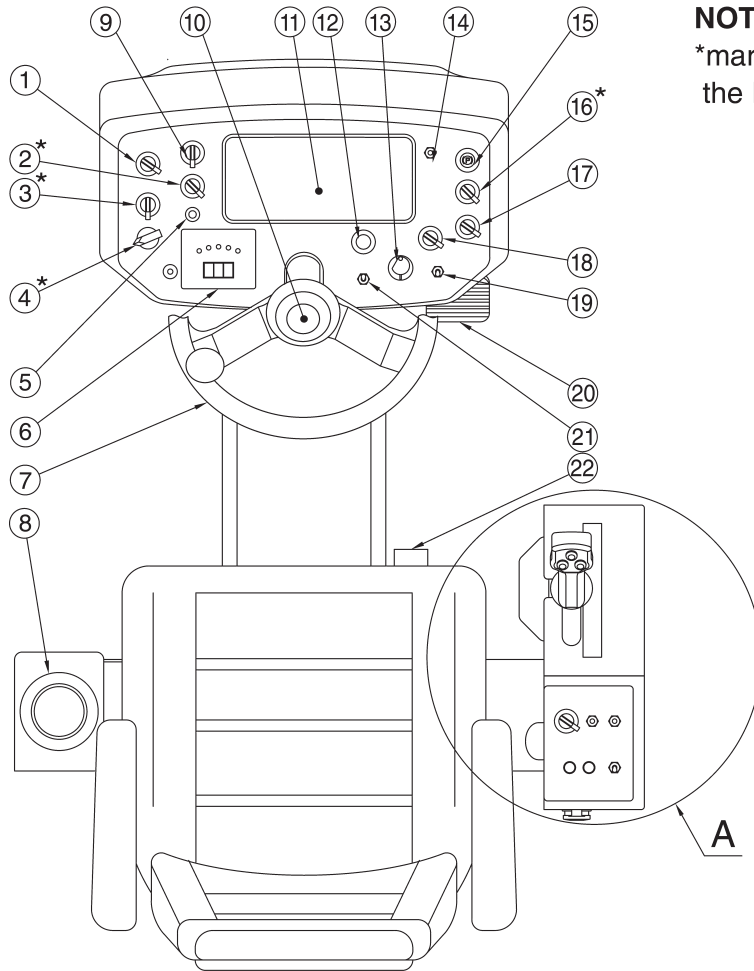
1.8 Towing

- Towing should be carried out in emergency and short distances only. For long distance, use a truck or a trailer for transportation.
- Tow the machine in accordance with the section on the unloader valve in “2.13 Towing”.
- Do not tow if the braking system has broken down, as it is dangerous.
- To tow the machine, use cables with ample strength.
- Do not perform towing on a slope.
- Be sure to attach a wire rope firmly to the towing hook.
- Do not use twisted, kinked or damaged cables when towing.
- Do not step over the wire rope.
- Keep everyone away from the space between the machine and the towing machine when connecting and while towing.
- Align the connection points of the failed machine and the towing machine in a straight line when connecting the machines.

2 OPERATION

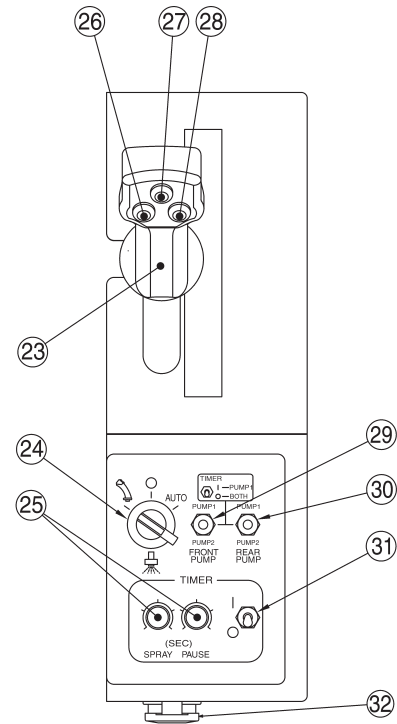
2.1 Instruments and Controls

2.1.1 Operator's station



NOTE:

*marked switches respond only when the F-N-R lever is in the neutral position.





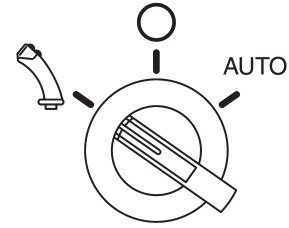
DETAIL A

- | | |
|---|---|
| ① Vibration drum selector switch | ⑮ Parking brake switch |
| ② Vibration amplitude selector switch (SW884, SW994) | ⑯ Travel mode selector switch |
| Vibration type selector switch (SW884ND, SW994ND) | ⑰ Engine speed selector switch |
| ③ Vibration frequency selector switch (SW884, SW994) | ⑱ Lamp switch |
| ④ IPF selector switch | ⑲ Engine diagnostic switch |
| ⑤ AUTO SPEED lamp | ⑳ Brake pedal |
| ⑥ EXACT COMPACT METER | ㉑ Disable regeneration switch |
| ⑦ Steering wheel | ㉒ Swivel release pedal |
| ⑧ Drink holder | ㉓ Forward-Neutral-Reverse lever (F-N-R lever) |
| ⑨ Vibration mode selector switch (Manual or Auto control) | ㉔ Spray mode selector switch (Manual or Auto control) |
| ⑩ Horn switch | ㉕ Spray timer dial |
| ⑪ Combination meter | ⑳ Vibration switch |
| ⑫ Parked manual regeneration switch | ㉗ AUTO SPEED set switch |
| ⑬ Starter switch | ㉘ Spray switch |
| ⑭ Emergency propel switch | ㉙ Front spray pump selector switch |
| | ⑳ Rear spray pump selector switch |
| | ㉑ Spray timer switch |
| | ㉒ Accessory socket |

2 OPERATION

Vibration mode selector switch

-  position : Vibration can be controlled by the Vibration switch on the F-N-R lever
-  position : Vibration is off
- AUTO position : Vibration engages automatically when the F-N-R lever is moved to Forward or Reverse






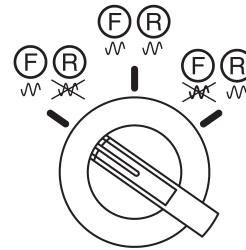
The Vibrator indicator lamp stays on when the machine is running with any vibration mode.

NOTICE



- For vibratory compaction, the Engine speed selector switch must be in the ECO or FULL position.
- Do not operate the vibrator on a hard area such as cement concrete pavement surface or the ground covered by thick steel sheets.
- Turn the vibrator off when the machine is not moving.
- Stop the vibration immediately if the machine gets stuck in the mud during the vibratory operation.

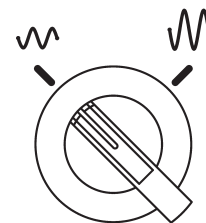
Vibration drum selector switch

-  position : Only the front drum vibrates
-  position : Both drums vibrate
-  position : Only the rear drum vibrates



Vibration amplitude selector switch (For SW884, SW994)

-  position : Low amplitude vibration
-  position : High amplitude vibration



NOTICE

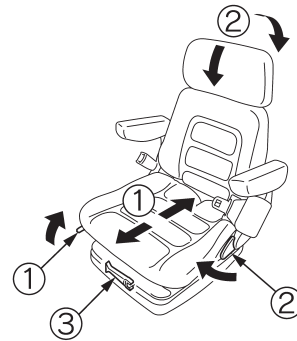
Selection is applied only when the F-N-R lever is in the Neutral position (N).

2.3 Adjustments

2.3.1 Seat adjustment

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

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



⚠ WARNING

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

NOTICE

Be sure to wear the seatbelt during the operation.

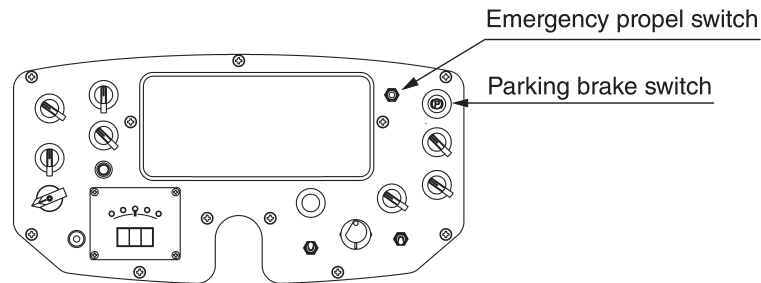
2 OPERATION

Emergency traveling

If the machine doesn't move when you operate the forward and reverse control lever while the engine is running, there may be a problem with the control system.

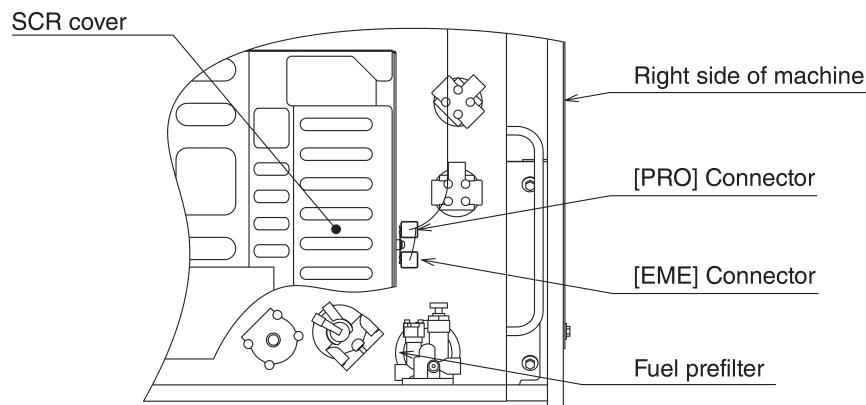
In this case, you may temporarily bypass the controller to drive the machine by following the procedure below.

- 1) Push the Parking brake switch. Stop the engine and make sure the Emergency propel switch is in the neutral position.



- 2) Identify the connectors of PRO & EME on the SCR cover on the right side of the machine.

- 3) Remove the plugs from connector PRO then exchange connectors PRO and EME.



- 4) Make sure the connectors are properly connected, close the hood but do not start the engine until you have checked the surrounding area for obstacles.

Also make sure that the Emergency propel switch and the traveling direction of the machine are the same. Now it will be safe to move the machine to a safe area.

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2 OPERATION

3) Procedure for parked manual regeneration.

- 3)-1 Turn off the vibrator.
- 3)-2 Move the machine to a safe place (The exhaust gas temperature will rise during the parked manual regeneration, so do not park near anything that can burn).
- 3)-3 Move the F-N-R levers to the Neutral position (N).
- 3)-4 Press the Parking brake switch.
- 3)-5 Set the engine to the idling position. If the temperature gauge is in the position (C) before carrying out the parked manual regeneration, warm up the engine.
- 3)-6 Check to make sure that the Disable regeneration lamp is turned off.
- 3)-7 Press the Parked manual regeneration switch (Regeneration is complete when all the indicator lamps turn off. Be sure to let the engine idle for 5 minutes after completion of regeneration).

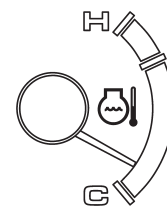
⚠ CAUTION

The exhaust gas temperature will rise during regeneration, so beware of burns, fires, etc.

NOTICE

- **The SCR system must never be modified. The machine will not be able to function properly, and it will not satisfy the exhaust gas emissions standards.**
- **Do not turn the engine off immediately after regeneration.**
Set the Engine speed selector switch to the IDLE position after regeneration, and let the engine cool gradually for around 5 minutes.
- **Stopping the engine suddenly without letting it cool may shorten the life span of the engine parts.**
- **Continuing to use the machine without carrying out the regeneration when the Parked manual regeneration lamp / Regeneration lamp is flashing may, in the worst case scenario, result in a limit being placed on the engine output.**
Promptly carry out the parked manual regeneration.
- **Parked manual regeneration can be carried out any time, but limit it to once daily except when the Parked manual regeneration lamp / Regeneration lamp flashes.**
- **Operating the Parking brake switch or the accelerator lever during the parked manual regeneration will automatically stop regeneration. Restart the parked manual regeneration in accordance with the prescribed procedure.**

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



Temperature gauge

2 OPERATION

| Error code | Function / Component | Error | Engine stop |
|------------|--|--|-------------|
| E01 | Potential meter | Out voltage to machine controller is grounded | Yes |
| E02 | Potential meter | Output voltage to machine controller is power supply voltage | Yes |
| E03 | Forward switch / F-N-R lever | Short circuit to machine controller | Yes |
| E04 | Forward switch / F-N-R lever | Broken wire | Yes |
| E05 | Reverse switch / F-N-R lever | Short circuit to machine controller | Yes |
| E06 | Reverse switch / F-N-R lever | Broken wire | Yes |
| E11 | Speed sensor | Broken wire | Yes(*) |
| E15(Lo) | Rolling surface temperature sensor (OPT) | Broken wire or low temperature | No |
| E21 | Vibration selector switch | Broken wire / Short circuit to machine controller | No |
| E22 | IPF selector switch | Broken wire / Short circuit to machine controller | No |
| E31 | Current control / Propel pump solenoid for forward | Current outside the nominal range | Yes |
| E32 | Current control / Propel pump solenoid for reverse | Current outside the nominal range | Yes |
| E33 | Current control / Vibration pump solenoid for front Hi | Current outside the nominal range | No |
| E34 | Current control / Vibration pump solenoid for front Lo | Current outside the nominal range | No |
| E35 | Current control / Vibration pump solenoid for rear Hi | Current outside the nominal range | No |
| E36 | Current control / Vibration pump solenoid for rear Lo | Current outside the nominal range | No |
| E41 | CAN BUS / ECU | Signal defect to machine controller | Yes(*) |
| E42 | Traveling controller | Signal defect to machine controller | Yes |
| E43 | Exact meter | Signal defect to exact meter | Yes |
| E44 | Working controller | Signal defect to machine controller | Yes |
| E45 | Working controller | Parameter error | Yes |
| E88 | Traveling controller / Working controller | Parameter mismatch | Yes |
| E00 | Forward switch / Parking brake switch | Broken wire / Short circuit to machine controller | Yes |

NOTICE

- When the machine controller malfunctions or fails, contact your dealer immediately for appropriate inspection, maintenance, or repair.
- Refer to Emergency traveling on page 56 when it is necessary to move the machine urgently.

* Only AUTO SPEED mode (refer to "2.4.6 AUTO SPEED").

2 OPERATION

6) Opening the Unloader valve.

⚠ WARNING

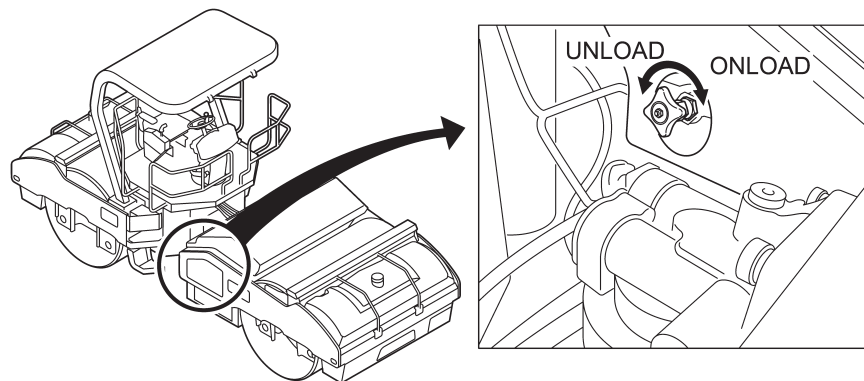
- Open (Turning to UNLOAD side) the Unloader valve on a flat ground.
- Chock the drums.
- Opening the Unloader valve will disengage the drive, so never get in front or behind the machine when the brakes disengaged.
- Turning the Unloader valve to UNLOAD position will cut the power for traction. Do not enter the areas ahead and behind the machine as it is very dangerous.

NOTICE

For normal operation, be sure to close (ONLOAD position) the Unloader valve.

The Unloader valve disengages the drive, similar to a clutch.

Turn the Unloader valve knob counterclockwise (UNLOAD position) to open.



7) Tow the machine.

⚠ WARNING

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

2.18 When the Cold Season is Over

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

- 1) Change the oil and the fuel with those suitable for warm season (refer to “3.6 Fluid and Lubricant Capacities”).
- 2) If AF-PT antifreeze is in use, drain the coolant completely, wash inside the cooling system, and refill with clean water (city water).
- 3) Check to make sure there is no damage to parts inside the DEF tank. Carry out repairs if identified any damage.

2.19 Extended Storage

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

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

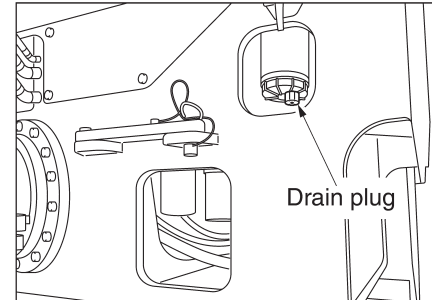
3.4 Maintenance Procedure

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

(1) Every 10 service hours or daily

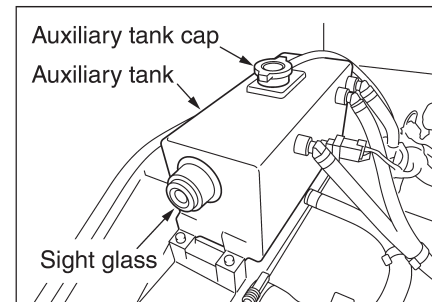
⑤ Fuel prefilter

Check the bottom of the filter is filled with water. If it is filled with water, remove the Drain plug at the bottom to drain water.



⑭ Auxiliary tank

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



⚠ WARNING

- Do not remove the Auxiliary tank cap while the coolant is hot.
- Hot water may spurt out and cause burns. When the water temperature drops, slowly turn the cap to release the pressure and remove the Auxiliary tank cap.



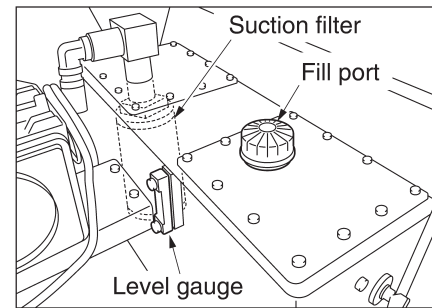
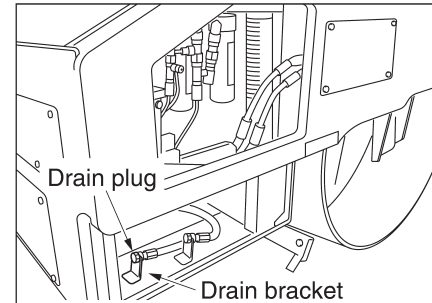
NOTICE

- Failure to follow this procedure can result in severe engine damage.
Fill : 1) Fill the coolant at 3 gallons per minute (12 liters per minute) until the coolant reaches the lower part of the filler port. Wait for 1 minute, then top up the coolant up to the lower part of the filler port if needed.
2) Start the engine and run at ECO speed for 1 minute or until the Engine warning lamp turns on.
3) Turn off the engine and top up the coolant up to the lower part of the filler port if needed.
4) Refit the Auxiliary tank cap.
- Replace the long-life coolant every two years. Replace the other types every year.

3 PERIODIC MAINTENANCE

⑪ Hydraulic oil tank

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



⚠ WARNING

Be careful not to get burned when draining warm oil.

NOTICE

Be sure to use the hydraulic oil recommended by SAKAI (refer to “3.6 Fluid and Lubricant Capacities”).

⑫ Hydraulic oil suction filter

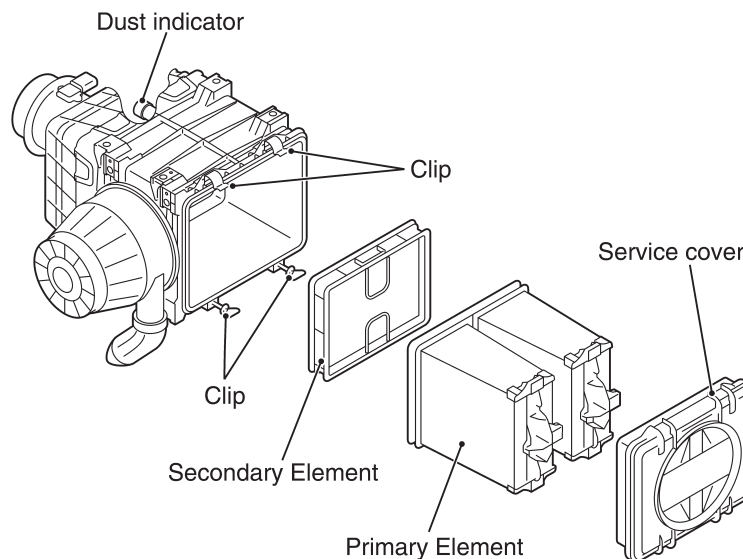
Take off the hydraulic tank cover. Take out and clean the strainer. Change the strainer if necessary.

3 PERIODIC MAINTENANCE

15 Air cleaner

When the red float of the Dust indicator reaches the service level (a mark on the indicator), change the element as described below.

- 1) Open the Service cover clips to remove the Primary element from the main filter housing.
- 2) Primary element
Grasp the handle in the center of the element and pull the filter element outward.
Clean the inside of the housing with a damp cloth to remove any dust.



- 3) Secondary element

⚠ CAUTION

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

NOTICE

- Stop the engine before inspection, cleaning, or maintenance. Failure to do so will allow dust to enter the engine and cause engine failures.
- Be sure to use genuine SAKAI replacement elements.
- Be careful when removing the Secondary element. Any loose debris can fall into the air intake piping that connects directly to the engine. Clean the area around the Secondary element and replace the Secondary element immediately to avoid ingesting engine contamination.
- Do not clean the filter elements. Cleaning the filter elements with impact or compressed air voids the warranty and can degrade or damage the filter media and cause malfunction.

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