TCR50

OPERATOR'S MANUAL

TAKEUCHI

E

TCR50

Dump Carrier

Serial No. 305200001~
Book No. AS5E000
Code No. OE-TCR50-C

OPERATOR'S MANUAL

⚠ WARNING

Read and understand these instructions.
Failure to do so can cause injury or death.

TAKEUCHI

SAFETY ALERT SYMBOL

This symbol means Attention! Be Alert! Your Safety Is Involved.
The message that follows the symbol contains important information about safety.
Read and understand the message to avoid personal injury or death.

- **It is the owner or employer's responsibility to fully instruct each operator in the proper and safe operation of all equipment. All persons using this machine should thoroughly familiarize themselves with the following sections.**

- **All operators must be instructed on the proper functions of the dump carrier before running the machine.**

- **Learn and practice correct use of the machine controls in a safe, clear area before operating this machine on a job site.**

⚠ CAUTION

E3A010

Improper operation, inspection and maintenance of this machine can cause injury or death.
Read and understand this manual before performing any operation, inspection or maintenance on this machine.

- Always store this manual near at hand preferably on the machine itself. If it should be lost or damaged, immediately order a new one from your Takeuchi dealer.
  When transferring ownership of this machine, be sure to provide this manual to the next owner.

- Takeuchi supplies machines complying to the local regulations and standards of the country of export. If your machine has been purchased in another country or from a person or company of another country, it may not have the safety devices or safety standards required for use in your country. Should you have any question about whether your machine complies with the regulations and standards of your country, contact a Takeuchi dealer.

- Please note that the contents and diagrams included in this manual may not match your machine exactly.

It is your responsibility to observe all pertinent laws and regulations and to follow the manufacturer's instructions on machine operation, inspection and maintenance.

Virtually all accidents occur as the result of a failure to observe basic safety rules and precautions. An accident can often be avoided by recognizing potentially hazardous situations beforehand. Read and understand all of the safety messages which explain how to prevent these accidents from occurring. Do not operate the machine until you are sure that you have gained a proper understanding of its operation, inspection and maintenance.

■ SIGNAL WORDS

Safety messages appearing in this manual and on machine decals are identified by the words "DANGER", "WARNING" and "CAUTION". These signal words mean the following:

⚠ DANGER	⚠ WARNING	⚠ CAUTION
The word "DANGER" indicates an imminently hazardous situation which, if not avoided, can result in serious injury or death.	**The word "WARNING" indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.**	**The word "CAUTION" indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.**

IMPORTANT: The word "IMPORTANT" is used to alert against operators and maintenance personnel about situations which can result in possible damage to the machine and its components.

It is impossible to foresee every possible circumstance that might involve a potential hazard. The warnings in this manual or on the machine can not cover all possible contingencies. You must exercise all due care and follow normal safety procedures when operating the machine so as to ensure that no damage occurs to the machine, its operators or other persons.

■ EXPLANATION OF GRAPHICAL SYMBOLS

Following is an explanation of symbols used in this manual.

⃠, X .....prohibition

/ .....Lock

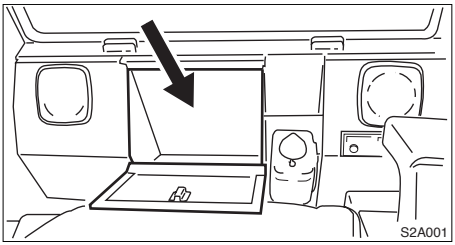
/ .....Unlock

Foreword

This manual describes operation, inspection and maintenance of the machine, as well as safety instructions to be heeded during these operations.
If you have any questions about the machine, please contact a Takeuchi sales or service outlet.

■ Manual storage

A compartment for storing this manual is provided at the position shown on the diagram below.

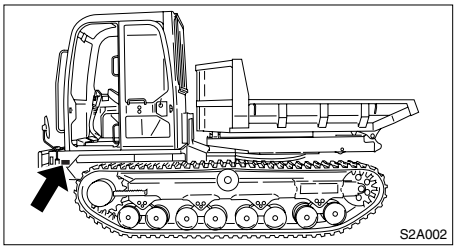


1. To open the lid, push the button.
2. Always store the manual here after using.

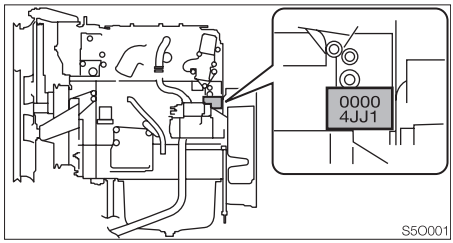
■ Serial numbers

Check the serial numbers of the machine and the engine and write them in the spaces provided below.

Machine number :

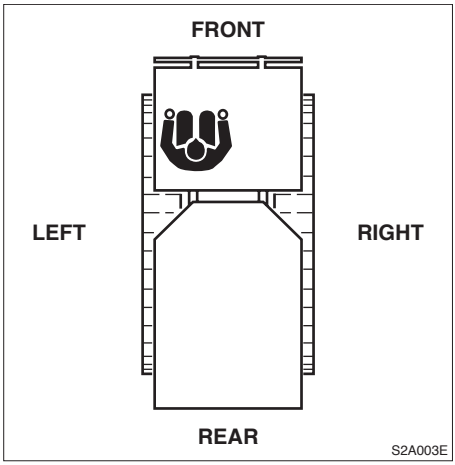


Engine number :



■ Front, rear, left and right

This manual refers the front, rear, left and right of the machine as seen when sitting in the operator's seat.



■ Designated operations

Use this machine primarily for the following operation :

- Operation on rough terrain.

■ Features

- Dump body can be hydraulically rotated through 90°.
- Hydrostatic drive system.
- ROPS / FOPS cabine.
- Low engine noise and exhaust emissions.
- Isolation mounted cab minimizes vibration.
- Pilot operated joystick controls.
- Engine emergency stop system.

■ Break-in period

When the machine is new, heed the instructions below when operating the machine for the first 100 hours (as indicated on the hour meter).
Using a new machine roughly without breaking it in will lead to quicker deterioration of machine performance and may shorten the machine's service life.

- Warm up the engine and hydraulic oil sufficiently.
- Avoid heavy loads and rapid operations. Operate with a load of about 80% the maximum load.
- Do not start up, accelerate, change directions, or stop abruptly unless necessary.

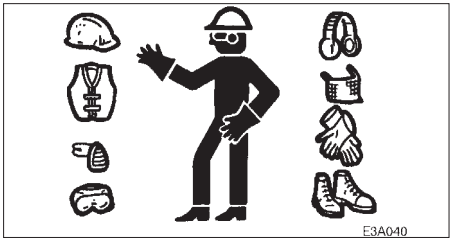
CONTENTS

SAFETY

Observe all safety rules

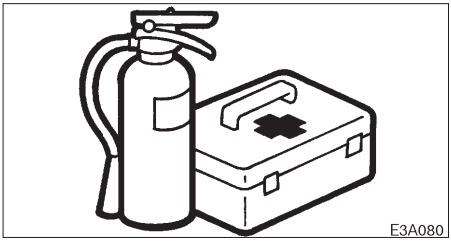
- Operation, inspection and maintenance of this machine must be performed only by a trained and qualified person.
- All rules, regulations, precautions and safety procedures must be understood and followed when performing operation, inspection and maintenance of this machine.
- Do not perform any operation, inspection and maintenance of this machine when under the adverse influence of alcohol, drugs, medication, fatigue, or insufficient sleep.

Wear appropriate clothing and personal protective equipment



- Do not wear loose clothing or any accessory that can catch on controls or in moving parts.
- Do not wear oily or fuel stained clothing that can catch fire.
- Wear a hard hat, safety shoes, safety glasses, filter mask, heavy gloves, ear protection and other protective equipment as required by job conditions. Wear required appropriate equipment such as safety glasses and filter mask when using grinders, hammers or compressed air, as metal fragments or other objects can fly and cause serious injury.
- Use hearing protection when operating the machine. Loud prolonged noise can cause hearing impairments, even the total loss of hearing.

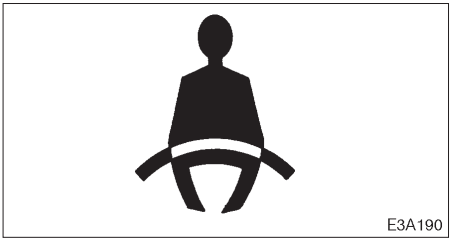
Provide a fire extinguisher and first aid kit


E3A080

- Know where a fire extinguisher and first aid kit are located and understand how to use them.
- Know how to contact emergency assistance and first aid help.

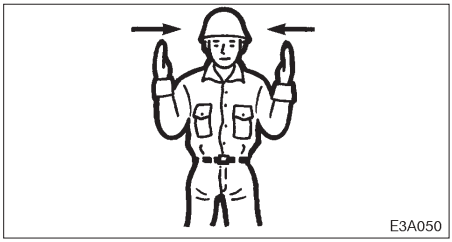
Never remove safety equipment

- Make sure all protective guards, covers, doors, etc., are in place and secure. Repair or replace damaged components before operating the machine.


E3A190

- Know how to use the safety lock lever, seat belt, raised body prop and other safety equipment and use them properly.
- Never remove any safety equipment except for service. Keep all safety equipment in good operating condition.

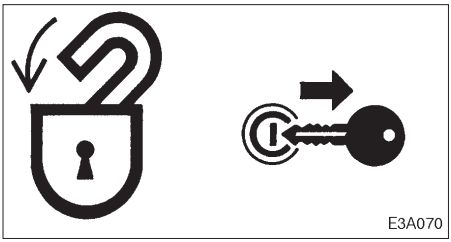
Use a signal person and flagman


E3A050

Know and use the hand signals required for particular jobs and make sure who has the responsibility for signaling.

- All personnel must fully understand all the signals.
- The operator shall respond to signals only from the appointed signal person, but shall obey a stop signal at any time from anyone.
- The signal person must stand in a clearly visible location when giving signals.

Be sure to lock the safety lock lever before leaving the operator's seat



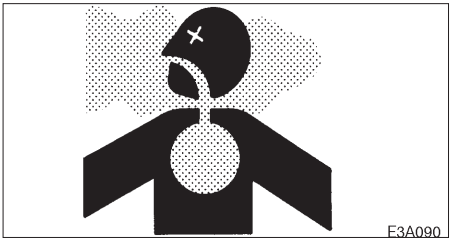
- Before leaving the operator's seat, set the safety lock lever securely to the lock position and stop the engine. If any controls should be touched accidentally when the safety lock lever has not be locked, the machine will move suddenly, and cause serious injury or death.
- Before leaving the operator's seat, lower the dump body, lock the safety lock lever, and stop the engine. Also, be sure to remove the key and take it with you.

Avoid fire and explosion hazards

Keep flames away from fuel, hydraulic fluid, oil, grease and antifreeze. Fuel is particularly flammable and dangerous.

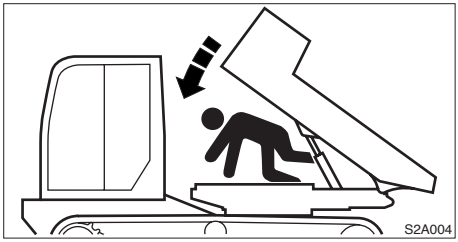
- When handling these combustible materials, keep lit cigarettes, matches, lighters and other flames or sources of flames away.
- Do not smoke or permit open flames while fueling or near fueling operations.
- Never remove the fuel cap or refuel with the engine running or hot. Never allow fuel to spill on hot machine components.
- Clean up spilled fuel, oil or other flammable fluids immediately.
- Check for fuel, oil or hydraulic fluid leaks. Stop all leaks and clean the machine before operating.
- Do not cut or weld on pipes or tubes that contain flammable fluids. Clean thoroughly with nonflammable solvent before cutting or welding.
- Remove all trash or debris from the machine. Make sure that oily rags or other flammable material are not stored on the machine.
- Handle all solvents and dry chemicals according to procedures identified on manufacturers' containers. Work in a well-ventilated area.
- Never use fuel for cleaning purposes. Always use a nonflammable solvent.
- Store all flammable fluids and materials in a safe and well-ventilated place.

Exhaust fumes from the engine can kill



- Do not operate the engine in an enclosed area without adequate ventilation.
- If natural ventilation is poor, install ventilators, fans, exhaust extension pipes or other artificial venting devices.

Be careful not to get crushed or cut



Your body, hands, feet, or other body parts must not be inserted between the dump body and the main frame, or between the cylinder and the dump body, or other moving parts. Operation of the dump body under such circumstances may lead to you getting caught between the moving parts and can cause death or serious injury.

Handling asbestos dust

Inhaling asbestos dust has been linked to lung cancer. When handling materials which may contain asbestos, take the following precautions :

- Never use compressed air for cleaning.
- Avoid brushing or grinding of the materials.
- For clean up, use wet methods or a vacuum equipped with a high efficiency particulate air (HEPA) filter.
- Wear an approved respirator if there is no other way to control the dust. When working indoors, install a ventilation system with a macro molecular filter.

Using optional products

- Consult with a Takeuchi dealer before installing optional attachments.
- Do not use attachments that have not been approved by Takeuchi or a Takeuchi dealer. Doing so may compromise safety or adversely affect the machine's operation or service life.
- Takeuchi will not be held responsible for any injuries, accidents or damage to its products caused by the use of a non-approved attachment.

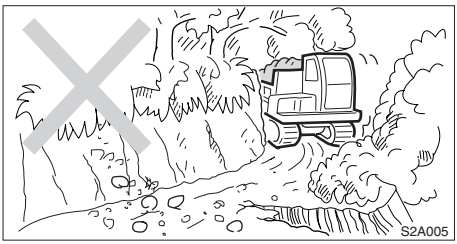
Never modify the machine

Unauthorized modifications to this machine can cause injury or death. Never make unauthorized modifications to any part of this machine.

Know the working area

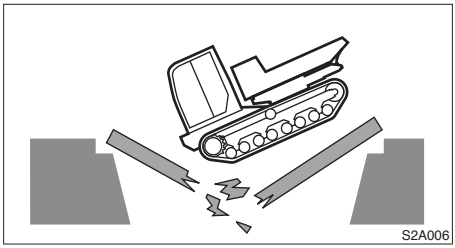
Before starting operation, know the working area to ensure safety.

- Check the topography and ground condition of the working area, or the structure of the building when working indoors, and take the necessary safety measures in dangerous spots.


S2A005

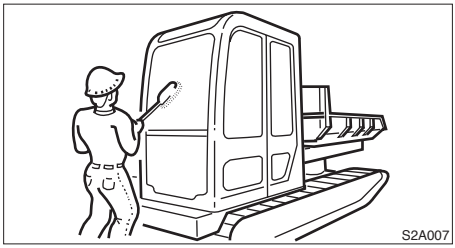
- Note and avoid all hazards and obstructions such as ditches, holes, trees, cliffs, overhead electrical wires or areas where there is danger of a slide.
- When working on roads, be sure to take into account the safety of pedestrians and vehicles.
  - Use a flagman and / or signals.
  - Fence off the working area and prohibit entry to unauthorized persons.
- When working in water or crossing shallow streams or creeks, check the depth of the water, the solidity of the ground, and the speed of the current beforehand. Make sure the water is not deeper than the allowable depth.
  Refer to the section titled “Cautions on Use in Water” for further instructions.

Check the strength of the bridge


S2A006

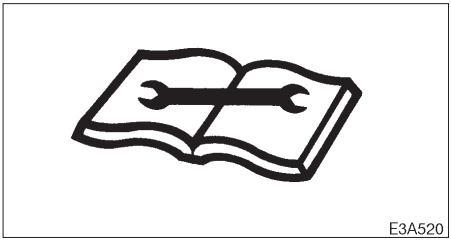
When traveling over a bridge or other structure, check the permissible load.
If the strength is insufficient, reinforce it.

Always keep the machine clean


S2A007

- Clean windows, mirrors and lights to ensure good visibility.
- Wipe off any oil, grease, mud, snow or ice, to prevent accidents due to slipping.
- Remove all loose objects stored in the machine and all objects which do not belong in or on the machine and its equipment.
- Remove any dirt, oil or grease from the engine area, to prevent fires.
- Clean the area around the operator’s seat, removing any potential obstacles.

Perform inspection and maintenance daily



Failure to notice or repair machine irregularities or damage can lead to accidents.

- Before operating, perform the prescribed inspections and make repairs immediately should any irregularities be found.
- If a failure that causes loss of control such as steering, service brakes or engine occurs, stop the machine motion as quickly as possible, follow the shutdown procedure, and keep machine securely parked until the malfunction is corrected.

Maintain three point contact when mounting and dismounting

- Do not jump on or off the machine. Never attempt to mount or dismount a moving machine.
- When mounting and dismounting the cab, first open the door fully to the locked position and check that it does not move. (For machines with cabs)

- Always face the access system and maintain a three point contact with the recommended handrails and steps while getting on and off the machine. Keep steps and platform clean.
- Never use the safety lock lever or control levers as hand holds.

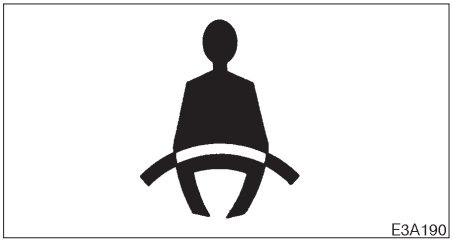
Clear the area of other persons before starting the machine

Do not start the engine until you are sure it is safe. Before starting, check or perform the following.

- Walk around the machine and warn all personnel who may be servicing the machine or are in the machine path. Do not start until all personnel are clearly away from the machine.
- Check for any “DO NOT OPERATE” tags or similar warning notices on the cab door, controls or starter switch.
- Sound horn to alert everyone around the machine.

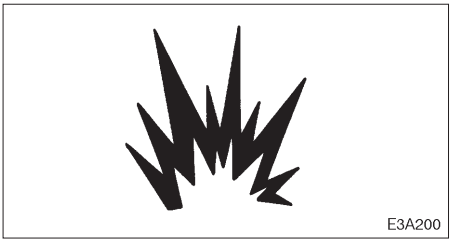
Start the engine from the operator’s seat

- Adjust, secure and latch the operator’s seat.



- Fasten the seat belt.
- Check that the parking device is applied and place all controls in the neutral position.
- Check that the safety lock lever is in the lock position.
- Clear the area of all persons.
- Start and operate the engine from the operator’s seat only.
- Never attempt to start the engine by shorting across the starter terminals.

Starting with jumper cables


E3A200

Use jumper cables only in the recommended manner. Improper use of jumper cables can result in battery explosion or unexpected machine motion.

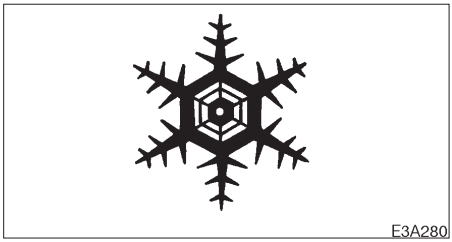
Refer to the section titled “If the Battery Goes Dead” for proper instructions.

After starting the engine

After starting the engine, perform the following operations and checks in a safe place with no persons or obstacles in the area. If any malfunctions are found, follow the shutdown procedure and report the malfunction.

- Warm up the engine and hydraulic fluid.
- Observe all gauges or warning instruments for proper operation.
- Listen for unusual noises.
- Test engine speed control.
- Operate each control to insure proper operation.

In cold weather


E3A280

- Be careful of slippery conditions on freezing ground, steps and hand holds.
- In severe cold weather, do not touch any metal parts of the machine with exposed flesh, as flesh can freeze to the metal and Cause injury.
- Do not use ether or starting fluids on this engine. These starting aids can cause explosion and serious injury or death.
- Warm up the engine and hydraulic fluid before operating.

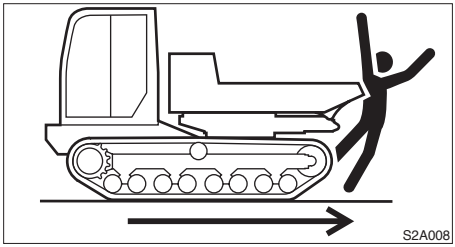
Ensure good visibility

- When working in dark places, turn on the machine's working lights and headlights and / or provide extra stationary lighting if necessary.
- When visibility is poor due to severe weather (fog, snow or rain), stop operating the machine and wait until conditions improves.

Do not permit riders on the machine

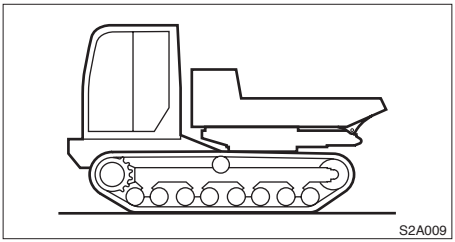
- Do not allow anyone to ride on any part of the machine at any time while traveling.
- Do not allow anyone to be on any part of the machine while operating.

Check for safety in the surrounding area before starting

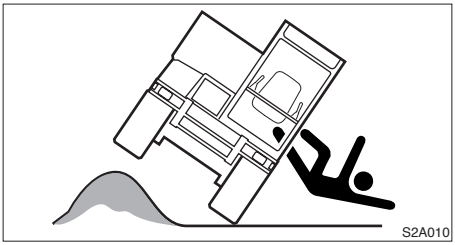


- Understand the machine limitations.
- Never allow anyone to enter the machine working range and machine path.
- Signal your intention to move by sounding the horn.
- There are blind spots to the rear of the machine. Check that the area is safe and clear.
- Use a signal person where clearances are close or your vision is obstructed.

Travel safety


S2A009

- Raising or swinging the dump body while traveling will cause the machine to become unstable and is dangerous. Lower the dump body and make it parallel with the main frame.
- Avoid sudden stops, starts or turns.
- When traveling over rough or slippery terrain, slow down to prevent losing control.

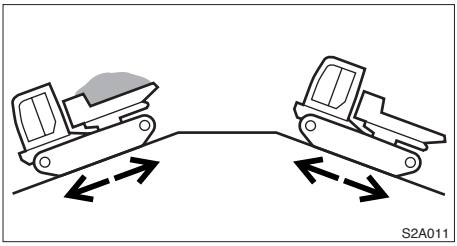

S2A010

- Avoid crossing over obstacles whenever possible. If obstacles are unavoidable, travel slowly and cross at an angle. Never cross obstacles if they will seriously tilt the machine (to an angle of 10° or greater).
- When roading a machine, know and use the signaling devices required on the machine. Provide an escort for road travel when required.

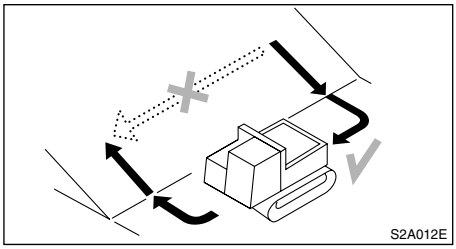
Cautions on traveling on slopes

When traveling on slopes or grades, be careful that the machine does not tip (roll) over or slide.

- Never exceed the machine's stability (maximum gradeability – 30°, lateral tipping angle – 10°). Also note that when actual working area conditions are poor the machine's stability may be lower.

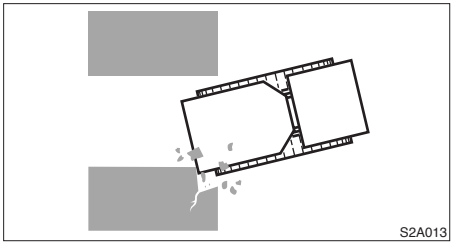

S2A011

- When going up or down slopes having a gradient of 15 degrees or more, travel up and down the slope with the heavy end of the dump carrier pointed uphill.
- Travel at slow speed on slopes. Especially when going down slopes, reduce the engine (r.p.m.) speed and set the stroke of the travel lever to half or less before going down. Going down a slope too fast will lead to loss of control.
- Sudden stopping on slopes may lead to loss of balance of the vehicle and it could tip over.
- Traveling across an inclined surface at an angle or traveling straight across an inclined surface could result in slipping sideways or tipping over. Travel straight up and down the slope.


S2A012E

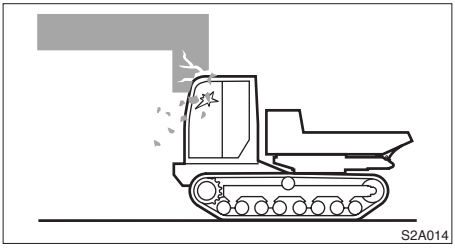
- Do not change directions or cross slopes sideways. First return to a flat surface then redirect the machine.
- On grass, dead leaves, wet metal or frozen surfaces, the machine may slide sideways even on very gentle slopes. Make sure the machine never faces sideways with respect to the slope.

Travel in narrow or congested places


S2A013

To avoid contact accidents, pay attention to the surroundings at narrow sites, indoors, and congested places and operate at a speed at which the machine can be safely operated.

Precautions when passing through tunnels or under bridges

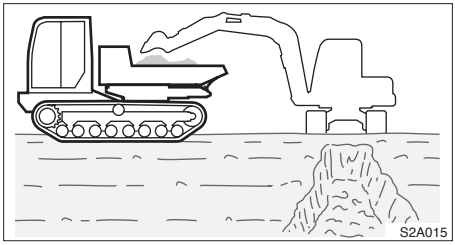


Careless entry into tunnels or under bridges can lead to serious accidents such as contact accidents, etc. Check height and width limits in advance and verify that the machine is within the limits.

Operate on snow or ice with extra care

- When traveling on snow or frozen surfaces, keep the machine travel speed down and avoid accelerating, stopping or changing directions abruptly.
- Remember that the road shoulder, fences, etc., may be buried in the snow and not visible.

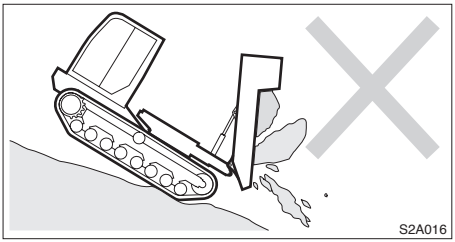
Precautions When Loading the Dump Body



Do not allow loading the dump body unless the driver and personnel are in a safe place. Load on a firm location, do not load on a slope. Improper loading can be the cause of the machine tipping over or the load giving way.

- Do not exceed the maximum weight when loading.
- Do not load unevenly, load so as to distribute the load evenly on the dump body.
- A load with poor stability should be securely fixed to the dump body.

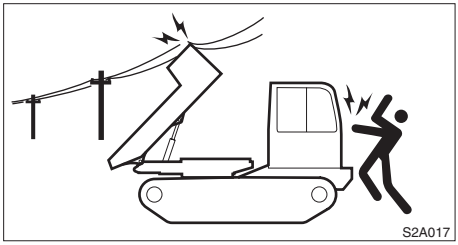
Precautions When Dumping



Do not dump in any of the following manners. The center of balance will shift and the machine could tip over.

- Dumping on a slope or bumpy location.
- Dumping while swinging the dump body.
- Dumping while traveling.

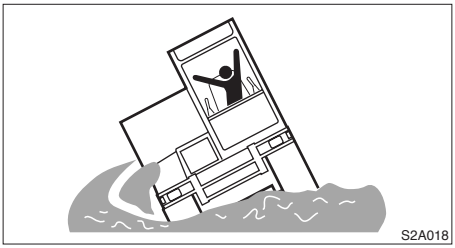
Keep a safe distance from electrical power lines



Never approach power lines with any part of the machine and its load unless all local and national required safety precautions have been taken. Electrocution and death can result from arcing, touching or even being close to a machine that is in contact with or near an electrical source.

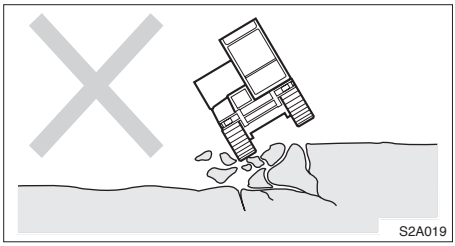
- Maintain the maximum possible distance from power lines and never violate the minimum clearance.
- Always contact the nearest electric utility and determine jointly what specific precautions must be taken to insure safety.
- Consider all lines to be power lines and treat all power lines as energized even though it is known or believed that the power is shut off and the line is visibly grounded.
- Use a signal person to observe the approach of any part of the machine or load to the power line.
- Caution all ground personnel to stand clear of the machine and the load at all times.
- If the machine should come in contact with a live electrical source, do not leave the operator's seat. Do not allow anyone to approach or touch the machine.

Do not enter soft ground



Entry onto soft ground can result in the machine tilting on its own weight, tipping over, or falling in.
Do not enter weak ground such as that following back-filling.

Unstable ground is dangerous and increases the likelihood of the machine tipping over

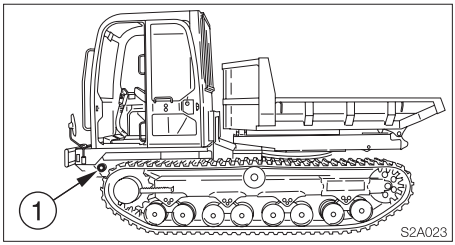


- The ground is weak in the vicinity of a cliff, road shoulder, or ditch; therefore, do not come close to such places.
- Be cautions when working on a bank, since the bank could give way due to the mass and vibration of the machine and the machine could tilt suddenly.
- The ground becomes loose after rain, earthquakes, and dynamite blasting.

Danger of flying objects

This machine is not equipped with protective guards to protect the operator from flying objects. Do not use the machine in places where there are risks of the operator being hit by flying objects.

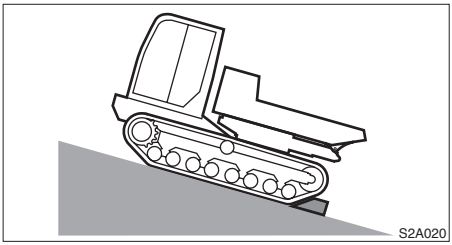
Cautions on towing



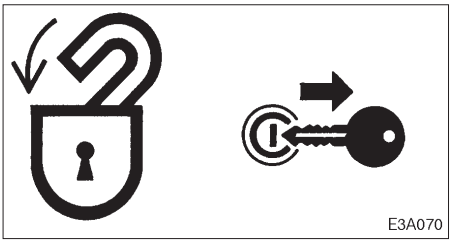
When towing, selecting the wrong wire rope, inspecting improperly, or towing in the wrong way could lead to accidents resulting in serious injury or death.

- The wire rope breaking or coming detached could be extremely dangerous. Use a wire rope suited for the required towing force.
- Do not use a wire rope that is kinked, twisted or otherwise damaged.
- Do not apply strong loads abruptly to the wire rope.
- Use safety gloves when handling the wire rope.
- Make sure there is an operator on the machine being towed as well as on the machine that is towing.
- Never tow on slopes.
- Do not let anyone near the wire rope while towing.

Park safely

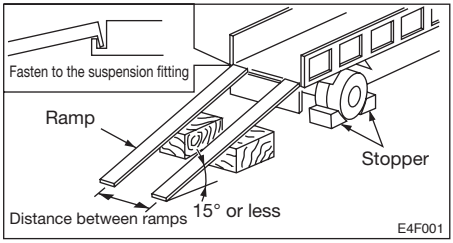


- Park the machine on firm, level ground. If you must park on a slope or incline, block the machine securely to prevent movement.
- When parking on streets, use barriers, caution signs, lights, etc., so that the machine can easily be seen even at night to avoid collision with other vehicles.



- Before leaving the machine, do the following :
  1. Fully lower the dump body.
  2. Place the safety lock lever in the lock position.
  3. Stop the engine and remove the key.
  4. Lock the cab and covers.

Load and unload the machine safely



The machine may roll or tip over or fall while loading or unloading it. Take the following precautions :

- Select a firm, level surface and keep sufficient distance from road shoulders.
- Use loading ramps of adequate strength and size. Maintain the slope of loading ramps within 15 degrees.
- Secure the ramps to the truck bed.
- Keep the truck bed and loading ramps clean of oil, clay, ice, snow, and other materials which can become slippery. Clean the tracks.
- Block the transport vehicle so it can not move.
- Use a signal person when loading and unloading the machine, and travel slowly in first gear (low speed).
- Never change course on the ramp.
- Do not raise and / or swing the dump body on the ramps and truck bed. The machine may tip over.
- Block both tracks and secure the machine to the truck bed.

Transport the machine safely

- Know and follow the safety rules, vehicle code and traffic laws when transporting the machine.
- Consider the length, width, height and weight of the transport vehicle with the machine loaded on it when determining the best route.

Do not hoist this machine

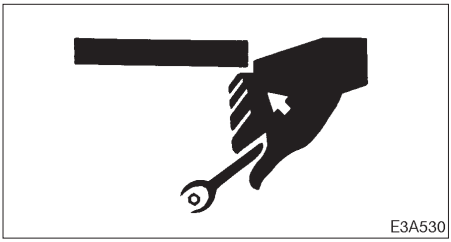
The machine is NOT equipped with any hooking points for hoisting.
Never hoist the machine with any device such as crane, etc.

Attach a “DO NOT OPERATE” tag

Severe injury could result if an unauthorized person should start the engine or touch controls during inspection or maintenance.

- Stop the engine and remove the key before performing maintenance.
- Attach a “DO NOT OPERATE” tag to the starter switch or control lever.

Use the correct tools



Do not use damaged or weakened tools or tools designed for other purposes. Use tools suited for the operation at hand.

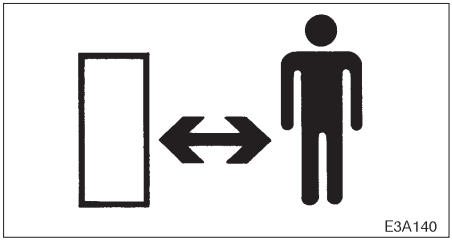
Replace important safety parts periodically

- Replace fuel hoses periodically. Fuel hoses become weaker over time, even if they appear to be in good shape.
- Replace important safety parts whenever an irregularity is found, even if it is before the normal time for replacement.
  Refer to the section titled “Important Parts” for further details.

Anti-explosive lighting

Use anti-explosive electrical fixtures and lights when inspecting fuel, oil, coolant, battery fluid, etc. If lighting that is not anti-explosive should break, the substance could ignite, resulting in serious injury or death.

Do not allow unauthorized personnel in the work area



Do not allow unauthorized personnel in the work area. Chips or other debris can fly off machine parts when grinding, welding or using a hammer.

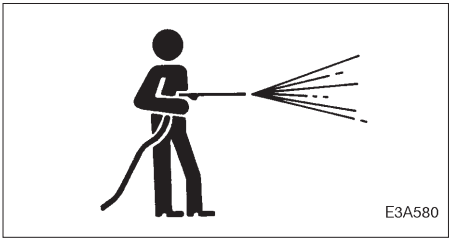
Prepare the work area

- Select a firm, level work area. Make sure there is adequate light and, if indoors, ventilation.
- Clear obstacles and dangerous objects. Eliminate slippery areas.

Stop the engine before performing maintenance

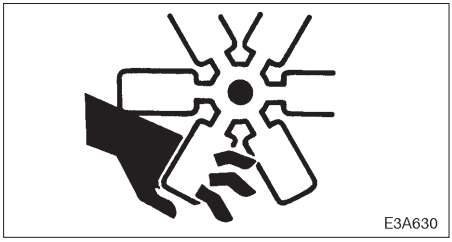
- Avoid lubrication or mechanical adjustments with the machine in motion or with the engine running while stationary.
- If maintenance must be performed with the engine running, always work as a two-person team with one person sitting in the operator's seat while the other works on the machine.
  - When performing maintenance, be sure to keep your body and clothing away from moving parts.

Always clean the machine



- Clean the machine before performing maintenance.
- Stop the engine and cover electrical parts when washing the machine. Water on electrical parts could cause short-circuits or malfunctions.
  Do not use water or steam to wash the battery, sensors, connectors or the operator's seat area.

Stay clear of moving parts



- Stay clear of all rotating and moving parts. Wrapping or entanglement may result in serious injury or death.
- Keep hands, clothing and tools away from the rotating fan and running fan belts.

Securely block the machine or any component that may fall

- Before performing maintenance or repairs under the machine, set all working equipment against the ground or in the lowermost position.
- Securely block the tracks.
- If you must work beneath the raised machine or equipment, always use wood blocks, jack-stands or other rigid and stable supports. Never get under the machine or raised dump body if they are not sufficiently supported. This procedure is especially important when working on hydraulic cylinders.

Securely block the raised dump body

If you must work beneath the raised dump body, securely engage the raised body prop. Never get under the dump body if it is not sufficiently supported.

Secure the engine hood or cover when opened

Be sure to secure the engine hood or cover when opening it. Do not open the engine hood or cover on slopes or in strong wind.

Cautions on working on the machine

- When performing maintenance on the machine, clean up the foot area and strictly observe the following so as not to fall :
  - Do not spill oil or grease.
  - Do not leave tools laying around.
  - When walking, watch your step.
- Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.
- Use protective equipment as required by job conditions.

Use caution when fueling

- Do not smoke or permit open flames while fueling or near fueling operations.
- Never remove the fuel cap or refuel with the engine running or hot. Never allow fuel to spill on hot machine components.
- Maintain control of the fuel filler nozzle when filling the tank.
- Do not fill the fuel tank to capacity. Allow room for expansion.
- Clean up spilled fuel immediately.
- Tighten the fuel tank cap securely. Should the fuel cap be lost, replace it only with the original manufacturer's approved cap. Use of a non-approved cap without proper venting may result in pressurization of the tank.
- Never use fuel for cleaning purposes.
- Use the correct fuel grade for the operating season.

Handling of hoses

Fuel, oil or hydraulic fluid leaks can cause a fire.

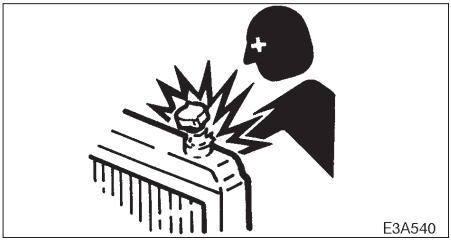
- Do not twist, bend or hit the hoses.
- Never use twisted, bent or cracked hoses, tubes and pipes. They may burst.
- Retighten loose connections.

Be careful with hot and pressurized components

Stop the engine and allow the machine to cool down before performing inspection and maintenance.

- The engine, muffler, radiator, hydraulic lines, sliding parts and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.
- The engine coolant, oil and hydraulic fluid are also hot and under high pressure.
  Be careful when loosening caps and plugs. Working on the machine under these conditions could result in burns or injuries due to the hot oil spurting out.

Be careful with hot cooling systems

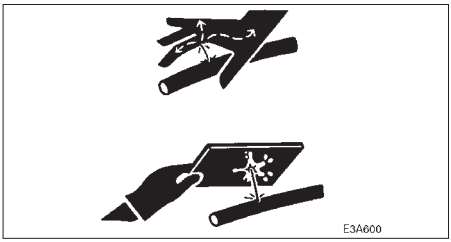


Do not remove the radiator cap or drain plugs when the coolant is hot. Stop the engine, let the engine and radiator cool and loosen the radiator cap or drain plugs slowly.

Be careful with fluids under pressure

Pressure can be maintained in the hydraulic circuit long after the engine has been shut down.

- Release all pressure before working on the hydraulic system.



- Hydraulic fluid under pressure can penetrate the skin or eyes and cause injury, blindness or death. Fluid escaping from a small hole can be almost invisible. Wear a safety goggles and heavy gloves and use a piece of cardboard or wood to search for suspected leaks.

  If fluid is injected into the skin, it must be removed within a few hours by a doctor familiar with this type of injury.

Release all pressure before working on the hydraulic system

Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.

- Gradually loosen the vent plug to relieve tank pressure.
- Move all the control levers and pedals several times in all directions to release the pressure from the working equipment circuitry. (For link type controls)
- When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.

Disconnect the battery

Disconnect the battery before working on the electrical system or doing any welding. Remove the negative (–) battery cable first. When reconnecting the battery, connect the negative (–) battery cable last.

Avoid battery hazards

- Batteries contain sulfuric acid which will damage eyes or skin on contact.
  - If acid contacts eyes, flush immediately with clean water and get prompt medical attention.
  - If acid is accidentally swallowed, drink large quantities of water or milk and call a physician immediately.
  - If acid contacts skin or clothing, wash off immediately with clean water.
- Wear safety glasses and gloves when working with batteries.
- Batteries generate flammable and explosive gases. Keep arcs, sparks, flames and lighted tobacco away.
- Use a flashlight to check battery electrolyte level.
- Stop the engine and shut off electrical equipment while inspecting or handling the battery.
- Do not short circuit the battery posts with metal items.
- Always unfasten the negative (–) battery cable first when disconnecting the battery cable. Always connect the negative (–) battery cable last when fastening the battery cable.
- Loose battery terminals may result in sparks. Be sure to fasten terminals tightly.
- Make sure the vent caps are tightened securely.
- Do not charge a battery or jump-start the engine if the battery is frozen. Warm to 15°C (60°F) or the battery may explode.
- Do not use the battery when the fluid level is below the lower level. Doing so will hasten the deterioration of the internal portions of the battery and shorten the battery life, and can also cause rupturing (or an explosion).
- Do not fill the battery above the upper level. Doing so could cause the fluid to leak, contact and damage the skin, or cause parts to corrode.

Have a Takeuchi service agent repair welding cracks or other damage

If welding must be performed, make sure that it is done by a qualified person in a properly equipped workplace. To prevent any part from breaking down or being damaged due to overcurrent or sparks, observe the following.

- Disconnect the wiring from the battery before doing electric welding.
- Do not continuously apply 200 V or more.
- The earth ground must be connected within one meter from the welding section. Do not connect the earth ground near to an electronically controlled device/ instrument or connectors.
- Make sure that there are no seals or bearings between the welding section and the earth ground.
- Do not connect the earth ground around the pins for the working equipment or hydraulic cylinders.
- When welding is to be done on the machine body, disconnect the connectors for the electronically controlled devices before working.

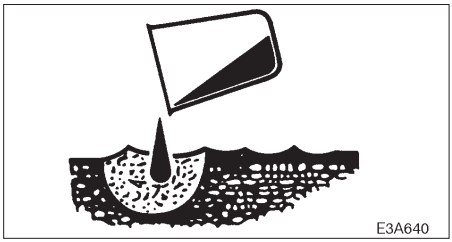
Vibrations operators are subject to

According to the results of the tests conducted to determine the vibrations transmitted to the operator by the machine, the upper limbs are subjected to vibrations lower than 2.5 m/s^2(8.2 ft/s^2) while the seated part of the body is subjected to vibrations lower than 0.5 m/s^2 (1.64 ft/s^2).

Checks after maintenance

- Gradually raise the engine speed from a low idle to maximum speed and check that no oil or water is leaking from serviced parts.
- Move the controls and check that the machine is operating properly.

Disposing of wastes

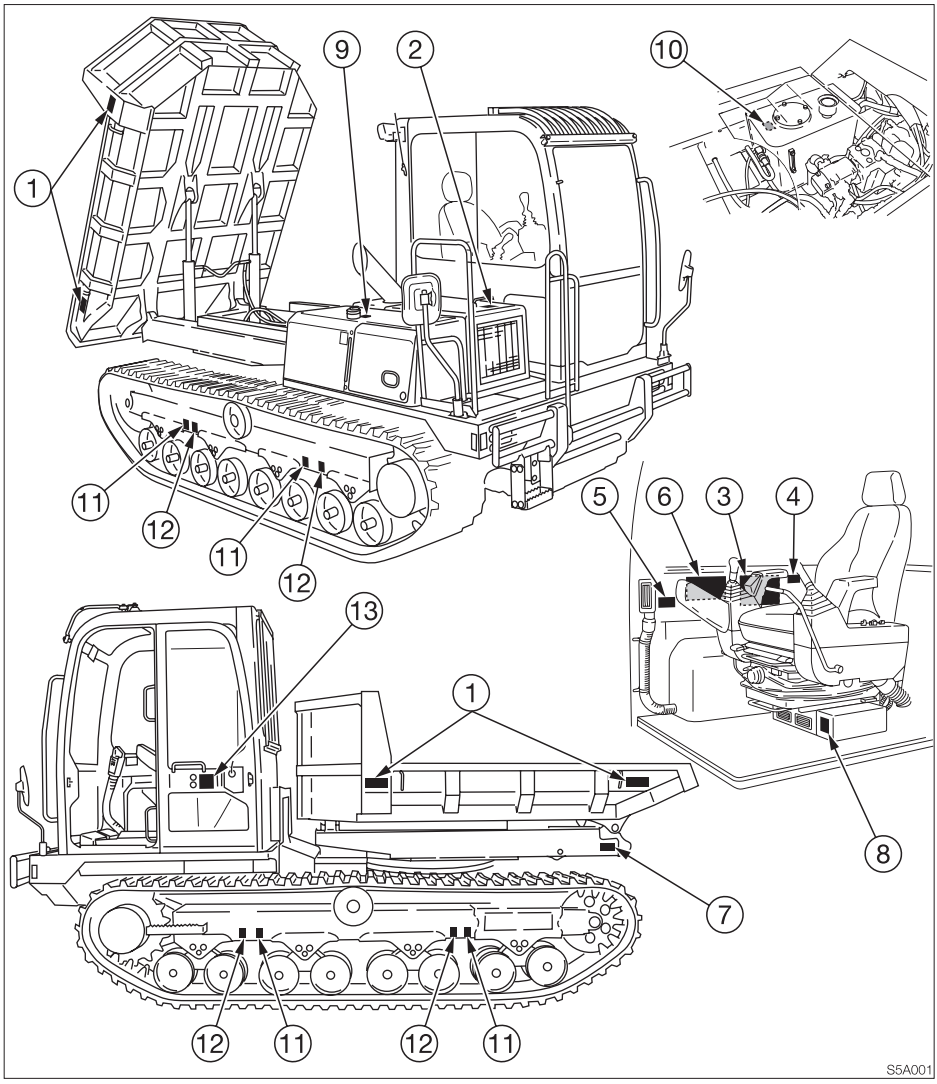


- Funnel spent fluids from the machine into containers. Disposing of fluids improperly destroys the environment.
- Follow the prescribed regulations when disposing of oil, fuel, engine coolant, refrigerant, solvents, filters, batteries or other harmful substances.

Safety Signs (Decals)

The following safety signs (decals) have been placed on your machine in the areas indicated. They are intended for the personal safety of you, and those working with you. Please take this manual, walk around your machine and note the content and location of these safety signs. Review these signs and the operating instructions in this manual with your machine operators.

- Keep the signs legible. If they are not, obtain replacements from your Service outlet.



1. No.03593-06500

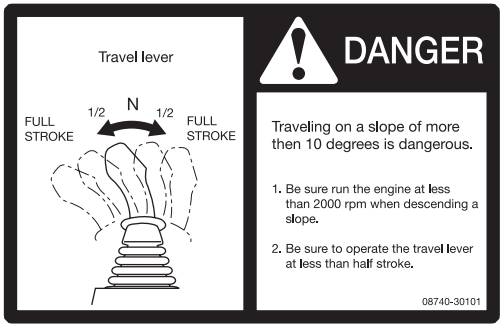
2. No.03593-07400

3. No.08740-30107

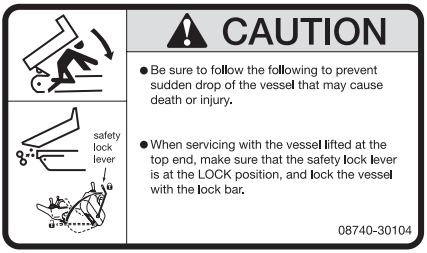
4. No.08710-80515

5. No.08710-83006

6. No.08740-30101



7. No.08740-30104



8. No.03993-00400
For EU
Position of Fire extinguisher

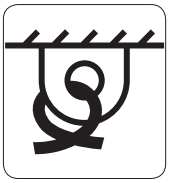
S5A002PE

9. No.03593-06600
Diesel Fuel

10. No.03593-06700
Hydraulic oil

11. No.03993-00500
Position of Hoisting

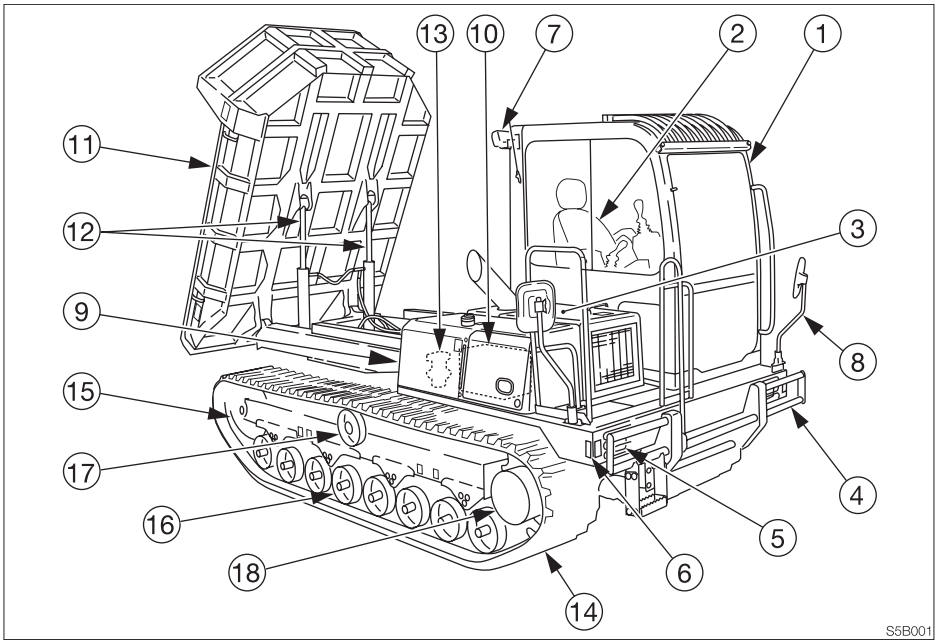
12. No.08810-31549
Tie down point



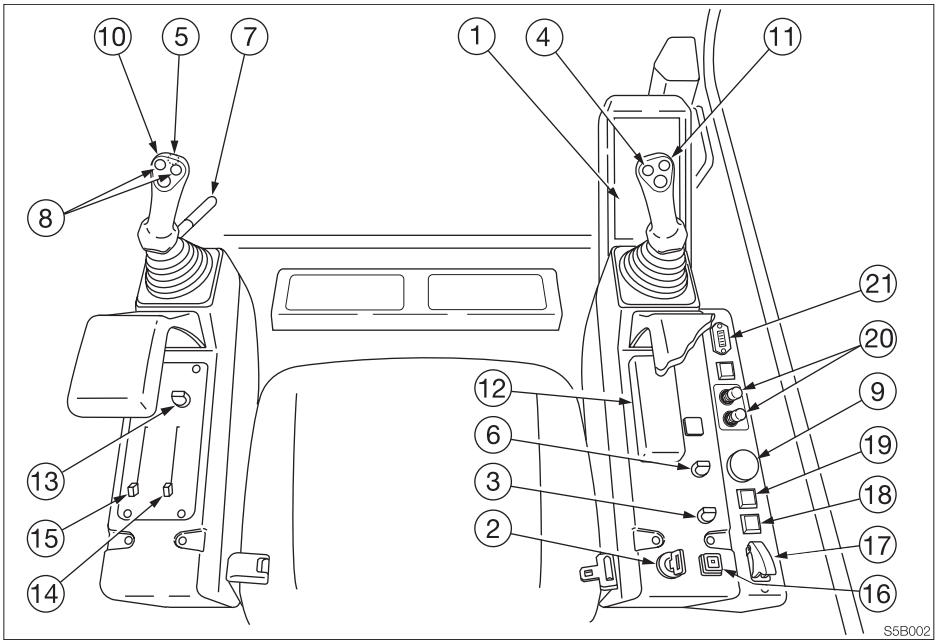
13. No.08800-38041
Noise Outside the Cab
This value indicates the noise level outside the machine and refers to the noise perceived by the persons who are in the vicinity of the work area.

S5A003PE

CONTROLS

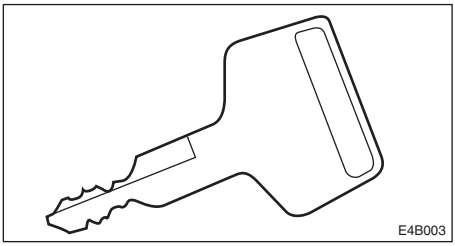


1. Cab
2. Seat
3. Engine hood
4. Bumper
5. Front light
6. Turn light
7. Rear light
8. Outside mirror
9. Fuel tank
10. Hydraulic tank
11. Dump body
12. Dump cylinder
13. Swing motor
14. Crawler belt
15. Idler
16. Track roller
17. Carrier roller
18. Travel motor



1. Instrument cluster
2. Starter switch
3. Light switch
4. Horn switch
5. Travel speed switch
6. Wiper switch
7. Safety lock lever
8. Turn switch
9. Throttle controller
10. Left control lever
11. Right control lever
12. Fuse box
13. Fan switch (Heater)
14. Heater / Defroster lever
15. Rec / fresh lever
16. Parking brake button
17. Engine shutdown switch
18. Dump body alignment indicator
19. Dump body raising indicator
20. Display selection buttons
21. Hour meter

Starter Key



The starter key is used not only to start and stop the engine, but also to lock and unlock the following places :

- Fuel filler cap
- Engine hood
- Cab door
- Battery cover
- Side cover

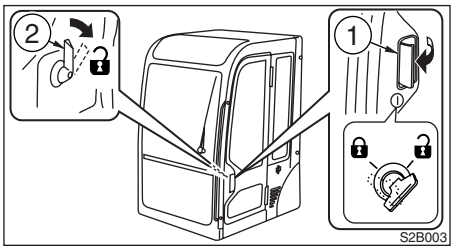
Cab Door

⚠ WARNING

When mounting and dismounting the cab, first open the door fully to the locked position and check that it does not move.

Open the door fully and press it against the catch at the back of the door to lock it in place. Always lock the door when mounting and dismounting and when operating the machine.

Lock and unlock

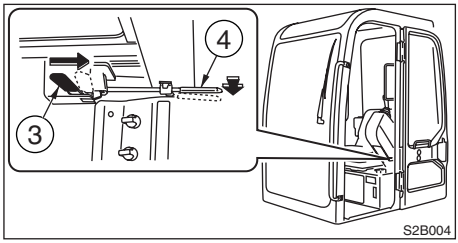


1. Insert and turn the starter key.

Opening

1. Pull the knob (1) towards you and open the door.
   To open the door from inside the cab, push the lever (2) to the front.
2. Open the door fully and press it against the cab to lock it in place.

Closing



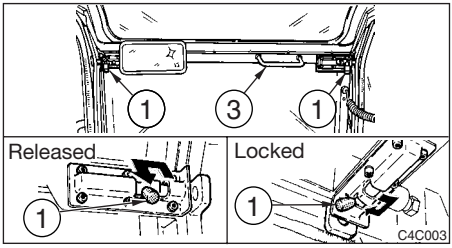
1. Either push release lever (3) to the front or lower release lever (4).
2. Close the released door.

Front Window

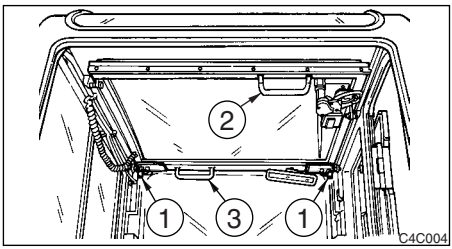
⚠ WARNING

- **Grasp the handles firmly with both hands when opening and closing the front window. Your head or hands may get caught if they slip.**
- **If you open the front window, be sure to lock it in place with the lock pins on the left and right sides. The window may fall if it is not locked in place.**

Opening



1. Park the machine on a level surface and stop the engine.
2. Set the safety lock lever to the locked position.
3. Pull the left and right lock pins (1) to the inside then turn them to the locked position to unlock the front window. If the lock pins (1) are partially sticking out they may cause damage.



4. Grasp the lower handle (2) with the left hand, the upper handle (3) with the right hand, then lift and slide to the rear.
5. Once the window frame is against the stopper, move the lock pins (1) to the outside to lock front window.

Closing

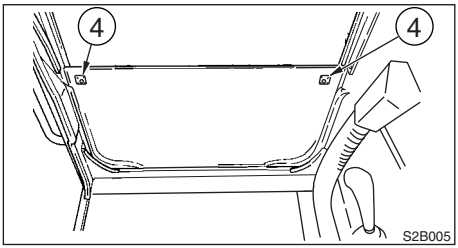
⚠ WARNING

When closing the front window, lower the window slowly so as not to hit your head. Lowering the window abruptly may result in injury or damage the front window.

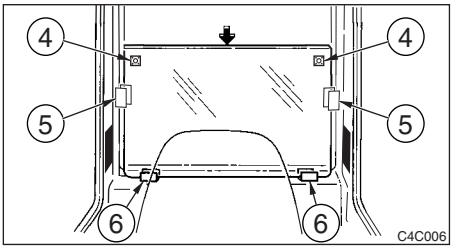
1. Pull the left and right lock pins (1) to the inside and turn them to the locked position to unlock the front window. If the lock pins (1) are partially sticking out they may cause damage.
2. Grasp the front (lower) handle (2) with the left hand, the rear (upper) handle (3) with the right hand, then slowly lower the front window.
3. Move the lock pins (1) to the outside to lock the front window.

Lower Front Window

Removing

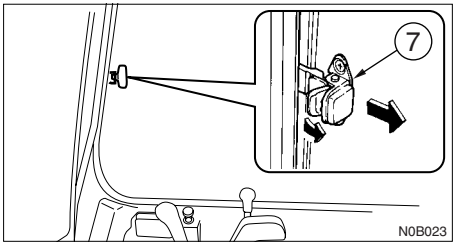


1. Open the front window and stow it in the ceiling.
2. Grasp the protruding parts (4) on the left and right with your fingers and slowly lift the lower front window off.



3. Hold the glass firmly, place the lower front window through the guides (5) at the rear, then set it on the supports (6) and fasten it in place.

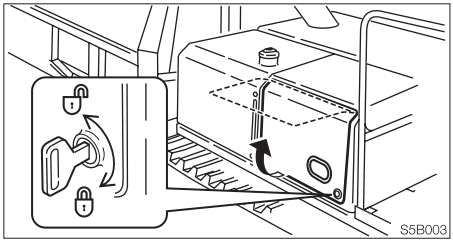
Side Window



1. Grasp the catch (7), unlock it and open the side window.
2. To close the side window, close it until a click is heard.

Side Cover (Tool Box)

The grease gun and tools are stored behind the cover.



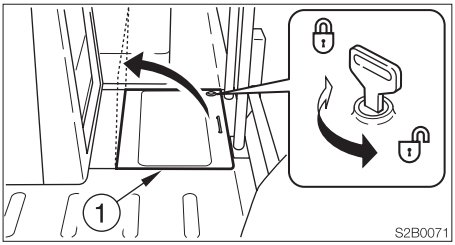
Lock and unlock

1. Insert and turn the starter key counterclockwise (clockwise) to unlock (lock).
2. Tilt the cover (1) until it stops.

Closing

1. Support the cover (1) by hand and release the stay.
2. Close the front cover (1).
3. Insert the starter key and turn it clockwise to lock the cover (1).

Battery Cover



Lock and unlock

1. Insert and turn the starter key counterclockwise (clockwise) to unlock (lock).
2. Tilt the cover (1) until it stops.

Closing

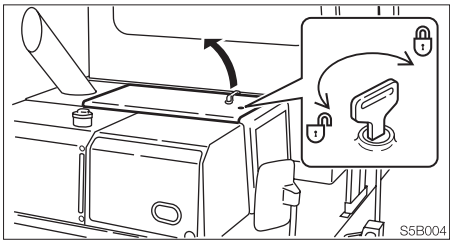
1. Support the cover (1) by hand and release the stay.
2. Close the front cover (1).
3. Insert the starter key and turn it clockwise to lock the cover (1).

Engine Hood

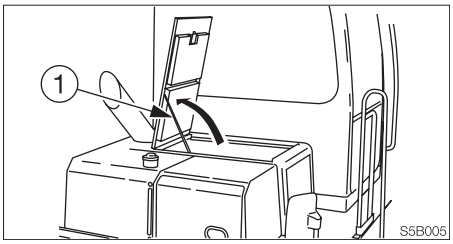
⚠ WARNING

- **Before opening the engine hood, be sure to stop the engine. If your hands or tools should get caught in the fan or fan belt while the engine is running they may be severed.**
- **Be sure to secure the engine hood when opening it. Do not open the engine hood on slopes or in strong wind.**
- **When opening and closing the engine hood, be careful not to get your hands or other parts of your body caught.**

Opening



1. Insert and turn the starter key clockwise to unlock.
2. Turn the handle and lift the engine hood fully.



3. Raise the stay (1), then insert and fix it into the stay hole.

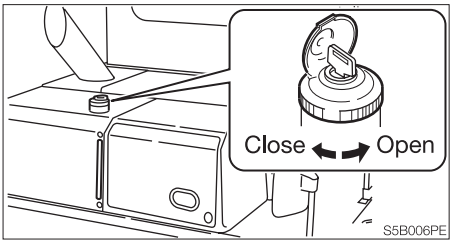
Closing

1. Support the engine hood by hand, remove stay (1), and fix it to the original position.
2. Close the engine hood and press it down until a click is heard at the front.

Fuel Filler Cap

⚠ WARNING

- **Do not smoke or permit open flames while fueling or near fueling operations.**
- **Supply fuel in a well ventilated place and with the engine stopped.**
- **Clean up spilled fuel immediately.**
- **Do not fill the fuel tank to capacity. Allow room for expansion.**
- **Tighten the fuel filler cap securely.**



Opening

1. Open the keyhole cover, insert the key and turn it counterclockwise to unlock the fuel cap.
2. Turn the fuel cap counterclockwise and remove it.

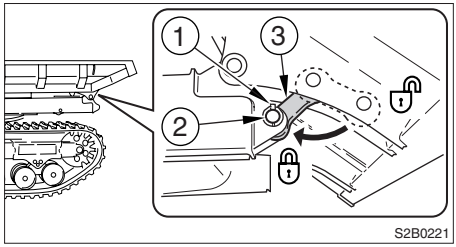
Closing

1. Set the fuel cap in place and turn it clockwise.
2. Turn the key clockwise to lock the fuel cap, then remove the key.

Raised Body Prop

⚠ WARNING

If you must work beneath the raised dump body, securely engage the raised body prop. Never get under the dump body if it is not sufficiently supported.



Engaging the raised body prop

1. Fully raise the dump body.
2. Set the safety lock lever to the lock position and stop the engine.
3. Pull up the ring and remove the lock pin (1), then remove the pin (2).
4. Put the disconnected end of the prop (3) between the lock holes and insert the pin (2).
5. Install the lock pin (1) and push down the ring.

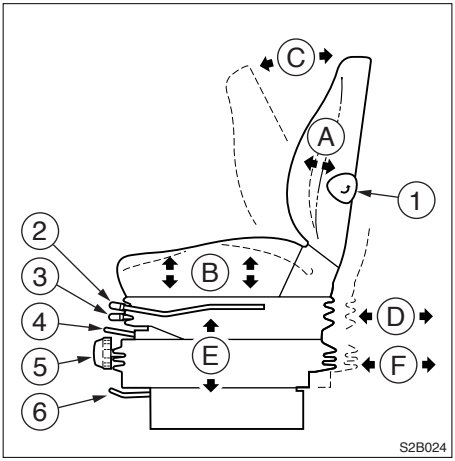
Disengaging the raised body prop

1. Move the right control lever to raise the dump body.
2. Disengage the prop (3) and put it back in place.

Seat

⚠ WARNING

Adjust, secure and latch the operator's seat.



(A) Lumber adjustment

1. Turning knob (1) in the direction of the arrow causes the lumber of the backrest to curve outwards for greater back support.
2. Turning the knob (1) further then removes the curve and returns the seat to its original position.
   The knob (1) cannot be turned counter to the direction of the arrow.

(B) Seat cushion angle and height adjustment

- Lift lever (2) to adjust the rear angle of the seat cushion.

1. To raise the rear angle of the seat cushion, raise yourself slightly off the seat while lifting the lever.
2. To lower the rear angle of the seat cushion, apply your weight to the rear of the seat cushion while lifting the lever.

- Lower lever (2) to adjust the front angle of the seat cushion.

1. To raise the front angle of the seat cushion, apply your weight to the backrest while holding the lever down.
2. To lower the front angle of the seat cushion, apply your weight to the front of the seat cushion while holding the lever down.

- To adjust the height of the seat, adjust the front and rear angles of the seat cushion alternately.
  (5 steps, 60 mm (2.36 in.) adjustment range)

Example: First raise the front angle of the seat cushion, then raise the rear angle of the seat cushion by the same amount. This raises the height of the seat.

- After adjusting to the desired position, release the lever to lock it.

(C) Back angle adjustment

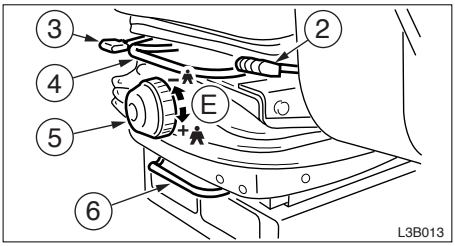
⚠ WARNING

- **Do not set the seat back to its maximum reclining position and slide the seat backwards at the same time. Doing so may break the rear window glass, resulting in injury.**
- **Be careful not to allow the force of the spring to bring the seat back sharply forward.**

1. Raising your torso, sitting down firmly in the seat.
2. Pulling lever (3) allows you to use the pressure of the springs in the seat pressing against your back to adjust the reclining angle of the seat back. Release the lever (3) at the desired angle and the seat back will be locked in that position.

(D) Fore-and-aft adjustment

1. Pull on lever (4) and slide the seat backward or forward to bring it to the optimum position for operating the machine.
2. Release the lever (4) at the desired position and the seat will remain fixed there.
   Adjustment stroke: 17 steps,160 mm (5.9 in.)



(E) Weight adjustment

1. Turn handle (5) and set it to indicate the weight of the person to operate the machine.
   May be set to any value from 50 to 120 kg (110 to 265 lbs.)

(F) Lever stand adjustment

1. Pull on lever (6) and slide the lever stand backward or forward to bring it to the optimum position for operating the machine.
2. Release the lever at the desired position and the lever stand will remain fixed there.
   Adjustment stroke: 70mm (2.8 in.)

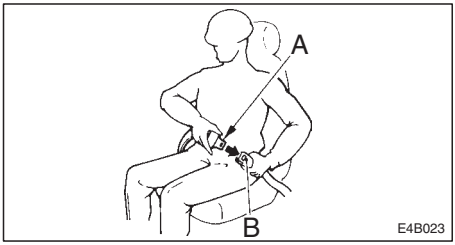
Seat Belt

⚠ CAUTION

Always fasten the seat belt securely before starting the engine.

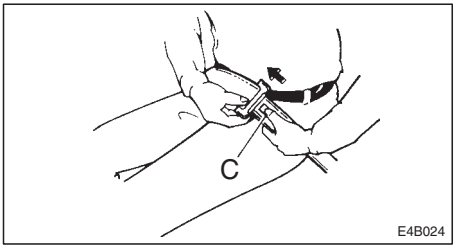
Fastening the seat belt

1. Adjust the seat to the optimum position for operating, raise your torso, and sit back firmly into the seat.
2. Pull the seat belt to the desired length.

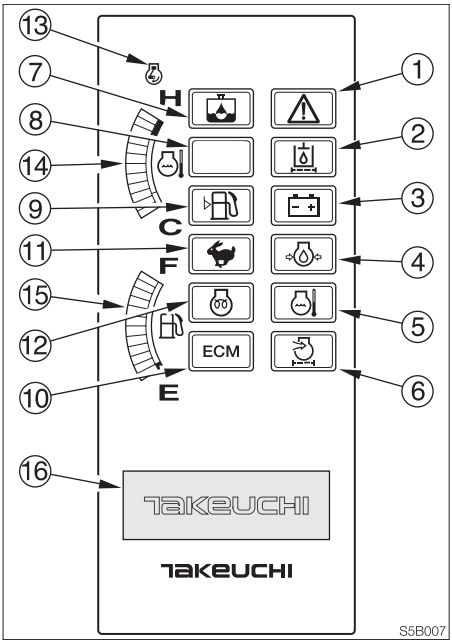


3. Make sure that the belt is not twisted and then insert the tongue plate (A) into the buckle (B) of the seat belt until you hear a clicking sound as it locks in place.

Releasing the seat belt



1. To remove the seat belt, simply press the button (C) located on the buckle.
   The seat belt is automatically stowed away.



Warning Lamps

IMPORTANT: If a warning lamp flashes and an alarm sounds, stop all operations immediately and inspect and maintain the appropriate part.

Refer to pages 138 and 139 “If a Warning Lamp Flashes”.

1. Engine Emergency Lamp

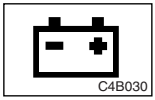
This lamp flashes and an alarm sounds if the engine oil pressure drops or the coolant temperature rises abnormally while the engine is running.

2. Pilot Line Filter Warning Lamp

This lamp flashes and an alarm sounds if the pilot line filter is clogged while the engine is running.

This lamp may flashes directly after the engine in started in cold weather. This is not a malfunction. The lamp will turn off as the engine warms up

3. Battery Charge Warning Lamp



This lamp flashes if a problem arises in the charging system while the engine is running.

4. Engine Oil Pressure Warning Lamp

This lamp flashes and an alarm sounds if the lubricant oil pressure drops abnormally while the engine is running.

5. Coolant Temperature Warning Lamp

This lamp flashes and an alarm sounds if the engine coolant temperature rises abnormally while the engine is running.

6. Air Cleaner Warning Lamp

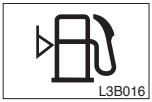
This lamp flashes if the air cleaner filter is clogged while the engine is running.

7. Water Separator Warning Lamp

This lamp flashes if the water is detected within the water separator while the starter switch is in the ON position.

8. —

9. Fuel Level Warning Lamp



This lamp flashes when the fuel level is low while the starter switch is in the ON position.

10. ECM Warning Lamp

This lamp flashes and an alarm sounds if the ECM (Electronic Control Module) detects an engine problem when the starter switch is in the ON position. The LCD screen is interrupted with an ECM error code indicating the problem detected.

Indicators

11. Travel Speed Lamp

This lamp lights when the travel speed switch is set to 2nd (high speed).

12. Glow Lamp

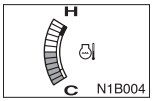
This lamp turns off when engine preheating is completed.

13. Deceleration Lamp

When the deceleration button is pressed or the engine speed is set to low idle, this lamp lights up to indicate.

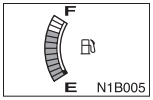
Meters

14. Water Temperature Gauge



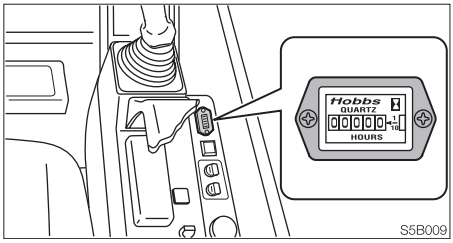
This gauge indicates the temperature of the engine coolant water.
The lamps should be within the green range during machine operation. The red range indicates overheating.

15. Fuel Gauge



This gauge indicates the amount of fuel in the tank.
Be sure to top off the tank before running out of fuel.

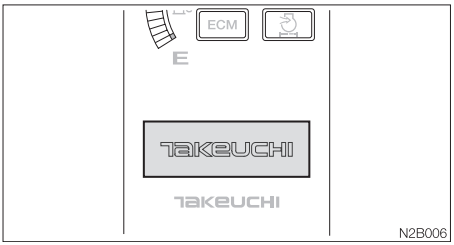
Hour Meter



This meter displays the total engine running time in hours.
The rightmost digit indicates tenths of hours (6 minutes).
Set the inspection and maintenance intervals according to the time displayed on the hour meter.

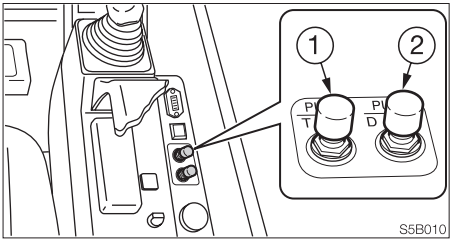
Multi-Data Display

LCD



Displays the Trip display on the hour meter or various data on the engine. If an error is detected, a corresponding error code is displayed interrupting the current process.
IMPORTANT: If an error code appears, immediately stop the operation and contact a Takeuchi sales or service outlet for help.

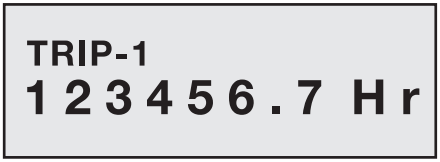
Display selection buttons



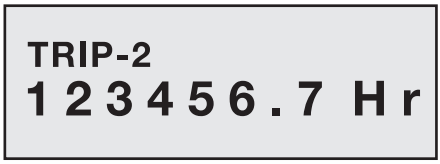
The TRIP (1) button and the DATA button (2) are used to switch among displays.

Displaying the user mode
Used to display the operating time spent in each section.
The display changes as the TRIP button (1) is pressed.

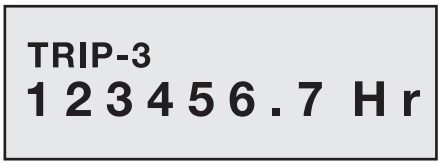
1. TRIP-1



2. TRIP-2



3. TRIP-3



4. Returns to the top screen.

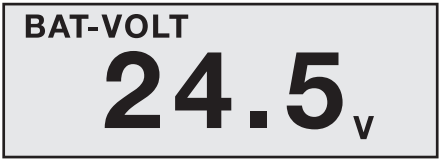
To reset the meter to “0”, display the way to be reset, and then press and hold the TRIP button.

Displaying the data mode
The display changes as the DATA button (2) is pressed.

1. Engine revolution

N2B011

2. Battery voltage



N2B012

3. Error code

N2B013

Displays five error codes, with the latest code in the left.
Refer to page 140 “Error Code List”.

4. Engine ECM error code

N2B014

Displays three error codes, with the latest code in the left.
IMPORTANT: If an error code appears, immediately stop the operation and contact a Takeuchi sales or service outlet for help.

5. Press the button to return to the top screen or press and hold the button for three seconds or more to display the next data.

6. Engine model

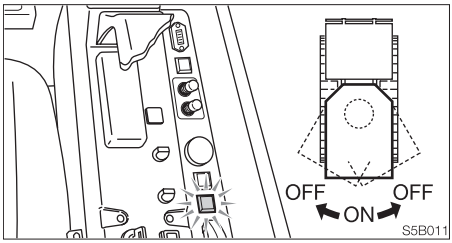
7. Engine serial number

8. Engine controller part number

9. Software version control number

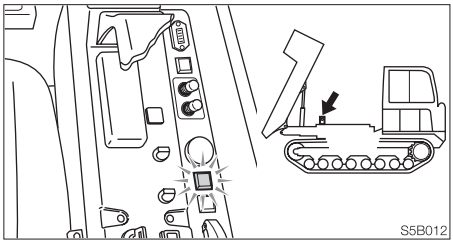
10. Returns to the top screen.

Dump Body Alignment Indicator



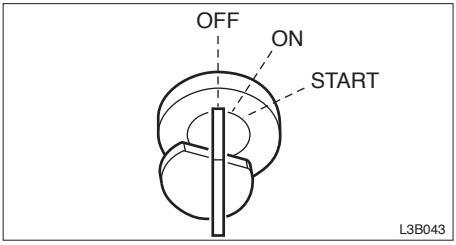
This lamp lights when the orientation of the dump body is parallel with the main frame. The lamp is off when the dump body swings left or right.

Dump Body Raising Indicator



This lamp lights when the dump body is raised and moves out of the sensor's range. It goes out when the dump body is lowered all the way down.

Starter Switch



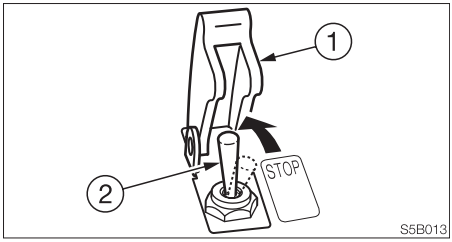
IMPORTANT: Do not repeatedly switch the key from OFF to ON and ON to OFF over a short period. Doing so will cause engine breakdown.

OFF ..... Position for stopping the engine and inserting or removing the key.

ON ..... Position in which the engine is running. At this position, all the electrical equipment is functional.
When the coolant temperature is low, the glow plugs are energized and automatic preheating is done.

START ..... Position for starting the engine. When the key is released, the switch automatically returns to the ON position.

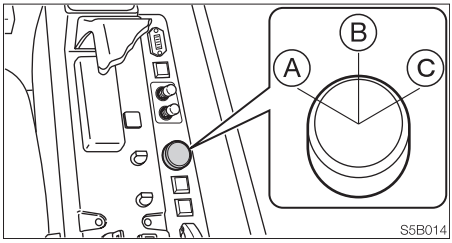
Engine Shutdown Switch



Use to shutdown the engine if it fails to stop when the starter switch is set to the OFF position due to machine failure or breakage.

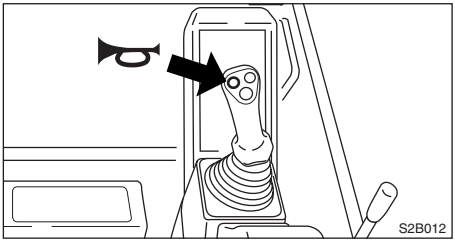
1. Lift the front part of the cover (1).
2. Raise the lever (2) of the switch.
3. After use, lower the front part of the cover (1) to return the lever (2) to the lower position.

Throttle Controller



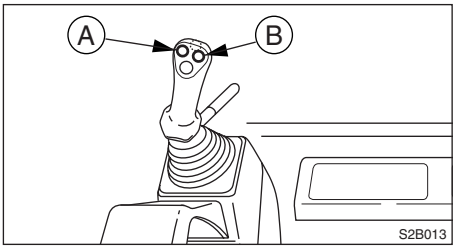
This controls the engine speed.
(A) ..... Low idling
(B) ..... Middle speed
(C) ..... Maximum speed

Horn Switch



Press the switch to activate the horn.

Turn Switch

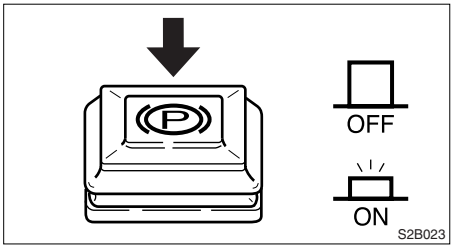


Press the left button (A) on this switch to blink the left turn light and press the right button (B) to blink the right turn light.
An alarm sounds while either button is pressed.

Parking Brake Button

⚠ WARNING

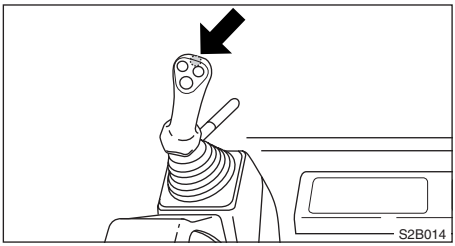
Pressing this button while traveling will cause the brake to be applied abruptly and is dangerous. It may also damage the travel motors. Do not press this button while traveling.



Pressing the button will cause the pilot lamp to light and there will be a forced application of the parking brake.
ON (Lamp is lit)
.....Forced operation of the parking brake
OFF (Lamp is not lit)
.... Automatic operation of the parking brake

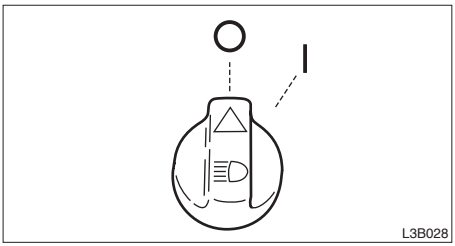
Even when the button is OFF, it is normal for the parking brake to operate automatically when travel is stopped.

Travel Speed Switch



Press this switch to set the travel speed to 2nd speed (high speed). Press again to return to 1st speed (low speed).

Light Switch



When this switch is turned while the starter switch is at ON, the lights turn on as follows :

O..... Off

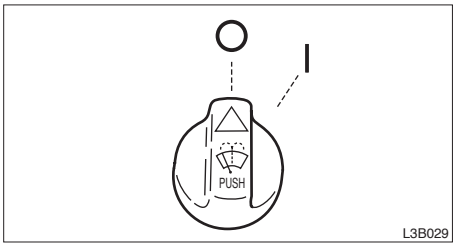
I..... Front lights, rear light and meter light turn on.

Wiper Switch

IMPORTANT: If no washer fluid is discharged, do not operate the washer. Doing so may damage the pump.

IMPORTANT: Operating the wiper with no moisture on the windshield will scratch the glass. Apply water or washer fluid when operating the wiper.

IMPORTANT: In cold seasons, the wiper blade may freeze to the glass. Operating the wiper forcibly may damage the wiper motor.



O ..... Off

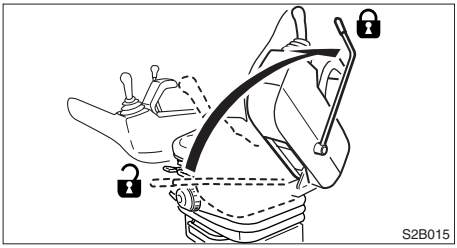
I ..... Wiper operates.

PUSH ..... Washer fluid is squirted from the nozzle while pressed, and stops when released.

Safety Lock Lever

⚠ WARNING

- **Before leaving the operator's seat, set the safety lock lever to the lock position and stop the engine. If any controls should be touched accidentally when the safety lock lever is lowered, the machine will move suddenly, and cause serious injury or death.**
- **Be careful not to touch the control levers when raising and lowering the safety lock lever.**

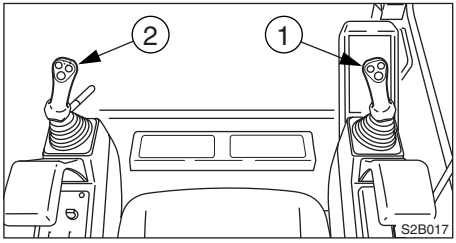


This device is for locking the dump body movement and machine travel.
When the lever is lifted and the lever stand springs up, the control levers are locked.

Control Levers

⚠ WARNING

Be careful to check which pattern of lever control arrangement you are operating with before beginning operations.



1. Right Control Lever
Use the right control lever to operate the dump body.
Refer to page 73 "Operating the Dump Body".

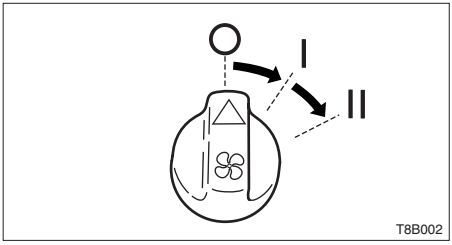
2. Left Control Lever
Use the left control lever to travel the machine.
Refer to page 70 "Traveling the Machine".

Heater

⚠ WARNING

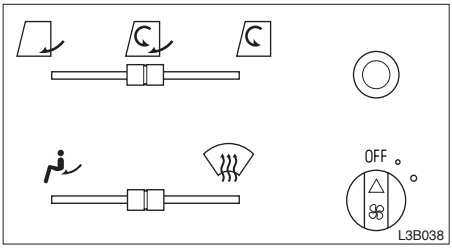
- **Always be sure to allow sufficient ventilation.**
- **Do not place combustible or explosive objects near the air outlets.**

Fan Switch



O ..... Off
I ..... Heater fan rotates at low speed.
II..... Heater fan rotates at high speed.

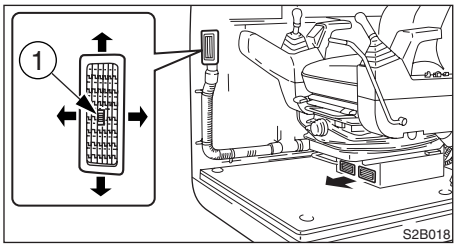
Heater / Defroster Lever
Rec / Fresh Lever



Use this switch to heat the cab and to defrost the windshield.

..... Heater
..... Windshield defroster
..... Fresh
..... Half ventilation
..... Recirculate

Air Outlets

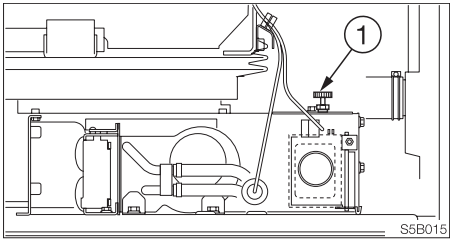


Move knob (1) up and down or left and right to adjust the direction of the air.

Supplement: Use the heater with care in warm seasons. Coolant circulates in the heater even when the heater switch is turned off.

When the heater is no longer needed, stop coolant circulation as follows :

IMPORTANT: Use the valve (1) either fully open or fully closed.

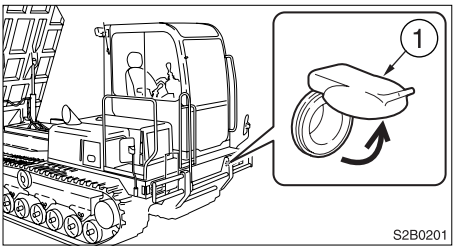


1. Park on a flat surface and stop the engine.
2. Fold the seat backrest forward.
3. Close the valve (1).

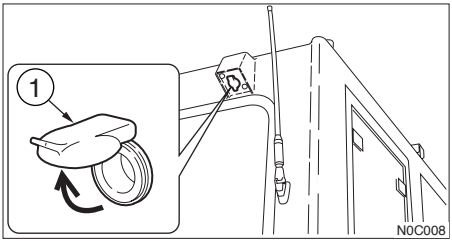
External Power Socket (for EU)

⚠ WARNING

Only use applicable electric products with these sockets.



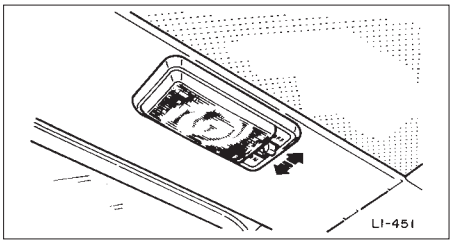
for Beacon



Use these sockets as an external power supply. When using these sockets, be careful not to exceed 24V/5A.
To use, raise the cap (1).

Interior Light

IMPORTANT: The battery capacity will decrease if the interior light is left on for long periods of time the engine stopped. Turn the light off when leaving the machine.



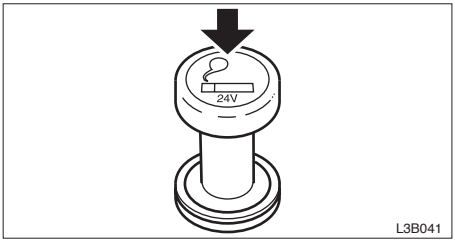
OFF ..... Lamp is turned off all the time, with no regard for the door being opened or closed.
Neutral ..... Lamp is turned on when the door is opened, and it turned off when the door is closed.
ON ..... Lamp is turned on all the time, with no regard for the door being opened or closed.

Cigarette Lighter

⚠ WARNING

- **Do not leave the cigarette lighter's knob pressed in. Doing so heats up the lighter, and could be dangerous.**
- **If the knob does not pop out after 30 seconds, it may be broken. Pull it out by hand.**
- **Do not use other cigarette lighters, as they may get stuck.**
- **Only use applicable electric products with this socket.**
- **Do not touch metal parts of the lighter. Doing so could cause burns.**

This is the cigarette lighter and internal power supply socket.
When using this socket, be careful not to exceed 24V/5A.

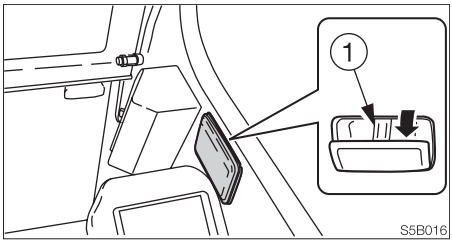


1. Press the lighter in.
2. Release the lighter and wait for it to pop out. The lighter pops out automatically when the heater becomes red.
3. Once the lighter pops out, pull it out.

Ashtray

⚠ WARNING

- **Be sure to extinguish cigarettes and matches completely before putting them in the ashtray, and always close the ashtray afterwards.**
- **Do not overfill the ashtray with cigarette butts or put in paper or other easily burnable objects. Doing so could lead to fire.**



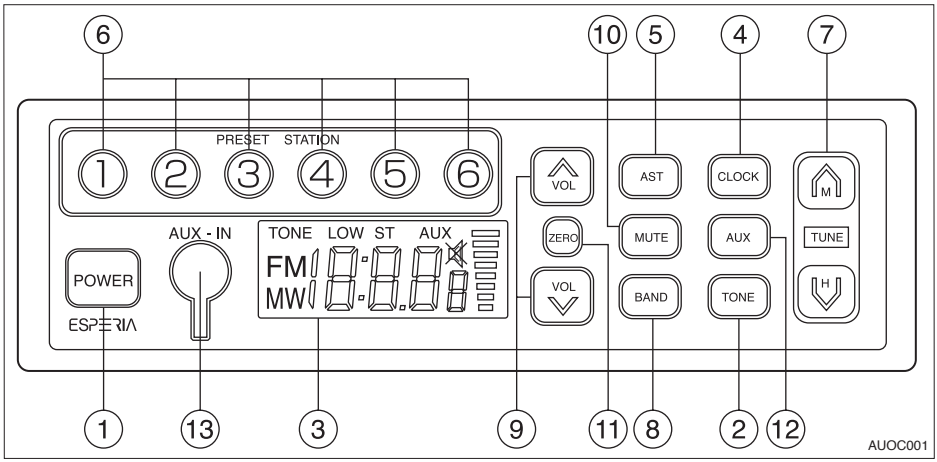
Pull the ashtray out towards you to use it.
To clean, press the ash discharge button (1) and pull out the ashtray.

Radio (Cab Type)

Operating precautions

- To ensure safe operation of the machine, always be sure to keep the volume of the radio down to a level where you can easily hear sounds from outside the machine.
- Do not keep the radio playing for long periods of time with the engine stopped. Doing so will drain the battery of its charge and make it difficult or impossible to restart the engine.
- Be careful not to allow water or other liquids to come into contact with the radio. Doing so may result in it being rendered inoperable.

Names of the components



(1) POWER button
Use this button to turn on or off the radio.

(2) TONE control button
Use this button to select the tone. Press the button to select low tone. The TONE LOW display appears on the LCD. Press the button again to select high tone.

(3) LCD
Displays the time/the receiving frequency and the operation mode.

(4) CLOCK button
Use this button to switch between the clock display and the receiving frequency display on the LCD. If this button is not pressed for six seconds while the frequency is displayed, the LCD returns to the clock display.

(5) AST button
Use this button to automatically seek the station information, store it into memory and assign each preset button (1 to 6) a station.

(6) PRESET STATION buttons (1 to 6)
Use these buttons to store station information. Each button can store information on one FM station and one AM station. For how to use these buttons, refer to “Presetting stations”.

(7) TUNE button
Use this button to tune to a radio station. Press and hold this button (or) for two seconds or more to start seeking the audible stations. The seeking stops when a station is found. To cancel tuning in progress, press the button again.
Pressing the button will start seeking stations with higher frequencies. Pressing the button will start seeking stations with lower frequency. The frequency will continuously be increased/decreased if the or button is held pressed.

(8) BAND button
Use this button to select FM or AM. The selected band and the receiving frequency will be displayed on the LCD.

(9) VOL buttons
Use these buttons to control the sound volume. Press the button to increase the volume and the button to decrease the sound volume. Press and hold each button to continuously increase/decrease the volume.

(10) MUTE button
Use this button to temporarily turn off the sound output. If pressed, the “mute is on” mark appears on the LCD. Press this button again to cancel mute.

(11) ZERO button
Use this button to set the minute to “00” when it is between “55” and “59” or “01” and “05”.

(12) AUX button
Use this button to choose which to listen to, the radio or the external audio source connected to the AUX-IN. If the external source is chosen, the AUX display appears on the LCD.

(13) AUX-IN jack
Use this jack to connect an external audio source. Pull off the rubber cap and plug the stereo mini-plug of the external audio device into this jack. Be sure that the jack is closed with the rubber cap when not in use.

Playing the radio
1. Turn the ignition key to the ACC or ON position, and then press the power button (1) to turn on the radio.
2. Select the band FM or AM with the band button.
3. Select the station with the preset button or the tuning button, and adjust the volume with the volume button.
4. To turn off the radio, press the power button.

Selecting a station — auto select
Press and hold the tune button for two seconds or more to start seeking stations in the higher frequencies direction. Press and hold the button for two seconds or more to start seeking stations in the lower frequencies direction. The radio will stop seeking when it finds an audible station and start playing.

Selecting a station — manual select
The selection can be done manually. Press the tune button to seek stations with higher frequencies. Press the tune button to seek stations with lower frequencies.

Presetting stations
1. Select the band (FM or AM) and the station you want to preset.
2. To set the selected station to a preset button, choose the button to be set and then press and hold the button for three seconds or more. The number of the preset button chosen appears on the LCD.

3. For more stations, repeat the steps (1) and (2) above.
   - If the preset button on which a station has been set to is pressed and held for two seconds or more, the preset information will be modified.
   - If the stored information is erased during battery replacement on the vehicle, set the stations again to the preset buttons.
   - Each preset button can store information on one FM station and one AM station.

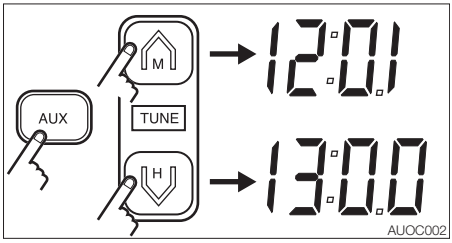
Auto storing

Press the AST button for two seconds or more while playing the radio. The radio starts seeking the audible stations within the band selected, store the information on the stations obtained into memory, and assign each preset button (1 to 6) a station. Note: The previous station setting stored in memory will be overwritten. If the arrangement of the preset buttons to the corresponding stations is not desirable, try the “Presetting stations” described above.

AUX audio connection

- Connect a favorite headphone stereo set to enjoy music on the radio, or connect a portable audio player and listen to your favorite music.
- Plug a patch cord (without resistor) into the headphone jack of the audio player.
- Plug a stereo mini plug (3.5 mm) into the AUX-IN jack on the radio.
- To listen to the audio player, press the AUX button. (The AUX display appears and the frequency display is changed to the clock display.)
- To return to the radio, press the AUX button again.
- When connecting, adjust the sound volume level of the audio player so that it is same as that of the radio.
- Adjust the sound volume of the audio player by using the volume control buttons on the radio.
- Do not connect a device with a larger output compared with a portable audio player.

Setting the clock time



- Be sure that the time is displayed on the LCD. If not, press the AUX button to display the time.
- Use the tune (M) button to set the minute. Use the tune (H) button to set the hour.
- To set the minute digits to “00” when they are from “55” to “59” or from “01” to “05”, press the ZERO button.

Resetting the radio

If there are any problems, such as the abnormal display of frequency or failure of selection, reset the radio by pressing the power button and the ZERO button together. Note that the memory containing the clock setting and the channel setting is cleared after reset.

SPECIFICATIONS

Power source	:	12 V to 24 VDC (negative ground)
Power consumption	:	5A
Rated output power	:	20 W + 20 W (4 Ω) (at 28 VDC input) 16 W + 16 W (10% distortion, 4 Ω) (at 24 VDC input)
Dimension	:	178 (W) x 50 (H) X 92 (D) mm (without projections)
Receiving frequency	:	MW (AM) 522 to 1629 kHz FM 76.1 to 89.9 MHz
Practical sensitivity	:	MW (AM) 20 µV (S/N 20 dB) FM 3 µV (S/N 30 dB)
S/N ratio	:	FM 50 dB
AUX IN	:	Stereo mini jack (3.5 mm); max. input, 1 V; rated input, 90 mV

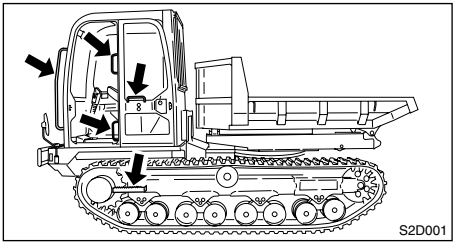
Note: Specifications and dimensions may be changed without notice.

OPERATION

Mounting and Dismounting

⚠ WARNING

- **Do not jump on or off the machine. Never attempt to mount or dismount a moving machine.**
- **When mounting and dismounting the cab, first open the door fully to the locked position and check that it does not move.**



- **Always face the access system and maintain a three point contact with the recommended handrails and steps while getting on and off the machine. Keep steps and platform clean.**
- **Never use the safety lock lever or control levers as hand holds.**

Walk-Around Inspection

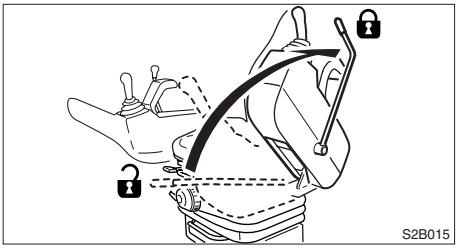
Perform the walk-around inspections once a day before starting the engine the first time that day.
Perform the inspections as described under “Maintenance - Walk-Around Inspection” (pages 98 and 99).

Daily Inspection

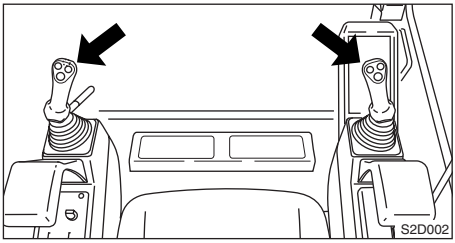
Perform the daily inspections once a day before starting the engine the first time that day.
Perform the inspections as described under “Maintenance - Daily Inspection” (pages 100 to 104).

Before Starting the Engine

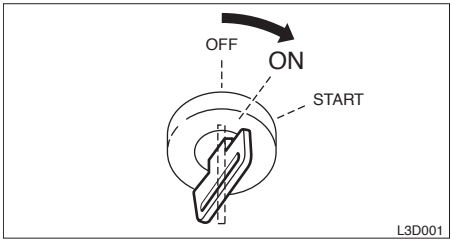
1. Adjust the seat for a comfortable operating position.
2. Fasten your seat belt.



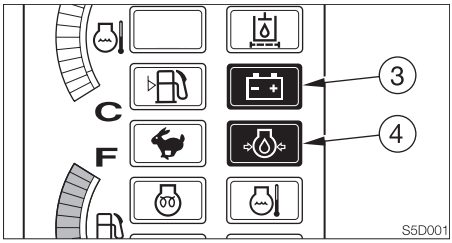
3. Check that the safety lock lever is in the locked position.



4. Check that the control levers are in the neutral position.



5. Insert the key into the starter switch, turn it to the ON position, then perform the following inspection :



- All the warning lamps flash and an alarm sounds for 2 seconds. The meters also start functioning. After 2 seconds, only the battery charge warning lamp (3) and engine oil pressure warning lamp (4) flash, and the other lamps turn off.
- Turn the light switch to check that the front lights, rear light and meter light turn on.
- Operate the turn switch and check whether the turn lights flash and the alarm sounds.
- Press the horn switch to check that the horn sounds.
- Check the fuel level.

If a lamp does not light or the alarm does not sound, the bulb may be burnt out or a wire may be damaged. Contact a Takeuchi sales or service outlet for repairs.

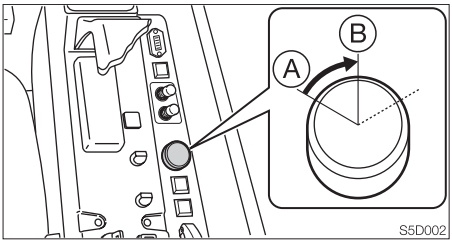
Starting the Engine

⚠ WARNING

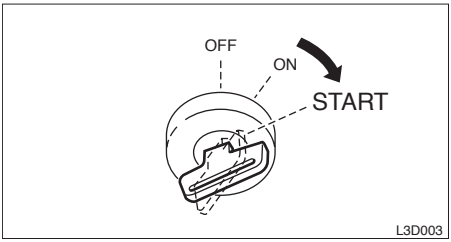
- **Clear the area of all persons.**
- **Sound horn to alert everyone around the machine.**

IMPORTANT: Do not run the starter motor for more than 15 consecutive seconds. If the engine fails to start, wait for 30 seconds to protect the battery, and then try again to start the engine.

Normal Starting

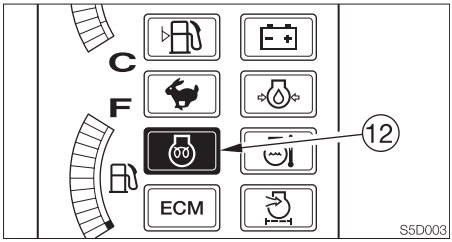


1. Turn the throttle controller to the middle position.

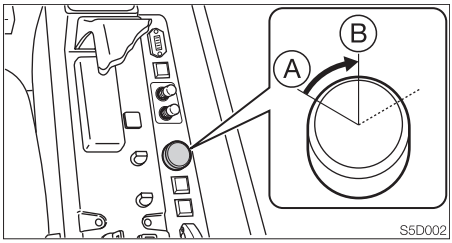


2. Turn the key to the START position and start the engine.
3. Once the engine starts, release the key. The key automatically returns to the ON position.
4. Check that the warning lamps are off.
5. Return the throttle lever and warm up the engine.
   Refer to page 67 “Warming Up the Engine”.

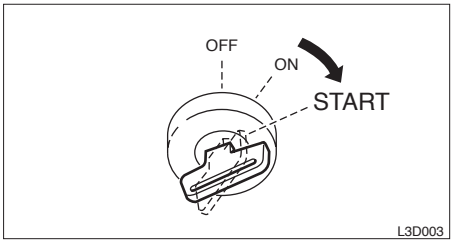
Starting in Cold Weather



1. Make sure that the glow lamp (12) is lit. (The glow lamp lights for 8 seconds when coolant temperature is -10°C (14F°)



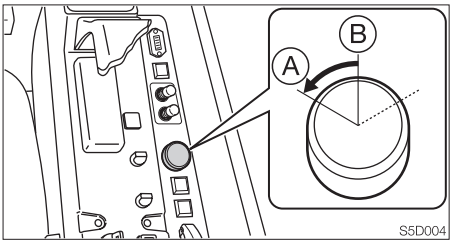
2. Turn the throttle controller to the middle position.



3. After the glow lamp (12) turns off, then turn it to the START position and start the engine.
4. Once the engine starts, release the key. The key automatically returns to the ON position.
5. Check that the warning lamps are off.
6. Return the throttle lever and warm up the engine.
   Refer to page 67 “Warming Up the Engine”.

Warming Up the Engine

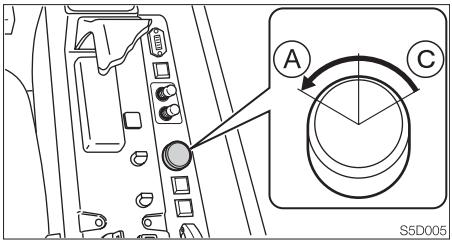
IMPORTANT: Avoid racing the engine until it is warmed up.
Do not warm up the engine for long periods of time (20 minutes or more).



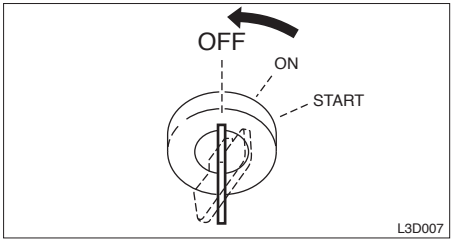
1. Return the throttle controller, then idle the engine and run it for about 5 minutes with no load.

Stopping the Engine

IMPORTANT: Do not stop the engine suddenly when operating with heavy loads or at maximum speed. Doing so may cause the engine to overheat or seize. Never bring the engine to a sudden stop except in the case of a true emergency.

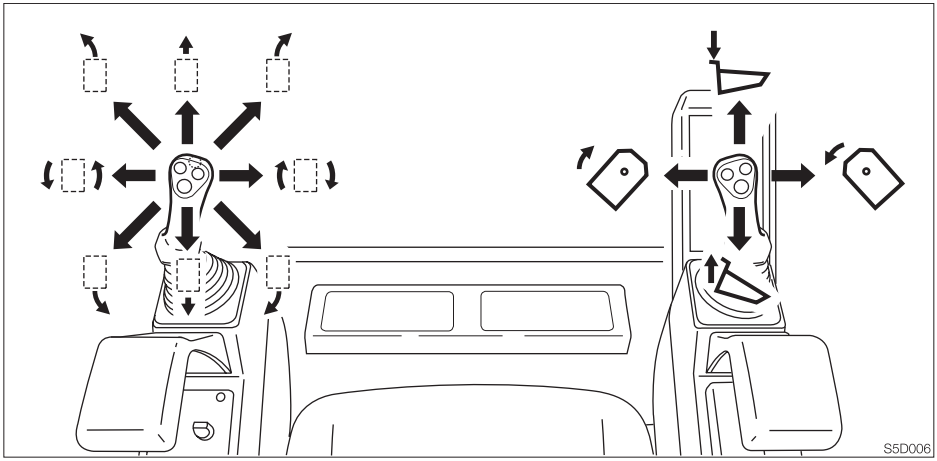


1. Return the throttle controller.
2. Low idle the engine for about 5 minutes to gradually let it cool.



3. Turn the key to the OFF position to stop the engine.

Lever Pattern



	Crawler Forward
	Crawler Reverse
	Left Spin Turn
	Right Spin Turn
	Left Pivot Turn
	Right Pivot Turn
	Right Pivot Turn Reverse
	Left Pivot Turn Reverse

	Dump body Lower
	Dump body Dump
	Dump body Swing Left
	Dump body Swing Right

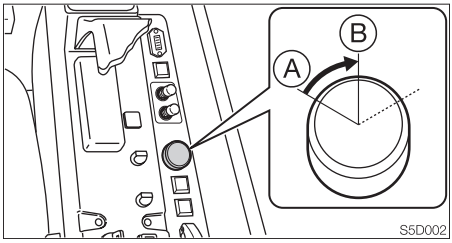
Warming Up the Machine (Hydraulic Oil)

⚠ WARNING

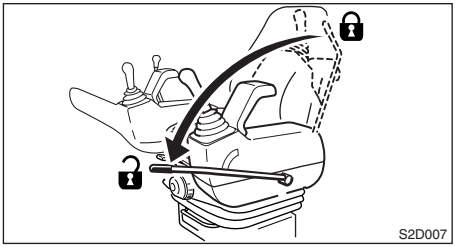
Operating the working equipment without warming up the machine (hydraulic oil) is dangerous, as response will be slow and the equipment may move in unexpected ways. Be sure to sufficiently warm up the machine.

IMPORTANT: Do not operate the levers suddenly when the hydraulic oil temperature is below 20°C (68°F). The proper hydraulic oil temperature during operation is 50 to 80°C (122 to 176°F), but if operations must be performed at lower temperatures, warm up the hydraulic oil to at least 20°C (68°F).

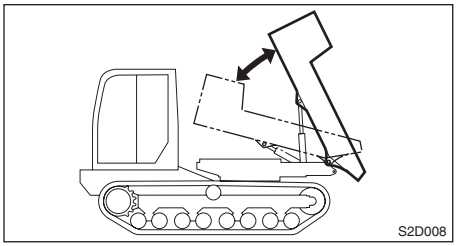
Normal Warm-up



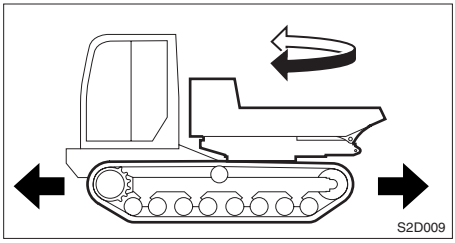
1. Run the engine at medium speed for about 5 minutes with no load.



2. Set the safety lock lever to the released position.



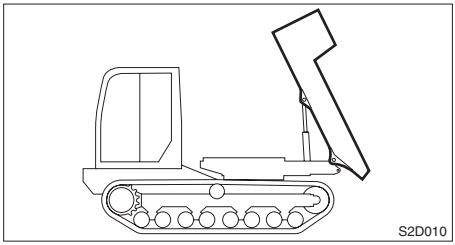
3. Extend and retract the dump cylinders several times with no load.



4. Slowly swing the dump body several times.
5. Slowly travel forward and backward several times.

Warming Up in Cold Weather

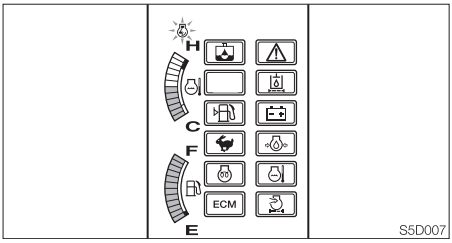
1. Perform the normal warm-up procedure.



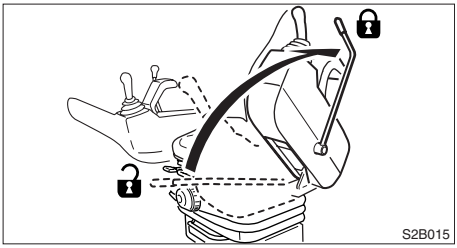
2. Set the dump cylinders at the stroke end and keep them there.
   Do not do this for more than 30 seconds.
3. Repeat step 2 until the dump body operating speed is normal.

Inspection After Warm-up

After warming up the engine and hydraulic oil, perform the checks and inspections described below, and repair if there is a problem.



1. Check that the warning lamps and meters are as follows :
   - Are all the warning lamps off?
   - Is the water temperature gauge showing within the green range?
2. Check that there are no irregularities in the exhaust color, sound and vibrations.

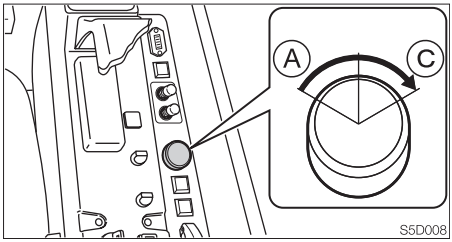


3. Set the safety lock lever to the locked position and check that the control levers are locked.

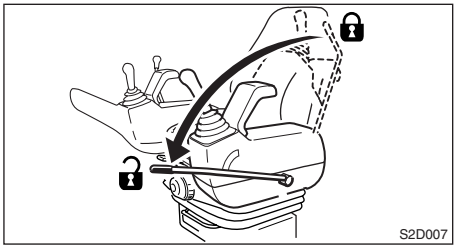
Traveling the Machine

⚠ WARNING

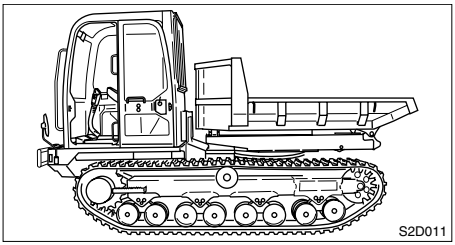
- **Never allow anyone to enter the machine working range and machine path.**
- **Signal your intention to move by sounding the horn.**
- **There are blind spots to the rear of the machine. Check that the area is safe and clear.**
- **Remove any obstacles in the machine's path.**



1. Increase the engine speed.

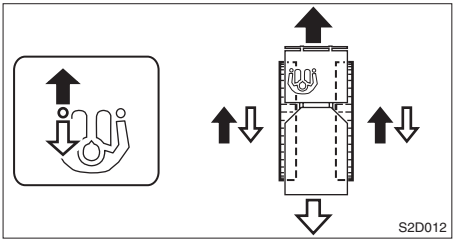


2. Set the safety lock lever to the released position.



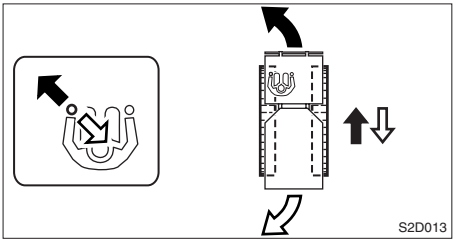
3. Make sure that the dump body is lowered and is parallel to the main frame.
4. Operate the left control lever to control foward and reverse travel and turning of the machine.

Foward and Reverse Travel



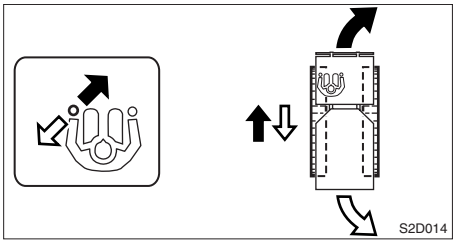
➡ To move forward :
Push the left control lever forward.
⇨ To move backward :
Pull the left control lever backward.

Left Turn



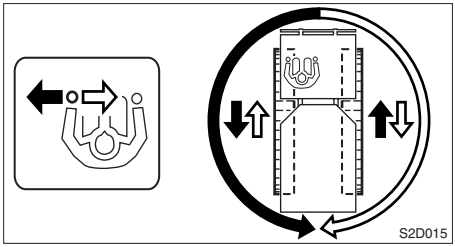
➡ To turn left while traveling forward :
Move the left control lever forward to the left.
⇨ To turn left while traveling backward :
Move the left control lever backward to the right.

Right Turn



➡ To turn right while traveling forward :
Move the left control lever forward to the right.
⇨ To turn right while traveling backward :
Move the left control lever backward to the left.

Spin Turn



➡ To spin left :
Move the left control lever to the left.
⇨ To spin right :
Move the left control lever to the right.

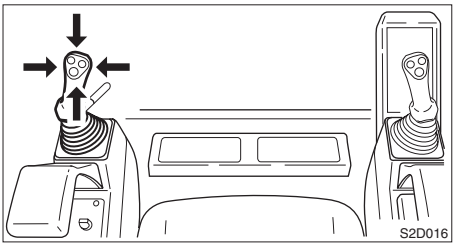
Stopping Travel

⚠ WARNING

- **Park the machine on firm, level ground. If you must park on a slope or incline, block the machine securely to prevent movement.**
- **If any controls should be touched accidentally when the safety lock lever is lowered, the machine will move suddenly, and cause serious injury or death.**

⚠ CAUTION

Never bring the machine to a sudden stop except in the case of a true emergency. Stop as gently as possible.



1. Move the left control lever to the neutral position. The machine stops.

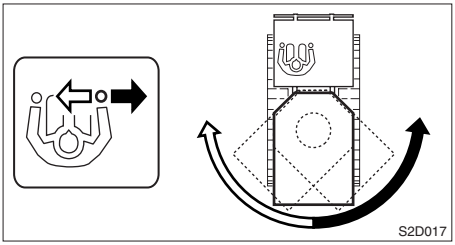
Operating the Dump Body

⚠ WARNING

- **Check the surrounding area for safety before operating the dump body.**
- **Raising or swinging the dump body while traveling will cause the machine to become unstable and is dangerous. Lower the dump body and make it parallel with the main frame.**

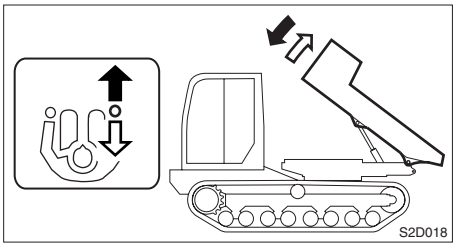
Use the right control lever to operate the dump body.
Return the lever to the neutral position to stop the dump body.

Swing



➡ To swing left :
Move the right control lever to the right.
⇨ To swing right :
Move the right control lever to the left.

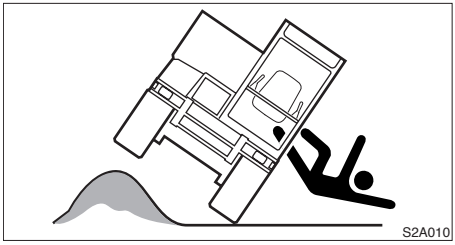
Dump and Lower



➡ To lower the dump body :
Push the right control lever forward.
⇨ To dump the dump body :
Pull the right control lever backward.

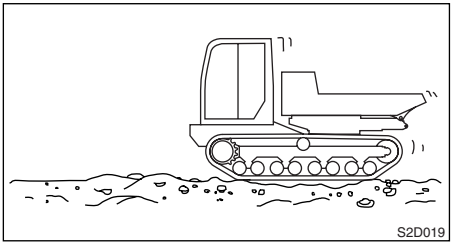
Cautions on Operating

Cautions on Traveling



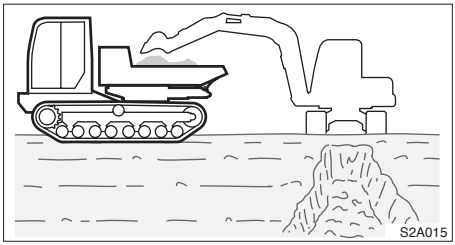
Traveling over obstacles (rocks, stumps, etc.) may subject the body to strong shocks and result in damage. Avoid traveling over obstacles whenever possible. If you must do so, travel at low speed, and go over the obstacle at the center of the crawler.

Cautions on Traveling in 2nd (High) Speed



On uneven ground, travel at low speed and avoid accelerating, stopping or changing directions abruptly.

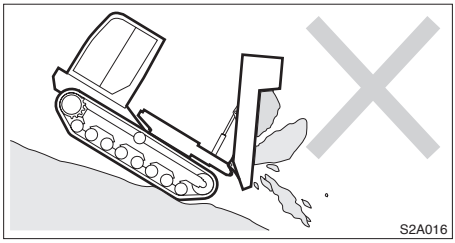
Precautions When Loading the Dump Body



Do not allow loading the dump body unless the driver and personnel are in a sage place. Load on a firm location, do not load on a slope. Improper loading can be the cause of the machine tipping over or the load giving way.

- Do not exceed the maximum weight when loading.
- Do not load unevenly, load so as to distribute the load evenly on the dump body.
- A load with poor stability should be securely fixed to the dump body.

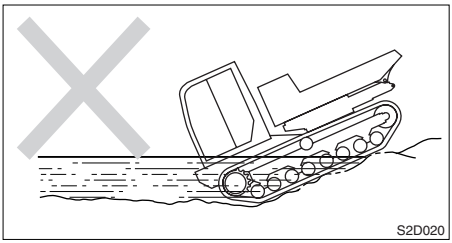
Precautions When Dumping



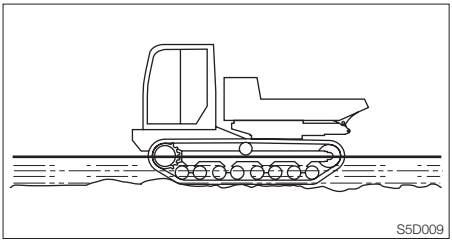
Do not dump in any of the following manners. The center of balance will shift and the machine could tip over.

- Dumping on a slope or bumpy location.
- Dumping while swinging the dump body.
- Dumping while traveling.

Cautions on Use in Water


S2D020

If you enter water at a sharp angle, the front of the machine may be submerged, exposing the radiator fan to water and damaging them. Do not let the front of the machine get submerged.

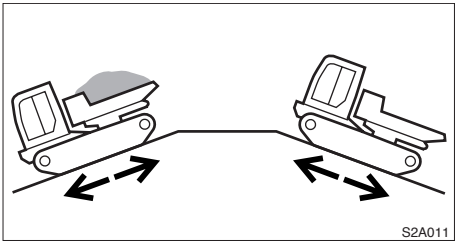

S5D009

- Allowable water depth
  In water, only use the machine up to a depth at which the water comes up to the center part of the travel reduction gear case.
- When greasing places used under water for long periods of time, apply enough grease so that the old grease is expelled.
- Never submerge the swing bearing or main body in water or sand. If the slew bearing or main body should get submerged, contact a Takeuchi sales or service outlet for inspection.

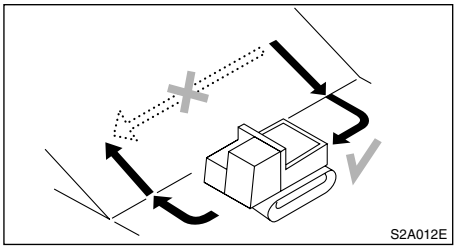
Cautions on Traveling on Slopes

⚠ WARNING

- **Never exceed the machine's stability (maximum gradeability – 30°, lateral tipping angle – 10°). Also note that when actual working area conditions are poor the machine's stability may be lower.**


S2A011

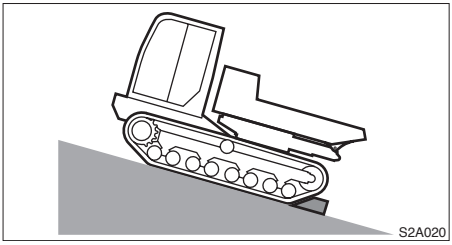
- **When going up or down slopes having a gradient of 15 degrees or more, travel up and down the slope with the heavy end of the dump carrier pointed uphill.**
- **Travel at slow speed on slopes. Especially when going down slopes, reduce the engine (r.p.m.) speed and set the stroke of the travel lever to half or less before going down. Going down a slope too fast will lead to loss of control.**
- **Sudden stopping on slopes may lead to loss of balance of the vehicle and it could tip over.**
- **Traveling across an inclined surface at an angle or traveling straight across an inclined surface could result in slipping sideways or tipping over. Travel straight up and down the slope.**


S2A012E

- **Do not change directions or cross slopes sideways. First return to a flat surface then redirect the machine.**
- **On grass, dead leaves, wet metal or frozen surfaces, the machine may slide sideways even on very gentle slopes. Make sure the machine never faces sideways with respect to the slope.**

Parking

⚠ WARNING



- **Park the machine on firm, level ground. If you must park on a slope or incline, block the machine securely to prevent movement.**
- **Before leaving the operator's seat, set the safety lock lever to the lock position and stop the engine. If any controls should be touched accidentally when the safety lock lever is lowered, the machine will move suddenly, and cause serious injury or death.**

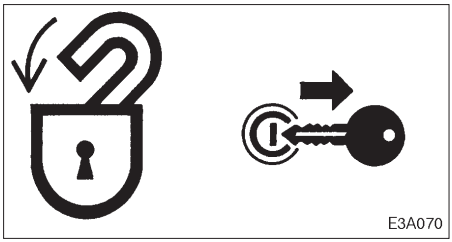
1. Set the left control controller to the neutral position.
2. Return the throttle controller and idle the engine at low speed.
3. Place the safety lock lever to the lock position.
4. Stop the engine and remove the key.
   Refer to page 67 "Stopping the Engine".

Inspection and Checks After Stopping the Engine

1. Check for oil and water leakage and inspect the dump body, covers and main frame. If any irregularities are found, repair.
2. Fill the fuel tank.
   Refer to page 102 "Inspecting the Fuel Level".
3. Remove any paper scraps or dirt from the engine room.
4. Remove any mud from the machine.

Locking

Be sure to lock the following places :



- Cab door
- Fuel filler cap
- Engine hood
- Side cover
- Battery cover

Preparing for Cold Weather

In cold weather, it may be difficult to start the engine and the coolant may freeze. Make the preparations described below.

Changing the Lubricant and Fuel

Change the fuel, hydraulic oil and engine oil to types suited for cold conditions.

Refer to page 90 “Lubricant and Fuel Chart”.

Engine Coolant

⚠ WARNING

The coolant is combustible. Keep flames away.

Use long-life coolant (antifreeze) and tap water for the engine coolant.

Supplement: New machine are delivered with JIS Type 2 long-life coolant (antifreeze) at a concentration of 50%.

Refer to page 90 “Lubricant and Fuel Chart”.

Battery

As the temperature drops, the battery performance decreases.

Inspect the battery. If the charge is low, contact a Takeuchi sales or service outlet to have the battery charged.

Refer to page 110 “Inspecting the Battery Fluid Level and Replenishing”.

Cautions after Completing Operations

Heed the following in order to prevent dirt, water, or other objects stuck on the machine as well as the lower frame from freezing :

- Remove any dirt or water from the body. In particular, water droplets on the hydraulic cylinder rod surfaces could freeze, and if dirt enters into the seals along with this, the seals could break.
- Park the machine on a dry, hard surface. If no appropriate place can be found, put boards down and park the machine on them.
- Drain any water from the fuel tank to prevent freezing.
  Refer to page 112 “Draining the Fuel Tank”.
- To prevent decreased battery performance, place a cover over the battery or remove it from the machine and store it in a warm place.
  Also add battery fluid before starting the next morning. If battery fluid is added after completing operations, the distilled water may not mix, resulting in freezing.

After Cold Weather is Over

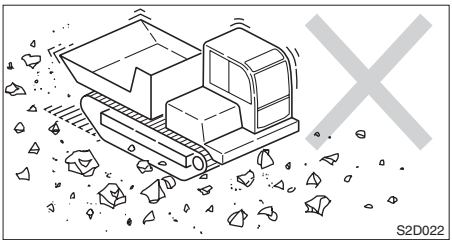
Perform the following after cold weather is over :

- Change the fuel and the oils for the different devices with those specified on the Fuel and Lubricant Chart.
  Refer to page 90 “Lubricant and Fuel Chart”.
- When using one-season type antifreeze coolant, completely drain the antifreeze coolant, carefully clean the inside of the coolant system, then add tap water.
  Refer to page 120 “Cleaning the Engine Cooling System”.

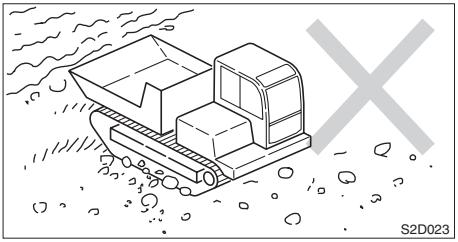
Rubber crawlers have an inherent weakness due to their use of rubber. Be sure to heed the prohibitions and cautions below so as to prevent damage to the crawlers and crawler slippage.

Prohibited Actions

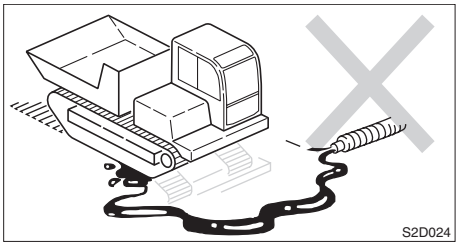
Do not travel or operate the machine in the following places :


S2D022

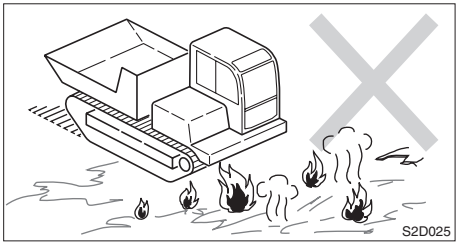
- Traveling on broken stone, jagged base rock, iron rods, iron scraps or the edges of iron sheets may damage or cut the crawlers.


S2D023

- Traveling on riverbeds or places with many soft rocks may cause the crawlers to slip off or be damaged due to rocks getting stuck in them.
- Do not use on the seashore. The salt may corrode the metal cores.


S2D024

- Do not let fuel, oil, salt or chemical solvents get on the crawlers. These substances may corrode the couplings of the crawlers' metal cores, resulting in rust or peeling. If these substances should get on the crawlers, wipe them off immediately using water.

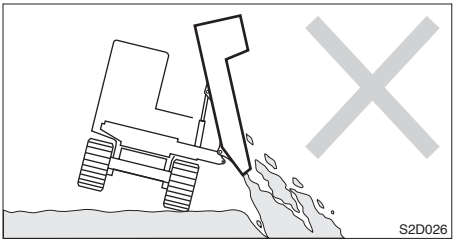

S2D025

- Traveling on roads directly after asphalting or on hot surfaces such as over fires or on iron sheets under strong sunlight may result in irregular wear or damage of the lugs.
- Do not move earth in places where the rubber crawlers may slip. Doing so may speed up lug wear.

Cautions

Heed the following cautions when operating the machine :

- Avoid changing course abruptly and spinning on concrete surfaces whenever possible.
  Doing so may wear or damage the rubber crawlers.
- Avoid drops that may expose the rubber crawlers to strong shocks.
- Salt, potassium chloride, ammonium sulfate, potassium sulfate, and triple superphosphate of lime can damage the crawler belts. If any of these substances should get on the crawler belts, wash them off thoroughly with water.
- Do not let the sides of the rubber crawlers rub against concrete or walls.
- Be especially careful in the winter on snowy or frozen surfaces as the crawler belts tend to slip.
- Use rubber crawler belts at temperatures between – 25°C to + 55°C (– 14°F to 131°F).
- When storing the rubber crawlers for long periods of time (3 months or more), do so indoors in a place not exposed to direct sunlight or rain.

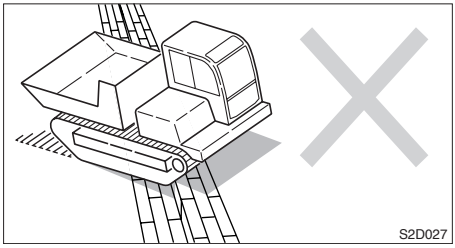


- Rubber crawler belts are not as stable as steel crawler belts since the entire lug is rubber. Be very careful when swinging the dump body sideways.

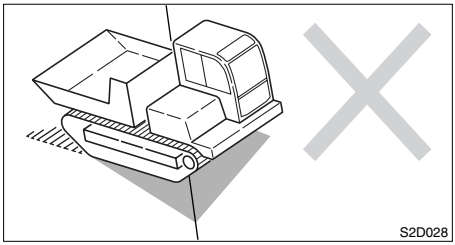
Preventing the Rubber Crawlers from Slipping Off

Heed the following in order to prevent the rubber crawlers from slipping off :

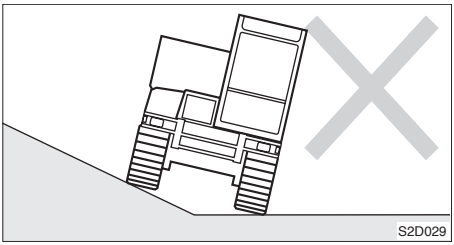
- Always keep the crawlers at the proper tension.



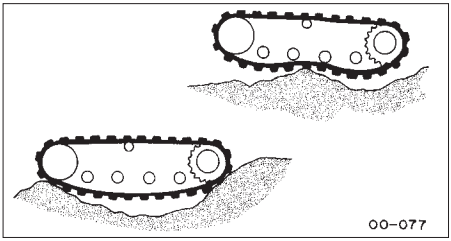
- When traveling up large cobblestone or rock steps (20 cm (8 in.) or greater), climb up the step at a direct angle and do not change course on top of the step.

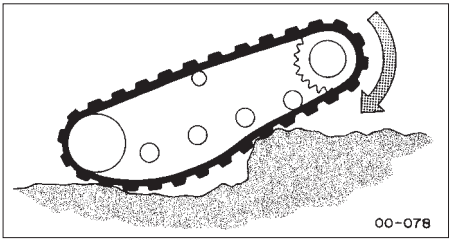


- When climbing in reverse, do not change course at the point where the slope starts.



- Avoid traveling with one crawler on a slope or projecting object and the other crawler on a flat surface (with the machine at a tilt of 10° or greater). Travel with both crawlers on flat surfaces.





- Do not change directions when the crawler belts are slack as shown in the diagram.

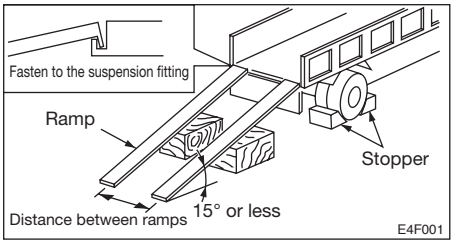
TRANSPORT

⚠ WARNING

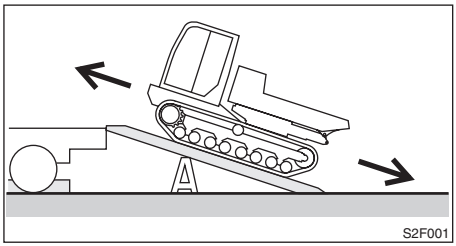
The machine may roll or tip over or fall while loading or unloading it. Take the following precautions :

- **Select a firm, level surface and keep sufficient distance from road shoulders.**
- **Use loading ramps of adequate strength and size. Maintain the slope of loading ramps within 15 degrees.**
- **Keep the truck bed and loading ramps clean of oil, clay, ice, snow, and other materials which can become slippery. Clean the tracks.**
- **Never change course on the ramp.**
- **Do not raise and / or swing the dump body on the ramps and truck bed. The machine may tip over.**

When loading or unloading the machine, be sure to use ramps and following the procedure below.



1. Apply the truck's parking brake and place stoppers against its tires.
2. Fasten the ramps securely to the truck bed so that they will not come off. Set the ramps to an angle of 15° or less.
3. Line up the center of the truck bed with the center of the machine and the center of the ramps with the center of the crawlers.
4. Lower the engine speed.



5. Determine the direction on the ramps, then slowly travel up or down the ramps in 1st speed (low speed), following the signals of a flagman.
6. Load the machine properly at the prescribed position on the bed.
   Refer to page 86 "Transporting Posture".

Hoisting the Machine

⚠ WARNING

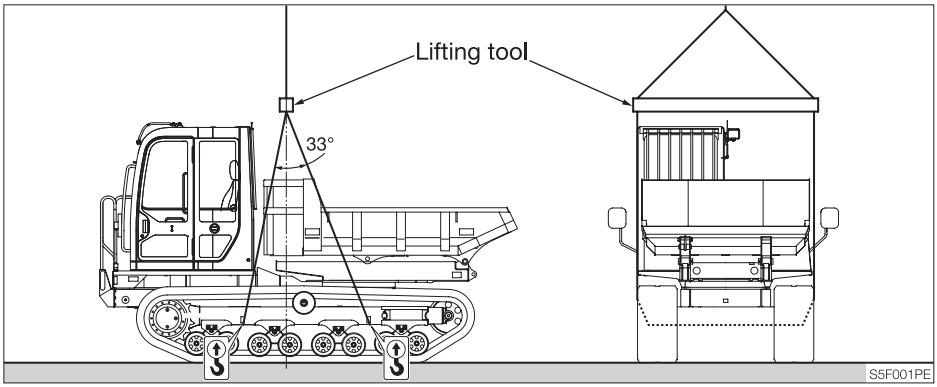
- **Know and use correct crane signals.**
- **Inspect the hoisting equipment daily for damaged or missing parts.**
- **When hoisting, use a wire rope with sufficient strength with respect to the machine's weight.**
- **Do not hoist with the machine in a posture other than the one described in the procedure below. Doing so is dangerous as it may result in the machine losing its balance.**
- **Do not hoist the machine with an operator (s) on it.**
- **When hoisting, hoist slowly so that the machine does not tip.**
- **Keep all other persons out of the area when hoisting. Do not move the machine over the heads of the persons.**

IMPORTANT: This hoisting method applles to machines with standard specifications.
The center of gravity differs according to the attachments and options that are mounted.
Consult a Takeuchi sales or service outlet.

Hoisting

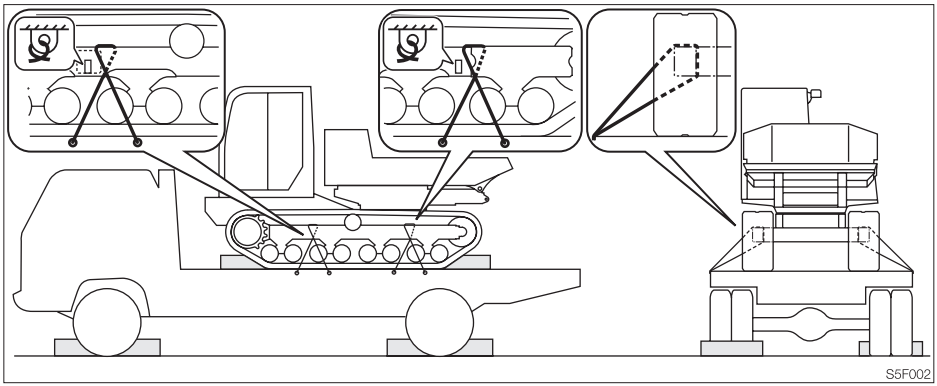
1. Lower the dump body all the way down.
2. Align the crawler frame in parallel with the dump body.
3. Raise the safety lock lever to engage the lock.
4. Stop the engine and remove the starter key and get off the machine.
5. Install the sling as shown on the diagram below.
   Suspend in such a way that the sling and Lifting tool do not touch the body.
6. Set the sling angle to 33° and hoist slowly until the machine just leaves the ground.
7. Stop hoisting until the machine is stable and hoist slowly.

Hoisting posture



After loading the machine in the designated position, secure it as described below.

Transporting Posture



1. Stop the engine and remove the starter key.
2. Set the safety lock lever securely to the locked position.
3. Set stoppers in front and behind the crawlers.
4. Put a chain or wire rope over the machine and fasten it securely to prevent sideways slippage.

Cautions on Transporting

⚠ WARNING

- **Know and follow the safety rules, vehicle code and traffic laws when transporting the machine.**
- **Consider the length, width, height and weight of the truck with the machine loaded on it when determining the best route.**

MAINTENANCE

Maintenance Description

For long-term use of the machine under good conditions, perform the inspection and maintenance procedures properly and safely as recommended in this manual.

The inspection and maintenance items are divided according to the machine's total operating time (inspection and maintenance to be performed every 10 hours (walk-around and daily inspection), every 50 hours, every 250 hours, etc.). Refer to the hour meter to determine when it is time to perform inspection and maintenance. Items for which it is not possible to determine the inspection and maintenance interval are included under "When Required".

When operating the machine in extremely harsh environments (with high dust levels or high temperatures), inspection and maintenance should be performed earlier than the times indicated on the Maintenance Chart.

Cautions on Maintenance

Do not perform inspection and maintenance procedures not prescribed in this manual.
Have inspection and maintenance procedures not prescribed in this manual performed by a Takeuchi sales or service outlet.

Always keep the machine clean.

- Always keep the machine clean, and wash it before performing inspection and maintenance.
- When washing the machine with water, stop the engine and cover the electrical system with plastic to protect it from water. Exposing the electrical system to water is dangerous and could result in short-circuits or malfunction. Do not wash the battery, sensors, connectors or the inside of the cab with water or steam.

Fuel, lubricant and grease

- For fuels, lubricant and grease, follow the instructions on the "Fuel and Lubricant Chart".
- Use pure fuels, lubricants and greases which do not contain water, and be careful to keep dirt out when changing or replenishing fuel, lubricant or grease.
- Store fuels, lubricants and greases in the prescribed places and in such a way that no water or dirt can get in them.

Cautions on fueling

- If the port includes a strainer, do not remove the strainer when fueling.
- After fueling, be sure to securely tighten the cap, etc.
- Do not add more than the prescribed amount of fuel.

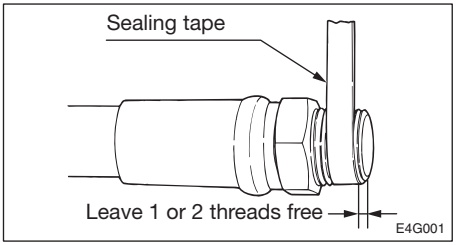
Do not clean parts with fuel.
Do not use fuel to clean parts. Use a non-combustible cleaning agent.

Keep dirt out.
When mounting and removing parts, do so in a place where there is no dust, clean the working area and the part, and keep dirt out.

Clean mounting surfaces.
When mounting and removing parts, be sure that the surfaces of contact of the parts are clean. If the sealing grooves of the surface of contact are damaged, consult a Takeuchi sales or service outlet.

Seals and split pins
- Replace removed seals and split pins with new ones.
- When mounting, be careful not to damage or twist the seal.

Sealing tape



- When wrapping sealing tape around plugs, etc., remove any old sealing tape from the threads and clean the threads.
- Wrap the sealing tape tight, leaving 1 or 2 threads at the tip free.

Disposing of wastes
- Collect spent fluids from the machine in containers. Disposing of wastes irresponsibly damages the environment.
- Dispose of oil, fuel, cooling water, coolant, filters, batteries and other harmful substances as prescribed by law.

Check after maintenance
- Gradually increase the engine speed from a low idle to maximum speed and check that there is no oil or water leaking from serviced parts.
- Operate all the operating levers and check that the machine is operating properly.

Cautions on handling of battery cables
- Disconnect the battery cables (+,–) before working on the electrical system or doing any welding.
  Remove the negative (–) battery cable first.
  When reconnecting the battery, connect the negative (–) battery cable last.
- Do not disconnect the battery cables while the engine is running. Doing so could damage the electronic circuitry of the alternator and other parts.

Lubricant and Fuel Chart

Use different lubricants, greases and fuels according to the temperature, referring to the chart below.

- Change the lubricant earlier than as shown in the table if it is extremely dirty or its performance has deteriorated severely.
- Whenever possible, use the same brand of lubricant as before. If changing with a different brand, replace the entire quantity – do not mix different brands.

Lubricants and greases

Part	Type	Type by temperature -22 -4 14 32 50 68 86 104 °F -30 -20 -10 0 10 20 30 40 °C	Replacement interval	Capacity L (US. qt.)
Engine oil pan	Diesel engine oil API-CF-4	SAE 5W-20 SAE 10W-30 SAE 15W-40	After first 50 hrs. Every 250 hrs.	Upper limit: 15 (15.9) Lower limit: 9 (9.5)
Hydraulic tank	Antiwear hydraulic oil (Option: Biodegradable oil)	ISO VG32 ISO VG46 ISO VG68	Every 1000 hrs.	System: 57 (15.1 US.gal.) Tank: 36 (9.5 US.gal.)
Engine cooling system	Coolant (water + coolant) **	50% coolant mixture 30% coolant mixture	Every 1000 hrs.	15 (15.9)
Travel reduction gear	Gear oil API-GL-4	SAE 90	After first 250 hrs.* Every 1000 hrs.	2.6 (2.75)
Slew bearing	Lithium based grease EP-2 NLGI No. 2	——	Every 50 hrs.	As required
Dump body, Track roller			Daily or every 10 hrs.	
Levers			When required	

* : If the percentage of the traveling time within the total operating time is high, replace the gear oil earlier than the specified time.

** : For water, use tap water (soft). Do not use well or river water.
When the ambient temperature drops below 0°C, add coolant (antifreeze). Follow the coolant manufacturer's instructions to determine the mixture ratio.

Fuel

Diesel Fuel Specificathions

Diesel fuel should comply with the following specifications. This table lists several worldwide specifications for diesel fuels.

Diesel Fuel Specification	Location	Diesel Fuel Specification	Location
No.2-D, No.1-D, ASTM D975-94	USA	**ISO 8217 DMX**	International
EN590:96	European Union	**BS 2869-A1 or A2**	United Kingdom

Part	Type		Capacity L (US. gal.)
Fuel tank	Diesel fuel	Use a clean, Quality fuel for good performance and optimum engine life. ● To prevent fuel flow problems in cold weather, use diesel fuel with pour point of at least -12°C (10°F) below the lowest expected ambient temperature. ● Minimum cetane number is 45. Low temperature or high altitude operation may require the use of fuel with a higher cetane number. ● The sulfur content must not exceed 0.5% by volume. Less than 0.05% is preferred. For electronically controlled EGR engines, use fuel with sulfur content of less than 0.05%. A higher sulfur content fuel may cause sulfuric acid corrosion in the cylinders of the engines. ● NEVER mix kerosene, used engine oil, or residual fuels with the diesel fuel. ● Poor quality fuel can reduce engine performance and / or cause engine damage. ● Fuel additives are not recommended. Some fuel additives may cause poor engine performance.	100 (26.4)

Expendables

Replace expendables such as filters and elements periodically, referring to the table below.

Item	Part name	Part No.	Replacement interval
Pilot line filter	Element	15511-02103	After first 50 hrs. Every 500 hrs.
Hydraulic oil return filter	Cartridge	15510-00320	After first 50 hrs. Every 1000 hrs.
Pre fuel filter	Element	15520-02502	Every 500 hrs.
Main fuel filter	Element	898143-0410	
Feed pump filter	Repair kit	898071-4010	
Engine oil filter	Element	898018-8580	After first 50 hrs. Every 250 hrs.
Air cleaner	Primary (outer) Element	F-10806016-F	Every 1000 hrs. or after 6 cleanings (whichever comes first)
	Secondary (Inner) Element	F-10806015-F	When the primary element is replaced

Tools

No.	Part name	Part No.	Remarks
1	Spanner	16900-01012	10-12
2	Spanner	16900-01417	14-17
3	Screwdriver	16902-20205	(+) (-)
4	Filter wrench	16919-03560	
5	Monkey wrench	16904-00250	250 mm
6	Spanner	16900-01922	19-22
7	Spanner	16900-02427	24-27
8	Spanner	16900-02730	27-30
9	Spanner	16900-03236	32-36
10	Spanner	16901-00013	13
11	Spanner	16901-00041	41
12	Spanner	16909-00019	19

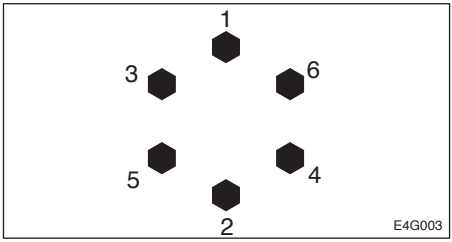
No.	Part name	Part No.	Remarks
13	Pliers	16905-00200	200 mm
14	Hammer	16903-00330	3/4
15	Hex. wrench	16906-00250	2.5 mm
16	Hex. wrench	16906-00500	5 mm
17	Hex. wrench	16906-00600	6 mm
18	Hex. wrench	16906-00800	8 mm
19	Hex. wrench	16906-01000	10 mm
20	Hex. wrench	16906-01200	12 mm
21	Grease gun	16910-60600	600 cc
22	Tool case	16914-00001	
23	Case	16919-00001	

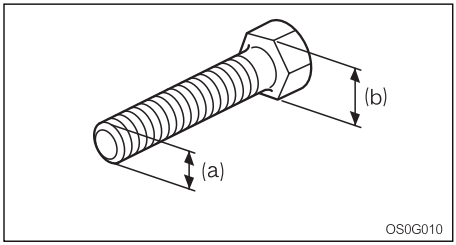
Tightening Torques

Nuts and Bolts (for ISO strength category 10.9)

Tighten nuts and bolts at the torques shown on the table below, unless otherwise specified in the text.

- Tightening torques when mounting plastic covers differ from the values on the table below. Consult a Takeuchi sales or service outlet. Tightening too strongly will break the cover.
- When replacing nuts and bolts, replace them with nuts and bolts of the same size and standards.
- Tighten nuts and bolts alternately (top, bottom, left then right) or in 2 or 3 times so that they are tightened uniformly.





Thread	Head width (b)	Size (a) X Pitch	Torque	
			General Connection Points	
	mm	mm	N·m	ft-lb
Coarse	10	M6 X 1.0	9.8 ± 0.5	7.2 ± 0.4
	12, 13	M8 X 1.25	22.6 ± 1.1	16.6 ± 0.8
	14, 17	M10 X 1.5	47.1 ± 2.4	34.7 ± 1.7
	17, 19	M12 X 1.75	83.4 ± 4.1	61.5 ± 3.0
	19, 22	M14 X 2.0	134.4 ± 6.7	99.1 ± 4.9
	22, 24	M16 X 2.0	207.9 ± 10.4	153.3 ± 7.7
	27, 30	M20 X 2.5	410.9 ± 20.5	303.1 ± 15.1
Fine	12, 13	M8 X 1.0	24.5 ± 1.2	18.1 ± 0.9
	14, 17	M10 X 1.25	50 ± 2.5	36.9 ± 1.8
	17, 19	M12 X 1.5	87.3 ± 4.3	64.4 ± 3.2
	19, 22	M14 X 1.5	135.3 ± 6.8	99.8 ± 5.0
	22, 24	M16 X 1.5	220.6 ± 11	162.7 ± 8.1
	27, 30	M20 X 1.5	452.1 ± 22.6	333.4 ± 16.6

For safe use, the machine must be serviced periodically. To increase safety, periodically replace the parts listed in the following table of important parts.
Serious injury or a fire could result if they deteriorate or are damaged.

Table of Important Parts

Unit	Important parts to be replaced periodically	Replacement Interval
Fuel system	Fuel hoses	Every 2 years
	Packing in fuel filler cap	
Heater & AC systems	Heater hoses	
	Air conditioner hoses	
Hydraulic system	Hydraulic hoses (Pump - delivery)	
	Hydraulic hoses (Pump - suction)	
	Hydraulic hoses (Swing motor)	
	Hydraulic hoses (Travel motor)	
	Hydraulic hoses (Dump cylinder)	
	Hydraulic hoses (Tension cylinder)	
	Hydraulic hoses (Pilot valve)	
	Seat belt	Every 3 years

Above important parts are vulnerable to aging and wear or deterioration and it is difficult to determine the degree to which they have deteriorated on the occasion of periodic service. To maintain their proper function at all times, therefore, replace them with new ones after using them for a specific period of time even if no abnormality is found with the parts. If you find abnormalities in these parts before their scheduled replacement time is reached, repair or replace them immediately. If a hose clamp is deformed or cracked, replace it immediately.
When replacing the important parts, please contact a Takeuchi sales or service outlet .

Also check the hydraulic hoses other than the above important parts. If any abnormality is found in them, retighten them or replace them immediately.
When replacing the hydraulic hoses, replace the O-rings and seals at the same time.

Check the fuel and hydraulic hoses according to the periodic schedule described below.
Refer to “Maintenance”.

Type of inspection	Inspection item
Daily inspection	Leakages from joints, hydraulic or fuel hoses.
Monthly inspection	Leakages from joints, hydraulic or fuel hoses. Damaged hydraulic or fuel hoses (cracks, wear and tear).
Annual inspection	Leakages from joints, hydraulic or fuel hoses. Deteriorated, twisted, damaged hydraulic or fuel hoses (cracks, wear and tear) or hoses in contact with other parts of the machine.

Maintenance Chart

Maintenance Items	See page
Walk-Around Inspection	
Inspecting by opening the engine hood and covers	98
Inspecting by walking around the machine	99
Inspecting while sitting in the operator's seat	99
Daily Inspection (Every 10 Hours)	
Inspecting and replenishing the coolant	100
Inspecting and replenishing the engine oil	101
Inspecting the water separator and the fuel filters	102
Inspecting the fuel level	102
Inspecting the hydraulic oil level and replenishing	103
Lubricating the dump body and track rollers	104
After First 50 Hours (New Machines Only)	
Replacing the pilot line filter	105
Replacing the hydraulic oil return filter	106
Inspecting and adjusting the fan belt	107
Replacing the engine oil and oil filter	108
Every 50 Hours	
Inspecting the crawler tension	110
Inspecting the battery fluid level and replenishing	110
Draining the fuel tank	112
After First 250 Hours (New Machines Only)	
Replacing the travel motor gear oil*	113
Every 250 Hours	
Cleaning the air cleaner	114
Lubricating the swing bearing	115
Cleaning the radiator fins and oil cooler fins	116
Inspecting and adjusting the fan belt	116

*: If the percentage of the traveling time within the total operating time is high, replace the gear oil earlier than the specified time.

Maintenance Items	See page
Every 500 Hours	
Replacing the fuel filters	117
Replacing the feed pump filter	118
Replacing the pilot line filter	119
Replacing the engine oil and oil filter	119
Every 1000 Hours	
Cleaning the engine cooling system	120
Replacing the air cleaner elements	121
Replacing the hydraulic oil and cleaning the suction strainer	122
Replacing the hydraulic oil return filter	124
Replacing the travel motor gear oil*	124
Inspecting and adjusting the engine valve clearance	124
Inspecting the engine compression pressure	124
Inspecting the starter and alternator	124
IInspecting the radiator cap	124
When Required	
Inspecting and replenishing the windshield washer fluid	125
Lubricating the levers	126
Inspecting the rubber crawlers	127
Replacing the rubber crawlers	128

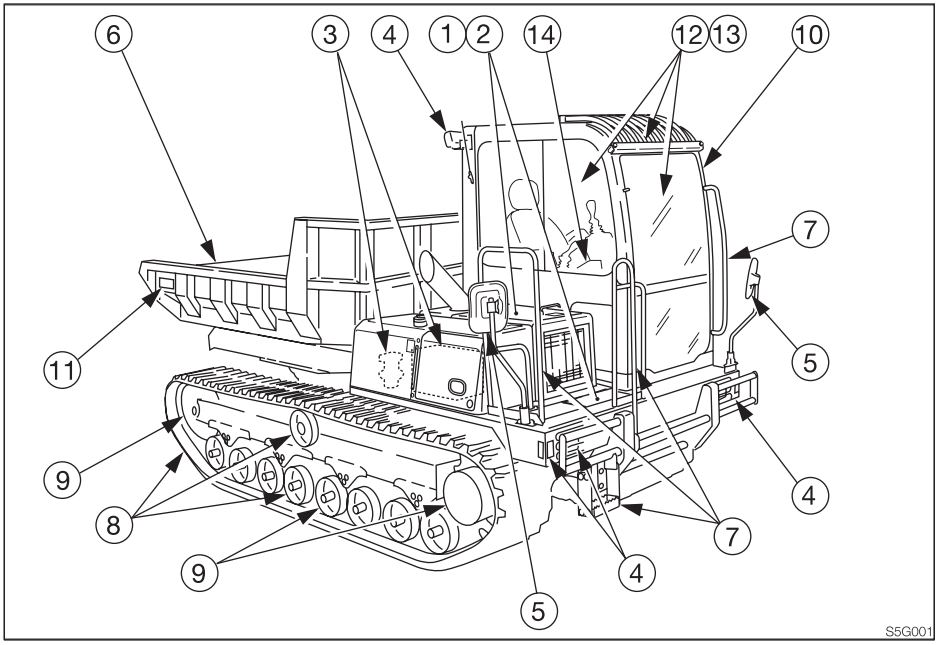
*: If the percentage of the traveling time within the total operating time is high, replace the gear oil earlier than the specified time.

Perform the following inspections once every day before starting the engine the first time.

⚠ WARNING

- **Before operating, perform the walk-around inspections and make repairs immediately should any irregularities be found.**
- **Be sure to secure the engine hood or cover when opening it. Do not open the engine hood or cover on slopes or in strong wind.**

Before starting the engine, look around the machine and lower body, clean any combustible materials off high temperature parts of the engine, and inspect for such irregularities as oil leakage, water leakage and looseness of nuts and bolts.



Inspecting by Opening the Engine Hood and Covers

1. Check for any twigs, leaves, oil or other combustible materials around the engine and battery.
2. Check for oil or engine coolant water leakage around the engine.

Inspecting by Walking Around the Machine

3. Check for oil leakage from the hydraulic tank, hydraulic devices, hoses and connections.
4. Check lights for dirt, damage and burnt out bulbs.
5. Check the rear view mirror and room mirror for dirt, damage, and angle adjustment.
6. Check the dump body, cylinders and pins for wear, damage and looseness.
7. Check the handrail and step for damage and loose bolts.
8. Check the crawler, carrier roller, track roller, idler and sprocket for damage, wear and loose bolts.
9. Check for oil leakage from the travel motors, track rollers and idlers.
10. Check the canopy, cab and guard for damage and loose nuts and bolts.
11. Check the labels for dirt and damage.

Inspecting While Sitting in the Operator's Seat

12. Check the windshield for dirt or damage.
13. Check the seat and seat belt for dirt or damage.
    Check the operator's seat for dirt, oil or other combustible materials.
14. Check the monitor, instruments and switches for dirt or damage.

Perform the following inspections once every day before starting the engine the first time.

⚠ WARNING

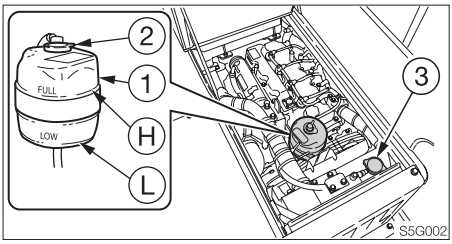
- **Before operating, perform the Daily inspections and make repairs immediately should any irregularities be found.**
- **Be sure to secure the engine hood or cover when opening it. Do not open the engine hood or cover on slopes or in strong wind.**

Inspecting and Replenishing the Coolant

⚠ WARNING

- **Do not remove the radiator cap or drain plugs when the coolant is hot. Stop the engine, let the engine and radiator cool and loosen the radiator cap or drain plugs slowly.**
- **Never jump off the machinne. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.**

Inspection



1. Open the engine hood.
2. Inspect the coolant level in the reserve tank (1).
   The level should be between the upper limit (H) and lower limit (L).
   If it is below the lower limit (L), replenish.

Replenishing

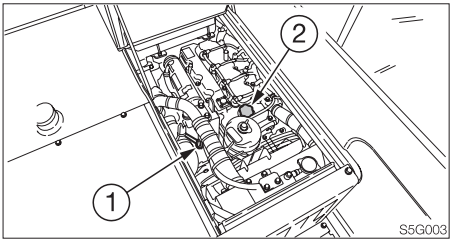
1. Remove the cap (2).
2. Add coolant up to the upper limit (H) of the reserve tank (1).
   If the reserve tank is empty, inspect for fluid leakage, then inspect the radiator (3) coolant level. If it is low, add water to the radiator (3) first, then to the reserve tank.
3. Install the cap (2).

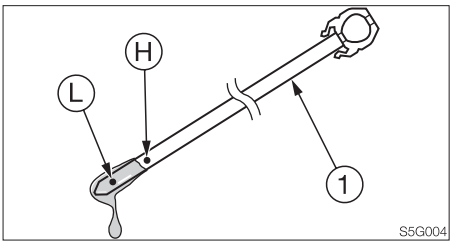
Inspecting and Replenishing the Engine Oil

⚠ WARNING

- **Stop the engine and allow the machine to cool down before performing inspection and maintenance.**
- **Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.**

Inspection





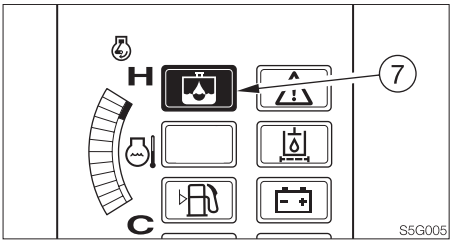
1. Open the engine hood.
2. Pull out the dipstick (1) and wipe off the oil with a rag.
3. Fully reinsert the dipstick (1), then pull it back out.
4. Check the oil on the dipstick (1).
   The level should be between the upper limit (H) and lower limit (L).
   If it is below the lower limit (L), replenish.

Replenishing

1. Remove the oil supply cap (2).
2. Add oil up to the upper limit (H) of the dipstick (1).
   Problems could arise if the oil level is either too low or too high.
3. Tighten the oil supply cap (2).
4. Start the engine, run it at low idle for about 3 minutes, then stop it.
5. After about 10 minutes, inspect the oil level.

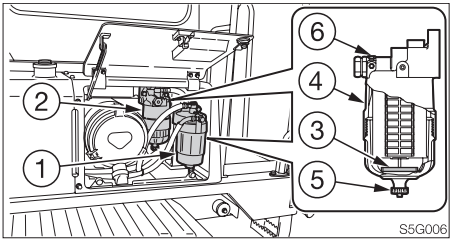
Inspecting the Water Separator and the Fuel Filters

Water Separator



1. Turn the starter switch to the ON position.
2. Inspect the water separator warning lamp (7).
3. If the warning lamp starts flashing, drain the water.

Pre Fuel Filter, Main Fuel Filter

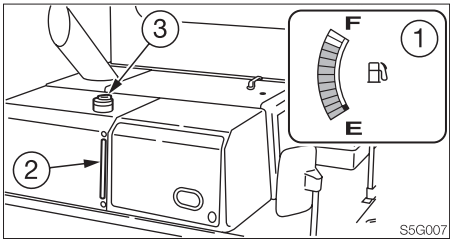


1. Open the side cover.
2. Check for water in the pre-fuel filter and the main fuel filter.
   If there is water, the float (red ring) goes up. Be sure to drain water before the float goes up to the element.
3. Loose the vent plug (6) and then the drain plug (5) to discharge water accumulated inside.
4. After drainage of water, tighten each plug and bleed air from the fuel system.
   Refer to page 135 “Bleeding the Air from the Fuel System”.

Inspecting the Fuel Level

⚠ WARNING

- **Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.**
- **Do not smoke or permit open flames while fueling or near fueling operations.**
- **Stop the engine in a well-ventilated place when supplying fuel.**
- **Clean up spilled fuel immediately.**
- **Do not fill the fuel tank to capacity. Allow room for expansion.**
- **Tighten the fuel filler cap securely.**



1. Check the fuel level using the fuel gauge (1).
   F: full
   E: empty
2. If the level is low, supply fuel from the fuel port (3) while watching the fuel gauge (2).
   Refer to page 42 “Fuel Filler Cap”.

Inspecting the Hydraulic Oil Level and Replenishing

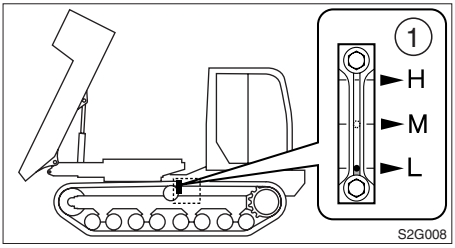
⚠ WARNING

- **Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.**
- **If you must work beneath the raised dump body, securely engage the raised body prop. Never get under the dump body if it is not sufficiently supported.**

Inspection

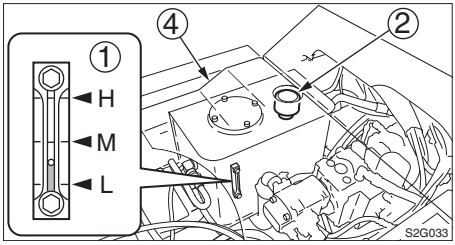
The oil level changes according to the oil temperature. Inspect the oil level in the hydraulic oil level inspection posture shown in the diagram.

- Hydraulic oil level inspection posture



1. Start the engine and run it at low speed.
2. Fully raise the dump body.
3. Set the safety lock lever to the lock position, and stop the engine.
4. Securely engage the raised body prop.
5. Inspect the oil level at the sight gauge (1).
   - When the oil temperature is about 20°C (68°F):
     The level should be halfway between the middle (M) and lower limit (L).
     (When the dump body is lowerd, the oil level rises to the "M" position.)
     If it is below the lower limit (L), replenish.
   - When the oil temperature is about 50 to 80°C (122 to 176°F) :
     The level should be near the middle (M).
     (When the dump body is lowerd, the oil level rises to the middle point between the "M" and "H" positions.)

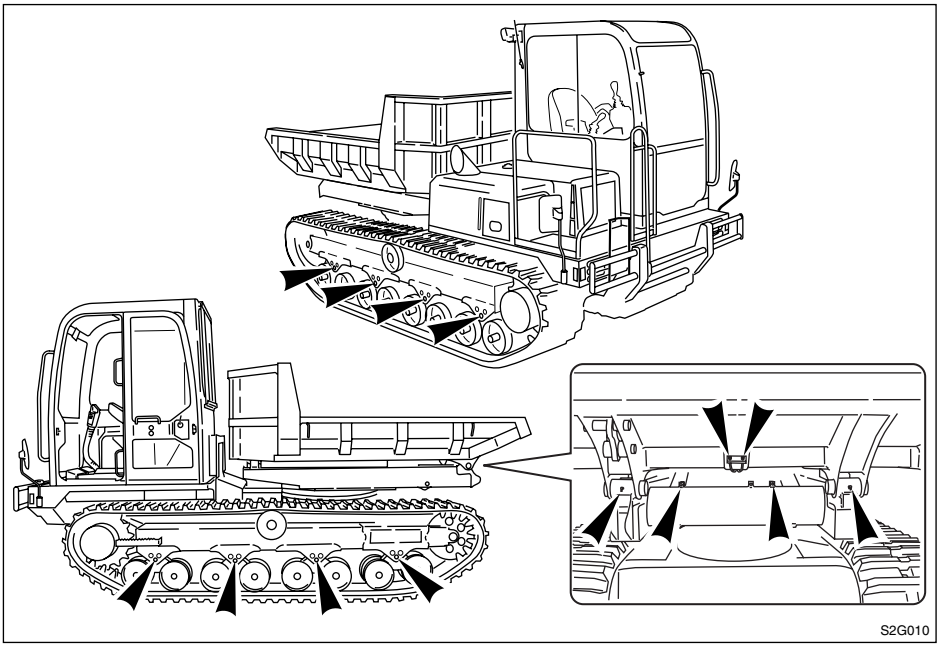
Replenishing



IMPORTANT: Do not add oil above the middle point between the sight gauge's "M" and "L" positions. Doing so may cause the oil to spurt out.

1. Remove the cover (4).
2. Remove the air breather (2).
3. Add hydraulic oil up to the middle point between the "M" and "L" positions of the sight gauge (1) through the hole in the air breather (2).
4. Tighten the air breather (2).

Lubricating the Dump body and Track Rollers



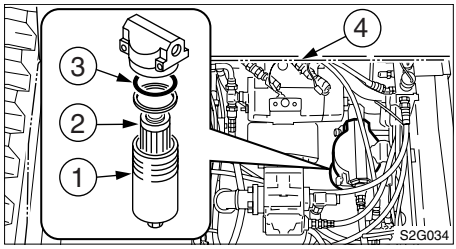
1. Set the machine to the lubrication posture shown in the diagram above, lower the dump body, then stop the engine.
2. Use the grease gun to lubricate the grease nipples.
3. Wipe off the expelled grease.

Replacing the Pilot Line Filter

⚠ WARNING

- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **The engine, hydraulic lines and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**
  - **The hydraulic fluid is also hot and under high pressure.**
    Be careful when loosening caps and plugs. Working on the machine under these conditions could result in burns or injuries due to the hot oil spurting out.
- **Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.**
  - **When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.**
- **If you must work beneath the raised dump body, securely engage the raised body prop. Never get under the dump body if it is not sufficiently supported.**

1. Start and run the engine at low speed.
2. Fully raise the dump body.
3. Set the safety lock lever to the lock position, and stop the engine.
4. Securely engage the raised body prop.



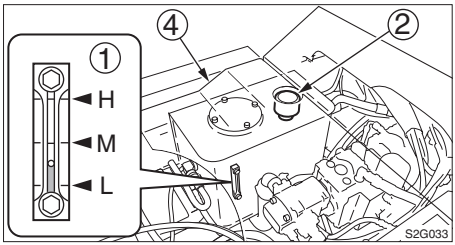
5. Remove the cover (4).
6. Turn the case (1) counterclockwise and remove it.
7. Remove the element (2) and O-ring (3).
8. Clean the inside of the case (1).
9. Install the new element in the case (1).
10. Set the new O-ring, then tighten the case (1).
11. Inspect the level with the sight gauge, and replenish if the level is low.
    Refer to page 103 “Inspecting the Hydraulic Oil Level and Replenishing”.

Replacing the Hydraulic Oil Return Filter

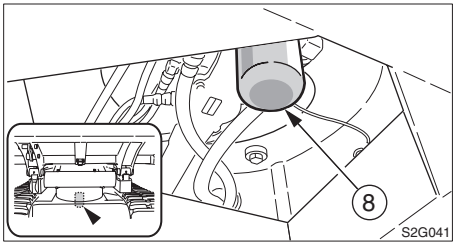
⚠ WARNING

- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **The engine, hydraulic lines and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**
  - **The hydraulic fluid is also hot and under high pressure.**
    Be careful when loosening caps and plugs. Working on the machine under these conditions could result in burns or injuries due to the hot oil spurting out.
- **Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.**
  - **When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.**
- **If you must work beneath the raised dump body, securely engage the raised body prop. Never get under the dump body if it is not sufficiently supported.**

1. Start and run the engine at low speed.
2. Fully raise the dump body.
3. Set the safety lock lever to the lock position, and stop the engine.
4. Securely engage the raised body prop.



5. Remove the cover (4).
6. Remove the air breather (2).



7. Using a filter wrench, turn the return filter (8) counterclockwise and remove it.
8. Clean the filter installation surface on the filter stand.
9. Apply a thin layer of oil to the packing of the new filter.
10. Install the new return filter by hand.
11. Tighten 3/4 more turn with the filter wrench after the filter packing comes in contact with the surface of installation.
12. Inspect the level with the sight gauge (1), and replenish if the level is low.
    Refer to page 103 “Inspecting the Hydraulic Oil Level and Replenishing”.
13. Tighten the air breather (2).

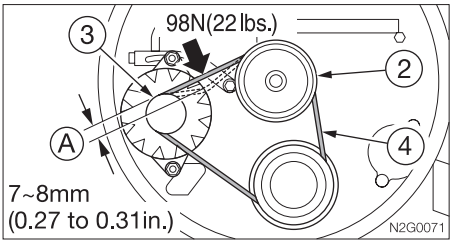
Inspecting and Adjusting the Fan Belt

⚠ WARNING

- **Stop the engine and allow the machine to cool down before performing inspection and maintenance.**
  - **The engine, muffler, radiator, hydraulic lines, sliding parts and may other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**
- **Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.**

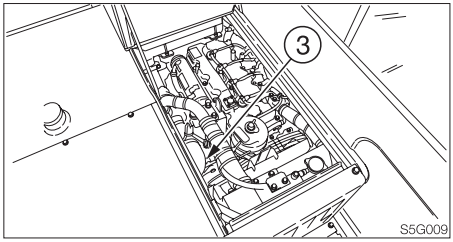
Inspection

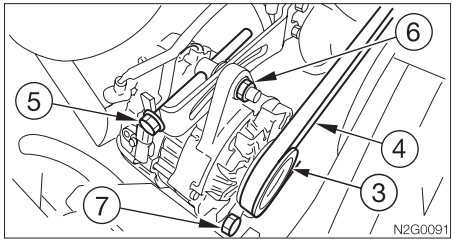
1. Open the engine hood.



2. Press at the center of the pulley (2) and alternator pulley (3) and check the tension (about 98 N or 22 lbs.).
   The slack (A) should be about 7 to 8 mm (0.27 to 0.31 in.).
3. Inspect the fan belt (4) and replace it if:
   - There are cuts or cracks.
   - The belt is worn and touches the botton of the V groove in the pulley.
   - The belt stretches and cannot be adjusted.

Adjustment





1. Loosen the locking nut (6) and the bolt (7).
2. Turn the adjustment bolt (5) and adjust the fan belt (4).
   - Tighten: Clockwise
   - Loosen: Counterclockwise
3. Tighten the locking nut (6) and the bolt (7).

Tightening torque:
- Locking nut (6) 25 N·m (18.1 ft-lb)
- Bolt (7) 51 N·m (37.6 ft-lb)

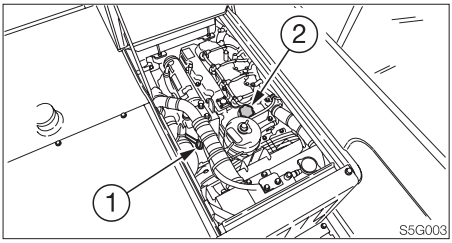
Replacing the Engine Oil and Oil Filter

⚠ WARNING

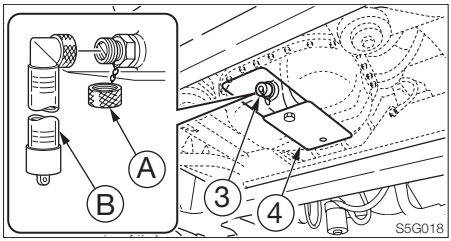
- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **The engine, muffler, radiator and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**
  - **The engine oil is also hot. Be careful when loosening caps and plugs. Working on the machine under these conditions could result in burns.**
- **Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.**

Supplement: The machine should be taken into a workshop for replacing the oil filter. This workshop should have a underground working facility.

Engine oil



1. Open the engine hood and remove the oil supply cap (2).



2. Loosen the bolts and remove the under cover (4).
3. Place a pan for catching the spent oil under the drain plug (3).
4. Remove the drain plug (3) and drain the oil.

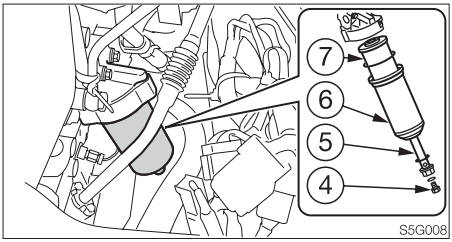
- **When a drain valve is included**

4. Remove cap (A), install connector (B) and drain the oil. (The oil comes out when the screw is tightened.)
5. Remove connector (B) and install cap (A).

IMPORTANT: Check the spent oil. If it contains large amounts of metal powder, consult a Takeuchi sales or service outlet.

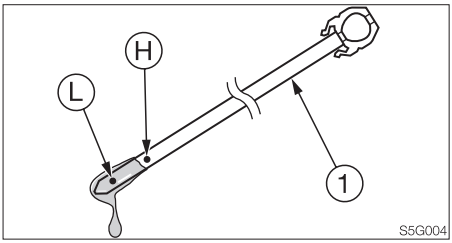
5. Tighten the drain plug (3).
6. Install the under cover (4).

Engine oil filter



The engine oil filter is located under the turbocharger.

1. Place a pan under the engine oil filter to catch the waste oil.
2. Remove the filter drain plug (4) and drain the oil from the filter case (6).
3. Loosen the bolt (5) and remove the filter case (6).
4. Clean the inside of the filter case (6) and install a new element (7).
5. Clean the filter stand and apply engine oil to the O-rings.
6. Install the case (6) and tighten it with the bolt (5), and then install the drain plug (4).
   - Bolt (5) tightening torque: 44.1 N·m (32.5 ft-lb)
   - Drain plug (4) tightening torque: 24.5 N·m (18.1 ft-lb)

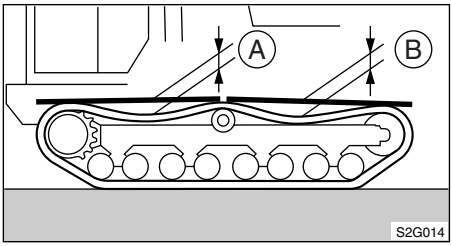


7. Add oil up to the upper limit (H) of the dipstick (1). Problems could arise if the oil level is either too low or too high.
8. Tighten the oil supply cap (2).
9. Start the engine, run it at low idle for about 3 minutes, then stop it.
10. After about 10 minutes, inspect the oil level.

Inspecting the Crawler Tension

This machine uses a hydraulic cylinder to adjust the tension of the crawler belts. Note that it is not necessary to regularly perform adjustments of the tension of the belt itself.

Inspection



1. On level ground, move the machine forward and backward two or three times then travel in reverse so that the slack in the crawler is on the upper side.
2. Place straight bars on the sprocket and idler sides with the carrier roller at the center. The standard slack of (A) and (B) is 5 to 15 mm (0.2 to 0.6 in.).

If the amount of slack is large, contact a Takeuchi sales or service outlet for repairs.

Inspecting the Battery Fluid Level and Replenishing

⚠ DANGER

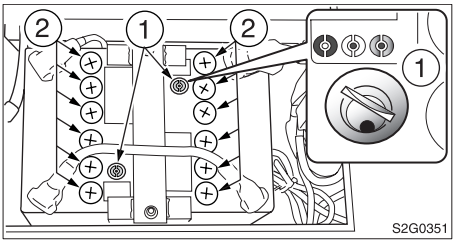
- **Do not use the battery when the fluid level is below the lower level. Doing so will hasten the deterioration of the internal portions of the battery and shorten the battery life, and can also cause rupturing (or an explosion).**
- **Batteries generate flammable and explosive gases. Keep arcs, sparks, flames and lighted tobacco away.**
- **Use a dampened cloth to clean the area of the fluid level lines and check the fluid level. Note that if this area is cleaned with a dry cloth, static electricity could cause ignition or explosion.**

⚠ WARNING

- **Do not fill the battery above the upper level. Doing so could cause the fluid to leak, contact and damage the skin, or cause parts to corrode.**
- **Batteries contain sulfuric acid which will damage eyes or skin on contact.**
  - **If acid contacts eyes, flush immediately with clean water and get prompt medical attention.**
  - **If acid is accidentally swallowed, drink large quantities of water or milk and call a physician immediately.**
  - **If acid contacts skin or clothing, wash off immediately with clean water.**

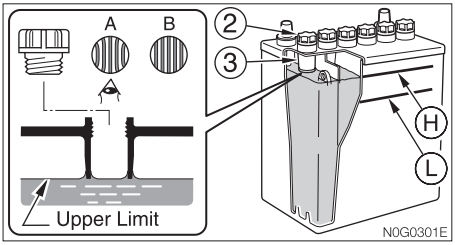
Inspection

IMPORTANT: Check the fluid level of all cells, even when the fluid level can be checked by indicator.



1. Open the battery cover.
2. Inspect the indicator (1).
   - Blue : Good
   - White : Charging needed
   - Red : Insufficient battery fluid
3. Inspect the fluid level.
   The fluid level should be between the lines indicating the upper level (H) and lower level (L). If not, add distilled water up to line (H).

- If the fluid level can not be checked by fluid level lines.



Remove the caps (2) and look into the fluid supply holes to check the fluid level. If the fluid is below the sleeve (3), be sure to add distilled water up to the bottom edge of the sleeve (3).

Proper amount ..... (A)
The fluid reaches up to the bottom edge of the sleeve (3), so the surface tension causes the fluid to swell and the plate appears distorted.

Level too low ..... (B)
The fluid does not reach up to the bottom edge of the sleeve (3), so the plate appears laminar, not distorted.

4. Also check the terminals for looseness and dirt.

Replenishing

When adding distilled water, do so before starting operations in order to prevent freezing.

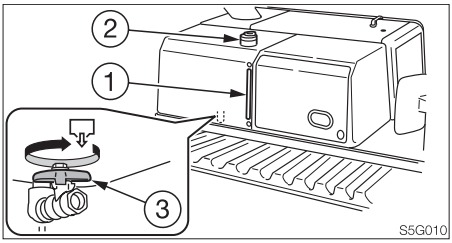
1. Remove the caps (2), and add distilled water until the upper level (H).
2. Inspect the indicator (1) then it turns blue.
3. Clean the cap's exhaust hole, then tighten the caps (2) securely.

Draining the Fuel Tank

⚠ WARNING

- **Do not smoke or permit open flames while handling fuel or working on the fuel system.**
- **Stop the engine in a well-ventilated place and allow it to cool down before performing maintenance.**
- **Clean up spilled fuel immediately.**

Do this before operating the machine.

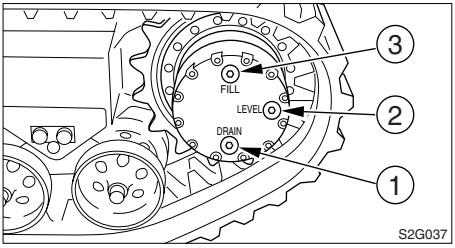


1. Remove the fuel filler cap (2).
2. Place a pan under the drain valve (3).
3. Open the drain valve (3) and drain the water and sediment from the bottom of the tank.
4. Close the drain valve (3).
5. While watching the fuel gauge (1), add fuel.
6. Tighten the fuel filler cap (2) and lock it with the key.
7. Bleed the air.
   Refer to page 135 “Bleeding the Air from the Fuel System”.

Replacing the Travel Motor Gear Oil

⚠ WARNING

- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **The travel motors are hot directly after the engine is stopped. Touching them will cause burns.**
  - **The gear oil is also hot and under high pressure.**
    Be careful when loosening plugs. Working on the machine under these conditions could result in burns or injuries.
- **The pressure in the travel motor reduction gears case may cause oil or the plug to fly out. Loosen the plug slowly to release the pressure.**



1. Set the travel motor so that plug (1) is at the very bottom.
2. Place a pan for catching the spent oil under plug (1).
3. Remove plugs (1), (2) and (3) and drain the oil.
4. Wrap new sealing tape around the plugs.
5. Tighten plug (1).
6. Add oil through the hole for plug (3) until oil flows out of the hole of plug (2).
7. Tighten plugs (2) and (3).

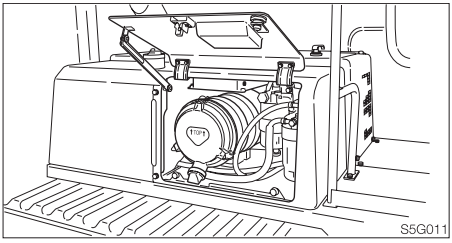
Cleaning the Air Cleaner

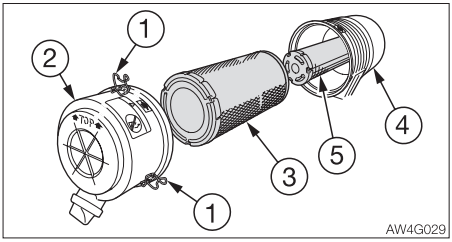
⚠ WARNING

- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **The engine, muffler, radiator and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**
- **Wear required appropriate equipment such as safety glasses and filter mask when using compressed air, as metal fragments or other objects can fly and cause serious personal injury.**

IMPORTANT: Be careful not to scratch the element. Do not use an element if it is damaged.
IMPORTANT: When operating the machine in very dusty places, inspection and maintenance should be performed every day.

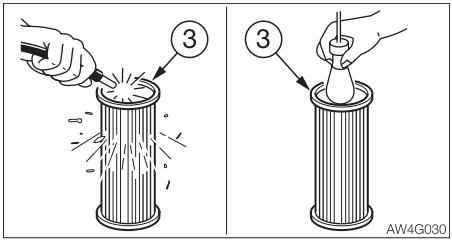
1. Open the side cover.





2. Loosen the clamp (1) and remove the dust cup (2).
3. Clean the inside of the dust cup (2).
4. Remove the primary element (3).
   Do not remove and clean the secondary element (5).
5. Clean the inside of the body (4).

6. Clean the primary element (3) with dried compressed air {294 to 490 kPa (43 to 71 psi)}.
   First blow the air from the inside of the element along the flutes, then blow the air from the outside, and finally from the inside again.

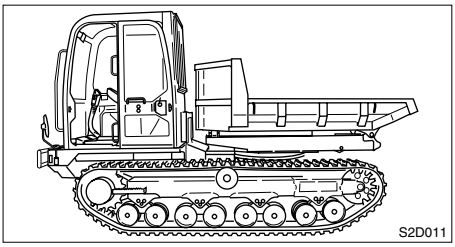


7. Light up the inside of the primary element (3) with a bulb, inspect it, and replace it if there are small holes or thin spots.
8. Install the primary element (3).
9. Install the dust cup (2) with the “TOP” mark at the top, then fasten it with the clamp (1).

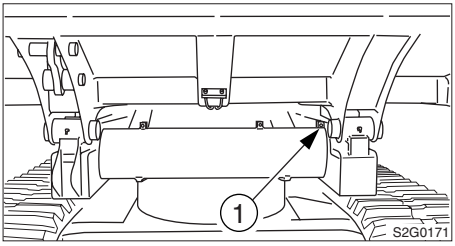
Lubricating the Swing Bearing

⚠ WARNING

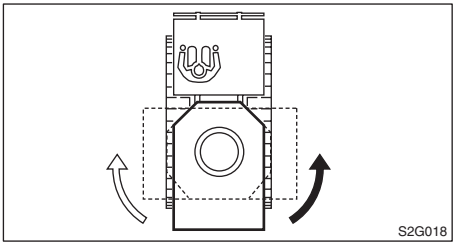
Do not swing while lubricating. Doing so is dangerous, as you may get caught in the machine.



1. Stop the engine with the machine in the posture shown on the diagram above.



2. Use the grease gun to supply grease to the grease nipple (1).



3. Start the engine and swing the dump body clockwise 90°.
4. Stop the engine.
5. Repeat step 2.
6. Start the engine and swing the dump body counterclockwise 180°.
7. Repeat step 2.
8. Wipe off the grease expelled from the swing bearing and grease nipple.

Cleaning the Radiator Fins and Oil Cooler Fins

⚠ WARNING

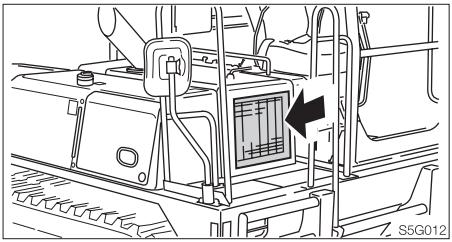
Wear required appropriate equipment such as safety glasses and filter mask when using compressed air, as metal fragments or other objects can fly and cause serious personal injury.

IMPORTANT: Be careful not to damage the radiator fins and oil cooler fins when cleaning them.

- **When using compressed air or pressurized water, make sure the pressure is no higher than 200 kPa (28 psi) and hold the nozzle sufficiently away from the fins.**

IMPORTANT: When using water, cover the electrical system to prevent water from getting in.

IMPORTANT: When operating the machine in very dusty places, inspection and maintenance should be performed every day.



1. Blow compressed air on the radiator fins and oil cooler fins to remove mud and dirt stuck on them.

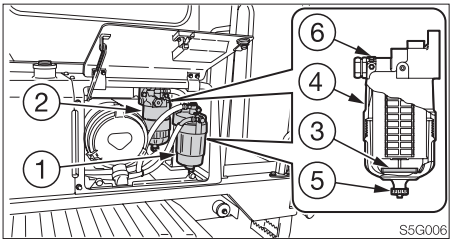
Inspecting and Adjusting the Fan Belt

Refer to page 107 “Inspecting and Adjusting the Fan Belt”.

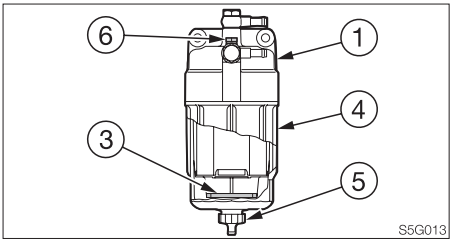
Replacing the Fuel Filters

⚠ WARNING

- **Do not smoke or permit open flames while handling fuel or working on the fuel system.**
- **Stop the engine in a well-ventilated place and allow it to cool down before performing maintenance.**
- **Clean up spilled fuel immediately.**

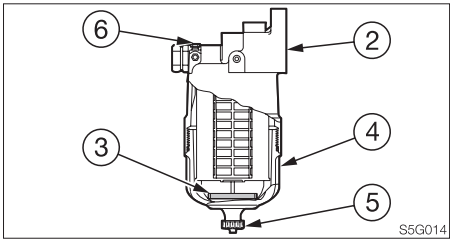


Pre Fuel Filter



1. Open the side cover
2. Place a receptacle under the pre fuel filter (1) to catch any fuel.
3. Loosen the drain plug (5) and the vent plug (6) to drain the filter.
4. Use the filter wrench and remove the case (4).
5. Replace the seals with new ones and lubricate the new seals with correct fuel oil.
6. Put the new element (150mm) in the case (4) and install by hand untill the seal makes contact with the sealing surface.
7. Use the filter wrench and tighten the case.
   Tightening torque: 30 N·m (22.1 ft-lb)
8. Purge the air.
   Refer to page 135 “Bleeding the Air from the Fuel System”.

Main Fuel Filter

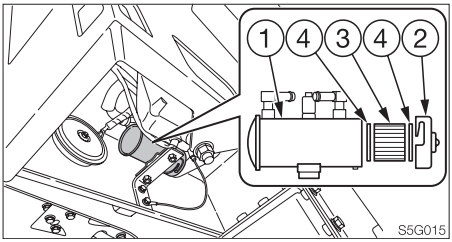


1. Open the side cover.
2. Place a receptacle under the main fuel filter (2) to catch any fuel.
3. Loosen the drain plug (5) and the vent plug (6) to drain the filter.
4. Use the filter wrench and remove the case (4).
5. Replace the seals with new ones and lubricate the new seals with correct fuel oil.
6. Put the new element (131mm) in the case (4) and install by hand until the seal makes contact with the sealing surface.
7. Use the filter wrench and tighten the case.
   Tightening torque: 29.4 N·m (21.7 ft-lb)
8. Purge the air
   Refer to page 135 “Bleeding the Air from the Fuel System”.

Replacing the Feed Pump Filter

⚠ WARNING

- **Do not smoke or permit open flames while handling fuel or working on the fuel system.**
- **Stop the engine in a well-ventilated place and allow it to cool down before performing maintenance.**
- **Clean up spilled fuel immediately.**



1. Place a pan under the feed pump (1).
2. Remove the cover (2).
3. Remove the element (3) and gaskets (4).
4. Install the new element and gaskets.
5. Tighten the cover (2).
6. Bleed the air.
   Refer to page 135 “Bleeding the Air from the Fuel System”.

Replacing the Pilot Line Filter

Refer to page 105 “Replacing the Pilot Line Filter”.

Replacing the Engine Oil and Oil Filter

Refer to page 108 “Replacing the Engine Oil and Oil Filter”.

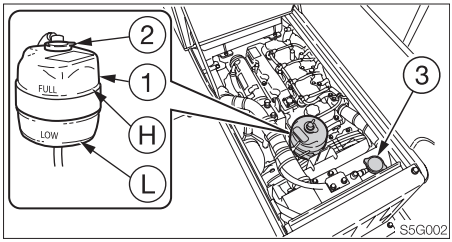
Cleaning the Engine Cooling System

⚠ WARNING

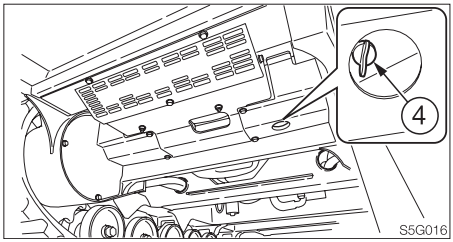
- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **The engine, muffler, radiator and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**
  - **The engine coolant is also hot and under high pressure. Be careful when loosening caps and valves. Working on the machine under these conditions could result in burns or injuries due to the hot coolant spurting out.**
- **Never jump off the machine. Use the steps and handrails when climbing on and off the machine, and always support your body at three points with your hands and feet.**
- **If maintenance must be performed with the engine running, always work as a two person team with one person sitting in the operator's seat while the other works on the machine.**
  - **When performing maintenance, be sure to keep your body and clothing away from moving parts.**
- **Standing at the back of the machine while the engine is running is extremely dangerous, as the machine could move suddenly. Never stand at the back of the machine while the engine is running.**
- **Do not open the radiator cap or drain valves when the coolant is hot. Stop the engine, let the engine and radiator cool and loosen the radiator cap or drain valve slowly.**

When cleaning, if the temperature of the coolant is low, the thermostat will be closed and the coolant will not circulate in the radiator. Heat the coolant water to at least 90°C before cleaning.

1. Open the engine hood.



2. Gradually loosen the radiator cap (3) to release the internal pressure, then remove the cap.



3. Place a pan for catching the spent coolant under the drain valve (4), then loosen the drain valve (4) and drain the coolant.
4. Tighten the drain valve (4).
5. Add tap water through the radiator's coolant supply port up to the top of the port. Take your time doing this, adding the water slowly to avoid any air from entering the radiator.
6. Close the radiator cap (3).
7. Start the engine and run it at a speed slightly above low idling. Raise the water temperature to at least 90°C, then run the engine for about 10 minutes with the thermostat open.

8. Stop the engine, let the water's temperature lower, then loosen the drain valve (4) and drain the water.
9. After draining the water, clean using cleaning agent. Clean following the instructions included with the cleaning agent you are using.
10. Repeat steps 4 to 8 to rinse the cooling system.
11. Tighten the drain valve (4).
12. Slowly add the new coolant (mixture of antifreeze and tap water) through the radiator's coolant supply port up to the top of the port. Take your time doing this.
13. Close the radiator cap (3).
14. Warm up the engine. Use the meters to check that these are no irregularities in the cooling system at this time.
15. Raise the water temperature to at least 90°C, then run the engine as such for about 10 minutes.
16. Stop the engine, let the water's temperature lower, then check the level of coolant in the radiator, and replenish up to the top of the coolant supply port.
17. Close the radiator cap (3).
18. Clean the interior of the reserve tank (1), then add coolant to the upper limit (H).
19. After replacing the coolant, inspect the coolant level once again after operating the machine.
    The coolant permeates the entire system during operation, so the level decreases. Replenish by the amount tyhe level has decreased.

Replacing the Air Cleaner Elements

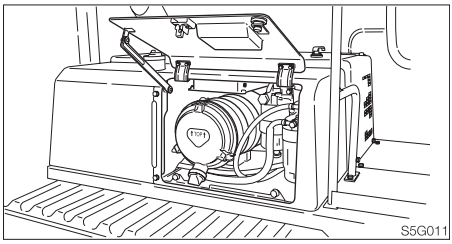
⚠ WARNING

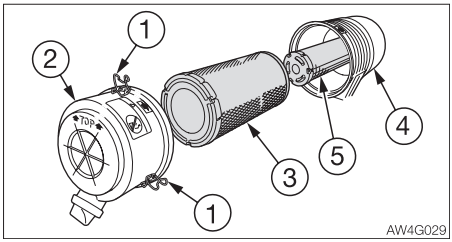
Stop the engine and allow the machine to cool down before performing maintenance.

- **The engine, muffler, radiator and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**

IMPORTANT: Do not use an element if its flutes, gaskets or seals are damaged.

1. Open the side cover.





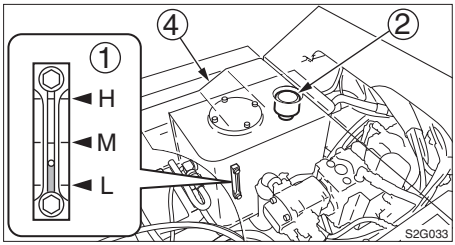
2. Loosen the clamps (1) and remove the dust cup (2).
3. Clean the inside of the dust cup (2).
4. Remove the primary element (3).
   Do not yet remove secondary element (5).
5. Clean the inside of the body (4).
6. Remove the secondary element (5).
7. Install the new elements.
8. Install the dust cup (2) with the "TOP" mark at the top, then fasten it with the clamp (1).

Replacing the Hydraulic Oil and Cleaning the Suction Strainer

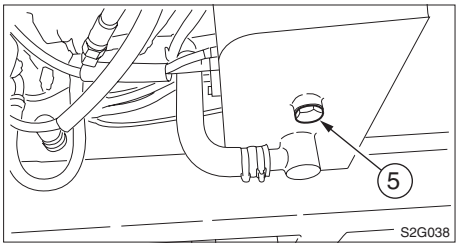
⚠ WARNING

- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **The engine, hydraulic lines and many other parts of the machine are hot directly after the engine is stopped. Touching these parts will cause burns.**
  - **The hydraulic fluid is also hot and under high pressure.**
    Be careful when loosening caps and plugs. Working on the machine under these conditions could result in burns or injuries due to the hot oil spurting out.
- **Oil may spurt out if caps or filters are removed or pipes disconnected before releasing the pressure in the hydraulic system.**
  - **When removing plugs or screws or disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.**
- **If you must work beneath the raised dump body, securely engage the raised body prop. Never get under the dump body if it is not sufficiently supported.**

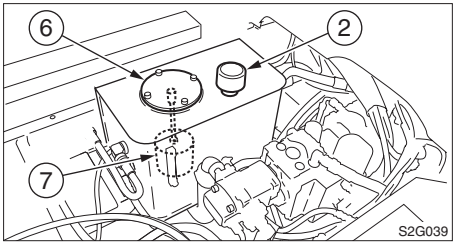
1. Start and run the engine at low speed.
2. Fully raise the dump body.
3. Set the safety lock lever to the lock position, and stop the engine.
4. Securely engage the raised body prop.



5. Remove the cover (4).
6. Remove the air breather (2).



7. Place a pan for catching the spent oil under the drain plug (5).
8. Loosen the drain plug (5) and drain the hydraulic oil.



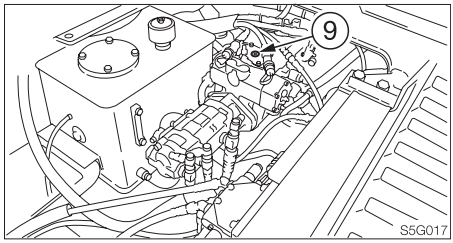
9. Loosen the bolts, and remove the flange (6).
10. Remove the suction strainer (7) and clean it.
11. Clean the inside of the hydraulic tank.
12. Install the suction strainer (7) and flange (6).
13. Tighten the drain plug (5).

14. Replace the line filter.
    Refer to page 105 “Replacing the Pilot Line Filter”.
15. Replace the return filter.
    Refer to page 106 “Replacing the Hydraulic Oil Return Filter”.
16. Add hydraulic oil up to the middle point between the “M” and “L” positions of the sight gauge (1) through the hole in the air breather (2).
17. Tighten the air breather (2) and cover (4).
18. Follow the procedure next “Bleeding the air” to bleed the air from the hydraulic oil circuit.
19. Set the machine to the hydraulic oil level inspection posture and inspect the level once the temperature of the oil has dropped.
    Refer to page 103 “Inspecting the Hydraulic Oil Level and Replenishing”.

Bleeding the air

IMPORTANT: After replacing the hydraulic oil, bleed the air from the hydraulic oil circuit and hydraulic devices. Failure to do so may damage the hydraulic devices.

- **Hydraulic pump**



1. Loosen the hydraulic oil pump’s air bleeding plug (9).
2. Once hydraulic oil overflows from the hole in the air bleeding plug (9), tighten the plug.

- **Cylinders**

1. Start the engine and run it at low idle for 10 minutes.
2. Set the engine to a low idle, then extend and retract all the cylinders 4 or 5 times, without going to the stroke end.
3. Run the engine at high speed, then extend and retract all the cylinders 4 or 5 times, without going to the stroke end.
4. Set the engine back to a low idle, then extend and retract all the cylinders 4 or 5 times to the stroke ends.

Replacing the Hydraulic oil Return Filter

Refer to page 106 “Replacing the Hydraulic Oil Return Filter”.

Replacing the Travel Motor Gear Oil

Refer to page 113 “Replacing the Travel Motor Gear Oil”.

Inspecting and Adjusting the Engine Valve Clearance

This operation requires experience. Have it performed by a Takeuchi sales or service outlet.

Inspecting the Engine Compression Pressure

This operation requires experience. Have it performed by a Takeuchi sales or service outlet.

Inspecting the Starter and Alternator

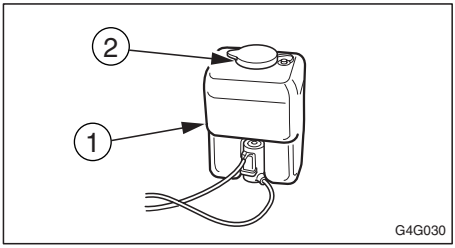
This operation requires experience. Have it performed by a Takeuchi sales or service outlet.

Inspecting the Radiator Cap

This operation requires experience. Have it performed by a Takeuchi sales or service outlet.

Inspecting and Replenishing the Windshield Washer Fluid

Use a windshield washer fluid designed specifically for motor vehicles. Follow the instructions including with the washer fluid.



Inspection

1. Open the cab door.
2. Inspect the washer tank (1) and add washer fluid if the level is low.

Replenishment

1. Mix the washer fluid to the prescribed concentration.
2. Remove the cap (2) and add washer fluid.
3. Reinstall the cap (2).

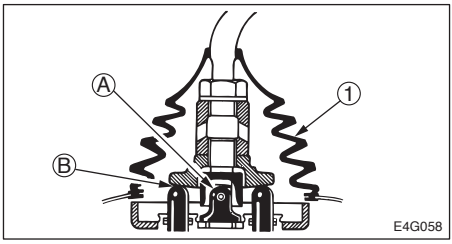
Lubricating the Levers

⚠ WARNING

Set the machine to the parking posture, stop the engine, remove the starter key and store it. Failure to do so may result in the machine moving abruptly, leading to serious injury or death.

If the levers no longer move smoothly, supply grease.

Control levers



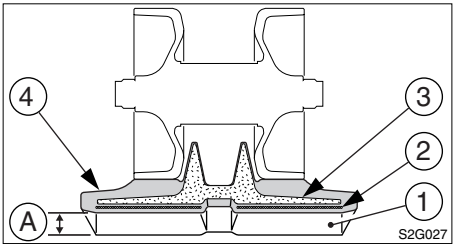
1. Remove the lower mount section of the boot (1) and turn it upwards.
2. Wipe off the old grease.
3. Supply grease to points (A) and (B).
4. Set the boot (1) back as it was.

Inspecting the Rubber Crawlers

Repair or replace the rubber crawlers if their conditions are as described below. Consult a Takeuchi sales or service outlet about repairs or replacement.

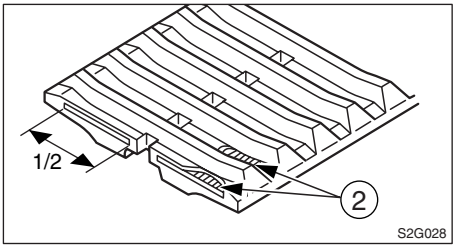
Rubber crawler
Replace the crawler if the entire crawler is stretched and cannot be adjusted.

(1) Lug



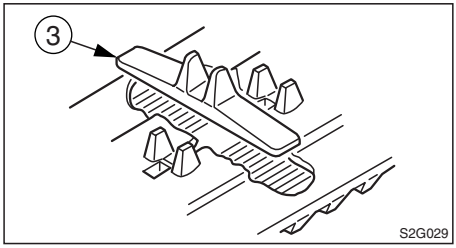
Replace if the height of (A) is 5 mm (0.2 in.) or below.

(2) Steel cord



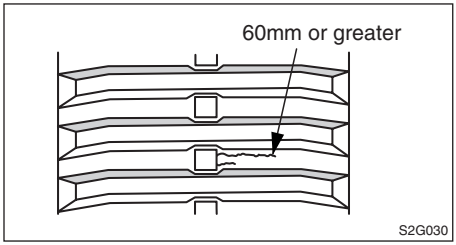
Replace if the steel cord is exposed over 2 or more links.
Replace if half or more of the steel cords on one side are cut.

(3) Metal core



Replace if even one metal core is off.

(4) Rubber



Repair if there are cracks of 60 mm (2.4 in.) or greater in length.
If the steel cord is visible, repair as soon as possible, regardless of the length of the crack.

Replacing the Rubber Crawlers

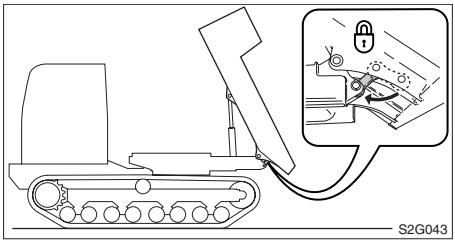
⚠ WARNING

- **If you must work beneath the raised machine or equipment, always use wood blocks, jack-stands or other rigid and stable supports. Never get under the machine or raised dump body if they are not sufficiently supported.**
- **If maintenance must be performed with the engine running, always work as a two-person team with one person sitting in the operator's seat while the other works on the machine.**
  - **When performing maintenance, be sure to keep your body and clothing away from moving parts.**
- **Take great care in handling rubber crawlers, because they are very heavy.**
- **Stop the engine and allow the machine to cool down before performing maintenance.**
  - **When disconnecting hoses, stand to the side and loosen slowly to gradually release the internal pressure before removing.**

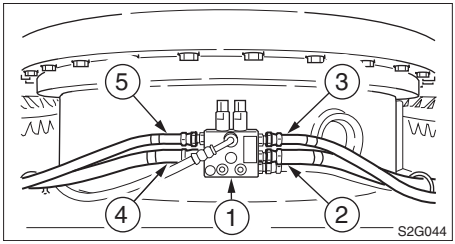
Removal

If the tension of the rubber crawler cannot be loosened, ask your dealer to repair or replace the rubber crawler.

IMPORTANT: Prepare two wrenches for removal and installation of hydraulic hoses. Use one of the wrenches for holding the hydraulic hose to prevent it from twisting.



1. Set the machine to the hydraulic oil level inspection posture.
   Refer to page 103 "Inspecting the Hydraulic Oil Level and Replenishing".



2. Change the connecting locations of the hydraulic hoses connected to the auto-tension valve (1).
   Changing the connecting locations of the hydraulic hoses allows the tension cylinder to be retracted and extended.
   - Right rubber crawler :
     Change the connecting locations of the hydraulic hoses (2) and (3) for each other.
   - Left rubber crawler :
     Change the connecting locations of the hydraulic hoses (4) and (5) for each other.
3. Start the engine and retract the tension cylinder fully. Then stop the engine.
4. Jack up the machine so that a clearance can be created between the core metal protrusion of the rubber crawler and the track rollers, and put wood bases or the like between the crawler frame on its lower side and ground.

5. Remove the rubber crawler from the idler first, and then from the sprocket.
   Take great care in handling rubber crawlers, because they are very heavy.

Installation

1. Engage the rubber crawler with the sprocket, and place the rubber crawler on the idler.
2. Start the engine and turn the rubber crawler slowly to install the rubber crawler onto the idler securely, using a lever.
3. Stop the engine and confirm that the rubber crawler is fully engaged with the sprocket, the rollers and idler.
4. Referring to the step (2) on the previous page, change the connecting locations of the hydraulic hoses connected the auto-tension valve (1), to return those to the original state before the removal of the rubber crawler.
5. Start the engine and check that the rubber crawler tension is sufficient. Then lower the machine to the ground.
6. Check the hydraulic hoses for oil leakage.

Procedures for storage

If the machine is to be stored for 30 days or more, store it indoors. If it must be stored outdoors, stop it on wood laid out on a flat surface and place a waterproof cover over it so that it stays dry.

1. Clean the machine.
2. Inspect for oil leakage, water leakage and loose nuts and bolts.
3. Add fuel and replace the hydraulic oil and oil.
4. To prevent rusting and freezing, replace the engine coolant with long-life coolant (LLC).
   Refer to page 120 “Cleaning the Engine Cooling System”.
5. Use the grease gun to supply grease to the grease nipples.
6. Fully lower the dump body.
7. Apply rust-prevention oil to the hydraulic cylinder rods.
8. Disconnect the cable from the battery’s “–” terminal and cover the battery to prevent freezing.

During storage

⚠ WARNING

- **Do not operate the engine in an enclosed area without adequate ventilation.**
- **If natural ventilation is poor, install ventilators, fans, exhaust extension pipes or other artificial venting devices.**

1. To prevent rusting, operate the machine once a month so that the oil is fully circulated.
2. Inspect the battery and recharge it if necessary.
   Have the battery charged by a Takeuchi sales or service outlet.

Starting the machine after storage

IMPORTANT: If the “Procedures for storage” have not been performed and the machine has been stored for a long period of time, consult a Takeuchi sales or service outlet before reusing the machine.

1. Wipe off the rust-prevention oil that was applied to the hydraulic oil cylinders’ piston rods.
2. Add fuel, oil and grease to all parts.

TROUBLESHOOTING

Symptoms that are not Malfunctions

The following symptoms are not malfunctions :

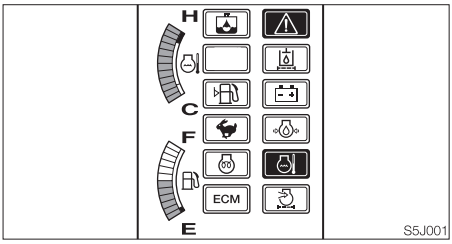
- The swing motor produces noise at the beginning and end of the swing operation.
- The travel motor produces noise when stopped suddenly during high speed travel.
- The control valve produces noise if excessive force is applied to the dump body and when the stroke end is reached.

If the Engine Overheats

⚠ WARNING

- **Do not open the engine hood when there is steam coming from the engine room. The steam or hot water may spurt out, resulting in burns.**
- **Do not remove the radiator cap or drain plugs when the coolant is hot. Stop the engine, let the engine and radiator cool and loosen the radiator cap or drain plugs slowly.**
- **Stop the engine and allow the machine to cool down before performing inspection and maintenance.**

The following symptoms indicate overheating:



- An alarm is sounded and the coolant temperature warning lamp and engine emergency lamp flash.
- The water temperature gauge is in the red zone.
- The engine slows down and the force decreases.
- Steam comes from the engine room.

Procedure

1. Park the machine in a safe place.
2. With the engine hood closed, inspect whether steam is coming from the engine room.
3. If there is steam, stop the engine immediately and contact a Takeuchi sales or service outlet for repairs.
   If there is no steam, run the engine at low idle and let the water temperature decrease.
4. Once the water temperature gauge drops to the green zone, stop the engine.
5. Once the engine is cool, perform the following inspections and procedures:
   - Fan belt slack ..... Adjust. Refer to page 107.
   - Coolant level ..... Add. Refer to page 100.
   - Water leakage ..... Repair.
   - Radiator fins ..... Clean. Refer to page 116.
   - Sediment in cooling system ..... Clean. Refer to page 120.

If the problem persists after the above procedures are taken, contact a Takeuchi sales or service outlet for repairs.

If the Battery Goes Dead

The following symptoms indicate that the battery is dead :

- The starter motor does not turn or turns weakly, and the engine does not start.
- The horn is weak.

Procedure

Use jumper cables and start the engine using the rescue vehicle's battery.

⚠ WARNING

- **Use jumper cables only in the recommended manner. Improper use of jumper cables can result in battery explosion or unexpected machine motion.**
  - **Do not let the problem vehicle and rescue vehicle touch each other.**
  - **Do not let the "+" and "–" clips of the jumper cables touch each other.**
  - **Connect the jumper cables to the "+" terminals first, and disconnect them from the "–" terminals (ground) first.**
  - **Connect the final clip of the jumper cable to a point as far away from the battery as possible.**
- **Use safety glasses when using jumper cables to start the machine.**

IMPORTANT: Use jumper cables and clips of a size suited to the battery's capacity. Do not used damaged or corroded jumper cables and clips.

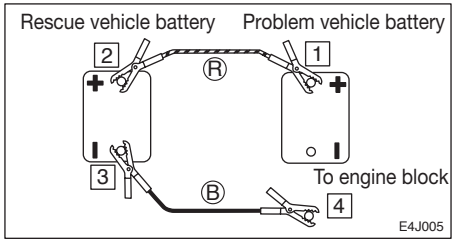
IMPORTANT: The rescue vehicle's battery must have the same capacity as the problem vehicle's battery.

IMPORTANT: Connect the clips securely.

Connecting the jumper cables

IMPORTANT: Set the starter keys of both the rescue vehicle and problem vehicle to the OFF position.

Refer to page 41 "Battery Cover".

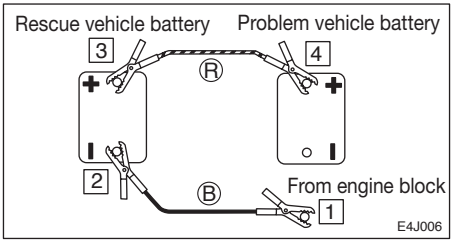


1. Connect the clip of jumper cable (R) to the problem vehicle's "+" terminal.
2. Connect the other clip of jumper cable (R) to the rescue vehicle's "+" terminal.
3. Connect the clip of jumper cable (B) to the rescue vehicle's "–" terminal.
4. Connect the other clip of jumper cable (B) to the problem vehicle's engine block. Connect the clip as far from the battery as possible.

Starting the engine

1. Check that the clips are securely connected to the terminals.
2. Start the rescue vehicle's engine and run it at high speed.
3. Start the problem vehicle's engine.

Disconnecting the jumper cables
Once the engine starts, disconnect the jumper cables following the connection procedure in reverse order.

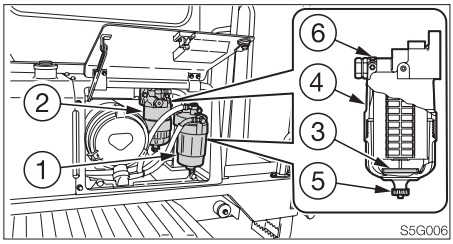


1. Disconnect the clip of jumper cable (B) from the problem vehicle's engine block.
2. Disconnect the other clip of jumper cable (B) from the rescue vehicle's "–" terminal.
3. Disconnect the clip of jumper cable (R) from the rescue vehicle's "+" terminal.
4. Disconnect the other clip of jumper cable (R) from the problem vehicle's "+" terminal.

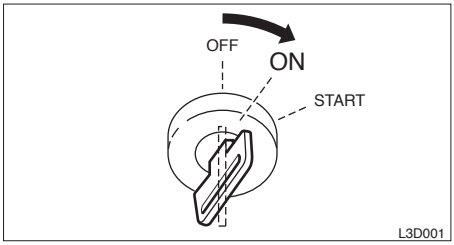
Recharging
Have a Takeuchi sales or service outlet recharge batteries that have gone dead.

Bleeding the Air from the Fuel System

1. Add fuel.



2. Loosen the vent plug (6) on the main fuel filter (2).



3. Turn the starter key to the ON position and wait for the air to bleed around the vent plug (6).
4. When the air is bled and the fuel starts coming from the vent plug (6), retighten the vent plug (6).
5. Turn and hold the starter key to the ON position for three minutes before turning it back to the OFF position.

Supplement: Air in the fuel system can make it difficult to start the engine and cause engine problems. Also bleed the air when the fuel tank is emptied.

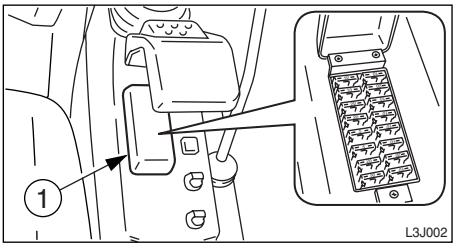
If a light does not turn on or the electric system does not operate, a fuse may be blown. Inspect the fuses.

Inspecting and Replacing the Fuse

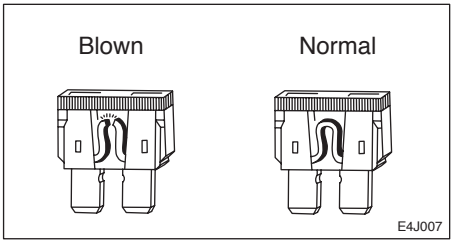
⚠ WARNING

If the fuse blows as soon as it is replaced, there is a problem with the electric system. Continued use may lead to fire. Consult a Takeuchi sales or service outlet.

1. Turn the starter key to the OFF position and stop the engine.



2. Open the fuse box cover (1).
3. Inspect for any blown fuses.

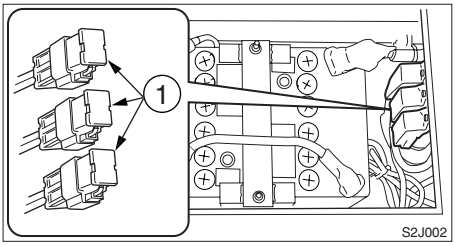


4. If a fuse is blown, replace it with a spare fuse of the same capacity.

Fuse Layout and Circuits Protected

Capacity	Protected circuit	Capacity	Protected circuit
5A	Fuel feed pump	**20A**	Lights
10A	Control circuit	**10A**	Wiper motor
20A	ECM	**20A**	Air conditioner
10A	Controller	**10A**	Solenoid valve
5A	Option	**10A**	Option
10A	Horn	**10A**	Cigarette lighter, Radio
5A	Interior light, Radio backup	**10A**	Turn signal
10A	Starter circuit	**5A**	Instrument cluster, Lamp

Inspecting the Fusible Link

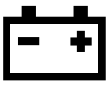


If the power is not switched on after turning the starter switch to the ON position, the cartridge type fusible links (1) might be blown open. Open the battery cover and inspect. If the fusible link is blown, please contact your dealer.

Supplement: A fusible link is a large piece of fuse wiring which is mounted in a circuit which carries a large electrical current. Link a regular fuse, the fusible link protects the electrical parts and wiring from damage due to abnormally large currents.

If a Warning Lamp Flashes

If an alarm is sounded or a warning lamp starts flashing during operation, park the machine in a safe place and perform the procedures described below.

Warning lamp	Lamp name	Procedure
 G4B009	**Engine emergency lamp**	A problem has occurred in the engine lubrication system or cooling system. ● When there is a problem in the engine lubrication system, the engine oil pressure warning lamp flashes simultaneously. ● When the coolant temperature has risen irregularly, the coolant temperature warning lamp flashes simultaneously. For the procedures, refer to the respective warning lamps below.
 T7B008	**Pilot line filter warning lamp**	Hydraulic oil pilot line filter is clogged. Stop the engine and replace the filter. Continuing to operate the machine while the lamp is lit could damage the pilot line filter and hydraulic equipment. Replace the filter immediately should the lamp flashes. Refer to page 105 “Replacing the Pilot Line Filter”.
 OSOB080	**Battery charge warning lamp**	There is a problem with the fan belt or charger. Inspect the fan belt for slack or breakage and adjust as necessary. If the lamp continues flashing after maintenance, there is a problem with the charger. Consult a Takeuchi sales or service outlet. Refer to page 107 “Inspecting and Adjusting the Fan Belt”.
 OSOB070	**Engine oil pressure warning lamp**	Inspect the engine oil level. If the lamp is flashing even though the level is normal or if it continues flashing after oil is added, consult a Takeuchi sales or service outlet. Refer to page 101 “Inspecting and Replenishing the Engine Oil”.
 C4B012	**Coolant temperature warning lamp**	The coolant temperature has risen irregularly and the engine is overheating. Refer to page 133 “If the Engine Overheats”.

Warning lamp	Lamp name	Procedure
 G4B010	**Air cleaner warning lamp**	The air cleaner filter is clogged. Refer to page 114 “Cleaning the Air Cleaner”.
 L3J005	**Water separator warning lamp**	Water has accumulated in the water separator. Drain the water. Refer to page 102 “Inspecting the Water Separator and the Fuel Filters”.
 L3J006	**Fuel level warning lamp**	The fuel level is low. Supply fuel. Refer to page 42 “Fuel Filler Cap”.
ECM N2B004	**ECM warning lamp**	Engine problem detected. An error code indicating the type of error appears in the multi-data display. Inform a Takeuchi sales or service outlet of such error code and consult how to remedy. Refer to page 48 “Multi-Data Display”. Refer to page 140 “Error Code List”.

Error Code List

The five error codes are displayed (the leftmost code is the most recent error). If an error code is display on the multidata display, consult a Takeuchi sales or service outlet.

Error Code No.	Error details
01	Short-time operations (0.5 seconds or less) of the key switch are repeatedly recorded.
02	After the engine starts, the engine oil pressure drops below the specified level (oil shortage).
03	After the engine starts, the charge alternator malfunctions.
04	The engine overheats (water temperature exceeds 107 ºC).
05	
06	The air cleaner filter becomes clogged.
07	
08	
09	Emergency release operation is recorded.
10	
11	Excess ignition time (15 seconds or more) of the glow plug is recorded.
12	The battery voltage becomes too high (it exceeds 30 V for one second or more).
13	The battery voltage becomes too low (it drops below 12 V for one second or more).
14	The emergency release signal state changes from ON to OFF.
15	A real-time lock error occurs. Reset operation is recorded. The battery voltage drops for too long, and the CPU time function is reset.

Error Code No.	Error details
16	When the key switch is turned ON, the engine oil pressure sensor malfunctions.
17	When the key switch is turned ON, the charger outputs an ON (24V) signal.
18	
19	The status change (Low to High) of an open-circuit interlock signal is recorded. Even if an open circuit is detected, the engine does not stop (if the open-circuit interlock signal line is grounded). The “High” signal level detected when the engine is started is recorded.
20	The status change (High to Low) of an open-circuit interlock signal is recorded. When an open circuit is detected, the engine stops (if the open-circuit interlock signal is in an OPEN state).
21	An error occurs on a comparative amplifier. A shoot-through current or open circuit occurs.
22	A CAN communication error occurs. A communication error with ECM occurs.

“Open circuit” in items “19” and “20” means engine oil pressure reduction caused by an oil shortage.

Other Symptoms

For symptoms not included on the table below or if the problem persists after the proper procedures have been taken, consult a Takeuchi sales or service outlet.

Symptom	Main cause	Procedure
Control levers do not move smoothly	● Insufficient grease on left and right control levers	● Add grease. Refer to page 126.
Dumping, swinging or traveling operation not possible	● Safety lock lever is raised ● Fuse is blown	● Lower the safety lock lever. Refer to page 54. ● Replace the fuse. Refer to page 136.
Dumping or swinging force is insufficient	● Insufficient hydraulic oil level ● Hydraulic oil is not heated ● Air cleaner is clogged ● Hydraulic oil is not of suitable type	● Replenish to the prescribed level. Refer to page 103. ● Perform the warm-up procedure. Refer to page 69. ● Clean the air cleaner. Refer to page 114. ● Replace the hydraulic oil. Refer to page 122.
Traveling is not possible or not smooth	● Stones or foreign objects are stuck	● Remove the foreign object.
Machine does not travel straight forward	● Stones or foreign objects are stuck	● Remove the foreign object.
Travel speed cannot be changed	● Fuse is blown	● Replace the fuse. Refer to page 136.
Swinging is not possible or not smooth	● Insufficient grease on swing bearing	● Add grease. Refer to page 115.
Hydraulic oil temperature is too high	● Insufficient hydraulic oil	● Replenish to the prescribed level. Refer to page 103.

Symptom	Main cause	Procedure
Starter motor turns but engine does not start	● Insufficient fuel ● Air in fuel system ● Water in fuel system	● Add fuel. Refer to page 102. ● Bleed the air. Refer to page 135. ● Drain the water. Refer to page 112.
Crawlers slip off	● Crawlers are too loose	● Consult a Takeuchi sales or service outlet.
Engine exhaust is white or bluish	● Excessive engine oil ● Insufficient fuel	● Adjust to the prescribed level. Refer to page 101. ● Replace the fuel.
Engine exhaust is occasionally black	● Air cleaner is clogged	● Clean the air cleaner. Refer to page 114.
Irregular noise is produced from the engine (combustion or mechanical noise)	● Low quality fuel is being used ● Engine is overheating ● Damage in muffler	● Replace the fuel. ● If the Engine Overheats Refer to page 133. ● Replace the muffler. (Request at a sales or service outlet.)

⚠ WARNING

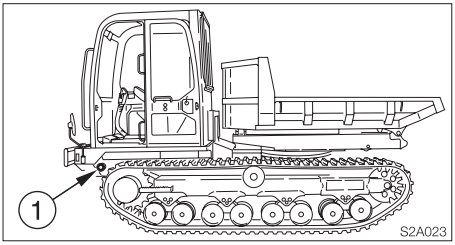
When towing, selecting the wrong wire rope, inspecting improperly, or towing in the wrong way could lead to accidents resulting in serious injury or death.

- **The wire rope breaking or coming detached could be extremely dangerous. Use a wire rope suited for the required towing force.**
- **Do not use a wire rope that is kinked, twisted or otherwise damaged.**
- **Do not apply strong loads abruptly to the wire rope.**
- **Use safety gloves when handling the wire rope.**
- **Make sure there is an operator on the machine being towed as well as on the machine that is towing.**
- **Never tow on slopes.**
- **Do not let anyone near the wire rope while towing.**

Towing the Machine

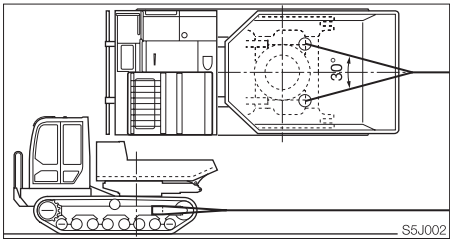
Use the procedure described below to tow heavy objects or the machine itself if it should get stuck in the mud and not be able to get out on its own.

<Front>



1. Fasten the wire rope to the hooks (1).
2. Make the wire rope horizontal and line up straight with the travel frame.
3. Move the machine to tauten the wire rope.
4. Move the machine slowly and tow.

<Rear>



Maximum tractive force: 72.2 kN (16230 lbf)

1. Fasten the wire rope to the frame.

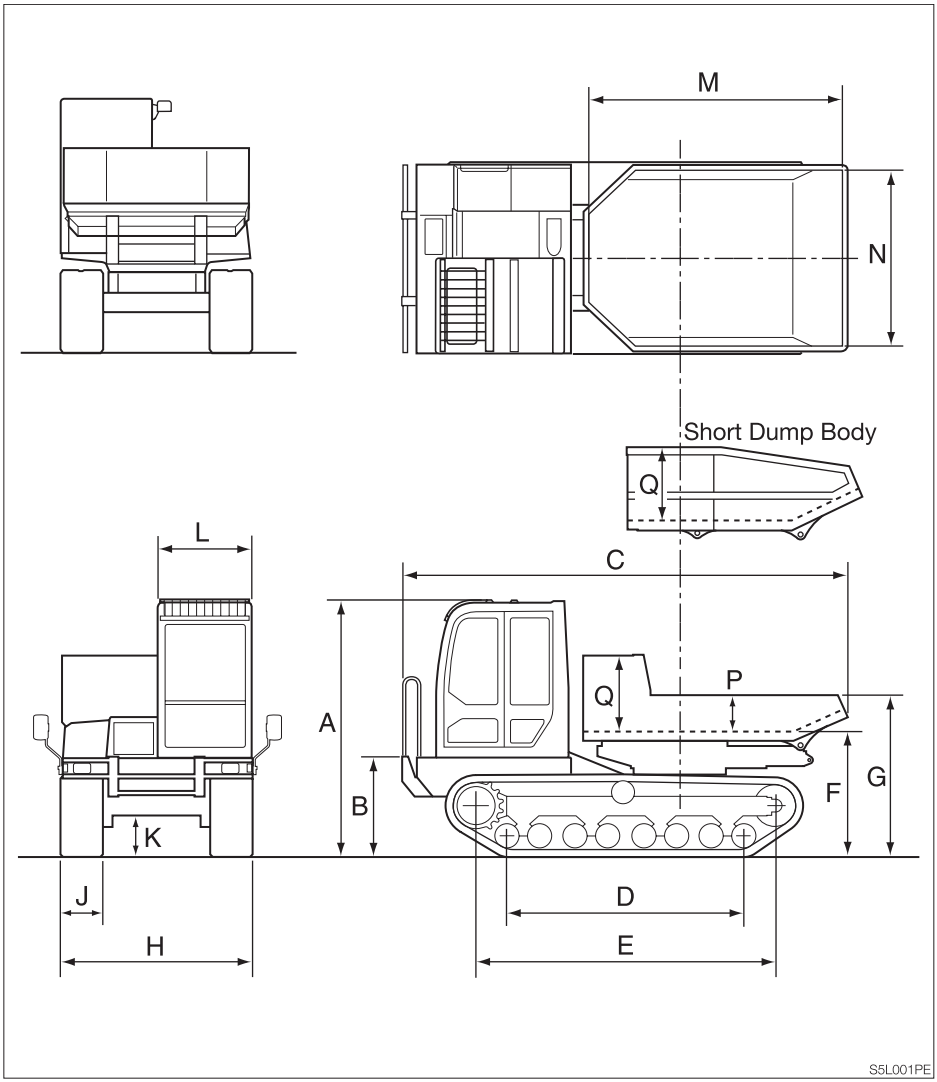
IMPORTANT: Be careful not to get the hydraulic hose entangled with the wire rope.

2. Make the wire rope horizontal and line up straight with the travel frame.
3. Move the machine to tauten the wire rope.
4. Move the machine slowly and tow.

SPECIFICATIONS

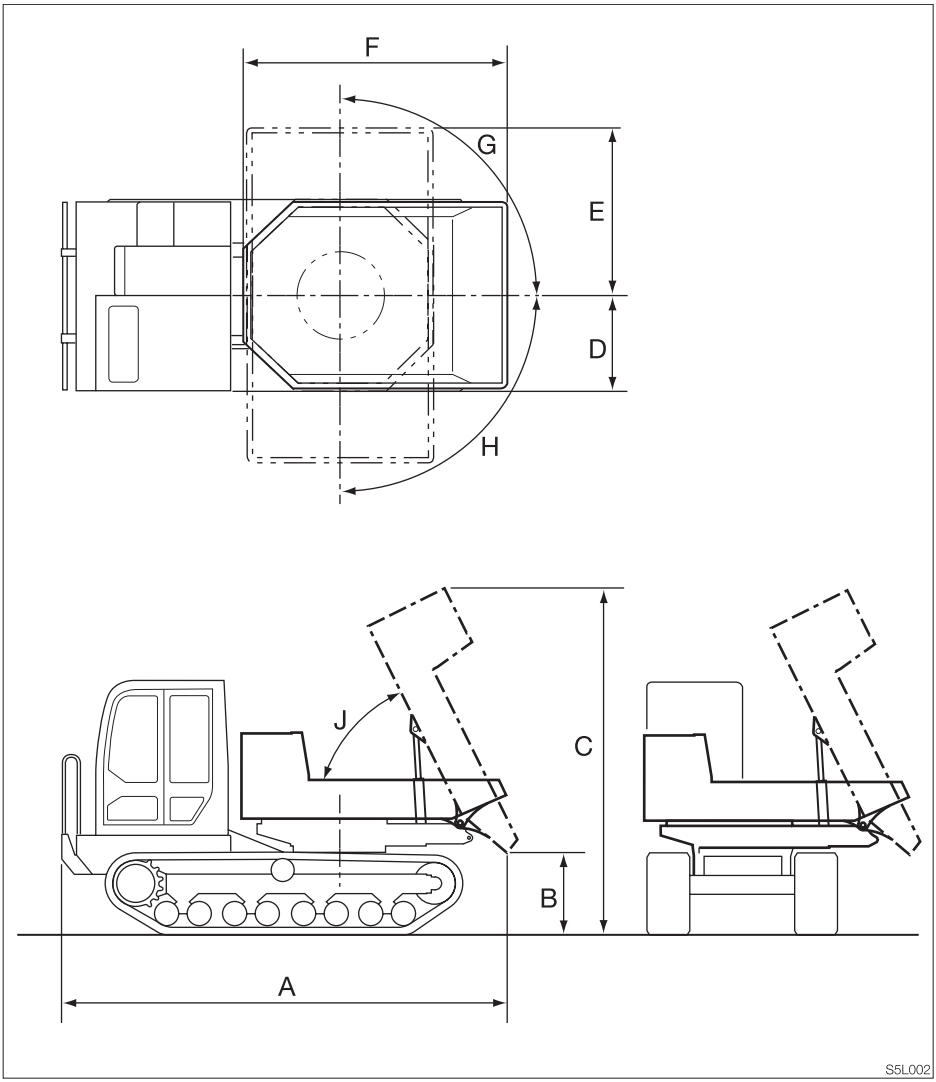
TYPE		CAB
MASS		
Operating mass kg (lb.)		6025 (13285)
PERFORMANCE		
Dump body capacity m^3 (cu.ft.)	Heaped	2.055 (72.57)
(standard dump body)	Struck	1.15 (40.61)
Maximum loading mass	kg (lb.)	3700 (8155)
Swing speed min^{-1} (rph)	180°	6.6 (6.6)
Travel speed km / h (mph)		0~9.2 (5.72)
Gradeability (degrees)		30
Ground pressure kPa (psi)	with Dump body Full	33.3 (4.84)
	with Dump body Empty	20.4 (2.96)
Noise level dB (A)	Sound-power level	L_{WA} 103
	Sound-pressure level	L_{pA} —
ENGINE		
Manufacturer and model		ISUZU 4JJ1X
Rated output	kW / min^{-1} (hp / rpm)	72 / 2200 (96.6 / 2200)
Displacement	ml (cu.in.)	2999 (183)
Starter	V – kW	24 – 4
Alternator	V – kW	24 – 1.2
Battery	V – A·h	12 – 54 x 2

MEMO


M
N
Short Dump Body
Q
L
C
A
Q
P
B
F
G
K
J
D
H
E
S5L001PE

Units: mm (inches)

	Standard Dump Body	Short Dump Body
A	2725 (107.3)	←
B	1040 (41.0)	←
C	4745 (186.8)	4830 (190.3)
D	2500 (98.4)	←
E	3190 (125.6)	←
F	1310 (51.6)	←
G	1695 (66.7)	—
H	2000 (78.7)	←
J	450 (17.7)	←
K	435 (17.1)	←
L	980 (38.6)	←
M	2615 (103)	2420 (95.2)
N	1795 (70.6)	1825 (71.9)
P	385 (15.2)	—
Q	780 (30.7)	750 (29.5)


F
G
E
D
H
J
C
B
A
S5L002

Operating Range

Units: mm (inches)

	Standard Dump Body	Short Dump Body
A	4630 (182.3)	4825 (190)
B	880 (34.6)	725 (28.5)
C	3590 (141.3)	3220 (126.8)
D	1000 (39.4)	←
E	1730 (68.1)	1965 (77.4)
F	2745 (108.1)	2535 (99.8)
G	90°	←
H	90°	←
J	65°	←

OPTIONS

Precautions on Safety

⚠ WARNING

Heed the following when removing or installing an attachment or option :

- **Consult with a Takeuchi dealer before installing optional attachments.**
- **Do not use attachments that have not been approved by Takeuchi or a Takeuchi dealer. Doing so may compromise safety or adversely affect the machine's operation or service life.**
- **Takeuchi will not be held responsible for any injuries, accidents or damage to products caused by the use of a non-approved attachment.**
- **Choose a flat, hard surface to perform the operations. Also make sure there is enough light and good ventilation.**
- **Clean the area, remove any articles that may get in the way or be dangerous, and remove any spilt oil or grease.**
- **When removing or installing the attachment, place it in a stable position so that it does not tip over.**
- **Due to the risk of loads falling and/or hitting people, do not allow unauthorized personnel in the work area.**
- **Use the crane to carry heavy objects (25 kg (55 lb.) or greater).**
- **When removing heavy parts, be sure to prop them up before removing them. When lifting them with a crane, be careful to balance them properly.**
- **Operating with loads suspended with the crane is dangerous. Place loads on a stand and check for safety.**
- **When attaching the attachments, failure to follow proper procedures could result in serious damage. Consult with a Takeuchi dealer beforehand.**

Precautions on Installing Attachments

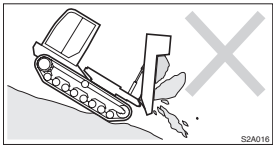
After replacing optional attachments or other special attachments, test-run them, then inspect the hydraulic oil level and add oil if necessary.
In addition, consult with a Takeuchi dealer for details of removal and installation procedures.

Precautions on Operating Attachments

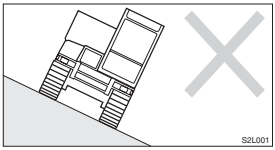
⚠ WARNING

Long or big attachments reduce machine stability. When traveling down steep slopes or turning on slopes, the machine may loose its balance and tip over.
The following operations are particularly dangerous. Do not perform them.

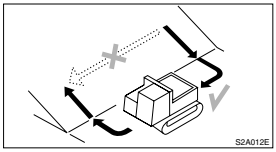
- **Traveling down slopes with the dump body lifted**



- **Traveling across slopes**



- **Turning on slopes**



- **When heavy attachments are installed, the overswing (the distance from where the operation to stop swinging is performed until swinging stops completely) increases and mistakes in judgment may result in the attachment hitting surrounding objects. Allow for plenty of room between the attachment and obstacles.**
  In addition, the natural drop (the gradual dropping of the attachment under its own weight when it is stopped in midair) also increases when heavy attachments are installed.
- **The machine can tip over more easily in the lateral direction than in the longitudinal direction.**
  - **Do not swing sideways with excessive weight. In particular do not swing sideways on slopes.**

Optional Equipment Mass

Standard machine mass (rubber crawlers, not including operator)	Cab
	5950 (13120)
OPTION	
Short dump body (Short vessel)	-65 (-143)
Air conditioner	15 (33)

Units: kg (lb)

*: Mass of optional equipment is added to the standard machine mass.
*: This table only contains the optional equipment of 10kg (20lb) or more in mass.

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OPERATOR'S MANUAL

TCR50 Dump Carrier

Edited and issued by TAKEUCHI MFG. CO., LTD.

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CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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